

**MANAGING RECORDS IN SOUTH AFRICAN PUBLIC HEALTH CARE INSTITUTIONS – A CRITICAL
ANALYSIS**

by

SHADRACK AYUB KATUU

submitted in accordance with the requirements for
the degree of

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

INFORMATION SCIENCE

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF T B VAN DER WALT

February 2015

Summary

The historical evolution of South Africa's health sector, dating back to the 17th century, is significantly different from that of other African countries. Throughout the four centuries of development there have been numerous advances in health policy, legislative instruments and health system progress. Against this background this dissertation critically analysed the management of records in public health care institutions in South Africa. The study did this by addressing three objectives: assess the legislative, policy and regulatory contextual framework of South Africa's health care system; assess the effectiveness of records management within public health care institutions; and identify appropriate interventions to address the challenges facing records management in the health care system. The study used purposive sampling to identify respondents with diverse expertise in three main sectors: the public sector, the private sector as well as in academic and research institutions. Using interview research technique the study solicited data that was analysed in order to provide a composite picture in addressing the research objectives.

The analysis of data revealed three overarching themes. First, there is substantial legislative and regulatory dissonance in the management of health records in the country. While there are extensive legislative, regulatory and policy instruments that could be used to manage records, many lack coherence with records management issues such as records retention. Second, understanding the complex interplay of different legal and regulatory instruments is a critical first step, but it remains the beginning of the process towards building a sophisticated implementation process. For this process to be successful, study respondents argued that records compliance would have to be the backbone of all other compliance processes. Third, while there were substantial areas of weakness in the management of records in South Africa's public health sector, there have been a number of pockets of excellence. These include the efforts towards complying to access to information legislation by the Limpopo Department of Health and Social Development as well as the successful introduction of Enterprise Content Management systems in health care institutions by the Western Cape Department of Health.

Key terms: Africa, Apartheid, Electronic Document and Records Management, Electronic Health Records, Electronic Medical Records, Health Care, Health Information Management, Health Information System, Health Records, Information Management, Medical Records, Records Management, Research Methodology, South Africa

Acknowledgement

This has been a long journey and wouldn't have ended successfully without key individuals. I would like to acknowledge Prof Thomas van der Walt for patiently reading through all the copious amounts of material I wrote including the content that never finally made it into this dissertation and being part of this long journey the last 9 years as supervisor. I am grateful to my parents, Mr Austine Katuu and Mrs Christine Katuu and my three siblings: Elizabeth, Karen and Phoebe, who have supported the last decades of my sojourn through different parts of the world pursuing academic and professional excellence. Everyone needs peers that challenge and admonish. I am grateful to my brothers Ntate Sello Hatang and Ntate Verne Harris, through whom I was introduced to the great country of South Africa from 2001 and from whom I have received consistent encouragement through the years of this academic expedition. Ntate Harris, one of a rare breed of archival philosophers, your thoughts have consistently been thought provoking. Ntate Hatang, a truly inspirational leader of our generation and down-to-earth intellectual mind. Thank you both for listening to all my ideas develop over the last decade and a half and offering comradery. To Ntate Gustavo Castaner who has, in the last four years, become like family – this is the end of my journey and as you begin yours in similar fashion, I hope it doesn't take as long. Prof Mpho Ngoepe who was not only been patient with advice but is a true professional trailblazer on the African continent. Thanks to Thembi Hatang and the Hatang family for the Kenyan-South African bilateral support. Herr Dk Leopold Kammerhofer that offered great wisdom and insight the last two years, Dankeschön! Asante sana Bwana K Rotiken, Bwana M Mgonja na Bwana R Njoroge, hii kitu imeisha! Sasa tunaganga yajayo!

And to the numerous professionals that have paved the way including such as: Dr A Boly, Dr A Josias, Dr A Lusigi, Dr A Segobye, Dr C Rogers, Dr G Mukupa, Dr J Evans, Dr K Omari, Dr L Hanmer, Dr L Millar, Dr M Masike, Dr M Majoro, Dr M S Stephenson, Dr N Adeya, Dr N Hussin, Dr P Mekgwe, Dr P Svärd, Dr R Ngugi, Dr S McCausland, Frau Dk M Reiss, , Prof A Gilliland, Prof A Thurston, Prof B Onyancha, Prof D Ocholla, Prof D Wallace, Prof G Wright, Prof H Kemoni, Prof H MacNeil, Prof J Wamukoya, Prof K Anderson, Prof L Duranti, Prof M Majanja, Prof N Mnjama, Prof R Hopkins, Prof S Mutula, Prof S Whittacker, Prof T Eastwood, and Prof V Lemieux. And two truly inspirational people in my professional life who passed away, Dr Marian Hoy of Australia and Dr Terry Cook of Canada.

And thanks to all friends and colleagues in different parts of the world too numerous to name (because this would constitute yet another chapter of this dissertation) but I name a few: A Griffin, A Kamunde, A Killmeyer-Oleche, A Kufwa, A Miller, A Webster, B Abbott, B Faye, C Anyanwu, C Kirkwood, C Mugoh, C Mwafuga, D Okoth, D Oppermann, D Smit, D Terry, E M Pretorius, E Dobie-Sarsam, E Goh, E Page | iii

Mwangi, E Shaffer, E Wokabi, H Keah, H Leggat, H Shete, I Brink, I Deserno, I de Vaal, I Zabaar, J Fiam-Coblave, J Hunter, J Lowry, J Maluleka, J Marek, J McDonald, J Odendaal, K Kukubo, L Davies, L Gaparayi, L Mnisi, L Nduta, L Venter, M Fronda, M Mulei, M Sehlopelo, N Bikitsha, N Kota, N Seyffert, N Somhlahllo, P Giordani, P Marais, P Mullon, P Mulumba-Kikuni, P Salela, P Tharage, R Alger, R Kubiha, R Thompson, S Makhubela, S Müllner, S Peleowo, S Thompson, S Xulu, T Jongwe, T Steinmann, W Misiko, Y M Chong, Y Munge, Z Simelane, Z Y Sun and the Kiza family who were my next door neighbours in Vienna. I appreciate C Muraya and T Muraya for keeping life and living in perspective. I am grateful to Ambassador T Amolo, Ambassador M and Mrs D Oyugi as well as Ambassador T and Mrs M Seokolo for each offering their wise counsel. I thank the many other friends that I may have omitted for making the different phases of this journey bearable. Am grateful to all the professional colleagues at the Nelson Mandela Foundation in Johannesburg, the International Monetary Fund in Washington DC, the International Atomic Energy Agency (particularly in the Archives and Records Management Section) and other UN agencies in Vienna as well as friends in those and other cities in the world who have, over the years, inquired about progress and offered goodwill.

Again to my mother, Mrs Christine Katuu for patiently reading drafts of the full dissertation from cover to cover, twice! Thank you Kerry Harris for very insightful editorial advice and being available to act as a sounding board for over a decade.

Dedication

This dissertation is dedicated to celebrating Nelson Mandela's legacy. Tata am grateful for the life transforming privilege of working for you at the Nelson Mandela Foundation for nearly five years. This dissertation is a way of giving back to a country you dedicated your life to transforming and I hope your vision lives on not only amongst South Africans but in my own country of Kenya and other parts of the world. You taught us many things including the fact that "it is easier to change others than to change yourself". Your vision for social justice is one each of us has to take as an individual call. I take the challenge. Thank you Madiba! Ndiyabulela Tat'omkhulu! Asante! Chawucha!.

Student number: **359220068**

I declare that **MANAGING RECORDS IN SOUTH AFRICAN PUBLIC HEALTH CARE INSTITUTIONS – A CRITICAL ANALYSIS** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

SIGNATURE
(Mr S A Katuu)

27th February 2015
DATE

Table of Contents

<u>SUMMARY</u>	II
<u>ACKNOWLEDGEMENT</u>	III
<u>DEDICATION</u>	IV
<u>TABLE OF CONTENTS</u>	VI
<u>LIST OF FIGURES</u>	XIV
<u>LIST OF TABLES</u>	XVI
<u>LIST OF ABBREVIATIONS AND ACRONYMS</u>	XVIII
<u>CHAPTER 1 – INTRODUCTION</u>	1
1.1 BACKGROUND TO THE STUDY	1
1.1.1 SOUTH AFRICA PRE-1994	2
1.1.2 SOUTH AFRICA POST 1994	5
1.1.3 A HISTORY OF THE HEALTH SECTOR IN SOUTH AFRICA	10
1.2 STATEMENT OF THE PROBLEM	11
1.3 RESEARCH PURPOSE AND OBJECTIVES	13
1.4 JUSTIFICATION OF THE RESEARCH STUDY	15
1.4.1 AN OUTLINE OF MASTERS AND DOCTORAL STUDIES CARRIED OUT IN SOUTH AFRICA	16
1.4.2 AN OUTLINE OF MASTERS AND DOCTORAL STUDIES CARRIED OUT IN THE REST OF AFRICA OUTSIDE SOUTH AFRICA	17
1.4.3 AN OUTLINE OF MASTERS AND DOCTORAL STUDIES CARRIED OUT BEYOND AFRICA IN THE REST OF THE WORLD	17
1.4.4 ORIGINALITY OF THIS RESEARCH STUDY	19
1.5 RESEARCH METHODOLOGY	19
1.6 LIMITATIONS OF THE STUDY	22
1.7 DEFINITION OF IMPORTANT TERMS	22
1.8 STRUCTURE OF THE STUDY	24

2.1 INTRODUCTION	27
2.2 HEALTH CARE SYSTEM: HISTORICAL BACKGROUND AND ORGANISATIONAL STRUCTURE	27
2.2.1 HISTORICAL BACKGROUND	29
2.2.1.1 Phase 1 – pre-1919	29
2.2.1.2 Phase 2 – 1919 to 1940	33
2.2.1.3 Phase 3 – 1940 to 1950	34
2.2.1.4 Phase 4 – 1950 to 1990	35
2.2.1.5 Phase 5 – 1990 to 1994	37
2.2.1.6 Phase 6 – 1994 to 2003	38
2.2.1.7 Phase 7 – 2003 to present	41
2.2.2 OVERVIEW OF CURRENT ORGANISATIONAL STRUCTURE	42
2.3 HEALTH CARE FUNCTIONS IN SOUTH AFRICA	46
2.3.1 FINANCING FUNCTION OF THE HEALTH CARE SYSTEM	49
2.3.1.1 Revenue collection	51
2.3.1.2 Pooling	55
2.3.1.3 Purchasing	59
2.3.1.4 Concluding remarks on the financing function	61
2.3.2 RESOURCE GENERATION FUNCTION OF THE HEALTH CARE SYSTEM	63
2.3.2.1 Human capital	64
2.3.2.2 Physical capital	68
2.3.2.3 Intellectual capital	68
2.3.2.4 Social capital	69
2.3.2.4 Conclusion on Resource generation	71
2.3.3 PROVISION FUNCTION OF THE HEALTH CARE SYSTEM	71
2.3.3.1 Classification by number of institutional beds	74
2.3.3.2 Control of ownership	74
2.3.3.3 Assessment by medical condition treated at the institution	76
2.3.3.4 Level of care	77
2.3.4 STEWARDSHIP FUNCTION OF THE HEALTH CARE SYSTEM	80
2.3.4.1 Systems design	81

2.3.4.2 Performance assessment	82
2.3.4.3 Priority setting	83
2.3.4.4 Inter-sectoral advocacy	85
2.3.4.5 Regulation	85
2.3.4.6 Consumer protection	86
2.4 CLOSING REMARKS	87
CHAPTER 3- LEGISLATIVE AND REGULATORY FRAMEWORK OF THE HEALTH SECTOR IN SOUTH AFRICA	90
3.1 INTRODUCTION	90
3.2 SOUTH AFRICA'S LEGISLATIVE AND REGULATORY FRAMEWORK RELATED TO THE HEALTH SECTOR	92
3.2.1 CONSTITUTION OF SOUTH AFRICA (ACT 108 OF 1996)	93
3.2.2 THE NATIONAL HEALTH LEGISLATION	94
3.2.2.1 Historical background	94
3.2.2.2 Legislative context	96
3.2.2.3 The fundamental health act	103
3.2.2.4 HEALTH REGULATIONS IN SOUTH AFRICA	105
3.2.2.5 RECORDS MANAGEMENT IN HEALTH LEGISLATION AND REGULATIONS IN SOUTH AFRICA	106
3.3 NATIONAL LEGISLATION IN INFORMATION MANAGEMENT	108
3.3.1 NATIONAL ARCHIVES ACT AND REGULATORY ENVIRONMENT	108
3.3.2 ELECTRONIC COMMUNICATIONS AND TRANSACTIONS (ECT) ACT	110
3.3.3 PROMOTION OF ACCESS TO INFORMATION ACT (PAIA)	112
3.3.4 PROTECTION OF PERSONAL INFORMATION ACT (POPIA)	114
3.3.5 PROTECTION OF INFORMATION ACT (PIA)	116
3.4 LEGISLATIVE EXPERIENCE IN THE HEALTH SECTOR IN THE REST OF THE WORLD	118
3.4.1 LEGISLATIVE EXPERIENCE IN THE HEALTH SECTOR IN UNITED KINGDOM	118
3.4.2 LEGISLATIVE EXPERIENCE IN THE HEALTH SECTOR IN UNITED STATES	120
3.5 CONCLUSION	122
CHAPTER 4 RECORDS AND INFORMATION MANAGEMENT CONCEPTUAL FRAMEWORK	127
4.1 INTRODUCTION	127

4.2 CONCEPTUAL FRAMEWORK OF RECORDS MANAGEMENT	128
4.2.1 DEFINITIONS	129
4.2.2 RECORDS LIFECYCLE	133
4.2.3 MANAGING DIGITAL RECORDS	135
4.2.4 INTERNATIONAL STANDARDS	139
4.2.4.1 International Standards Organisation (ISO) standards	140
4.2.4.2 International Council on Archives (ICA) standards	145
4.2.4.3 National and regional standards and best practice guidelines	145
4.2.4.3.1 South Africa	146
4.2.4.3.2 United States	147
4.2.4.3.3 United Kingdom	148
4.2.4.3.4 European Union	149
4.2.4.3.5 Assessing Enterprise Content Management standards and their implications	151
4.3 RECORDS MANAGEMENT IN SOUTH AFRICA	151
4.3.1 MANAGING RECORDS IN SOUTH AFRICA	152
4.3.2 MANAGING DIGITAL RECORDS IN SOUTH AFRICA	153
4.4 MANAGING HEALTH INFORMATION IN SOUTH AFRICA	156
4.4.1 INTRODUCING SYSTEMS USED IN HEALTH INFORMATION MANAGEMENT	156
4.4.1.1 Health Information Management in South Africa	159
4.4.1.2 Challenges facing HIS implementation in South Africa	161
4.4.2 IMPACT OF NATIONAL HEALTH INSURANCE ON MANAGING HEALTH RECORDS	163
4.4.3 RESEARCH CONDUCTED ON RECORDS MANAGEMENT WITHIN THE HEALTH SECTOR	166
4.5 CONCLUDING REMARKS	168
CHAPTER 5 - RESEARCH METHODOLOGY	171

5.1 INTRODUCTION	171
5.1.1 RESEARCH MISSION	171
5.1.1.1 Theoretical research	172
5.1.1.2 Policy research	172
5.1.2 RESEARCH TRADITIONS	173
5.1.2.1 Positivist tradition	173

5.1.2.2 Interpretivist tradition	175
5.1.3 RESEARCH DATA	178
5.1.3.1 Quantitative data	178
5.1.3.2 Qualitative data	179
5.1.4 CONNECTING RESEARCH MISSION, RESEARCH TRADITION AND RESEARCH DATA	181
5.2 ENSURING RELIABILITY AND VALIDITY OF THE RESEARCH PROCESS	182
5.2.2 SOURCES TRIANGULATION	183
5.2.1 METHODS TRIANGULATION	183
5.2.3 STRENGTHS AND WEAKNESSES OF TRIANGULATION	183
5.3 RESEARCH METHODS AND RESEARCH TECHNIQUES	184
5.3.1 RESEARCH METHODS – SURVEY METHOD	185
5.3.2 RESEARCH TECHNIQUES – SAMPLING AND INTERVIEW	187
5.3.2.1 Sampling research technique	187
5.3.2.2 Interview technique	192
5.4 DESIGN OF THE RESEARCH STUDY	194
5.4.1 RESEARCH DESIGN FOR PUBLIC SECTOR	196
5.4.2 RESEARCH DESIGN FOR ACADEMIC AND RESEARCH INSTITUTIONS	196
5.4.3 RESEARCH DESIGN FOR PRIVATE SECTOR	197
5.5 CONDUCTING THE RESEARCH STUDY	198
5.5.1 ETHICAL CONSIDERATIONS	198
5.5.2 DATA COLLECTION	199
5.6 CONCLUSION ON THE RESEARCH METHODOLOGY OF THE STUDY	201
CHAPTER 6 – DATA ANALYSIS	203

6.1 INTRODUCTION	203
6.1.1 OVERVIEW OF DATA ANALYSIS	203
6.1.2 EXPLORATION AND ANALYSIS OF DATA	205
6.2 ANALYSIS USING WORD CLOUD	206
6.3 ANALYSIS USING TREE MAP	211
6.4 ANALYSIS OF INDIVIDUAL RESPONDENT'S TRANSCRIPTS	217
6.4.1 ANALYSIS USING WORD SIMILARITY	218

6.4.2 ANALYSIS OF RESPONDENTS' THEMES	219
6.4.2.1 Respondents with Type Y distribution	221
6.4.2.2 Respondents with Type Z distribution	227
6.4.3 OVERALL COMPARISON OF RESPONDENT'S TRANSCRIPTS	236
6.5 CONCLUDING REMARKS ON DATA ANALYSIS	238
CHAPTER 7 – DATA INTERPRETATION	240
7.1. INTRODUCTION	240
7.2 ASSESSING THE LEGISLATIVE, POLICY AND REGULATORY FRAMEWORK	243
7.2.1 LAWS	243
7.2.1.1 The National Health Act	244
7.2.1.2 The National Archives Act	244
7.2.1.3 Promotion of Access to Information Act	245
7.2.1.4 Protection of Personal Information Act	247
7.2.1.5 Protection of State Information Bill	249
7.2.1.6 Regulation of Interception of Communications Act	249
7.2.1.7 Electronic Communication and Transactions Act	249
7.2.2 REGULATIONS	251
7.2.3 STANDARDS	252
7.2.3.1 Health related standards	252
7.2.3.2 Records management standards	253
7.2.4 POLICY AND PROCEDURES	254
7.2.4.1 Defining records	255
7.2.4.2 Privacy and confidentiality issues	256
7.2.4.3 Filing procedures	257
7.2.4.4 Retention and disposal practices	258
7.2.4.5 Archival practices	261
7.3 ASSESSING THE CHALLENGES OF MANAGING RECORDS	263
7.3.1 HISTORICAL LEGACY	263
7.3.2 UNIQUE CIRCUMSTANCES IN THE PUBLIC HEALTH SECTOR	264
7.3.2.1 Referral system	264

7.3.2.2	Medical coding	265
7.3.2.3	District Health Information System (DHIS)	266
7.3.2.4	South Africa's unique cultural dynamics	266
7.3.3	FACILITATING RECORDS MANAGEMENT	267
7.3.3.1	The record	267
7.3.3.2	The records professional	268
7.3.3.3	The records management culture	270
7.3.4	TECHNOLOGY AND INNOVATION	272
7.3.4.1	Systems implementation	274
7.3.4.2	Electronic health record	275
7.3.4.3	Storage	276
7.3.4.4	Technology and its impact on records trustworthiness	277
7.3.4.5	Hybrid reality	278
7.3.5	COMPARING PRIMARY HEALTH CARE INSTITUTIONS WITH SECONDARY AND TERTIARY HEALTH CARE INSTITUTIONS	280
7.3.5.1	Records management challenges in primary health care institutions	280
7.3.5.2	Records management challenges in secondary and tertiary health care institutions	282
7.4	IDENTIFYING APPROPRIATE RECORDS MANAGEMENT INTERVENTIONS	283
7.4.1	LEGISLATIVE AND REGULATORY FRAMEWORK	284
7.4.2	RECORDS MANAGEMENT INFRASTRUCTURE	286
7.4.2.1	Health Sector	286
7.4.2.2	Facilitating records management	288
7.4.2.2.1	The record	288
7.4.2.2.2	The records professional	288
7.4.2.2.3	The records management culture	290
7.4.2.3	The use of technological innovation	293
7.4.2.3.1	Pre-requisites to innovation	293
7.4.2.3.2	Innovations that assist in managing health records	294
7.4.2.3.3	Innovations that assist in improving institutional operations	297
7.4.2.3.4	Technology is not a panacea	297
7.5	CONCLUSION	298
CHAPTER 8 – SUMMARY OF FINDINGS AND RECOMMENDATIONS		300

8.1 INTRODUCTION	300
8.2 SUMMARY OF FINDINGS	303
8.2.1 POLICY FINDINGS	303
8.2.1.1 Legislation	303
8.2.1.2 Guidelines	305
8.2.1.3 Standards	306
8.2.2 OPERATIONAL FINDINGS	308
8.2.2.1 Historical legacy and organisational complexity	308
8.2.2.2 Technological innovation and infrastructure	308
8.2.2.3 Organisational impact	310
8.3 SUMMARY OF RECOMMENDATIONS	311
8.3.1 POLICY RECOMMENDATIONS	313
8.3.1.1 Guidelines/Regulations/Standards Compliance	313
8.3.1.2 Specific policy recommendations	315
8.3.1.2.1 Records definition and ownership	315
8.3.1.2.2 Records retention, appraisal and disposal	316
8.3.1.2.3 Importance of records management in health institutions	318
8.3.1.2.4 Health information systems	319
8.3.1.2.5 Trustworthiness of records in the digital environment	320
8.3.2 OPERATIONAL RECOMMENDATIONS	320
8.3.2.1 Baseline assessment on records management in health institutions	321
8.3.2.2 Implementation of EDRMS in health institutions	321
8.4 CONCLUDING REMARKS	322
8.4.1 REMARKS ON THE RESEARCH PROCESS	322
8.4.2 REMARKS ABOUT FUTURE RESEARCH	324
8.4.3 REMARKS ABOUT FINDINGS AND RECOMMENDATIONS	325
APPENDIX A - SOUTH AFRICA'S DISTRICT AND METROPOLITAN MUNICIPALITIES	327
APPENDIX B - INTRODUCTORY LETTER FROM UNISA	328
APPENDIX C - INTRODUCTORY LETTER TO PARTICIPANTS	329
APPENDIX D - CONFIDENTIALITY AGREEMENT	330
APPENDIX E: UNIVERSITY OF SOUTH AFRICA'S SIGNED ETHICAL REVIEW CLEARANCE FORM	331
APPENDIX F – SEMI STRUCTURED QUESTIONNAIRE FOR RESEARCH	332

List of figures

Figure 1: The distribution of Homelands in South Africa.....	4
Figure 2: The structure and function of the South African government.....	6
Figure 3 South Africa's nine provinces and fifty-two districts municipalities.....	8
Figure 4: South Africa in 1885.....	31
Figure 5: A comparison between health spending and disease burden amongst different countries	47
Figure 6: The links between financing function, policy objectives and other system functions and overall system goals.....	48
Figure 7: Flow of funds in the health sector in sub-Saharan Africa.....	54
Figure 8: The difference between private pooled and out-of-pocket costs in different countries	55
Figure 9: Private sector pooling in South Africa.....	58
Figure 10: Health financing functions	62
Figure 11: The link between resource generation and service provision	64
Figure 12: Lines of authority in the Cape Town metropolitan health district.....	70
Figure 13: Different ways of classifying health institutions.....	73
Figure 14: Health care institutions by control of ownership.....	75
Figure 15: Health care institution by medical condition.....	78
Figure 16: Health care levels and the types of institutions within those levels	78
Figure 17: The breakdown of health care institutions within secondary and tertiary levels of care.....	80
Figure 18: A historical representation of the Fundamental Health act	95
Figure 19: The three different types of legislation under the Ministry of Health's portfolio.....	98
Figure 20: A sample of legislation related to specific policy issues.....	100
Figure 21: A sample of statutory legislation and an illustration of their historical background	102
Figure 22: The relationship between different legislation related to information management and the health sector	124
Figure 23: The relationship between data, information and document	129
Figure 24: The relationship between document and record.....	130
Figure 25: The ontology of the concept of a record	131
Figure 26: The ontology of the concept of the status of transmission of a record	132
Figure 27: The records lifecycle	134

Figure 28: The evolution of various concepts culminating into ECM.....	137
Figure 29: The modules of a typical ECM application.....	138
Figure 30: The structure of Management System for Records standard.....	144
Figure 31: South African ECM class solutions model.....	147
Figure 32: The ten different stages of implementation in the JISC InfoNet EDRM Toolkit	149
Figure 33: The modular nature of services for a MoReq compliant records system	150
Figure 34: A typical framework of HIS.....	158
Figure 35: The positivist research process.....	174
Figure 36: The interpretivist research process	177
Figure 37: The relationship between interpretivists and positivists as well as qualitative and quantitative data	181
Figure 38: The relationship between research mission, research tradition and research data.....	182
Figure 39: Descriptive and explanatory surveys.....	186
Figure 40: Different kinds of probability and non-probability sampling.....	191
Figure 41: Different kinds of interviews	192
Figure 42: Triumvirate approach to the interviewing process	195
Figure 43: Breakdown of legal expertise	197
Figure 44: Breakdown of Records Management specialists.....	198
Figure 45: Word cloud based on the top 50 most frequently used words from the respondents' transcripts	207
Figure 46: Word cloud based on the top 100 most frequently used words from the respondents' transcripts	207
Figure 47: Word cloud based on all the words from the respondents' transcripts	208
Figure 48: Word cloud based on the top 50 most frequently used exact words from the respondents' transcripts	210
Figure 49: Word cloud based on the top 50 most frequently used synonymous words from the respondents' transcripts.....	210
Figure 50: A tree map of the term legislation.....	212
Figure 51: A tree map of the term standards.....	213
Figure 52: A tree map of the term regulatory.....	214
Figure 53: A tree map of the term health record.....	216
Figure 54: A tree map of the term medical record	217
Figure 55: Sources clustered by word similarity	218
Figure 56: Number of nodes per Respondent	220

Figure 57: Coding themes from Respondent 1.....	222
Figure 58: Coding themes from Respondent 3 and Respondent 4.....	222
Figure 59: Coding themes from Respondent 8.....	223
Figure 60: Coding themes from Respondent 9.....	224
Figure 61: Coding themes from Respondent 14.....	225
Figure 62: Coding themes from Respondent 18.....	225
Figure 63: Coding themes from Respondent 21.....	226
Figure 64: Coding themes from Respondent 2.....	227
Figure 65: Coding themes from Respondent 5.....	228
Figure 66: Coding themes from Respondent 6.....	228
Figure 67: Coding themes from Respondent 7.....	229
Figure 68: Coding themes from Respondent 10.....	229
Figure 69: Coding themes from Respondent 11.....	230
Figure 70: Coding themes from Respondent 12.....	231
Figure 71: Coding themes from Respondent 13.....	231
Figure 72: Coding themes from Respondent 15.....	232
Figure 73: Coding themes from Respondent 16.....	233
Figure 74: Coding themes from Respondent 17.....	233
Figure 75: Coding themes from Respondent 19.....	234
Figure 76: Coding themes from Respondent 20.....	235
Figure 77: Coding themes from Respondent 22.....	235
Figure 78: Average time per node.....	237

List of tables

Table 1: South Africa's current provinces with their capitals and former territories from which they were drawn.....	6
Table 2: The percentage distribution of the projected provincial share of the total population in South Africa between 2002 and 2014	9
Table 3: Illustration of the relationship between research objectives and the research study	14
Table 4: A matrix of research methods and techniques and triangulation strategy of respondents identified in the research process.....	21
Table 5: A summary of the different municipalities in South Africa's provinces.....	44

Table 6: National statistics on health expenditure	49
Table 7: Minimum, median and maximum indicators for national statistics on health expenditure.....	50
Table 8: Models of revenue collection.....	52
Table 9: The number of health care facilities in South Africa.....	72
Table 10: Types of hospitals and number of beds.....	74
Table 11: Group specialties in tertiary care hospitals	76
Table 12: Staff composition and services provided in the different levels of care	78
Table 13: A summary of the constitutional rights related to health.....	93
Table 14: Acts in specific health policy areas	98
Table 15: Selected legislation on statutory bodies as well as related professionals	101
Table 16: Categories of ISO standards	141
Table 17: The Patient Management/Hospital Information Systems in South African provinces	160
Table 18: The distinction between research methods and techniques	185
Table 19: A matrix of research methods and techniques employed in the research process.....	194
Table 20: Respondents and the length of their transcripts	200
Table 21: Five stages of analysis of qualitative data	204
Table 22: Qualitative data analysis process using NVivo	205
Table 23: Comparison between exact words and synonyms in word frequency.....	208
Table 24: Difference between Type Y and Type Z distribution	221
Table 25: Distribution of Respondents	221
Table 26: Type Y respondents	226
Table 27: Type Z distribution.....	235
Table 28: Respondents and length of time of transcripts.....	236
Table 29: Top 5 by number of nodes and length of transcripts.....	237
Table 30: Five stages of analysis of qualitative data	240
Table 31: Summary of how each chapter of the dissertation meets the three objectives.....	302
Table 32: Retention periods for different categories of health records.....	316

List of Abbreviations and Acronyms

ANC	African National Congress
BDR	Business-Driven Recordkeeping (Model)
CDG	Congenital Disorder of Glycosylation
COHSASA	Council for Health Service Accreditation of Southern Africa
COP	Chain of Preservation (Model)
CPA	Consumer Protection Act
CPT	Current Procedural Terminology
DHA	District Health Authority
DHIS	District Health Information System
DHS	District Health System
DIM	Document Imaging Systems
DIRKS	Designing and Implementing Recordkeeping Systems (Australia)
DOD	Department of Defense (United States)
DOH	Department of Health (National or Provincial in South Africa)
ECM	Enterprise Content Management
ECT	Electronic Communication and Transaction (Act)
EDMS	Electronic Document Management Systems
EDRMS	Electronic Document and Records Management System
EHR	Electronic Health Record
EMR	Electronic Medical Record
ERMS	Electronic Records Management System
ERP	Enterprise Resource Planning
GDA	General Disposal Authorities
HIM	Health Information Management
HIPAA	Health Insurance Portability and Accountability Act (United States)
HIS	Health Information System
HPCSA	Health Professions Council of South Africa
ICA	International Council on Archives
ICD	International Classification of Diseases
IDMS	Integrated Document Management Systems
IDRMS	Integrated Document and Records Management Systems
ISO	International Standards Organization

LOINC	Logical Observation Identifiers Names and Codes
MASA	Medical Association of South Africa
NAA	National Archives Act
NCA	National Credit Act
NHA	National Health Act
NHI	National Health Insurance
NHIS	National Health Information System
NHS	National Health Service (United Kingdom)
PAIA	Promotion of Access to Information Act
PCS	Procedural Coding System
PHA	Provincial Health Authority
PHISC	Private Health care Information Standards Committee
PHS	Provincial Health System
PIA	Protection of Information Act
PMI	Patient Master Index
POPIA	Protection of Personal Information Act
RICA	Regulation of Interception of Communications Act
SALGA	South African Local Government Association
SDA	Standing Disposal Authorities
SITA	State Information Technology Agency
SNOMED	Systematised Nomenclature of Medicine
TRC	Truth and Reconciliation Commission
UK	United Kingdom
US	United States of America
VAR	Value Added Reseller
WHO	World Health Organisation

Chapter 1 – Introduction

1.1 *Background to the study*

Health is the product of multiple factors including: genetic inheritance, the physical and social environments, as well as an “individual’s behavioural and biologic response to these factors” which means that health care interventions only have an impact “late in the causal chain leading to disease, illness, and infirmity” (Jonas, Goldsteen et al. 2007 p. 9)

The central focus of health care is to restore health or prevent exacerbation of health problems (Jonas, Goldsteen et al. 2007 p. 9) and this is done through services offered by health care systems. According to the World Health Organisation (2000 p. 1), health systems consist of “all the people and actions whose primary purpose is to improve health. They may be integrated and centrally directed, but often they are not”. Among the people involved in modern health care are doctors and nurses as well as allied health professions such as physiotherapists, nutritionists or occupational therapists (Geyer, Mogotlane et al. 2009 p. 23).

Any nation’s health care system is influenced by external factors. These include “the political climate, stage of economic development, technological progress, social and cultural values, the physical environment, and population characteristics such as demographic and health trends.” The combined interaction of these environmental forces have an impact on the quality of health care services that are delivered (Shi and Singh 2005 p. 8).

The process of improving the quality of health care delivery requires that health systems function efficiently and effectively. A key component of health care systems’ efficiency is the management of records which are often poorly managed. Any improvement in the management of records has to be done in full cognisance that records are generated in an organisational setting whether that is a basic clinic, a sophisticated hospital or within a network of health care institutions. Therefore, records need to be efficiently maintained and used within this institutional context. Additionally, these clinics or hospitals are organisations that exist within a health care system in a particular geographical location. This larger context is, therefore, ultimately important to understand.

For one to fully appreciate the challenges of managing of records in the public health care sector in South Africa, it is critical to outline the country's general history that provides context to its current situation. This section 1.1 is a brief history of South Africa's health sector with further elaborations in Chapters 2, 3 and 4 of this study.

1.1.1 South Africa pre-1994

South Africa's historical evolution has been significantly different from that of other African countries as a result of two main factors. The first factor is the strategic importance, throughout history, of the Cape Sea route as well as the country's mineral wealth that made it extremely important to Western political interests. The second factor is the high level of immigration from Europe and Asia resulting in challenges of managing the country's racial composition, unique in intensity to other countries on the continent (Calland 2013; Lacour-Gayet 1977 p. 230).

The history of South Africa dates back millions of years. A major archaeological find at Sterkfontein near Johannesburg in 1998 revealed that hominids roamed that part of the country at least three million years ago (Davidson 2013). Additionally, Khoi and San groups who are considered some of the first modern people, moved to the southern tip of the African continent at least 25,000 years ago. Between 1000BC and 500AD, ancestors of Bantu speaking groups migrated into the country and now form Nguni peoples (Zulu, Xhosa, Swazi and Ndebele), Sotho-Tswana peoples (Tswana, Pedi and Basotho) as well as Venda, Lemba and Shangaan-Tsonga peoples.

South Africa's colonial period began in the 15th century with European expeditions into the country. Even though the Portuguese were the first to reach the southern tip of the continent on their way to the east, it was the Dutch who were the first to attempt to settle there (Wolf 2010). The settlement at Table Bay, in the present Cape Town metropolis, was intended to set up a secure base camp where passing ships could shelter and where sailors could replenish supplies of food. Even though the Dutch, mostly of Protestant Calvinist religious persuasion, formed a large percentage of the immigrants, other Europeans also came from Germany, France and Scandinavia (Engerman and Sokoloff 2012). Over the next two centuries, the European settlers continued to move inland and faced resistance from populations of peoples they found. In the 19th century, a new dynamic is seen in the European settler vista (Wolf 2010). The global super power at the time was Britain which, in 1820, persuaded several thousand middle class immigrants to settle in the country. This resulted in a European Southern Africa which, in the mid-19th century, had two language groups and two cultures: the English-speaking being highly urbanised and dominating politics, trade, finance, mining and manufacturing while the Boers, the

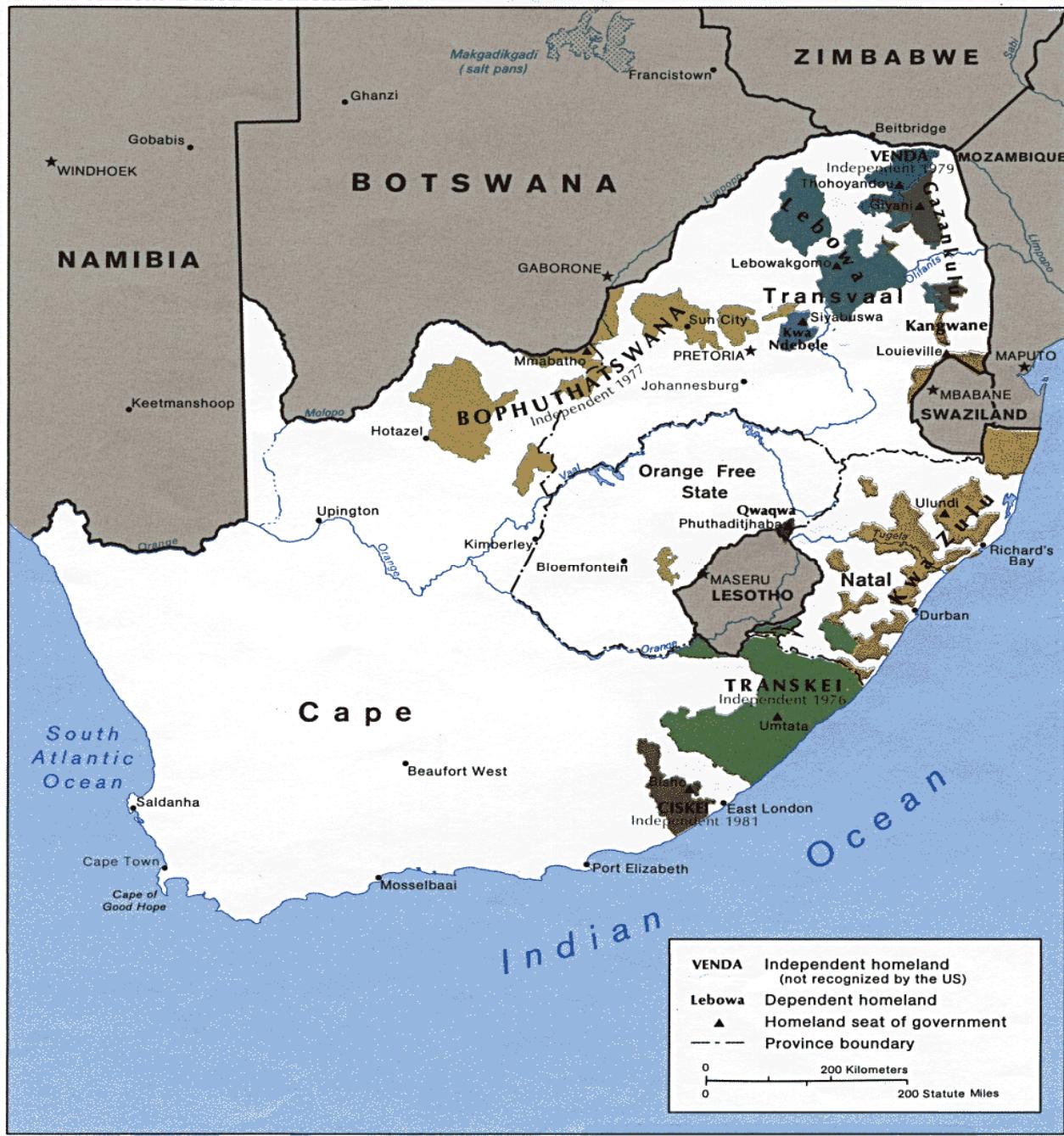
descendants of the mostly Dutch settlers, relegated to farms (Beck 2000 p. 92). Within the African populations, a lot of political and military manoeuvres were taking place. Primarily precipitated by the Zulu kingdom's expansionist tendencies, immense upheavals saw many groups either consolidating into nation states or migrating northwards to escape assimilation (Mahoney 2012).

However, what is considered as the first independent South Africa was the result of the 'War of Independence' between 1880-1881 that pitted the Boers against the British. The former won and instituted the South African Republic. Over the next two decades mining entrepreneurs from Britain increased their power and influence as yet another war was fought between 1899 and 1902 which resulted in the shifting of power from Boers to the British (Nasson 2012). Certain sections of the Boer population began a move towards radical nationalism which, in 1948, culminated in the institutionalisation of the concept of "separate development", known worldwide as apartheid. While racial segregation existed throughout the colonial times, apartheid became official policy allowing the government to implement segregated education, medical care and other public services (Lloyd 2012).

For much of the 19th century and early part of the 20th century, political power resided either with Boer or British populations. In the beginning of the 20th century, the rest of the populations began efforts to fight for equal rights through various parties such as the South African Native National Congress, which later became the African National Congress. The crescendo of resistance became deafening during the 1950s and 1960s with the gradual shift from passive resistance to violent resistance. This was countered by the state with harsh measures aimed at subjugating the population. This included the introduction of so-called Homelands through two Acts of Parliament in the 1950s that saw the establishment of self-governing and quasi-independent Black States within South Africa (Winkiel 2014). At the time, the fundamental aim was to move the majority of the Black population from disparate places where they stayed to places that they would consider Homelands (Kepe and Tessaro 2014). The evolution of the concept started with Native Reserves, then Bantustans, then Homelands and much later in the 1970s and 1980s into Nation States (Lilly 2012 p. 51).

Over a period of 25 years more than 3.5 million Blacks were relocated to, what one commentator has termed as, "desolate wastelands" (Beck 2000 p. 152). The diagram below shows the geographic distribution of Homelands within South Africa (University of Texas Libraries 1986).

South Africa: Black Homelands



800481 (543001) 1-86

Figure 1: The distribution of Homelands in South Africa (University of Texas Libraries 1986)

Over the next few decades, leaders from the African National Congress, the South African Communist Party and later also the Black Consciousness Movement were subjected to oppressive legal as well as extra-judicial instruments and either incarcerated or executed. Violence against the local populace was

met with sabotage activities meant to demonstrate determined resistance. By the end of the 1980s it became clear that while apartheid had resulted in first world living conditions for the White minority population, the nation's future economic and social cohesion was untenable. The political impasse between the State and resistance movements began to unravel with a long process of negotiations amongst political players on the one hand and, on the other hand, a national referendum process on apartheid (McKenzie 2012; Rooth 2012).

This culminated in the first universal suffrage general elections held on the 27th April 1994. The nation, however, still needed to deal with the horrors of apartheid in a structured way and, starting in 1995, established the Truth and Reconciliation Commission. South Africa has come through difficult times and even though it faces numerous challenges, it is hopeful to meet those challenges with an adequate measure of stoicism. This historical background is critical in order to provide the context to where South Africa finds itself as a nation and, by extension, the current situation of the public health care sector.

1.1.2 South Africa post 1994

South Africa has three arms of government: legislative, executive and judiciary that function within three spheres of government, the national government, nine provincial governments and local government. These spheres are "distinctive, interrelated and interdependent" (Burger 2009 p. 281). The diagram below shows the structure and functions of different arms and spheres of government (Burger 2009 p. 289).

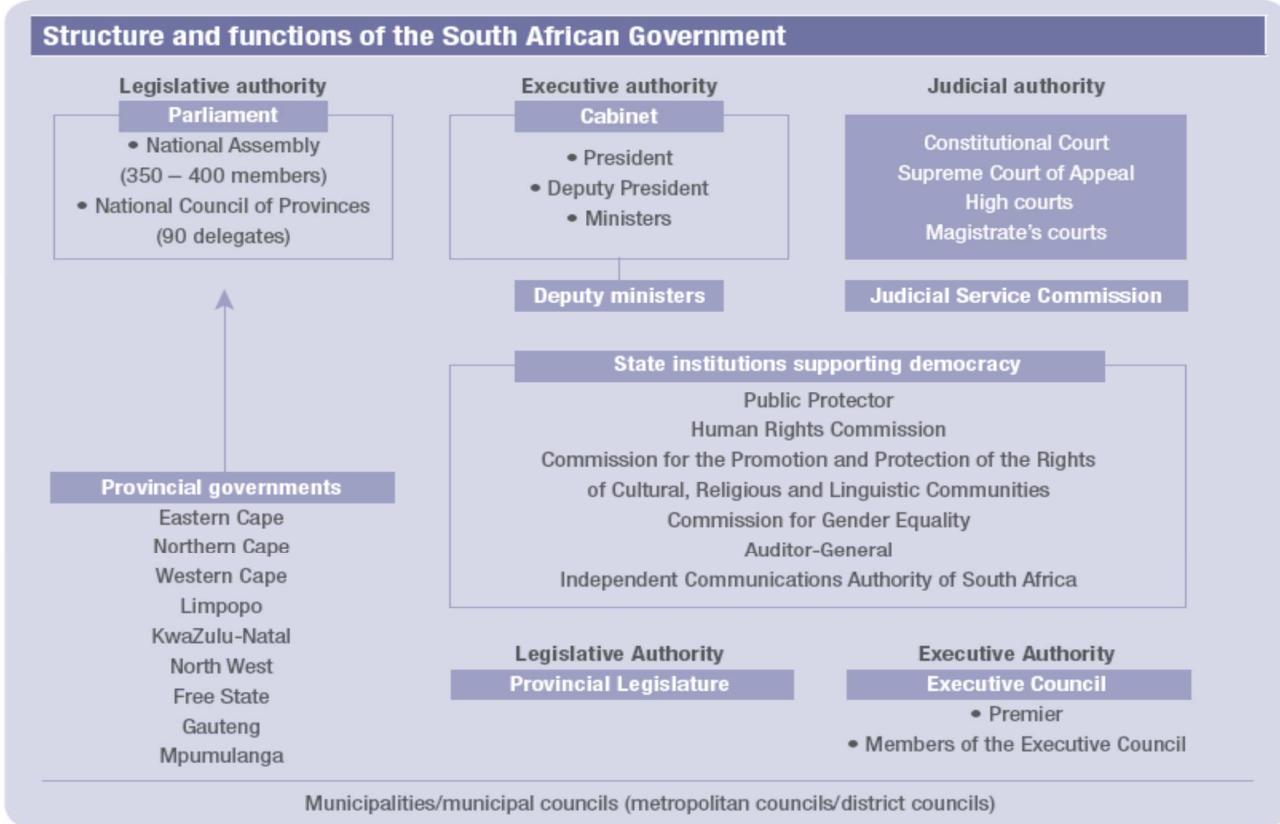


Figure 2: The structure and function of the South African government (Burger 2009 p. 289)

There are nine provincial administrations in the country which are an amalgamation of different Homelands as well as former Provincial Administrations. The table below shows the current provinces as well as the former Provinces and Homelands that contributed to the amalgamation (Prinsloo, Jansen-Verbek et al. 1999 p. 53).

Table 1: South Africa's current provinces with their capitals and former territories from which they were drawn

Province	Former Homelands and Provinces	Capital
Eastern Cape	Cape Province, Transkei, Ciskei	Bisho
Free State	Orange Free State, Qwa Qwa	Bloemfontein
Gauteng	Transvaal	Johannesburg
KwaZulu-Natal	Natal, KwaZulu	Pietermaritzburg

Province	Former Homelands and Provinces	Capital
Mpumalanga	Transvaal, KwaNdebele, KwaNgwane, Bophuthatswana, Lebowa	Nelspruit
Limpopo	Transvaal, Venda, Lebowa, Gazankulu	Polokwane
Northern Cape	Cape Province	Kimberley
North West	Transvaal, Cape Province, Bophuthatswana	Mafikeng
Western Cape	Cape Province	Cape Town

At the Local Government level, the country has a total of 283 municipalities (Burger 2009 p. 287). These are further subdivided into three categories.

Category A consists of metropolitan municipalities with nine such municipalities located in five provinces (Burger 2009 p. 289). These are:

- Eastern Cape Province with Buffalo City (East London) and Nelson Mandela Metropolitan Municipality (Port Elizabeth)
- Free State Province with Mangaung Municipality (Bloemfontein)
- Gauteng Province with Ekurhuleni Metropolitan Municipality (East Rand), City of Johannesburg and City of Tshwane (Pretoria)
- KwaZulu-Natal Province with the City of eThekweni (Durban) and Msunduzi Municipality (Pietermaritzburg), and
- Western Cape Province with the City of Cape Town

Category B municipalities, which are also known as local municipalities, are slightly more than 230. Then there are category C municipalities, which are the district municipalities.

A colour-coded graphical representation of the 52 district and 8 metropolitan municipalities is provided in Figure 3 (Dam 2006). The provinces are designated individual colours as shown in the legend.

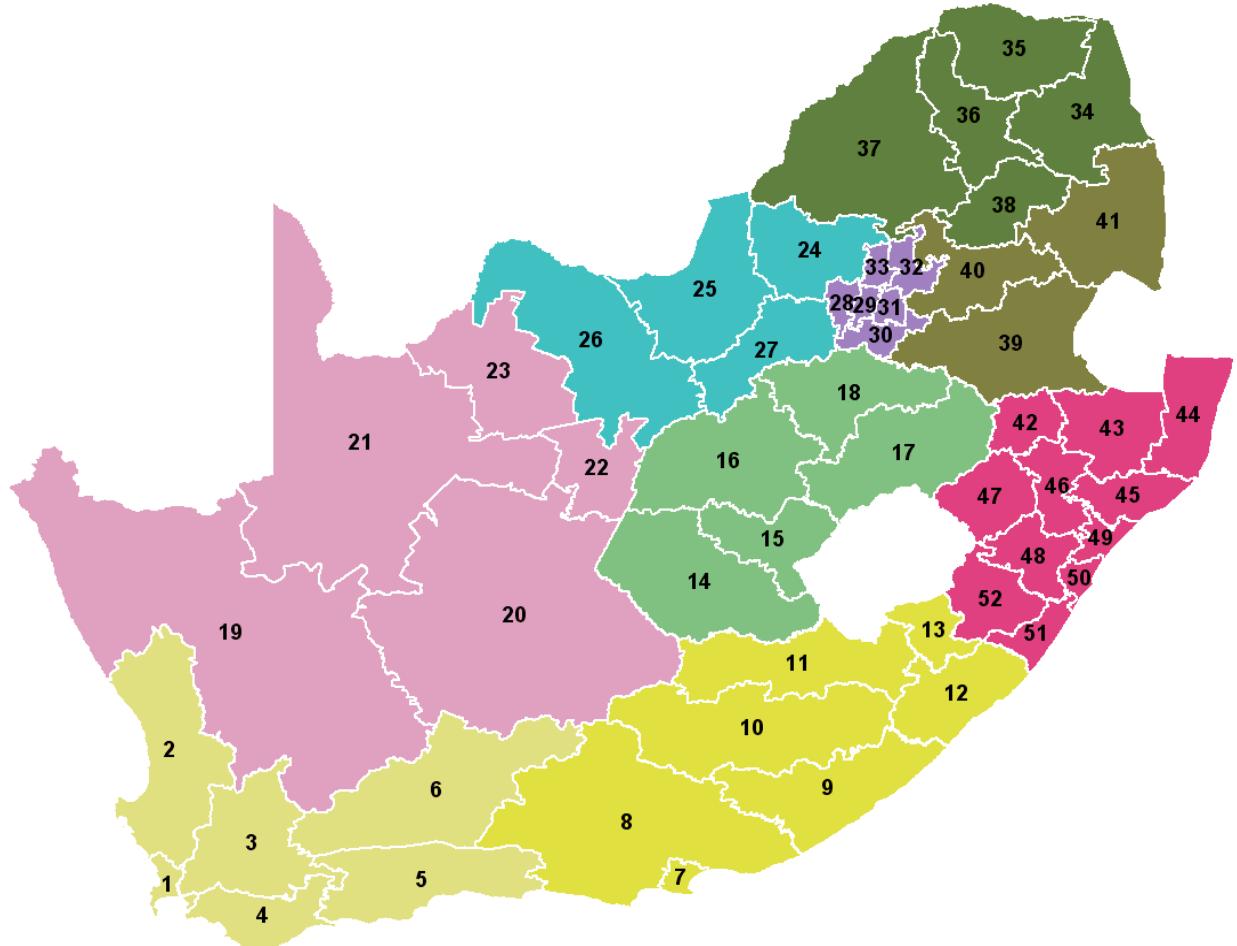


Figure 3 South Africa's nine provinces and fifty-two districts municipalities (Dam 2006)

Legend

Province	District municipality numbers	Colour	Province	District municipality numbers	Colour
Eastern Cape	7-13	Yellow	Free State	14-18	Pale Green
Gauteng	28-33	Purple	KwaZulu-Natal	42-52	Pink
Limpopo	34-38	Dark Green	Mpumalanga	39-41	Olive
North West	24-27	Turquoise	Northern Cape	19-23	Pale Pink
Western Cape	1-6	Pale Yellow			

The names of the individual district and metropolitan municipalities from Figure 3 are tabulated in Appendix A (Dam 2006). Information relating to boundaries for each of the municipalities changes constantly and the responsibility for demarcation of boundaries is held by the Municipal Demarcation Board.

Statistics South Africa, which is the principal custodian of national statistics, released data on the percentage distribution of population in the different provinces as shown in the table below (Statistics South Africa 2014).

Table 2: The percentage distribution of the projected provincial share of the total population in South Africa between 2002 and 2014

Province	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Eastern Cape	13.2	13.1	13.0	13.0	12.9	12.9	12.8	12.8	12.7	12.7	12.6	12.6	12.6
Free State	5.9	5.8	5.7	5.7	5.6	5.5	5.5	5.4	5.4	5.3	5.3	5.2	5.2
Gauteng	22.8	23.0	23.1	23.2	23.3	23.4	23.5	23.5	23.6	23.7	23.8	23.9	23.9
KwaZulu-Natal	20.0	20.0	19.9	19.9	19.9	19.9	19.9	19.9	19.8	19.8	19.8	19.8	19.8
Limpopo	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.4	10.4	10.4	10.4	10.4
Mpumalanga	7.7	7.7	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Northern Cape	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2
North West	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Western Cape	10.8	10.9	10.9	11.0	11.0	11.1	11.1	11.2	11.2	11.2	11.3	11.3	11.3
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

A number of things can be observed from these statistics. It is evident that the Gauteng and KwaZulu-Natal have the largest share in terms of population. The Eastern Cape, Limpopo and Western Cape are the mid-sized provinces with the Mpumalanga, North West, Free State and Northern Cape providing the smallest percentages. Additionally, Gauteng and the Western Cape are the two provinces that have witnessed steady percentage growth in population over the fourteen-year period. The rest of the provinces have fluctuated within 1 or 2 percentage points. Several factors could be attributed to these changes including population migration based on socio-economic opportunities as well as opportunities for social and health services (Kok, Derik et al. 2006). This brief description of South Africa's history as well as its modern day status provides adequate context for a brief outline of the history of the country's health sector.

1.1.3 A history of the health sector in South Africa

The history of South Africa's health sector is intricately connected to the history of the country. Chapters 2, 3 and 4 provide an expansive discussion of this history but this section provides highlights to select issues. Throughout South Africa's history, events within the health sector have either directly or indirectly contributed to the national narrative. For example, during the Soweto uprising of 1976, it was the hospital in Soweto that became the epicentre of interest from national and international media who, not having eye witness evidence from the school children protests and subsequent shooting by police forces, went to the hospital to verify the evidence of the police brutality (Hopkins and Grange 2001; Ndlovu 2006 p. 343-349).

Over the period of its long history, the governance of the country's health system has been fragmented and resources poorly managed. This has resulted in a highly inequitable, expensive and inefficient system (Department of Health [South Africa] 2010 p. 5; Schneider, Barron et al. 2007 p. 290). The inequity was most obvious in the racially divided health system during the apartheid period, whose vestiges are still very evident almost two decades since apartheid was officially dismantled. During the apartheid period, the health system consisted of 14 different operating health authorities, ten in the Homelands and the other four in what was known as White South Africa. The legacy of this fragmentation is a system divided into two parallel sectors – “a public sector financed through general taxation for the majority and a private sector” (Schneider, Barron et al. 2007 p. 290).

While the majority of the population accessed a weak and dysfunctional public system, a few privileged people accessed a very strong private health sector. The private sector included health professionals in private practice, private hospitals, pharmaceutical manufacturers and distributors and Medical Aid Schemes (Cullinan 2006 p. 3). The democratic changes that took place in the 1990s necessitated drastic changes to address the inequity. These were legislative, policy and organisational changes.

The policy and organisational changes were envisaged to address the deeply inequitable, disorganised and inefficient system inherited. According to Schneider, Barron et al (2007 p. 294), the new administration in 1994 inherited “a reasonably well-resourced health system, able to offer quality services to segments of the population. However, it was also deeply inequitable, disorganised and inefficient, with powerful private sector interests and limited institutional intelligence in the form of knowledge and information to plan restructuring” of the health sector. To this end, the new democratic

government sought to consolidate the fragmented health authorities. In addition, the health services has been “doctor-dependent medical services biased towards curing existing diseases (i.e. providing medical care) rather than preventing disease (through provision of services such as clean water and sanitation and education)” (Cullinan 2006 p. 3). The new government sought to reorient the doctor dependence towards preventive health and widen their services to all the population through public health system.

The legislative changes are embodied in the inalienable rights to health in the Constitution’s Sections 27 and 28 for all South Africans. In addition, children have the right to basic nutrition, shelter and social services (South Africa 1996b). According to the Constitution, health is a ‘concurrent’ function of both national and provincial spheres of government with the national government largely responsible for setting policies and provinces largely responsible for implementing these policies (Cullinan 2006 p. 3). The most current National Health Act was promulgated in 2003 and further elaborates how the Constitutional rights can be accessed. It provides “a framework for a structure uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services” (South Africa 2003b p. 2).

Within this context of continuously striving for transformation in the public health sector, it would not be surprising to find that the management of records in health care institutions has not received adequate attention. The most glaring demonstrations of this have been the numerous media reports that illustrated instances of poor records management. However, with the picture painted in the preceding sections of the fragmented nature of the development of the health sector, would it be fair to construe that the management of records in health care institutions is just as fragmented? Additionally, with the patchy legislative development process (for example, having the National Health Act being promulgated a decade into the new democracy) have legislative and regulatory precepts provided adequate attention to the management of records in the health sector? These questions lead to the most fundamental one being: What is the current state of records management in health care institutions, and in particular in the public sector? It is this question that provides the impetus for this study.

1.2 Statement of the problem

The provision of health care in any country is often one of the most fundamental rights of its citizens. In South Africa, the right to health is enshrined in Chapter 2 of the Constitution. With a history of institutionalised racial segregation and oppression, a majority of the country’s citizens had to endure

decades of poor access to quality health care. At the dawn of the new political dispensation in 1994, there was great expectation that there would be greater equity in all aspects of life including the provision of health services. However, by 1996 the national Health Department had acknowledged the continuing inequality in health expenditure in the country. The private sector, for example, accounted for approximately 60% of resources spent on health for about 20% of the population. Within the public sector there was also gross inequity in per capita spending among the provinces (Ngwena and Cook 2005 p. 127-130). In addition, a disproportionate amount of resources was spent on tertiary health care as opposed to primary health care (Harrison, Barron et al. 1996 p. xv). The distribution, physical state and functional design of facilities in the public sector needed to serve the majority of the citizens in the new nation was gravely inadequate. There was a realisation that rectifying the situation in the short term would be expensive and time-consuming (Doherty, Kraus et al. 1996 p. 68).

Even though South Africa spends more than 8% of its GDP on health, which is more than most other developing countries, its health outcomes are considerably worse than many of its peer countries such as Brazil, India, Indonesia, Kenya and Nigeria (Thiede and Mutyambizi 2010 p. 189; World Health Organization 2011 p. 128-135). This is because the health care system continues to be characterised as "fragmented and inequitable due to the huge disparities that exist between the public and private health sectors with regards to the availability and delivery of health services" (Department of Health [South Africa] 2010 p. 5; Thiede and Mutyambizi 2010 p. 189). Structural and organisational challenges hamstring every aspect of the public health care sector including the management of records.

A number of media reports have highlighted the negative effects of poor records management in South Africa's public health sector. This was demonstrated in the case where the health records of a former Minister of Health in South Africa were published in a weekend newspaper. The Minister sued "the editor, two journalists, and the publisher of the *Sunday Times* for allegedly violating her right to privacy" by obtaining and disclosing her health records without her consent (Berger, Hassim et al. 2013 p. 33; De Lange and Caelers 2007). There have been a number of cases of negligence within the health sector that have resulted in the maiming or death of patients (Slabbert 2011 p. 108-109; Walker, Darer et al. 2014). While in most cases probes have been launched in order to curb the acts of negligence, in one sad case not even an investigation could be launched into the case of the death of a baby because the deceased's records could not be found (Khoza 2008). This phenomenon is not uncommon in other sectors of the public service. In 2006, for instance, a man who had been convicted of committing three crimes and sentenced to a jail term of 22 years by a regional court was, upon appeal, freed because the record of trial proceedings had been lost (Oellermann 2006).

An argument has been made that the poor state of records management in the health sector should have been apparent from compliance and audit exercises that had been conducted in the past. The Promotion of Access to Information Act (PAIA) was promulgated in 2000 and has provisions that require all public sector institutions to proactively make their records accessible to the public in line with democratic tenets of transparency and accountability (South Africa 2000c). PAIA assessments conducted by the South African History Archive, a human rights archive that had made more than 900 requests for information, showed that the National Department of Health had serious records management weaknesses. Studies conducted by other civil society organisations echoed this poor assessment (National PAIA Civil Society Network 2009).

The use of technology through computerised records has been touted as a possible panacea to the problem of poor records management (Seedat, Kruger et al. 2003) but experiences in more developed countries such as Japan (Ochieng 2005), the United Kingdom (Benson 2001) and the United States (Wilkins 2008) have demonstrated that computerisation is neither easy nor always successful. In South Africa, one of the most prominent projects was the implementation of a hospital information system in Limpopo Province (Herbst, Littlejohns et al. 1999; Littlejohns, Rawlinson et al. 1999; Littlejohns, Wyatt et al. 2003; Mbananga, Madale et al. 2002). Lessons on the implementation showed that the introduction of technology without adequately assessing the non-technology institutional needs from the perspective of business processes and activities is ultimately self-defeating. (Littlejohns, Wyatt et al. 2003 p. 863; Nkundla, Potta et al. 2004 p. 3).

While some may consider the spotlight on records management in health care institutions as a case of unfairly pointing out weaknesses, studies within health care institutions show that media reports may actually only be highlighting the tip of the iceberg. Several masters dissertations have highlighted the festering records management problem in health care institutions in South Africa (Kerry 1999; Marutha 2011; Rampfumedzi 2006; Rapakwana 2004; Sekokotla 2000). Poor records management in health care institutions is a phenomenon that is not only limited to South Africa but is also evident in other parts of Africa, including Uganda (Mayanja 2005) and Ghana (Adjei 2000). In view of the foregoing, the following section provides the research purpose and research objectives that guide this research study.

1.3 *Research purpose and objectives*

The preceding sections have provided an outline of South Africa's historical background and highlighted the glaring weaknesses in the management of records within the public health sector. Therefore, the purpose of this study was to assess the contextual framework of South Africa's health care system, assess the effectiveness of records management within public health care institutions, and identify appropriate interventions to address the challenges facing records management in the health care system. There were three specific objectives as outlined below.

First, the study assessed the legislative, policy and regulatory framework within which records are managed in public health care institutions in South Africa. This includes providing an outline of the various legislative and regulatory instruments, what these instruments prescribe as well as how they impact the management of records in public health care institutions.

Second, the study assessed the extent to which public health care institutions in South Africa are managing records. This was done both through a review of literature exploring the management of records in health institutions in the country as well as designing a survey of respondents and analysing the qualitative data collected from the respondents.

Third, the study identified appropriate records management interventions at both policy and operational level in order to assist the management of records in health care institutions. These interventions were drawn both from research data collection processes as well as the review of literature in Chapters 2, 3 and 4 of the study.

Each of these research objectives was integrated in the structure of the research study guiding both the review of literature as well as the data analysis, interpretation and presentation of the findings as outlined in the table below.

Table 3: Illustration of the relationship between research objectives and the research study

Research objectives	Source data	Data analysis, interpretation and findings
<ul style="list-style-type: none"> Assess the legislative, policy and regulatory framework within which records are managed in public health care institutions in South Africa 	<ul style="list-style-type: none"> Literature review in Chapters 3 and 4 Data collected through research design and implementation outlined in 	<ul style="list-style-type: none"> Chapter 6, Chapter 7.2 Chapter 8.2.1

Chapter 5		
<ul style="list-style-type: none"> Assess the extent to which public health care institutions in South Africa are managing records 	<ul style="list-style-type: none"> Literature review in Chapters 2 and 4 Data collected through research design and implementation outlined in Chapter 5 	<ul style="list-style-type: none"> Chapter 6 Chapter 7.3 Chapter 8.2.2
<ul style="list-style-type: none"> Identify appropriate records management interventions at both policy and operational level in order to assist the management of records in health care institutions. 	<ul style="list-style-type: none"> Data collected through research design and implementation outlined in Chapter 5 	<ul style="list-style-type: none"> Chapter 6 Chapter 7.4 Chapter 8.3

The table above highlights two important aspects. First, the three research objectives are embedded in the super-structure on which the study was built and they are reflected in both the delineation of chapters and, in some cases, internal structure of the chapters. Second, this dissertation differs from common tradition where the literature review process merely provides a background for the study. In this dissertation, the literature review informed as well as actively fashioned the discussions throughout research process.

1.4 Justification of the research study

This research study outlined expansive aspirations in the investigation of records management in South Africa's health sector. Powell and Connaway (2004 p. 255) state that it is critical for any kind of research to build on what others have already done. A literature search revealed that numerous studies had been conducted on the management of records in health care institutions in South Africa and around the world. This section briefly examines the diverse masters and doctoral dissertations that have investigated the subject area in South Africa, in the rest of Africa and globally and provides a brief outline of what the studies covered. An in-depth analysis is provided in Chapters 2, 3 and 4 of this study. This section concludes with an analysis of the gaps of the various dissertations and discusses how this research study sought to address some of what is missing in these other dissertations.

1.4.1 An outline of masters and doctoral studies carried out in South Africa

The management of records in South Africa's health sector has been the subject of many masters and doctoral dissertations for more than three decades (Thomas 1980). These studies can be seen from four different perspectives: a regional analysis, the type of records studied, issues related to managing health records using technology applications and, lastly, the issue-based discussion on records.

In the first perspective, a number of dissertations examined the challenge of managing health records in five of South Africa's nine provinces: KwaZulu-Natal (Kerry 1999), the Eastern Cape (Okorie 2003), Limpopo (Marutha 2011; Rampfumedzi 2006; Rapakwana 2004; Sekokotla 2000), Free State (Blignaut 1999; Chandran 2002) and the Western Cape (Geoghegan 2000).

In the second perspective, several dissertations covered specific types of records such as: peri-operative nursing records (Geoghegan 2000) and obstetric nursing records (Rampfumedzi 2006), health records of gold miners (Ismail 2007), antiretroviral drugs inventory management (Mahoro 2013) and emergency care records (Chandran 2002; Nkombua 2000; Thumbiran 2010).

In the third perspective, there have been a number of dissertations investigating the viability of electronic health record (Elkabir 2000; Kleynhans 2011; Marutha 2011; Ruxwana 2007). Other technology related dissertations examined computerised or electronic records (Blignaut 1999; De Wet 1999; Thomas 1980), health information systems (Bhana 2010), and wireless telemedicine (Ngoss 2006).

In the fourth perspective, several dissertations covered a diverse number of aspects related to records including: the issue of completeness of records (Sekokotla 2000), the quality of records (Chandran 2002; Geoghegan 2000; Reddy 2003), the impact of records on the quality of health care service (Rapakwana 2004), the merits of patient retained records in different parts of the country (Kerry 1999; Norden 2002; Okorie 2003), as well as issues of confidentiality and privacy (Molefe 2003; Nell 2006).

Many of the dissertations noted that most records generated in health care institutions, whether in hospitals or primary health care centres, are still in paper format. In addition, a number of studies have demonstrated that several health care institutions prefer having patient-retained health records (Kerry 1999; Norden 2002; Okorie 2003). Regardless of whether the records are retained by the institutions or patients, many health records were found to be incomplete and poorly managed. There were numerous cases of missing records, duplication of patient files and inefficiency. Additionally, the fact that they are

hard copy records means that access is limited in time and space. Several studies identified technology as a remedy to the weaknesses in the management of records (Blignaut 1999; De Wet 1999; Elkabir 2000; Thomas 1980). However, as studies in other parts of the world have revealed, there are numerous challenges to the introduction of technology (Ilie 2005; Noll 2009; Schuckman 2006). There are additional lessons to be learnt from the experiences in other countries, including the fact that cost is a continuous rather than a one-time investment and that continued staff training is critical to the success of any technological adoption (Elekwachi 2008).

While different South African studies have covered different aspects of records management in the country they remain fragmented in their approach to the subject. Therefore, this doctoral study sought to investigate, in a holistic manner, the management of records in public health care institutions in South Africa.

1.4.2 An outline of masters and doctoral studies carried out in the rest of Africa outside South Africa

Within the rest of the African continent, there have been very few studies that have looked specifically at the management of records in health care institutions. These studies include: Ghana (Adjei 2000; Williams 2007) and Malawi (Douglas 2009). However, at a broader level, several studies have explored the general issue of health information and its impact on health care delivery. The studies span a wide cross-section of the continent include: Gambia (Baldeh 1997), Ghana (Allotey 1995; Bekui 1990), Kenya (Gething 2006), Malawi (Msukwa 2011), Uganda (Asiimwe 2002; Gladwin 1999; Mayanja 2005) and Zambia (Mutemwa 2001). A few studies cover more than one country, such as Gambia and Kenya (Forster 1990) or provide a continental perspective (Ghebrekidan 2003).

1.4.3 An outline of masters and doctoral studies carried out beyond Africa in the rest of the world

There are more than 40 masters and doctoral dissertations that investigated the management of records in the health sector outside the African continent. They covered various countries including: Australia (Li 2008; Spinks 2006), Canada (Craig 1988; Detwiller 2006; Forland 2000; Sampath 2003; Taobane 2012), UK (Abdul Rani 1998; Craig 1988) and the US that had about two dozen studies (Akpabio 2013; Al-Faris 1995; Baird 2012; Baron 2012; Briggs 2012; Elekwachi 2008; English 2008; Frye 2011; Gallagher 2006; Hermann-Petrin 2012; Ho 2006; Khan 2012; Kim 2011; Kulkarni 2006; Li

2008; Lizakowski 2013; Maffei 1997; Mangiameli 1998; Mashima 2012; Morton 2008; Odom-Wesley 1999; Purcell 2013; Reich 2011; Richards 2012; Riddick 2013; Shea 2008; Taha 2012; Timmerman 2011; Van Vranken 1996; Wijesinghe 1996; Wilkins 2008; Wu 2012; Xiao 2012; Yakel 1995). In some instances, the studies were in more than one country, such as Canada and the UK (Craig 1988) or Tanzania and the US (Chua 2012).

Some of the studies looked at particular types of records such as family records (Odom-Wesley 1999), radiology records (Taobane 2012; Yakel 1995), nursing documentation (Detwiller 2006), patient controlled - health records (Kim 2011), and the most popular being electronic or computerised records (Akpabio 2013; Al-Faris 1995; Baron 2012; Elekwachi 2008; English 2008; Forland 2000; Kulkarni 2006; Mangiameli 1998; Purcell 2013; Reich 2011; Richards 2012; Riddick 2013; Sampath 2003; Shea 2008; Spinks 2006; Taha 2012; Timmerman 2011; Van Vranken 1996; Wilkins 2008; Xiao 2012). Other issues covered include: quality documentation (Briggs 2012; Gallagher 2006; Ho 2006; Khan 2012; Lizakowski 2013), standards (Frye 2011; Wijesinghe 1996), security (Mashima 2012; Wiant 2003), and the discussion on professional theoretical constructs (Chua 2012).

Various masters and doctoral studies covered broader issues relating to health information systems with specific jurisdictional focus. These include: Australia (Win 2005), Canada (Kallepalli 2003; Mitchell 1992), Dubai (Hassan 2006), Indonesia (Sudibyo 2002), and the US with the most number of studies (Albery 2001; Dyjack 1996; Hawkins 1993; Ilie 2005; Joshi 2000; Kulkarni 2006; Madanamohanhan 2005; Magda 2008; Mitchell 1992; Noll 2009; Schuckman 2006). In one instance the study was in both Canada and the US (Mitchell 1992). The issues covered in these studies include: systems analysis and reengineering (Albery 2001; Magda 2008), interoperability for medical data exchanges (Akpabio 2013), health informatics (Baird 2012), technology acceptance (Hermann-Petrin 2012; Ilie 2005; Noll 2009; Riddick 2013; Schuckman 2006), standards and quality assurance (Dyjack 1996; Hassan 2006; Hawkins 1993; Joshi 2000; Mitchell 1992; Sudibyo 2002) as well as systems development and integration (Kallepalli 2003; Kulkarni 2006; Madanamohanhan 2005). Again, several studies straddled more than one issue such as risk assessment and electronic medical systems (Win 2005), or modelling electronic health records through assessment of health care information systems (Kulkarni 2006), or secure sharing of electronic medical records and cloud computing (Wu 2012).

1.4.4 Originality of this research study

As demonstrated in the subsections above, there were four discernible research patterns in the masters and doctoral studies carried out in South Africa. First, there were studies that focus on particular regions such as KwaZulu-Natal, Eastern Cape or Limpopo. Second, were studies that covered specific types of records such as peri-operative or obstetric nursing records. Third, were studies that addressed the viability of electronic health records or assessed the contribution of information systems. Fourth, were studies that covered specific issues such as completeness or quality of records. However, these studies remain fragmented either by regional or subject focus. None of them provided a national picture of either, the status of records management in public health care institutions or a critical analysis of overall legislative, policy and regulatory frameworks.

Therefore this study's unique contribution is investigating, in a holistic manner, the management of records in public health care institutions in South Africa. The study covered more than just one province and more than one subject area in the management of records by assessing the bigger picture, being fully cognisant of all the masters and doctoral studies undertaken so far. The assessment process necessitated an understanding of the key challenges faced by public sector health care institutions in South Africa and the contribution that efficient records management makes in addressing these challenges.

A comprehensive analysis of dissertations inside and outside South Africa showed that, at the time of this research, only two other dissertations had similar broad approaches for records in the health sector. One study assessed records management in six teaching hospitals in Ghana (Adjei 2000) while the other was a historical analysis of hospitals records in the UK and Canada (Craig 1988). While the former identified records management weaknesses and offered solutions, the latter study identified historical trends and demonstrated the rich history of records management in the health sector. While there is a lot to learn from either of those studies, there was still need for this research to be conducted within South Africa. A South African doctoral study that employed a similar broad approach investigated the issue of auditing and records management (Ngoepe 2013).

1.5 Research methodology

According to Hickson (2008), research is the “systematic investigation of a specific question in order to establish new facts and draw a new conclusion.” It involves the interpretation and revision of current knowledge and the discovery of new knowledge (Hickson 2008 p. 3). The research process involves

asking a question or questions; “collating and integrating current knowledge on the topic; designing a method to collect information to inform the research question; and finally developing new conclusions from the evidence” (Hickson 2008 p. 3). Hakim (2000 p. 1) states that design deals primarily with aims, uses, purposes, intentions and plans. Design has to be cognisant of the practical constraints of location, time, money and availability of human resource. Harvey (2002 p. xi) adds that research design is the point where questions raised in theoretical or policy debates are converted into feasible research projects.

Chapter 5 elaborates, in detail, the framework on which this systematic investigation was based with regards to the research mission as well as the research traditions that inform its methodology. This research study was designed to ensure the data collected and analysed would lead to credible and reliable findings. This was done by combining sources triangulation with one research method and two research techniques in the methodology in an ethics framework that addressed three key concerns in research ethics: avoiding potential harm, ensuring informed consent and the right of privacy (Illing 2010 p. 296; Sullivan 2009 p. 185).

The research data collection process utilised purposive sampling to target individuals with diverse expertise in three main sectors, the public sector, the private sector as well as those in academic and research institutions. Within each sector, further institutional affiliations or areas of expertise were identified.

In the public sector category, respondents were drawn from the Department of Health at both national and provincial levels as well as the National Archives. These institutions were identified as having disparate but related responsibilities with regards to the management of records in the public health sector.

In the second category of academic and research institutions the study sought for respondents from three specific organisations: the Medical Research Council, the Council for Health Service Accreditation of Southern Africa (COHSASA) and the Walter Sisulu University’s Health Informatics Programme. The Medical Research Council was chosen because it is responsible for developing and directing policy on medical research South Africa. The Walter Sisulu University was chosen because it offers a health informatics Masters programme in conjunction with the University of Winchester in the UK. As an institution located in the rural areas of the Eastern Cape it offers unique perspective to the challenges

facing the country's health informatics professionals. COHSASA was chosen because it is the only health care quality improvement and accreditation organisation in the country.

In the third category, the private sector, individual respondents were identified based on their expertise in four categories: information technology, health information management, records management and law. In the last two categories there was further breakdown of specialisation.

As required by both South Africa's access to information and privacy legislative requirements information about the respondents in both kept anonymised devoid of personal identifiers as well as kept confidential to ensure research protocol compliance.

As a way of summarising the research design, Table 4 combines the main aspects in a matrix. The table's first column has fundamental research concepts discussed in preceding section while the second column outlines the chosen research design and methodology for the research study.

Table 4: A matrix of research methods and techniques and triangulation strategy of respondents identified in the research process

	Research methodology
Research Methods	Survey
Research Techniques	Sampling and interviewing
Sources triangulation	<ul style="list-style-type: none">• Respondents from the Public Sector (Department of Health and National Archives)• Respondents from Academic and Research Institutions (Medical Research Council, Walter Sisulu University and COHSASA)• Respondents from the Private Sector (Information technology companies, Health Information Management specialists, legal experts and Records Management specialists)

The study collected qualitative data which necessitated the use of a qualitative analysis software package to both code and analyse the data at different levels of sophistication. The details of the analysis process are in Chapter 6 that employed visual analytical tools (word cloud and tree map) and

Chapter 7 that outlines the specific observations made by the respondents weaving them intricately under particular themes based on the study's objectives.

1.6 Limitations of the study

South Africa's health care sector has evolved over several centuries into a sophisticated network of institutions in the public and private sector. This research study did not explore records management in the private sector even though the sector continues to perform a critical role in the provision of health service in the country. For instance, in the discussion on the implementation of the National Health Insurance (NHI) clients that have private medical aid could utilise public hospitals. Therefore, their records would straddle both the public and private sector which could raise both operational as well as legal complications. This would require extensive discussion for a situation that is still at the beginning stages since the NHI implementation is only at the first phase of its 14 year rollout (Department of Health [South Africa] 2012a p. 21; Naidu 2013 p. 519).

Second, this study is limited to assessing situation in very general sense within the country. It offers a baseline on which to base future studies. A key issue of future research relates to the complex nature of health information systems. As shown in Chapter 4.4.1 of this study, the country has multiple patient management and hospital information systems for secondary and tertiary health institutions while at the same time having rolled out the District Health Information System at primary care health institutions. Within this complex environment, the Department of Health's goal is the implementation of Electronic Document and Records Management Systems usually abbreviated as EDRMS (Department of Health [South Africa] 2012c p. 26). This study doesn't go into the details of assessing how such a goal could be fulfilled beyond highlighting that the implementation of EDRMS applications has happened over more than a decade in other public sector institutions such as the Polokwane Municipality (Makhura 2001), the Office of the President (Kwatsha 2010) as well as the Office of the Premier in the Eastern Cape Province (Munetsi 2011).

1.7 Definition of important terms

Several terms have been used continuously in this study because they are central to the research. This section provides three main groups of terms with more extensive discussions provided in Chapters 2, 3 and 4 of this study.

First, there has been debate amongst commentators regarding use of the term health records as opposed to medical records. Several commentators have used the terms interchangeably (Roach, Hoban et al. 2006 p. 32) but others prefer to create a distinction (Galani and Nikiforou 2006; McWay 2008; Skurka 1998). For the purpose of this research study, health records are preferred because of the scope of coverage. Skurka (1998 p. 1) argues that a medical record implies that physicians participate in and supervise the medical care provided to patients in health care institutions while a health record is not only the record of medical care provided by physicians but also a listing of records provided by non-physician health practitioners. In other words, a health record goes beyond interactions with physicians to including interaction with other health care practitioners (Galani and Nikiforou 2006 p. 8). Additionally, it is important to note that the health record can either be in hardcopy or electronic format. McWay (2013 p. 123) defined a health record as “an ordered set of documents, in the paper context, or a collection of data, in an electronic context, that contains a complete and accurate description of a patient’s history, condition, diagnostic and therapeutic treatment, and the results of treatment”. For the purposes of this study, health record is the preferred term and is defined as the systematic patient record, in paper or electronic form that contains the complete and accurate description of personal, financial, social and medical information and kept by physicians or other health care practitioners. In instances where the discussion is on the electronic health record, that is taken as a subset of the health record.

Second, the other debate is the terminology choice between health care information management and health care informatics. Health care informatics focuses primarily on the use of technology to support data (McWay 2008 p. 32). It does this through a combination of computer science, health care science, information science and cognitive science by “studying both the structure and general properties of information and design and implementation of technology to use and communicate that information” (Young 2000 p. 20). As such, health care informatics focuses on “how to use technology to facilitate acquiring, processing, interpreting, using, and communicating health care data” (McWay 2008 p. 32). Health information management on the other hand focuses on the quality of the data and focuses on how practitioners could be used to store and retrieve the data (McWay 2013 p. 37). However, over the last few years the two fields of health care informatics and health information management have reached some level of commonality as “the emphasis in health information management has moved to address more strongly the data analytics, content, structure, and standards as a result of implementation of the electronic health record” (McWay 2008 p. 32-33). The focus in this study is on health care information management, which deals with the health record and its content rather than the technology that supports it.

Third, there may be instances where health information systems are discussed in the context of discussing health information management. For the purpose of this study a health information system is any technology that meets the needs of clinical management (Young 2000 p. 265). This may include a wide range of applications “from diagnostic tools to health-management applications and from inpatient to outpatient monitoring services” (Ganiatsas, Starida et al. 2006 p. 247). Related to a health information system is a hospital information system, which is the central information system in most hospitals in which most health care-related data such as personnel, stations, patients and their medical history are stored (Holzinger, Burgsteiner et al. 2006 p. 87).

1.8 Structure of the study

This study is structured in eight chapters. This first chapter has provided background information to the study including a brief history of both South Africa as a nation in general and the health care sector in particular. This is critical because South Africa’s historical evolution has been significantly different from that of other African countries as a result of two main factors. The first factor has been the strategic importance, throughout history, of the Cape Sea route as well as its mineral wealth that have made it extremely important to Western interests. The second factor has been the high level of immigration from Europe and Asia that has resulted in challenges of managing the racial composition, unique in intensity to other countries in the continent (Lacour-Gayet 1977 p. 230). The chapter included details of the problem statement and aims of the study, its limitations and assumptions as well as the significance of the study.

The second chapter provided a background of South Africa’s health sector as well as its current configuration. Unlike many other African countries, South Africa’s history of the health sector can be traced as far back as the 17th century through to the 19th century where there were numerous advances in health policy, legislative instruments and health system developments. Additionally, the chapter examined the health care system by looking at its four basic functions: provision, financing, resource generation and stewardship. The detailed historical context, particularly in the last century of the health sector’s development, as well as the analysis of the current operations is important in order to provide a framework for understanding the complexities and many layers and interconnecting sectors, and issues ultimately impacting the delivery of health services. This is critical in appropriately contextualising this study.

The third chapter built on the background set in preceding chapters and examined the legislative and regulatory framework within which South Africa's health care system operates. The chapter provided an outline of 10 pieces of South African legislation including their histories and mandates as well as the responsibilities with regard to health care and the management of records. The chapter briefly discussed the legislative experience in the US and UK.

The fourth chapter is a literature review of records management within the health sector. This chapter discussed definitions related to this study that include: medical records, medical data, health record, health information, health information system, health information management and health informatics. The chapter outlined different stages of the records lifecycle related to the health sector including: creation, maintenance and storage, access and use, as well as retention and disposal. Additionally, it addressed different issues in records management within the health sector including records and technology, records privacy and confidentiality, records security, records integrity, informed consent and records disclosure. Lastly it reviewed literature on different records management as well as health information management processes at both primary health care and hospital levels in South Africa and in the rest of the world.

The fifth chapter covered the research methodology used in this dissertation. It provided a background on research, the different research traditions globally and outlined the research methods and techniques employed in this dissertation process. It outlined the research design used to identify and interview the 22 respondents whose recordings were transcribed and used in the analysis and interpretation of data.

The sixth chapter, drawing from the different data collected, provided an analysis of the state of records management in public health care institutions in South Africa. According to Newby (2013 p. 459), the process of qualitative analysis is of "shaping data into a form where it can be interpreted in such a way that it, at least, contributes to an understanding of the research issue". In order to be able to do this, the chapter demonstrated several levels of shaping of the data using visual analytics techniques ranging from the word cloud, to tree maps and graphical representations of nodes.

The seventh chapter, also drew from the data collected in the research design, built on the analysis provided in chapter 6 and presents an interpretation of that analysis. The chapter outlined the specific observations made by research respondents, weaving them intricately under particular themes in order

to expound on the nuanced understanding of the challenges of managing records within the public health sector in South Africa based on the three objectives of the dissertation.

Monette, Sullivan et al (2014 p. 429) argue that the purpose of analysing and interpreting data is extracting meaning from very specific observations in order to learn something more abstract and general. Therefore, the final chapter tied everything together. It provided more abstracted and broad observations based on these very specific observations. These were outlined as summary of findings as well as summary of recommendations. In keeping with the third objective of the dissertation, both the summary of findings and summary of recommendations were in two parts: policy level and operational level. The dichotomy does not hide the fact that these general observations are related and are constantly in interplay with each other in the health sector.

This first chapter has put things in perspective by providing background information to the study including a brief history of both South Africa as a nation in general and the health care sector in particular. The next chapter provides a historical analysis of the country's health sector as well as its current configuration. Additionally, the chapter examines the health care system in order to provide a framework for understanding the complex context within which this study has been carried out.

Chapter 2 Introduction to the health care system in South Africa

2.1 *Introduction*

The history of South Africa's health sector is intricately connected to the history of the country. In order to provide an outline of the development of the health sector, Van Rensburg and Harrison (1995 p. 95) provide six different periods of history based primarily on developments regarding health policy and legislation. The first period is before 1919 when the first health legislation was promulgated for the Union of South Africa. The second phase is between 1919 and 1940, which saw the introduction of the nation's first health legislation with national jurisdiction. The third phase is between 1940 and 1950 that was a period characterised by progressive and forward thinking activities within the health sector. The fourth period was between 1950 and 1990 when apartheid had its greatest impact in the country. The fifth period was between 1990 and 1994, which was a largely transitional period, and the sixth period being after 1994. However, seeing that Van Rensburg and Harrison published their article in 1995, it would be necessary to split the post 1994 period into two; the sixth period being between 1994 and 2003, culminating in the promulgation of the National Health Act and a seventh period being from 2003 to the present time. Each of these phases are discussed in detail within this chapter. These discussions demonstrate that the country's public health care sector is both a product of development in the past and an input into developmental effort for the future (Mokaba and Bambo 1996 p. 11).

This chapter explores the structure of health care systems in South Africa. This chapter covers the nation's historical background and organisational structure. It also explores the nation's health care systems by looking at the four basic functions: provision, financing, resource generation and stewardship. The chapter ends with closing remarks with brief comparisons with other nations.

2.2 *Health care system: historical background and organisational structure*

Health care in South Africa has had a long history. Socio-economic realities over the centuries, and particularly from the 1940s with institutionalised apartheid, impacted the health system greatly. Over the period of its long history, the governance of the country's health system has been chaotic and fragmented and resources poorly managed. This has resulted in a highly inequitable, expensive and

inefficient system (Schneider, Barron et al. 2007 p. 290). The inequity was most obvious in the racially fragmented health system during the apartheid period, whose vestiges are still very evident almost two decades since apartheid was officially dismantled. During the apartheid period, the health system consisted of 14 different operating health authorities, ten in the Homelands and the other four in provinces of what was known as “White” South Africa. The legacy of this fragmentation is a system divided into two parallel sectors – “a public sector financed through general taxation for the majority and a private sector” (Schneider, Barron et al. 2007 p. 290). While the majority of the population accessed a very weak and dysfunctional public system, a few privileged accessed a very strong private health sector. The private sector included health professionals in private practice, private hospitals, pharmaceutical manufacturers and distributors and Medical Aid Schemes (Cullinan 2006 p. 3). The democratic changes that took place in the 1990s necessitated drastic changes to address the inequity. These were legislative, policy and organisational changes.

The most fundamental legislative change has been embedding inalienable rights to health in the Constitution. Sections 27 and 28 of the Constitution state that all South Africans have a right to health care services as well as emergency treatment. In addition, children have the right to basic nutrition, shelter and social services (South Africa 1996b). According to the Constitution, health is a ‘concurrent’ function of both national and provincial spheres of government, “with national largely responsible for setting policies and provinces largely responsible for implementing these policies” (Cullinan 2006 p. 3). The most current National Health Act that was promulgated in 2003 and elaborates how the Constitutional rights can be accessed. It provides “a framework for a structure uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services” (South Africa 2003b p. 2).

At the dawn of South Africa’s new democracy in 1994, policy and organisational changes were envisaged to address the deeply inequitable, disorganised and inefficient system inherited. According to Schneider, Barron et al (2007 p. 294), the new government in 1994 inherited “a reasonably well-resourced health system, able to offer quality services to segments of the population. However, it was also deeply inequitable, disorganised and inefficient, with powerful private sector interests and limited institutional intelligence in the form of knowledge and information to plan restructuring”. To this end, the new democratic government sought to consolidate the fragmented health authorities. In addition, the health services has been “doctor-dependent medical services biased towards curing existing diseases (i.e. providing medical care) rather than preventing disease (through provision of services such as clean water and sanitation and education)” (Cullinan 2006 p. 3). The new government sought to reorient the

doctor dependence towards preventive health and widen their services to all the population through public health system.

This section begins with historical background and organisational structure following the structure of four functions established in chapter 2. The section examines each of the functions from a South African perspective and ends with conclusive remarks.

2.2.1 Historical background

During each of the nation's key moments in history, happenings within the health sector have either affected or been affected by events. For example, during the Soweto uprising of 1976, it was the hospital in Soweto that became the epicentre of interest from national and international media who, not having eye witness evidence from the school children protests and subsequent shooting by police forces, went to the hospital to verify the evidence of the police brutality (Hopkins and Grange 2001; Ndlovu 2006 p. 343-349).

As noted earlier, Van Rensburg and Harrison (1995 p. 95) provided 6 different periods of history based primarily on developments regarding health policy and legislation. However, seeing that Van Rensburg and Harrison published their article in 1995, it would be necessary to split the post 1994 period into two; the first being between 1994 and 2003, culminating in the promulgation of the National Health Act and a sixth period being from 2003 to the present time. Sub-sections 2.2.1.1 to 2.2.1.7 examine each of these phases in some depth.

2.2.1.1 Phase 1 – pre-1919

The history of the health sector in South Africa dates back from long before the British occupation of the Cape in the early 19th century (Burrows 1958; Laidler and Glefand 1971; Searle 1965; Van Rensburg and Harrison 1995). At present, South African health care is characterised by its mixed and pluralistic flavour. This pluralism had its origins in the early Western settlements period and was expanded and consolidated during the subsequent colonial period. According to Van Rensburg (2004b p. 68-69), it started specifically with the importation of ships' surgeons from the 17th century. The pioneer was surgeon Jan van Riebeeck that founded the settlement at Cape of Good Hope or now known as Cape Town in 1652 (Bruijn 2009 p. 85; Jimack 2006 p. 19). This was followed in subsequent decades and centuries with the establishment of private practitioners among the free burghers and the subsequent appointment of district surgeons, resident doctors and a growing corps of medical officialdom (Van

Rensburg, Fourie et al. 1992 p. 54). Hospitals and other types of health care facilities were first established “to cater for company officials” and for some time had close military ties. Civilian and public hospitals were later developments (Van Rensburg 2004b p. 68-69).

According to Van Rensburg (2004b p. 68), health traditions of the Western Culture of the colonists and the diverse African cultures have co-existed since the 17th Century even though there were sharp differences between them. This distinction is important because it laid the foundation for the “parallel existence of at least two divergent medical or health care systems, viz. Western medicine and traditional tribal medicines of the indigenous peoples, characterised respectively by a professional-scientific orientation in respect of health care on the one hand, and a magico-religious orientation on the other” (Van Rensburg 2004b p. 68). This dichotomy exists to present day, characterising South Africa’s health care with Western scientific medicine, particularly at the beginning of the 19th century, gaining official status, while the rest continued to exist alongside it as non-official and possibly considered ‘illegal’ forms of health care.

Throughout this phase of history, a conspicuous ‘colour’ imprint was left on health care with the Dutch colonists, the French Huguenots, the British conquerors, settlers and colonisers, the Boer pioneers and the ‘outlander’ fortune hunters being alike in one respect, that they were predominantly Western and almost all White. Contact between Westerners and indigenous people had, according to Van Rensburg (2004b p. 68), a twofold implication.

On the one hand, clearly visible forms of division on the grounds of race prevailed in health care; on the other, the suppliers of health care were almost exclusively White. As structural elements, division on the grounds of race, apartheid medicine and White domination of the official South African health care system have a long history of which the origins can once again be traced to the colonial period.

According to Coovadia, Jewkes et al. (2009 p. 820), South Africa saw its first health legislation in 1807 with the establishment of a Supreme Medical Committee to oversee all health matters. The 1807 legislation was replaced by Ordinance 82 of 1830 that regulated all health practices in the Cape Colony. In 1883, the Public Health Act 4 was promulgated in direct response to the prevailing smallpox epidemic, making the notification of infectious diseases and inoculation against smallpox compulsory and providing for emergency powers for local authorities in times of epidemic. This Act was amended in 1897 to establish a Colonial Public Health Department headed by a medical officer of health (Van Rensburg and Harrison 1995 p. 97). Figure 4 shows an outline of South Africa in 1885 with the various regional demarcations that existed at the time (Webster and White 1885).

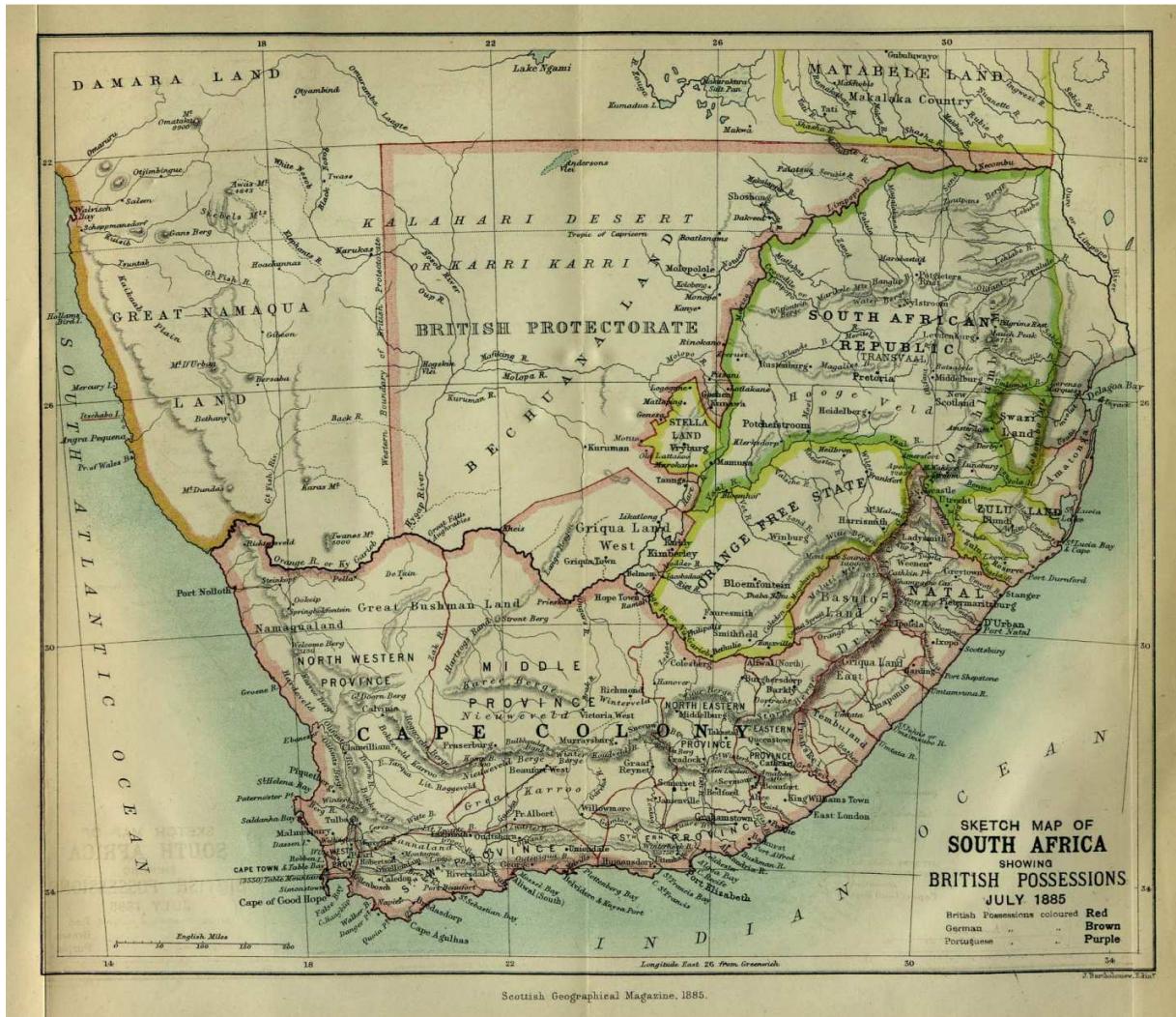


Figure 4: South Africa in 1885 (Webster and White 1885)

The legislative processes that took place in the Cape Colony seemed to have been copied in the Boer Republics, Transvaal and the Orange Free State. However, the lack of co-ordination between Colonies and Boer Republics constrained a national response to the sporadic epidemics throughout the 19th century (Van Rensburg and Harrison 1995 p. 97). In 1910, the Boer Republics and the British occupied Colonies united but this unification contributed little towards consolidating the fragments into a national health service (Lange 2003 p. 75-100).

The full extent of fragmentation is often not fully appreciated. Van Rensburg (2004b p. 69) argues that South African health care in the settlement period, and even long thereafter, developed in a somewhat

unplanned, fragmented and almost haphazard fashion. “Initially services were established in relatively isolated and preponderantly White settlements, which later became part of the separate British colonies and Boer republics” (Van Rensburg, Fourie et al. 1992 p. 54). At the time of Unification in 1910 because of the marked lack of coordination and an obvious fragmentation of the health care system, there was little question of a true organisational structure in health care services. “The stipulations for Unification perpetuated this fragmentation of control when legislation was enacted granting the four provinces autonomous control of those health matters that, prior to Unification, fell under colonial administrations and the erstwhile Boer republics.” (Van Rensburg 2004b p. 69)

At the time of South Africa’s unification in 1910, responsibility to provide public curative services was transferred from the four colonies to the four provincial administrations. Local authorities were responsible for environmental and preventive health services and they were under the jurisdiction of a separate Department of Health section (Naidoo 1997 p. 53). This meant that fragmentation continued unabated. The full extent of fragmentation was wide ranging since, “in addition to the fragmentation of control of health services, functional fragmentation was also brought about in that certain services/functions had to be provided by each of the central, the provincial and the local authorities” (Van Rensburg 2004b p. 69). In this regard, political unification, “had little significance for a unified health network; as in the past, this was concentrated mainly in the rising urban areas, with virtually non-existent or at most vague organisational structure in rural areas” (Van Rensburg 2004b p. 69).

In 1918, an influenza epidemic that plagued many parts of the world claimed between 250,000 and 300,000 lives in South Africa and is seen as being directly responsible for a fundamental reorganisation of the country’s health care (Phillips 1984 p. 288-291). According to Naidoo (1997 p. 53), this epidemic revealed the shortcomings in the organisation and co-ordination of the health service at that time, “but also stressed the fact that the State had to assume responsibility for public health, especially where disease threatened society as a whole”. The epidemic gave impetus to the call for “uniform control of preventive health services and co-ordination at national level, achieved to some extent through the Public Health Act 36 of 1919” (Van Rensburg and Harrison 1995 p. 97).

The Public Health Act of 1919 saw the establishment of one Department of Public Health for the entire South Africa (South Africa 1919; Van Rensburg and Harrison 1995 p. 97). This Act did so by amending some of the obsolete colonial health acts in order to establish uniform control of preventive health services as well as co-ordinate the network of health services provided by local authorities (Naidoo 1997 p. 53).

In terms of health policy, two decades prior to 1919 were characterised by increasing organisation, institutionalisation and professionalisation of health care, due to profound and widespread British influence. Before 1870 the structure of health care was amorphous, control non-existent and health policy kept secret from the populace. British influence manifested particularly in the construction of numerous military and civilian hospitals and in a series of health-related legislative acts and ordinances aimed at regulating the practice of health care and containing the spread of epidemics. Despite these developments, neither uniformity nor synchronisation was achieved. The political unification of the four colonies in 1910 did little in the way of consolidation; the discordant health laws and ordinances of the erstwhile colonies and republics remained on the statute books of the Union until 1919 (Van Rensburg and Harrison 1995 p. 95).

2.2.1.2 Phase 2 – 1919 to 1940

The second phase of health development began with the proclamation of the Public Health Act of 1919. The first Department of Public Health was established in an attempt to coordinate health care more effectively at national level. While there was intensive debate, investigation and review of existing health services, and even promising initiatives, “this period saw little substantive and positive evolution in health policy; developments favoured exclusion and segregation of sectors of the population and there was reluctance to take active steps to solve the increasing health problems of the time” (Van Rensburg and Harrison 1995 p. 95). Amongst the debates were calls for a separate health care system for African people administered as a component of state medical service by either the Department of Public Health or Native Affairs (Thornton 1930). The argument was that if this was not done, African people would become “a menace to the rest of the community” (Vos Committee [Union of South Africa] 1925).

Even though the original purpose of the 1919 legislation was to co-ordinate the supply of health care, this goal was lost because of the continued provincial administrations’ autonomy since they retained responsibility for the establishment, maintenance and management of general hospitals and charitable institutions. This meant that they were the principal providers of curative services in the country, exacerbating the polarisation between preventive and curative services. Additionally, the legislation made no reference to the place and role of the rapidly emerging private health sector adding to the “lasting contours of a highly fragmented health service, the implications of which continue to this day” (Naidoo 1997 p. 53).

2.2.1.3 Phase 3 – 1940 to 1950

The third phase, the years 1940 to 1950, heralded an exciting period in health care in South Africa. Attempts were made to redirect health policy entirely by addressing its structural deficiencies. The vision at this time was of a unified, comprehensive and state-funded national health service based on primary care in the form of a network of comprehensive health centres (Van Rensburg and Harrison 1995 p. 95-96). During this period, a multifaceted progressive or patriotic health front evolved agitating for a unitary, democratic, non-racial and non-sexist health system, preferably in the form of a national health service, undeniably leaning on the socialist principles of collectivism, statism and equalitarianism, vehemently furthering the primary health care approach and propagating health care as a basic human right (Van Rensburg and Harrison 1995 p. 118). Not only were efforts made towards this at a policy level, with the Gluckman report, they were also evident at the grassroots service delivery level with the development of community-based health centres.

In 1944 the National Health Services Commission Report, otherwise known as the Gluckman report, was published. This was viewed as the “culmination of the reformist thinking in health care. Its brief was to make recommendations regarding the provision of an organised national health service, and the necessary administrative, legislation and financial measures required for this purpose” (Naidoo 1997 p. 53). The Gluckman Report proposed that a unitary National Health Service should be established in South Africa to ensure free health care to all people of the Union. The National Health Service would be financed by a national health tax and fall under a separate ministry of Health with strong regional presence. At the core of the National Health Service would be health centres providing complete primary health care to the communities they served (Van Rensburg and Harrison 1995 p. 98).

In 1945, Gluckman was appointed as Minister of Health providing an opportunity to implement one of the fundamental elements of this scheme, namely the development of community-based health centres. Within the next two years, over 44 health centres were in operation (Van Rensburg and Harrison 1995 p. 98). The community-based health centres are touted to be one of the earliest adoptions of Primary Health Care (PHC) in the world. Even though the global PHC movement traces its global debut to the Alma Ata conference in 1978, the PHC approach traces its origins, at least partially, to a small health unit situated in rural KwaZulu-Natal, South Africa in the early 1940s. The Pholela Health Centre model “a forerunner to community-oriented primary care (COPC), was among the earliest demonstration efforts to inform and define the practice of PHC” (Kautzky and Tollman 2008 p. 18).

From the outset, the strategy and structure of the Pholela Health Centre were profoundly innovative for their time. Pholela utilised population-based investigations to inform the provision of health services and incorporated health education and health promotion as essential elements of the health delivery system and thereby integrating curative care and preventive health services in a comprehensive community-based package. It provided one of the first working models of COPC in practice through the emphasis of holistic health care provision rather than simply medical care (Kautzky and Tollman 2008 p. 18).

However, reactionary government and entrenched elements of the medical establishment opposed the COPC approach for more than a decade (Hunter 2008 p. i). Eventually even its most ardent supporters and practitioners lost the uphill battle and eventually left the country, resulting in the eventual collapse of the COPC movement by 1960 (Kautzky and Tollman 2008 p. 18). In the wake of the collapse, each of the 44 health centres were closed or converted to provincial outpatient clinics, many without warning or consultation with the local community. The extensive cadre of PHC doctors, nurses and community health workers took up alternative clinical, teaching and academic posts throughout the country and abroad (Kautzky and Tollman 2008 p. 20).

2.2.1.4 Phase 4 – 1950 to 1990

In 1948, the National Party won the national elections and began a systematic process of legislated racial discrimination and segregation that would affect the way in which health services were organised as well as the health of the people.

During this fourth phase, health policy development closely mirrored the ideology and social engineering of the White minority government, as the systematic racial fragmentation of South African society and its health care system during the era of Grand Apartheid gave perverse substance to the intention of creating a ‘Native Health and Medical Service’ (Van Rensburg and Harrison 1995 p. 101). One of the most influential efforts at this was the Tomlinson Report of 1954, which entrenched a separate ‘Bantu Health Service’ and signalled the end of the attempts by the Department of Health to create a unitary health service (Van Rensburg and Harrison 1995 p. 101). The subsequent deployment of the ‘Homelands Policy’ eventually resulted in “ten additional state departments of health at the first tier of government – indeed a bewildering fragmentation of health services and authority structures, apart from the dismal health conditions the dispensation harboured for the affected populations” (Van Rensburg and Harrison 1995 p. 101). Figure 1 in Section 1.1.1 of this dissertation provides a graphical illustration of the geographical fragmentation.

The Homeland departments of health were established as semi-autonomous administrative entities responsible for the provision of health and other public services. They were poorly organised, inefficient and often ineffectively managed. Many of the Homeland health services struggled to provide adequate medical and public health care. There were many committed practitioners who endeavoured to improve the health and living conditions of Homeland communities (Kautzky and Tollman 2008 p. 20, 23).

Prior to and during apartheid the missionary health services, particularly British, Dutch, German, American, Swedish and Swiss, made a significant contribution to health care by attempting to fill the rural and peri-urban health care gap through establishing networks of hospitals and clinic systems throughout the country to meet the needs of under-served areas. Even though this remained a significant contribution, the missionary health services were not able to meet the overwhelming demand for health care in these neglected areas (Kautzky and Tollman 2008 p. 20).

For nearly 60 years, the 1919 Public Health Act determined the organisational framework of South African health care. In 1977 it was repealed and replaced by Health Act 63 which in essence “reinforced the administrative and functional fragmentation of health care, delegating responsibility for preventive services principally to local government, while retaining provincial control over hospitals” (Naidoo 1997 p. 53). The shortcomings of the new Act rapidly became apparent and a number of plans aimed at streamlining the services were devised, including the Commission of Inquiry into Health Services 1980, the National Health Services Facilities Plan 1980 and the National Health Plan 1986 (Vlok 1996 p. 16). However, in the face of a structurally overpowering grand apartheid plan further strengthened by the Homeland policy and constitutional changes of 1983, these localised efforts proved to be merely superficial (Naidoo 1997 p. 53).

Increasing militancy and mobilisation on the part of the African majority resulted in placing the regime under constant pressure. The regime’s reaction was to adopt more sophisticated strategies to maintain White privilege and supremacy, such as an unfettered enthusiasm for privatisation and the Tri-cameral Constitution of 1983 (Van Rensburg and Harrison 1995 p. 95). The militancy also saw more and more violent clashes with the regime, culminating in the mid-1970s with the Soweto uprising and other violent clashes in the 1980s. For many health workers in the townships such clashes made it impossible for them to continue to provide health care services. For example, in the aftermath of the 1976 Soweto uprising many health workers were unable to safely enter the township and “more than half of the doctors at the then named Baragwanath Hospital and its affiliated referral clinics in Soweto resigned, or

requested transfers from their posts. As a result, the local primary care clinics closed and the hospitals became heavily overcrowded" (Kautzky and Tollman 2008 p. 22).

Ultimately, the progress South Africa had made in the 1940s with innovative, community-based research, training and health systems development was lost. Health care and systems development in South Africa during the apartheid era would focus on hospitals and an exclusivist private sector, with disastrous effect for the health of the majority of country's citizenry (Kautzky and Tollman 2008 p. 20).

2.2.1.5 Phase 5 – 1990 to 1994

This period heralded the first serious attempts to affect a significant break with the past. The consequences of discriminatory health policies that had evolved over the previous 80 years was a conglomeration of health providers, each responsible for a limited range of services and with little interaction between them (Naidoo 1997 p. 53). The early 1990s saw increasing pressure from a progressive health sector demanding fundamental reform of the health sector. This phase was marked by efforts to mitigate against the fragmentation and racialisation of government structures and health care facilities. This was done through changing the emphasis in health care increasingly in the direction of primary health care, having a more sober and guarded approach towards privatisation and advocating for positive influence in "the future health service by health authorities, institutions and individuals alike" (Van Rensburg and Harrison 1995 p. 96).

However, the fact that reforms originated and were happening within the framework of a still racially segmented and overtly undemocratic societal context meant that the reforms were still very superficial (Van Rensburg and Harrison 1995 p. 96). Essentially these reforms were cosmetic and "indicative of a drift in the same direction" (Van Rensburg, Fourie et al. 1992 p. 88). The result was the sedimentation of several problematic structural features resulting in little fundamental change. Commentators have characterised the outcome appropriately by stating that "the development of a Western model of health care in an initially colonial and subsequently apartheid South Africa has, in meeting the needs of the most advantaged section of the population, failed to be creative in meeting many of the needs of the oppressed and disadvantaged and has contributed to entrenching disparities in health and access to health care facilities" (Savage and Benatar 1990).

Tectonic changes were happening in the political landscape of the country in the late 1980s that heralded the unbanning of liberation movement organisations and the release of political prisoners by early 1990. In preparation for the time when democracy would come to South Africa, the African

National Congress (ANC) had developed a national plan whose central vision emphasised a focus on health rather than just on medical care, and that every person had the right to achieve optimal health (Vlok 1996 p. 19-22). The plan's underlying philosophy for restructuring the health system was based on the primary health care approach and the goal was the creation of a single, comprehensive, equitable and integrated National Health System. This meant that "decentralisation was central to the plan, with a vision that responsibility for, and control over, funds would be given to the lowest possible level compatible with the maintenance of good quality care" (Ntuli and Day 2004 p. 1).

2.2.1.6 Phase 6 – 1994 to 2003

South African health policy entered a sixth and purposively different historical phase after the first democratic elections in 1994. The new government inherited a horizontally and vertically fragmented health system focused primarily on supporting an apartheid state rather than improving health and providing an efficient and effective health service (Buch 2000 p. 56). Like the country, the health service had been fragmented into 4 provincial and 10 Homeland health departments. This meant that 14 separate health departments functioned independently in different areas of the country which led to inefficiency and wasteful duplication. Table 1 in Section 1.1.2 of this dissertation shows the province and the former Homelands that were incorporated.

The health system was seriously lacking in "geographic coherence, with overlapping city, district and provincial health authorities and limited national scope to reconcile gaps or duplication in service provision" (Kautzky and Tollman 2008 p. 23). Access to health care was distributed along racial lines with the predominant focus on hospital care for Whites (Van Rensburg, Fourie et al. 1992 p. 54). This led to inefficiencies within the whole system with overspent budgets in some institutions and lack of resources in others, mal-distributed human resources "that were trained to serve an elite, rather than the national need", basically deeply rooted management inefficiencies (Buch 2000 p. 56). As a result, "the major early focus of reform was, thus, on structurally integrating the health sector" (Kautzky and Tollman 2008 p. 23).

By 1996 the national Health Department had recognised the obvious inequality in health expenditure in the country. The private sector, for example, accounted for "approximately 60% of resources spent on health for about 20% of the population." Within the public sector there also was gross inequity in per capita spending among the provinces. There also was a disproportionate amount spent on tertiary care as opposed to primary health care (Harrison, Barron et al. 1996 p. xv). The distribution, physical state and functional design of facilities in the public sector serving the majority of the citizens in the new

nation were gravely inadequate. There was a realisation that rectifying the situation in the short term would be expensive and time-consuming (Doherty, Kraus et al. 1996 p. 68).

One of the most significant events of this period was the Truth and Reconciliation Commission (TRC) hearings. In June 1996, the TRC held special hearings in Cape Town to examine the role of the health sector in past human rights abuses under apartheid. The hearings were particularly historic because it was the first time internationally for a Truth Commission to have elected to hold a hearing specifically for the health sector (Hayner 2001 p. 28; Shea 2000 p. 20). The hearings stemmed from discussions outside the TRC pointing to the need for the health sector to re-examine its role in past human rights abuses as well as growing evidence presented to the TRC of the involvement of health professionals in human rights violations (Barron, Strachan et al. 1997 p. xxii).

A wide range of organisations and individuals submitted evidence to the TRC which included “case studies with stories by survivors of apartheid, health professionals ‘in the firing line’, Black health professionals talking about their own training experiences and by specialists in forensic medicine and psychiatry talking about the abuse of medico-legal evidence” (Barron, Strachan et al. 1997 p. xxii). In addition, the TRC heard that medical professionals both accepted interference in their professional duties by the State and also turned a blind eye to the torture and ill treatment of the general public. Hugo and Allan (2008 p. 2) argue that the medical profession was “implicated in the generalised reproduction of inequalities in health care, as well as in explicit instances of complicity in gross violations of human rights” with most doctors having “uncritically accepted a racially segregated health care system in which the facilities and services for non-Whites were vastly inferior to those for Whites”.

The Medical Association of South Africa (MASA), for example, admitted complacency in opposing apartheid, and closing ranks to protect doctors implicated in human rights abuses and described Steve Biko’s case as a sad and disgraceful episode in its history (Barron, Strachan et al. 1997 p. xix). Biko was an anti-apartheid leader who was arrested in August 1977 and tortured to death while under police custody. Biko’s case was not unique but it highlighted the poor performance of doctors in connection with deaths in detention, having failed in their moral and ethical duties (Friedman 1999 p. 9). Other issues discussed included disparities that existed under apartheid in education between Black and White medical students as well as in the roles within the nursing profession and the mental health profession. According to Friedman (1999 p. 9), “it was encouraging that many institutions came forward and apologised for their complicity in working within an inequitable system that violated human rights”.

South Africa, having had to confront its past, understandably prioritised equity, representivity, and community participation, especially in the new provincial structures (Robb, Villiers et al. 1997 p. 49). The Eastern Cape, North West, Mpumalanga and Northern Province not only had to absorb large bureaucracies from the Homeland regimes but they also did not inherit core administrative units and skills necessary to perform their functions. In addition, the absorbed bureaucracies had functioned within frameworks of different regulations and systems and were “severely compromised by institutionalised corruption and nepotism” (Robb, Villiers et al. 1997 p. 48-49). Different provinces structured their new administrations in a different way. The Northern Cape, North West, Mpumalanga and Northern Province decided to have joint health and welfare functions whilst the other five had the functions separated (Robb, Villiers et al. 1997 p. 49).

It is important to note that the integration of local and provincial health systems at the district level was fraught with unexpected obstacles. First, the employment of health personnel under a single health authority proved to be problematic as the pace of restructuring within the health service exceeded the slower pace at which local government and provincial restructuring occurred. In many instances the Government and public sector unions “struggled to reach agreement on more uniform salary schedules and conditions of employment, a result of dealing with personnel” previously belonging to different employment bodies (Kautzky and Tollman 2008 p. 23).

Second, there was lack of clarity with regard to decentralisation of health services when many of the newly established district health boundaries failed to correspond administratively or geographically with the constitutionally redefined local government boundaries. While local government were charged with responsibility for primary health services, the provincial government were responsible for comprehensive health service provision. These seemingly overlapping responsibilities caused a lot of confusion (Kautzky and Tollman 2008 p. 23-24). Within each of these new provincial structures, one stark reality was that various racial groupings were inadequately represented (Baldwin-Ragaven, Gruchy et al. 1999). However, the quest for increased representivity often results in many senior administrative appointments being of relatively inexperienced managers who faced multiple challenges, including sorting out a system of government that had long since collapsed under its internal contradictions and built-in inefficiencies. Additionally, these challenges required a major movement of staff, either organisationally or geographically. All these challenges were in addition to trying to maintain the delivery of health services (Robb, Villiers et al. 1997 p. 49).

Regardless of the challenges, much progress was made during this phase of development (Buch 2000 p. 57). At the most fundamental level was the creation and establishment of a unitary health system with a single national department and nine provincial health departments. Secondly, the introduction of free primary health care not only made good economic sense but also removed the affordability barrier that many faced. One of the arguments made at the time was that, not only would the administrative costs of managing small amounts of payments by PHC patients be astronomical, the delays for patients seeking additional care would be unacceptable. Thirdly, the establishment of a District Health System (DHS) had been relatively successful in improving economies of scale and efficiency. Commentators have it a “remarkable feat” because it required not just “putting in place the appropriate administrative arrangements but also ‘selling’ the idea of the DHS to health care staff” (Ntuli and Day 2004 p. 1). The ideal in a full functional District Health System (DHS) was to have all workers employed by a single employer under the same conditions of service” (Sibya 2009 p. 2).

2.2.1.7 Phase 7 – 2003 to present

The last phase was ushered in by the promulgation of the much awaited national Health Act 61 of 2003 (South Africa 2003b). Even though the seventh phase began almost a decade into the new democracy, an assessment by the WHO in 2003 found that more than 60% of health care institutions in South Africa struggled to fill existing posts, with more than 4 000 vacancies for general practitioners and upwards of 32 000 vacancies for nurses throughout all provinces (Hamilton and Yau 2004). In the public sector, 31% of posts were unfilled nationally and an estimated 40% of posts in the Free State and 67% of posts in Mpumalanga remained vacant (Kautzky and Tollman 2008 p. 24).

From the dawn of democracy in 1994 to the present time, the country has made enormous efforts to address the challenges in the health sector. While the key challenge of the provision of equitable health care services to all has been tackled through various means, there are indications that a lot more work needs to be done. According to Dumont and Meyer (2004), figures in 1998 showed that a large percentage of health care professionals, that is, 53% of general practitioners, 57% of professional nurses and 76% of all specialists, worked in the country’s private sector despite this sector catering for the needs of less than 20% of the population. The situation a decade later had actually worsened with an estimated 63% of general practitioners working in the private sector, nearly twice as many as in the public sector” (Kautzky and Tollman 2008 p. 24). Among the reasons for this situation was the lack, until recently, of a comprehensive strategy on human resource management (Department of Health [South Africa] 2011). However, the public sector has continued to suffer from a critical shortage of trained and experienced health personnel, with the perennial inability to fill essential posts and, therefore,

hampering the implementation and provision of district-based health service. These challenges are rooted in distributional inequities of the public vs. private sector within the National Health System and further worsened by the significant loss of health workers through international emigration (Department of Health [South Africa] 2011 p. 84-85; Kautzky and Tollman 2008 p. 24). Section 2.3 of this chapter explores, in more details, the causes as well as efforts to address the challenges in the public health care system.

If examined from a resource allocation perspective, the aim for equity has still not been achieved with the private sector absorbing an estimated 62% of national expenditure to provide medical care to just over 16% of the population while the public sector absorbs only 38% of the national expenditure while providing care to just over 83% of the population (Kautzky and Tollman 2008 p. 24). There have been efforts to reverse this trend particularly within the first decade of the new democratic dispensation. For instance, per capita expenditure on Primary Health Care improved from 58 South African Rand in 1992/93 to 183 South African Rand by 2005/6 (Cullinan 2006 p. 5-6). Per capita expenditure improved to about 395 South African Rand by 2010/2011 and has been highlighted as a key programme for the Department of Health's Strategic Plan for 2014/15 to 2018/19 (Blecher, Day et al. 2008 p. 182; Department of Health [South Africa] 2014 p. 27-31).

Lastly, the promulgation of critical pieces of legislation including the national and provincial health Acts helped immeasurably to steer the health sector towards greater effectiveness. There are more than two dozen pieces of legislation and Chapter 3 of this dissertation discusses legislation and regulations in more detail (Gray, Vawda et al. 2011 p. 2). This section has provided the historical context to the current health system. The following section provides an overview of the public health care system's structure.

2.2.2 Overview of current organisational structure

In tracing the evolution of the health sector in South Africa from its beginnings in the colonial era to date, one sees several clear and persistent trends. They include "the systematic structuring, expansion, differentiation and specialisation of health care, with health policy permeating ever-enlarging spheres" (Van Rensburg and Harrison 1995 p. 118). Yet, accompanying these trends were "increasing fragmentation of health services according to pronounced structural, functional and geographic lines; a gradual importation of race and colour segregation or apartheid in the health sphere; an unobstructed rise of the curative emphasis to a dominant position in health policy and practice; and deepening rural-

urban discrepancies and inequalities in health and health care" (Van Rensburg and Harrison 1995 p. 118).

Unfortunately the current service delivery structure still leans heavily towards "a curative approach high-cost care with no adherence to any referral system, which implies that many patients are seen at an inappropriate level, usually by specialists and in hospitals, and this contributes to cost escalation" (Department of Health [South Africa] 2010 p. 5). Additionally, there are still huge inequities in the health system with the majority of the population relying on "a public health care system that has a disproportionately lower amount of financial and human resources at its disposal relative to the private sector" (Department of Health [South Africa] 2010 p. 5). For instance, in the public sector there are "about 4,200 patients to a general doctor compared to 243 patients to a general doctor in the private sector" (Department of Health [South Africa] 2010 p. 5).

Therefore, one of the aspirational goals of the country is to develop a cohesive framework to manage the fragmented two-tier system that is still the vestige of the apartheid legacy (Carstens and Pearmain 2007 p. 229). In this two-tier system, the public sector serves slightly more than 80 per cent of the population that is largely uninsured and, therefore, can't have access to health services in the private sector (Botha 2008 p. xi; Thiede and Mutyambizi 2010 p. 191). On the other hand is the private sector that serves less than 20% of the population (McIntyre and Doherty 2004 p. 385). Initially, it was mostly Whites and Indians who had insurance and, therefore, could afford to use private health facilities. However with the changing dynamics as other races have entered the middle to high income groups, this minority is increasingly diverse, but still remains a minority (Botha 2008 p. xi). The private sector accounts for 80% of the funds spent on health, which accounts for almost half of the country's approximately 400 hospitals (Cullinan 2006 p. 3). More recently Thiede and Mutyambizi (2010 p. 189) argue that the private sector does serve both races typically serving the better-off households among the formally employed. Usually these are individuals who are either members of medical schemes or who can afford to pay for such services directly from their own pockets (Carstens and Pearmain 2007 p. 229).

In order to address the deficiencies of the public health system, a deliberately decentralised management system was conceived drawing from Schedule 4 of the country's Constitution which states that national and provincial governments have concurrent legislative authority in the health sector (South Africa 1996b). According to Geyer, Mogotlane et al. (2009 p. 23), the aim of this decentralised management was to "increase efficiency, local innovation, empowerment and

accountability in the communities served". For this reason the public health system placed the emphasis on health rather than just medical care, and on "equity, accessibility and affordability through a primary health care approach with health promotion, prevention, curative and rehabilitation inherent in its operation" (Geyer, Mogotlane et al. 2009 p. 23). The foundation of this decentralised system has been the primary health care philosophy adopted by the African National Congress (ANC) in 1994 and that was "premised on community development and community participation in the planning, provision, control and monitoring of services" (Cullinan 2006 p. 3-4).

In practice it means that there are three concurrent systems, the National Health System, the Provincial Health System, and the District Health System (Rapakwana 2004 p. 15-18). In order for these systems to function seamlessly, the "administrative, financial and support services, as well as planning and human resources, are provided through negotiated agreements between the province, its districts and municipalities" (Geyer, Mogotlane et al. 2009 p. 26). South Africa has 52 district municipalities, 237 local municipalities and 8 metropolitan municipalities as shown in Table 5(Day, Monticelli et al. 2010 p. 124-271; Department of Government Communication and Information System [South Africa] 2013; Yes Media 2012a; Yes Media 2012b).

Table 5: A summary of the different municipalities in South Africa's provinces

Province	District Municipality	Local Municipality	Metropolitan Municipality
Eastern Cape	8	37	2
Free State	5	19	1
Gauteng	5	8	3
KwaZulu-Natal	11	52	1
Limpopo	5	25	
Mpumalanga	3	16	
North West	4	30	
Northern Cape	5	27	
Western Cape	6	23	1

In South Africa, the National Department of Health co-ordinates all aspects of public and private health care delivery at national, provincial, district and local levels (Van Rensburg and Pelser 2004). This has been done through the establishment of the National Health Authority that is responsible for, among other things: formulating national policies, building capacity in provinces and municipalities, developing regulation of the public and private health sectors, as well as monitoring progress and providing certain services that would be most cost-effective at national level (Geyer, Mogotlane et al. 2009 p. 26). However in certain instances as discussed in Section 2.3.3, a number of health care institutions are managed by the National Department of Health.

According to the Constitution, provincial governments generally own and control state hospital and medical services. Although provinces are legally obliged to ensure the implementation of national health policy in terms of the National Health Act, “they have the power to determine provincial health policy and legislate on provincial health issues in terms of the Constitution” (Carstens and Pearmain 2007 p. 231). The Provincial Health Authority (PHA) coordinates the policy and implementation within the province (Hanmer 2009 p. 7). PHA is responsible for, among other things: providing hospital and academic health services, providing technical and logistical support to the health districts, co-ordinating the District Health Authority’s work in the province and developing provincial policies and guidelines based on the national norms, policies and guidelines (Geyer, Mogotlane et al. 2009 p. 26-27).

The core health services are provided to the public through the District Health System (DHS) which is described as a model for planning and organizing a health system using the district as the basic unit (Uys and Middleton 2004 p. 59). Ideally a district should be small enough to allow for effective community participation, but also large enough to allow for efficient comprehensive community and first-level hospital care in an area where health services are coordinated (Uys and Middleton 2004 p. 59). District services are coordinated by a District Health Authority (DHA). Some of its responsibilities include management and co-ordination of health-promotion activities as well as provision of primary environmental health services, essential medico-legal services and services to persons arrested and charged. DHA are critically responsible for primary health care provided through clinics, community health centres, and sub-district hospitals (Geyer, Mogotlane et al. 2009 p. 27). The argument for this decentralised approach is that people in each district know their own situation best and should, therefore, have maximum autonomy in management decisions. This means that financial, staff and service decisions should be the responsibility of the staff of the local institution and not be controlled provincially (Uys and Middleton 2004 p. 59). Initially many of the health districts were established before municipal boundaries were finalised and had to be re-established once the boundaries were set.

The country is currently divided in 52 district municipalities and 8 metropolitan municipalities (Day, Monticelli et al. 2010 p. 124-271; Department of Government Communication and Information System [South Africa] 2013; Yes Media 2012a; Yes Media 2012b).

While the majority of the population use public sector institutions, there is a growing trend amongst part of the population to approach private-for-profit health care providers for primary and other advanced care. This sector of the population prefer to pay out-of-pocket due to a perceived low quality of care in the public sector even though these costs may be exorbitant (Thiede and Mutyambizi 2010 p. 192). According to Botha (2008 p. xi), the country's private sector is over-resourced and underutilised. It is also very tightly controlled by a few institutions. For instance, private hospital services are basically offered by three hospital groups whose shares are traded on the stock exchange (Thiede and Mutyambizi 2010 p. 192). As an alternative, the population may seek non-governmental and faith-based organisations that offer health care services (Carstens and Pearmain 2007 p. 229) although their reach isn't wide enough to be significant.

Finally, South Africa's private sector has non-profit medical schemes, private-for-profit health care providers, and for-profit administrators of medical schemes that offer different options and flavours of private insurance coverage to members and their dependants (Thiede and Mutyambizi 2010 p. 192). On the other hand, the country has not had a public sector social health insurance which has meant controlling costs has been very difficult for users of public health institutions (Carstens and Pearmain 2007 p. 229). However, a National Health Insurance (NHI) scheme has been proposed with the rollout proposed in three phases over a period of 14 years starting from the year 2012 (Berger, Hassim et al. 2013 p. xx; Department of Health [South Africa] 2012a p. 21). Detailed discussions on the NHI are in Section 4.4.2 of this dissertation.

The following sections discuss the four functions of the South African health system in more details: financing, provision, resource generation and stewardship, before ending with closing remarks.

2.3 *Health care functions in South Africa*

Health is the product of multiple factors including: genetic inheritance, the physical and social environments, as well as an "individual's behavioural and biologic response to these factors" which means that health care interventions only have an impact "late in the causal chain leading to disease, illness, and infirmity" (Jonas, Goldsteen et al. 2007 p. 9). Therefore, the central focus of a health care

system is to restore health or prevent exacerbation of health problems. According to the World Health Organisation (2000 p. 1), health systems consist of “all the people and actions whose primary purpose is to improve health. They may be integrated and centrally directed, but often they are not”. When the population faces health problems, then the impact is measured based by financial cost to the health systems based on mortality, mobility and is generally known as disease burden or cost of disease (Goldner, Jenkins et al. 2011 p. 17; Kirch 2008 p. 168). Research has shown that the disease burden is worst experienced in developing economies which happened to be the countries that spend the least amount per capita on health. The diagram below shows the imbalance between countries (Gottret and Schieber 2006).

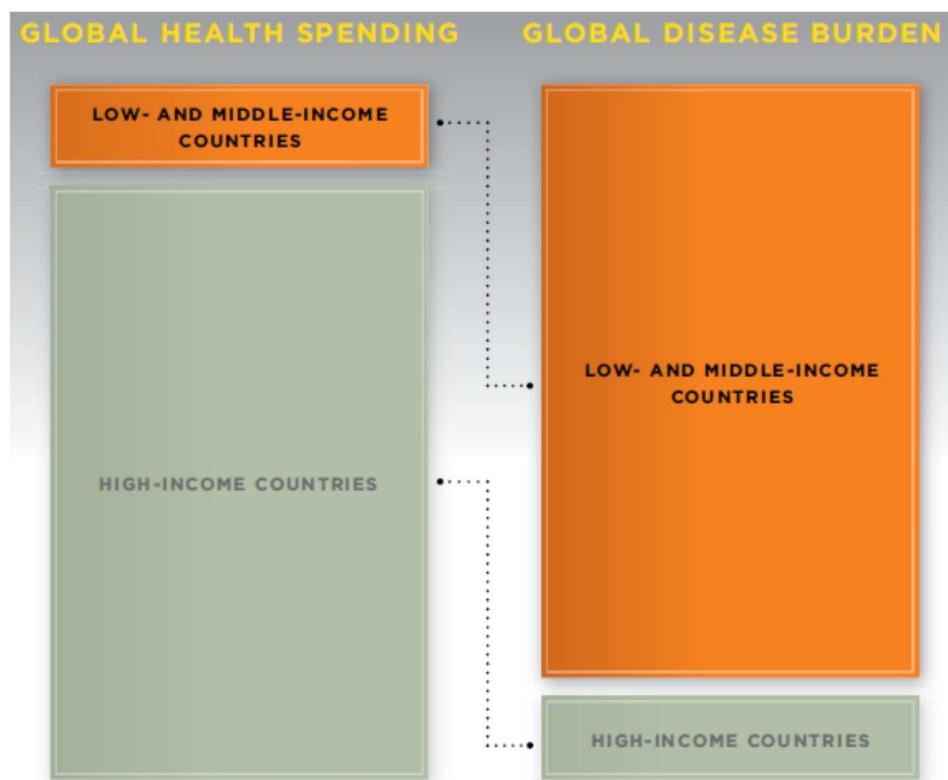


Figure 5: A comparison between health spending and disease burden amongst different countries(Gottret and Schieber 2006)

In South Africa, which has nearly 55 million people, the public health care system serves over 80% of the population while using 40% of all the money spent on health. Among the people involved in providing modern health care are doctors and nurses as well as allied health professionals such as physiotherapists, nutritionists or occupational therapists (Geyer, Mogotlane et al. 2009 p. 23). South Africa's public health care system has about 9500 doctors while the private sector has about 25000

doctors (Mars and Seebregts 2008 p. 3). This perceived inequity has historical roots and is causing grave concern.

This dissertation examines the management of records in public health care institutions in South Africa. It is critical to understand, in some detail, the architecture of the public sector and the context within which these records are generated, managed and utilised. In South Africa, as other parts of the world, the health care systems fulfil four key functions: financing; provision of personal and non-personal services; resource generation; and stewardship (Nolte, McKee et al. 2005 p. 21-22; World Health Organization 2000 p. 44-45). These functions interact in different ways in order to achieve health goals that include equity in health provision as well as financing, gaining of positive health outcomes as well as financial protection for the citizenry. These goals are attained through the intermediate objectives of equity, quality and efficiency. The diagram below illustrates how system functions connect with objectives in order to meet goals (Kutzin 2008 p. 3).

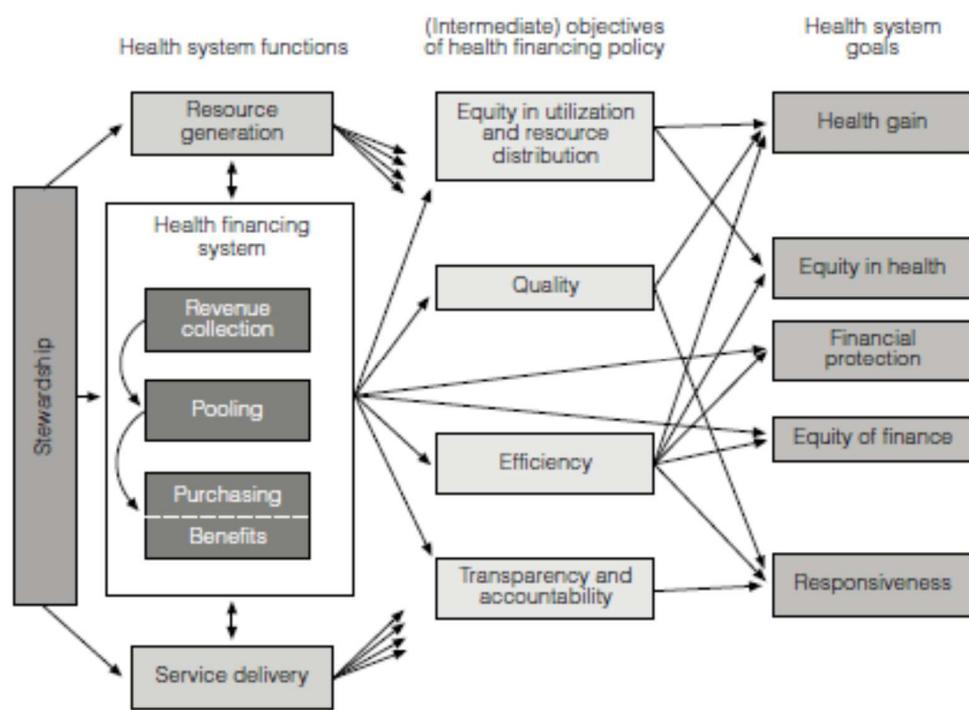


Figure 6: The links between financing function, policy objectives and other system functions and overall system goals (Kutzin 2008 p. 3)

This section provides a detailed assessment of South Africa's public health care system and does so by examining the four key health care system functions. This is critical in order to provide the context to the environment within which records and information is managed in the health care sector.

2.3.1 Financing function of the health care system

According to Murray and Frenk (2000 p. 724), financing is the process by which "revenues are collected from primary and secondary sources, accumulated in fund pools and allocated to provider activities." This is not only about "strategizing the organisation's financial direction" but also ensuring "the performance of its day-to-day financial operations" (Berger 2008 p. 6). Financing ensures that there is a healthy balance between capital and recurrent spending in the health system. It requires an analysis of trends in both public and private spending as well as consideration of both domestic and foreign funds. In health care financing, a clear policy framework, incentives, regulation and public information need to be brought to bear on important capital decisions in the entire system to counter ad hoc decisions and political influence (World Health Organization 2000 p. xvii).

In 2011, the World Health Organisation published data on health expenditure based on information that had been collected over 10 years and validated annually by various nation's ministries of health (World Health Organization 2011 p. 127). Table 6 is an extract of information from 13 of the world's countries showing only five out of twelve aspects of health expenditure (World Health Organization 2011 p. 128-135). The countries in the table were chosen as comparators to South Africa. The countries are a balance between developed and developing economies, with varied population sizes and chosen from different continents around the world.

Table 6: National statistics on health expenditure

	Total expenditure on health as % of GDP		General government expenditure on health as % of total expenditure on health		Private expenditure on health as % of total expenditure on health		General government expenditure on health as % of total government expenditure		Per capita total expenditure on health at average exchange rate (US\$)	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Australia	8.0	8.5	66.8	65.4	33.2	29.1	15.3	17.1	1728	4180
Brazil	7.2	8.4	40.3	44.0	59.7	56.0	4.1	6.0	107	317

	Total expenditure on health as % of GDP		General government expenditure on health as % of total expenditure on health		Private expenditure on health as % of total expenditure on health		General government expenditure on health as % of total government expenditure		Per capita total expenditure on health at average exchange rate (US\$)	
Canada	8.8	9.8	70.4	69.5	29.6	30.5	15.1	17.2	2082	4445
France	10.1	11.2	79.4	75.9	20.6	21.4	15.5	16.0	2184	4966
Germany	10.3	10.5	79.8	74.6	20.2	22.0	18.2	18.0	2128	2927
India	4.6	4.2	27.5	32.4	72.5	67.6	3.9	4.4	6	15
Indonesia	2.0	2.3	36.6	54.4	63.4	45.6	4.5	6.2	6	28
Kenya	4.2	4.2	45.3	36.3	54.7	63.7	9.1	5.8	17	33
New Zealand	7.7	9.7	78.0	80.2	22.0	19.8	15.6	18.3	1055	2917
Nigeria	4.6	5.2	33.5	36.7	66.5	63.3	4.2	6.4	17	73
South Africa	8.5	8.2	40.5	39.7	59.5	60.3	10.9	10.4	251	459
UK	7.0	8.7	79.3	82.6	20.7	17.4	14.3	15.1	1767	3771
US	13.4	15.2	43.2	47.8	56.8	52.2	17.1	18.7	4703	7164

Apart from providing individual country information, the World Health Organisation also provided an analysis of various statistics including the minimum, maximum, and median values for each of the aspects of the data. Table 7 provides an indication of these three indicators (World Health Organization 2011 p. 136-137).

Table 7: Minimum, median and maximum indicators for national statistics on health expenditure

	Total expenditure on health as % of GDP		General government expenditure on health as % of total expenditure on health		Private expenditure on health as % of total expenditure on health		General government expenditure on health as % of total government expenditure		Per capita total expenditure on health at average exchange rate (US\$)	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Minimum	1.4	1.9	3.0	6.5	0.4	0.3	1.2	0.7	3	10
Median	5.8	6.1	57.6	60.9	42.5	39.2	9.8	11.5	104	280
Maximum	20.3	15.2	99.6	99.7	97.0	93.5	21.7	26.1	4703	8019

The two tables above have four main aspects: the total expenditure on health, expenditure on health as a percentage of total expenditure either by government or the private sector, expenditure on health as a percentage of government expenditure and per capita total expenditure.

On the total expenditure on health, South Africa was above the median of most developing countries in both 2000 and 2008. South Africa in 2008 was comparable to some developed countries such as Australia and the UK. On expenditure on health as a percentage of total expenditure by either the government or the private sector, South Africa did much worse than the median. South Africa's mark was lower than even some of the developing countries such as Brazil and Nigeria. On the expenditure on health as a percentage of government expenditure, South Africa was above the median in 2000 but lower than the median in 2008. Nonetheless, South Africa still had a much higher percentage in 2008 than peer developing countries. On per capita total expenditure, South Africa was much higher than the median in both 2000 and 2008 and had a higher per capita figure than all the developing countries.

The two tables above, therefore, illustrate the complicated nature that South Africa finds itself within the global context. On average the country did well in total expenditure and per capita expenditure, but did poorly in expenditure on health as a percentage of total country expenditure as well as expenditure on health as a percentage of total government expenditure. The table also shows that compared to other developing countries, South Africa is doing reasonably much better and most closely comparable to Brazil in some aspects.

The section below examines financing in more details by looking at three components: revenue collection, fund pooling and purchasing. Revenue collection is aimed at establishing pre-payment systems and protecting the poor from catastrophic illness. Fund pooling is aimed at maintaining equity between generations as well as social groups. And purchasing ensures that money is used appropriately (Nolte, McKee et al. 2005 p. 22).

2.3.1.1 Revenue collection

Revenue collection is the mobilisation of money from both primary sources such as households and firms as well as secondary sources such as governments and donor agencies (Murray and Frenk 2000 p. 724). According to the World Health Organisation (2000 p. 98-99), there are two aspects to revenue collection from primary sources, pre-payment and direct collection (whether direct collection is done by co-payment or full payment). Although pre-payment is considered a cornerstone of fair health system

financing, some direct contribution at the moment of utilisation of care may be required particularly in low-income countries or in settings where there is need to increase revenues because pre-payment capacity is inadequate (World Health Organization 2000 p. 98-99).

Van Rensburg (2004b p. 38-40) argues that there are not just two (pre-payment and direct) but rather four different aspects to revenue collection: taxes, user fees, pre-payment schemes and donor aid. Taxes are, for many countries, the most important source of revenue because they form the largest percentage of revenue. User fees are monetary payments made by patients at the point and time of receiving health care services covering part or all of the actual costs of the service. Pre-payment schemes are a risk mitigation mechanism against future costs on health care and discussed in some more detail in section 2.3.1.2. Finally donor aid consists of contributions from multilateral agencies (e.g. World Health Organisation, United Nations Children's Fund and European Union), bilateral official assistance (e.g. Danish International Development Agency, Norwegian Agency for Development Corporation, Swedish International Development Cooperation) and international philanthropic donor organisations (e.g. Kellogg's Foundation, Ford Foundation etc).

Murray and Frenk (2000 p. 724) argue that there are more than just four aspects to revenue collection and that there are actually eight. Table 8 shows a comparison between both models from Van Rensburg as well as Murray and Frenk.

Table 8: Models of revenue collection

Van Rensburg model	Murray and Frenk model
User fees	Out of pocket payments
Pre-payment models	Voluntary insurance rated by income
	Voluntary insurance rated by risk
	Compulsory insurance
Taxes	General taxes
	Earmarked taxes
Donor aid	Donations from nongovernmental organisations
	Transfers from donor agencies

As the table above shows there are numerous ways of collecting revenue. Most of the public sector funding is collected through national taxes and donations from various sources while private sector funding comes from medical schemes as the predominant social insurance mechanism for accessing

health services (Botha 2008 p. x-xi). Van Rensburg's model provides an outline of the basic structure of revenue collection. Murray and Frenk's model provide more details in most aspects of revenue collection and demonstrates the sophisticated nature of the activity. The one aspect that is not adequately elaborated upon by either model is user fees which, in South Africa, is complicated. According to Thiede and Mutyambizi (2010 p. 192), South Africa's public sector offers free primary health care and its means-tested user fees apply for hospital services while the private sector offers primary care mainly on a "fee-for-service basis" and hospitals also require payments.

The nature of service fees is dependent on the public institutions. South Africa's primary health care is provided free of charge but other services may have some cost associated through means-tested user fees (Thiede and Mutyambizi 2010 p. 192). According to the means-test, if a patient presenting at a public hospital for health services is employed and earning above a certain income then he or she is required to pay a fee based on their level of income. "These fees are generally lower than those payable in the private sector and the services received, even by paying patients in the public sector who are not on medical schemes, are subsidised by the state"(Carstens and Pearmain 2007 p. 230).

The diagram below takes the discussion further by graphically representing the interconnections of the different aspects of revenue collection (Criel 1998 p. 22; De Ferranti 1985a; De Ferranti 1985b).

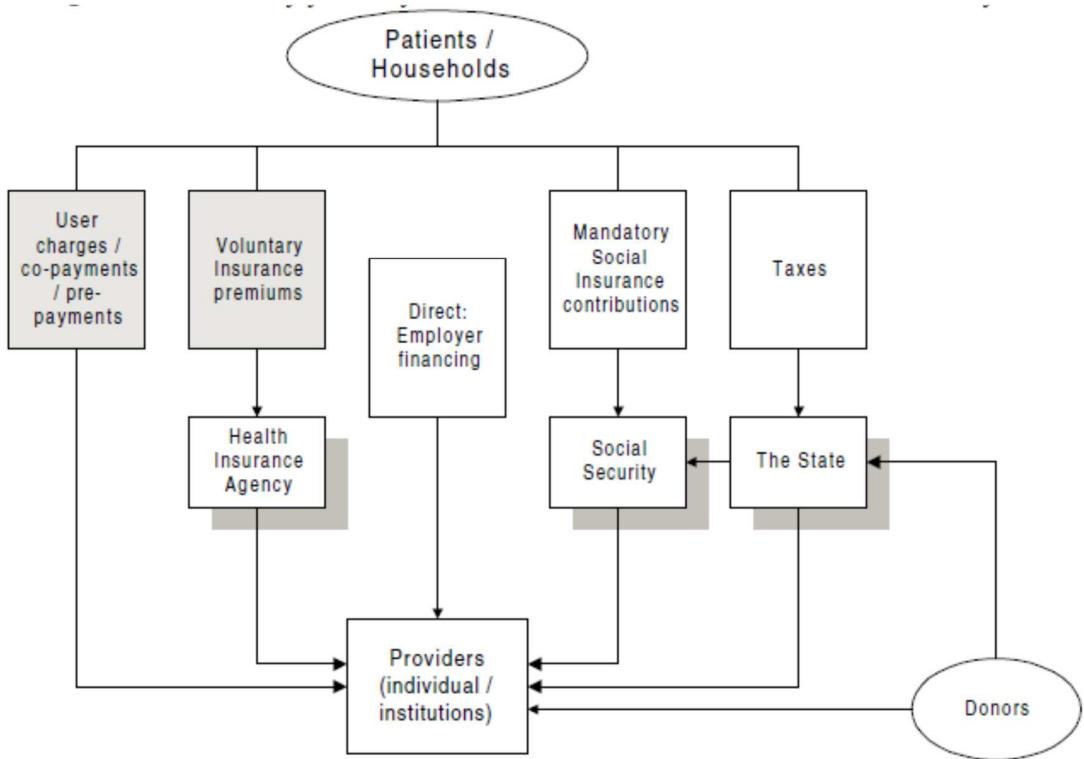


Figure 7: Flow of funds in the health sector in sub-Saharan Africa (Criel 1998 p. 22)

The diagram above shows how the various parts of revenue collection work (De Ferranti 1985a; De Ferranti 1985b). According to Botha (2008 p. x-xi), revenue collection in South Africa is “uncoordinated and fragmented” funding and requires reforms. Commentators have demonstrated this through various reports. For instance, according to Thiede and Mutyambizi (2010 p. 192), tax subsidies for Medical Aid Schemes amount to a very large amount, equivalent to 21% of the total public health sector care spending. Considering that Medical Aid Schemes serve the private sector which only covers about 20% of the total population, the high amount of tax subsidies are considered highly regressive.

Another example of the inefficient South African revenue collection system is the Road Accident Fund (RAF) which is a state insurer that is supposed to provide cover to all drivers in the country. During a parliamentary briefing in 2006, RAF admitted to poor administrative performance and being technically insolvent (Public Services Select Committee [South Africa] - Portforlio Committee on Public Works 2006).

Four years later, a published government Gazette acknowledged that the RAF didn't function optimally (Department of Transport [South Africa] 2010). And two years after that, in yet another parliamentary

briefing, the institution was again under scrutiny with claims that administrative weaknesses led to abuse of the fund (Public Services Select Committee [South Africa] - Portfolio Committee on Public Works 2012). As state insurer, if there are weaknesses in revenue collection, which it admitted to have, then fulfilling its role becomes difficult.

2.3.1.2 Pooling

Fund pooling is the “accumulation of revenues for the common advantage of participants” (Leung and Bacon-Shone 2006 p. 339). In fund pooling, financial resources are no longer tied to one contributor but rather to a pool of contributors and each of the contributors share the financial risk. Therefore, pooling is distinct from revenue collection”, as some mechanisms of revenue collection, such as medical savings accounts, do not share financial risks across contributors” (Murray and Frenk 2000 p. 724). This reduces individual risk and the spectre of impoverishment from health expenditures (World Health Organization 2000 p. xviii).

There is further differentiation amongst low-income countries (LIC), middle-income countries (MIC) and high-income countries (HIC) with regards to fund pooling (De Ferranti 2009).

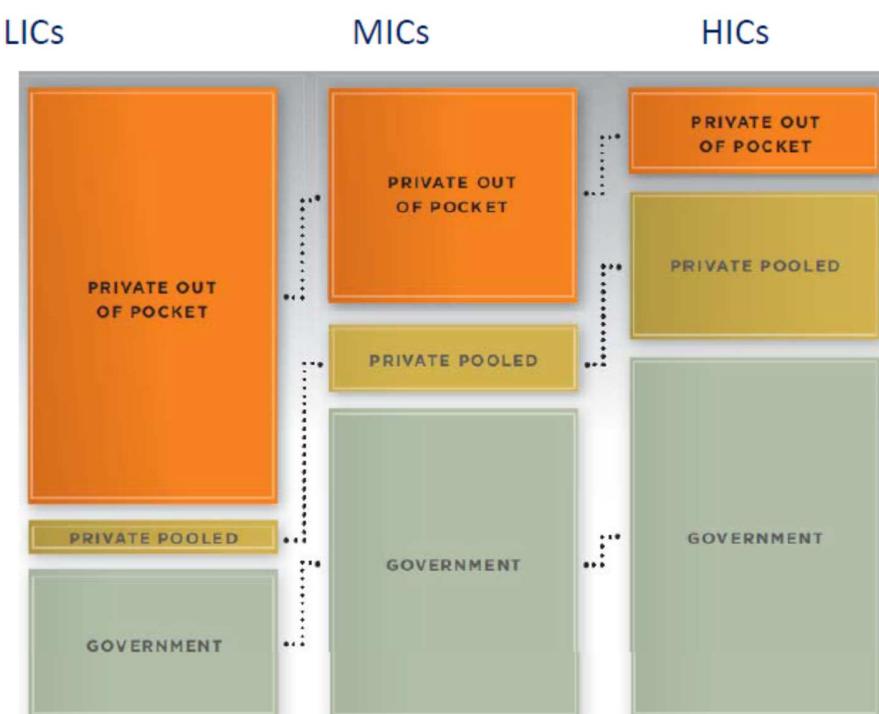


Figure 8: The difference between private pooled and out-of-pocket costs in different countries (De Ferranti 2009)

Fund pooling is aimed at making health financing fair by reducing out-of-pocket payment because they are “the most regressive way to pay for health, and the way that most exposes people to catastrophic financial risk” (World Health Organization 2000 p. 113). In low-income countries out-of-pocket payments are often the only way to raise revenue and cover costs (Goodwin 2009 p. 399). However, out-of-pocket payments are unfair in two ways by exposing families to either unexpected expenses or regressive payments “in which those least able to contribute pay proportionately more than the better-off” (World Health Organization 2000 p. 35). Unexpected expenses are solved by “minimizing the share of out-of-pocket financing of the system, so as to rely as fully as possible on more predictable pre-payment that is unrelated to illness or utilisation” (World Health Organization 2000 p. 35). Regressive payments are “solved by assuring that each form of pre-payment - through taxes of all kinds, social insurance, or voluntary insurance - is progressive or at least neutral with respect to income, being related to capacity to pay rather than to health risk” (World Health Organization 2000 p. 35).

Out-of-pocket payment could be neutral or progressive if they are not too large, do not impoverish anyone or deter the poor from obtaining care. However, this process may be difficult and may require arrangements that exempt the destitute from user fees at public facilities, or impose a sliding scale based on social economic characteristics (World Health Organization 2000 p. 35).

Fairness of the pre-payment system depends on “how revenues are combined so as to share risks: how many pools there are, how large they are, whether inclusion is voluntary or mandatory, whether exclusion is allowed, what degree and kind of competition exists among pools, and whether, in the case of competing pools, there are mechanisms to compensate for differences in risk and in capacity to pay” (World Health Organization 2000 p. 113).

All these features are critical because they determine the efficiency of the system. For instance, the argument in favour of a single pool or a small number of pools of adequate size, and against fragmentation, concerns a number of things (World Health Organization 2000 p. 113). These include “the financial viability of pools, the administrative costs of insurance, the balance between the economies of scale and (when there is little or no competition) the risks of capture and unresponsiveness, and the limitation of risk selection (which is a matter of efficiency as well as equity)” (World Health Organization 2000 p. 113). Inefficiencies are not good because they “reduce both the funds available for investment and for providing services, and people’s access to those services that can be financed” (World Health Organization 2000 p. 113).

Health insurance is one of the key avenues for pre-payment because it offers a means of offsetting financial losses through risk pooling among relatively large populations (Van Rensburg 2004b p. 40). Risk refers to the possibility of a substantial financial loss from some event such as illness requiring expensive treatment and hospitalisation that may necessitate surgeries or other interventions. Insurance entails some type of cost sharing so that the insured assumes at least part of the risk (Shi and Singh 2005 p. 125-126). There are generally two kinds of insurance, on the one hand is compulsory insurance and on the other is voluntary or private insurance.

Van Rensburg (2004b p. 40) argues that no country in sub-Saharan Africa has a health insurance scheme that provides national coverage. As a rule, where such Medical Aid Schemes are in place they cover only people in formal employment where subscribers contribute pre-payments to the fund. A rare example is Ghana. The country has had national health insurance since 2004 and had reached 60% of the population by 2010 (Akazili 2010; Goudge, Akazili et al. 2012).

Revenue pooling in South Africa reflects the country's economic realities. Being one of countries with the highest inequalities in the world (UN HABITAT 2008 p. 64), risk pooling is dichotomous. On the one hand are high-income earners with access to medical schemes and health insurance, while on the other hand are the lower income earners who have devised alternative institutions, such as burial societies and stokvels, that are unique to the country. A stokvel is an invitation-only club for members that operate a savings scheme (The Beehive 2014; Wasserman 2009). There is no legal obligation for any South African citizen to join a medical scheme or any other risk pooling scheme (Thiede and Mutyambizi 2010 p. 195). The diagram below provides an outline of these institutions (Thiede and Mutyambizi 2010 p. 194-195).

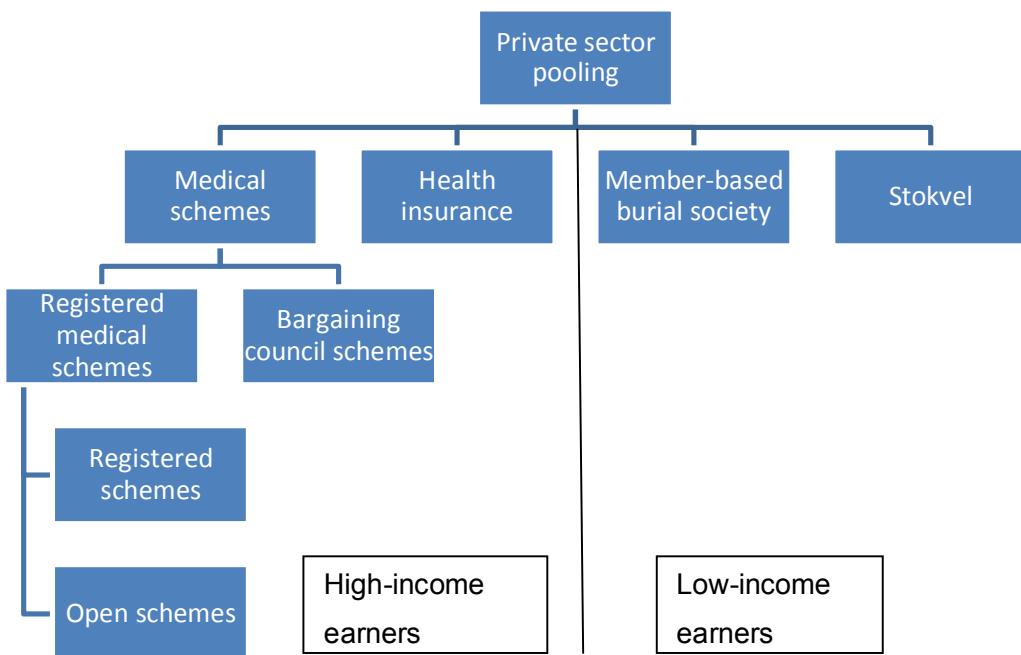


Figure 9: Private sector pooling in South Africa (Thiede and Mutyambizi 2010 p. 194-195)

The terms medical scheme and health insurance may be used interchangeably in other countries but in South Africa they represent different concepts. Health insurance in South Africa refers to insurance products for disability and dreaded diseases delivered by short-term and life insurers. On the other hand, the term medical scheme typically refers to the indemnity non-profit business of mutual societies where members are reimbursed for actual expenditure on health.

Health insurance usually offer to pay the insured a specific sum agreed upon in advance in the event of dreaded disease or disability (Thiede and Mutyambizi 2010 p. 194). They are private not-for-profit entities established in terms of the Medical Schemes Act (Carstens and Pearmain 2007 p. 230) that offer health coverage linked to employment where benefits are linked to income and ability to pay (Botha 2008 p. xii). Thus, the potential for voluntary health insurance to succeed is dependent on whether employment levels are high.

Figure 9 above shows that there are two categories of medical schemes: bargaining council schemes and registered medical schemes. Bargaining councils do not fully comply with the Medical Schemes Act in the types of benefits they offer. They generally offer primary health care coverage. Registered medical schemes comply with the Medical Schemes Act and are registered with the Registrar of Medical Schemes. There are two categories of registered medical schemes: restricted membership and

open schemes. Restricted membership schemes typically limit membership by employer or profession, whereas open schemes have open access (Thiede and Mutyambizi 2010 p. 194).

There is no existing arrangement through medical schemes or health insurance that targets the lower-income group since these require formal employment as a pre-requisite (Thiede and Mutyambizi 2010 p. 190; Van Rensburg 2004b p. 40). The two mechanisms that have emerged for this income group are member-based burial societies and stokvels. Burial societies provide funeral insurance for their members and there are an estimated 100,000 such societies with eight million members. Stokvels are rotating savings and credit associations providing lump-sum benefits to an estimated 2.5 million members on a rotating basis (Thiede and Mutyambizi 2010 p. 194).

The reality of having informal institutions in order to meet the needs of the lower income group isn't sustainable in the long term. Botha (2008 p. xii) states that health care costs are increasing due to medical inflation being significantly higher than overall consumer price index. This phenomenon coupled with weak cost control and poor risk selection have resulted in a decreasing risk pool and increased burden on an already stretched public health care sector (Botha 2008 p. xii). When this is seen in the context of the country's current high unemployment, there are serious threats to the successful introduction of systemic risk pooling in order to address the challenges of equitable access to health care (Thiede and Mutyambizi 2010 p. 191). It is for this and other reasons that there has been a discussion of the National Health Insurance in the country, a topic that is discussed in more details in chapter 4 of this dissertation.

2.3.1.3 Purchasing

Purchasing is the process through which "revenues that have been collected in fund pools are allocated to institutional or individual providers to deliver a set of interventions (Murray and Frenk 2000 p. 724). It could constitute simple budgeting exercises of health system inputs such as trained personnel, diagnostic equipment and vehicles. However it does not include purchase of health care services (World Health Organization 2000 p. xvii). In highly integrated public systems, government not only collects revenue and allocates it to programmes and facilities for staff and other costs but also has "more complicated strategies where specified units of inputs, outputs or outcomes are purchased" (Murray and Frenk 2000 p. 724).

There have been debates as to whether introducing and strengthening the purchasing function has led to improvements in health services efficiency (Donaldson, Gerard et al. 2005 p. 21-36). In countries

where inputs are purchased directly with public funds, “the ministry of health has a direct responsibility to ensure that value for money is obtained – not only in terms of good prices, but also in ensuring that effective use is made of the items purchased” (World Health Organization 2000 p. xvii). In such instances the central ministry may have to decide on major capital decisions, such as tertiary hospitals or medical schools. The World Health Organisation (2000 p. xvii) argues that “regional and district health authorities should be entrusted with the larger number of lower-level purchasing decisions, using guidelines, criteria and procedures promoted by central government.”

However, where health system inputs are purchased by other agencies, such as private insurers, providers, households or other public agencies, “then the ministry’s stewardships role consists of using its regulatory and persuasive influence to ensure that these purchases improve, rather than worsen, the efficiency of the input mix” (World Health Organization 2000 p. xvii).

Purchasing needs should be actively managed since the process of making strategic investment priorities can impact on equity and efficiency (Goodwin 2009 p. 400). Revenue collection may be done fairly and with minimal waste, and be pooled so as to assure that the healthy help support the sick and the rich help support the poor. However, the performance “of the system will still fall short of its potential if the pooled resources are not used intelligently to purchase the best attainable mixture of actions to improve health and satisfy people’s expectations” (World Health Organization 2000 p. 113).

According to an assessment by Donaldson, Gerard et al (2005 p. 21-36), it would seem that purchasing within a more socialised system “may still be the best for meeting twin goals of equity and efficiency”. This is because decisions are made with the socialised perspective of equity. They include decisions on what investments are made and which interventions are brought, and for whom.

In South Africa, with the push towards a single payer model in the NHI, there is greater centralisation. According to Shisana (2008 p. 5), “a single-payer model is likely to result in significantly lower administrative and transactions costs and significant cross-subsidisation. The general world trend in purchasing functions reforms in health seems to be a movement away from fragmented and competitive environments”. Nonetheless, centralisation is not a panacea. South Africa has seen numerous frustrations in purchasing at the institutional level. A study of three provinces in South Africa showed that hospital managers were frustrated by the lack of financial authority. For instance, in one of the provinces, hospitals did not have a bank account or cheque book and, therefore, could not make payments. They also could not input data into the financial system or conduct transactions; nor could

they play any role in procurement, or in deciding on suppliers or producers (Von Holdt and Murphy 2007 p. 7). This means that purchasing is virtually impossible in such circumstances.

Therefore, the key to successful reform of purchasing will be to address deficiencies both at an institutional as well as an overall system basis. The proposed NHI system, while it may address purchasing issues at a system level, it will also need to enhance efficiency at the institutional levels in order to avoid the kinds of frustrations such institutions are facing.

2.3.1.4 Concluding remarks on the financing function

According to Murray and Frenk (2000 p. 724), financing is the process by which “revenues are collected from primary and secondary sources, accumulated in fund pools and allocated to provider activities.” As such, financing is a critical function in the health system because it plays a role in both the demand and supply of health care services. It is instrumental in creating demand particularly in a free market model where “demand is determined by the prices of goods and services on the one hand and people’s ability to pay for them on the other” (Shi and Singh 2005 p. 122). In such an environment, health insurance lends people the ability to pay for services. Financing also exerts powerful influences on supply-side factors, such as how much health care is delivered. Again in a free market model, “services with more liberal reimbursement proliferate rapidly. When reimbursement is constrained”, the supply of services is curtailed accordingly (Shi and Singh 2005 p. 122-123).

As this section has demonstrated, financing has three components: revenue collection, fund pooling and purchasing. Revenue collection is aimed at establishing pre-payment systems and protecting the poor from catastrophic illness. Fund pooling is aimed at maintaining equity between generations as well as social groups. And purchasing ensures that money is used appropriately (Nolte, McKee et al. 2005 p. 22). These three components not only interact with each other but also with other functions within a health care system with the aim of ensuring service provision. The diagram below illustrates this complex interaction (Gottret and Schieber 2006 p. 46).

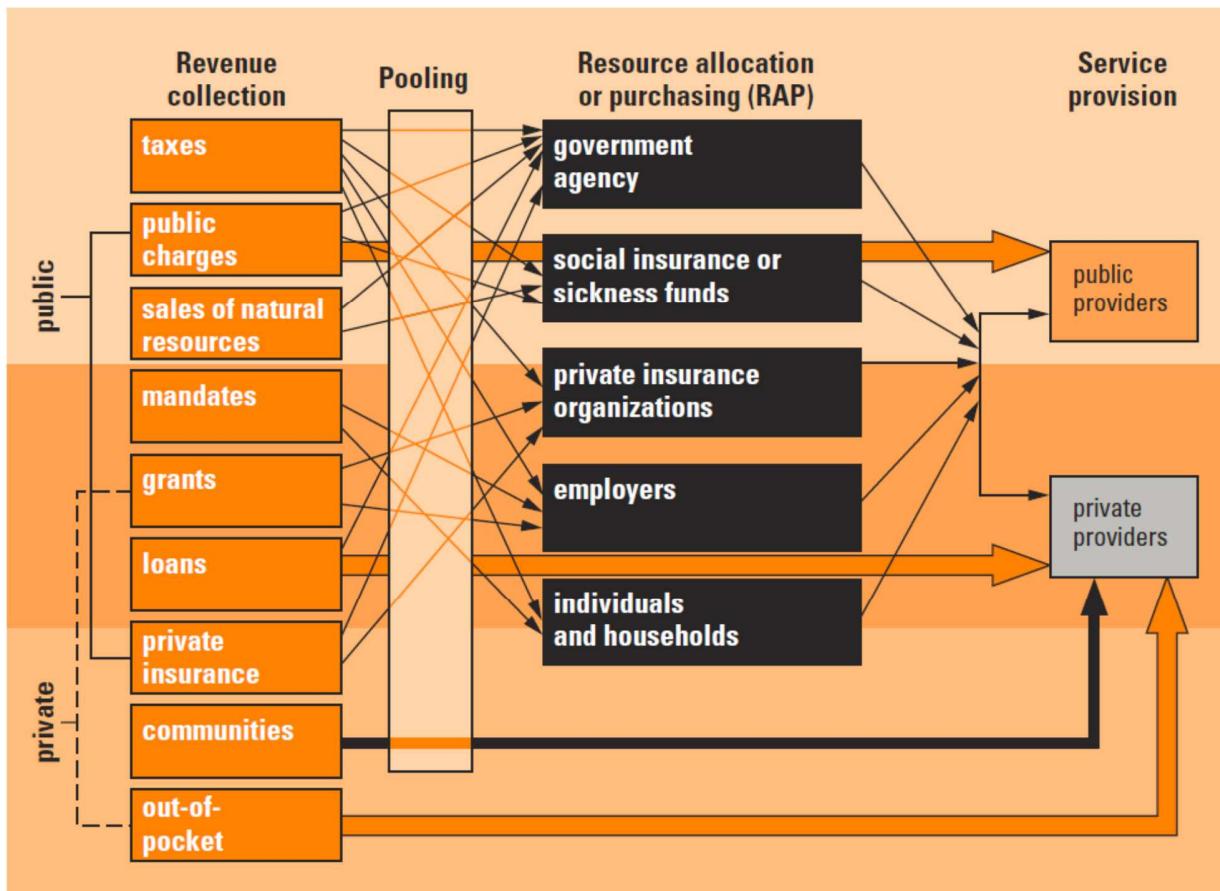


Figure 10: Health financing functions (Gottret and Schieber 2006 p. 46)

As the illustration above demonstrates, there are both public and private providers for health services. According to Carstens and Pearmain (2007 p. 230), South Africa's public sector spends less than 40% of the overall health budget, compared to 60% by the private sector, yet it serves more than 80% of the population. This suggests that a lot more funding needs to be put towards the public sector. The challenges are further compounded by ever increasing population growth and increasing disease burden. According to Botha (2008 p. xi), the stagnated public sector health expenditure is attributable to "limited funding and declining budget allocations to government's financial intermediaries" which are provincial and local government departments.

Addressing the funding challenges faced by public sector would need a nuanced assessment of its interaction with the private sector. Even though there is generally a dichotomy between public and private sectors, there is increasing blurring when it comes to funding. There are at least four ways in which this could be demonstrated. First, as medical schemes look for ways to keep costs down, they are urging members to obtain services at public health care establishments that tend to be cheaper

than private institutions. Second, the government is increasingly seeking public-private partnerships in which some of the public health facilities are used to treat private patients. This suggests that both public institutions are unable to meet the demand as well as not being able to, at the very least by perception, not provide high quality service. Third, labour unions which have members in both the public and private sectors generally have a material interest in low-cost private medical schemes that are run for the benefit of their members (Carstens and Pearmain 2007 p. 230). The blurring is demonstrated, for instance, where there is restricted membership to a private medical scheme, a labour union may want to be involved in any discussion on behalf of its members who could be working in the public sector (Pearmain 2000 p. 194). Lastly, there are different types of non-state health care providers that are either commissioned or subsidised by the government (Carstens and Pearmain 2007 p. 230; Delay, Gilson et al. 2004). Commissioned services would be, for instance, private doctors that are often “located in small towns in rural areas where there are few or no public sector doctors available” (Delay, Gilson et al. 2004 p. 35). Subsidised arrangements would include home-based care services such as those needed for people living with HIV/AIDS (Delay, Gilson et al. 2004 p. 45-48).

There are major efforts underway by the government to remedy the financing imbalance through the introduction of national health insurance (NHI) system (McIntyre 2010). According to the Human Science Research Council (Shisana 2008 p. 4), a model NHI plan would draw in “private and public health sector funds, and human and physical resources, to ensure that all South Africans receive the constitutional entitlement of access to health care free at the point of service. The financial contribution would come from employers, employees and the self-employed – with the government providing for the indigent”. Additional discussions on the NHI are in chapter 4 of this dissertation.

2.3.2 Resource generation function of the health care system

Resource generation entails the production, import, export, distribution and retail sale of knowledge, pharmaceuticals, medical equipment, and other consumables (Streveler and Sherlock 2009 p. 264). According to Murray and Frenk (2000 p. 725), the resource generation function includes a diverse group of inputs: human resources, physical resources such as facilities and equipment, and knowledge. Since resource generation is closely linked to the service provision, which is discussed in section 2.3.3, the boundaries between the two functions might not always be clear. Figure 11 schematically represents the relationship between the resource generation and service provision functions (Adams, Poz et al. 2003 p. 275-276).

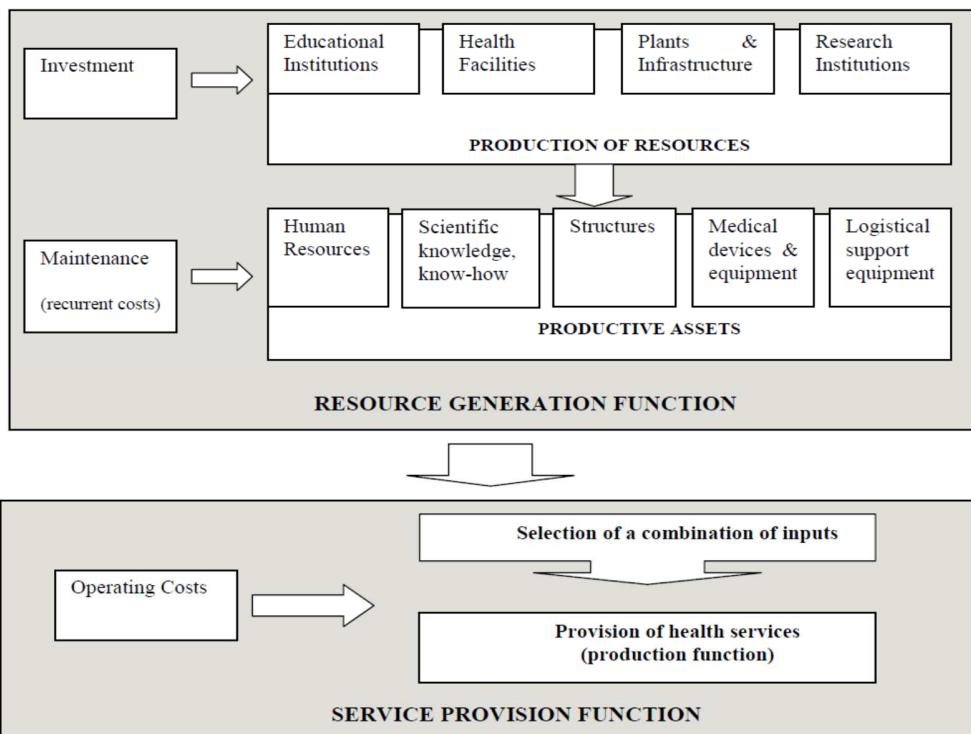


Figure 11: The link between resource generation and service provision (Adams, Poz et al. 2003 p. 275-276)

Resource generation relates to four kinds of capital: physical, human, intellectual and social. Investment in physical capital ensures there are appropriate facilities. Investment in human capital makes certain there are well trained and highly motivated people. Investment in intellectual capital relates to research and development. Finally social capital relates to investment in networks and relationships (Jennett 2004 p. 64-72; Nolte, McKee et al. 2005 p. 22). The section below covers each of them in some detail.

2.3.2.1 Human capital

Human capital, which is also known as human resource, can be defined as the stock of all individuals, whether in the public or private sector, that engage in the promotion, protection, or improvement of the health of the population (Mercer, Dal Poz et al. 2002 p. 7). Human capital as a resource generation aspect requires investment in “trained, motivated people with the appropriate mix of skills” (Murray and Frenk 2000 p. 725). These individuals can be found in different domains of health systems such as personal curative and preventive care, non-personal public health interventions, health promotion, and disease prevention (Adams, Poz et al. 2003 p. 276). While resources generation function is more than just one aspect, human resources challenges remain the most acute in South Africa.

The fundamental reason why human resource is the most acute challenge relates to the legacy of apartheid. At its most basic, the distribution of human resources in the apartheid health system was highly skewed. Medical training was the preserve of Whites (Schneider, Barron et al. 2007 p. 292). As a result the ratio of doctors in 1950 was 1 doctor to a population of 2185 and the ratio in 2000 was 1 doctor to 1465 (Van Rensburg 2004a p. 328). Considering that apartheid designated certain race groups to remote and undeveloped areas, this resulted in creating a huge disparity between urban areas and rural areas. An additional dichotomy is that of private and public sector. Each of these dichotomies needs some discussion.

The gap between public and private sector was extreme. In 1992/93 more than 85 percent of dentists and pharmacists, and over 60 percent of all doctors, psychologists, physiotherapists and other allied health professionals were working in the private sector (McIntyre 1995). While medical practitioners in the public sector are employed by the state, private sector practitioners are either self-employed or connected to a non-state institution (Carstens and Pearmain 2007 p. 230-231). In South Africa, it is the individual provincial departments of health that employ most of the health and other allied professionals in the country (Carstens and Pearmain 2007 p. 233).

The gap between rural areas and urban areas is dire with the former lacking in numbers of health practitioners (Schneider, Barron et al. 2007 p. 298) and (De Haan, Dennhill et al. 2005 p. 28). In order to reverse this trend, a scarce skills and rural allowance strategy was implemented from 2004 resulting in an increase in the number of health personnel such as doctors, nurses, pharmacists, and ambulance personnel (Botha 2008 p. ix).

An additional issue is that most of the health personnel tend to provide curative rather than preventive assistance. This means that issues that may be easily prevented through cost-effective health interventions at the primary care level fester until they require cost-intensive curative interventions at the secondary and tertiary levels. Unfortunately the country is seeing a lack of enough qualified practitioners at the secondary and tertiary levels. De Haan (2005 p. 27) states that there was limited number of registered practising doctors, the majority of them living in urban areas, working in the private sector and concentrating mainly on curative medicine.

When compared to doctors, the history of nursing had the most impact in the health sector during the apartheid era. The policy at the time was to train Black nurses which means that by 1990, half of the country's nurses were Black (Schneider, Barron et al. 2007 p. 292). For the most part, the public sector

is dependent on the technical skills of nurses, of whom the professional and fully-qualified nurse is the most important (Schneider, Barron et al. 2007 p. 298). Nursing is the foundation of clinical and patient care (Von Holdt and Murphy 2007 p. 317). In primary care, well over 90 percent of all patients have professional nurses as their main caregivers (Schneider, Barron et al. 2007 p. 298). The departments of Health either at national or provincial levels as well as the District Health System s are the biggest employers of these nurses (Geyer, Mogotlane et al. 2009 p. 26).

Unfortunately nurses bear the brunt of the strain in the public sector particularly with increased patient loads, staff shortages and management failures (Von Holdt and Murphy 2007 p. 317). This has resulted in high stress levels amongst nurses that has an impact on "clinical outcomes and patient care as well as on staff morale, recruitment and personal health" (Von Holdt and Murphy 2007 p. 317). This situation is acute both at the primary level as well as in secondary and tertiary institutions. However, with the burden of health service delivery having been shifted to primary level, with clinics dealing with massive patient loads, very little has been done to make the institutions attractive to qualified nurses, who are already in short supply (Cullinan 2006 p. 6). This has resulted in the exodus of nurses in particular and health care professionals in general to the private sector or to destinations outside South Africa such as Europe and the Middle East (Schneider, Barron et al. 2007 p. 299). South Africa's private sector doesn't face such challenges. It is in the unique situation because it has its own training facilities and offers the opportunities for nurses in conjunction with other health practitioners such as physicians, and allied health personnel such as physiotherapists and occupational therapists to run their own independent practices (Department of Health [South Africa] 2012a p. 10; Geyer, Mogotlane et al. 2009 p. 26).

Beyond just nurses, doctors and members of the allied health professions, two other categories are worth mentioning: volunteer health workers and traditional healers. According to de Haan (2005 p. 28), people working in the community either as employees of a community project or as volunteers were not officially recognised for the contribution they were making to health care until 2003. In that year, the Department of Health recognised the need for formalising this group of volunteers or community workers "in order to ensure the safety of the people and also to acknowledge their contribution to health care in the community. Training for home-based care has been provided and with the increasing number of people living with AIDS, their role in the health team has become more and more vital" (De Haan, Dennhill et al. 2005 p. 28).

In South Africa it is estimated that there are about 350,000 traditional healers living and working mainly in rural areas. They have very close ties with their community and exert considerable influence (De Haan, Dennhill et al. 2005 p. 27-28). According to the Traditional Healers Act (South Africa 2007b), all traditional healers that fulfil certain criteria should be registered and recognised as members of the health practitioner's team. This means their patients are able to claim from their medical aid for services rendered by them (De Haan, Dennhill et al. 2005 p. 27-28).

As the preceding discussion has demonstrated, there are varied health care professionals in South Africa but most, particularly in the public sector, face similar challenges. The ones under the worst strain work in remote areas under constrained circumstances that have resulted in them being stressed due to high workloads, strained working conditions with frayed inter-personal relations (Von Holdt and Murphy 2007 p. 315). While there have been steps taken from the 1990s and through most of the 2000s, Schneider, Barron et al. (2007 p. 298) argue that the responses to human resources challenges "have been piecemeal, focusing on individual strategies such as the recruitment of Cuban doctors in the immediate post-1994 period, compulsory community service for recent graduates and scarce skills and rural allowances". There has also been a lack of "a human resource plan with human resource norms and corresponding forecasting of production", the rationalisation of education and training institutions and a lack of coordination between the education and health sectors (Schneider, Barron et al. 2007 p. 298-299). This gap cannot be fulfilled by the human capital function of individual health care institutions because they are essentially a personnel function for administering the payroll, leave, and recruitment. As a consequence, they lack the strategic or proactive capacity to manage human resource development and labour relations. Most of these institutions have no skills development plans or employment equity plans (Von Holdt and Murphy 2007 p. 326).

Therefore, the Human Resource for Health (HRH) strategy launched in 2011 was a welcome move because it aimed at addressing these gaps in a systematic and comprehensive manner. A critical focus area is increasing the "intake of students and the throughput of health workforce training at university and college level to ensure responsiveness to the burden of disease and legitimate expectations of citizens" (Department of Health [South Africa] 2012a p. 10). Additionally, it focused on the improvement of management of public institutions by prioritising the training of senior management (Department of Health [South Africa] 2012a p. 10). The impact of the strategy is yet to be seen since implementation is on-going.

2.3.2.2 Physical capital

Physical capital entails the investments in high-quality, appropriate facilities (Murray and Frenk 2000 p. 725). According to Cullinan (2006 p. 6), almost a quarter of primary health care facilities didn't have piped water and about 10% didn't have sanitation, electricity and telecommunications. The National Health Care Facilities Baseline Report of 2012 noted that the facility infrastructure, particularly in the primary health care level, required attention (Health Systems Trust 2013 p. x).

The Department of Health noted in its Annual Performance Plan (2012a p. 8) that infrastructure management would be one major component of the health system that would be strengthened through a turnaround strategy that included Infrastructure Unit Support systems (IUSS). Among the priority issues would be the “renovation, refurbishment and/or the complete rebuilding of about 122 nursing colleges” as well as prioritising of 25 districts where infrastructure was poor (Department of Health [South Africa] 2012a p. 8). The Department of Health has used different types of funds. One such fund, the Hospital Revitalisation Grant supported “389 projects covering 52 hospitals in all provinces” (Department of Health [South Africa] 2012a p. 27). In total infrastructure projects were being implemented in the health sector (Department of Health [South Africa] 2012a p. 27). In order to be able to do this, all public health facilities in the country had been “geo-mapped to determine their location for the purpose of accessibility, travel distances and the determination of catchment populations” (Department of Health [South Africa] 2012a p. 9).

2.3.2.3 Intellectual capital

Intellectual capital entails investment in research and development (Murray and Frenk 2000 p. 725). According to Senkubuge and Mayosi (2013 p. 142), expenditure on medical research provides huge returns on investment “whether measured in terms of dollar value of lives saved, health costs saved, or jobs created”. In South Africa, intellectual capital has been harnessed through the different stakeholders that include research institutions, academia, other government departments and non-governmental organisations. A recent example was the National Research Conference held in 2011 that involved over 300 such stakeholders in order to identify priority areas for health research (Department of Health [South Africa] 2012a p. 35). Following the conference, a National Health Research Committee was established and the functions would be:

1. Determine the health research to be carried out by public health authorities
2. Ensure that health research agendas and research resources focus on priority health problems
3. Develop and advise the Minister on the application and implementation of an integrated national strategy for health research

4. Coordinate the research activities of public health authorities (Department of Health [South Africa] 2012a p. 36).

Despite good intentions a number of individual, organisational and system-wide challenges hinder research and development in South Africa (Orgill, Nxumalo et al. 2013 p. 156-157). These would require better coordination amongst research institutions in order to “develop joint research agendas and avoid duplication” as well as synthesise “experiences and results” (Orgill, Nxumalo et al. 2013 p. 158).

2.3.2.4 Social capital

Social capital is the investment in networks and relationships (Murray and Frenk 2000 p. 725). The success of any health system is determined by its institutions’ ability not only to individually function effectively and efficiently but also to do so within an interconnected network. This is because health systems encompass “shifting systems of social solidarity” and “extended social networks” (Sama and Nguyen 2008 p. 10).

As section 2.2 of this chapter has demonstrated, South Africa has a very sophisticated public health care structure. At each level of this structure, there are numerous types of interactions amongst and between individuals as well as institutions. The District Health System is considered the coalface of the public sector, and it is probably at this level that most interactions take place. Ellocker, Olckers et al (2013 p. 165) demonstrate that at a sub-district in Cape Town, the interactions are numerous and very complex as shown in the illustration below.

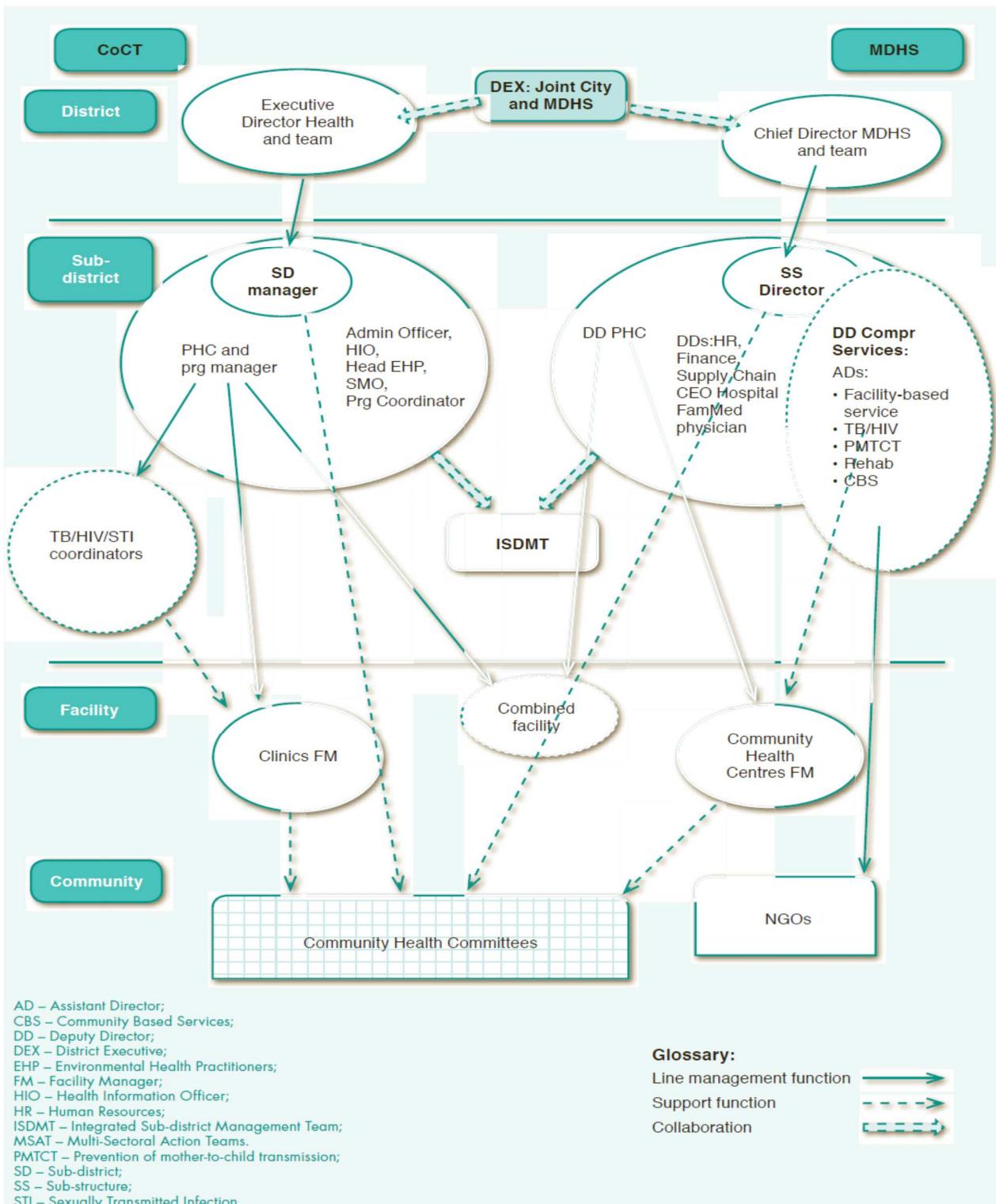


Figure 12: Lines of authority in the Cape Town metropolitan health district (Elloker, Olckers et al. 2013 p. 165)

These interactions are considered the “intangible software of the health system” (English and Padarath 2013 p. x). The case of the Cape Town district demonstrates that while health systems aim towards greater effectiveness, managers are expected, and should be willing and able, to manage in ‘calculated chaos’ (Elloker, Olckers et al. 2013 p. 172).

2.3.2.4 Conclusion on Resource generation

As demonstrated in this section, health services are resource dependent. However, “given the mounting challenges of both financial and human resource concentration in the private sector, low staff morale in the public sector” as well as poor service quality, there is need to address these challenges through greater parity of resources at different levels of the health system (Botha 2008 p. xiv; Harrison 2009 p. 16).

2.3.3 Provision function of the health care system

The ultimate goal for all health care systems is the delivery of services and is termed as provision. Murray and Frenk (2000 p. 725) state that provision refers to “the combination of inputs into a production process that takes place in a particular organisational setting and that leads to the delivery of a series of interventions.” Other functions discussed previously matter partly because they contribute to service provision. Therefore, it is a major failing of the system “when effective and affordable health interventions do not reach the populations that would benefit from them” (World Health Organization 2000 p. 48). The provision function involves all the services and products used for maintaining or improving the health of a population. Throughout the world there are different models of medical care provision with varying degrees of effectiveness in delivering service. “Because medical care is an essential component of human endeavour, most countries and the international community are working vigorously to improve the distribution of medical care services to individuals all over the globe” (Lighter 2004 p. 362).

Health care provision is the care of people, either through personal or non-personal services. Personal services are those provided directly to an individual while non-personal services are either provided to collectives (such as mass health education) or for non-human components of the environment such as basic sanitation (Nolte, McKee et al. 2005 p. 22). South Africa, like many other countries, provides health services based on three levels of care: primary, secondary and tertiary. As mentioned earlier, the public sector serves the majority of the population and will be the focus of this section in keeping with the title of this dissertation. The private sector will be mentioned briefly.

On the outset it's important to clear any definitional grey areas. The use of certain words to represent similar concepts could easily cause confusion and in particular levels of care and types of institutions within those levels of care. With regards to the levels of care some commentators have labelled these as Level 1, 2 and 3 (Mangate 2004 p. 4-2). For purposes of this discussion, the preferred terminology for levels of care would be primary, secondary and tertiary. With regards to types of institutions within the different levels of care, the paragraphs below provide an elaboration.

In South Africa, the precise numbers of public institutions are difficult to obtain since it is an ever-changing landscape. In 2011, the Health Systems Trust published data stating that South Africa had 4668 public health care institutions that were distributed in eight categories (Health Systems Trust 2009). In 2011 the National Department of Health commissioned an audit report of public health care facilities. Before the audit, it was estimated that there were 4300 facilities but at the end of the year-long audit the total number was found to be 3880 (Health Systems Trust 2013). Among the reasons given for the discrepancy in the figures are that certain facilities had been closed down, were duplicated, were private facilities and not public ones, or were services yet listed as facilities (Health Systems Trust 2013 p. 11).

Table 9 is a listing of public health facilities and their facility classification (Health Systems Trust 2013 p. 11).

Table 9: The number of health care facilities in South Africa

Facility classification	Number of facilities
Satellite clinic	125
Clinic	3074
Specialised clinic	4
Maternal Obstetrics Unit (MOU)	1
Community Day Centre (CDC)	44
Community Health Centre (CHC)	238
District Hospital	253
Regional Hospital	55
Tertiary Hospital	10
National Central Hospital	6

Facility classification	Number of facilities
Rehabilitation Hospital	3
Children's Hospital	1
Chronic Hospital	4
Orthopaedic Hospital	1
Psychiatric Hospital	23
TB Hospital	35
TB and Psychiatric Hospital	2
Private Hospital	1
Total	3880

The table above shows that 89.8% (3486) of the country's institutions are primary care level institutions, 7.9% (308) are secondary level institutions and 2.2 % (85) are tertiary level institutions.

There are many different ways of classifying health institutions including: the type of medical condition treated, the number of institutional beds, the length of stay and the control or ownership of the institution. These are illustrated in the diagram below (adpated from Goldsteen and Goldsteen 2013 p. 38-39).

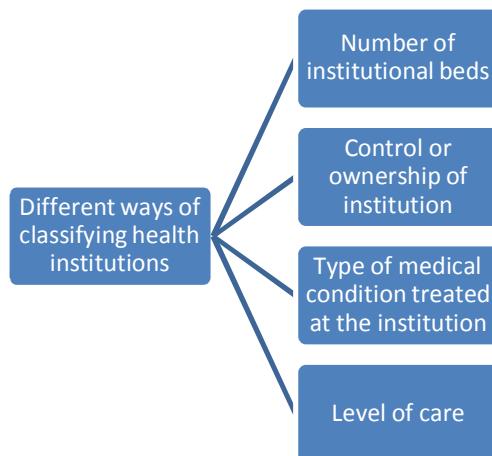


Figure 13: Different ways of classifying health institutions

2.3.3.1 Classification by number of institutional beds

The first type of classification is by number of beds. In South Africa most primary care institutions only offer ambulatory care which means they don't have beds. For secondary and tertiary institutions, the breakdown is as shown in the table below (Department of Health [South Africa] 2012e p. 4-6).

Table 10: Types of hospitals and number of beds

Type of hospital	Number of beds
District hospitals <ul style="list-style-type: none">• Small• Medium• Large	50-150 150-300 300-600
Regional hospitals	400-600
Provincial Tertiary hospitals	400-800
National Central hospitals	up to 1200
Specialised hospitals	up to 600

Table 10 above reveals a weakness in this type of classification. The number of beds cannot provide an exclusive category of hospitals. For instance, an institution with 500 beds could fit any of the five categories in the table meaning that this category cannot be used in isolation.

2.3.3.2 Control of ownership

In South Africa there are two basic categories of institutional ownership, those publicly owned and those privately owned as illustrated in the diagram below (adapted from Goldsteen and Goldsteen 2013 p. 38).

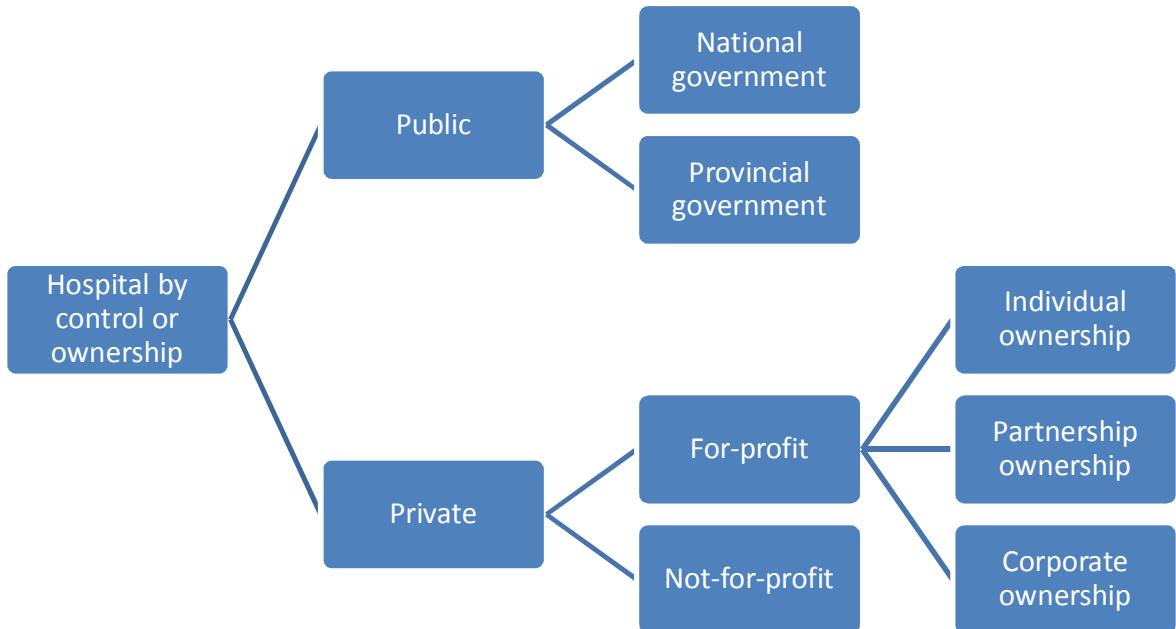


Figure 14: Health care institutions by control of ownership (adapted from Goldsteen and Goldsteen 2013 p. 38)

According to Dambisya, Modipa et al. (2009 p. 6), the not-for-profit institutions in the private sector include non-governmental organisations, philanthropic organisations, faith-based hospitals and voluntary or support organisations. In South Africa, there are instances when the private NGO or for-profit institutions, “may enter into contractual arrangements with the government to provide specific services to the public sector health consumers. In such cases, payment for services is incurred by government with the consumer paying very little, if anything at all” (Geyer, Mogotlane et al. 2009 p. 26).

For-profit organisations function as businesses with an income motive and they have to be registered since they are subject to the Health Act (Geyer, Mogotlane et al. 2009 p. 26). The for-profit sector is dominated by three main companies – Netcare, Life Health Care and Medi-Clinic which together own 75-80% of the market (Dambisya, Modipa et al. 2009; McIntyre 2010). The three companies own facilities that include: private nursing homes, hospitals and clinics. At these facilities consumers meet the costs incurred for services from “their own pockets, or these are partly paid for by the Medical Aid or insurance schemes” (Geyer, Mogotlane et al. 2009 p. 26). This classification category helps delineate the types of institutions but only provides one differentiating characteristic and, therefore, cannot be used in isolation.

2.3.3.3 Assessment by medical condition treated at the institution

Another way of assessing facilities is by the type of medical conditions that are treated. There are a wide range of possible specialties within a hospital including: spinal injuries, maternity, heart, infectious disease and so on (Cullinan 2006 p. 17). Two common specialised hospitals catering for high incidence chronic conditions that are found nationally are: “Psychiatric hospitals that provide long term in-patient care for patients with chronic psychiatric conditions and TB hospital, that provide long term in-patient for patients with chronic TB” (Cullinan 2006 p. 17). Table 11 has a listing of the three main categories of medical specialities in South Africa (Cullinan 2006 p. 15).

Table 11: Group specialties in tertiary care hospitals

Group 1 Specialties	Group 2 Specialties	Group 3 Specialities
<ul style="list-style-type: none"> • Anaesthetics • Burns • Clinical Pharmacology • Critical Care and ICU • Dermatology • Diagnostic Radiology • Ear Nose and Throat • Gastroenterology • Infectious Diseases • Mental Health • Neonatology • Nephrology • Obstetrics and Gynaecology • Ophthalmology • Orthopaedics • Paediatric Medicine • Paediatric Surgery • Paediatric ICU • Plastic & Reconstructive Surgery • Rehabilitation Centre • Respiratory Medicine • Trauma • Urology • Vascular Surgery 	<ul style="list-style-type: none"> • Cardiothoracic Surgery • Clinical Immunology • Craniofacial Surgery • Endocrinology • Geriatrics • Haematology • Human Genetics • Medical & Radiation Oncology • Neurology • Neurosurgery • Nuclear Medicine • Paediatric Sub-Specialties • Renal Transplant • Rheumatology • Spinal Injuries 	<ul style="list-style-type: none"> • Hepatology • Live Transplant

This classification category helps delineate the types of medical conditions treated but only provides one differentiator characteristic and, therefore, cannot be used in isolation.

2.3.3.4 Level of care

The most comprehensive way of assessing facilities is by level of care. Health care provision occurs at different levels through the continuum of care. According to McWay (2008 p. 16), this continuum of care is described as “the range of services provided to the patient, starting at the least acute and least intensive and moving to the most acute and most intensive”. While there are several levels in the continuum of care and there has been debate about whether they are three levels (Haneline and Meeker 2011 p. 5) or four levels (Barr 2011 p. 93). South Africa has three levels of care as is common in many other African countries (Adjei 2000 p. 41; Day, Barron et al. 2009).

The District Health System handles four of the eight categories namely: Community health clinics, Community health centres, Community-based services and Mobile services. The Provincial Health System handles three of the eight categories namely: District hospitals, Regional hospitals and Provincial tertiary. The National Health System handles the other two categories namely: Central national hospitals and Specialised hospitals.

However at both secondary and tertiary level of care there is more differentiation grouped as Level 1, 2 and 3 hospitals (Department of Health [South Africa] 2007 p. 15-16). Secondary care constitutes Level 1 and Level 2 hospitals which in South Africa are district and regional hospitals respectively. Tertiary care constitutes Level 3 hospitals which in South Africa are provincial tertiary hospitals, national central hospitals and specialised hospitals (Von Holdt and Murphy 2007 p. 313). In order to demonstrate classification, Level 1 and 2 cover Group 1 specialities while Level 3 covers Group 2 and 3 specialities as shown in the illustration below.

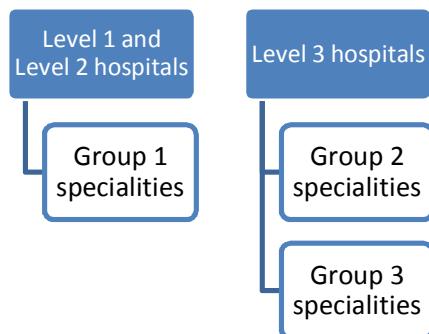


Figure 15: Health care institution by medical condition

The diagram below is a graphical representation of the breakdown of levels of care and types of institutions within each level of care.

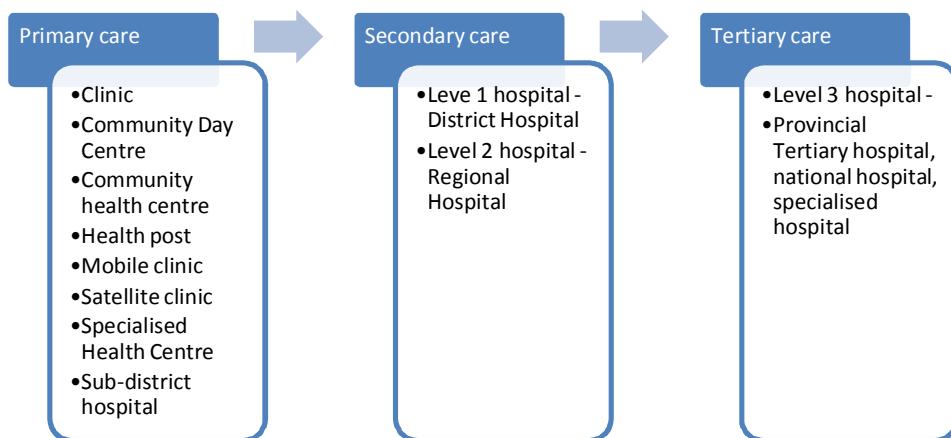


Figure 16: Health care levels and the types of institutions within those levels

It is often not easy to distinguish the kinds of medical care provided at the different levels. Table 12 illustrates the staff composition and the services to be provided in different levels for maternal, child and women's health in primary, secondary and tertiary levels of care (Mangate 2004 p. 4-2).

Table 12: Staff composition and services provided in the different levels of care

Level of care	Staff composition	Services provided
Primary care	<ul style="list-style-type: none"> • Clinics attended by registered midwives- • Community health centres attended by midwives, midwives with advanced 	<ul style="list-style-type: none"> • Provide antenatal and postnatal care • Provide services offered by the clinic, plus 24-hour deliver services • Provide services offered at the

Level of care	Staff composition	Services provided
	<p>diploma in midwifery and sometimes a physician</p> <ul style="list-style-type: none"> • Sub-district hospitals staffed by midwives, doctors and a visiting specialist/obstetrician 	community health centre, plus 24-hour caesarean sections
Secondary care	<ul style="list-style-type: none"> • District or secondary and regional hospitals with a staff compliment consisting of midwives, physicians and specialists 	<ul style="list-style-type: none"> • Provide the services offered at the sub-district hospital, plus services for complex deliveries and intensive care
Tertiary care	<ul style="list-style-type: none"> • Tertiary, central or teaching hospitals with the staff compliment of a Level 2 hospital, plus specialists 	<ul style="list-style-type: none"> • Provide services of a Level 2 hospital, plus services for super-specialist care

First, when examined critically, a number of discrepancies are noted. Magnate (2004 p. 4-2) mentions sub-district hospitals in a discussion on maternal and new-born care. Ideally hospitals should be categorised as primary care institutions. Even though rarely mentioned, sub-district hospitals are in a number of literature references, for instance, providing anti-retroviral medication (Henderson 2011 p. 219). According to Cullinan (2006 p. 5), there is some confusion of roles in certain places where community health centres are very similar to district hospitals. It may be that in these instances, the hospital in discussion is the sub-district hospital rather than the district hospital

Second, there is a debate about what constitutes Level 1, 2 and 3 institutions. While some commentators mention these levels exclusively, others use different categorisations such as General vs Specialised hospitals or Tertiary 1,2 and 3 hospitals while others combine each of the categories in different combinations (Cullinan 2006; Hanmer 2009). After some analysis, the diagram below provides an illustration of the levels of care and types of institutions to be found in South Africa.

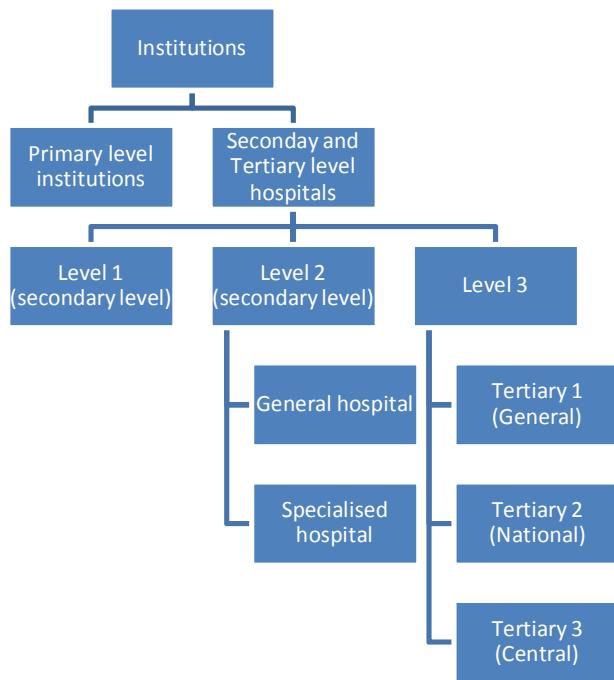


Figure 17: The breakdown of health care institutions within secondary and tertiary levels of care

Chapter 4 of this dissertation will provide further discussions on provision including providing details on the distribution of facilities in the different provinces of the country.

2.3.4 Stewardship function of the health care system

Stewardship occupies a special place in the list of functions because it involves oversight of all the other functions and has direct or indirect effects on health outcomes (World Health Organization 2000 p. 24-25). It provides strategic direction to the health system by setting, implementing and monitoring rules as well as assuring a level playing field for all actors in the system and particularly purchasers, providers and patients (Murray and Frenk 2000 p. 726; Preker, Haslinger et al. 2007 p. 127). Stewardship does this by encompassing the tasks of “defining the vision and direction of health policy, exerting influence through regulation and advocacy, and collecting and using information” (World Health Organization 2000 p. xiv, 112).

In order to fulfil these responsibilities, stewardship consists of six sub-functions: overall system design, performance assessment, priority setting, inter-sectoral advocacy, regulation, and consumer protection (Murray and Frenk 2000 p. 725; Nolte, McKee et al. 2005 p. 22). The following sections provide an outline of each of these components.

2.3.4.1 Systems design

Overall health system design entails policy formulation at the broadest level and involves “the way in which all the other health system functions are put together” (Murray and Frenk 2000 p. 725). A poorly designed system affects overall health outcomes negatively due to inadequate patient care, poor and inconsistent clinical outcomes, and increased costs of poorly managed illness (Von Holdt and Murphy 2007 p. 315).

There have been efforts in the past to support service delivery at the local level in ways that strengthen integration. However, despite these efforts “there was slow progress in integrating the health system” particularly at the local levels (Sibya 2009 p. 2). This is not only to ensure strengthening of human resources management systems and provision of necessary infrastructure to run efficient institutions, but also expanding “community participation in the governance of the health system at all levels” (Andrews 2005 p. 5). Some of the components required to run efficient health institutions include: financing, information systems, infrastructure, human resource development, planning and managerial capacity. Unfortunately they remain “technically weak at all levels of the health sector” (Schneider, Barron et al. 2007 p. 306). Weaknesses in managerial capacity tend to exacerbate the fault lines and increase the negative impact of dysfunctional parts within an overwhelmed health system (Von Holdt and Murphy 2007 p. 315, 323).

Every health institution has clinical and non-clinical staff. Often non-clinical managers provide oversight over clinical aspects within health institutions. However, the managers may not fully understand these clinical aspects leading to major challenges (Von Holdt and Murphy 2007 p. 325). On the one hand, there is the “managerial paralysis and disempowerment that follows from the lack of a clear locus of managerial authority and accountability at all levels, which is in turn the outcome of excessive centralisation, dysfunctional management structures and understaffed managerial functions” (Von Holdt and Murphy 2007 p. 336-337). On the other hand, there is the “pressure of work overload, physical and psychological stress, inefficiency and clinical failure caused by understaffing”. When these two pressures are combined, the result is “on-going institutional stress and compromised health-care outcomes” (Von Holdt and Murphy 2007 p. 336-337). This is likely to result in an “erosion of the public service ethos” and consequent decline of human capital in the public health sector as the older generation professionals “retire, or give up, in despair, and the younger generation is so overwhelmed by workloads that they opt for the private sector” (Von Holdt and Murphy 2007 p. 336-337).

Therefore, appropriate systems design is about providing strategic direction to the health system by setting, implementing and monitoring rules (Murray and Frenk 2000 p. 726). Schneider, Barron et al. (2007 p. 306) argue that the political and administrative leadership of the health system appears to have “abandoned its stewardship role of mobilising the majority of the health system actors around a coherent vision of the health system”. This has resulted in service delivery being “a form of disjointed incrementalism, and re-evoking a central problem of the apartheid health system, namely that of fragmentation” (Schneider, Barron et al. 2007 p. 306). Countering this fragmentation at an overall health care level requires assuring a level playing field for all actors in the system and particularly purchasers, providers and patients (Murray and Frenk 2000 p. 726). At an institutional level, integration ensures that there is both “optimal resource utilisation and optimal clinical results” (Von Holdt and Murphy 2007 p. 325).

2.3.4.2 Performance assessment

Performance assessment involves gauging the extent to which institutions fulfil their responsibilities including revenue collection, purchasing, provision and resource development (Murray and Frenk 2000 p. 725). According to Jonas, Goldsteen et al. (2007 p. 8), health care systems can be judged on the following criteria: (1) the quality of the health care provided; (2) the equity achieved in the provision of health care; and (3) the efficiency with which health care is provided. Comparing the way these criteria are actually carried out provides a basis for understanding performance variations over time and among countries (World Health Organization 2000 p. 24-25).

As demonstrated in different sections of this chapter, the quality of health care provided in South Africa's public sector is not yet optimal for historical as well as structural reasons. Facilities lacking in basic infrastructure such as piped water, sanitation, electricity and communication facilities cannot provide quality services (Cullinan 2006 p. 6). Lack of qualified and motivated professionals as well as dysfunctional and fragmented management structures further cripple any chance of quality services (Botha 2008 p. xiv; Cullinan 2006 p. 6; Von Holdt and Murphy 2007 p. 315, 322).

Equity is at the core of South Africa's quest to address the injustices of its past. Unfortunately the provision of health services in South Africa is still characterised by extreme inequalities (Thiede and Mutyambizi 2010 p. 189). The inequity was most obvious in the racially fragmented health system during the apartheid period, whose vestiges are still very evident almost two decades since apartheid was officially dismantled. The legacy of this fragmentation is a system divided into two parallel sectors – “a public sector financed through general taxation for the majority and a private sector funded mainly

through medical aids” for a minority wealthy class while the rest of the population suffer from a lack of access to suitable and affordable quality health care (Schneider, Barron et al. 2007 p. 290). Financial equity is also required amongst different levels of care provision to avoid the recent situation where primary care institutions that form the majority of the institutions in the country only get 40% of the health budget (Von Holdt and Murphy 2007 p. 314).

Efficiency is the one aspect of performance that seeks to address the lack of quality and equity characterised in the country’s public health care system. Efficiency is required not only in the silo-ridden institutional organisational structures but also within district and provincial health administrations (Von Holdt and Murphy 2007 p. 322). This is particularly important “in the context of fiscal decentralisation, in which the provinces determine the budget of the provincial health departments” (Andrews 2005 p. 5). Cullinan (2006 p. 4) noted that in 2004, six out of the nine provinces had under-spent their health budgets because of a lack of organisational capacity. This is not only limited to the provinces but extend also to the national government (Coovadia, Jewkes et al. 2009; Cullinan 2006 p. 3; Kinfu 2013).

The country has seen two different efforts put in place to address the performance assessment challenges. The first is the emergence of the Council for Health Services Accreditation of Southern Africa (COHSASA) in the mid-1990s as a non-profit and independent accreditation body (Cullinan 2006 p. 8; Whittaker, Shaw et al. 2011). COHSASA accredits both public and private hospitals using standards developed in conjunction with the International Society for Quality in Health Care (Suñol, Nicklin et al. 2009). The second effort has been by the Department of Health which established the Office of Health Standards Compliance in 2011 with staff from the Department of Health benchmarking their efforts with those of their counterpart institution in the UK (Department of Health [South Africa] 2012a p. 23; Whittaker, Shaw et al. 2011 p. 64). Whittaker, Shaw et al. (2011 p. 66) argue that the two efforts at standards development follow two different paths; system standards like COHSASA’s and domain standards like that of the Department of Health. The two types of standards could be considered contradictory but are seen as having the potential to co-exist and complement each other (Whittaker, Shaw et al. 2011 p. 66).

2.3.4.3 Priority setting

Priority setting involves choosing criteria for setting precedence and building a consensus around them because these should not only deal with technical issues but also political ones as well (Murray and Frenk 2000 p. 725). The challenges that face the South African health sector are numerous (Botha 2008; Coovadia, Jewkes et al. 2009). Section 2.3.1 demonstrated that the country has an uneven

record when it comes to achieving positive outcomes from the financial investments made in the health sector. It is for this reason and other related reasons that in 2010, the Department of Health adopted an outcome-based approach to service delivery by identifying four strategic outputs that the health sector must achieve;

1. Increasing Life Expectancy
2. Decreasing Maternal and Child mortality
3. Combating HIV and AIDS and decreasing the burden of disease from Tuberculosis
4. Strengthening Health System Effectiveness (Department of Health [South Africa] 2010 p. 4).

In order to meet these strategic outputs the Department committed to “re-engineering the health system to one that is based on a primary health care approach (PHC), with more emphasis on promotive and preventive (instead of curative) health care” which provides the basis for all interventions needed to achieve positive results (Department of Health [South Africa] 2010 p. 4). Two years later, the Minister of Health reiterated the need for the Department to overhaul the health system with an emphasis on primary health care with three specific projects (Department of Health [South Africa] 2012a p. 9). These would be introducing district clinical specialist teams, municipal –ward based primary health care outreach and lastly, School Health Services. These projects would be targeted at the districts, municipal wards or schools that had the worst health outcomes in the country.

The Department of Health (2012a p. 19) published an annual performance plan of 2012/13-2014/15 having identified the following strategic priority areas:

1. Provision of strategic leadership and creation of a social compact for better health outcomes
2. Implementation of the National Health Insurance (NHI)
3. Improving the Quality of Health Services
4. Overhauling the health care system by:
 - a. Refocusing on Primary Health Care (PHC)
 - b. Improving the functionality and management of the Health System
5. Improving human resources planning, development and management
6. Revitalising of infrastructure with a focus on
 - a. Accelerating the delivery of health infrastructure through Public Private Partnerships (PPPs)
 - b. Revitalising Primary Level Facilities
 - c. Accelerating the delivery of Health Technology and Information Communication Technology (ICT) infrastructure

7. Accelerated implementation of HIV and AIDS and Sexually Transmitted Infections National Strategic Plan, 2007-2011 and reduction of mortality due to TB and associated diseases
8. Mass mobilisation for better health for the population
9. Review of the Drug Policy
10. Strengthening Research and Development

The publishing of an annual performance plan was a great step forward because it is increasingly evident the Department of Health is taking a leadership role.

2.3.4.4 Inter-sectoral advocacy

Inter-sectoral advocacy “is the promotion of policies in other social systems that will advance health goals” (Murray and Frenk 2000 p. 725). On the one hand, health systems in Africa “largely surpass what is accessible through the public system to encompass a patchwork of providers, whether these are biomedical entrepreneurs, churches, NGOs, or ‘traditional’ healers” (Sama and Nguyen 2008 p. 10). And in this sense, health provision has to be a societal effort at every level. On the other hand, as demonstrated in this chapter, health is not only about curative but also about preventive activities. Basic human needs such as adequate food and shelter have a direct effect on the health outcomes of a society.

In South Africa, the efforts of not only the Department of Health but also other government departments contribute to positive health outcomes. For instance, the Primary School Nutrition Programme that was initially the responsibility of the Department of Health was moved to the Department of Education (Coovadia, Jewkes et al. 2009 p. 63). Therefore, advocating for progress in social and economic determinants of health status, such as female education, with the purpose of improving health is a good example of inter-sectoral advocacy prompting positive health outcomes (Tones and Tilford 2001 p. 471).

2.3.4.5 Regulation

According to Murray and Frenk (2000 p. 725), regulation involves two main issues: on the one hand, sanitary regulation of goods and services, and on the other hand, health care regulation. This is because, beyond regular provision of service by the public sector there is a “proliferating therapeutic economy where therapeutic transactions may be valued in other than monetary terms, and where affliction is not necessarily understood in a strictly biomedical idiom” (Sama and Nguyen 2008 p. 10). Health services are provided in a hybridised fashion where “irrational use of bio-medicines coincides

with the industrially produced traditional remedies, and where affliction is simultaneously understood and treated in biomedical and spiritual terms" (Sama and Nguyen 2008 p. 10). Given these complexities, regulation is necessary. Sanitary regulations refer to conventional efforts by authorities to minimise the health hazards generated by the goods and services throughout the economy particularly those associated with foodstuffs. Their history dates back to the 19th century and are today more well known as public health regulations (Aginam 2002). Health care regulations on the other hand refers to organisations charged with the financial, provision and resource development functions of the health system (Murray and Frenk 2000 p. 725). Chapter 3 of this dissertation covers health care regulations in greater detail.

2.3.4.6 Consumer protection

Consumer protection seeks to achieve a level playing field for all actions and is particularly necessary because "both the insurance and health care markets are characterised by information and power asymmetries between consumers and producers" (Murray and Frenk 2000 p. 725). According to Slabbert and Pepper (2011), one of the provisions of South Africa's Consumer Protection Act poses problems. Health care professionals could potentially be liable for "harm and loss suffered" by a patient even if the fault was elsewhere in the supply chain of health care provision. Rowe and Moodley (2013) argue that the provision may inadvertently result in the commodification of health care in South Africa.

2.3.4.7 Concluding remarks on Stewardship

Ultimately stewardship and all its sub-functions are a government responsibility (World Health Organization 2000 p. xiv). Successful stewardship requires an inclusive and well thought-out policy vision that uses realistic resource scenarios and focuses on achieving system goals. It also requires the ability to identify the principal policy challenges, to assess the options for dealing with them and the capacity to address them cost-effectively(WHO Regional Office for South-East Asia 2003 p. 78). Beyond the boundaries of a single country and at a more international level, stewardship means "mobilizing the collective action of countries to generate global public goods such as research, while fostering a shared vision towards more equitable development across and within countries. It also means providing an evidence base to assist countries' efforts to improve the performance of their health systems" (World Health Organization 2000 p. xv). However change will require more than prescribing strategies for change. According to Sama and Nguyen (2008 p. 10), it is necessary to take stock of "how global policies and local politics interact, the trans-national channels through which political pressure is exercised, as well as a broad spectrum of therapeutic alternatives made available to, or shunned by, health-seekers".

2.4 Closing remarks

The central focus of health care is to restore health or prevent exacerbation of health problems (Jonas, Goldsteen et al. 2007 p. 9) and this is done through services offered by health care systems. According to the World Health Organisation (2000 p. 1), health systems consist of “all the people and actions whose primary purpose is to improve health. They may be integrated and centrally directed, but often they are not”. Among the people involved in modern health care are doctors and nurses as well as allied health professions such as physiotherapists, nutritionists or occupational therapists (Geyer, Mogotlane et al. 2009 p. 23).

The process of improving the quality health care delivery requires that health systems function efficiently and effectively. A key component of health care systems’ efficiency is records management and, therefore, records need to be managed much better. However, any improvements in the management of records have to be done in full cognisance that records are generated in an organisational setting. This setting may be a basic clinic, a sophisticated hospital or a network health care institutions. Therefore, records need to be maintained and used while fully cognisant of this institutional context. Additionally, these clinics or hospitals are organisations that exist within a health care system in a particular geographical location. This larger context was, therefore, ultimately important to understand.

Health care in South Africa has had a long history. Over the period of its long history, the governance of the country’s health system has been chaotic and fragmented and resources poorly managed. This has resulted in a highly inequitable, expensive and inefficient system (Kautzky and Tollman 2008 p. 20; Schneider, Barron et al. 2007 p. 290). The inequity was most obvious in the racially fragmented health system during the apartheid period and whose vestiges are still very evident almost two decades since apartheid was officially dismantled. The legacy of this fragmentation is a system divided into two parallel sectors – “a public sector financed through general taxation for the majority and a private sector” (Schneider, Barron et al. 2007 p. 290).

South Africa spends more than 8% of its GDP on health which is more than most other developing countries yet its health outcomes are considerably worse than many of its peer countries (Thiede and Mutyambizi 2010 p. 189; World Health Organization 2011 p. 128-135). The country’s health care system has been characterised as “fragmented and inequitable due to the huge disparities that exist

between the public and private health sectors with regards to the availability and delivery of health services" (Department of Health [South Africa] 2010 p. 5; Thiede and Mutyambizi 2010 p. 189). While the majority of the population accessed a very weak and dysfunctional public system, a few privileged accessed a very strong private health sector (Harrison, Barron et al. 1996 p. xv). The private sector included health professionals in private practice, private hospitals, pharmaceutical manufacturers and distributors and Medical Aid Schemes (Cullinan 2006 p. 3). The democratic changes that took place in the 1990s necessitated drastic changes to address the inequity. These were legislative, policy and organisational changes.

The most fundamental legislative change has been embedding inalienable rights to health in the Constitution. Sections 27 and 28 of the Constitution state that all South Africans have a right to health care services as well as emergency treatment. In addition, children have the right to basic nutrition, shelter and social services (South Africa 1996b). According to the Constitution, health is a 'concurrent' function of both national and provincial spheres of government, "with national largely responsible for setting policies and provinces largely responsible for implementing these policies" (Cullinan 2006 p. 3). The most current National Health Act was promulgated in 2003 and further elaborates how the Constitutional rights can be accessed. It provides "a framework for a structure uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services" (South Africa 2003b p. 2).

Policy and organisational changes were envisaged to address the deeply inequitable, disorganised and inefficient system inherited (Thiede and Mutyambizi 2010 p. 192). According to Schneider, Barron et al (2007 p. 294), the new government in 1994 inherited a reasonably well-resourced health system, able to offer quality services to segments of the population. However, it was also deeply inequitable, disorganised and inefficient, with powerful private sector interests and limited institutional intelligence in the form of knowledge and information to plan restructuring. To this end, the new democratic government sought to consolidate the fragmented health authorities (De Haan, Dennhill et al. 2005). Cullinan (2006 p. 3) added that the health services have been "doctor-dependent medical services" biased towards curative services rather than preventive services such as provision of clean water and sanitation and education. The new government sought to reorient the doctor dependence towards preventive health and widen their services to all the population through the public health system. Despite enormous challenges, South Africa's health system managed to stay functional even if with sub-optimal performance (Schneider, Barron et al. 2007 p. 306).

In South Africa there are three concurrent systems, the National Health System, the Provincial Health System, and the District Health System (Rapakwana 2004 p. 15-18; Von Holdt and Murphy 2007 p. 313). In order for these systems to function seamlessly, the “administrative, financial and support services, as well as planning and human resources, are provided through negotiated agreements between the province, its districts and municipalities” (Geyer, Mogotlane et al. 2009 p. 26). The systems operate within the country’s 52 district municipalities, 237 local municipalities and 8 metropolitan municipalities (Day, Monticelli et al. 2010 p. 124-271; Department of Government Communication and Information System [South Africa] 2013; Yes Media 2012a; Yes Media 2012b).. With nearly 55 million people, the country’s public health sector is critical because it services over 80% of that population. The health care system fulfils four key functions: financing; provision of personal and non-personal services; resource generation; and stewardship (Nolte, McKee et al. 2005 p. 21-22; World Health Organization 2000 p. 44-45). This chapter has examined each of the functions in some detail, outlined the key components and how each individually contributes to the success of a health system. In addition, all these functions interact in different ways in order to achieve health goals that include equity in health provision as well as financing and gaining of positive health outcomes as well as financial protection for the citizenry. These goals are attained through the intermediate objectives of equity, quality and efficiency.

This chapter has explored the historical background as well as organisation structure of the health care system in South Africa. Even though apartheid has had a big effect on the current system, “it is no longer acceptable for current failures of the health care system and inequities in access to public health care to be blamed on the legacy of apartheid” because that erodes entrenched constitutional rights (Botha 2008 p. x). The next chapter examines the legislative and regulatory framework within which the country’s health care system operates.

Chapter 3- Legislative and regulatory framework of the health sector in South Africa

3.1 *Introduction*

The key to transforming any society is often in transforming its legislative and regulatory framework and this is particularly critical in the health sector. Legislative reforms have been the subject of debates all over the world from the US with the Affordable Care Act to the UK's reform of the National Health Service (Dusheiko 2014; Sommers, Kenney et al. 2014). Considering South Africa's quest for transformation in all sectors of society, including in health, legislative and regulatory analysis is critical to understanding this transformation (Whiteside 2014). This chapter looks at the legislative and regulatory framework of South Africa's health sector and draws lessons from other countries around the world.

When discussing legislation and regulations, it is important to distinguish the two. Law "is a body of rules of action or conduct prescribed by a controlling authority that has binding legal force" that can also be found "in constitutions and court decisions (McWay 2009 p. 94). On the other hand regulations are "the prescribed courses of action that arise from law, principle, or custom" (McWay 2013 p. 49). They provide guidelines on how to implement the law and may have the force of law if issued by a government entity (De Haan, Dennhill et al. 2005 p. 5; McWay 2013 p. 48-50).

However, before any legislation is drafted, there has to be guidance on its policy positions. A health policy determines the structure of the health sector and how it should operate (De Haan, Dennhill et al. 2005 p. 5). According to the World Health Organisation (2000 p. 112), an explicit health policy achieves several things including defining a vision for the future by identifying objectives which in turn helps establish benchmarks for the short and medium term. In addition, it outlines priorities and the expected roles of different groups as well as building consensus and informing citizenry. Lastly it provides guidance for development and "in doing so fulfils an important role of governance" (Cassels 1997 p. xv; World Health Organization 2000 p. 112).

Pillay et al, (2002 p. 4) state that the relationship between policy, legislation and implementation is often misunderstood. Even though policy is critical to a well drafted law, it is not enforceable (Carstens and Pearmain 2007 p. 246). That is because "laws, regulations and rules are legislative instruments,

whereas policy determinations are not” and, while policy should normally be reflected in legislative instruments, policy determinations cannot override, amend or be in conflict with laws (Pearmain 2007 p. 20).

According to the World Health Organisation (2000 p. 112), health policy documents have a long history. In many centrally planned and developing economies, health policies were part of a national development plan, with a focus on investment needs. In other countries, health policy documents are a collection of project or programme-specific plans that ignore stakeholders, particularly in the private sector and often take “inadequate account of financial realities of people’s preferences” (World Health Organization 2000 p. 112). By the year 2000, there were some countries that had no formal national health policies including France, Switzerland, Tunisia and the US. Others had only first produced them in the 1990s including Portugal and the UK (World Health Organization 2000 p. 112). Countries such as Kenya and Ghana have health policies that are more inclusive and that map general directions rather than providing operational detail (World Health Organization 2000 p. 112).

Before any legislation can be drafted, the necessary policy must be developed to guide the nature and content of the legislation. Legislation is often, although not always, needed to ensure the implementation of policy (Sebrié, Sandoya et al. 2013). Therefore, legislation has three roles. Firstly, it provides certainty “to the intention of the policy to which it relates” and secondly, it establishes “structures and mechanisms to put the policy into practice”. Finally it provides for “sanctions should the policy that is encapsulated in the legal provisions be breached” (Pillay, Marawa et al. 2002 p. 4).

Carstens and Pearmain (2007 p. 246) argue that “in the context of the doctrine of the rule of law, policy that is contrary to law is itself illegal and unenforceable”. In South Africa, as in any other part of the world, policy that is contrary to the Constitution is invalid since the conduct by means of which it was written is invalid, therefore, it has to be lawfully developed and implemented in order to maintain its legitimacy (De Leon 1989 p. 4). Policy that is determined on the basis of empowering legislation “does not itself become law unless it is converted into legislation that is approved by Parliament and signed into law by the President” (Carstens and Pearmain 2007 p. 246).

Pearmain (2007 p. 20) argues that, based on the Constitution, the South African President exercises executive authority together with the other members of the Cabinet by developing and implementing national policy once legislation has been prepared and initiated. While legislation remains an important first step in policy implementation, it is merely the beginning of the process that should include

education of relevant stakeholders, empowerment of government agencies, monitoring, evaluation and enforcement (Ditlopo, Blaauw et al. 2013; Pearmain 2007 p. 20)

Neither policy nor legislation should remain static because the nation where they are implemented is always dynamic. However, “certain policy principles are enduring because they are based on the values contained in the Constitution and these are unlikely to be changed in the long-term” (Pearmain 2007 p. 20). According to Pillay, Marawa et al. (2002 p. 4), decisions on policy as well as legislation implementation should always be guided by constitutional imperatives in order to take steps “to progressively realise the rights of everyone to have access to health care services” which includes rights for children as well as for emergency medical treatment.

This chapter begins by outlining legislation and regulations that relate to the health sector before looking more generally at those that relate to records and information management in the public sector. It then outlines legislative experiences from the UK and the US before making concluding remarks.

3.2 South Africa's legislative and regulatory framework related to the health sector

South Africa has a 'hybrid' or 'mixed' legal system, formed by interweaving of three distinct legal traditions (Du Bois 2004 p. 9-16). The first legal tradition is a civil law system inherited from the Dutch and commonly referred to as Roman Dutch law which draws from two sources: “judicial decisions and the writing of the old Dutch jurists” (Madhuku 2010 p. 50). The second legal tradition is a common law system inherited from the British, and the third a customary law system inherited from indigenous Africans and is often termed as African Customary Law (Alberts and Mollema 2014; Du Bois 2010). These traditions have had complex interrelationships with each other, causing areas of strain in the past, not only in South Africa but also other parts of the African continent (Toufayan 2014).

This section explores the framework of South Africa's legislation and regulations. The first part examines the Constitution being the foundational law in the country. The second part examines legislation and the third part regulations in the health sector.

3.2.1 Constitution of South Africa (Act 108 of 1996)

According to Berger, Hassim et al. (2013 p. xvi), all the rights in the Constitution are “indivisible, interrelated and mutually supporting. This means that it is important to achieve the realisation of some rights in order to enjoy other rights”. For instance, if citizens have limited or no access to health, food and shelter, then their rights to human dignity, equality and privacy are also being denied (Berger, Hassim et al. 2013 p. xvi). Sections 27 (1)(a), (2) and (3) and 28(1)(c) deal with health (Pillay, Marawa et al. 2002 p. 4).

Section 27 provides the right to have access to “health care services, including reproductive health care” with the State having to make “reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights” (South Africa 1996bSec 27). There are also other sections of the Constitution that cover aspects of health as shown in Table 13 (Pillay 2000; South Africa 1996b).

Table 13: A summary of the constitutional rights related to health

Section (paragraph)	The right	The beneficiaries
S12(2)	The right to bodily and psychological integrity, which includes the right <ul style="list-style-type: none"> a) To make decisions concerning reproduction b) To security in and control over their body; and c) Not to be subjected to medical or scientific experiments without their informed consent 	Everyone
S24(a)	The right to an environment that is not harmful to their health and well-being	Everyone
S27(1)(a)	The right to have access to health care services, including reproductive health care	Everyone
S27(3)	The right to emergency medical treatment	Everyone
S28(1)(c)	The right to basic nutrition, shelter, basic health care services and social services	Every child
S35(2)(e)	The right to conditions of detention that are consistent with human dignity, including at least exercise and the provision, at state expense, of adequate accommodation, nutrition, reading material and medical treatment	Everyone who is detained, including every sentenced prisoner

The constitutional protection of the right to health has been justly celebrated as a cornerstone of the country's democracy because it enshrines access to health services as a human right (Sinclair 2006 p. 23). Ngwena and Cook (2005 p. 126) state that South Africa is one of a variety of 109 jurisdictions, such as Brazil, Chile and Venezuela, "to have embraced the idea of providing for a right concerning health in a substantive and justifiable form, especially in terms of recognition in a national constitution". These constitutional provisions should be adhered to at the coalface. In South Africa, this is done at the second sphere of government, which is the provincial government. Schedule 4 of the constitution stipulates that state hospital and medical services are generally owned and controlled by the provincial government in each province. This means that, the National Department of Health does not usually provide health services itself because the national and provincial governments have concurrent legislative authority in this area. According to Carstens and Pearmain (2007 p. 231), "although provinces are legally obliged to ensure the implementation of national health policy in terms of the National Health Act, they have the power to determine provincial health policy and legislate on provincial health issues in terms of the Constitution". This means that provinces, regardless of their own health policies and legislation, are obliged to implement the national health legislation in terms of the Constitution.

3.2.2 The national health legislation

The history of health legislation in South Africa spans almost 200 years. At the dawn of South Africa's new democracy in 1994, the health sector was in dire need of transformation due to the extent of its fragmentation and inequality. Cullinan (2006 p. 4) argues that transformation in the health sector had been "hindered by the lack of a legislative framework to guide the process" because it took almost a decade for a new health act to be promulgated. A number of aspects have to be addressed including the historical legacy and socio-economic challenges of the country (Cullinan and Thom 2012). This section examines the history and structure of the health legislation framework before specifically outlining the current health act and its provisions.

3.2.2.1 Historical background

Chapter 2 of this dissertation noted that the history of legislation in the health sector is long and illustrious dating back to the early 19th century. While the 19th century didn't see much legislative activities, the 20th century was characterised by much activity. South Africa saw its first health legislation in 1807 after the second British occupation that saw the establishment of a Supreme Medical Committee to oversee all health matters (Klug 2012 p. 158). In 1830 the legislation was replaced by

Ordinance 82 that regulated all health practices in the Cape Colony. In 1883, the Public Health Act 4 was promulgated in direct response to the prevailing smallpox epidemic. The Act provided for emergency powers to local authorities in times of epidemic, required that they receive notification of infectious diseases and it made the inoculation against smallpox compulsory (Deacon 1997). This Act was amended in 1897 to establish a Colonial Public Health Department headed by a medical officer of health (Van Rensburg and Harrison 1995 p. 97).

In 1919, the Public Health Act was promulgated and was the first “national public health legislation in the Union of South Africa” that was formed by the unification of four British-controlled colonies in 1910: Cape Colony, Natal, Transvaal and Orange Free State (Klug 2012 p. 158). For the next 60 years this Act determined the framework of the country’s health care system. In 1977 it was repealed by the National Health Act of 1977. In 1990, a new Act titled National Policy for Health Act 116 was promulgated. This was later replaced by the National Health Act 61 of 2003. The most recent Act is the National Health Amendment Act 12 of 2013. Figure 18 provides a graphical representation of the transition since 1807 of the fundamental Acts in the country.

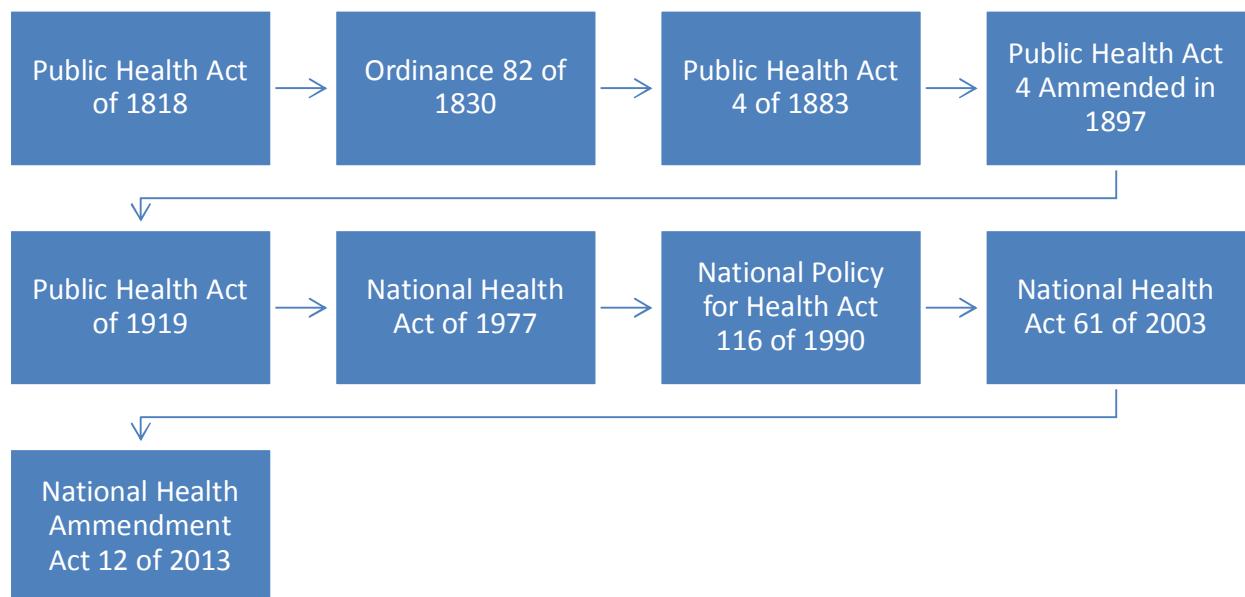


Figure 18: A historical representation of the Fundamental Health act

As Figure 18 above demonstrates, the fundamental health legislation in South Africa has a long history. In principle, the transition from one health Act usually happens in order to address the weakness of previous legislative instruments. In practice the change may happen due to prevailing political and socio-economic factors. And for South Africa, these changes at the dawn of its new democracy, had to

be drastic. At that time, the apartheid era health act of 1977 was considered an inappropriate legislative framework to guide the substantial transformation of the health system that was in progress. The framework had to be clear on the service obligations at the national level vis a vis the other spheres of government, provincial and local (Gray, Govender et al. 2005).

The process of changing the orientation of the legislation required radical changes and to do this the African National Congress (ANC) drafted a Health Plan in 1994 and then a White Paper on Health Systems Transformation in 1997 (Berger, Hassim et al. 2013 p. xvii). The organic connection of the National Health Act of 2003 with previous documentation is evident because it reaffirms, in its preamble, many of the principles drawn from the 1997 White Paper for the Transformation of the Health System in South Africa (Department of Health [South Africa] 1997). These include the intention to “unite the various elements of the National Health System” in a common goal to actively promote and improve the system in the country as well as other principles such as a commitment to “corporative governance and management”, “national guidelines, norms and standards”, “decentralised management” and “a spirit of cooperation and shared responsibility among private and public health professionals and providers” (South Africa 2003b p. 2).

It took almost a decade from the dawn of the country's new democracy in 1994 for the first National Health Act to be passed because it had to operate within an Act, “within a fundamentally new Constitutional framework” (Harrison and Qose 1998 p. 23; McQuoid-Mason 2007 p. 1237). This is comparable to the change in governmental regime in the country's history when the four former colonies became a single political entity in 1910 when it took “nine years following the union for the Public Health Act of 1919 to be passed” (Harrison and Qose 1998 p. 23).

3.2.2.2 Legislative context

Beyond the Constitution, the Department of Health (2012a p. 40-43) noted that there are a number of pieces of legislation falling under its portfolio. They are:

- Academic Health Centres Act 86 of 1993 (South Africa 1993a)
- Allied Health Professions Act 63 of 1982 as amended (South Africa 1982a)
- Choice of Termination of Pregnancy Act 92 of 1996 (South Africa 1996a)
- Council of Medical Schemes Levy Act 58 of 2000 (South Africa 2000a)
- Dental Technicians Act 19 of 1979 (South Africa 1979)
- Foodstuffs, Cosmetic and Disinfectants Act 54 of 1972 as amended (South Africa 1972)
- Hazardous Substances Act 15 of 1973 (South Africa 1973a)

- Health Professions Act 56 of 1974 as amended (South Africa 1974a)
- Human Tissues Act 65 of 1983 (South Africa 1983)
- Medical Schemes Act 131 of 1998 (South Africa 1998a)
- Medicines and Related Substances Act 101 of 1965 (South Africa 1965)
- Mental Health Care Act 17 of 2002 (South Africa 2002d)
- National Health Act 61 of 2003 (South Africa 2003b)
- National Health Laboratory Service Act 37 of 2000 (South Africa 2000b)
- National Policy for Health Act 116 of 1990 (South Africa 1990)
- Nursing Act 33 of 2005 (South Africa 2005)
- Occupational Diseases in Mines and Works Act 78 of 1973 (South Africa 1973b)
- Pharmacy Act 53 of 1974 as amended (South Africa 1974c)
- South Africa Medical Research Council Act 58 of 1991 (South Africa 1991)
- Sterilisation Act 44 of 1998 (South Africa 1998b)
- Tobacco Products Control Amendment Act 63 of 2008 (South Africa 1993b)

These pieces of legislation vary because South Africa's health services range from the usual "allopathic forms based on western science to complementary forms such as homeopathy, naturopathy and chiropractic to traditional African forms" (Carstens and Pearmain 2007 p. 229-230).

Several commentators have discussed the complex maze of legislative instruments within the health sector (Andrews 2005; Forman, Pillay et al. 2004; Gray and Jack 2008; Gray and Pillay 2006; Harrison and Qose 1998; Nadasen and Gray 2000; Pillay, Marawa et al. 2002; Sait 2001)

Gray and Pillay (2006 p. 3-17) offer a structural breakdown of these pieces of legislation. First, there is the fundamental health act. Second, there are pieces of legislation related to specific policy areas such as mental health, occupation diseases and termination of pregnancy. Third, there are pieces of legislation that related to statutory bodies such as the South African Medical Research Council and the National Health Laboratory Service.

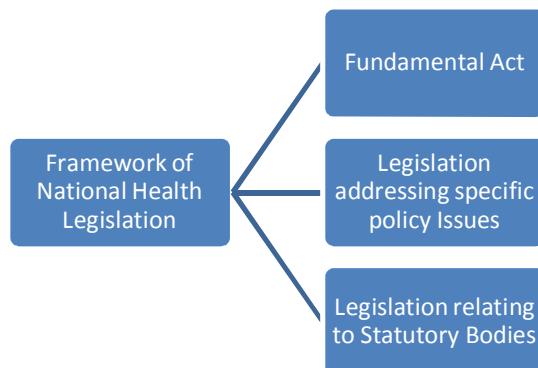


Figure 19: The three different types of legislation under the Ministry of Health's portfolio (Gray and Pillay 2006 p. 3-17)

Section 3.2.2.3 discusses the National Health Act in more detail. This section outlines the two other categories of legislation: those related to policy issues and those related to statutory bodies and health professionals.

Table 14 provides a selection of Acts related to policy areas in the health sector and a brief description of their contents. The Acts are arranged in chronological order from 1965 to 2002 demonstrating that they straddle both the apartheid and post-apartheid eras.

Table 14: Acts in specific health policy areas

Acts in specific policy areas	Descriptions
Medicines and Related Substances Act 101 of 1965 (South Africa 1965)	Provides for the registration of medicines and other medicinal products to ensure their safety, quality and efficacy, and also provides for transparency in the pricing of medicines.
Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972 (South Africa 1972)	Provides for the regulation of foodstuffs, cosmetics and disinfectants, in particular quality standards that must be complied with by manufacturers, as well as the importation and exportation of these items.
Hazardous Substances Act 15 of 1973 (South Africa 1973a)	Provides for the control of hazardous substances, in particular those emitting radiation.
Occupational Diseases in Mines and Works Act 78 of 1973 (South Africa 1973b)	Provides for medical examinations on persons suspected of having contracted occupational diseases, especially in mines, and for compensation in respect of those diseases
International Health Regulations Act 28 of 1974(South Africa	Provides for the national authorities interactions with international health organisations including WHO with regards to public health

Acts in specific policy areas	Descriptions
1974b)	issues.
Tobacco Products Control Act 83 of 1993 (South Africa 1993b)	Provides for the control of tobacco products, the prohibition of smoking in public places and advertisements of tobacco products, as well as the sponsoring of events by the tobacco industry.
Choice on Termination of Pregnancy Act 92 of 1996 (South Africa 1996a)	Provides a legal framework for the termination of pregnancies based on choice under certain circumstances.
Sterilisation Act 44 of 1998 (South Africa 1998b)	Provides a legal framework for sterilisations, including for persons with mental health challenges.
Mental Health Care Act 17 of 2002 (South Africa 2002d)	Provides a legal framework for mental health in the Republic and, in particular, the admission and discharge of mental health patients in mental health institutions, with an emphasis on human rights for mentally ill patients.

Figure 20 provides a historical outline of a selection of policy areas and the various pieces of legislation. These date back from 1965, in the case of medicines and related substance, to 2008 with the Tobacco Product Control Amendment Act 63 of 2008. In some cases, these pieces of legislation have been amended or replaced four times as is the case for Hazardous Substances Act 15 of 1973.

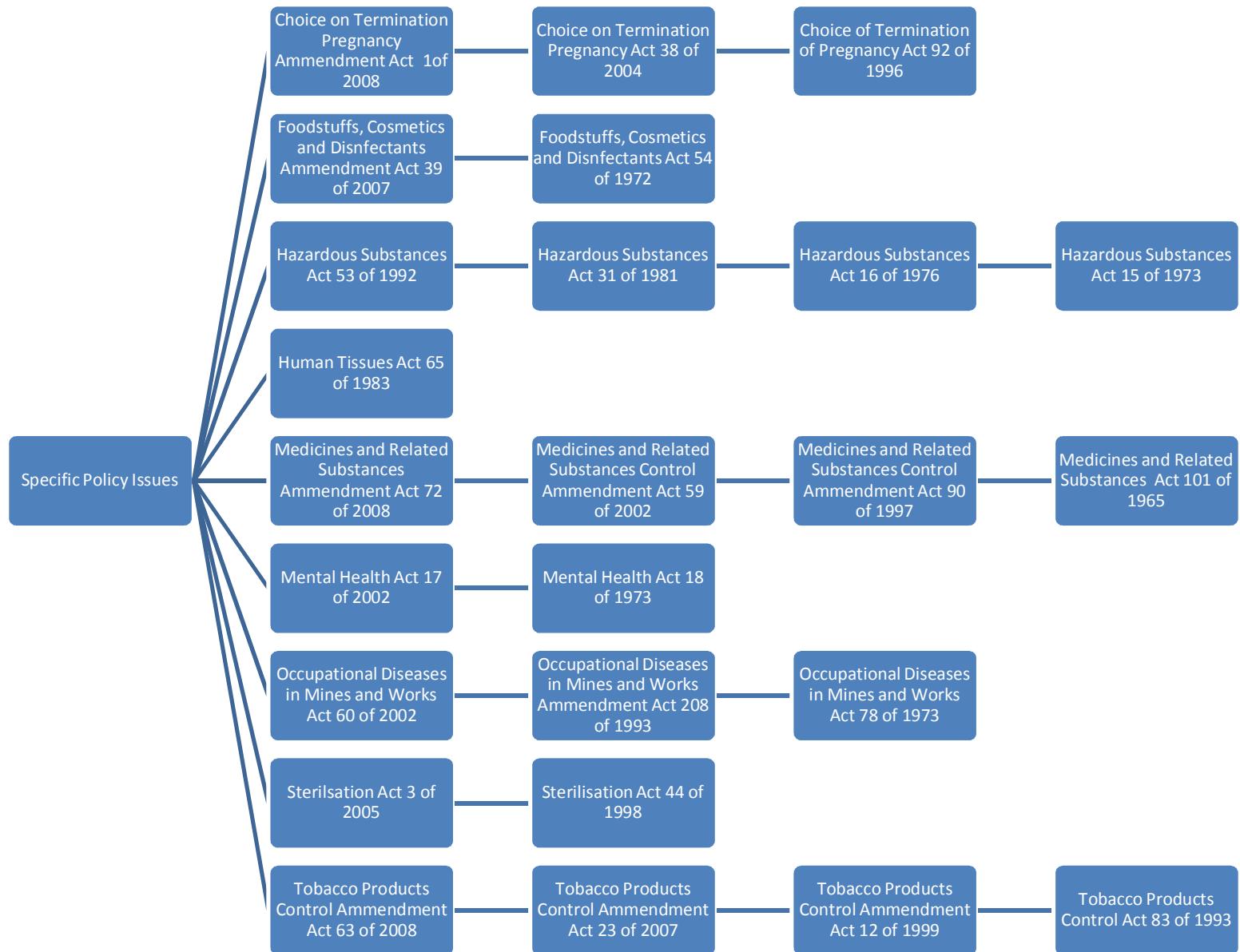


Figure 20: A sample of legislation related to specific policy issues

Table 15 provides a sample of legislation that covers health professionals as well as statutory bodies and a brief description of their contents. The Acts are arranged in chronological order from 1974 to 2007 and the table demonstrates that the legislative instruments straddle both the apartheid and post-apartheid eras.

Table 15: Selected legislation on statutory bodies as well as related professionals

Statutory bodies and related professions	Description
Pharmacy Act 53 of 1974 (South Africa 1974c)	Provides for the regulation of the pharmacy profession, including community service by pharmacists.
Health Professions Act 56 of 1974 (South Africa 1974a)	Provides for the regulation of health professions, in particular medical practitioners, dentists, psychologists and other related health professions, including community service by these professionals.
Dental Technicians Act 19 of 1979 (South Africa 1979)	Provides for the regulation of dental technicians and for the establishment of a council to regulate the profession
Allied Health Professions Act 63 of 1982 (South Africa 1982a)	Provides for the regulation of health practitioners such as chiropractors, homeopaths, etc and for the establishment of a council to regulate these professions.
South African Medical Research Council Act 58 of 1991 (South Africa 1991)	Provides for the establishment of the South African Medical Research Council and its role in relation to health research.
Academic Health Centres Act 86 of 1993 (South Africa 1993a)	Provides for the administration of academic health centres.
Medical Schemes Act 131 of 1998 (South Africa 1998a)	Provides for the regulation of the medical schemes industry to ensure consonance with national health objectives.
National Health Laboratory Service Act 37 of 2000 (South Africa 2000b)	Provides for a statutory body that offers laboratory services to the public health sector.
Council for Medical Schemes Levy Act 58 of 2000 (South Africa 2000a)	Provides a legal framework for the Council to charge medical schemes certain fees.
Nursing Act 33 of 2005 (South Africa 2005)	Provides for the regulation of the nursing profession.
Traditional Health Practitioners Act 22 of 2007 (South Africa 2007b)	Provides for the regulation of traditional health practitioners including their registration, training and conduct.
South African Red Cross Society and Legal Protection of Certain Emblems Act 10 of 2007 (South Africa 2007a)	Provides for the statutory recognition for the South African Red Cross Society and the protection of certain emblems.

Figure 21 provides a historical outline of a selection of statutory bodies' legislation. These date back from 1974, in the case of the Pharmacy Act, to 2007 with the Health Professions Amendment Act 29. In several cases, these pieces of legislation have been amended or replaced four times as is the case with both the Pharmacy and Nursing Acts.



Figure 21: A sample of statutory legislation and an illustration of their historical background

The tables and figures above serve to illustrate that there are numerous legislative instruments in both the policy areas as well as the issues of health professionals and statutory bodies of the health sector. They demonstrate how these legislative instruments in South Africa form a complex maze that is not only extensive but also is historically rich.

3.2.2.3 The fundamental health act

The National Health Act is at the heart of the health framework in South Africa and was passed in order to give effect to the right of everyone to have access to health care services (Hassim, Heywood et al. 2008 p. xi). The Act aims to “provide a framework for a structured, uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services” (South Africa 2003b p. 2). According to Scott Sinclair (2006 p. 23), the legislation aims to “remedy past injustices by, among other things, creating a more uniform and egalitarian national health care system”. In order to be able to do this the act provides a legal framework for the strengthening of the governance and management structures of the National Health System within the provisions of the Constitution.

Among the objectives of the Act include “setting out the rights and duties of health care providers, health workers, health establishments and users” all of which are defined explicitly (South Africa 2003b p. 18). A health care provider is defined as “a person providing health services in terms of any law” in terms of five different Acts. These are: Allied Health Professions Act no. 63 of 1982, Health Professions Act no. 56 of 1974, Nursing Act no. 50 of 1978, Pharmacy Act no. 53 of 1974 and Dental Technicians Act no. 19 of 1979 (South Africa 2003b p. 10). Any other person working in the health sector would be considered as a health worker and is defined as “any person who is involved in the provision of health services to a user, but does not include a health care provider” (South Africa 2003b p. 12). This would presume that records professionals within health institutions are considered health workers.

Both health care providers and health workers work within a health establishment that is defined in the Act as “the whole or part of a public or private institution, facility, building or place, whether for profit or not, that is operated or designed to provide inpatient or outpatient treatment, diagnostic or therapeutic interventions, nursing, rehabilitative, palliative, convalescent, preventative or health services” (South Africa 2003b p. 12). Health establishments are meant to serve users. According to the Act, a user is defined as “the person receiving treatment in a

health establishment, including receiving blood or blood products, or using a health service (South Africa 2003b p. 12). Such a user could be a child or someone incapacitated in which case a relative or guardian would have to accompany him/her according to the Law (Hassim, Heywood et al. 2008 p. 20). A certain category of users qualify to get free service. These are mainly “children below the age of six years and pregnant and lactating women who are not members of medical schemes with free health services” (Carstens and Pearmain 2007 p. 230). In addition, those persons receiving compensation for occupational diseases are also provided free primary health care services (Carstens and Pearmain 2007 p. 230).

Provision of health service happens practically at the provincial level. According to the Act, the head of a provincial department must, among other things, provide hospital services as well as plan and manage the provincial health information system. In addition, there is an emphasis on provision of planned and coordinated quality health services (South Africa 2003b p. 12). According to Carstens and Pearmain (2007 p. 231), although provinces are legally obliged to ensure the implementation of national health policy in terms of the National Health Act, “they do have the power to determine provincial health policy and legislate on provincial health issues in terms of the Constitution, and they are also obliged to implement national health legislation in terms of the Constitution”. Berger, Hassim et al. (2013 p. xxix) argue that “most provincial governments have not fulfilled their duty to pass provincial health legislation and establish legally required bodies, such as the provincial consultative bodies”.

At a governance level, the National Health Act establishes a National Health Council, nine Provincial Health Councils as well as District Health Councils for the purpose of promoting co-operative governance between the three constitutionally recognised spheres of government (Andrews 2005 p. 5; Carstens and Pearmain 2007 p. 246). The National Health Council is a governmental body whose membership includes the Members of the Executive Councils in each of the provinces responsible for health, the heads of the provincial and national health departments, representatives of the South African Military Health Services and the South African Local Government Association (SALGA). Its composition is determined by law and is not within the discretion of the Minister of Health or any other authority (Carstens and Pearmain 2007 p. 246).

In summary, the Act has the potential of transforming the health sector. Berger, Hassim et al. (2013 p. xvii-xviii) argue that the Health Act took elements of previous work including “the

Page | 104

decentralisation of health care services through the District Health System, the need for improving quality of standards of health care in both the public and private sectors, the need for efficient human resource planning and development, and increasing access to health care services for everyone". However, this is a continuing process because not all the envisaged transformation has taken place. Ten years after its promulgation "10 of the 94 sections of the Act were still not in force" demonstrating that legislative efforts still have a long way to go to be completed before one expects implementation success (Berger, Hassim et al. 2013 p. 1).

3.2.2 Health Regulations in South Africa

The National Department of Health (2012d) formulated a number of regulations such as the one addressing the management of public health institutions. However, very few regulations provide detailed guidance on the management records. For instance, there are five documents outlining Standard Operating Procedures for DHIS. Three of those are: Facility Level (Department of Health [South Africa] 2012b), Sub-District Level (Department of Health [South Africa] 2013d), and District Level (Department of Health [South Africa] 2013a). They all state that patient records need to be filed, they warn against inaccuracy and duplication within the records and prescribe safe storage for the records. The other two procedures are at the Provincial Level (Department of Health [South Africa] 2013c) and National Level (Department of Health [South Africa] 2013b) and they require that all staff, supervisors, line and program managers involved in information management as well as monitoring and evaluation must have relevant levels of knowledge and skills in the management of paper and electronic records .However, none of these regulations explore definitions, processes and methodologies of managing these health records.

The Health Professions Council of South Africa (HPSCA) has several regulations for their members (Health Professions Council of South Africa 2013). The guidelines for the management of records apply to health practitioners in public service as well as private practice (Health Professions Council of South Africa 2008 p. 1). The guidelines have been published in several editions, in 2002 (Health Professions Council of South Africa 2002), 2007(Health Professions Council of South Africa 2007), and 2008 (Health Professions Council of South Africa 2008). The guidelines provide a definition of the health records, what they constitute, and how they should be managed including storage, ownership as well as access.

The most significant contribution by the HPSCA guidelines is providing advice on how long health records should be retained, albeit this advice being less than a page long. This is significant because they offer a lot more relevant guidance for the health sector than has been available from other regulations by the National Archives that are geared for local authorities or governmental bodies in general (National Archives and Records Service of South Africa 2003a; National Archives and Records Service of South Africa 2003b).

3.2.3 Records management in health legislation and regulations in South Africa

The management of records in health care institutions is addressed in the national health act as well as regulations in some details (Hanmer 2009 p. 3). In the National Health Act, there is a reference to two other Acts that have significant influence on the management of records, that is the National Archives as well as Access to Information Acts (South Africa 1996d; South Africa 2000c). The National Health Act stipulates that a health record should be “created and maintained at that health establishment for every user of health services” and protected (South Africa 2003bSec 13 and 17). The Act also stipulates that health care providers may examine health records (South Africa 2003bSec 16). The Act also lays down what purposes and instances where these records may be accessed in relation to juridical investigations (South Africa 2003bSec 84). The Act also adds that the Minister may make regulations on how particular records should be managed (South Africa 2003bSec 68, Sec 90).

While the Act does stipulate that the “person in charge of a health establishment in possession of a user’s health records must set up control measures to prevent unauthorised access to those records” or to where they are stored, there are no additional implementation guidelines (South Africa 2003bSec 17). This, for instance, leaves the question of whether there should be specially trained staff to manage the records and whether guidance from the National Archives would suffice for those staff.

These questions are significant for several reasons. First, legislative provisions allow a number of individuals to receive free health treatment. This means that health establishments should expect to generate and maintain a huge number of records particularly for children and lactating mothers (Carstens and Pearmain 2007 p. 230).

Second, legal statutes state that health care provision is executed at the provincial levels. This means that efforts to address records management challenges have to be addressed at this level. At this point there is no apparent regulatory effort to address these challenges at the provincial level at least from within the health sector. The National Archives Act has a provision requiring the head of a governmental body to designate a records manager (South Africa 1996dSec 13(5)) and provides guidance on what qualifications the manager should have as well as their responsibilities (National Archives and Records Service of South Africa 2007b). Considering that all health professionals and other personnel are employed by the provincial government, the question of appointing and deploying records managers in public health care institutions would have to be addressed by the provincial governments (Carstens and Pearmain 2007 p. 233).

Third is the question of the retention of records. The National Health Act is silent on retention periods and the Health Professions Council of South Africa provides some guidance. The HPCSA state that “documents and material are retained in order to

- Further the diagnosis or on-going clinical management of the patient,
- Conduct clinical audits;
- To promote teaching and research
- Use the data for administrative and other purposes
- Keep as direct evidence in litigation
- Use as research data
- Keep for historical purposes
- Promote good clinical and laboratory practices
- Make case reviews possible
- Serve as the basis for accreditation” (Health Professions Council of South Africa 2002 p. 1-2).

For the HPCSA, the retention of records in the health sector is quite convoluted. The general view is that health records should be stored for a period of six years or more “from the date they became dormant” (Health Professions Council of South Africa 2008 p. 4). This requirement suggests that records have to be continuously monitored in order to determine when they initially become dormant and then, from that point on, need to be kept for at least six years. However, there are certain categories of records that need to be kept for much longer. For individuals under the age of 18 and for obstetric records, they have to be kept until the individuals reach the

age of 21 as per legal provisions. For mentally incompetent patients, their records should be kept for the duration of their life (Health Professions Council of South Africa 2008 p. 4). Records related to the Occupational Health and Safety Act must be kept 20 years after treatment (Health Professions Council of South Africa 2008 p. 4). Records related to the exposure to asbestos may be kept for 25 years or more (Health Professions Council of South Africa 2008 p. 4). Considering the nuanced nature of these requirements, some health establishments may resort to keeping everything indefinitely. However, this has cost implications related to space, equipment and human resources. Additionally, if there are no efficient retrieval systems in place, access to all these records that have been kept indefinitely becomes cumbersome.

Finally, there is the question of how to dispose health records once they are no longer required for operational or historical reasons. According to the Health Professions Council of South Africa, disposal should only be done once authorised by the “Deputy Director-General concerned” (Health Professions Council of South Africa 2008 p. 4). Presumably this would be the Deputy Direct-General within the provincial health department but it is not clear how this authorisation could be obtained and how this process should be documented.

3.3 National legislation in information management

Allan (2009 p. 174) argues that there are two major categories of legislation that relate to information, those that “control information across all public structures” and those that “relate to specific information held in specific sectors or structures”. Section 3.2 above discussed legislation that is specific to the health sector and this section provides an outline of select legislation that have the most direct impact on the health sector.

3.3.1 National Archives Act and regulatory environment

The National Archives Act (NAA) was promulgated in 1996 and the key to its mandate is “the proper management and care of records of governmental bodies” (South Africa 1996d). The National Archives is expected to ensure the proper management and care of all public records as well as assist, support, set standards for and provide professional guidelines to provincial archives services (South Africa 1996d Sec 3c, 3g).

The NAA defines a public record as “a record created or received by a governmental body in pursuance of its activities” and a governmental body is any “legislative, judicial or administrative organ of the state” (South Africa 1996d Sec 1). Public records therefore have to be managed through guidelines included in several advisory pamphlets and policy documents including:

- a) Advisory Pamphlet Number 1 - Managing public records and the law (National Archives and Records Service of South Africa 2007d). The pamphlet defines records management as well as records, both public and non-public. In addition, it outlines how records should be managed including listing publications produced by the National Archives that address key issues such as metadata requirements, records management policy, registry procedures and performance criteria for records managers in governmental bodies.
- b) Advisory Pamphlet Number 2 – Electronic Records and the Law (National Archives and Records Service of South Africa 2007a). The pamphlet defines what an electronic record is, outlines how electronic records should be managed, by endorsing the use of international standards such as SANS 15489 and SANS 15801 as well as US DOD 5015.2 as a benchmark for records management applications.
- c) Advisory Pamphlet Number 3 -Records managers and the law (National Archives and Records Service of South Africa 2007b). This pamphlet outlines who is responsible for records management within governmental bodies, why records managers should be appointed, their position within organisations as well as their qualifications and experience prior to appointment. In addition, it outlines the work of records managers within governmental bodies as well as the structure of records units.
- d) Advisory Pamphlet Number 5 – Managing email and the law (National Archives and Records Service of South Africa 2007c). This pamphlet explains the importance of and how email messages should be managed. This includes highlighting challenges of systematically disposing of email records as well as how to manage them so that they are legally admissible in accordance to the Electronic Communications and Transactions Act.
- e) Records Management Policy (National Archives and Records Service of South Africa 2007e) – The Policy Manual is an extensive document that "contains detailed information regarding the specific requirements and conditions for the management of public records and highlights specific obligations of heads of governmental bodies" as well as records professionals (National Archives and Records Service of South Africa 2007e p. 5).
- f) Guidelines for Managing Electronic Records - They were first published in 2000 (National Archives and Records Service of South Africa 2000) and then updated in 2006

(National Archives and Records Service of South Africa 2006b). The purpose of the guidelines was to assist governmental bodies in complying “with legislative requirements regarding electronic records as an integral part of the strategic management of their records resources” (National Archives and Records Service of South Africa 2006b p. i).

While the NAA has jurisdiction over governmental bodies at the national level it allows for provincial governments to enact their own legislation within the framework of the Constitution (South Africa 1996dSec 1viii). By 2011, six of the nine provinces had enacted provincial legislation (Ngoepe and Keakopa 2011 p. 153). For the three provinces without archival legislation then the provisions of the National Archives Act apply including the definitions of governmental body and public record (South Africa 1996dSec 17 part 4a, 4b). This means that, the National Archives Act or the Provincial Archival Acts, as well as their regulatory documentation would be adequate jurisdiction over all records within public health care institutions. However, at the time of this doctoral study there were no published reports of systematic audits conducted in health establishments to ascertain whether the legislation and regulations have been followed.

3.3.2 Electronic Communications and Transactions (ECT) Act

The ECT Act was promulgated in 2002 and is mandated to “provide for the facilitation and regulation of electronic communications and transactions”, “to provide for the development of a national e-strategy for the Republic”, “to prevent abuse of information systems” as well as “to encourage the use of e-government service” (South Africa 2002a p. 2). In order to do this, the Act’s objectives include: removing barriers that prevent “electronic communications and transactions in the Republic”, promoting “legal certainty and confidence in respect of electronic communications and transactions” ensuring that “electronic transactions in the Republic conform to the highest international standards” as well as ensuring that “the national interest of the Republic is not compromised through the use of electronic communications” (South Africa 2002a p. 16-18).

The Act is termed as an enabling piece of legislation, which means that it “does not limit the operation of any law that expressly authorises, prohibits or regulates the use of data messages” (South Africa 2002a p. 18). This includes “any requirement by or under a law for information to be posted or displayed in a specified manner, or any information or document to be transmitted

by a specific method" (South Africa 2002a p. 18). For instance, Mostert (2005 p. 3) argues that where a law, such as the National Archives Act or the National Health Act, requires an institution to keep records, then Sections 14 and 16 of the ECT Act allows the institution to keep those records in electronic form, including scanning (document imaging), provided one implements "a reliable, auditable process" (Mostert 2005 p. 3). Several commentators argue that this provision would assist organisations save on costs such as storage, as well as address litigation risks (Albert 2013; Walker, Darer et al. 2014).

The issue of admissibility of electronic evidence in South African courts has been discussed at length (Watney 2009). Among the questions in discussion is whether the ECT Act was adequate to govern use and admissibility of electronic evidence in criminal and civil proceedings (Snail 2009). The South African Law Reform Commission identified various concerns in relation to assessing electronic evidence including: the ease of manipulation, rapidly changing technology, dependence on specific hardware and applications as well as media fragility (South African Law Reform Commission 2010 p. 9-12). The danger of malicious manipulation of electronic information requires legal standards on requirements for information security. According to Mostert (2005 p. 7), the ECT Act only requires a sufficiently secure payment system for transactions, not necessarily addressing other aspects such as electronic evidence. The South African Law Reform Commission (2010 p. 49) argues that much needs to be done to "clarify and simplify the rules of evidence in bridging the technology/law divide". Among the issues that need to be addressed include a revision of the definition of data message as well as the inclusion of definitions of 'electronic', 'copy' and 'original' in the ECT Act (South African Law Reform Commission 2010 p. 52-53).

It is critical to resolve these challenges in instances where electronic records from public health care institutions are required in court proceedings. Mostert (2005 p. 7) argues that any organisation should employ 'reasonable steps' to ensure information security and prevent unlawful access. These steps' would depend on the (a) nature of the information; (b) the nature of the possible harm arising from breach of security and (c) the costs involved in maintaining security. For this reason, it is advisable to get guidance from international standards and best-practice guidelines including ISO 15801 and the ISO 27000 series of standards on information security (Mostert 2005 p. 7; Orel and Bernik 2013).

3.3.3 Promotion of Access to Information Act (PAIA)

The Act was promulgated in 2000 and facilitates any resident of South Africa having access to records in any public institution without having to justify their need and should expect to receive those records within a stipulated time of 30 days. If such a request has not been met then there are remedial mechanisms to address the issue (Roling 2007 p. 16-17; South Africa 2000c).

While the Act provides for access to records in general, there is a section devoted to access to health records essentially requiring that due thought is put to the process of providing access in order to ensure that disclosure doesn't "cause serious harm" to the physical or mental health, or well-being of the requester or person who has competence to request on behalf of the requester. Should access to records be provided then adequate provision for counselling or arrangements that will assist to limit, alleviate or avoid harm to the relevant person are necessary (South Africa 2000cSec 30). While patients can have access to their own records in public sector institutions, they have "a qualified right to the information" contained in their own records in private sector health institutions which means they are only allowed to make copies (Naidoo 2013 p. 36).

A prominent case of access to records is *Unitas Hospital v Van Wyk* [2006] SCA 32 (RSA) where a widow was appealing the denial of access to her late husband's health records. In such a case, whenever a request for records has been denied, there is an elaborate internal appeals process which requires that an individual provide legal reasons for the appeal. According to the Parliament of South Africa (2007 p. 173-174), "this is not an easy task for most lay persons". If no solution is found then an individual would have to take the matter to court leading to an even more complex and potentially expensive process which represents, in many cases, "a hammer to smash an acorn" (Calland 2009 p. 13).

At the core of weakness in access to information regime is poor records management at multiple levels (Adeleke 2013; Kisson 2010; Muyawala-IIlunga 2009). Nkundla, Pottas et al. (2004) conducted a study at a public health organisation in the Eastern Cape investigating the availability, accessibility and usability of patient information. Among the problems identified included loss of records leading to creation of duplicate information and the absence of appropriate knowledge and skills amongst health professionals and administrative staff in order to harness technology appropriately. While some argue that there may be intentionally obstructionist government ministries, the general view is that it is more a lack of adequate resources (Allan 2009 p. xvi; Calland 2009 p. 10). This is further exacerbated by the challenge

of dealing with Apartheid regime records whose access requirements raise additional challenges (Kisson 2010).

The Act intersects with several other legislation, including apartheid era legislation, resulting in confusion about whether the right of access to information contained in the Act “trumps provisions in earlier enactments that deal with access to public records” (Allan 2009 p. xvi). Among the other legislation that cause confusion includes those related to the protection of personal information as well as the protection of state information (Van der Westhuizen 2013). The Act is increasingly being seen not only providing access to records, but also as a “leverage right, important in and of itself, but far more significant in terms of its value in helping to protect and exercise other rights, particularly social and economic rights” (Calland 2009 p. 8).

South African residents have used the Act to request for records for more than a decade. Several scholars (Klaaren 2010; Peekhaus 2011; Phooko 2013) and institutions (Open Democracy Advice Centre 2013a; South African History Archive 2014b) have monitored these requests. However, the compliance levels within the public sector have been very low. A report submitted to Parliament stated that “about 50 percent of the requests for information from government departments never receive a response” (Parliament of the Republic of South Africa 2007 p. 173). The South African Human Rights Commission and the Open Democracy Advice Centre assessed public sector institutions’ responsiveness to access requests based on the provisions of the Act. In two separate studies published in 2008 and 2010, only two or three of the nine provincial health ministries ranked in the top 10 amongst the dozens of public institutions assessed (Open Democracy Advice Centre and South African Human Rights Commission 2008; Open Democracy Advice Centre and South African Human Rights Commission 2010). The Limpopo Department of Health and Social Development received special mention in 2008 by being named the best performing provincial department in the country (Open Democracy Advice Centre and South African Human Rights Commission 2008 p. 7). In 2010, the department was again commended together with the Office of the Premier in Limpopo as the two good practice institutions in the country that have “developed effective PAIA implementation mechanisms” that register and track requests for information (Open Democracy Advice Centre and South African Human Rights Commission 2010 p. 17). This is very commendable for the Limpopo Department of Health and Social Development but worrying that other provincial and national departments of health have not done as well.

3.3.4 Protection of Personal Information Act (POPIA)

The Act was signed in November 2013 and, in April 2014, a limited number of sections were proclaimed (Pillay 2014). The Act's objective is the "protection of personal information processed by public and private bodies" as well as providing for the establishment of an Information Regulator to exercise duties and functions in terms of the Act as well as the Promotion of Access to Information Act (South Africa 2013). The Act has two levels of personal information: ordinary personal information as well as special personal information. Health records fall within the category of special personal information and can, therefore, only be processed under special conditions (South Africa 2013Sec 32). The Act is based on eight fundamental principles:

- accountability,
- processing limitations,
- purpose specification,
- further processing limitations,
- information quality,
- openness,
- security safeguards, and
- data subject participation

Since the Act is not fully promulgated and it still has a year of grace period, the right of privacy is partially covered by other Acts. First, the Act is a constitutional fulfilment of the provisions in Section 14 that include the right not to have one's person or home searched. Second, POPIA largely draws its definition of personal information from PAIA where both state that personal information relates to confidentiality of pregnancy status, physical and mental health, wellbeing, disability, medical, criminal or employment history of the individual and blood type (South Africa 2000c; South Africa 2013). Third, the Constitution also guarantees the right to bodily and psychological integrity (South Africa 1996bSec 12 (2)). Privacy in relation to the right to bodily integrity is also recognised in the Choice on Termination of Pregnancy Act (2004Sec 5(3)) that acknowledges a pregnant minor's right to choose whether or not to consult her parents, guardian, family members or friends before the pregnancy is terminated. The choice of whether or not "to disclose an intention to terminate a pregnancy is essentially based on principles of privacy. It does not relate to health care services but it does have an impact on the psychological and social wellbeing of the pregnant mother" (Carstens and Pearmain 2007 p. 32-33).

Before the promulgation of the Act, Carstens and Pearmain (2007 p. 32-33) noted that the physical examination of a person in a health care context could be an invasion of one's privacy and such examination could only be lawfully conducted if that person waived their right to privacy for the purpose of examination. However, with the provisions of the Act, "medical professionals, health care institutions" and other facilities providing treatment or care to an individual are allowed to process "personal information concerning a data subject's health or sex life" in the course of providing health care (South Africa 2013Sec 32 (1) (a)). Nonetheless, if any of this personal information has to be disclosed to a party outside the provisions of the Act, then the medical professional has to get consent from the data subject.

Govan (2014) noted that, based on the provisions of the Act, if a dental practitioner intended to transfer information outside South Africa, then the patient had to be notified. The Act adds exceptions to the requirement of gaining consent if it was not "reasonably practicable to obtain the consent" or if it was reasonably practicable to obtain such consent then the patient would likely give consent (South Africa 2013Sec 72 (1) (e)).

While POPIA intersects with other laws, it shares its strongest bond with PAIA. The two Acts could either compliment or contradict each other depending on the circumstance. The Open Democracy Advice Centre (2010 p. 1) argue that the complementary nature of these two rights is that individuals have a right to request and obtain copies of information that contains their personal data. The Open Democracy Advice Centre (2010 p. 1) added that "the conflicting nature of these two rights is that at times a request will be made for information that contains personal data and the public body holding this information will have to take a decision on whether that information should be withheld or whether there is a greater public interest in disclosing it". This was demonstrated in the case where the medical records of a former Minister of Health were published in a weekend newspaper. The Minister sued "the editor, two journalists, and the publisher of the *Sunday Times* for allegedly violating her right to privacy" by obtaining and disclosing her medical records without her consent (Berger, Hassim et al. 2013 p. 33; De Lange and Caelers 2007). The High Court ruled that "details of the public figure's private medical records may be published if publication is in the public interested" but that possession of the medical records by the media may still be a crime. So while the court allowed the continued publication of articles regarding the minister, it also ordered that her records be returned to the health establishment (Berger, Hassim et al. 2013 p. 33).

The theft of health records and threats to breach of privacy are not confined to South Africa alone. In May 2009, there were media reports of a hacker in the US who stole millions of patients' records and threatened to divulge personal information (Fox News 2009). And in 2013, missing medical files in the Middle East were intricately connected to an alleged criminal case against a South African academic (Mposo 2013). Considering the divergent and convergent interests, it is critical to provide practical guidance for health care professionals on how to protect health information (Govan 2014; Nell 2006). In order to do this, one may have to look at practises elsewhere such as Australia, Canada or the USA. Nell (2006) examined a patient's right to privacy and confidentiality in medical law with particular reference to South African, American and Canadian legal systems with particular attention on the mental health care setting. Nell (2006) concluded that even though South Africa did not have an Act at the time of the study, it was in a better position to have a good one without the confusing array of provincial and national legislation. Lederman (2004) examined the implementation of medical data privacy law in Australia. The author argues that the ability of health organisations to respond to the requirements of the legislation is affected by the quality of their patient data and the structure and security of their databases. Several security concerns such as the lack of audit trails, the lack of timed log-offs, and the lack of restrictions on removing files from the hospital were highlighted. All these issues have great implications for information systems design and development and in instances where there is a push towards amalgamating hospitals, the implications are amplified even further by impinging on the trustworthiness of the health records being generated, used and maintained. Bezuidenhout (2013) argues that the process of compliance of POPIA would "be a time-consuming and costly exercise" with significant impact on information governance, information security and records management.

3.3.5 Protection of Information Act (PIA)

The Protection of Information Act No. 84 was promulgated in 1982 in order to prohibit the obtaining or disclosure of information on security matters. The Act determines, among other things, the security or sensitivity levels of records and also prohibits access to prohibited sites as well as prohibiting acts that are prejudicial to the "security of interests of the Republic" (South Africa 1982bSection 5).

In accordance with the Act, the Cabinet in the 1990s, approved an information protection regime that would be directed by a national information security policy known as Minimum Information Security Standards (National Intelligence Agency [South Africa] 1996). The policy set out a “range of measures to protect classified information, including the classification and reclassification of documents, handling of classified documents, access to classified information, storage of classified documents and removal of classified documents from premises” as well as the security vetting of personnel (State Security Agency [South Africa] 2010 p. 2).

For many critics, this Act is considered a relic of the apartheid regime used to “hide state information at will and jail those who disseminated classified information” and it needs to be replaced (Evans 2013). The need for change has been acknowledged for two decades with amendments to the Act by different other pieces of legislation in 1994 (South Africa 1994), 1996 (South Africa 1996c), 2002 (South Africa 2002b; South Africa 2002c) and 2003 (South Africa 2003a). However, the push for change is more than just superficial and that has been acknowledged by the State Security Agency in the numerous statements made to members of the media over the years (State Security Agency [South Africa] 2011; State Security Agency [South Africa] 2012; State Security Agency [South Africa] 2013a; State Security Agency [South Africa] 2013b). The State Security Agency acknowledged that the existing protection regime spent huge amounts of government resources “to protect a mass of information that does not actually require protection” resulting in “unstable and inconsistent classification environment, excessive costs and inadequate implementation” (State Security Agency [South Africa] 2010 p. 3).

The US Congress’ Senate Committee on Governmental Affairs (1997) noted that a comprehensive statutory foundation for the classification and declassification of information is “likely to result in a more stable and cost-effective set of policies and a more consistent application of rules and procedures”. A legislative basis for the classification and declassification system, needs to establish clear guiding principles “while retaining broad authority within government to establish and administer the details of the system [and] offers a practical and more predictable way to achieve meaningful changes” (State Security Agency [South Africa] 2010 p. 3).

There is no doubt that within the health sector, there will be instances where public institutions are required to manage state information that is classified. Therefore, it is critical to have

procedures in place to ensure that such information, whether generated from current institutional activities or the result of the legacy of historical documentation that is managed, stored as well as made accessible appropriately. Ultimately, the aim should be to “reduce the volume of information classified but at the same time to strengthen the protection of state information that truly requires protection” through declassification (State Security Agency [South Africa] 2010 p. 3).

3.4 Legislative experience in the health sector in the rest of the world

South Africa’s legislative and regulatory environment has changed significantly since 1994. However, there is still work to be done and it may be instructive to examine what work has been done elsewhere. This section provides a brief outline of efforts in the UK and the US to provide legislative and regulatory guidance for the management of records in the health sector. The two countries offer very different legal and regulatory scenarios. The UK’s legal framework is quite centralised, similar in manner to South Africa. The US’ law is largely derived from common law much like South Africa. However, it is a federal system that allows individual States to formulate their own laws. This creates certain complexities that may contrast to South Africa. This section seeks to outline these similarities and differences.

3.4.1 Legislative experience in the health sector in United Kingdom

The UK has had a long history with health legislation dating back several centuries. Over time there have been many changes in the structure of the public health care institutions that provide health care. The most recent legislative change is from the Health and Social Care Act 2012 which radically reorganises the National Health Service (NHS) in England (Ministry of Justice [United Kingdom] 2012a). Part 3 of the Act covers the regulation of health and adult social care services and has a chapter that consists of, what are referred to as, “miscellaneous matters” including “the service of documents, electronic communications, interpretation and consequential amendments” (Ministry of Justice [United Kingdom] 2012b p. 3).

The National Health Service has a Code of Practice for Records Management that was derived from the 2006 legislation prior to the current act. The Code of Practice published by the UK Department of Health has two parts. Part One, published in 2006, provides an outline of

guidelines, responsibilities and processes of managing records in NHS organisations (Department of Health [United Kingdom] 2006) . Part Two, published in 2009, provides details on records retention and disposal schedules for the different kinds of health as well as business and corporate records (Department of Health [United Kingdom] 2009).

The Code of Practice is based on both legal requirements and professional best practice (Department of Health [United Kingdom] 2006 p. 1). It draws on “advice and published guidance available from the Ministry of Justice and The National Archives as well as from best practices followed by a wide range of organisations in both the public and private sectors” (Department of Health [United Kingdom] 2006 p. 3). Since all NHS records are public records under the terms of the Public Records Act 1958, The Secretary of State for Health and all NHS organisations “have a duty under the Public Records Act to make arrangements for the safe keeping and eventual disposal of all types of their records” (Department of Health [United Kingdom] 2006 p. 4). The Code of Practice is part of a larger framework of an information governance policy and implementation toolkit (Department of Health [United Kingdom] 2006 p. 3-4) that is necessary to meet the requirements set out under the Data Protection Act 1998 (United Kingdom Parliament 1998) and the Freedom of Information Act 2000 (Office of Public Sector Information [United Kingdom] 2000).

The Code of Practice replaces previous guidance that was available in disparate documents, including HSC 1999/053 – For the Record (Department of Health [United Kingdom] 1999), HSC 1998/217 – Preservation, Retention and Destruction of GP General Medical Services Records Relating to Patients (Department of Health [United Kingdom] 1998b) and HSC 1998/153 – Using Electronic Patient Records in Hospital: Legal Requirements and Good Practice (Department of Health [United Kingdom] 1998a).

The Code of Practice provides a guide “to the required standards of practice in the management of records for those who work within or under contract to NHS organisations in England” (Department of Health [United Kingdom] 2006 p. 1). This is done by, among other things, identifying “the specific actions, managerial responsibilities, and minimum retention periods for the effective management of all types of NHS records (i.e. both corporate and health records) from creation, as well as day-to-day use of records, and storage, maintenance and ultimate disposal procedures” (Department of Health [United Kingdom] 2006 p. 5). In this regard, the Code of Practice includes:

- A Model Records Management Policy
- A Model Records Management Strategy
- A Records Inventory Survey Template
- An Approach to Records Management Audit
- Electronic records inventory form definitions
- Electronic records inventory survey form
- Manual records inventory form definitions
- Manual records inventory survey form
- Raising the profile of records management - 'Getting Started'
- The Roadmap Framework (Department of Health [United Kingdom] 2014).

A unique feature in the legislative framework is that Chief Executives and senior managers of all NHS organisations are “personally accountable for records management within their organisations”. This puts extra responsibility on NHS organisations to take “positive ownership of, and responsibility for, the records legacy of predecessor organisations and/or obsolete services” (Department of Health [United Kingdom] 2006 p. 4).

In comparison to the situation in South Africa, the UK has more legislative and regulatory certainty regarding the management of records as well as adequately defined roles, responsibilities and obligations of both public entities and the managers that run them. For health institutions in the UK the challenge would be to ensure full compliance with the extensive set of legislative and regulatory instruments.

3.4.2 Legislative experience in the health sector in United States

In the US, the legislative environment is very different from both the UK and South Africa. It is a much bigger country with a population that is six times that of South Africa and five times that of the UK. Of necessity, the country has a decentralised structure and, therefore, it is difficult to have one set of instruments to address all record keeping requirements for the country. Additionally, the legal traditions in the US are quite unique. The structure of the political system that has dual sovereignty makes it complicated because federal laws are not simply universal but have to co-exist with the ones in each of the States (Young 2012). The law in most States is based on the common law of England, except in Louisiana, whose civil law is based on French and Spanish law (Bast and Hawkins 2013 p. 1-3).

Health Insurance Portability and Accountability Act (HIPAA) is the most influential legislative instrument in the country's health sector. It was passed by Congress in 1996 and came into force in 2003 (Adam 2008 p. 33). The law offers a means to bring some order within a narrow aspect in the management of health records. It is a comprehensive federal scheme for the protection of individually identifiable health information that was promulgated to "provide insurance portability; promote the use of medical savings accounts; decrease the costs of health care administration by simplifying insurance processes; and combat waste, fraud, and abuse" (McWay 2013 p. 78). HIPAA accomplishes this by laying down statutory obligations for health care providers to accept national standards for both electronic transactions and code sets, allowing payments to be made electronically between the health care insurance industry and hospitals and other medical practices (Adam 2008 p. 33).

In the decentralised structure that the federal health authorities operate within, HIPAA provides several layers of authority. First, the federal health authorities sanction "the use of standards for the electronic exchange of health care data" allowing the specification of "the medical and administrative code sets to be used in the electronic exchange standards". Second, they are empowered to "require use of national identification systems for health care patients, providers, payers, plans, employers, and sponsors". Third, they could "specify the types of measures required to protect the security and privacy of personally identifiable health information" (McWay 2013 p. 68).

HIPAA has specified that the health care industry uses "one format for making and receiving claims. It lays down complex and in-depth rules regarding privacy and security of information (documents and records) held within these information systems" (Adam 2008 p. 33). The Act entitles virtually all patients to obtain their records on request (Beard, Schein et al. 2012). This puts pressure on institutions to make electronic medical records the rule. However, there are challenges including clinicians knowing patients could have access to the records, which could mean that the clinicians may not write accurately about suspicions of one or other ailment fearing litigation risks due to perceived negligence (Walker, Darer et al. 2014). Additionally, HIPAA governs the use and disclosure of most health information and has a complex formula for determining whether HIPAA will pre-empt a state law relating to health information confidentiality (Roach, Hoban et al. 2006 p. 7).

According to Albert (2013), from 2015 health care entities in the US face penalties if they fail to make use of qualified Electronic Health Record Systems. However, it seems that little attention has been paid on how this requirement will affect discovery processes during litigation involving the complex proprietary databases that manage electronic health records. Albert (2013) argues the challenges are immense and need to be considered carefully.

The main focus of HIPAA's administrative simplification effort is to increase the use of electronic patient information. The governing assumption of this approach is that by replacing "a paper-intensive method for transferring patient information between health care providers and third-party payers with an electronic method, overall costs will decrease. This decrease in costs has not yet been seen; however, this is largely attributable to the increase in costs associated with preparing for the transition to HIPAA" (McWay 2013 p. 68). It is anticipated that cost decrease will be seen after the transition period is completed.

In comparison to South Africa, the HIPAA example in the US demonstrates the challenges of implementing the electronic health record and the extent to which there should be adequate legislative, technical and operational preparations made for success.

3.5 Conclusion

South Africa has a 'hybrid' or 'mixed' legal system, formed by interweaving of three distinct legal traditions: Roman Dutch Law, British Common Law and African Customary Law (Du Bois 2004 p. 9-16; Madhuku 2010 p. 50). These traditions have had a complex interrelationship with the other traditions, causing areas of strain in the past, not only in South Africa but also other parts of the African continent (Toufayan 2014).

The legislative and regulatory cornerstone for health in South Africa is the Constitution and, in Section 27, it provides the right to have access to "health care services, including reproductive health care" with the State having to make "reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights" (South Africa 1996bSec 27). The constitutional protection of the right to health has been justly celebrated as a basis of the country's democracy because it enshrines access to health services as a human right (Sinclair 2006 p. 23). The National Health Act was promulgated in 2003 and is the fundamental Act that propagates these constitutional provisions (Hassim, Heywood et al. 2008

p. xi).. However, the history of health legislation in South Africa spans almost 200 years and has, over the years, seen the promulgation of more than half a dozen fundamental health acts as discussed in this chapter. Berger, Hassim et al. (2013 p. xvii-xviii) argue that the 2003 health act took elements of previous work including “the decentralisation of health care services through the District Health System , the need for improving quality of standards of health care in both the public and private sectors, the need for efficient human resource planning and development, and increasing access to health care services for everyone”

The National Health Act provides a legal framework for the strengthening of the governance and management structures of the National Health System within the provisions of the Constitution. One of the key deficits of the Health Act is the lack of regulatory guidelines on the kinds of “returns, registers, reports, records, documents and forms to be completed and kept by the national department, provincial departments, district health councils, health care providers, private health establishments and public health establishments” (Gray and Jack 2008 p. 33-34). Regulatory guidance on the management of records in the health sector is provided by a professional association. The Health Professions Council of South Africa (HPSCA) has several regulations for their members (Health Professions Council of South Africa 2013). The guidelines for the management of records apply to health practitioners in public service as well as private practice (Health Professions Council of South Africa 2008 p. 1). The guidelines have been published in several editions, in 2002 (Health Professions Council of South Africa 2002), 2007 (Health Professions Council of South Africa 2007), and 2008 (Health Professions Council of South Africa 2008). The guidelines provide a definition of the health records, what they constitute, and how they should be managed including storage, ownership as well as access.

In order to get further legislative direction on the management of records, this chapter has examined information management related Acts related to the National Archives (South Africa 1996d), Electronic Communications and Transactions (South Africa 2002a), Access to Information (South Africa 2000c), Protection of Privacy (South Africa 2009) and the Protection of State Information (South Africa 1982b). Their connection to the management of records in the health sector is illustrated in the diagram below.

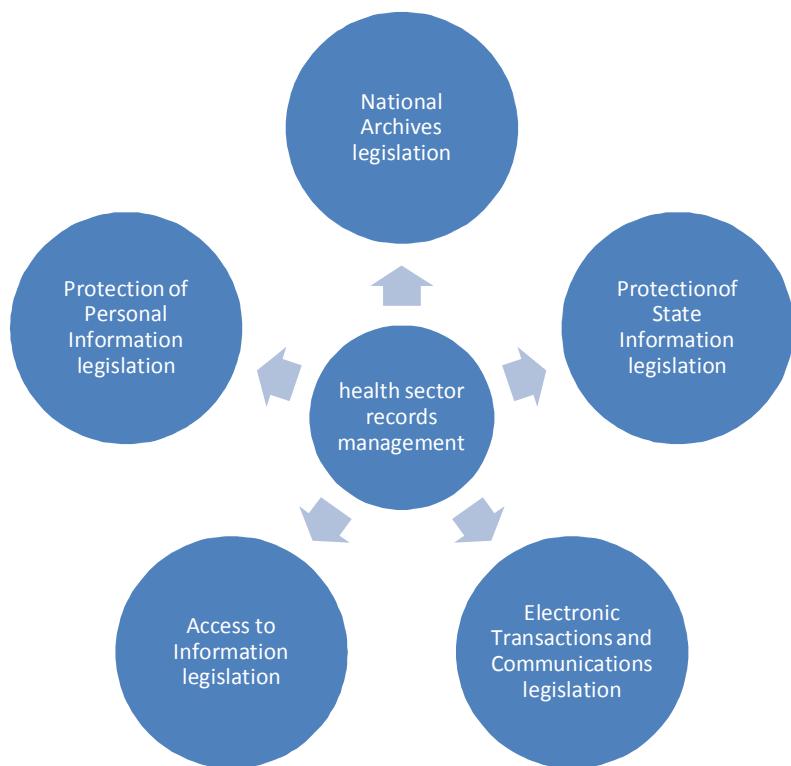


Figure 22: The relationship between different legislation related to information management and the health sector

One observes several things when looking at the legislation both within the health sector as well as in the information management sector in general. First, the transformation agenda that the country has embarked on will obviously take a long time. As this chapter has demonstrated, legislative and regulatory analysis is critical to understanding South Africa's health sector in its quest to address and transform its society (Whiteside 2014). On the one hand the country has more than 200 years of legislative history in the health sector. On the other hand the current legislative instruments straddled both the apartheid and post-apartheid eras. This chapter has demonstrated that almost one third of the Acts in the health sector are from the pre-1994 era. This demonstrates that the country's apartheid legislative legacy still looms large. Coupled with these reasons the current situation is difficult not only because new Acts are yet to be promulgated but also existing Acts are yet to be fully implemented. This serves to demonstrate just how complex the legal terrain is, requiring both careful navigation and a lot of patience.

Second, it is clear that most legislative instruments have weak provisions on criminal liability over poor management of records. For instance, while the National Archives has criminal liability

related to the wilful damage of any public or non-public record in the control of a governmental body (South Africa 1996dSec 16), there is no reported prosecution under the Act. While the National Health Act also has a provision that imposes “criminal liability on those responsible for the management of health facilities” (South Africa 2003bSec 17), which would include mismanagement of records within those health facilities, there has been no reported prosecutions under the Act (Berger, Hassim et al. 2013 p. 36). The bright light pertains to access to information. Over the last decade a number of cases have been heard in court challenging actions of public officials over denial of access to records. Several cases have been taken to court by the South African History Archive (South African History Archive 2014a), one of the most celebrated involving the institution versus the Minister of Justice and the legal officer. In this particular case, some of the inaccessible records were eventually released (Bell 2012; Venter 2004).

In order to address these deficits, there is need to learn from the experiences of other countries. Legislative reforms have been the subject of debates all over the world from the US with the Affordable Care Act (Sommers, Kenney et al. 2014) to the UK’s reform of the National Health Service (Dusheiko 2014). Both countries offer different lessons for South Africa. As demonstrated in this chapter, while the US has a very different legislative and political system, its experiences in introducing electronic health records are nonetheless instructive. The challenges in these efforts don’t only span the legislative sphere but also require both technical as well as procedural interventions. In comparison, as outlined in this chapter, regulations related to the management of records in the UK health care sector have been formulated centrally by the Ministry of Health. Their process was exhaustive, taking into account the legislative environment and ensuring that all aspects of records management were covered from creation, maintenance, use, as well as disposition in accordance to legislative and regulatory prescripts. Such guidelines, while they are envisaged in the National Health Act, have yet to be developed and implemented (Gray and Jack 2008 p. 33-34; South Africa 2003bSec 68). Roach et al (2006 p. 26-27) argue that the tradition approach to studying the legal issues associated with medical records had focused on the institutional role in creating and maintaining records. As this chapter has demonstrated, the transformation of the legal and regulatory framework within the health sector has to be cognisant of the information management related legislation and regulations.

This chapter has examined the legislative and regulatory framework within which South Africa's health care system operates. The next chapter is a literature review of records management within the health sector including a discussion of definitions, stages of the records lifecycle as well as an examination of various issues such as records privacy and confidentiality, records security, records integrity, informed consent and records disclosure.

Chapter 4 Records and information management conceptual framework

4.1 *Introduction*

The three previous chapters have exhaustively discussed various concepts relating to both the records profession as well as the health sector. This chapter brings together knowledge in relation to both these disciplines by providing a framework for discussions in the rest of the dissertation. On the outset, it examines preferred definitions for two sets of concepts.

The first set of concepts is health record and medical record. While some commentators have used the terms interchangeably (Roach, Hoban et al. 2006 p. 32), others prefer to create a distinction (Galani and Nikiforou 2006; McWay 2008; Skurka 1998). Pickett (2012 p. 1) argues that a medical record implies that physicians participate in and supervise the medical care provided to patients in health care institutions while a health record is not only the record of medical care provided by physicians but also a listing of records provided by non-physician health practitioners. In other words, a health record goes beyond interactions amongst physicians and includes other health care practitioners (Galani and Nikiforou 2006 p. 8). Additionally, the health record can either be in hardcopy or electronic format. McWay (2013 p. 123) defined it as “an ordered set of documents, in the paper context, or a collection of data, in an electronic context, that contains a complete and accurate description of a patient’s history, condition, diagnostic and therapeutic treatment, and the results of treatment”. For the purposes of this study, health record is the preferred term and is defined as the systematic patient record, in paper or electronic form that contains the complete and accurate description of personal, financial, social and medical information and kept by physicians or other health care practitioners. In instances where the discussion is on the electronic health record, that is taken as a subset of the health record.

The second set of concepts is health care information management and health care informatics. On the one hand, health care informatics focuses primarily on the use of technology to support data (McWay 2008 p. 32). It does this through a combination of computer science, health care science, information science and cognitive science (Grain and Procter 2009 p. 2; Young 2000 p. 20). Health care informatics is the study of “both the structure and general properties of information and design and implementation of technology to use and communicate that information” and focuses on “how to use technology to facilitate acquiring, processing,

interpreting, using, and communicating health care data" (McWay 2013 p. 310, 510). On the other hand, health information management focuses primarily on the quality of the data and focuses on how practitioners could be used to store and retrieve the data (McWay 2013 p. 37; Wagner and Kongstvedt 2013). However, over the last few years the two fields of health care informatics and health information management have reached some level of commonality as "the emphasis in health information management has moved to address more strongly the data analytics, content, structure, and standards as a result of implementation of the electronic health record" (McWay 2013 p. 37). The focus in this study is on health care information management that encompasses the health record and only has tangential interest in the technology that supports it. This interest is on the impact that technology has on the management processes and activities.

There may be instances where health information systems are discussed in the context of discussing health information management. For the purpose of this study, a health information system is any technology that meets the needs of clinical management (Boykin, Schoenhofer et al. 2014 p. 15; Young 2000 p. 265). This may include a wide range of applications "from diagnostic tools to health-management applications and from inpatient to outpatient monitoring services" (Ganiatsas, Starida et al. 2006 p. 247). Related to a health information system is a hospital information system, which is the central information system in most hospitals in which most health care related data such as personnel, stations, patients and their medical history are stored (Holzinger, Burgsteiner et al. 2006 p. 87).

This chapter provides the conceptual framework for records management including: defining key terms, outlining the records lifecycle, discussing digital records as well as international standards. It then discusses health information management and ends with concluding remarks.

4.2 Conceptual framework of records management

This section outlines fundamental definitions within the records profession, briefly discusses the concept of records lifecycle, examines the challenges of managing digital records as well as the contribution of international standards in professional discourse.

4.2.1 Definitions

There are numerous debates about what constitutes a record. A multi-year international research project that has taken more than a decade involving researchers and professionals in various fields including records management and archival science, developed a comprehensive terminology database for its use. The research project, known as InterPARES, distinguished between data, information and document. Data is defined as “the smallest unit of information” (InterPARES 2 Project 2007c). It is “the representation of facts, concepts, information, or instructions in a manner that is suitable for processing by an information system” (InterPARES 3 Project 2012). Therefore, it provides the basic building block upon which one builds an understanding of the concept of information.

Information is defined as “an assemblage of data intended for communication either through space or across time” organised in order to “convey a complex unit of meaning” (InterPARES 2 Project 2007c; InterPARES 3 Project 2012). A document is defined as information affixed to a medium (InterPARES 2 Project 2007c) and has “fixed form and stable content” (Duranti 1998 p. 41). Figure 23 provides a graphical representation of this understanding of the three concepts.

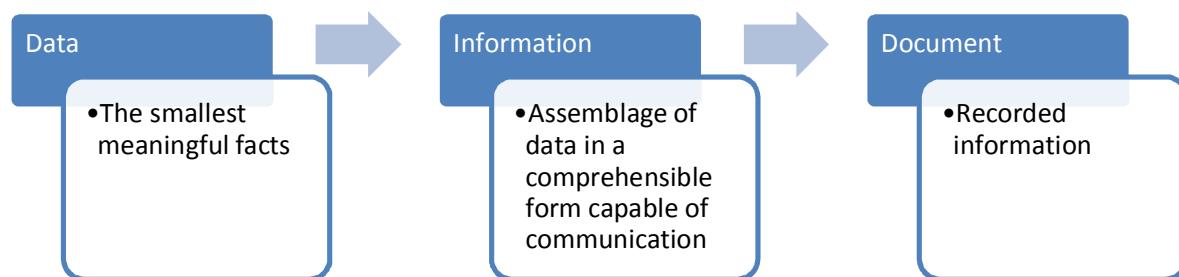


Figure 23: The relationship between data, information and document

The relationship between documents and records is occasionally considered contentious. While a few professional commentators have used the concept document and record interchangeably the concepts should be considered distinctly different (Adam 2008 p. 24; Robitaille 2005 p. 38; Smith 2007 p. 1). A record can be defined as “a document made or received in the course of a practical activity as an instrument or a by-product of such activity, and set aside for action or reference” (InterPARES 2 Project 2007c). The simplest way of explaining it is that all records are

documents but they constitute a special category of documents. As such the diagram below graphically represents the relations.

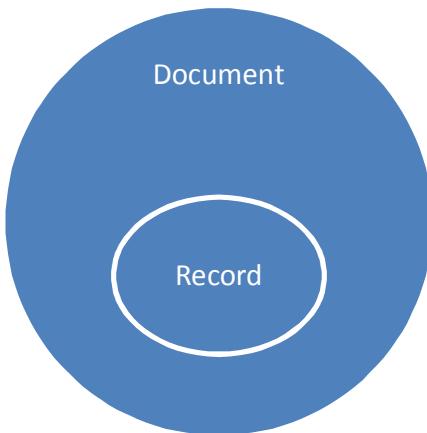


Figure 24: The relationship between document and record

A common issue in professional discourse is identifying elements that constitute a record. In a hardcopy environment this was self evident because they had a fixed documentary form and stable content (Xie 2011b p. 6). However, in the digital world there are challenges (Guercio 1997; Lemieux 2001; Sprehe 2000). For instance, statistical data could be viewed as a pie chart, or a bar chart or a table using the same stored digital record. Therefore this leads to conceptual discussions on whether digital records could have all the components necessary to have fulfilled the requirements to be considered as records.

According to Diplomatics, a discipline that studies “the genesis, forms and transmission of archival documents”, records should have both extrinsic and intrinsic elements (School of Library Archival and Information Studies [University of British Columbia] 1995). An extrinsic element of a record constitutes its external appearance and include: signatures, seals and any other special signs (InterPARES 2 Project 2007c). Intrinsic elements of a record constitute internal composition including: “name of author, name of originator, chronological date, name of place of origin of record, name of addressee(s), name of receiver(s), indication of action (matter), name of writer, corroboration, attestation, and qualification of signature” (InterPARES 2 Project 2007c).

These intrinsic and extrinsic elements are part of the form element that is one of the seven intellectual components required in a record. The seven components are: Acts, Persons, Archival Bond, Context,

Content, Medium and Form (Duranti, Eastwood et al. 2002 p. 9-22). InterPARES 2 (2007a) developed an ontology of a record as shown in the diagram below.

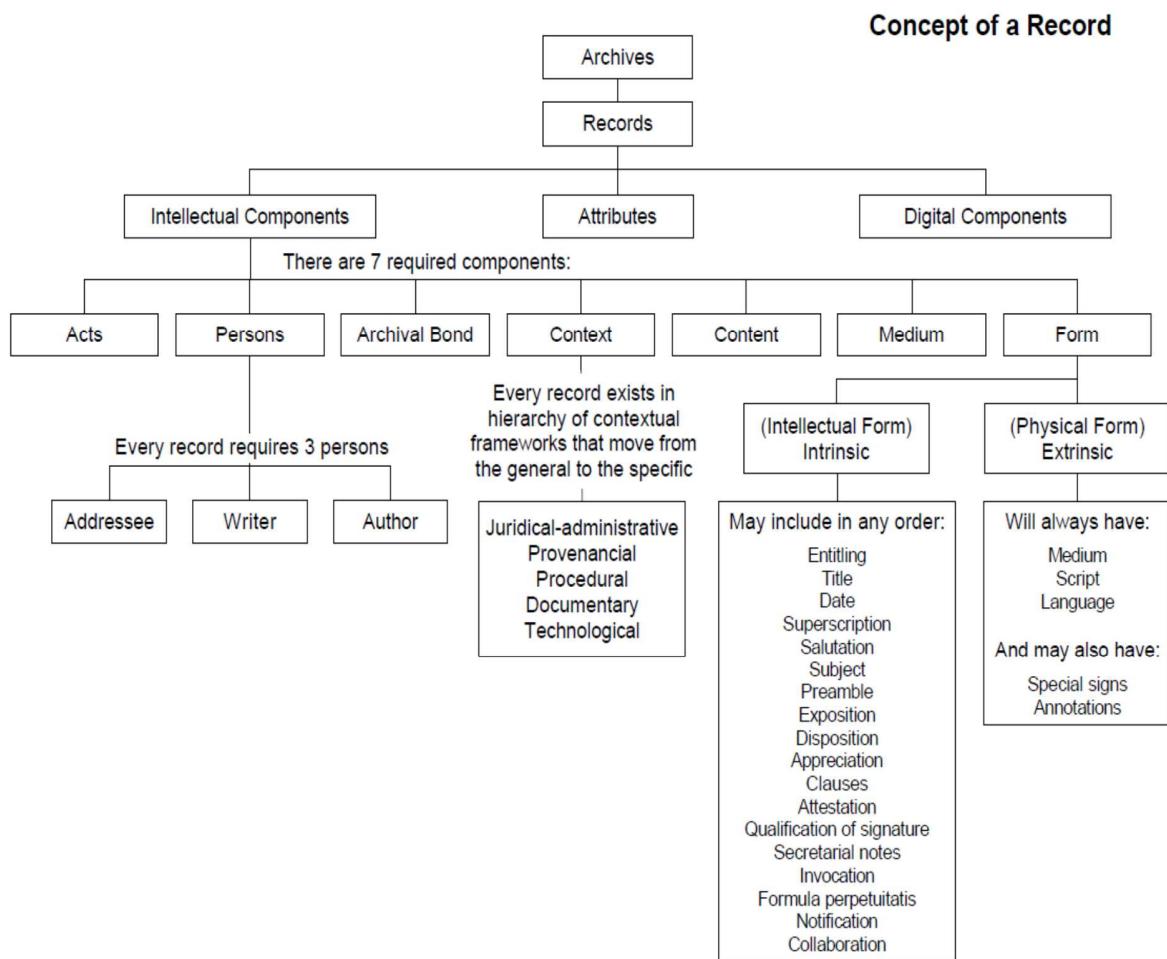


Figure 25: The ontology of the concept of a record (InterPARES 2 Project 2007a)

As the diagram above insinuates, the intellectual components of a record are required regardless of format. However, for digital records an additional consideration is for digital components.

Another challenge in professional discourse is identifying the original record from a copy. Again in hardcopy documents it was not an insurmountable problem but became a big issue in the digital world (Shepherd 1994; Underwood 2002). The challenge is mostly experienced during transmission either over space “when a record crosses communication boundaries between persons” or over time “when a record

is preserved by its author for future references by itself or another person" (Duranti, Eastwood et al. 2002 p. 28). Therefore, the status of transmission only offers a "degree of perfection at any given time" (Duranti, Eastwood et al. 2002 p. 28). InterPARES 2 Project (2007b) developed an ontology of the status of transmission as shown in the diagram below.

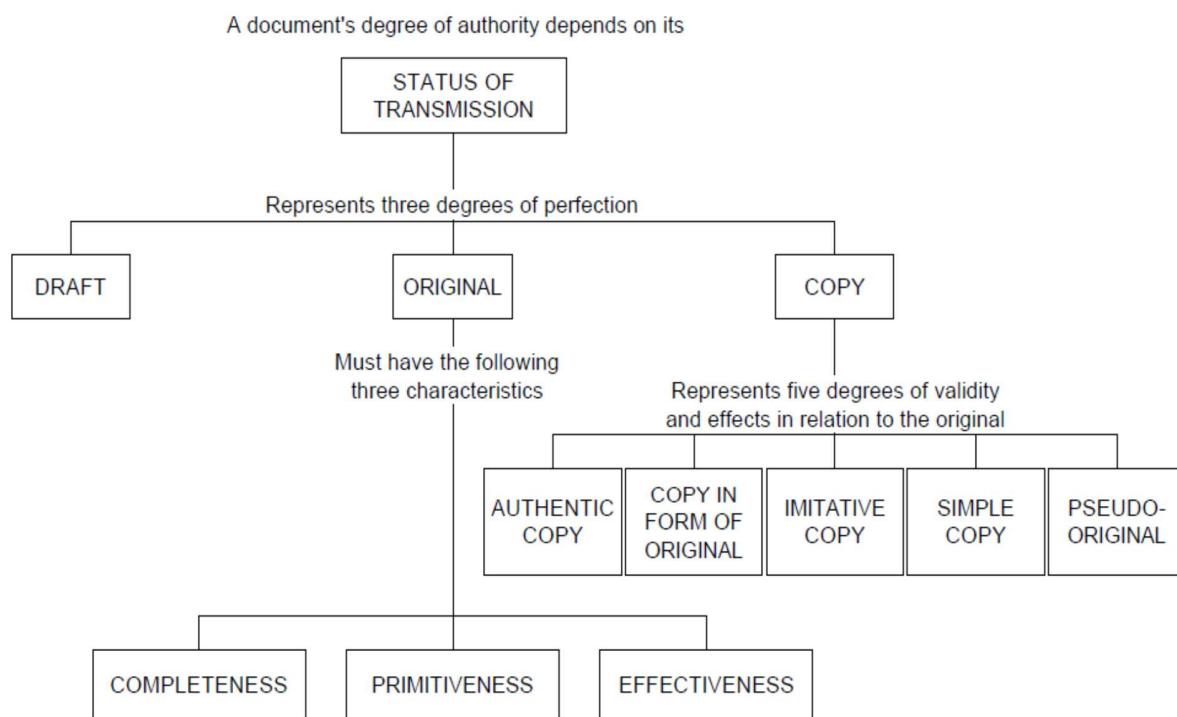


Figure 26: The ontology of the concept of the status of transmission of a record (InterPARES 2 Project 2007b)

The question of what is an original and what is a copy has captured the discussions in South Africa, particularly within the legal fraternity. The South African Law Reform Commission (2010 p. 49) argues that much needs to be done to "clarify and simplify the rules of evidence in bridging the technology/law divide". Among the issues that need to be addressed include: a revision of the definition of data message as well as the inclusion of definitions of 'electronic', 'copy' and 'original' in the ECT Act (South African Law Reform Commission 2010 p. 52-53). This is particularly important when dealing with electronic evidence of transactions and communication Mostert (2005 p. 7)

While in the 1980s and 1990s scholars lauded the principles in Archival Science and Diplomatics (Bartlett 1996; Bearman 1992; Turner 1990), more recently critics have pointed out that the absolute notions the disciplines espouse, being positivist, are ill-prepared for a post-custodial digital reality (Cook 2001; Cook and Schwartz 2002). However, MacNeil (2004 p. 207-208) argues that contemporary diplomatic-archival approach is more accurately described as postpositivism, which is cautious of claims to absolute knowledge but “retains the belief in empirical reality and in the existence of laws or theories that govern the world and that need to be verified in order to make sense of that world”.

These discussions have an impact in the health sector because they also inform the quality of trustworthiness of the records in the sector. For instance, in Australia discussions conducted within the health sector demonstrated that efforts by the government had not met record-keeping benchmarks of authenticity (Iacovino 2004; Iacovino and Reed 2008).

4.2.2 Records lifecycle

The records lifecycle has been the subject of a lot of professional discussion particularly based on the historical experiences of the US National Archives in the 1930s and 1940s. During that time, Federal Agencies expanded exponentially leading to large volumes of records (Henry 1998 p. 310). American archival scholar T. Schellenberg is credited with solidifying the concept in the 1950s with an emphasis on records professionals being involved in working with agencies at the earlier stages of the lifecycle (Bantin 1998 p. 20-22; Borglund and Öberg 2006 p. 6).

At the core of the concept is that all records have a lifespan beginning with record creation, through distribution, use, maintenance and storage until final disposition or preservation. This concept has often been represented through linear illustrations and, on a few occasions, in circular illustrations (National Archives and Records Administration [United States], Office of Management and Budget [United States] et al. 2005 p. 8). In practice there are aspects that are circular and others linear. Figure 27 provides a representation of the lifecycle in both linear and circular terms as adapted from New Zealand's Digital Content Life Cycle (DigitalNZ 2014).

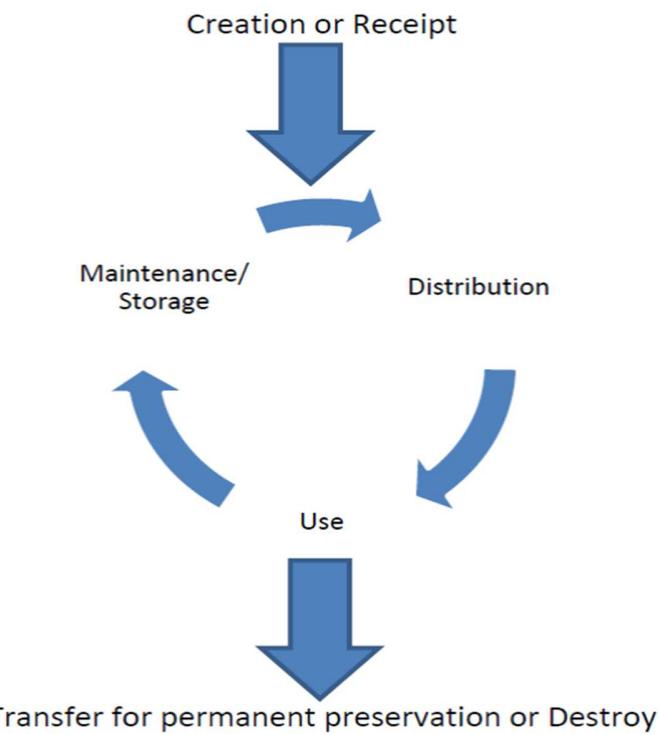


Figure 27: The records lifecycle (DigitalNZ 2014)

The records lifecycle concept has been used in scholarly discussions over many decades but, from the 1970s and 1980s, there was concern that the concept would need to be adjusted to meet the challenges of the new electronic environment (Force 2013; Henry 1998; McInnes 1998; Thurston and Cain 1995). Some scholars argue that it is not appropriate for a world of digital records and suggesting that the records continuum would be more appropriate (Borglund and Öberg 2006 p. 2; Yusof and Chell 2000).

The records continuum draws its roots from discussions that started in the 1980s with scholars such as Jay Atherton and Terry Cook (Atherton 1985; Cook 1984). Their criticism was fundamentally that the lifecycle model had a predominantly linear perspective separating the responsibility and accountability of managing records within the early stages of the record's lifespan (Bantin 1998). The proponents of the records continuum, many being Australian professionals and scholars, built on this view and argue that records would never strictly exist in one particular phase and that they fluidly moved amongst difference phases at any point in time (Borglund and Öberg 2006 p. 3).

While there have been numerous debates about both the lifecycle and continuum over the years the lifecycle has often dominated discussions (Harris 2005; McKemmish 2001; Trace 2002). Nonetheless, aspects of the continuum have been evident in both international projects as well as international standards. For instance, InterPARES 2 developed two models for the long-term management of digital records, the Chain of Preservation (COP) Model following the lifecycle concept and the Business-Driven Recordkeeping (BDR) Model following the continuum concept (Eastwood, Ballaux et al. 2008; Hofman 2008). The two models were developed to be mutually supporting by providing two institutional viewpoints of looking at the same issue, COP “based on the perspective of the entity responsible for long-term preservation of digital records” and BDR “based on the perspective of the records creating entity” (Eastwood, Hoffman et al. 2008 p. 194).

4.2.3 Managing digital records

Managing digital records has been a challenge for a long time. The nature of digital records is that they can easily be modified without trace thereby making trustworthiness of these records a major concern. In addition, they are only accessible through the use of hardware and software applications that are technologies undergoing rapid change. In the 1990s, some commentators noted that in many institutions these digital records were generated and managed by users making it difficult for records professionals to intervene with records management principles and processes (Dollar 1993; McDonald 1995) .

Over the decades there have been two main options for managing institutional-wide digital records, either printing to paper or using technological applications (Goh, Katuu et al. 2009 p. 29-32). Printing to paper is now discouraged by national archival institutions such as the UK (Morley 2012 p. 6; Public Record Office [United Kingdom] 2001 p. 5).

The use of technological applications entails a further two options, either using shared folders or utilising specialised software application for managing digital records. Many organisations often begin with using shared folders because it requires minimal initial cost and the skills are easily acquired. These shared spaces could be within network drives or folders and in applications such as email software (The National Archives [United Kingdom] 2004 p. 21-32; The National Archives [United Kingdom] 2012).

Alternatively, institutions may use specialised software for managing digital records. These software applications have been labelled using different terms over the years including: Electronic Document Management Systems (EDMS), Electronic Records Management Systems (ERMS), Integrated Document and Records Management Systems (IDRMS), Electronic Document and Records Management Systems (EDRMS) and Enterprise Content Management (ECM) systems. Sometimes these terms have been used interchangeably (Nguyen, Swatman et al. 2007; Rankin 2006 p. 27-45). However, in this dissertation they will be viewed from an evolutionary perspective with three generations of development namely: EDMS and ERMS in the first generation, IDRMS and EDRMS in the second generation, and ECM in the third generation (Katuu 2012b p. 38).

ERM systems evolved from early automated techniques for managing hard copy records while EDM systems evolved from software designed to build concordances and then became automated techniques for managing hybrid collections of largely similar types of documents such as procedure manuals (Ardern, Miller et al. 2009 p. 47; McDonald 2011). EDM systems were also often referred to as Document Imaging Management (DIM) systems since they were used to scan and save images of hardcopy documents for central storage and easy retrieval (Cvision Technologies 2011). ERMS and EDMS merged in the mid to late 1990s as EDRMS. "Since then, there have been important add-ons and improvements such as email integration and workflow" (McDonald 2011). The evolution from the second to the third generation was precipitated by the web environment that radically changed business activities within institutions (Dural 2006; Gilbert, Shegda et al. 2011 p. 52; McDonald 2011).

The term ECM has been used for more than a decade by professional service institutions such as Gartner and Forrester as well as in research projects such as InterPARES (InterPARES 3 - TEAM Canada 2010; Moore and Markham 2003; Shegda, Chin et al. 2004). The ECM concept can be viewed in two related ways. First, it could be viewed as the final point in an evolutionary process, where other concepts such as EDMS and ERMS were predecessor concepts. Second, it could be viewed as an all-encompassing concept that accommodates predecessor concepts and would help clear any confusion regarding the different concepts (Nguyen, Swatman et al. 2007; Sprehe 2005). The evolutionary process is illustrated in the diagram below (Katuu 2012b p. 39).

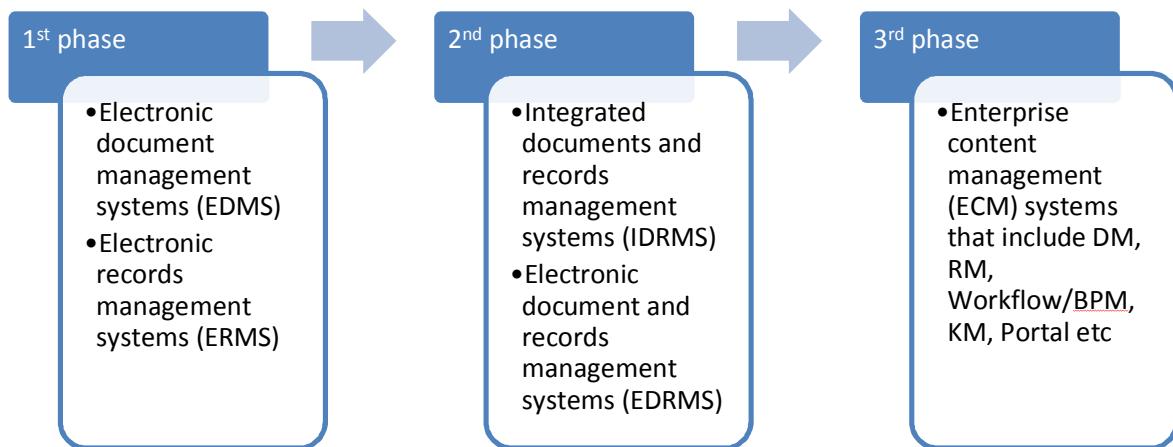


Figure 28: The evolution of various concepts culminating into ECM (Katuu 2012b p. 39)

The evolutionary perspective to the concept of ECM is supported by published reports from leading research organisations in document and records management such as Gartner and Forrester. These reports have, over the last few years, evolved from using terms such as Integrated Document Management Systems (IDMS) and EDMS to ECM. Gartner published a report in 2003 using the term IDMS but from 2004 replaced that with ECM (Gartner 2003; Shegda, Chin et al. 2004). In addition, Forrester had already used the term ECM in a report published in 2003 and continued to use the term in subsequent annual reports (Moore and Markham 2003).

A professional association of information professionals known as AIIM (2010) defined ECM as constituting “strategies, methods and tools used to capture, manage, store, preserve and deliver content and documents related to organisational processes”. ECM software applications and strategies allow the organisation to manage its information more effectively (Pelz-Sharpe 2008). When these strategies, methods, and tools are targeted at organisational processes, they manifest themselves in several modules. The precise number and composition of the modules remains a subject of debate. Some commentators argue that there are 10 modules that are considered fundamental including: Document Management, Records Management, Workflow or Business Process Management, Collaboration, Portal, Knowledge Management, Imaging, Digital Asset Management, Digital Rights Management, and Web Content Management (CMS Watch 2010; Kampffmeyer 2006). The diagram below provides a graphical illustration of the modular perspective of ECM as well as its constituent modules (Katuu 2012b p. 40).



Figure 29: The modules of a typical ECM application (Katuu 2012b p. 40)

Discussions amongst records professionals have often dwelt on the implementation of two modules: Records Management and Document Management (Rankin 2006). However, doing this inevitably oversimplifies the reality. A study in South Africa demonstrated that 80% of the surveyed institutions were using Records Management, Document Management as well as were using more than just the two ECM modules. At least 40% were using at least four ECM modules: Records Management, Document Management, Imaging and Workflow/Business Process Management (Katuu 2012b p. 50-51). This demonstrates a higher level of sophistication than is commonly noted in scholarly discussions.

The implementation of ECM software applications within organisations is a complex process fraught with numerous challenges (Nordheim and Päivärinta 2006; Paivarinta and Munkvold 2005; Simons, vom Brocke et al. 2014; Usman, Muzaffar et al. 2009). These challenges exist not

only in developed countries such as Belgium (Svärd 2014b), Canada (Xie 2006), Lichtenstein (Simons, vom Brocke et al. 2014), Sweden (Svärd 2014a) as well as in the health sector in South Africa's Western Cape Province (OpenText 2012; Weeks 2013a; Weeks 2013b). A discussion of the developments in ECM implementation in South Africa is found in Section 4.3.2 of this chapter.

As noted in the discussion in Section 4.2.2 at the end of the records lifecycle, a decision has to be made on the retention or disposition of records. In many public sectors institutions in the world the convention is that records that need to be preserved for the long-term are transferred to an archival institution. However, there are challenges when dealing with digital records because of the rapid changes in the hardware and software applications generating the records. In addition, the storage media on which the digital records are managed deteriorates much faster than hard-copy media. Therefore the transfer and management of digital records requires the intervention of other types of software applications termed as Digital Curation or Digital Preservation systems (Katuu 2012c). These applications serve as Trusted Digital Repositories that not only centrally preserve the records from ECM applications but also from other business systems, legacy systems and websites (Bigelow 2012; Brown, Katuu et al. 2009 p. 33-46).

4.2.4 International Standards

Over the last two decades there have been numerous efforts around the world to develop standards and best practice guidelines to manage records (Healy 2001; McLeod and Hare 2010; Pember 2006; Wilhelm 2009). The number of standards that have an impact on records professionals does not only emanate from within the profession but also comes from outside the profession. For instance, InterPARES 3 developed a database of such standards and identified 63 ISO standards, five ICA standards and 22 standards from other professional organisations that have an impact on the research project's mission for the long term preservation of authentic digital records (InterPARES 3 Project: TEAM Canada 2012). Several commentators argue that there is need for records professionals to understand how to make best use of various standards including "understanding their commonalities and differences" in order to best address and improve the impact of records management (Force 2013; Frost 2011; Oliver 2014; Wilhelm 2008).

Unfortunately when it comes to professional standards the fissure that characterises the twin professions of records management and archival science become evident. At an international level, most records management standards are generated by the International Standards Organisation (ISO), the international body for international standards. On the other hand, standards used in archival science are generated by the International Council on Archives (ICA). While there are professional traditions where no fissure exists, such as in continental Europe, the rest of the world seems to have resigned to the reality of this dichotomy. This dichotomy is among the reasons why it is difficult to achieve consensus when developing standards (Bustelo 2012; McLeod 2004; Oliver 2014).

ISO standards are seen, from a records lifecycle perspective, as those addressing the challenges of managing records that are actively in use within the organisation. For records that are then transferred to archival institutions, ICA standards then become applicable. The section below examines three major categories of standards relevant to records actively in use within organisations: ISO, ICA and national or regional standards.

4.2.4.1 International Standards Organisation (ISO) standards

Most ISO records management standards were primarily generated by two Technical Committees (TC): TC 46 (within Subcommittee 11) and TC 171 (with Subcommittees 1, 2 and 3). Subcommittee 11 of TC 46 was created in 1998, has published 16 standards and currently has 28 participating countries and 14 observer countries (International Standards Organization 2014c). TC 171 was created in 1978, has published 82 standards and has 17 participating countries and 29 observer countries (International Standards Organization 2014d)

The most well-known ISO standard for records management is ISO 15489 that was published in 2001 (Healy 2001). This was the result of efforts from professionals to make an Australian standard AS 43903 that was published in 1996 into a global one (Pember 2006). Over the years ISO 15489 has generated a lot of discussion including how it could be used to argue for greater advocacy as well as being used as an audit tool (Crockett and Foster 2004; McLeod 2004). In addition, it has been adopted in different countries such as China (An and Jiao 2004), Kenya (Ombati 2004) and Jamaica (Alexander-Gooding and Black 2005).

While ISO 15489 offered core principles and practices to be followed by records management professionals, it only provided a basic framework. For this reason, a number of other standards have been developed to address different aspects in the management of records.

However, the complete list of standards developed by both TC 171 and TC 46 Subcommittee 11 are more than 100 standards and yet more standards are currently being developed. Table 16 has grouped the most well-known standards according to major categories (Katuu 2015b).

Table 16: Categories of ISO standards

Category	Standards
Fundamental standards	<ul style="list-style-type: none"> • Basic principles: ISO 15489-1:2001 - Information and documentation -- Records management -- Part 1: General (International Standards Organization 2001a) • Implementation guide: ISO/TR 15489-2:2001 - Information and documentation -- Records management -- Part 2: Guidelines (International Standards Organization 2001b)
Managing digital records	<ul style="list-style-type: none"> • Readability specifications for EDMS : ISO 12029: 2010 Document management -- Machine-readable paper forms -- Optimal design for user friendliness and electronic document management systems (EDMS) (International Standards Organization 2010a) • Change management for EDMS: ISO/TR 14105:2011 - Document management -- Change management for successful electronic document management system (EDMS) implementation (International Standards Organization 2011e) • Selection of EDMS : ISO/TR 22957:2009 Document management -- Analysis, selection and implementation of electronic document management systems (EDMS) (International Standards Organization 2009d) • Fundamental principles for ERMS: ISO 16175-1:2010 Information and documentation -- Principles and functional requirements for records in electronic office environments -- Part 1: Overview and statement of principles (International Standards Organization 2010b) • Functional requirements for ERMS: ISO 16175-2:2011 Information and documentation -- Principles and functional requirements for records in electronic office environments -- Part 2: Guidelines and functional requirements for digital records management systems (International

Category	Standards
	<p>Standards Organization 2011a)</p> <ul style="list-style-type: none"> • Functional requirements for records in business systems: ISO 16175-3:2010 Information and documentation -- Principles and functional requirements for records in electronic office environments -- Part 3: Guidelines and functional requirements for records in business systems (International Standards Organization 2010c)
Digitisation processes	<ul style="list-style-type: none"> • System procedures for trustworthiness ISO/TR 15801:2009 - Document management -- Information stored electronically -- Recommendations for trustworthiness and reliability (International Standards Organization 2009c) • Third party repositories: ISO/TR 17068:2012 Information and documentation - Trusted third party repository for digital records (International Standards Organization 2012e) • Guidelines: ISO/TR 13028:2010 Information and documentation - Implementation guidelines for digitisation of records (International Standards Organization 2010d)
File format accessibility	<ul style="list-style-type: none"> • PDF (UA 1) format: ISO 14289-1:2014 Document management applications -- Electronic document file format enhancement for accessibility -- Part 1: Use of ISO 32000-1 (PDF/UA-1) (International Standards Organization 2014b) • PDF (1.4) format: ISO 19005-1:2005 Document management -- Electronic document file format for long-term preservation -- Part 1: Use of PDF 1.4 (PDF/A-1) (International Standards Organization 2005a) • PDF (1.7) format: ISO 19005-2:2011 Document management -- Electronic document file format for long-term preservation -- Part 2: Use of ISO 32000-1 (PDF/A-2) (International Standards Organization 2011b) • PDF(1.7) format: ISO 19005-3:2012 Document management -- Electronic document file format for long-term preservation -- Part 3: Use of ISO 32000-1 with support for embedded files (PDF/A-3) (International Standards Organization 2012d) • PDF (1.7) format: ISO 32000-1:2008 Document management -- Portable document format -- Part 1: PDF 1.7 (International Standards Organization 2008a)
Imaging	<ul style="list-style-type: none"> • Image compression methods: ISO 12033: 2009 Document management -- Electronic imaging -- Guidance for the selection of document image compression methods (International Standards Organization 2009a)

Category	Standards
	<ul style="list-style-type: none"> • Image communication processes: ISO 12651-1:2012 Electronic document management -- Vocabulary -- Part 1: Electronic document imaging (International Standards Organization 2012a) • Image workflow management: ISO 12651-2: 2014 Electronic document management -- Vocabulary -- Part 2: Workflow management (International Standards Organization 2014a)
Management systems for records	<ul style="list-style-type: none"> • Fundamentals: ISO 30300:2011 Information and documentation -- Management systems for records -- Fundamentals and vocabulary (International Standards Organization 2011c) • Requirements: ISO 30301:2011 Information and documentation -- Management systems for records – Requirements (International Standards Organization 2011d)
Metadata	<ul style="list-style-type: none"> • Principles: ISO 23081-1:2006 Information and documentation -- Records management processes -- Metadata for records -- Part 1: Principles (International Standards Organization 2006b) • Conceptual issues: ISO 23081-2:2009 Information and documentation -- Managing metadata for records -- Part 2: Conceptual and implementation issues (International Standards Organization 2009b) • Self-assessment: ISO/TR 23081-3:2011 Information and documentation -- Managing metadata for records -- Part 3: Self-assessment method (International Standards Organization 2011f)
Records Management Standards for other professions	<ul style="list-style-type: none"> • ISO 22310:2006 Information and documentation -- Guidelines for standards drafters for stating records management requirements in standards (International Standards Organization 2006a)
Risk Assessment	<ul style="list-style-type: none"> • ISO/TR 18128:2014 Information and documentation -- Risk assessment for records processes and systems
Preservation	<ul style="list-style-type: none"> • Standard on system specifications - ISO 14641-1:2012 Electronic archiving -- Part 1: Specifications concerning the design and the operation of an information system for electronic information preservation (International Standards Organization 2012c) • Long term preservation: ISO/TR 18492:2005 - Long-term preservation of electronic document-based information (International Standards Organization 2005b) • Conversion and migration processes: ISO 13008:2012 - Information and

Category	Standards
	documentation -- Digital records conversion and migration process (International Standards Organization 2012b)
Work process analysis	<ul style="list-style-type: none"> ISO/TR 26122:2008 Information and documentation -- Work process analysis for records (International Standards Organization 2008b)

The process of developing standards is an on-going endeavour for records professionals. The most significant development in the process is the recent publication of Management Systems for Records (MSR) standards known also as the ISO 30300 series i.e. ISO 30300:2011 and ISO 30301:2011 (International Standards Organization 2011c; International Standards Organization 2011d). ISO 30300 series of standards offers “the methodology for a systematic approach to the creation and management of records, aligned with organisational objectives and strategies” and is illustrated in the diagram below (Ellis and Bustelo 2012).

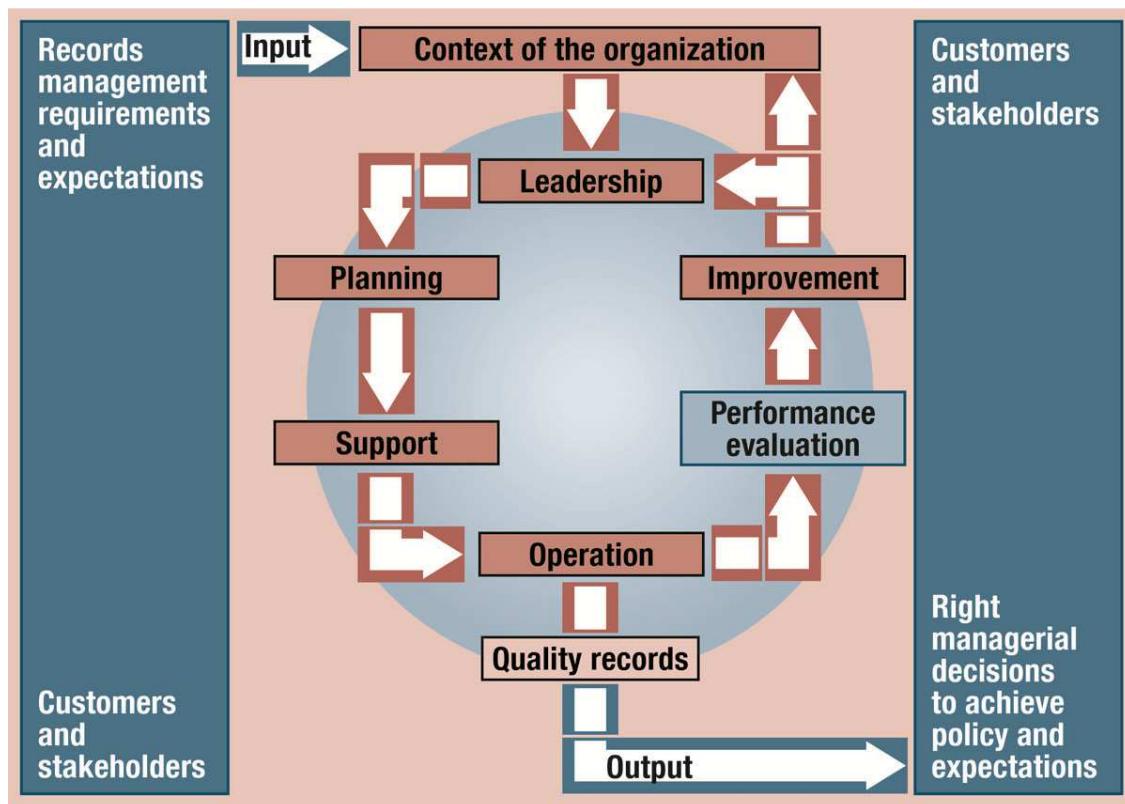


Figure 30: The structure of Management System for Records standard (Ellis and Bustelo 2012)

As illustrated in Figure 30 above, the structure of MSR “links the records management requirements and expectations of stakeholders to the production of records which are reliable,

authentic, whose integrity is unassailable, and which can be utilised in an effective and efficient manner" (Ellis and Bustelo 2012).

MSR is compatible to other management system standards (MSS) developed by ISO including ISO 9001 for quality management, ISO 14001 for environmental management and ISO/IEC 27001 for security management (Frost 2011).

4.2.4.2 International Council on Archives (ICA) standards

ICA has developed a number of standards however most have been directed towards the management of records already transferred to archival institutions (Shepherd and West 2003). The exception is a set of three standards that were initially developed by professionals from nine national archival institutions, namely: Australia, Cayman Islands, Germany, Malaysia, the Netherlands, New Zealand, South Africa, the UK and the US (Cunningham 2010). The professionals met between 2006 and 2008 to develop three modules of standards. The first module provides an overview of principles and functional requirements. The second module provides guidelines for ERMS applications and the third module provides guidelines and functional requirements for records in business systems (Prom 2011). Once published, the standards were adopted by the International Standards Organisation (ISO) thereby gaining more international traction (International Standards Organization 2010b; International Standards Organization 2010c; International Standards Organization 2011a). In 2011, it was reported that the ICA was developing implementation guidance and training material for the three modules with the aim of releasing the new products in 2012 but no such publication had been released at the time of this dissertation study (Prom 2011).

4.2.4.3 National and regional standards and best practice guidelines

A number of countries have developed standards for assessing ECM applications and whether they are appropriate to manage digital records (Katuu 2012a). This section will look at the efforts undertaken in one region, the European Union, and three national jurisdictions: South Africa, US and the UK. Several other nations such as Australia (National Archives of Australia 2007) and Canada (Treasury Board of Canada 2010) have also made efforts but will not be discussed.

4.2.4.3.1 *South Africa*

As noted in Chapter 3, the South African National Archives has a set of policies and guidelines for managing digital records first published in 2000 (National Archives and Records Service of South Africa 2000) and later revised in 2006 (National Archives and Records Service of South Africa 2006b). These guidelines provided general advice on the management of digital records. Early in the 2000s, the State Information Technology Agency (SITA) and the National Archives collaborated in providing practical assistance to public institutions in managing their digital records. In 2002, SITA and the National Archives jointly produced the first list of approved ECM software applications and their companies that would provide services to implement the ECM applications, hereafter known as Value-Added Resellers or VARs (State Information Technology Agency [South Africa] 2002). VARs are companies that add features or services to an existing application and then resell it to end users as an integrated solution. In the ECM environment, VARs are often companies that provide professional services such as integration and customisation of the application as well as training; these added services make VARs an integral part of the ECM market eco-system, particularly in South Africa (Katuu 2012b; Weeks 2013c). The approved list of VARs published in 2002 was the result of assessing the functional requirements of the software applications and would result in all public sector institutions choosing these ECM applications during their procurement processes.

In 2005, the approved list was revised through a second assessment process that demonstrated both the evolution of the software applications as well as the assessment process (State Information Technology Agency [South Africa] 2005). At the core of the 2005 assessment criteria is the identification of three classes of ECM applications; Class A being fully integrated modules, Class B consisting of a core solution and Class C consisting of standalone solutions such as business process management and e-mail archiving. The diagram below is a graphical representation of how the ECM applications fit together (National Archives and Records Service of South Africa 2006a).

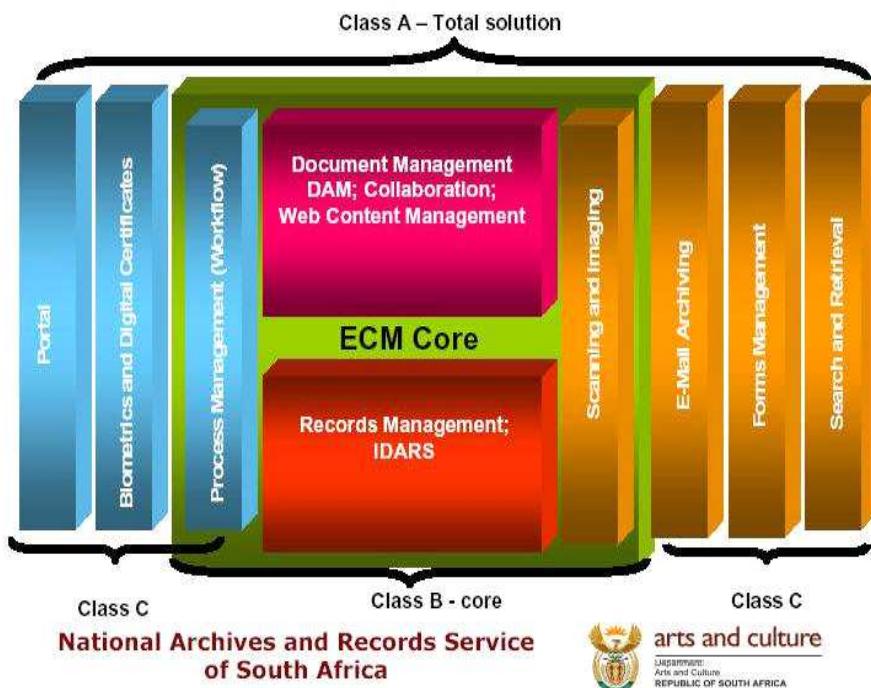


Figure 31: South African ECM class solutions model (National Archives and Records Service of South Africa 2006a)

The approved listing expired in 2008 and, at the time of this study, no guidelines for ECM applications have been developed since.

4.2.4.3.2 *United States*

The US was not the first country to develop functional requirements for ECM applications, the earliest known are those in Norway (Thurston 2015 p. 29-38). However, US standards have had an enormous impact particularly in providing standards for software application developers. The principles of the functional requirements were developed through collaboration between the US Department of Defense and the School of Information, Library and Archival Studies at the University of British Columbia in Canada (Duranti and MacNeil 1996; Thibodeau and Prescott 1996). The research, commonly known as UBC-MAS Project provided the foundation for the Department of Defense (DOD) standard 5015.2. Initially intended to be used within the DOD, the standard became the de-facto functional requirements guidelines for most government agencies in the US and was formally endorsed by the US National Archives (National Archives and Records Administration [United States] 2012). DOD 5015.2 was first published in 1997, and later

revised in 2002 with the latest edition being published in 2007 (Department of Defense [United States] 2012; Riofrio and Matsuura 2004). The assessment of ECM applications undertaken by the DOD remain the most comprehensive particularly for records management and many ECM application developers work hard to maintain their certification once they are approved (Fernandez and Sprehe 2003; Flynn, Boorom et al. 2010; McLeod and Childs 2013). However, the standard has been criticised as having not moved with the times to embrace the collaborative nature of business transactions and the ECM model of understanding content management (Layel 2013; Lueders 2013). Proponents of the standard agree that it needs updating but argue that most ECM applications still have a Records Management module and the standard offers a baseline of assessment consistency (Mandel 2013)

4.2.4.3.3 *United Kingdom*

In the UK, two different institutions have developed standards and best practice guidelines over the years. In 1999, the UK National Archives developed a set of functional requirements that were subsequently revised in 2002. Like the US DOD standards, the UK functional requirements were accompanied by a listing of software application vendors that had been tested and approved. However, in 2004 the software assessment scheme was terminated mainly due to lack of resources (Wilhelm 2008 p. 11-12).

In 2007, JISC InfoNet, an advisory service hosted by Northumbria University, published a set of best practice guidelines known as the Electronic Document and Records Management or EDRM Toolkit. The Toolkit provides “a 'one-stop shop' for impartial, detailed and practical advice during all the stages of a proposed or actual EDRM system implementation that is free from vendor bias” and catering to the needs of UK higher education institutions (JISC infoNet 2007). The Toolkit is organised in ten different phases drawing heavily from the Australian Designing and Implementing Recordkeeping Systems or DIRKS guidelines. The diagram provides an overview of the ten different stages

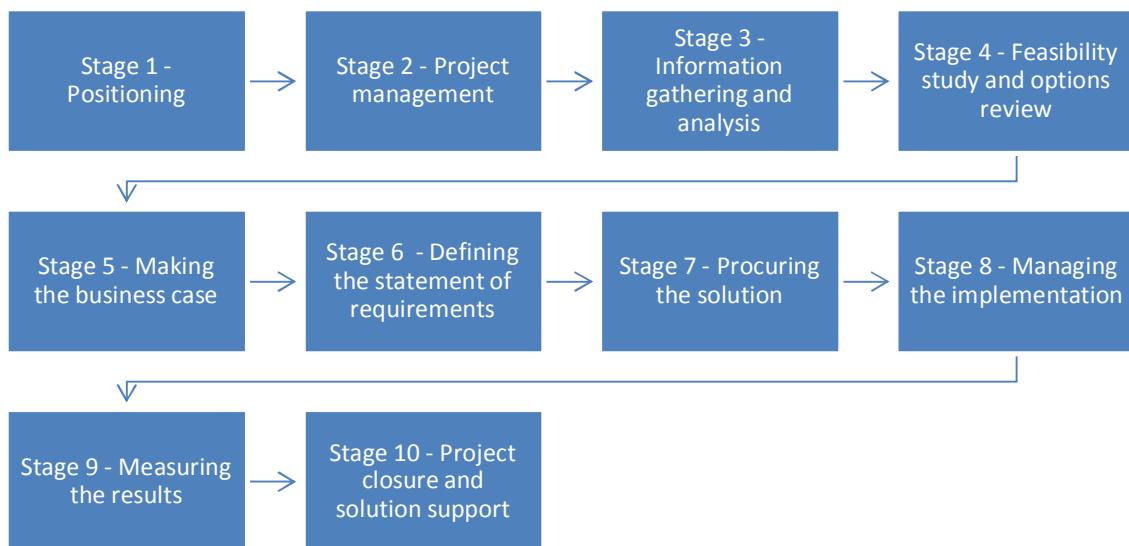


Figure 32: The ten different stages of implementation in the JISC InfoNet EDRM Toolkit

Although there were reports of a revision to the EDRM Toolkit guidelines, none have been published at the time of this study (JISC infoNet and Cimtech 2008). Nonetheless, the Toolkit continues to provide valuable insight in the academic and practitioner arenas (Cimtech 2013; Liu and Murphy 2013)

4.2.4.3.4

European Union

In 2002, the European Union developed their first set of guidelines for assessing ERMS applications known as Model Requirements for the Management of Electronic Records or MoReq (European Commission 2001). Commentators argue that the standard was a great contribution to the profession but also urged further development to keep up with technological trends (Cain 2002). In 2008, a second version was published known as MoReq2 (European Commission 2008). During this period several commentators argue that a regional standard would be more appropriate than national standards such as in the UK (Wilhelm 2009), Finland (Henttonen 2009) and other parts of the world (Fresko 2009). Further developments on the standards have seen the publishing of the latest iteration known as MoReq2010 (DLM Forum Foundation 2011). MoReq2010 introduced a modular approach refining the functional requirements and their underlying information model using a service based architecture. According to Frank (2013 p. 154), this new version enables “a single view of records and archives. Interoperability will be achieved by abstracting metadata for every record’s records management characteristics, policy, security, and value from the underlying document

repository, database, middleware, and operating system". According to Lappin (2011), a previous version of the standard saw an ERM system as a stand-alone content repository that stood alongside other content repositories within the organisation but the new standard saw ERM as "a capability that could be embodied within each separate application that an organisation uses, or that could sit behind those applications and manage records created within them". The illustration below provides a graphical illustration (DLM Forum Foundation 2011 p. 32).

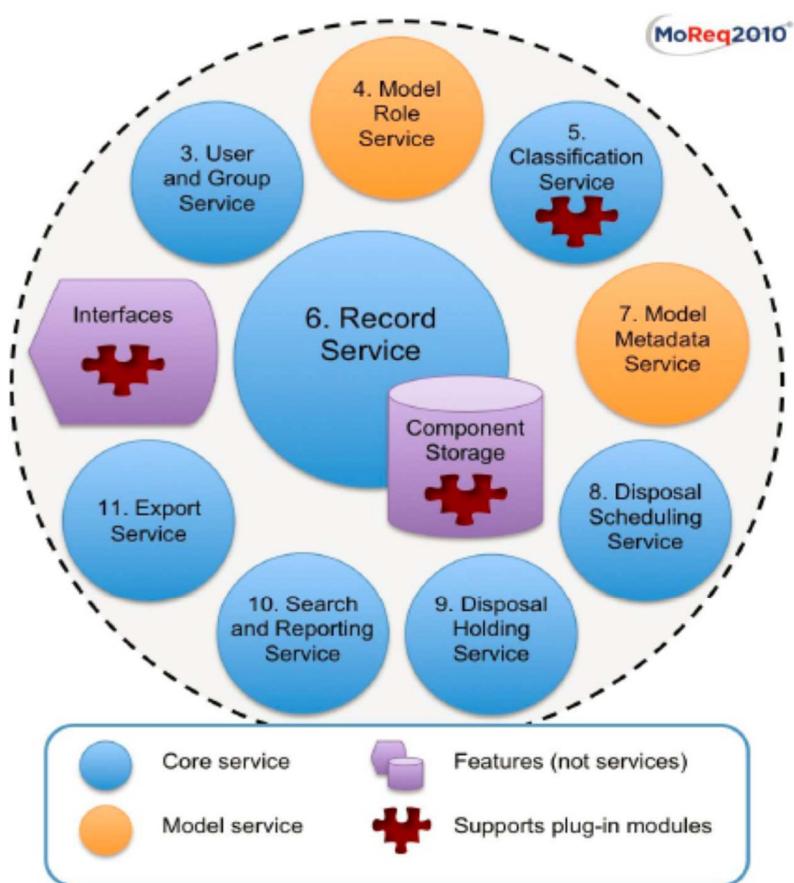


Figure 33: The modular nature of services for a MoReq compliant records system (DLM Forum Foundation 2011 p. 32)

Although MoReq2010 could be used to assess and certify ERM applications just like DOD 5015.2, at the time of this study there was no evidence that the process had yielded a list of certification applications (Franks 2013 p. 154; Sys Research 2014).

4.2.4.3.5 Assessing Enterprise Content Management standards and their implications

The preceding discussion has outlined some of the major standards and best practice guidelines around the world. They could be divided into two major categories. On the one side are those that have testing mechanisms and have an approved listing of ECM products. On the other side are those that don't have a testing mechanism and no approved listing of ECM products. The discussion has demonstrated that over the course of the 2000s, the US, South Africa and the UK had testing mechanisms. Currently only the US has a functional assessment scheme including regularly publishing their lists (Joint Interoperability Test Command [United States] 2015). MoReq2010 has planned an assessment programme but at the time of this study, it was still in the development phase (Sys Research 2014). On the other hand, the standards without testing mechanisms such as those of the ICA that are now ISO standards seem to have gained some traction. This is likely because they are easier to understand for Records Management professionals that are beginning to address the challenges of managing digital records (Lappin 2011; Lindqvist 2012; Steemson 2011; Thurston 2012). However, these challenges require clarification of terms and concepts such as ERMS, EDMS, EDRMS and ECM that have often been used interchangeably in the standards and best practice guidelines. For instance in South Africa's standards the term used was ECM, the JISC InfoNet guidelines developed in a similar time period preferred the term EDRM and MoReq's most recently developed standard prefers ERMS. This illustrates the need for further clarification of terms and concepts in existing standards and best practice guidelines that support the management of digital records (Katuu 2015b).

4.3 Records Management in South Africa

The management of records in South Africa has been the subject of extensive and rigorous discussion over several decades. These discussions have taken place in professional gatherings and in academic publications. The themes have covered everything from South Africa's unique historical legacy to its current challenges. This section highlights a sliver of those discussions, primarily drawn from masters and doctoral dissertations, and on a few occasions, adding other published sources. This section has divided the discussions into two parts: Section 4.3.1 provides a general overview and Section 4.3.2 covers more specific examples with regards to managing digital records. The discussion on digital records is more detailed for two reasons. First, studies on digital records have not been given much prominence in professional discussions in the past. Second, and more significantly, South Africa's national eHealth Strategy

explicitly mentions the implementation of “a uniform Integrated Document and Records Management System (EDRMS)” as part of the government’s strategy (Department of Health [South Africa] 2012c p. 26). Therefore, Section 4.3.2 demonstrates that there has been a significant history of EDRMS implementation in different parts of the country that could offer valuable lessons.

4.3.1 Managing records in South Africa

An analysis of masters and doctoral dissertations shows that the records management landscape in South Africa is very diverse and the discussions could be divided into two major threads. In the first thread are studies that have examined the management of records in South Africa from either the public or private sectors. Within the public sector, some studies looked at institutions within the National Government such as the Office of the President (Kwatsha 2010) and the Department of Cooperative Governance and Traditional Affairs which, at the time of the masters level study, was known as the Department of Provincial and Local Government (Ngoepe 2008). At the provincial level, studies include: the Office of the Premier in Eastern Cape Province (Munetsi 2011) and the Department of Health in Limpopo Province (Marutha 2011). There have also been studies at municipal government level such as Polokwane Municipality (Makhura 2001) and Amathole District Municipality (Kanzi 2010). In addition, studies have been conducted on other public institutions such as the University of Zululand (Coetzer 2012), South African National Parks (Makhura 2006) and Sasol (Wilson 2010). There is a study that surveyed a cross-section of public sector government institutions constituting 14 National Departments, 28 Provincial Departments, 41 Municipalities and 11 Statutory Bodies (Ngoepe 2013). As this brief outline demonstrates, most studies examined records management in public sector institutions. There is only one study that examined a private consulting company (Mrwebi 2000).

In the second thread are studies that examined the management of records in South Africa based on certain subject areas including: the issue of confidentiality in records (Nell 2006), the management of Truth and Reconciliation Commission (Kenosi 2008), the management of audio-visual records (Abankwah 2008), the preservation of archival records (Ngulube 2003), service quality in archival institutions (Sibanda 2011), the records of the South African Portuguese community (Rodrigues 2013), the management of records and archives of former liberation movements (Garaba 2011), and the issue of auditing and records management (Ngoepe 2013).

All these studies revealed four major issues. First, many institutions had no standards or procedures for guiding records management activities (Coetzer 2012; Mrwebi 2000). Second, within the few institutions that had good records management policies and strategies there was poor adherence to these policies and strategies (Kanzi 2010; Ngoepe 2013 p. 167). Third, most records professionals were placed at very low level in the organisational structure, and the highest they got was middle management which meant that they had little impact at a strategic level and in institutional decision making (Coetzer 2012; Ngoepe 2013 p. 126). Fourth, a significant number of institutions had implemented strategies for managing digital records and these are discussed in greater detail in Section 4.3.2.

4.3.2 Managing digital records in South Africa

Several commentators note that South Africa is the most advanced African country in the implementation of software applications to manage digital records (Keakopa 2010; Kemoni 2009). This section provides an outline of masters and doctoral dissertations that have been conducted about South Africa and shares some of their findings.

The earliest discussion on digital records in the scholarly arena was in 1999 by Brad Abbott in his masters level study. In his dissertation on electronic memory in South Africa, Abbott investigated the role of the National Archives of South Africa with regard to the management of electronic records in the country. The study found that the National Archives faced numerous challenges including lack of staff resources, lack of adequate practical experience as well as the low status of the institution within government (Abbott 1999).

In 2001, Mphalane Makhura (2001) completed a masters level dissertation on the role of electronic records within Polokwane Municipality in South Africa. The study surveyed staff members within different departments of the municipal government in order to determine, among other things: their areas of responsibility, their educational and skills background and to what extent they used the EDMS. The study found that the surveyed staff were largely not highly qualified or skilled but a majority could access the EDMS.

In 2010, Ntombizandile Kwatsha completed masters level research on implementation of software applications to manage digital records in four national government ministries with special interest in the Office of the President. The study investigated factors that determined the

success or failure of implementing EDRM applications. In order to do this, the study provided a detailed historical background on EDRM implementation processes at the Office of the President that spanned five years. The study concluded that the factors that determine the success or failure in implementation are varied including: strategic factors (such as the business case, top management support and change management), social factors (such as user involvement, Value-Added Reseller involvement and support, training and effective communication) as well as technical factors (system functionality and system integration with records management). Additionally, the study found that these different factors are interrelated and always in constant interaction to determine overall success in implementation (Kwatsha 2010).

In 2010, Welma Wilson completed a masters level study that examined whether Sasol Technology had efficient procedures and processes for governing its Document Management System. The study revealed that the institution needed to improve on its project documentation as well as integration with different functions of Sasol Business Units (Wilson 2010).

In 2011, Ngoako Marutha completed masters level research that investigated record-keeping practices in the public health care sector in Limpopo Province. It sought to determine the impact of good record-keeping on service delivery. The study observed that patients had long waiting times and, in some instances, ended up receiving treatment without their medical history records. The study recommended the introduction of an ERMS application (Marutha 2011).

In 2011, Ndakasharwa Munetsi completed a masters dissertation that investigated the viability of digital records management in the Office of the Premier in the Eastern Cape Province. While the study found that the institution had undertaken a number of records management initiatives, the EDRMS application was not being used effectively. Among the reasons included: staff lacking adequate skills and competencies in the new technology, and the need to enhance security as well as long-term preservation within the system (Munetsi 2011).

In 2012, Xolile Coetzer completed masters level research on the status of records management at the University of Zululand. The study found that the institution had no formal records management policy, no qualified records management practitioners and the staff responsible for records lacked in relevant skills and knowledge. The study recommended that the institution consider introducing SharePoint as a document and records management application to assist with management of records (Coetzer 2012).

Beyond these masters and doctoral research studies, there have been at least two published case studies on the management of digital records in South Africa. The first described the implementation of an ECM application by the Western Cape Department of Health that began in 2011 at the Khayelitsha District Hospital (OpenText 2012; Weeks 2013a). The project converted paper patient records into electronic format and managed them through a central repository. The project resulted in the elimination of the movement of hardcopy patient records and allowed multiple authorised access (PR Connections 2012). Also in 2011, the Western Cape Department of Health also piloted a similar ECM application at the Oncology Unit of the Tygerburg Hospital (PR Connections 2011; Weeks 2013c). By 2012, the application was managing over 6000 electronic patient records and in 2013 the hospital announced it would be rolling out the application within the whole hospital (PR Connections 2012; Western Cape Government [South Africa] 2013 p. 1). In 2013, the Western Cape Government offered a three year ECM contract to roll out the application to “any hospital and primary health care facility” identified by the Department of Health across the province (Bizcommunity 2013).

The second case study was published based on a survey of ten South African institutions that had implemented ECM software applications (Katuu 2012b). Amongst the institutions surveyed, 40% had five or more years of experience in implementing ECM applications while 80% had at least three or more modules of ECM components (Katuu 2012b p. 48-51). The study demonstrated that a number of institutions in South Africa had both substantive as well as sophisticated experience with ECM implementation.

Several observations can be made from the above reviewed literature. First, discussions on the management of digital records in South Africa now span more than a decade and a half. However, there is little evidence that more recent studies have learnt from older ones or that there is any significant transfer of knowledge across institutions. For instance, the experiences shared by the Office of the President would be instructive for the Office of the Premier in the Eastern Cape but there is no evidence of such due diligence in the literature review amongst the researchers. This may explain the reasons why observations made in 2001 in Polokwane about poorly skilled staff were similar to those made in 2011 at the Office of the Premier in the Eastern Cape (Makhura 2001; Munetsi 2011). In addition there is a recent report on the state of South Africa’s archival system states that the National Archives, the institution charged with the

responsibility of managing public records, doesn't have the capacity to manage digital records (The Archival Platform 2015 p. 102).

Second, even though South Africa has several unique experiences in the implementation of software applications for managing digital records, it still operates within a global ecosystem. The study published in 2012 that looked at the ECM landscape in South Africa identified 17 VARs (Katuu 2012b p. 45). As noted in Section 4.2.4.3.1 above, these vendors or VARs are an integral part of the ECM market eco-system, particularly in South Africa. Bailey (2006 p. 14) warned that records professionals are in danger of being a "vendor-led profession". This may be because the professionals do not have a nuanced understanding of how these VARs operate. In South Africa, for instance, of the 17 companies identified, only three had developed their own applications while the rest provided services for six of the global ECM companies (Katuu 2012b p. 44-45). Therefore, any changes in the global companies would have a significant impact in South Africa as was the case when one company, OpenText, bought out Hummingbird in 2006 (Sayer 2006). In South Africa, it meant that five rival companies that served two separate companies were forced to become allies, a situation that may have contributed in at least one of the companies going out of business (Katuu 2012b p. 47).

4.4 Managing health information in South Africa

The management of health information is a challenge worldwide and the situation in South Africa is not any different. However, South Africa has a unique set of challenges based on its atypical history that has been discussed in detail in the preceding Chapters 2 and 3. These previous discussions will not be rehashed in this section but continue to provide the backdrop for the ensuing discussions and may be alluded to where appropriate.

4.4.1 Introducing systems used in Health Information Management

According to Vital Wave Consulting (2009 p. 14), a Health Information System (HIS) is "any organised effort to systematically collect, maintain and disseminate data relevant to the performance of a health system or any of its component parts." This means that within any HIS there are potentially a number of functional health applications. Some commentators have equated HIS to an individual application for a singular activity such as patient registration. However, it should be seen generally as a system that integrates "a broad range of critical

health-related data, ultimately covering an entire national population and that can be used at all levels of the health system to support improved service delivery and health outcomes" (Vital Wave Consulting 2009 p. 11)

There are at least two generations of HIS. According to Vital Wave Consulting (2009 p. 6), first generation has several common traits including :

- They function in the public sector and often only capture data from interactions with the public health system.
- There is significant fragmentation and duplication in data collection, because governments, donors and implementing partners have little incentive to collaborate on data collection, data sharing or leveraging common infrastructure.
- The health information system is not used by those providing or managing health services at the local level, as these individuals are often presumed to not need health information of this nature.
- Data collection is a significant burden on those collecting the data and detracts from time spent delivering services.
- Various independent systems are seldom integrated, which impedes the ability to share data, increase the efficiency of operations or enhancement.

There are a number of examples of first generation HIS including electronic patient registry system such as OpenMRS or SmartCare (Douglas, Landis-Lewis et al. 2011; Vital Wave Consulting 2009 p. 21).

Several commentators note that second generational HIS have a number of common characteristics that include:

- Better information management tools at the local level.
- Data capture through routine business operations.
- Identification of the minimum essential data sets.
- Growth of specialised technology and providers.
- Mobile devices become a key enabler for HIS.
- Early experience yields enthusiasm and skepticism around HIS (Serbanati and Ricci 2013; Vital Wave Consulting 2009 p. 7).

As stated above, a typical HIS has several interrelated components performing different activities. The diagram below provides an illustration (Vital Wave Consulting 2009 p. 22).

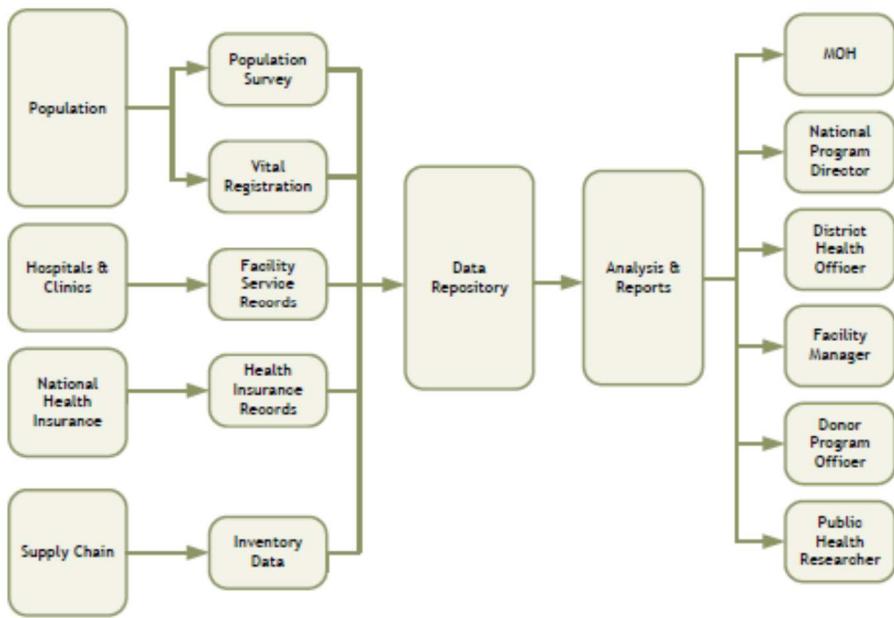


Figure 34: A typical framework of HIS (Vital Wave Consulting 2009 p. 22)

HIS have been used all over the world including in the City of Sao Paulo in Brazil where medical records are managed within their Enterprise Resource Planning or ERP application that also ensures resource allocation and patient flow (Vital Wave Consulting 2009 p. 9). However, the mention of HIS presupposes synonymity with sophisticated technology. While the use of technology may “enhance the efficiency and effectiveness of information systems, collection and use of reliable data does not necessarily require sophisticated technology. Even simple, paper-based systems can be effective if well-conceived” (Vital Wave Consulting 2009 p. 11). This suggests technology alone doesn’t determine the performance of an information system. For instance, an assessment of Indonesia’s national policy on health information systems shows a lack of “strategic planning and operational guidance”, inadequate “integration of information” with district level reporting systems as well as the lack of dedicated staff for HIS (Rokx, Schieber et al. 2009 p. 23-25). There have been instances where countries have made large-scale information technology investments in HIS but not significantly improved service delivery capacity (Hawari and Heeks 2010; Heeks 2006). This reality is common both in the developed and developing world with examples shared from HIS projects that have either partially or totally failed in the UK and the US (Aldukheil 2013; Heeks 2006 p. 127). Therefore, a good HIS should be one that provides relevant, timely and accurate information for purposes of running a health care programme (Vital Wave Consulting 2009 p. 5).

4.4.1.1 Health Information Management in South Africa

Before 1994, South Africa had multiple information systems in the public health sector that were incompatible with each other (Bradshaw and Mbobo 1995). According to Schneider, Barron et al. (2007 p. 294) most systems didn't provide sufficient information to make coherent planning decisions because they were "oriented to budgeting and personnel management purposes and did not provide information related to health status, and health care delivered to the population". In 1994, the Department of Health established the National Health Information System/South Africa (NHIS/SA) committee, that comprised of stakeholders from government, academia, and the private sector, charged with creating a strategy to develop a national health information system (Vital Wave Consulting 2009 p. 89).

It was clear that in those formative years of the young democracy that there had to be radical changes at the primary care level. Therefore, the District Health Information System (DHIS) was conceptualised as a system that records data about all facility services as well as infrastructure and human resources. It was originally developed by the University of Oslo and the Health Information Systems Programme in the Western Cape Province and funded by NORAD between 1996 and 1998 (Mars and Seebregts 2008 p. 8; Vital Wave Consulting 2009 p. 89). In order to use DHIS at the institutional level, staff members at public health facilities have had to fill out paper-based registers, tallies, and monthly collection forms. These forms are then sent, on a regular basis, to the sub-district or district for data entry into DHIS with the data then analysed and reports generated for distribution to the district, province, and national level (Vital Wave Consulting 2009 p. 89-90). This information provides managers at all levels with "valuable decision making information, including indicators related to utilisation, equity, outputs and outcomes of service delivery" (Schneider, Barron et al. 2007 p. 300).

According to Garrib et al. (2008 p. 551), the DHIS has been a critical part of health service delivery data at the primary care level because it facilitates "decentralised management of health services by enabling district and facility managers to make decisions about their service delivery based on local data". Beyond just the DHIS, there are hospital systems used in provinces that contribute to the country's health and management information framework. The interlinked components include: "information on demography and socio-economic status, health status, finance and personnel" (Schneider, Barron et al. 2007 p. 300). However, the DHIS is considered the country's signature "bottom-up approach to collecting and collating service-related data in the public sector" (Schneider, Barron et al. 2007 p. 300). Even though a lot of

information was collected since the inception of the DHIS, there is “little tradition of information use for decision making at the facility level in most developing countries” including South Africa (Garrib, Stoops et al. 2008 p. 551; Koon, Rao et al. 2013).

Amongst secondary and tertiary health institutions there are at least 15 different patient management or hospital information systems in use as shown in Table 17 (Department of Health [South Africa] 2012c p. 14)

Table 17: The Patient Management/Hospital Information Systems in South African provinces

Province	Patient Management/Hospital Information System in Use
Eastern Cape	Delta 9
Free State	Meditech; PADS
Gauteng	Medicom; PAAD; PharmAssist; Scarian MedSuite
KwaZulu-Natal	Meditech; Medicom; PALS; Pro-Clin; ReMed
Limpopo	Medicom
Mpumalanga	PAAB
North West	PAAB
Northern Cape	Nootroclin
Western Cape	Clinicom; Delta 9; PHCIS; JAC Pharmacy

As shown in the table above, four of the provinces use more than one information system suggesting that there would have to be integration within the province itself before nation-wide effort is made. This demonstrates that there is need to have a coordinated nationwide effort. The National Health Act (61 of 2003) makes “specific reference to the co-ordination of a National Health Information System” in Section 74, and to provincial responsibilities in respect of health information in Section 75. Towards this end, there have been plans to develop a National Electronic Health Record for South Africa (eHR.ZA) aimed at providing an important and effective mechanism for integration of data for patient care across the public and private health care sectors. With the necessary attention to confidentiality requirements, such combined data has the potential to be used for reporting and planning for health services at provincial and national levels across the entire health care sector (Matshidze and Hanmer 2007 p. 99). In March 2008, a tender for eHR.ZA project was awarded to a consortium comprising IBM, Bophela and Aria/Waymark (Engelbrecht 2008). However, a year later, after consulting provincial ministers, the national Minister of Health resolved that “the acquisition of software solutions

which were not interoperable should be halted” until the eHealth Strategy was finalised (Department of Health [South Africa] 2012c p. 5).

4.4.1.2 Challenges facing HIS implementation in South Africa

According to the Department of Health (2012c p. 5), effective monitoring of health care service delivery and overall performance of the health systems requires “functional health information systems capable of producing real time information for decision making”. However, over the two decades of the country’s democratic dispensation, there have been numerous challenges. For the DHIS, the quality of the data has often been poor, characterised by incomplete, inconsistent and incorrect data returns (Mayosi, Lawn et al. 2012; Mphatswe, Mate et al. 2012; Naidoo, Naidoo et al. 2013; Schneider, Barron et al. 2007 p. 300). This has been the result of the burden of data collection in public health institutions already facing human resource constraints and where staff end up spending a considerable amount of their time on data collection with very little time left for verification of accuracy of the data (Garrib, Stoops et al. 2008 p. 550-551). Additionally, the data collected has often not been optimally utilised in health planning, implementation or monitoring and evaluation (Department of Health [South Africa] 2012a p. 9; Schneider, Barron et al. 2007 p. 300). This could be because there is weak human resource capacity, particularly at the local levels, to interpret the data resulting in erratic feedback mechanisms “across national, provincial and local levels” (Garrib, Stoops et al. 2008 p. 551; Schneider, Barron et al. 2007 p. 300).

Historically, one of the most prominent HIS implementation projects was in Limpopo Province (Herbst, Littlejohns et al. 1999; Littlejohns, Rawlinson et al. 1999; Littlejohns, Wyatt et al. 2003; Mbananga, Madale et al. 2002). In the mid-1990s, the province initiated a pilot project in one of the 42 hospitals in the province with the aim of rolling the HIS out to the rest of the institutions within a three year period. One of the objectives of the project was to improve the management of health records. However, in the year 2000, the project was halted after experiencing numerous problems and after most of the 134 million Rand budget awarded to the service provider had been spent. A different service provider was given the responsibility of taking the process forward but within two years, the project was again halted after just over another 59 million Rand had been spent. Experts assessing the project noted that the computer industry flourished by portraying their products as “essential for efficient and effective health care” but until “this is proved by experience and sound research, scepticism is required” (Littlejohns, Wyatt et al. 2003 p. 863). Indeed, studies conducted within South Africa demonstrate that at a very

basic level, many records management professionals who were expected to contribute significantly to the effective functioning of information systems had very little computer competence and had poor numeracy skills; an issue that if not addressed comprehensively would inevitably result in many more projects failing (Nkundla, Potta et al. 2004 p. 3).

As the case in Limpopo demonstrated, at the core of the challenges in HIS implementation are two related deficiencies: human resource and physical infrastructure. In an effort to address the human resource deficiencies, the Department of Health (2012a p. 26) appointed more than 780 data capturers between 2010 and 2011 in order to support the health information monitoring and reporting activities in different provinces. In an effort to address the physical infrastructure deficiencies, the Department of Health (2012a p. 9) began developing information systems such as the National Health Information Repository and Data (NHIRD) warehouse that integrates data from various other information systems to provide a composite picture of key indicators using web technology. In addition, a National Health Information Management policy had been developed with the objective of implementation at national, provincial, district and local levels (Department of Health [South Africa] 2012a p. 25).

All these efforts had been done within the framework of the new eHealth Strategy that provides a roadmap towards “an integrated and well-functioning national patient-based information system, based on agreed upon scientific standards for interoperability” which improve the efficiency of clinical care, produce the indicators required by management, and facilitates patient mobility (Department of Health [South Africa] 2012c p. 5). The fundamental goal of the strategy is “achieving a well-functioning national health information system with the patient located at the centre” (Department of Health [South Africa] 2012c p. 5). In order to do this, the Department of Health has adopted several principles that include: “getting the basics right, taking an incremental approach, building on what already exists and looking for early wins” (Department of Health [South Africa] 2012c p. 6).

Among the aspects identified as new or extended work “requiring significant procurement and implementation” in the new eHealth Strategy are:

- Implement the foundation of the Electronic Health Record (EHR) and particularly a national patient registry and Patient Master Index (PMI).
- Implementation of PHC patient management and Electronic Medical Record EMR system/s at clinics.

- Implementation of Pregnancy and Neonatal EMR system to record clinical details with link to HER.
- Implementation of EMR system/s to monitor anti-retroviral treatment (ART) and TB treatment .
- Pharmacy systems interface to EMR systems.
- Implement a uniform Integrated Document and Records Management System (EDRMS) at all levels (Department of Health [South Africa] 2012c p. 26).

The eHealth Strategy differentiates between the Electronic Health Record and Electronic Medical Record. It is not immediately clear how this distinction has been made and the practical implications of these distinctions. More significant is the plan to implement an integrated EDRMS at all levels. The Department of Health (2012c p. 14) highlighted the Western Cape in its eHealth Strategy as being very progressive. And as noted earlier in this chapter, the Western Cape has successfully piloted an ECM application in two hospitals since 2011 and plans are underway to systematically roll-out the ECM application to other public health institutions in the province (Bizcommunity 2013; Department of Health - Western Cape Government [South Africa] 2014; Health24 2014; Western Cape Government [South Africa] 2013).

For the purposes of this dissertation, the efforts in improving HIS in general and introducing an integrated EDRMS within the public health sector in South Africa should be seen within a particular backdrop of the long-term impact of introducing a National Health Insurance (NHI) scheme. The NHI is envisaged to radically transform the architecture of the public health sector over the next decade. The section below looks at the impact of the National Health Insurance on the management of health records.

4.4.2 Impact of National Health Insurance on managing health records

It is widely acknowledged that health expenditure is loop-sided in South Africa, with the public sector getting the short end even though serving the majority of the population (Thiede and Mutyambizi 2010 p. 194; World Health Organization 2011 p. 127). Simply redirecting funds from the private to the public sector would be “simplistic and narrowly focused, and lacks a clear articulation on the real nature and extent of the costs” (Botha 2008 p. xii). Shisana (2008 p. 5) argues that there was need for both structural and organisational reforms as well as robust legislative changes that would make contribution mandatory for both “formal and informal

employees and employers, govern the activities and conduct of both public and private providers". According to Tshabalala-Msimang (2008 p. 8), a former health minister, in order to address the loop-sided nature of health expenditure, the long-term goal would be for all citizens including the unemployed to be covered under a National Health Insurance (NHI) system.

The NHI is at the core of the structural change, one that will affect how health services are funded in order to ensure equitable service delivery. According to Slabbert (2011 p. 33), the objective of the NHI is to put in place "the necessary funding and health service delivery mechanisms that will enable the creation of an efficient, equitable and sustainable health system" in the country. Bernitez (2014 p. 75) argues that the NHI, as a financing system, would make sure all citizens of South Africa as well as legal long-term residents were "provided with essential health care, regardless of their employment status and ability to make a direct monetary contribution to the NHI Fund".

The debate about having a comprehensive mandatory health insurance scheme had been ongoing since 1994 and involved various stakeholders including political parties, government departments, medical schemes, private providers and civil society organisations (McIntyre 2010 p. 23-24, 30-36; Van Rensburg 2004b p. 40). The plan was initially mooted by the ANC prior to 1994 and was contained in its Health Plan of May 1994 (McLeod and Grobler 2009; Tshabalala-Msimang 2008 p. 7). However, the ANC felt that it would have been premature to introduce such a system "under conditions of serious fragmentation and financial instability in the medical schemes market in particular, and the NHS in general" (Tshabalala-Msimang 2008 p. 8).

A little more than a decade into the country's new democracy the government resuscitated the NHI discussions again (McLeod and Grobler 2009). Shisana (2008 p. 5) argues that an NHI plan would include all South Africans under one roof. Clinics, community hospitals, regional hospitals, specialised and tertiary hospitals would be organised in such a way that the package of services provided would be defined clearly through national norms and standards in terms of quality and quantity and people could use both the private and public sector facilities. In Shisana's vision (2008 p. 4-5), health services would continue to be provided by both public and private providers as currently is the case but the health funds would be administered through a single agency and the administration costs of the fund set by Parliament.

From 2010, significant progress was made to prepare the ground for eventual implementation of the policy. This included the Minister of Health, in 2010, appointing an Advisory Committee on National Health Insurance tasked with researching and developing proposals for an NHI system and in 2011 the Department of Health published a Green paper on the NHI requesting public comments (Berger, Hassim et al. 2013 p. xx). The process culminated in a plan of action that began in 2012 when the Department of Health (2012a p. 20) states that the goal of NHI would be “to ensure that all South Africans, irrespective of the socio-economic status, have access to good quality and affordable health services”. Therefore, the motivation of the NHI is the eradication of barriers limiting access to health care, and ensuring “financial risk protection from catastrophic health-related expenditures for households and individuals through a pre-payment system” (Department of Health [South Africa] 2012a p. 20).

According to the Department of Health (2012a p. 21), the NHI would be rolled out in three phases over a 14 year period with the first five years constituting “policy and legislative reform, strengthening of the health system, improving the service delivery platform and piloting various components of the NHI”. In 2012, the phased piloting began with 10 health districts chosen using various demographic and socio-economic factors (Department of Health [South Africa] 2012a p. 21; Naidu 2013 p. 519). The focus of the pilot districts was to test various components of the NHI including “the health service delivery platforms, private provider contracting models and improved health facilities management” (Crisp 2014 p. 256-257; Department of Health [South Africa] 2012a p. 8). The pilot districts undertook “real-life demonstration of the key administrative and technical aspects of the NHI to ensure the smooth roll-out of the NHI systems as it matures and as new information becomes available to ensure an effective transition process and the creation of an enabling environment towards a smooth NHI roll out” (Department of Health [South Africa] 2012a p. 22).

A number of initiatives have been undertaken in conjunction with the first phase of NHI implementation. According to the Department of Health (2012a p. 21), these include: “the establishment of the Office of Health Standards Compliance; the audit of public health facilities aimed at improving quality; appointment of District Clinical Specialist Support Teams; training of Primary Health Care Agents; and improving Information Management and Systems Support”.

It would seem appropriate that improvements in records management should be part of the Information Management and Systems Support. However, it is not clear whether these have

been addressed yet. As several studies in South Africa have demonstrated, if health facilities are to provide quality services, they need efficient record management programmes (Marutha 2011; Weeks 2013c). The section below outlines research projects that have been conducted on the management of records within the health sector.

4.4.3 Research conducted on records management within the health sector

The preceding Chapters 2 and 3 of this dissertation have outlined the extensive and sophisticated nature of South Africa's health care system as well as the historical, legal and regulatory framework within which the system functions. In addition, they have described the major challenges the system faces based on the country's unique history. Efforts such as the introduction of the NHI, as discussed in Section 4.4.2, are seen within this wider context. The NHI is likely to make huge demands on the management of records with the blurring of lines between public and private sector health care institutions in provision of services. Since a patient may consult "many health care providers-including primary care physicians, specialists, hospitals, laboratories, surgical centres, rehabilitation centres-and each of them will participate in creating a record for that patient" (Roach, Hoban et al. 2006 p. 27). Since the NHI will be a single payer system, records would have to be managed very efficiently.

The management of records in South Africa's health sector has been the subject of many masters and doctoral dissertations for more than three decades (Thomas 1980). These studies can be seen from four different perspectives: a regional analysis, specific types of records, issues related to managing health records using technology applications and, lastly, the issue-based discussion on records.

In the first perspective, dissertations examined the challenge of managing health records in five of South Africa's nine provinces: KwaZulu-Natal (Kerry 1999), the Eastern Cape (Okorie 2003), Limpopo (Marutha 2011; Rampfumedzi 2006; Rapakwana 2004; Sekokotla 2000), Free State (Blignaut 1999; Chandran 2002) and the Western Cape (Geoghegan 2000).

In the second perspective, the dissertations covered specific types of records such as: peri-operative nursing records (Geoghegan 2000) and obstetric nursing records (Rampfumedzi 2006), health records of gold miners (Ismail 2007), antiretroviral drugs inventory management

(Mahoro 2013) and emergency care records (Chandran 2002; Nkombua 2000; Thumbiran 2010).

In the third perspective, there have been a number of dissertations on the viability of electronic health record (Elkabir 2000; Kleynhans 2011; Marutha 2011; Ruxwana 2007). Other technology related dissertations examined computerised or electronic records (Blignaut 1999; De Wet 1999; Thomas 1980), health information systems (Bhana 2010), and wireless telemedicine (Ngoss 2006).

In the fourth perspective, dissertations covered a diverse number of aspects related to records including: the completeness of records (Sekokotla 2000), the quality of records (Chandran 2002; Geoghegan 2000; Reddy 2003), the impact of effectively managing records on the quality of health care service (Rapakwana 2004), the merits of patient retained records in different parts of the country (Kerry 1999; Norden 2002; Okorie 2003), as well as issues of confidentiality and privacy (Molefe 2003; Nell 2006).

All these studies have four general threads. First, they show that most records in health institutions are in paper format (Kleynhans 2011; Marutha 2011). Second, there is generally poor records management within health institutions, evidenced in incomplete records with questionable data quality (Chandran 2002; Geoghegan 2000; Mahoro 2013; Reddy 2003; Sekokotla 2000). For instance, three chief professional nurses were asked whether they were able to keep accurate records and they admitted: Records are not up to date! We do not have time to take vital data, change dressings, keep records of incidents and mortality and morbidity conferences. We know 'what's not written is not done' We are trying our best, but it is so difficult (Von Holdt and Murphy 2007 p. 328). This results in numerous cases of missing records, duplication of patient files and inefficient information retrieval.

Third, in order to address the poor records management within health institutions, some have resorted to patient-retained or patient-held health records (Kerry 1999; Norden 2002; Okorie 2003). And fourth, other health institutions have resorted to using technology to address poor records management (Blignaut 1999; De Wet 1999; Elkabir 2000; Marutha 2011; Ruxwana 2007; Thomas 1980). However, there are a number of challenges to the adoption of technology (Ilie 2005; Noll 2009; Schuckman 2006). These include:

- Interoperability of different systems - For instance, there are at least 13 different patient management or hospital information systems with significant compatibility challenges as discussed in section 4.1.1 of this chapter (Department of Health [South Africa] 2012c p. 14; Mars and Seebregts 2008 p. 4).
- Cost – Rather than technology being a one-time cost event, there are costs in staff training and maintenance of infrastructure on a continuous basis (Elekwachi 2008).
- Legal - Health institutions don't yet fully understand the complex legislative and regulatory terrain within the country and how that impacts the management of records. Therefore, there are still nagging legal issues within the health sector that affect "the collection, maintenance, and access to medical records information" that is increasingly being collected and stored electronically (Roach, Hoban et al. 2006 p. 26).

In addition to this summary of observation from masters and doctoral studies, there was a unique initiative carried out in 2004 to address records management challenges in health institutions in North West Province (Brink 2004 p. 2-4). The initiative was commissioned by the province's Department of Health and targeted 23 health institutions: 4 provincial hospitals, 8 district hospitals, 7 clinics and health centres, 1 regional office, 2 district offices, and certain support divisions within the Provincial Head Office. The first phase constituted an audit of records management practices that found only 8% of the institutions were minimally compliant. The report on the initiative envisaged a number of subsequent phases including: training of staff in order to conduct clean-up of semi-active and inactive records from storage areas, and afterwards the establishment of registries (Brink 2004 p. 2-4). At the time of this story, no subsequent report had been published to provide an update on the initiative.

4.5 Concluding remarks

This chapter provided the conceptual records management framework within which the management of records in South Africa's health sector should be seen. It did so by defining fundamental concepts such as data, information, document and records and demonstrated how they are related to each other. It also outlined the records lifecycle concept and discussed, in detail, concepts and principles related to the management of digital records. It outlined international standards and best practice guidelines as well as demonstrated how South Africa compares to a number of other countries. Lastly, the chapter has examined health information

management and how information technology has been incorporated within the South African public health care system.

According to South Africa's eHealth Strategy, the existing information systems are fragmented, lack coordination and are not interoperable (Department of Health [South Africa] 2012c p. 5). According to the Department of Health (2012c p. 26), one of the arsenals to address the challenge is using an integrated nationwide EDRMS. Marutha (2011 p. 214-215), having investigated records management in Limpopo's public health care sector, argues that institutions need to implement electronic records management systems in order to move into a totally paperless arrangement for health care delivery.

Bailey (2008) argues that for a long time records professionals have relied upon the EDRM model as an "intellectual crutch" with the unrealistic expectation that it is a silver bullet or panacea. In this chapter EDRM is seen as the 2nd phase of the evolutionary process but Bailey's observations are still valid for ECM. He argues that near blind obsession of the model has threatened to turn records professionals into an "intellectually-sterile, vendor-led profession" (Bailey 2008). This chapter, in discussing the literature on ECM implementation as well as outlining Value-Added Resellers that are vendor companies selling ECM software applications in South Africa, it has endeavoured to avoid intellectual sterility. Based on a study of South Africa's ECM environment, it is apparent there is need for a nuanced understanding of the more than 17 companies that constitute VARs in South Africa (Katuu 2012b p. 44-45).

Lastly any success in implementation of EDRMS or ECM will largely depend on the human factor. Already studies have demonstrated that in South Africa there are poor skills in information technology within the health sector (Coetzer 2012; Makhura 2001; Marutha 2011; Munetsi 2011) as well as insufficient change management processes (Kwatsha 2010 p. 107). A skills assessment report of records professionals in South Africa by the Department of Arts and Culture (2010 p. 89-90) revealed that South Africa employers had identified the need to train in electronic records management as well as the use of "electronic filing systems" as two of the key requirements in addressing the skills shortage in the country. There have been several EDRMS failures in other parts of the world with comparatively better skilled records professionals and more comprehensive ECM best practice guidelines (Goldschmidt, Joseph et al. 2012; Nguyen, Swatman et al. 2009; Wilkins, Swatman et al. 2009). Therefore, the National Department of Health's desire for the an integrated EDRM needs to be managed in conjunction with updating

guidelines and learning implementation lessons already within the country (Department of Health - Western Cape Government [South Africa] 2014; Health24 2014; Katuu 2012b; Western Cape Government [South Africa] 2013).

This chapter provided a literature review of records management within the health sector including a discussion of definitions, stages of the records lifecycle as well as an examination of various issues such as records privacy and confidentiality, records security, records integrity, informed consent and records disclosure. The next chapter covers the research methodology used in this dissertation and provides a background on research, the different research traditions globally and outlines the research methods and techniques employed in this dissertation process as well as the research design followed in data collection.

Chapter 5 - Research methodology

5.1 *Introduction*

The literature reviewed in Chapters 2, 3 and 4 covered a broad range of aspects related to the management of records in South Africa's public health sector. They also provide a conceptual basis on which this study designed the research activities and collected data for analysis and interpretation. Therefore, this chapter is the fulcrum on which the study hinges the literature analysis with the data collection process through the development of the research methodology. According to Hickson (2008 p. 3), research is the "systematic investigation of a specific question in order to establish new facts and draw new conclusions". It involves the interpretation and revision of current knowledge and the discovery of new knowledge. The research process comprises identifying a question or questions on a particular topic or subject, "collating and integrating current knowledge on the topic; designing a method to collect information to inform the research question; and finally developing new conclusions from the evidence" (Hickson 2008 p. 3)

This chapter covers the breadth of research including: how it is defined and what it constitutes, how it should be conducted, a conceptual framework of the methods and techniques used and, finally, how this doctoral research study was conducted. Section 5.1 introduces research, the dichotomous nature of research at different levels of the research mission (theoretical vs. policy), research traditions (positivist vs. interpretivist) and research data (qualitative vs. quantitative). Section 5.2 discusses triangulation as an approach used in the goal of developing credible research conclusions. Section 5.3 outlines the different research methods and research techniques that could be used in the research process. Section 5.4 discusses the specific research design followed in this research study including the choice of research methods and techniques. Section 5.5 outlines the process undertaken in conducting the research study including the ethical considerations as well as the data collection activities.

5.1.1 Research mission

When conducting research, the research mission or goal is critical. There are two basic missions in research. On the one hand is the goal of deriving new knowledge that is either known as theoretical research or basic research (Powell and Connaway 2004 p. 2). On the other hand is

the goal of dealing with practical problems or issues and is termed as policy research or also known as applied research (Powell and Connaway 2004 p. 2). Several commentators argue that theoretical research is aimed at enriching understanding of a subject but policy research is aimed at enhancing the quality of practical activities (Hakim 2000 p. 3; McArdle, Katch et al. 2006 p. 28).

5.1.1.1 Theoretical research

According to Hakim (2000 p. 3), the factors or variables considered in theoretical research are frequently “abstract and purely theoretical constructs for which operational definitions and indicators of varying degrees of precision and validity are developed”. Theoretical research is concerned primarily with causal processes and explanations. In some discussions (Goodwin 2010; Jain, Triandis et al. 2010), theoretical research is also termed as basic research but in this chapter the former is preferred rather than the latter. While it may not be the intention, the term basic research suggests a lack of sophistication or rigour. The intended audience for theoretical research is usually the relevant section of the academic community that often speak the same specialist language. Theoretical research is essentially concerned with producing knowledge for understanding, usually within the framework of a single or of related academic disciplines (Hakim 2000 p. 3-4).

5.1.1.2 Policy research

Policy research is sometimes termed as applied research in order to contrast it from basic research (Goodwin 2010; Jain, Triandis et al. 2010). However, in this chapter, policy research is the preferred concept for purposes of maintaining consistency. Policy research, unlike theoretical research, is ultimately concerned with knowledge for action rather than knowledge for understanding. According to Hakim (2000 p. 4), this broader objective means that policy research encompasses a more diverse variety of research activities that map out “the landscape of a topic, issue or problem, studies to monitor how existing policy is working, extending in some cases into formal evaluation research”. Hakim (2000 p. 4) argues that a distinctive feature that differentiates policy research from theoretical research is a focus on actionable factors or variables, either in addition to, or in preference to, “theoretical constructs; and actionable variables are usually defined operationally from the very start, from the ground up rather than down from theory”. The intended audience for policy research includes a variety of groups such as policy-makers, decision-makers, and public pressure groups. Therefore, the diversity within

the intended audience leads to the use of plain language of reports on research results and summaries of key findings.

5.1.2 Research traditions

Research tradition relates to the roots of all research activities and regardless of whether one is conducting theoretical or policy research, there are two basic research traditions: the interpretivist tradition and the positivist tradition (Daymon and Holloway 2011 p. 101; Williamson 2013b p. 8). These traditions are at the base of the research's ontological perspectives (Stahl 2008) . These traditions draw from the different paths of reasoning and logic that they follow and this means that the priorities of each of the traditions are very different. According to Sutton (1993 p. 4), positivists prioritise fact and objectivity while interpretivists prioritise the identification of separate understanding for each observation in order to provide its own explanatory context. Each of these traditions is discussed briefly in the following sections.

5.1.2.1 Positivist tradition

Positivists see the world as a collection of observable events and facts which can be measured using deductive styles of reasoning as used in natural sciences (Williamson, Burstein et al. 2002 p. 27; Williamson and Johanson 2013 p. 508). Positivism is an approach that is rooted in the ontological belief that objective reality exists. According to Daymon and Holloway (2011 p. 101), social reality is believed, like the material world, to exist "independently of the perceptions of the individual. In other words, the world is external to the researcher and is something 'out there' waiting to be discovered, with the researcher's 'discovery' of that reality directly affecting it". Based on this perspective, positivists begin with theories and models, define variables that will be studied, and then predict their relationships through the framing of hypotheses and tests of those hypotheses. In order to do this they "undertake a literature search to gain an understanding of their topic, develop theory and research questions and they plan how they will collect their data" (Williamson, Burstein et al. 2002 p. 31).

In the positivist tradition, the population to be studied is randomly selected, most often, using quantitative data collection techniques, although qualitative data may also be included. Upon analysis of the data, certain conclusions are reached and based on that generalisations are eventually made in a nomothetic manner (Williamson, Burstein et al. 2002 p. 28). Two aspects are particularly noteworthy. First, the sample selection, even though it is random, must be

scientific in order to adhere to the principles of validity and reliability (Williamson 2013b p. 8; Williamson, Burstein et al. 2002 p. 27). Second, research which is underpinned by positivist thinking “demands that researchers be objective in their approach to the phenomena and the people they study, and be value neutral, that is, that they don’t let their own values intrude into the research” (Daymon and Holloway 2011 p. 102). In the positivist tradition, research activities are undertaken in a predictive and linear fashion leaning towards deductive reason. The diagram below illustrates the research design (adapted from Williamson, Burstein et al. 2002 p. 29).

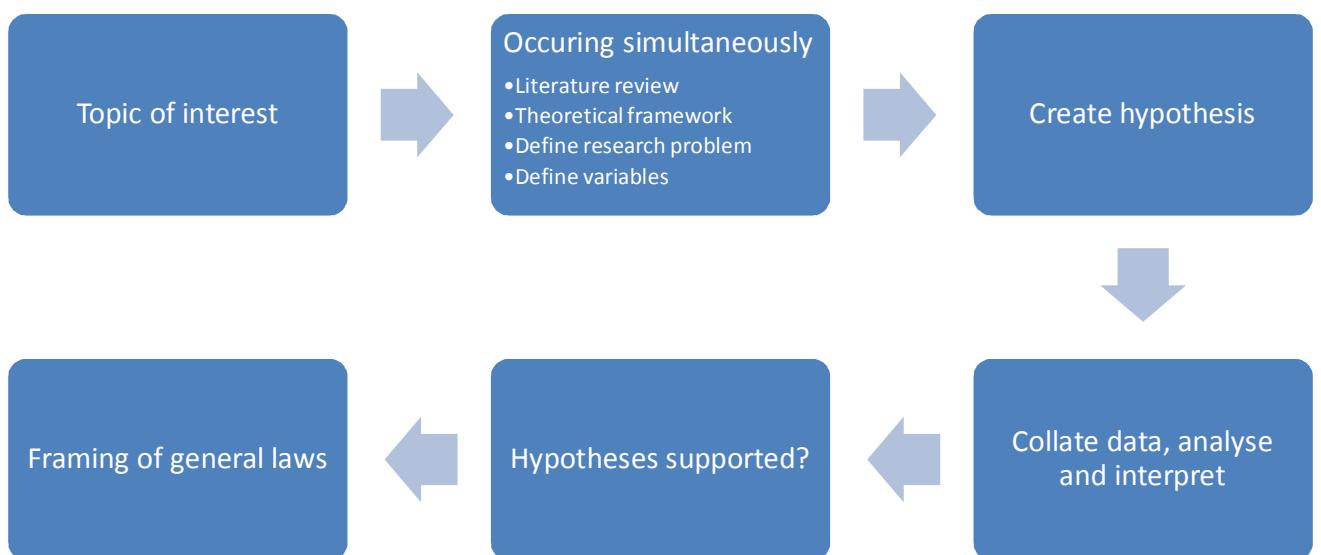


Figure 35: The positivist research process (adapted from Williamson, Burstein et al. 2002 p. 29)

A certain category of Positivists have rejected the positivistic narrow view that what could be studied was limited to what could be observed (Mertens 2010 p. 11). Known as post-positivists, they believe that reality does exist but it is not easy to discover (Williamson 2013b p. 8). Post-positivists maintain that researchers need to “modify their claims to understanding truth based on probability rather than certainty” (Mertens 2010 p. 12). While most positivists emphasise the collection of quantitative data, post-positivists collect qualitative data in natural settings. For example, post-positivist psychologists argue that there is much about the human experience that is not observable but is still important such as feeling and thinking. While they have some characteristics in common with interpretivists, post-positivists still hold beliefs about the importance of objectivity and generalisability (Williamson, Burstein et al. 2002 p. 37; Williamson and Johanson 2013 p. 508).

5.1.2.2 Interpretivist tradition

The central tenet of interpretivism is that “people are constantly involved in interpreting their ever-changing world” (Williamson, Burstein et al. 2002 p. 30). According to Daymon and Holloway (Daymon and Holloway 2011 p. 102), interpretivists express an ontological belief in the existence of “multiple realities and truths which are open to change because the social world, not having a separate existence from the individual, is socially constructed”. In this regard, interpretivist researchers consider their research task as one of understanding how the various participants in a social setting construct the world around them (Glesne and Peshkin 1992 p. 6; Williamson, Burstein et al. 2002 p. 31). This means that interpretivists use inductive reasoning and favour naturalistic inquiry, where field work takes place in the natural setting, and are concerned with meaning of things. Interpretivists believe that the world is a social one and “is interpreted or constructed by people” and is, therefore, “different from the world of nature” (Williamson, Burstein et al. 2002 p. 30).

Interpretivism is considered an umbrella term and includes different paradigms such as constructivism, critical theory and phenomenology (Williamson, Burstein et al. 2002 p. 30). Constructivists emphasise “either the personal, subjective construction of reality and/or the social (or shared) construction of reality produced by humans acting together” (Williamson and Johanson 2013 p. 502). Critical theory aims “through the writing of value-laden texts, to liberate groups which are seen to be oppressed, for example, women or certain racial groups, and to produce transformations in the social order” (Williamson and Johanson 2013 p. 502). Phenomenology “explores the meaning of several people’s lived experiences around a specific issue or phenomenon. The assumption is that there is an essence or central meaning of an experience shared by individuals that can be investigated and explained through research” (Hancock and Algozzine 2006 p. 9).

Regardless of the diverse paradigms that interpretivists come from, they share a common characteristic of being non-linear in the planning and construction of their research activities. This does not mean they lack research rigour, on the contrary, they seek to be totally open to the setting and subjects of their study (Gorman and Clayton 1997 p. 38). For instance, if the initial stages of data collection reveal unexpected perspectives on research questions, “the researcher may then adjust the research questions and data collection plan to take these new perspectives into account”. This means that the research design follows an iterative pattern (Williamson, Burstein et al. 2002 p. 32). The diagram below demonstrates the

interconnectedness of the stages of research from an interpretivist perspective (adapted from Williamson, Burstein et al. 2002 p. 33).

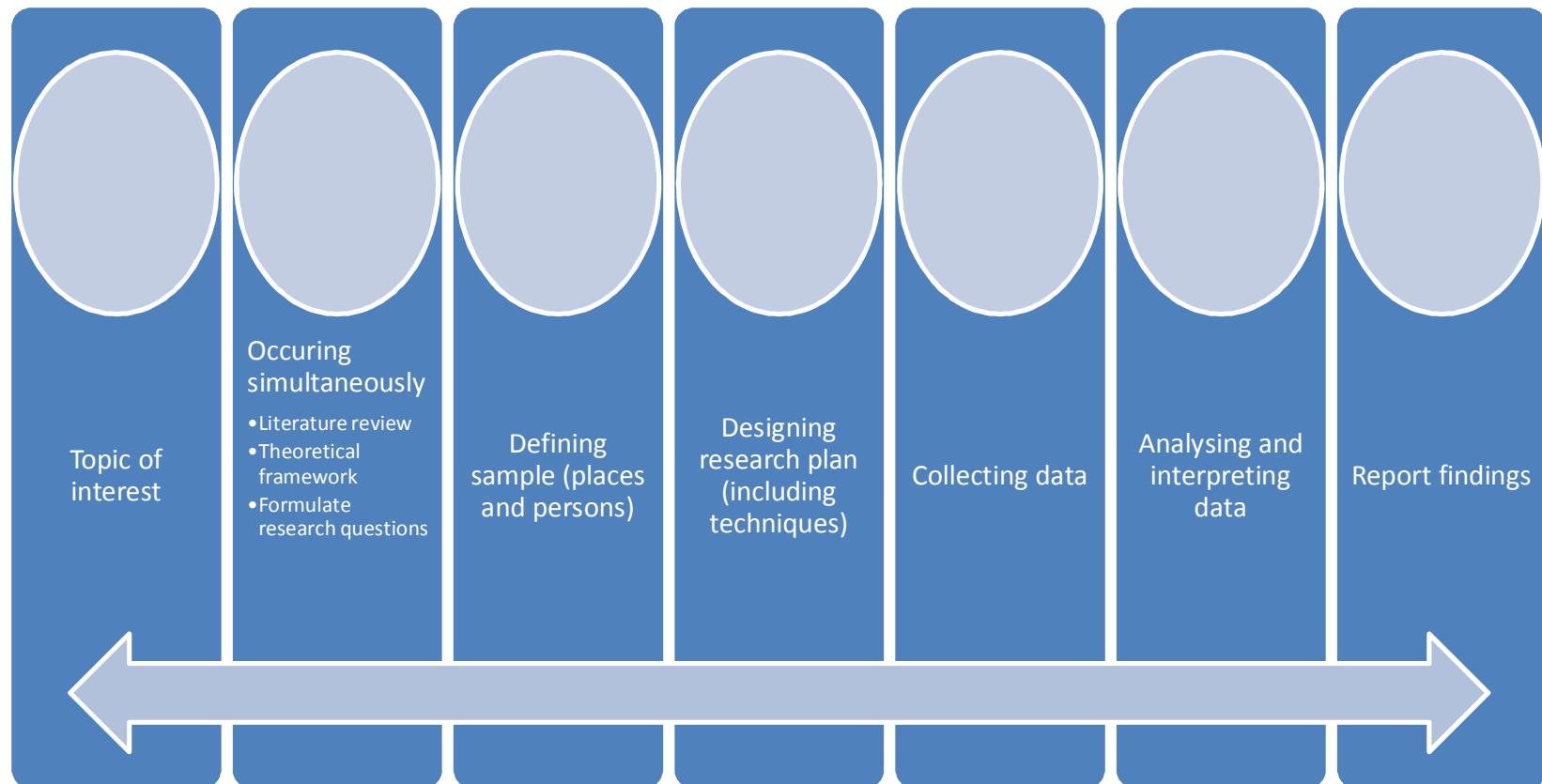


Figure 36: The interpretivist research process (adapted from Williamson, Burstein et al. 2002 p. 33)

5.1.3 Research data

Lastly, research can be differentiated by the kind of data that is handled, being either qualitative or quantitative. While quantitative data refers to research of items that are numerical or can be converted to data, qualitative data isn't easily translated into numerical form (Sheard 2013; Williamson, Given et al. 2013).

5.1.3.1 Quantitative data

Quantitative data refers to things that can be or have been counted on a numerical scale for measurement and evaluation and are often highly structured in nature (David and Sutton 2004; Eldridge 2014 p. 339; Powell and Connaway 2004 p. 3). In quantitative data analysis the emphasis tends to be on the need for research to be reliable and generalisable through the identification of macro-patterns and related causal explanations with the intention to understand the big picture (David and Sutton 2004 p. 37).

Quantitative data analysis has strengths and weaknesses. First amongst its strengths, quantitative data lend themselves to various forms of statistical techniques based on the principles of mathematics and probability with such techniques providing the analysis with an aura of scientific respectability (Denscombe 2007 p. 283).

Second, the analysis of quantitative data provides a solid foundation for description and analysis. Interpretations and findings are "based on measured quantities rather than impressions, and these are, at least in principle, quantities that can be checked by others for authenticity" (Denscombe 2007 p. 283).

Third, the fact that "large volumes of quantitative data can be analysed relatively quickly," makes it very popular with researchers but this is only effective on condition that there is advance preparation and planning (Banyard and Flanagan 2013 p. 12; Denscombe 2007 p. 283).

Finally, quantitative data allows for the use of tables and charts in order to provide a succinct and effective way of organising information and communicating the findings to others (Adler and Clark 2015 p. 420-421; Denscombe 2007 p. 283).

However, with quantitative data “there is a danger of researchers becoming obsessed with the techniques of analysis at the expense of the broader issues underlying the research” (Banyard and Flanagan 2013 p. 12; Denscombe 2007 p. 284). Since the components of quantitative analysis are both numerous and intricate, the sophistication required in the analysis risks overshadowing the overall research objective.

Additionally, while the handling of large volumes of data may be considered one of the strengths of quantitative analysis, there is a high risk of overloading the researcher. When there are too many cases, too many variables, too many factors to consider – the analysis can be driven towards too much complexity and the researcher swamped (Denscombe 2007 p. 284).

5.1.3.2 Qualitative data

Qualitative data refers to the collection of materials in a linguistic form that is not translated into a location on a numerical scale (David and Sutton 2004 p. 35; Eldridge 2014 p. 306). The interest is on micro-intentions and personal meanings thereby making it very different from quantitative data (David and Sutton 2004 p. 37). Advocates of qualitative data analysis argue that quantitative analysis is handicapped by the “limitations of statistical analysis and linear logics for dealing with change processes that involve qualitative change, multiple causation or multiple outcomes” (Hakim 2000 p. 13).

Qualitative data has its strengths and weaknesses. First, at the core of the strengths is the possibility of conducting in-depth interviews with individuals in relatively focused areas and offers the opportunity for intense scrutiny and analysis of the subject of inquiry (Adler and Clark 2015 p. 420-421; Hakim 2000 p. 36).

Second, to the extent that social existence involves uncertainty then the accounts of such existence “ought to be able to tolerate ambiguities and contradictions, and qualitative research is better able to do this than quantitative research” (Denscombe 2007 p. 312). Whether one is seeking explanations of the social-structural level, or at the level of individual choices and life styles, qualitative research is valuable for identifying patterns of associations between factors on the ground, as compared with abstract correlations between variables in the analysis of large-scale surveys and aggregate data. In-depth interviews can also clarify the reasons for discrepancy between stated attitudes and behaviour (Hakim 2000 p. 36).

Third, is the possibility of providing more than one valid explanation since it draws on the interpretive skills of the researcher. According to Denscombe (2007 p. 312), rather than a presumption that there must be, in theory at least, one correct explanation, qualitative data “allows for the possibility that different researchers might reach different conclusions, despite using broadly the same methods”.

As a weakness, qualitative data makes it more difficult to establish how far the findings from the detailed, in-depth study of a small number of instances may be generalised to other similar instances (Denscombe 2007 p. 312-313). This is because “small numbers of respondents cannot be taken as representative, even if great care is taken to choose a fair cross-section of the type of people who are the subjects of study” (Hakim 2000 p. 36). However, if qualitative data is dismissed as a weak alternative to quantitative data, this is because the validity problems in the latter “are largely invisible and regularly overlooked, particularly by economists and statisticians, who routinely work with large datasets and official statistics and often make unproven assumptions about behaviour” (Hakim 2000 p. 36).

Additionally, in the process of coding and categorising the field notes, texts or transcripts there is a possibility that the words may be taken literally and out of context. The context is an integral part of the qualitative data since it “refers to both events surrounding the production of the data, and events and words that precede and follow the actual extracted pieces of data that are used to form the units for analysis” (Denscombe 2007 p. 313). Whilst the researcher is coding and categorising the data, the meaning of the data may be lost or transformed by wrenching it from its location either within a sequence of data or within surrounding circumstances which have a bearing on the meaning of the unit as it was originally conceived at the time of data collection (Denscombe 2007 p. 313). Devoid of original context, data could be interpreted quite differently and likely compromising validity of the findings (Adler and Clark 2015 p. 421-424).

Lastly, in the quest to identify themes in the data and to develop generalisations, the researcher may feel pressured to underplay or possibly disregard data that does not fit a particular argument or line of thought. It may be true that “inconsistencies, ambiguities and alternative explanations can be frustrating in the way they inhibit a nice clear generalisation” (Denscombe 2007 p. 313). However, the inconsistencies and ambiguities are an inherent feature of social life and since social phenomena are complex, the analysis of qualitative data needs to acknowledge this and avoid attempts to oversimplify matters (Denscombe 2007).

5.1.4 Connecting research mission, research tradition and research data

The preceding sections have looked at the three dichotomies that characterise research. It is critical to see how these three dichotomies may be connected. In terms of the positivism versus interpretivism dichotomy in research traditions, positivists are seen as attempting to apply scientific methods to the social sciences, and are usually associated with deductive reasoning and quantitative data collection because they accept the notion of facts and objectivity as unproblematic (Sutton 1993 p. 424; Williamson, Burstein et al. 2002 p. 37). Interpretivists, on the other hand, are concerned with “meanings constructed by individuals and groups, use principally inductive reasoning and collect qualitative data” because they go with the notion that each phenomenon needs to be understood within its own explanatory context (Williamson, Burstein et al. 2002 p. 37).

In terms of the dichotomy within research data, quantitative data is often associated with positivism and provides the opportunity for generalisability whilst qualitative data is often associated with interpretivism and provides the opportunity for in-depth validity (David and Sutton 2004 p. 37). When the two dichotomies are put together, interpretivists lean towards mostly using qualitative data whilst positivists lean towards mostly using quantitative data. The diagram below provides a graphical representation of this phenomenon.

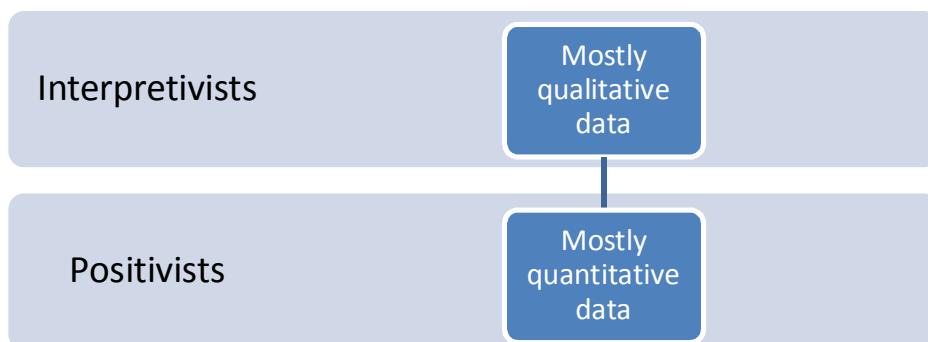


Figure 37: The relationship between interpretivists and positivists as well as qualitative and quantitative data

When the research mission dichotomy of theoretical vs. policy research is combined with the previous two dichotomies, there is the possibility of taking either an interpretivist or a positivist

path. The result of these possibilities presents different paths that are graphically represented in the diagram below.

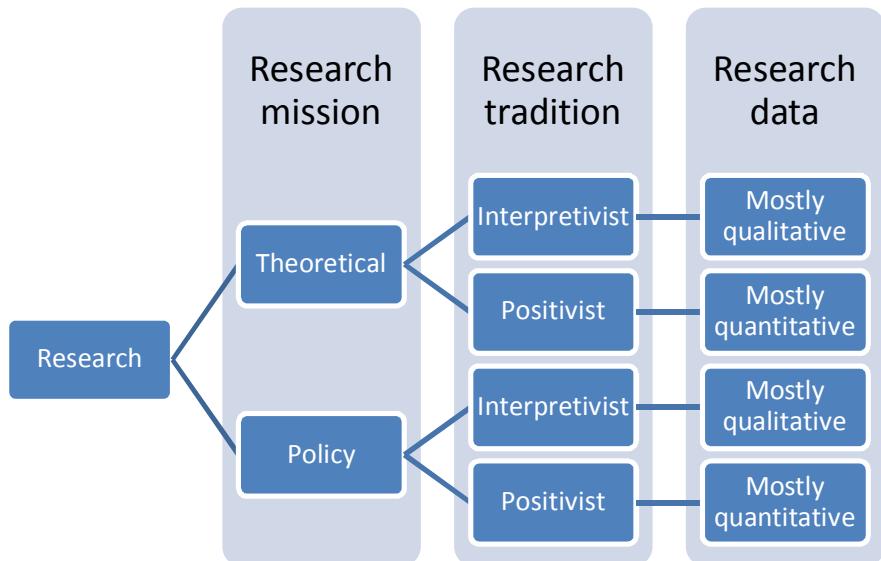


Figure 38: The relationship between research mission, research tradition and research data

Therefore, conducting research involves a number of components that could be combined in a variety of ways. The choice of components made by a researcher would depend on the goal of the research project and, as the Figure 38 above illustrates, there are different paths to be taken.

5.2 Ensuring reliability and validity of the research process

Regardless of which research path is taken, the goal of any research project is to have credible conclusions. There are different ways of getting this credibility but a common path is to use triangulation. According to Powell and Connaway (2004 p. 124), triangulation is when one chooses to use two or more techniques or methods to test hypotheses and/or measure variables. Williamson, Burstein et al (2002 p. 36) argue the advantage of triangulation is that conclusions are likely to be more reliable if data is collected by more than one method and from the perspective of more than one source. If different methods are used, the researcher can take advantage of the strengths and offset the weaknesses of each of the methods. Commentators argue that there are two forms of triangulation: methods triangulation and sources triangulation (Williamson, Burstein et al. 2002 p. 36; Yang 2013 p. 108). In methods triangulation the

researcher varies the types of data collection methods. In sources triangulation the research varies the sources from whom the researcher data is obtained (Phillips, McNaught et al. 2012 p. 154).

5.2.2 Sources triangulation

Sources triangulation is the cross-checking for consistency of the information derived at different times and from different people (Williamson, Burstein et al. 2002 p. 36). According to Joffres and Rockwood (2006 p. 61), it consists of using “multiple data sources, each with a similar focus, to obtain multiple perspectives on the same phenomenon”. Cowman (2008 p. 270) argues that source triangulation permits the researcher to discover which dimensions of a phenomenon are similar and which are dissimilar across settings and which change over time and which differ by group membership.

5.2.1 Methods triangulation

Methods triangulation is the checking of the consistency of findings by using different data-collection methods. The methods may be all qualitative, for example, unstructured interviews and observation, or all quantitative, for example, questionnaires and structured interviews, or a mixture of the two (Williamson, Burstein et al. 2002 p. 36). According to Gorard and Taylor (2004 p. 43), triangulation of evidence produced by different research methods is thought to be a simple and common form of combining methods. Gorard and Taylor (2004 p. 43) further argue that various reasons have been advanced for the use of combined methods triangulation, including “increasing the concurrent, convergent and construct validity of research, the ability to enhance the trustworthiness of an analysis by a fuller, more rounded account, reducing bias, compensating for the weakness of one method through the strength of another, and in testing hypotheses”.

5.2.3 Strengths and weaknesses of triangulation

Triangulation has its strengths and weaknesses. Denscombe (2007 p. 138) states that since “the use of triangulation focuses on the validation of findings” there is improved accuracy because “alternative methods are used as confirmation”. Additionally Cowman argues that since this

approach focuses on producing complementary data, it enhances the completeness of the findings and give a fuller picture (Cowman 2008 p. 273).

However, triangulation causes concern for various reasons. First, there are sacrifices that need to be made in order to accommodate the use of different methods. Considering that most research is restricted by the amount of time and resources available to conduct the investigation, “it is very likely that the use of more than one method will require sacrifices elsewhere” (Denscombe 2007 p. 138). Second, data analysis is more complex when using triangulation (Cowman 2008 p. 273). Denscombe (2007 p. 139) states that “not only does the researcher need to use more than one kind of analysis, there is also the need to compare, contrast and integrate the findings in a way that is more demanding”. Third, there tends to be an implicit assumption underlying the use of triangulation that the alternative perspectives will indeed support one another and that data from one perspective will be corroborated by data from others. Cowman (2008 p. 273) questions what happens if corroboration does not happen and what are the implications for the research when triangulation produces contradictory results. Denscombe (2007 p. 139) further states “in the spirit of good research, of course, any non-corroboration should lead the researcher to explore the situation further and conduct enquiries that might help to explain the reasons for the contrasting findings”.

Regardless of these weaknesses, triangulation has been widely used to serve researchers in both interpretivist as well as positivist traditions and proved popular because of its versatility. The choice of triangulation approach for this research study and is included in Section 5.4 of this chapter.

5.3 Research methods and research techniques

In order to conduct research endeavours, various research methods and techniques may be used. While many commentators do not differentiate between methods and techniques, Williamson (2002a p. 334) argues that research methods provide “a design for undertaking research, which is underpinned by theoretical explanation” of the value and use while research techniques are ways of “data gathering”. This distinction is critical in order to avoid the tendency to limit the use of certain techniques with certain methods, for example, always using questionnaires with surveys, to the exclusion of other combinations (Harvey 2002 p. xv). Table

18 shows an outline of some of the research methods and research techniques used in research studies in order to demonstrate the distinction (Kothari 2012 p. 7; Williamson 2002a p. 7).

Table 18: The distinction between research methods and techniques

Types of Research Methods	Types of Research Techniques
<ul style="list-style-type: none">• Survey• Case study• Mixed Methods• Historical Research Method	<ul style="list-style-type: none">• Sampling (including Probability and Non-probability)• Questionnaires• Interviews (including structure, semi-structured and non-structured)• Document analysis• Secondary analysis

This doctoral study chose to use one research method (survey) and a combination of two research techniques (sampling and interview) in order to conduct the research process. Section 5.3.1 outlines survey method and the two kinds possible. Section 5.3.2 outlines sampling and interview and the different varieties that constitute these techniques. The particular varieties of research method and techniques used in this study are outlined in Section 5.4.

5.3.1 Research Methods – survey method

Research methods denote a design for undertaking research including the theoretical background to the design (Harvey 2002 p. xv). Kothari (2012 p. 7) states that research methods are instruments used in selecting and constructing research techniques. There are a number of research methods including: survey, case study, mixed methods and historical research (Veal and Darcy 2014 p. 127-166).

This doctoral study was conducted using the survey research method which involves designing the process of collection of primary data from a research population, in order to determine the incidence, distribution, and interrelationships of certain variables within that population. Surveys allow associations between factors to be mapped and measured (Hakim 2000 p. 76). According to Tanner (2002 p. 89), the survey method could be used in different data collection techniques, for example, questionnaires (print or electronic), interviews (face-to-face or telephone), and observation techniques

There are two main survey designs: descriptive surveys and explanatory surveys. A descriptive survey primarily collects and arranges data, and identifies trends with the main purpose to “describe a particular phenomenon: its current situations, its properties and conditions” (Tanner 2002 p. 91, 97). While a descriptive survey may be relatively straightforward compared with other research designs, it may have several risks. First, there is always a risk of non-cooperation of participants. Second, there is the threat to internal validity due to rival explanations because it is set in natural rather than controlled surroundings. Third, as is common with all self-reported data, there is the risk of accuracy of the data collected. Fourth, since generalisability or external validity is dependent on a high response rate, efforts have to be made to maximise responses otherwise external validity will be at risk (Tanner 2002 p. 93-94).

An explanatory survey is different from a descriptive survey since it probes in order to “explain ‘how’ and ‘why’”. The explanatory survey explores interrelationships of variables and likely causal links between them” (Tanner 2002 p. 97). Explanatory surveys dwell in the realm of inferential statistics where tests either confirm or refute statistical hypothesis and, therefore, require probability sampling. While they “enable problems to be measured in their natural settings” they do not firmly establish causal relationships but rather identify relationships between variables (Tanner 2002 p. 100).

The diagram below is a graphical representation of the two kinds of surveys based on what data is collected (Tanner 2002 p. 91-107).

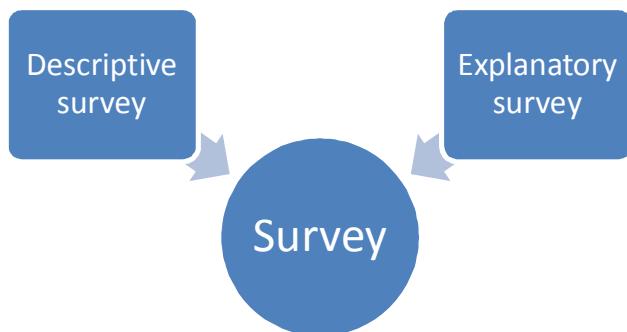


Figure 39: Descriptive and explanatory surveys (Tanner 2002 p. 91-107)

Regardless of whether one is conducting a descriptive or explanatory survey, there are different options for how these surveys are administered including: self-administered, in-person administered, postal, telephonic as well as electronic surveys (Fowler 2009 p. 69-86; Tanner

2002 p. 91-107). Of these, electronic surveys are often preferred when dealing with large amounts of data because of the power of the internet for geographical reach in data collection and the use of databases to ease the data analysis process.

Over the years, survey research designs have been used pervasively. Even though they may appear simple and straightforward to implement, successful use depends on the researcher's clear understanding of the "circumstances where surveys are appropriate and the constraints on inferences in interpreting and generalising from survey findings" (Tanner 2002 p. 106).

5.3.2 Research Techniques – sampling and interview

Research techniques are used to describe the means with which data is gathered and samples are selected (Harvey 2002 p. xv). Kothari (2012 p. 7) argues that they refer to the instruments used in performing research operations such as making observations, recording data and the techniques of processing data. There are numerous research techniques including: document analysis, sampling, interview, questionnaire and secondary analysis techniques. However, this section looks at the two research techniques used in this doctoral study: sampling and interviews. Sampling research technique was used to identify the sample population. Interview research technique was used to collect the data from the identified population.

5.3.2.1 Sampling research technique

Sampling research technique is generally associated with the selection, often using a criterion or set of criteria, to determine how research will be conducted. It is often done when looking at breadth rather than depth of research questions. According to Hakim (2000 p. 76), the use of sampling allows the production of descriptive statistics that are representative (on a national, regional or state basis) of the whole study population. Sampling is preferred to conducting a census of every member of the population particularly because of lowered costs and reduced time.

Sampling has at least four fundamental concepts that need to be defined: target or sample population, sampling frame, sample and case or element. First, population is generally referred to as the aggregate of all cases or elements sharing at least one common characteristic, and therefore, more precisely called the target population. However, it may be impractical or impossible to draw a representative sample from a target population. Therefore, researchers

often draw their sample from a smaller subset of the population, a sampling population (Weathington, Cunningham et al. 2010 p. 199). Second, the sampling frame is any devise or list of all elements used to obtain observational access to a population for a specific research purpose (Tanner 2002 p. 90; Weathington, Cunningham et al. 2010 p. 200). Third, the case or element is a single unit or member of the population about which data are collected (Williamson 2002b p. 226; Williamson and Johanson 2013 p. 503). Fourth, the sample is a defined subset, whether representative or not, of a particular population (Williamson 2002b p. 226).

There are two main kinds of sampling, probability and non-probability. Probability sampling techniques are required for valid generalisations. With probability sampling, it is possible to specify the probability of an element being included or excluded in the sample (Tanner 2002 p. 90). Non-probability samples are generally used for reasons of convenience and economy. For example, in purposive sampling, which is one of the types of non-probability sampling, the researcher hand-picks subjects with the required expertise or background for a study on the basis of the researcher's own personal knowledge (Tanner 2002 p. 91).

Probability sampling is further divided into four types: simple random sampling, stratified sampling, systematic sampling and cluster or area sampling. In simple random sampling, each element in the population is given an equal and independent chance of being included in the sample (Williamson 2002b p. 227; Williamson 2013a p. 336-337). In order to do this, three activities could be undertaken, either using a fish-bowl draw, using random number tables or using computer-determined random sampling (Williamson 2002b p. 227; Williamson 2013a p. 336-337).

Stratified sampling is achieved when every member of the population has an equal chance of being selected in relation to their proportion within the total population (Denscombe 2007 p. 14). Stratified sampling is further divided into proportionate and disproportionate stratified sampling. In proportionate stratified sampling, the population is divided into "mutually exclusive, homogenous groups according to some criterion, and then independent samples are drawn from each group" (Grembowski 2001 p. 181). In disproportionate stratified sampling, "different sampling fractions are used across population strata to manipulate the number of cases selected in each stratum" (Grembowski 2001 p. 182). Either one is chosen for a different purpose depending on the research question.

Systematic sampling, the researcher's choice of people from the population is based on choosing every *n*th case (Denscombe 2007 p. 14). If a target population contained 10,000 cases and one wanted to sample 1,000 then they would select every tenth element of the target population. However, to ensure against any possible human bias, the first element would be selected at random (Babbie 2008 p. 224).

Finally, cluster or area sampling involves dividing a population into clusters or groups and then drawing a sample from these clusters (Newby 2013 p. 650; Williamson 2002b p. 231). In cluster sampling the population is partitioned into groups or clusters which are not necessarily the same size with each element belonging to one cluster only and none of the elements of the population being left out. In cluster sampling, it is the clusters and not the elements that are sampled. Once a cluster is sampled then it means that every element within that cluster will be observed (Cadima, Caramelo et al. 2005 p. 35).

Non-probability sampling is often used in situations that do not permit probability sampling techniques as the ones outlined above. For example, if one was to research on homelessness, there would be no list of all homeless individuals from which to extract samples (Babbie 2008 p. 203). Non-probability sampling has four main types of techniques: accidental sampling, purposive sampling, snowball sampling and incomplete sampling. First, accidental sampling is also known as convenience sampling because it is built upon selections which suit the convenience of the researcher (Denscombe 2007 p. 18). The selection is therefore based on participants that are easy to get on the basis of their availability and willingness to respond (Gravetter and Forzano 2012 p. 151).

Second, purposive sampling is also known as theoretical sampling and differs from accidental sampling in that even though in both cases samples are handpicked, in the accidental sampling it is out of convenience but in the purposive sampling it is a deliberate process. In purposive sampling the samples are selected based on the researcher's knowledge and opinion about their appropriateness and relevance to the topic (David and Sutton 2004 p. 152; Denscombe 2007 p. 17).

Third, snowball sampling occurs when samples emerge through the process of individuals providing references to others who further provide other references (Denscombe 2007 p. 17). Therefore, snowball sampling refers to the process of accumulation of participants as each

individual suggests other individuals to be sampled. However, because this technique results in samples with “questionable representativeness” it is used primarily for exploratory purposes (Babbie 2008 p. 205).

Incomplete sampling is placed within non-probability category by default. For example, if a large percentage of cases do not respond or participate in a study, then assurance that the sample is representative of the population is lost. This is the case even if the sample may have been selected randomly and is, therefore, by default incomplete sampling (Connaway and Powell 2010 p. 119; Williamson 2002b p. 232).

Within the research tradition dichotomy of positivist and interpretivist research, most probability sampling fits with the positivist tradition while most non-probability sampling fits with interpretivist tradition. According to Williamson (2002b p. 232), while it is theoretically possible to randomly select a sample for an interpretivist study, most researchers prefer to select a purposive sample. Since most interpretivist research often can manage relatively small samples, it is critical to include elements of all the important sub-groups and personal characteristics which might be relevant to the study to ensure representivity.

The diagram below provides a graphical of the different kinds of sampling (Connaway and Powell 2010; Williamson 2013a).

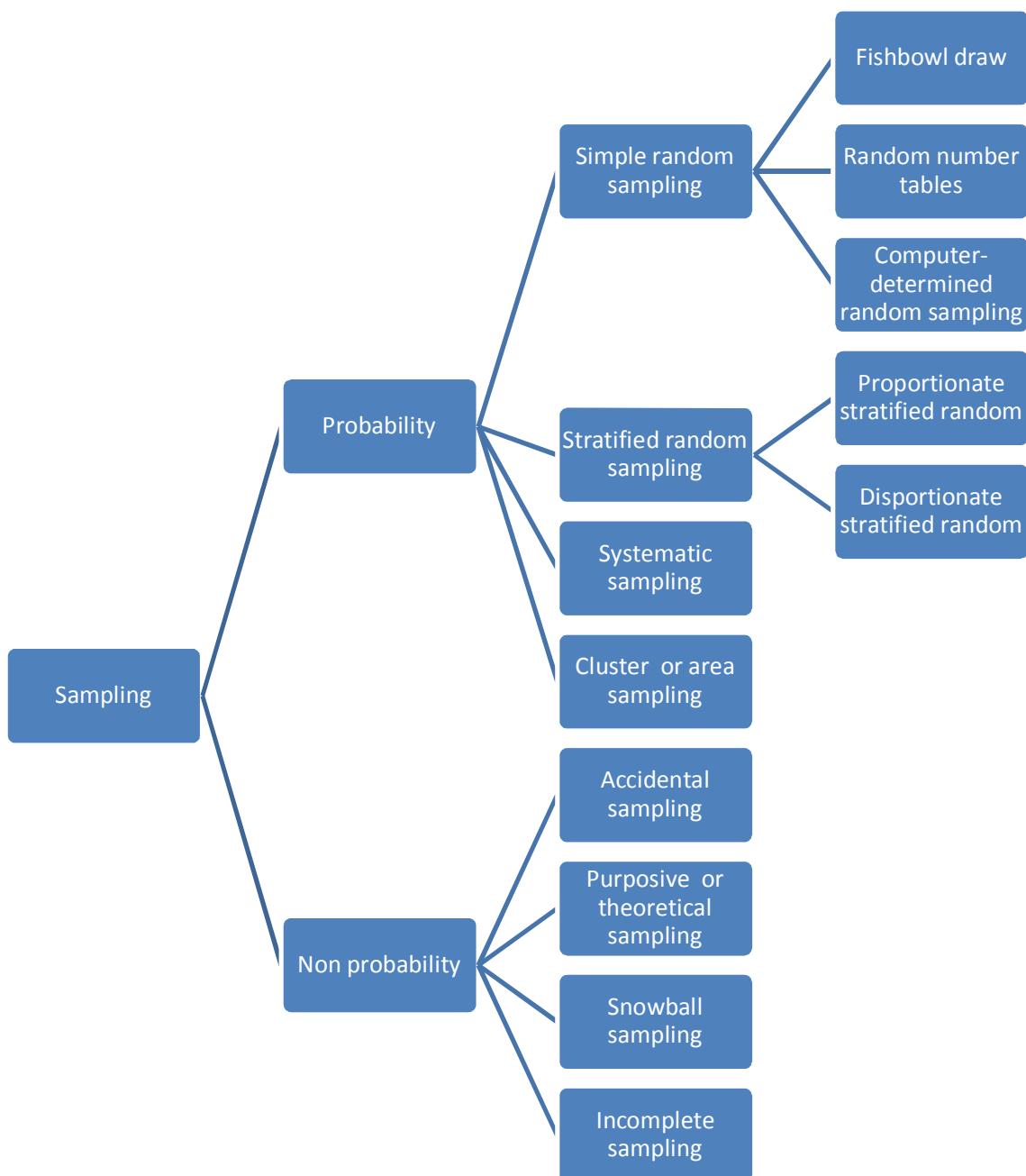


Figure 40: Different kinds of probability and non-probability sampling (Connaway and Powell 2010; Williamson 2013a)

While sampling has many advantages, researchers need to be aware of possible risks and find ways to effectively address them. Babbie (2008 p. 239) argues that in many studies, particularly qualitative ones, the purpose of sampling may be to highlight the breadth of variation within a population rather than focusing on the typical element in the population. While this is a legitimate

and valuable approach, the results may mistakenly look like they reflect the distribution of characteristics of a population which would be misleading.

5.3.2.2 Interview technique

Interviewing is a data collection technique that lends itself well in situations where there is a possibility of either accessing privileged information based on the value of the key contact people, or when there is need to explore opinions and experiences in great depth (Denscombe 2007 p. 175).

There are three kinds of interviews: structured, semi-structured or unstructured. On the one end of the spectrum, structured interviews are where the researcher predetermines both questions and response options and how they are worded (Hancock and Algozzine 2006 p. 43; Newby 2013 p. 339). On the other end of the spectrum, unstructured interviews are where researchers have total freedom to formulate any questions each time they conduct an interview and the responses expected are not predetermined. Between these two extremes are semi-structured interviews where researchers ask “predetermined but flexibly worded questions, and whose responses provide tentative answers to the researcher’s questions” (Hancock and Algozzine 2006 p. 40). In addition, to posing predetermined questions, researchers using semi-structured interviews may ask follow-up questions designed to probe particular areas of interest. This results in different interviewees providing different perspectives to the same general questions, thereby, defining issues from their own perspective and not from the researcher’s perspective, as in the case of predetermined response options (Hancock and Algozzine 2006 p. 40). The diagram below shows the different kinds of interviews.

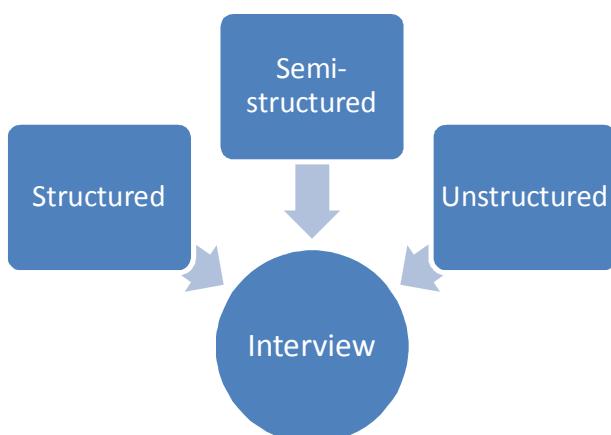


Figure 41: Different kinds of interviews

Hancock and Algozzine (2006 p. 39-40) provide five guiding principles to conducting a successful interview. First, the researcher needs to identify key participants in the research whose knowledge and opinions may provide important insights regarding the research questions. Second, an interview guide should be developed. Regardless of whether the guide is structured, semi-structure or unstructured, the questions should be designed to allow the researcher to gain insights into the study's fundamental research questions.

Third, the interview setting should be in a private, neutral and distraction-free interview location in order to increase the comfort of the interviewee and maximise the likelihood of attaining high-quality information. Fourth, there should be a way of recording the interview data that does not interfere with the interviewing process. For example, an audio recording device may result in much smoother recording than, for example, the researcher opting to write down all the responses. Finally, the researcher must adhere to legal and ethical requirements for all research involving people. This also means that interviewees should not proceed with the interview unless they have shown proof of informed consent.

There are two different ways of conducting interviews, either face-to-face or remotely (Polgar and Thomas 2013 p. 92-93). According to David and Sutton (2004 p. 160), one of the biggest advantages of face-to-face interviews over remote interviews such as via telephone is the option to get the audible responses as well as communicate through non-verbal cues. However, in such interviews, anonymity no longer applies and the interviewer would have to make assurances of maintaining confidentiality (David and Sutton 2004 p. 161).

One of the potential risks of interviews, whether face-to-face or telephonic, is the bias effect on both the interviewer and interviewee. Aspects such as age, gender as well as social and political background may affect the communication process during an interview. Interviewer bias can occur through both the verbal comments and non-verbal cues made by the interviewer. The general awareness, prior experience and communication skills of the interviewer at making the interviewee feel comfortable, willing to participate and talk honestly may assist in limiting the potential interviewer effect (David and Sutton 2004 p. 161).

Section 5.3 has covered research methods and research techniques demonstrating the variety of ways in which research can be designed, data collected and subsequently analysed. Section 5.4 builds on this foundation in order to discuss the design of this doctoral research.

5.4 Design of the research study

This section outlines the design of this doctoral research and how it was executed in accordance with the research design. Hakim (2000 p. 1) states that design deals primarily with aims, uses, purposes, intentions and plans. The design of a study has to be cognisant of the practical constraints of location, time, money and availability of human resource. Harvey (2002 p. xi) adds that the research design is the point where questions raised in theoretical or policy debates are converted into feasible research projects.

After considering the discussions on research mission, research tradition and research data in Section 5.1 as well as research methods and research techniques in Section 5.3. This section summarises all the aspects to provide in the matrix in Table 19.

Table 19: A matrix of research methods and techniques employed in the research process

	Theoretical framework in this chapter	Research design
Research mission	Discussion in Section 5.1.1	Theoretical
Research tradition	Discussion in Section 5.1.2	Interpretivist (phenomenology)
Research data	Discussion in Section 5.1.3	Qualitative data
Research triangulation	Discussion in Section 5.2	Triangulation (Sources triangulation)
Research Methods	Discussion in Section 5.3.1	Survey (descriptive)
Research Techniques	Discussion in Section 5.3.2	Sampling (purposive) and interviewing (semi-structured).

As the table above shows the first column has fundamental research concepts discussed in preceding sections while the second column provides a reference to the precise section of this chapter. Finally, the third column outlines the chosen research design for this research study.

This research study was designed to ensure that the data collected would provide credible and reliable findings. This was be done by the use of descriptive survey method in order to ensure that the study fulfils the objectives. As noted earlier, descriptive survey method allows the research study to “describe a particular phenomenon: its current situations, its properties and conditions” (Tanner 2002 p. 91, 97). In addition, the research study used two different research techniques: purposive sampling to identify respondents and semi-structured interviewing to

solicit responses from participants. The respondents were identified based on the researchers knowledge and opinion about their appropriateness and relevance to the topic (David and Sutton 2004 p. 152; Denscombe 2007 p. 17). Data was solicited from the respondents using semi-structured interviewing because it offered flexibility based on the diverse expertise and experiences of the respondents.

Both the research method and the research techniques utilised were within a triangulation framework built on varied sources that provided different perspective on the same phenomenon (Joffres and Rockwood 2006 p. 61). The individuals were identified based on their varied experiences and expertise in three main sectors: the public sector, the private sector as well as those in academic and research institutions. Within each sector, further institutional affiliations or areas of expertise were identified. The diagram below illustrates the different broad categories of the respondents.

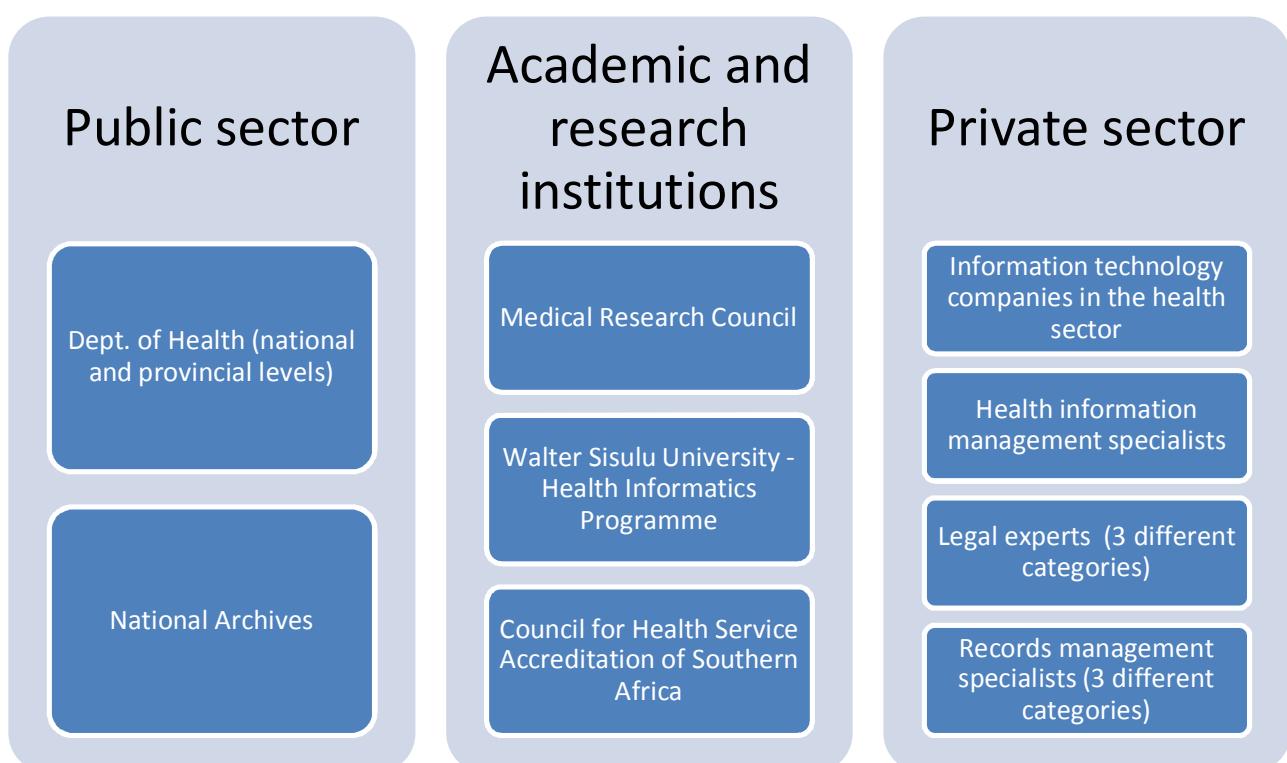


Figure 42: Triumvirate approach to the interviewing process

Each of the three broad categories is discussed in Section 5.4.1, 5.4.2 and 5.4.3.

5.4.1 Research design for Public sector

As shown in Figure 42 above, within the public sector category, respondents were sampled from the Department of Health both at national and provincial levels as well as the National Archives.

For the National Archives, the National Archives Act has jurisdiction over all public sector institutions on matters related to records management. While a majority of the provincial governments had formulated their own legislation, the regulations for the management of records were still based on the work of the National Archives (Ngoepe and Keakopa 2011 p. 153). At the time of this study, there were no published reports noting vast differences in the management of records within the different provinces therefore a national level assessment was deemed sufficient.

For the Department of Health, it was critical to ensure the perspectives of both national and provincial levels for two reasons. First, Schedule 4 of the country's Constitution states that national and provincial governments have concurrent legislative authority in the health sector (South Africa 1996b). This means that legislatively, provision of health service happens practically at the provincial level. This would suggest that each province would have different experiences based on the administrative legacy they inherited historically as well as their existing practices. Second there were published reports noting the varied performance levels of different provinces. For instance, Limpopo Province had been excelled in compliance to the Promotion of Access to Information Act while the Western Cape Province was commended for effective implementation of applications for managing digital records. Therefore, it was necessary to distinguish these nuances.

5.4.2 Research design for Academic and research institutions

In the second category of academic and research institutions there were three specific organisations targeted: the Medical Research Council, the Council for Health Service Accreditation of Southern Africa (COHSASA) and the Walter Sisulu University's Health Informatics Programme. The Medical Research Council was chosen because it is responsible for developing and directing policy on medical research South Africa. The Walter Sisulu University was chosen because it offers a health informatics Masters programme in conjunction with the University of Winchester in the UK. As an institution located in the rural areas of the Eastern Cape it offers unique perspective to the challenges facing the country's health

informatics professionals. COHSASA was chosen because it is the only health care quality improvement and accreditation organisation in the country.

5.4.3 Research design for Private sector

In the third category, the private sector, individual respondents were sampled based on their expertise in four subject areas: information technology, health information management, records management and law. In the last two categories there was further breakdown of specialisation.

In the legal field, three subject areas were identified. The first category includes individuals with expertise in legislative and regulatory provisions relating to records retention and disposal at both national and provincial levels within the country. The second category includes individuals with expertise in access to information and information security legislation and regulations including the Promotion of Access to Information Act, Minimum Information Security Standard and Regulation of Interception of Communication and Provision of Communication Relation Information Act. The third category includes individuals with expertise in privacy and data protection legislation. The diagram below provides a graphical representation of the breakdown of expertise in the legal field.

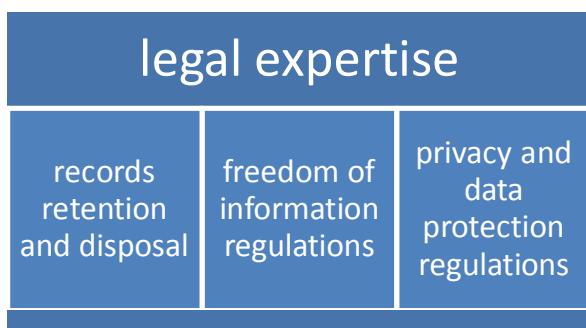


Figure 43: Breakdown of legal expertise

In records management, three areas of expertise were identified: individuals with expertise as records management consulting, those providing off-site storage services and those providing office stationary services. In the first category, records management consultants were individuals that offered consulting services to both public and private sector organisations and had diverse experience depending on the clients they served. In the second category were individuals that worked in offsite storage companies that offered outsourcing of records management for their

clients both in the public and private sector. In the third category were individuals that worked in office stationary companies that provided products that are used in the management of records. The diagram below provides a graphical representation of the breakdown of expertise.



Figure 44: Breakdown of Records Management specialists

As the discussion above has shown, this research study interviewed a wide selection of respondents responding to the research questions from diverse perspectives because of the varied areas of expertise and experiences.

5.5 *Conducting the research study*

In order to execute the research design discussed in Section 5.4, the research followed a study protocol. According to Saks and Judith (2007 p. 231), study protocols are designed to convey the scientific essence of the research study to others and must have “clarity and focus with a logical flow that justifies the researcher’s plan of investigation”. This section outlines how first, ethical issues were addressed in this research and then, second, how data was collected.

5.5.1 Ethical considerations

There are three key concerns in research ethics: avoiding potential harm, ensuring informed consent and the right of privacy (Illing 2010 p. 296; Sullivan 2009 p. 185). Avoiding potential harm includes protecting research respondents from physical and psychological harm as well as legal jeopardy (Sullivan 2009 p. 185). Ensuring informed consent entails that participants understand what taking part in the research will involve as well as making certain that their involvement is entirely voluntary (Illing 2010 p. 296). Finally the right to privacy is ensuring that

the identity of the participants is protected. Each of these aspects was addressed specifically in the research process.

First, in order to avoid potential harm, all respondents were shown the confidentiality agreement to study and, if they agreed with it and then signed it (attached as Appendix D). The agreement stated that as part of the research process, study participants may have known each other and, in a few cases, these participants happened to be business competitors. In this instance no harm would result since none of the data contributing to this research would be shared amongst participants.

Second, in order to ensure informed consent, all participants were given an introductory letter from the university (attached as Appendix B) as well as an introductory letter from the researcher (attached as Appendix C). Additionally, the confidentiality agreement (attached as Appendix D) mentioned three important facts: that, the respondents' participation was entirely voluntary, that the results of the study would be published and presented in seminars and conferences as well as that the data collected would be used to identify and correlate attributes of participants but not identify them individually.

Third, in order to address the right of privacy through confidentiality, the researcher's introductory letter stated this guarantee (attached as Appendix C). In addition, the confidentiality agreement mentioned that the data collected, even though it may have personally identifiable information, would be aggregated and protected based on provisions of legislation. In order to address concerns about anonymity the confidentiality agreement mentioned that specific data given to the researcher would be anonymised in order to protect individuals by replacing personally identifiable information with codes

Finally, the overall research project underwent ethical review at the University of South Africa and the approval document is attached as Appendix E. The university's ethical approval is also mentioned in the confidentiality agreement.

5.5.2 Data collection

This section gives a brief outline of how the data was collected. As part of the study protocol, potential respondents received an introductory letter from the University of South Africa's

(UNISA) Department of Information Science confirming the legitimacy of the study (attached as Appendix B). This was accompanied by a letter introducing the researcher and the research by including brief description of the purpose of the research (attached as Appendix C). Attached to this letter was a confidentiality agreement that addressed issues key to ethical research considerations such as the anonymity of data collected and provided the option for participants to receive results of the study (attached as Appendix D). In order to participate in the research, each respondent had to sign and date the confidentiality agreement in the presence of the researcher. Only after signing the confidentiality agreement did the researcher begin the data collection process.

As discussed in Section 5.4, the respondents had varied experiences and skills from three categories: the public sector, academic and research institutions, as well as the private sector. The individuals were identified using purposive sampling and data collected using semi-structured interviews (attached as Appendix F). The interviews were recorded through a recording device for purposes of transcription and analysis. At the end of the process 22 respondents were interviewed for the research study. Each of the respondents is identified by a unique number but, in one instance, two respondents preferred to answer the questions in the same setting and, therefore, have been identified as Respondent 3 and 4. The table below provides a breakdown of the respondents and the length of time of their recorded transcripts

Table 20: Respondents and the length of their transcripts

Respondents	Length of transcript (hours: minutes: seconds)
1	00:13:50
2	00:57:04
3 & 4	00:16:28
5	00:17:29
6	00:54:27
7	00:34:51
8	00:44:20
9	00:22:34
10	00:19:15
11	00:03:32
12	00:11:14
13	00:09:08
14	00:22:15

Respondents	Length of transcript (hours: minutes: seconds)
15	00:12:54
16	00:15:50
17	00:16:00
18	00:51:43
19	01:00:30
20	00:21:37
21	00:08:41
22	00:32:26
Total time	09:06:08
Average time	00:27:18

As Table 20 above shows, the respondents' interviews varied in length 3 minutes 32 seconds to 1 hour 30 seconds. The variation in the length of time demonstrates that some respondents responded comprehensively to the semi-structured interviews while others were very brief. Nonetheless, the average time spent on an interview was 27 minutes and 18 seconds. Once added all together, all the interviews combined in length to 9 hours 6 minutes and 8 seconds which provided a rich source for the data analysis process. The data collected through the interviews was then analysed and the results of that analysis are presented in Chapter 6 and 7.

5.6 Conclusion on the research methodology of the study

In many senses, this research was ambitious. First, the research's design was multidisciplinary since it looked at the health sector and from a records management perspective. Tritter (2007 p. 306) states that multidisciplinary research in health care is "challenging as it goes against the historical hierarchies of knowledge in medical care". The design demonstrates efforts to address some of the challenges, particularly with regard to validity and reliability.

Second, the research was cognisant of the need to use a mix of the survey research method and two research techniques (sampling and interviewing) to provide an integrated framework of both information gathering and data analysis possibilities. The data derived from this mix, once analysed and interpreted in an integrated fashion, is seen by proponents of multidisciplinary research as yielding research validity (Tritter 2012).

Third, the ultimate aim of the research was to ensure that the findings are credible. Tritter (2012 p. 426) argues that many factors affect credibility of research but the most fundamental factor has to do with the kinds of research methods used including “the logic of the design, the management and process of the research, the methods used to collect data and their link to research questions”. Solid research designs are founded on internal logical consistency (Hatch 2002 p. 41). This chapter provided a comprehensive outline of the logic of the research design and the management of the process and links the research question. According to Tavakoli (2013 p. 125), credibility is used to ensure that the picture provided in the research is as full and complete as possible. This was important in order to ensure that “perceived validity” and “acceptance of research findings” is particularly important since this research aims to have an impact on both policy, on practice and on the thinking of professionals and academics in the disciplines (Tritter 2007 p. 306).

Tritter (2007 p. 306) argues that in order to explore and understand contemporary health care, clinical knowledge must be integrated with social science expertise. This research project is an attempt at conducting multidisciplinary research in response to Tritter's challenge and this chapter demonstrates the multifaceted and sophisticated ways in which the research was designed and executed in order to address the challenges of credibility using varied research techniques and methods.

This chapter covered the research methodology used in this dissertation by providing a background on research, the different research traditions globally and outlined the research methods and techniques employed in this dissertation process as well as the research design followed in data collection. The next chapter provides an analysis of the state of records management in public health care institutions in South Africa based on the data collected in this study.

Chapter 6 – Data Analysis

6.1 *Introduction*

The research process entails the collection of data using a variety of research methods and techniques. Once the data is collected the challenge becomes summarising and interpreting it in order to provide analysis through the identification of themes and interpretation of findings. Hancock and Algozzine (2006 p. 59) states that there are several guidelines to effective data analysis activities. First, there is need for on-going refinement of the study's fundamental research question in light of data obtained during the investigation. Second, the researcher should continuously focus on the research questions being investigated in order to avoid being overwhelmed by the vast amount of information obtained. Third, the researcher should ensure that the collection and interpretation of data that is specifically meaningful to the research effort. Fourth, the researcher should develop a method for labelling data including: dates, locations, persons involved and circumstances surrounding the collection of the information. There should also be appropriate ways of storing and gaining access to information acquired during the study for analysis purposes. Finally, the researcher should use all available resources that can assist in the collection and interpretation of information including software applications for data analysis such as NVivo and SPSS.

As noted in Chapter 5, this doctoral study used research methods and techniques to collect qualitative data from 22 respondents. The rest of this chapter outlines activities undertaken in data analysis once the research design was implemented.

6.1.1 Overview of data analysis

According to Newby (2013 p. 459), the process of analysing qualitative data entails “shaping data into a form where it can be interpreted” in such a way that it contributes to “an understanding of the research issue”. There are five main stages of data analysis as shown in Table 21 (adapted from Creswell and Clarke 2007 p. 173-174; Denscombe 2007 p. 252).

Table 21: Five stages of analysis of qualitative data

Stage	Qualitative data
1. Data preparation	Transcribing the text; Cataloguing the text or visual data; Preparation of data and loading to software (if applicable)
2. Initial exploration of the data	Look for obvious recurrent themes or issue; Add notes to the data; Write memos to capture ideas
3. Analysis of the data	Code the data; Group the codes into categories or themes; Comparison of categories and themes; Quest for concepts (or fewer, more abstract categories) that encapsulate the categories
4. Representation and display of the data	Written interpretation of the findings; Illustration of points by quotes and pictures; Use of visual models, figures and tables
5. Validation of the data	Data and method triangulation; Member validation; Comparison with alternative explanation

Monette, Sullivan et al (2014 p. 429) argue that the purpose of data analysis is extracting meaning from very specific observations in order to learn something more abstract and general. As the table above shows, the process of data analysis first requires data preparation which means putting the data in a form that can be manipulated (Newby 2013 p. 459). This research study constituted interviewing 22 respondents whose voice recordings were transcribed and the data loaded into a data analysis software application known as NVivo.

In the second stage, as noted in the table above, data has to be examined for obvious recurrent themes. For Denscombe (2007 p. 292), this examination entails placing labels in the form of names or numbers that are attached to the raw data in a systematic manner. In this chapter, the initial exploration of the obvious themes is undertaken in Sections 6.2 and 6.3.

The third stage of the analysis process requires coding and grouping codes into categories or themes. Coding refers to the “categorisation of observations into a limited number of categories” (Monette, Sullivan et al. 2014 p. 429). These codes are then grouped using a taxonomy or typology to ensure that umbrella terms can be used (Denscombe 2007 p. 292). In addition, according to the table above, this third stage also entails the comparison of categories and themes. According to Newby (2013 p. 459), this comparison is the building of links between data

units in an iterative process, a process that is greatly enhanced by the use of data analysis software applications such as NVivo. However, Denscombe (2007 p. 292) argues that, regardless of how extensively software applications are used in data analysis, the researcher is ultimately responsible for coding, grouping and comparison of themes. This third stage of analysis is undertaken in Section 6.4 that outlines categories of themes as well as providing comparisons of the different respondents' remarks.

The fourth and fifth stages of data analysis are explored in chapter 7 of this dissertation. However, the use of visual models has been placed in this chapter in order to illustrate categories of themes as identified during the data analysis process.

6.1.2 Exploration and analysis of data

This chapter analysed the results from the set of interviews held with 22 respondents. As noted in Chapter 5, each of the respondents was identified by a unique number and, in one instance, two respondents preferred to answer the questions in the same setting and, therefore, have been identified as Respondent 3 and 4. The respondents' interviews varied in length from 3 minutes 32 seconds to 1 hour 30 seconds. The total length of the interviews was 9 hours 6 minutes and 8 seconds which made the average time 27 minutes and 18 seconds. The interviews were then transcribed and coded using NVivo that is "specifically designed to help identify and code thematic phrases" (DuBose-Morris 2014 p. 56). For Brown (2014 p. 50), the process of qualitative data analysis when using NVivo has 10 steps as shown below:

Table 22: Qualitative data analysis process using NVivo

Step	Description
1	Import Microsoft Word documents into NVivo database
2	Create node categories based on the research questions
3	Develop nodes into subcategories based on participant responses
4	Input responses into classifications for each respondent
5	Store demographics of participants in NVivo database
6	Code the responses of participants
7	Conduct a word frequency of coded responses
8	Conduct a correlation between analysed data and study's findings
9	Evaluate data for patterns and themes
10	Create a report of findings

Sections 6.2, 6.3 and 6.4 provide the results of data analysis from the 22 respondents interviewed in this research study and these results analysed using NVivo. For DuBose-Morris (2014 p. 56), NVivo “provides researchers with the ability to code transcripts for themes unique to individuals and for themes that emerge from the connections found across individuals”. Each of the sections provides a different level of exploration that increases in the level of sophistication and elaboration.

6.2 Analysis using word cloud

According to Pope et al (2000 p. 116), the initial stages in data analysis require researchers to immerse themselves in the raw data by “listening to tapes, reading transcriptions, studying notes and so on, in order to list key ideas and recurrent themes”. One of the ways researchers immerse themselves in raw data is looking at how certain words were used by the respondents through a word cloud analysis. A word cloud is a visual depiction, typically used to provide a visual summary or a semantic view of an item or a cluster of items that have something in common (Carmel, Uziel et al. 2012 p. 2; Chen, Chen et al. 2012). A word cloud is a weighted listing of words or metadata to visualise their frequency distribution and the larger a word is within the cloud the more frequently it is within the content (Cui, Wu et al. 2010).

This study used NVivo to generate three illustrations of word clouds that are graphical representations of the prominence of the words used by respondents as extracted from the transcripts using different parameters. Figure 45 is a visualisation that is limited to the 50 most frequently used words in the transcripts. Figure 46 is a visualisation that is limited to the 100 most frequently used words in the transcripts. Figure 47 is a visualisation using all the words used in the transcripts.



Figure 45: Word cloud based on the top 50 most frequently used words from the respondents' transcripts



Figure 46: Word cloud based on the top 100 most frequently used words from the respondents' transcripts



Figure 47: Word cloud based on all the words from the respondents' transcripts

As the three diagrams above demonstrate, the more words included within the word cloud, the larger or smaller the size of other words become within the graphical illustration. In all three cases above, the total number of words being analysed didn't change, the only aspect that changed is the number of words included in the visualisation. A total number of 4589 words were analysed through word frequency.

In addition, NVivo provides the option of having two types of analysis. In the first instance, the word frequency analysis would assess all the words in the transcripts while in the second instance it would assess synonymous words by automatically combining words with similar meanings. Table 23 shows a comparison between using exact words in the first column and using synonyms in the second column.

Table 23: Comparison between exact words and synonyms in word frequency

Exact words	% frequency	Synonyms	% frequency
Records	1.58%	Records	1.71%
Know	1.24%	Number	0.85%
Think	1.15%	Act	0.78%
One	1.00%	Activities	0.70%

Exact words	% frequency	Synonyms	% frequency
Information	0.96%	Actually	0.69%
People	0.89%	Got	0.65%
Health	0.79%	Organisation	0.60%
Now	0.73%	Content	0.56%
Patient	0.70%	Work	0.56%
Record	0.68%	Hold	0.52%
Total: 4589 words		Total: 2441 words	

Table 23 above reveals three important issues. The first column in the table has a number of similar terms. At the top of the list is “Records” while in position ten is “Record”. This demonstrates that the concept of records dominated discussion. In addition, the related term “Information” occupied the fifth position. The second column has terms that are vastly different from those in the first column which illustrates the power of the synonymous analysis to subsume terms into others. For instance, “Records”, “Record” and “Information” found in the first column are subsumed in “Records” in the second column. As demonstrated in Chapter 3 of this doctoral study the terms “Record” and “Information” are related but remain very different. Therefore, synonymous analysis could either be preferred or undesirable depending on the disciplinary culture (whether natural or social sciences) or the specific objectives of a research study.

Third, there is a big difference between the total number of words in both types of analysis with the first column having almost twice as many words as the second column. This difference is quite significant in the way a word cloud could be visualised as shown in the two diagrams below that both visualised the top 50 most frequent words. Figure 48 uses exact word analysis while Figure 49 uses synonymous words.



Figure 48: Word cloud based on the top 50 most frequently used exact words from the respondents' transcripts



Figure 49: Word cloud based on the top 50 most frequently used synonymous words from the respondents' transcripts

Several doctoral studies have also used the word cloud as a data analysis technique. DuBose-Morris (2014) conducted an interpretive phenomenological analysis of clinicians, educators and technical professionals working with tele-health networks and used the word cloud in data visualisation . The study determined that the term “Thinking” was used more frequently than related terms such as “Think” and “Thinks” (DuBose-Morris 2014 p. 76-77). Fox (2014) conducted a study using mixed methods that explored the extent to which health professions

educators use instructional technological and learning-centred pedagogical methods and used the word cloud to provide two levels of analysis: of exact words and synonyms. Similar to preceding discussions, Fox (2014 p. 131-134) demonstrated that once synonyms were used, then the listing of the most frequent terms changed drastically both in the total number of words listed as well as the ranking of most frequently used words.

Even though the word cloud offers an elegant visualisation on frequency and has been used in doctoral levels studies, it only explores a single dimension of transcripts. According to Gambette and Véronis (2010 p. 561), it remains a basic way of assessing information in very general terms and could be considered “unsupervised clustering”. Section 6.3 offers a second level of exploration of the data.

6.3 Analysis using tree map

Another way of analysing raw data in NVivo is through text search queries. These are then represented graphically in tree maps. According to Shantz, Schoenberg et al. (2013 p. 262), tree maps are valuable visualisations of words and their frequencies. This doctoral study limited a text search to a range of five preceding words and used wild cards in order to get all derivatives of a word such as “record*” that would produce results that include “record”, “records”, “recordkeeping”, and “recording” etc.

For this study, two types of analysis were conducted using text search queries. The first type of analysis examined how three specific terms had been used by respondents: legislation, standards and regulatory issues. The diagram below provides a tree map analysis of how legislation was discussed by the interviewees.

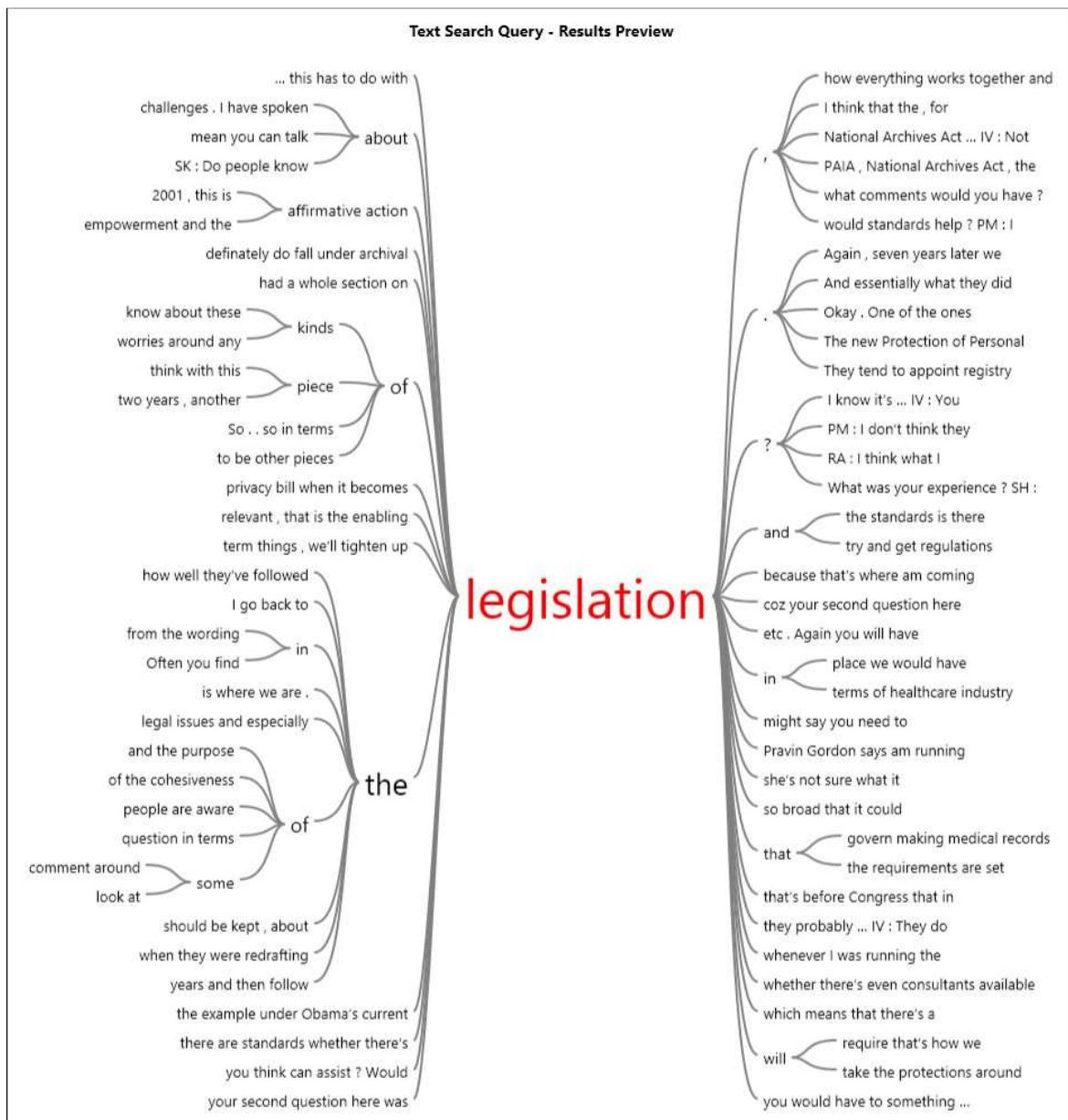


Figure 50: A tree map of the term legislation

The diagram below provides a tree map illustration of how standards were discussed by the interviewees.

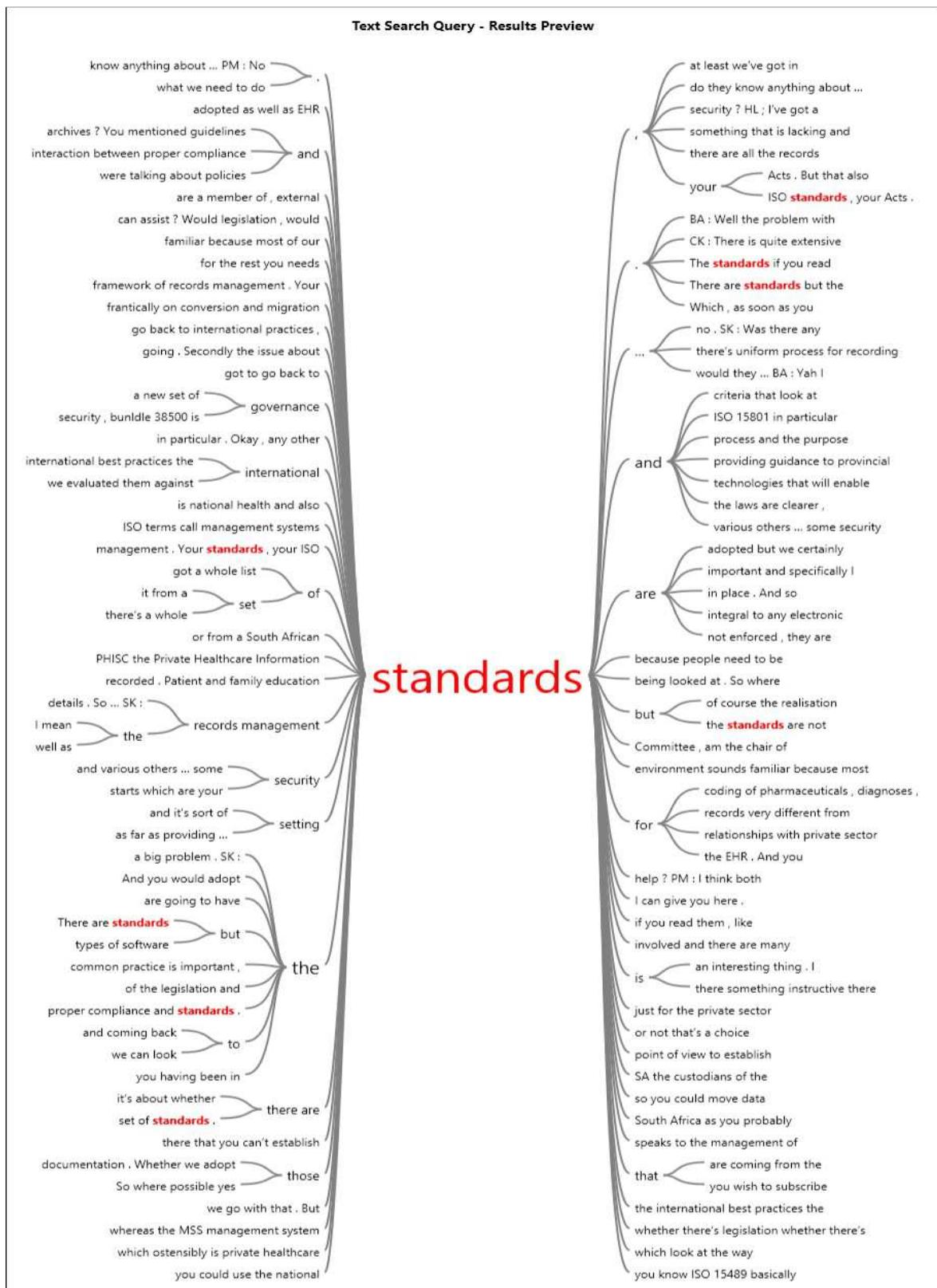


Figure 51: A tree map of the term standards

The diagram below provides a tree map illustration of how the regulatory issue was discussed by the interviewees.

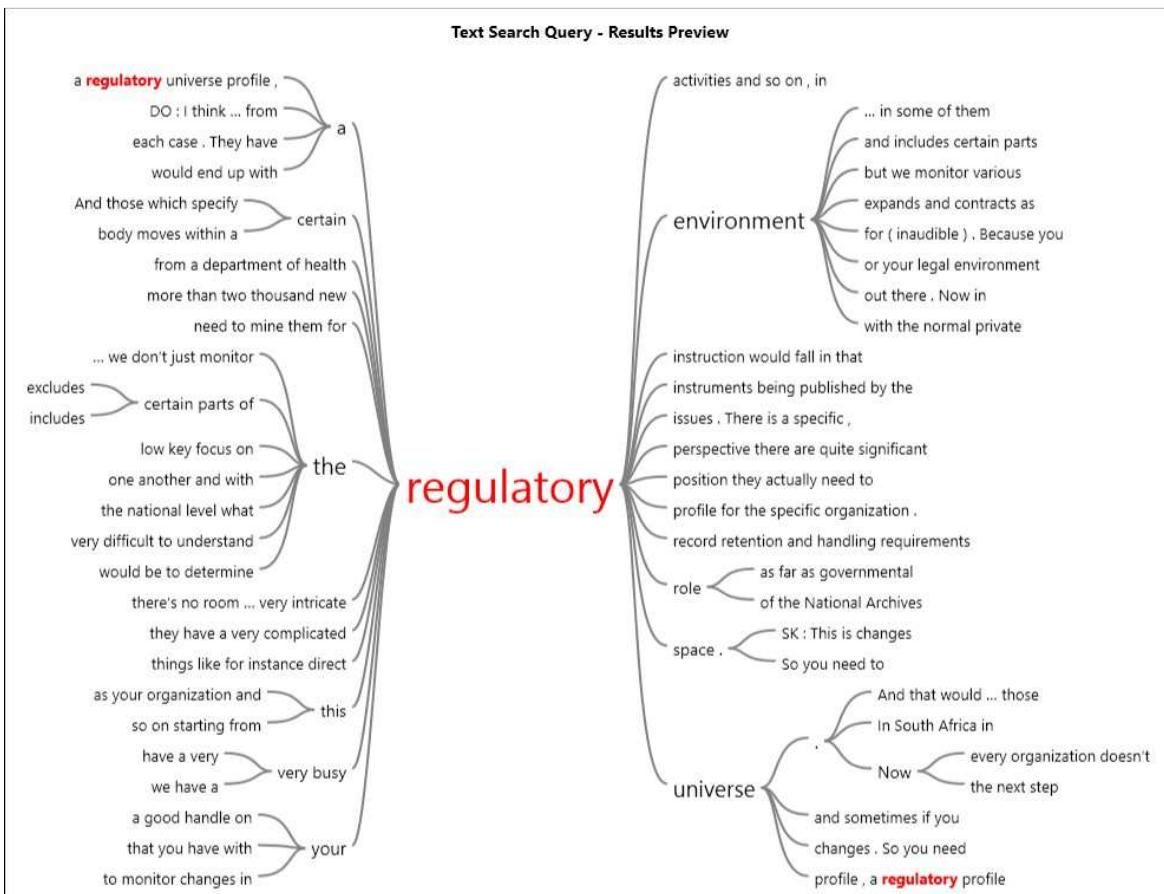


Figure 52: A tree map of the term regulatory

Unlike the terms “standards” and “legislation” above, the tree analysis on “regulatory” reveals a different pattern that shows that two additional words “environment” and “universe” were commonly used by the respondents. This demonstrates textual search queries contribution in revealing trends and themes when conducting data analysis. Figure 52 above reveals that the respondents didn’t use the term “regulatory framework” which one would expect to be at least more common than “regulatory universe” or “regulatory environment”. In addition, when the three tree maps above are compared, the standards map is much larger. This suggests that the respondents discussed standards more expansively than either legislation or regulations.

The second type of analysis was comparing two terms: medical record and health record. As noted in Chapters 1 and 4 of this dissertation, there have been debates amongst commentators regarding use of the term health record as opposed to medical record. Several commentators have used the terms interchangeably but others prefer to create a distinction (Galani and Nikiforou 2006; McWay 2008; Roach, Hoban et al. 2006 p. 32; Skurka 1998).

The diagram below is a tree map analysis of how the term health record was used by the interviewees.

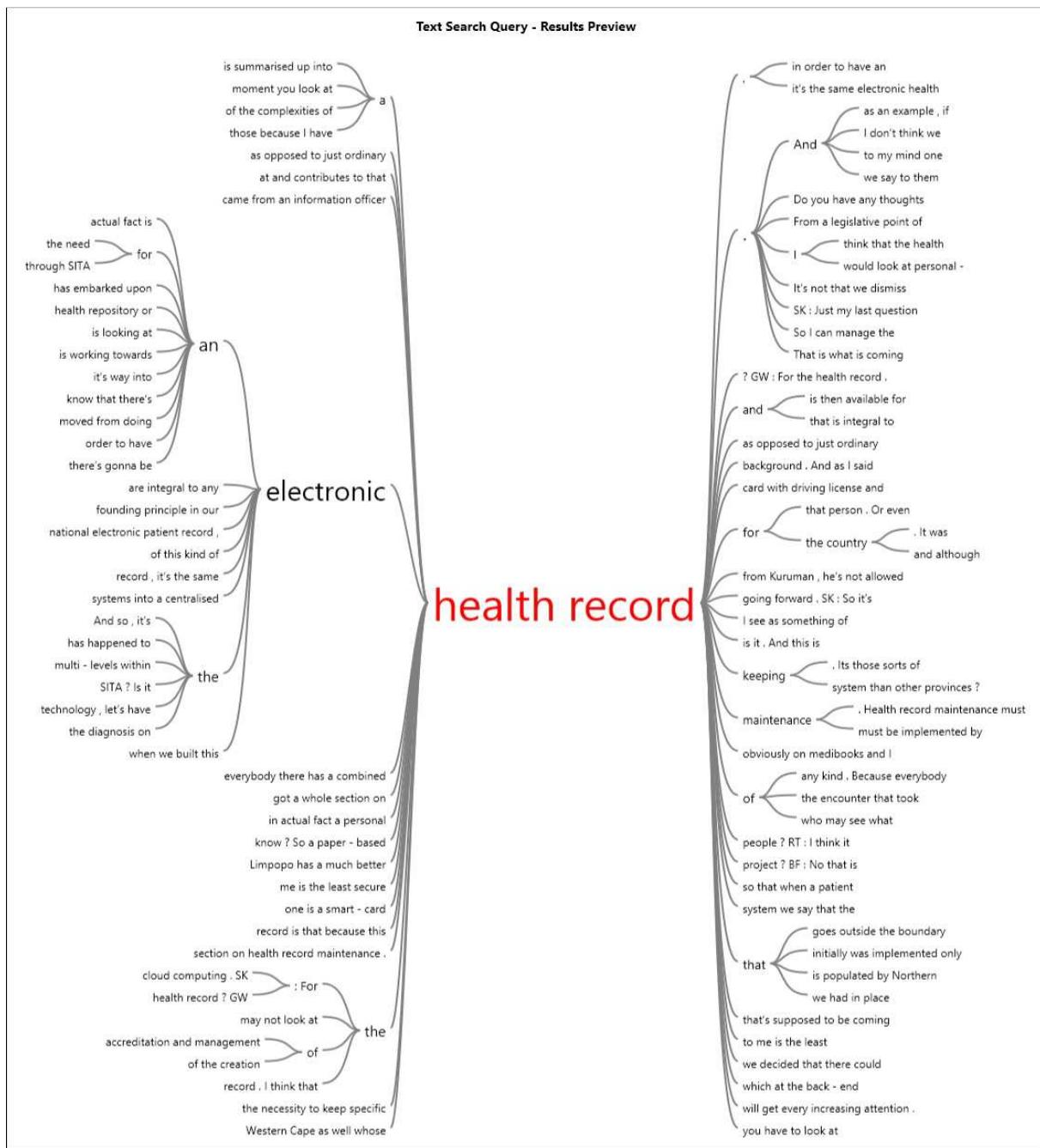


Figure 53: A tree map of the term health record

The diagram below provides a tree map analysis of how the term medical record was used by interviews.

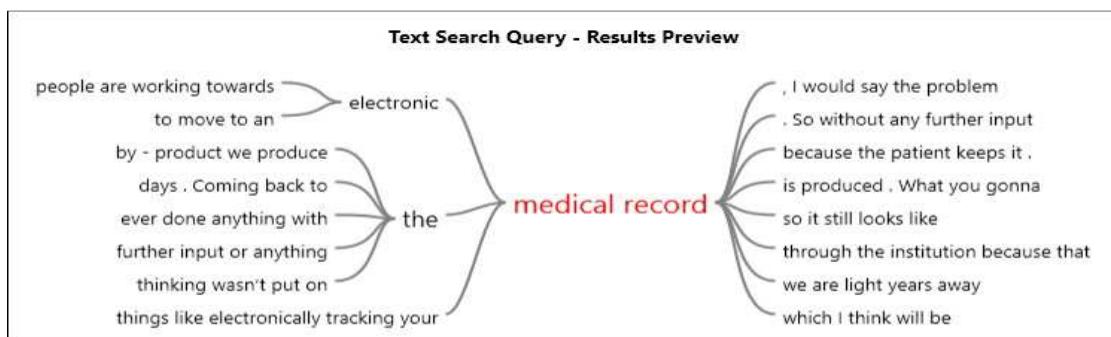


Figure 54: A tree map of the term medical record

As discussed in Chapters 1 and 4, this study chose to use health record as the preferred term. The tree map analyses in Figure 53 and 54 confirm that a dichotomy existed amongst the respondents with the majority also preferring health record thereby mirroring the preference within this study.

Several doctoral studies have also used tree maps as an analysis tool. For instance, Winburn (2014 p. 61), who explored how people perceive and describe their experience with expository preaching, used tree maps as a visual aid in the research to show key themes that appeared in the transcripts. Brown (2014 p. 60), who examined the perception of military retirees regarding health care services that they received, argues that tree maps helped identify “sub-themes from the central questions”.

Tree maps are not only useful as a visual aid but, according to Winburn (2014 p. 63), they can also be used to assist the drafting of data interpretation process by identifying partial quotes related to themes which can then link themes to full quotes. While tree maps are useful, there is a need to move to a more sophisticated analysis that looks at individual respondents’ transcripts.

6.4 Analysis of individual respondent's transcripts

The third level of data analysis using NVivo examined the contribution of each respondent in greater details, done both collectively in Section 6.4.1 and individually in Section 6.4.2.

6.4.1 Analysis using Word similarity

As noted in Section 6.1 above, this study was designed to have sources triangulation in order to enhance research validity and reliability. Chapter 5 stated that the respondents were drawn from different backgrounds based on their professional experience and subject matter expertise. Considering the respondents had diverse backgrounds, NVivo provided the opportunity to assess the extent to which all the individual transcripts could be clustered through the analysis of similar words used. According to Clarke (2006 p. 453), cluster analysis is appropriate when “the researcher is interested in determining how cases are similar or different in the absence of a *priori* categorisation or classification”. In this study, cluster analysis was used to visualise the pattern of word similarity amongst respondents in order to see how their responses could be categorised as shown in the diagram below.

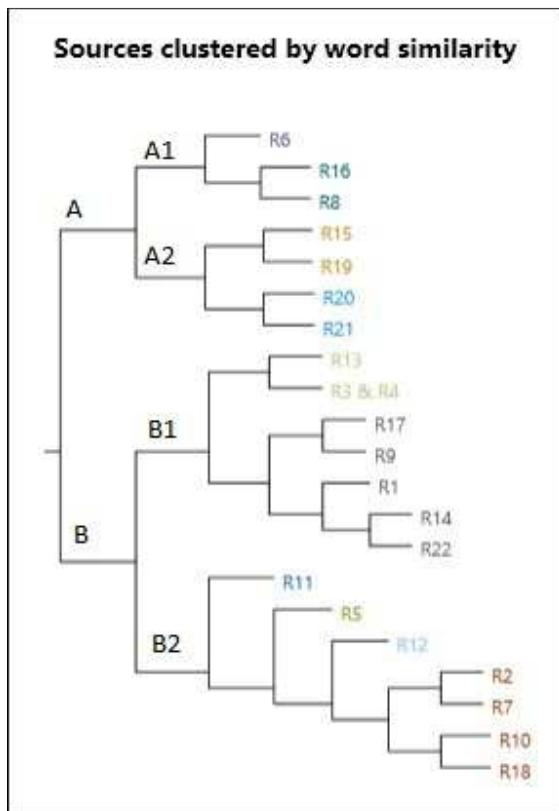


Figure 55: Sources clustered by word similarity

As shown in the diagram above, there are two distinct groups of respondents, Group A with 7 respondents and Group B with 15 respondents. Based on the clustering above, Group A

respondents had legislative and regulatory expertise while Group B had expertise in technical or implementation matters either within the health sector or in records and archives management.

Both groups were further subdivided into two additional groups based on word similarity. Within Group A, Group A1 had 3 respondents that were legal experts. Group A2 had 4 respondents with varied expertise in health policy, access to information policy, and information technology policy matters. Within Group B, Group B1 had 8 respondents that were records and archives practitioners who had worked at the National Archives and other public sector institutions as well as some having done consulting work. Group B2 had 7 respondents that were or had previously worked within the health sector as medical and administrative practitioners and/or provided health information and technology management services within the health sector.

Vijulie, Matei et al. (2014 p. 63) state that word similarity clustering was a useful initial process in assessing similarities amongst respondents. Bazeley and Kristi (2013 p. 237) argue that similarity clustering provides an overview of the data structure and is “generally best used in an exploratory manner, to provoke ideas rather than explanatory evidence of association”. Therefore, this clustering merely provided an opportunity to develop themes rather than elucidate on the associations between respondents.

6.4.2 Analysis of respondents’ themes

According to Creswell and Clarke (2007 p. 173-174), the third stage of data analysis as shown in Table 21 above entails coding data and grouping the codes into categories. Coding is an iterative process that begins with reading and re-reading the transcripts within NVivo, assigning coding which are known as nodes, and then using analysis tools such as word cloud and tree map in order to identify emerging themes (DuBose-Morris 2014 p. 56). A node as the “primary tool for organizing and classifying source data” (Edhlund and McDougall 2013 p. 129; Smith 2010 p. 122). Nodes could “represent abstract concepts, such as topic, themes, and ideas” or they could represent “tangible concepts, such as people, places, and things” (Edhlund and McDougall 2013 p. 129). The coding process in this study resulted in a total of 845 nodes from the individual respondent’s transcripts. A summary of the nodes per respondent is shown in the bar-graph below.

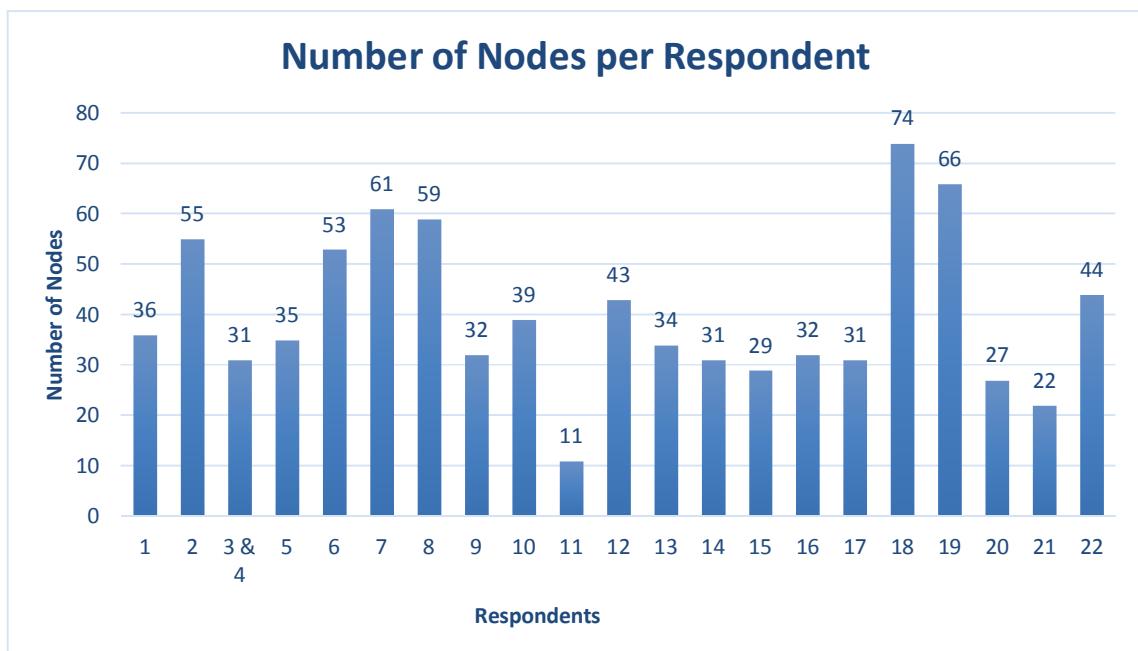


Figure 56: Number of nodes per Respondent

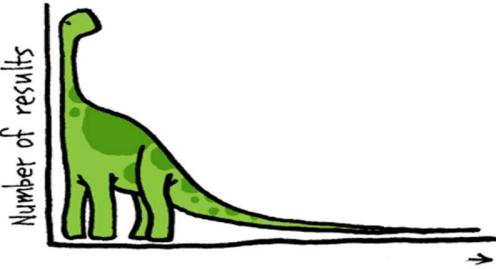
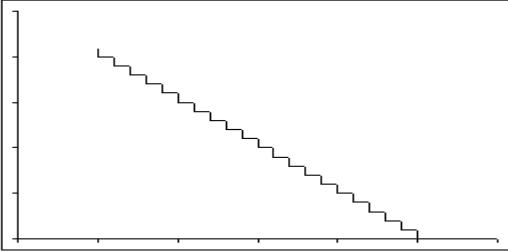
As the diagram above shows, Respondent 18 had the highest number of nodes followed by Respondents 19 and 7 respectively. On the other hand, Respondent 11 had the lowest number of nodes with Respondents 3 and 4 coming slightly better with their shared total.

Figure 56 above provides the platform to explore the two measures of centrality: mean and median (Gupta and Guttman 2014 p. 47). According to Mendenhall, Beaver et al. (2013 p. 52), “the mean of a set of n measurements is equal to the sum of the measurements divided by n ” while “the median m of a set of measurements is the value of x that falls in the middle position when the measurements are ordered from the smallest to the largest”. In this study, the mean number of nodes is 40 while the median number is 35. Mendenhall, Beaver et al. (2013 p. 52) argue that “although both mean and median are good measures of the centre of a distribution, the median is less sensitive to extreme values or outliers”. Even though both mean and median are used for large as well as small data sets, the mean is more useful and, therefore, most commonly used to measure central tendency (Gupta and Guttman 2014 p. 47; Mendenhall, Beaver et al. 2013 p. 54).

A summary diagram such as Figure 56 doesn’t provide individual assessment of the nodes that each respondent had nor represent them graphically. NVivo provides the ability to graphically represent the top 20 nodes for each of the respondents. An analysis of all the individual

graphical representations reveals two basic patterns: Type Y and Type Z. Type Y is known as Long Tail distribution where the largest distribution is at the beginning of the curve and the rest of the distributions tapers off (Afuah 2014 p. 48). Type Y diagrams have a gentle slope while Type Z have a staircase type of slope and these differences are illustrated in Table 24.

Table 24: Difference between Type Y and Type Z distribution

Type Y: Long tail distribution (adapted from Search Marketing Group 2014)	
Type Z: Step distribution (Mehta 2012)	

Within each of the two groups there are variations in the inclination of the slopes but they all generally fit within the two major types as shown in Table 25.

Table 25: Distribution of Respondents

Type of Distribution	Respondents within this category
Type Y	1, 3 and 4, 8, 9, 14, 18, 21
Type Z	2, 5, 6, 7, 10, 11, 12, 13, 15, 16, 17, 19, 20, 22

Sections 6.4.2.1 and 6.4.2.2 provide an outline of Types A and B respondents respectively. The average number of nodes is 40. Each of the respondents is assessed from this average as well as from the distribution curve.

6.4.2.1 Respondents with Type Y distribution

The respondents in Type Y have the long tail distribution as outlined below.

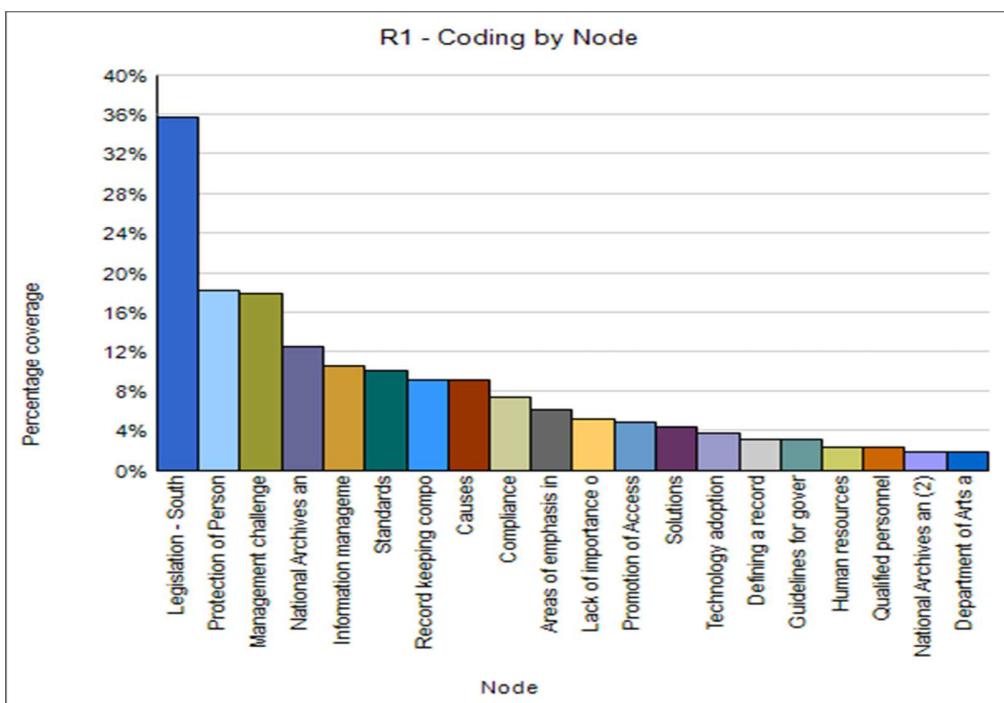


Figure 57: Coding themes from Respondent 1

Respondent 1 had a total of 36 nodes and, therefore, 4 nodes below the average. The first node dominated the others by more than one third of the transcript at just below 36% of the nodes in the transcript with the second and third nodes at just around 17%.

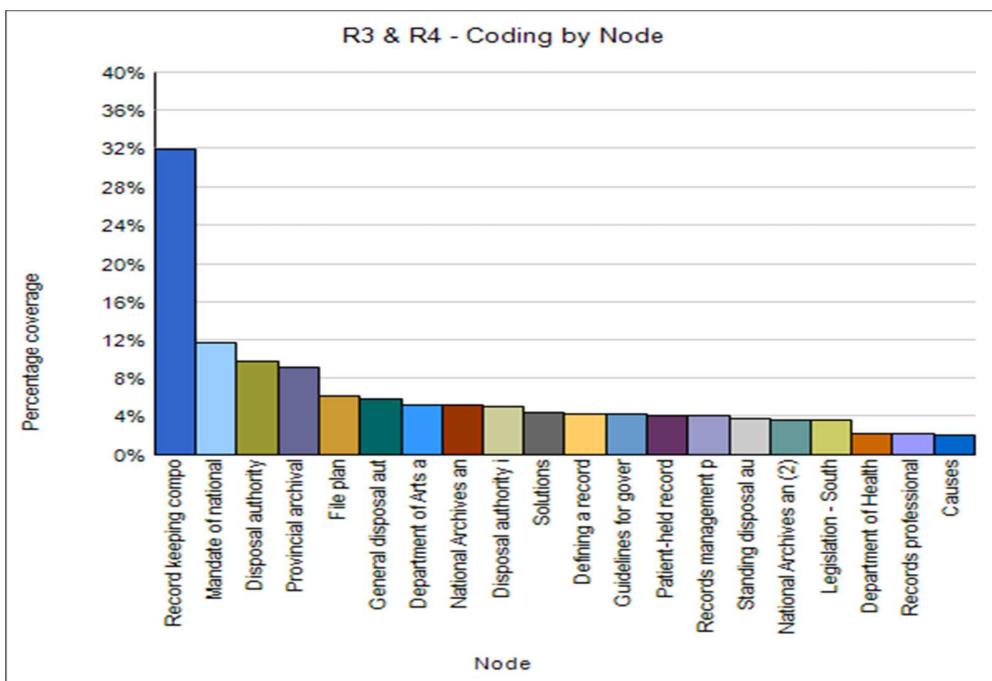


Figure 58: Coding themes from Respondent 3 and Respondent 4

Respondent 3 and 4 had a total of 31 nodes meaning an average of 15 nodes each and, therefore, 25 nodes below the average. The first node dominated by being more than 45% of the nodes in the transcript with the second below 12%.

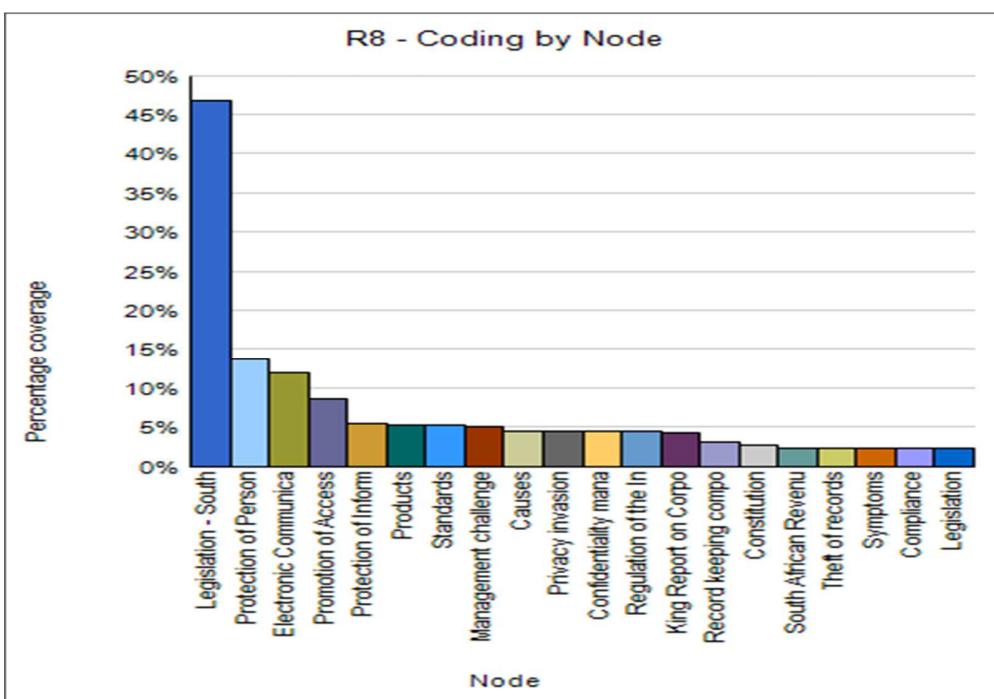


Figure 59: Coding themes from Respondent 8

Respondent 8 had a total of 59 nodes and, therefore, 19 nodes above the average. The first node dominated by being more than 45% of the nodes in the transcript with the second node at just around 14%.

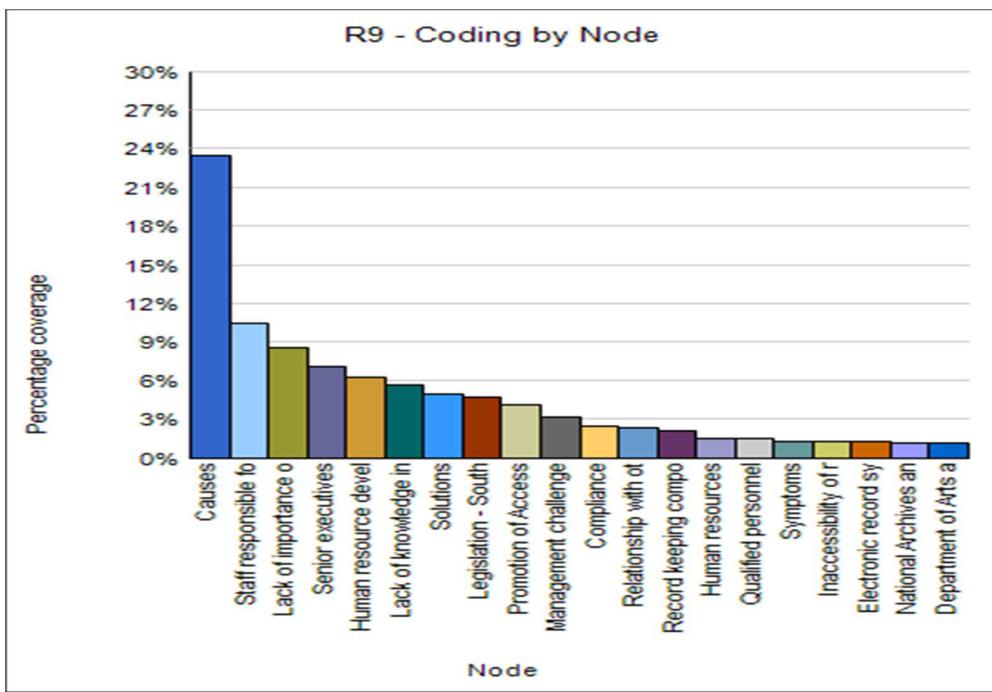


Figure 60: Coding themes from Respondent 9

Respondent 9 had a total of 32 nodes and, therefore, 8 nodes below the average. The first node dominated the transcript at 24% of the nodes in the transcript with the second node at just around 10%.

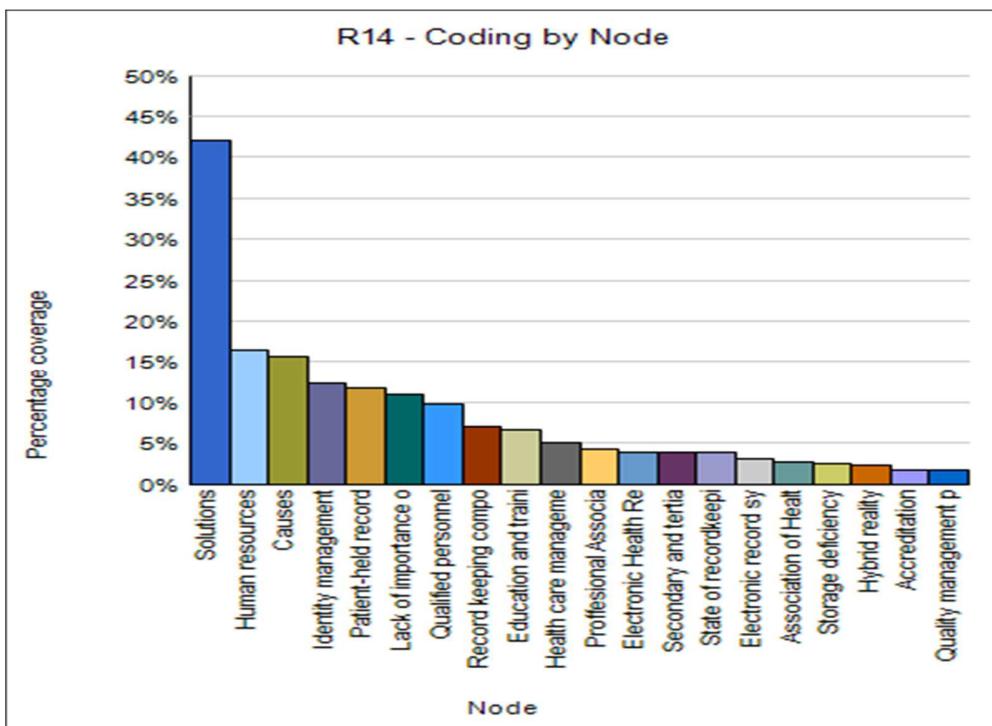


Figure 61: Coding themes from Respondent 14

Respondent 14 had a total of 31 nodes and, therefore, 9 nodes below the average. The first node dominated by being more than 42% of the nodes in the transcript with the second and third nodes at around 15%.

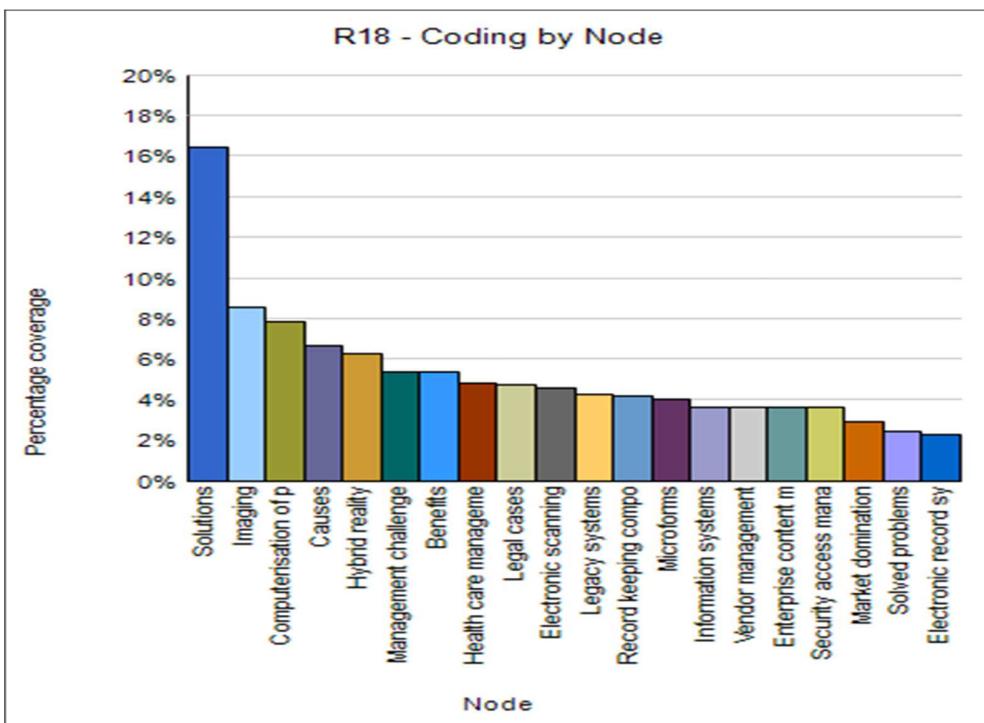


Figure 62: Coding themes from Respondent 18

Respondent 18 had a total of 74 nodes and, therefore, 34 nodes above the average. The first node dominated, but not overwhelmingly, at above 16% of the nodes in the transcript with the second node at just around 8%.

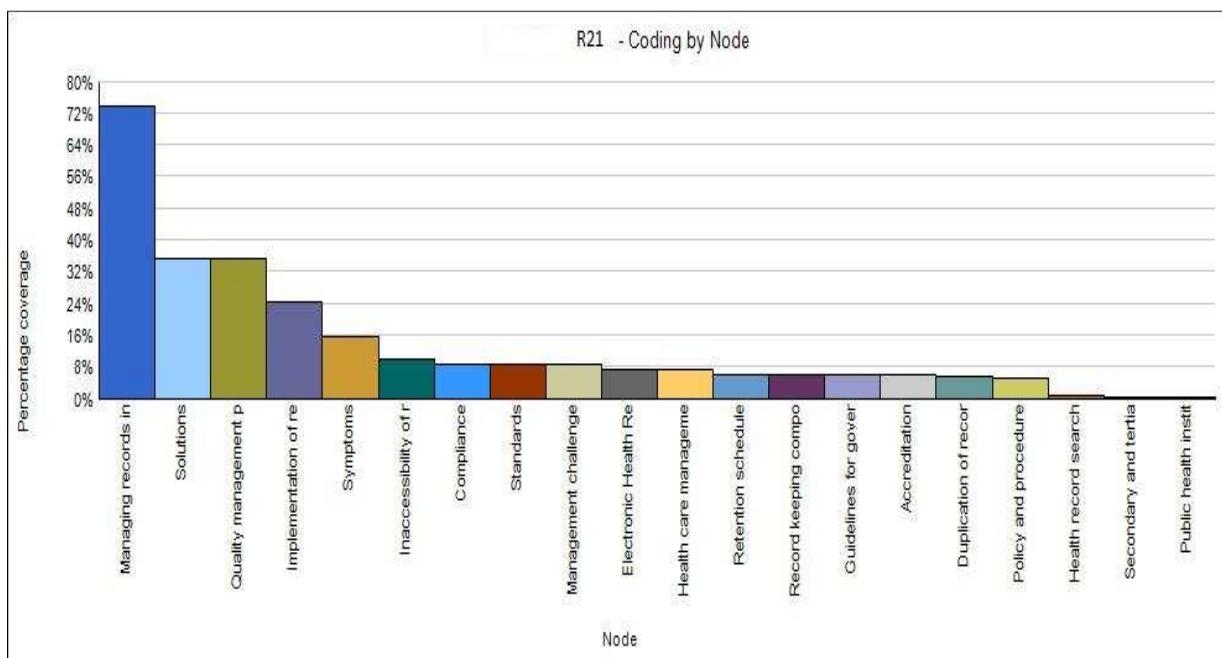


Figure 63: Coding themes from Respondent 21

Respondent 21 had a total of 22 nodes and, therefore, 18 nodes below the average. The first node dominated by being more than 72% of the nodes in the transcript with the second and third nodes at just around 32%.

Of the seven transcripts from Type Y respondents, five had the number of nodes below average of the total number of transcriptions. Considering that the majority of respondents were below the average it implies that the quantity contribution to the research study was likely to be below average. In addition, since the visual distribution showed respondents had a dominant node it is also likely that other nodes would play a minor role in discussions.

Table 26: Type Y respondents

Below Average		Above Average	
Respondent 1	36 Nodes	Respondent 8	59 Nodes
Respondent 3 and 4	31 Nodes	Respondent 18	74 Nodes
Respondent 9	32 Nodes		
Respondent 14	31 Nodes		
Respondent 21	22 Nodes		

As Table 26 above shows, while most respondents had low number of nodes, Respondent 18 that had the highest number of nodes in the study also had Type Y distribution. For Respondent 18, this suggests that while the transcript covers a vast number of issues, it is also dominated by several key issues. However as the visualisation for Respondent 18 in Figure 62 showed, the dominance of the leading node was not as overwhelming as that of Respondent 8 (in Figure 59) or Respondent 21 (in Figure 63).

6.4.2.2 Respondents with Type Z distribution

The respondents in Type Z have the staircase distribution as outlined below.

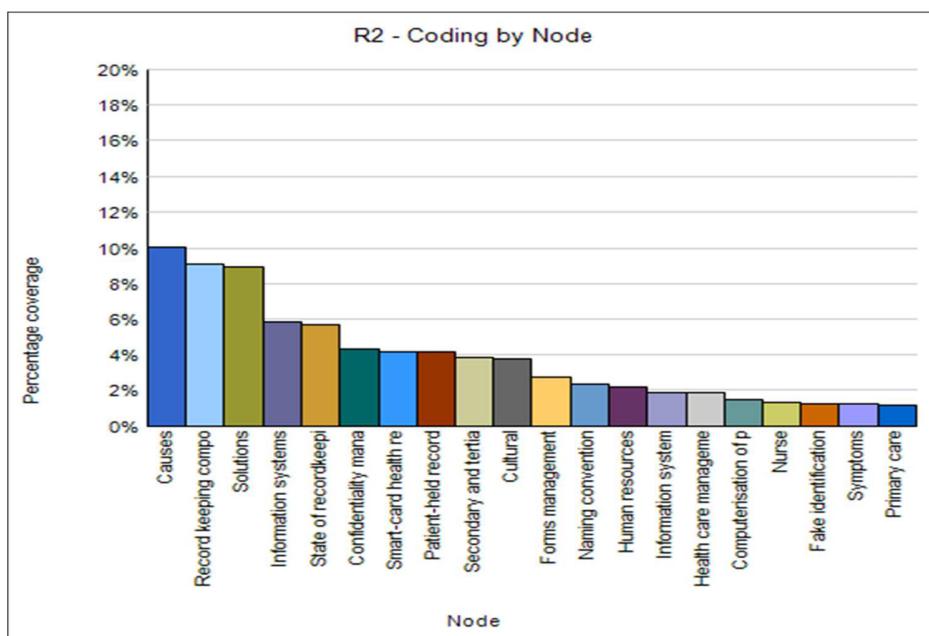


Figure 64: Coding themes from Respondent 2

Respondent 2 had a total of 55 nodes and, therefore, 15 nodes above the average. The first node leads at just above 10% of the nodes in the transcript while the second and third nodes are around 9%.

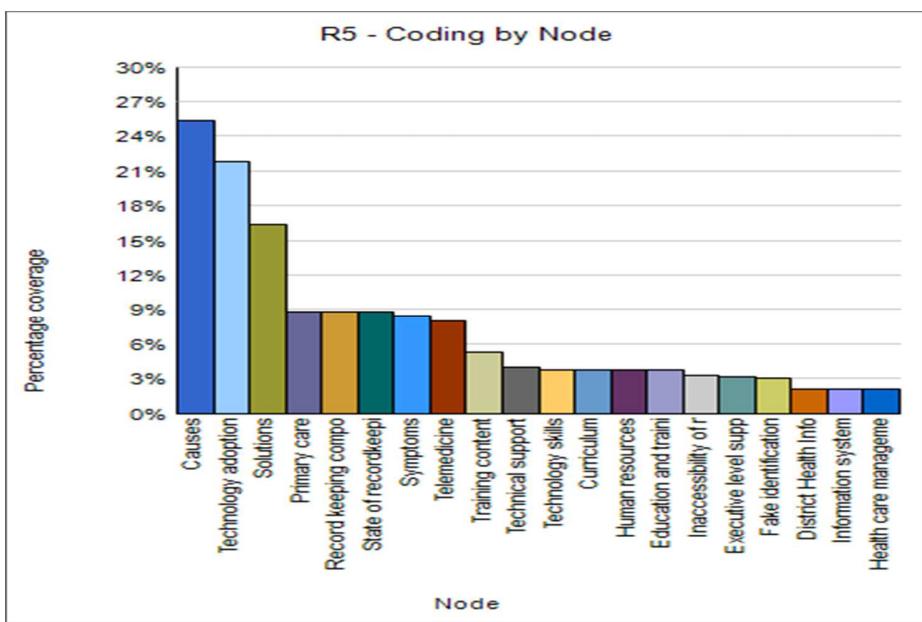


Figure 65: Coding themes from Respondent 5

Respondent 5 had a total of 35 nodes and, therefore, 5 nodes below the average. The first node leads at around 25% of the nodes in the transcript while the second node is just above 21%.

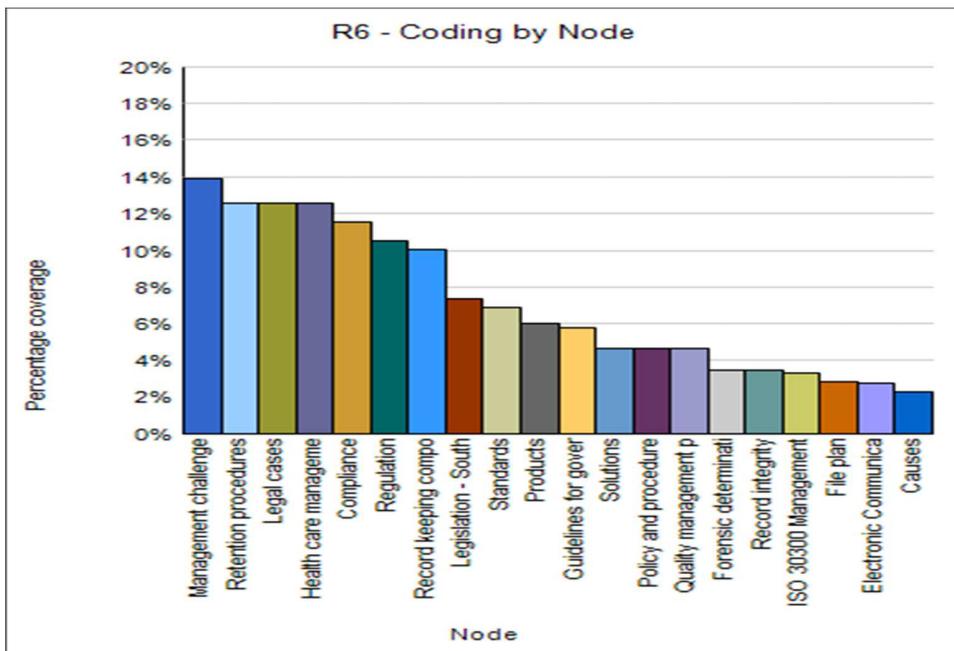


Figure 66: Coding themes from Respondent 6

Respondent 6 had a total of 53 nodes and, therefore, 13 nodes above the average. The first node leads at just around 14% of the nodes in the transcript while the second, third and fourth nodes are around 12%.

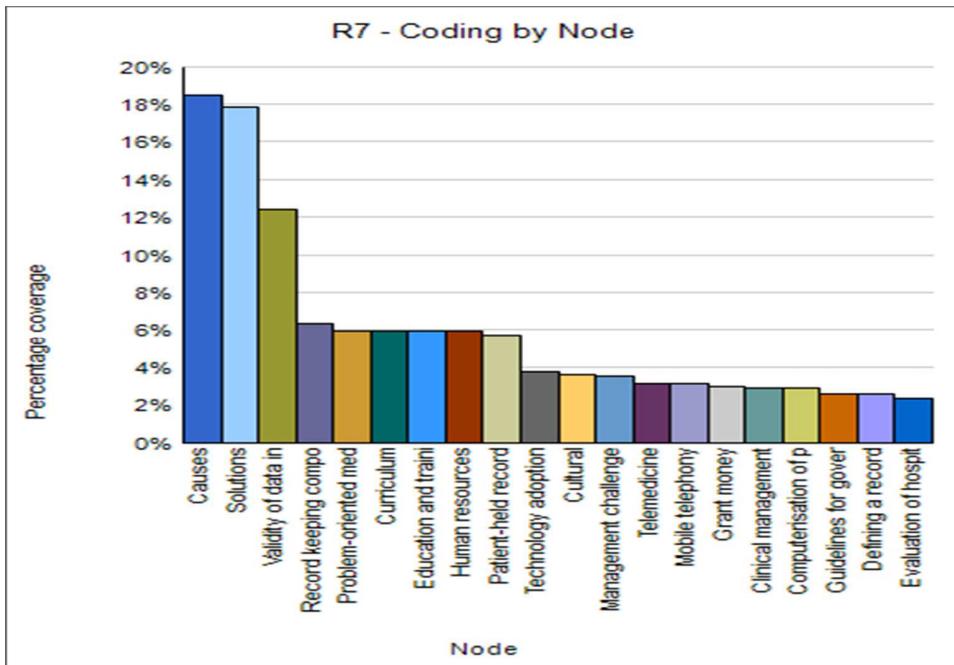


Figure 67: Coding themes from Respondent 7

Respondent 7 had a total of 61 nodes and, therefore, 21 nodes above the average. The first node leads at just above 18% of the nodes in the transcript while the second node is quite close at just below 18%.

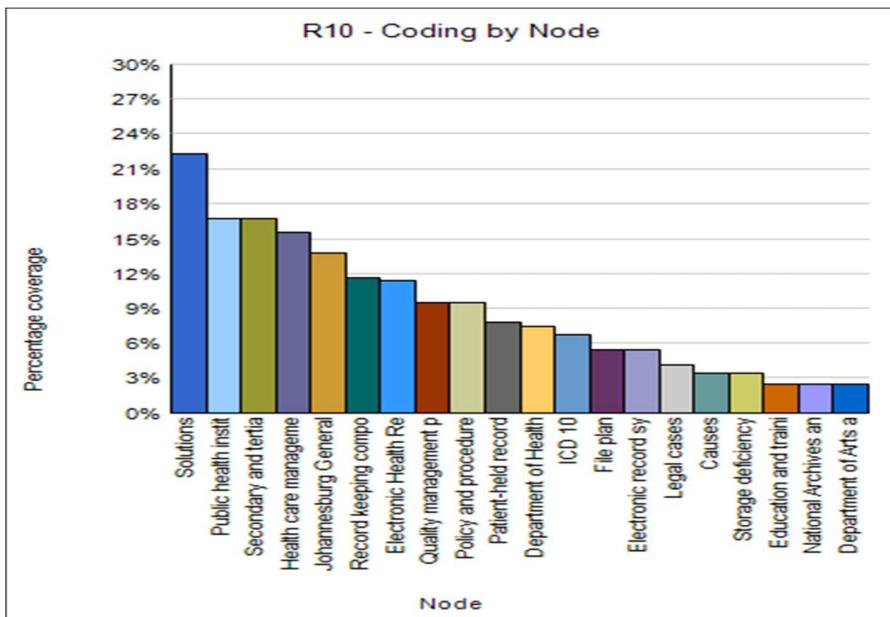


Figure 68: Coding themes from Respondent 10

Respondent 10 had a total of 39 nodes and, therefore, 1 node below the average. The first node leads at just above 21% of the nodes in the transcript while the second and third are around 16%.

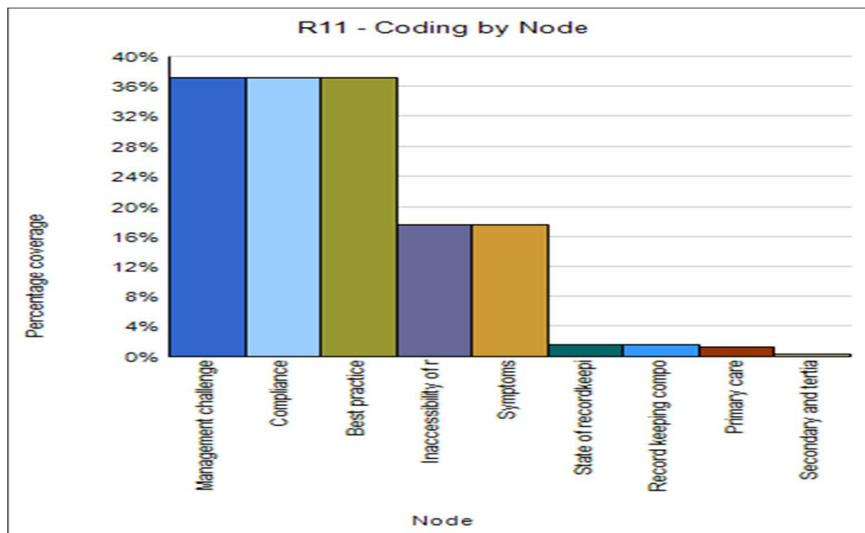


Figure 69: Coding themes from Respondent 11

Respondent 11 had a total of 11 nodes and, therefore, 29 nodes below the average and had the lowest number of nodes in the study. The first, second and third node are all around 36% of the nodes in the transcript.

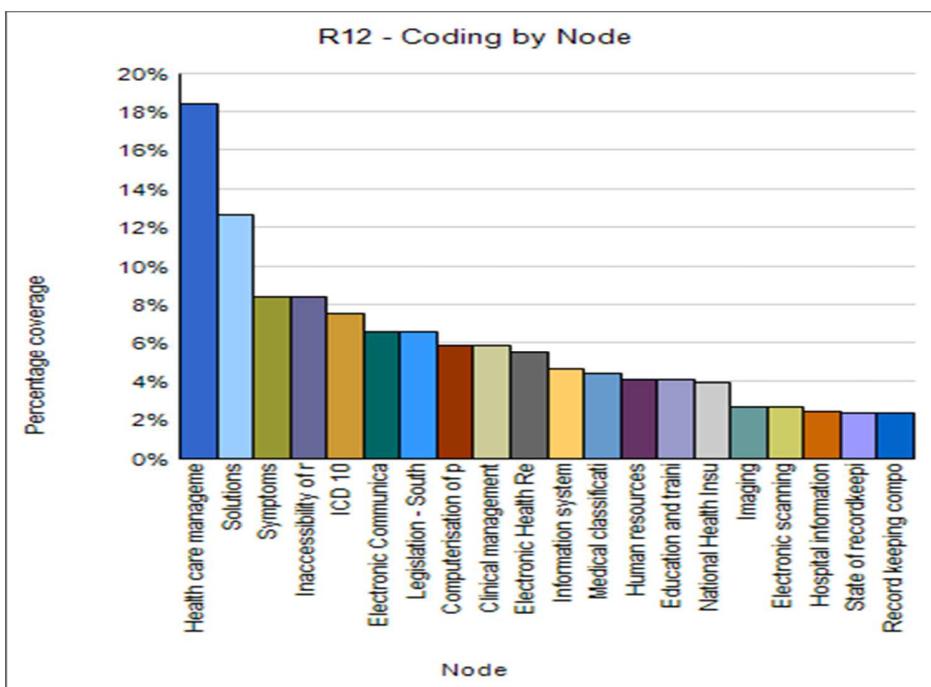


Figure 70: Coding themes from Respondent 12

Respondent 12 had a total of 43 nodes and, therefore, 3 nodes above the average. The first node leads at just above 18% of the nodes in the transcript while the second node is around 12%.

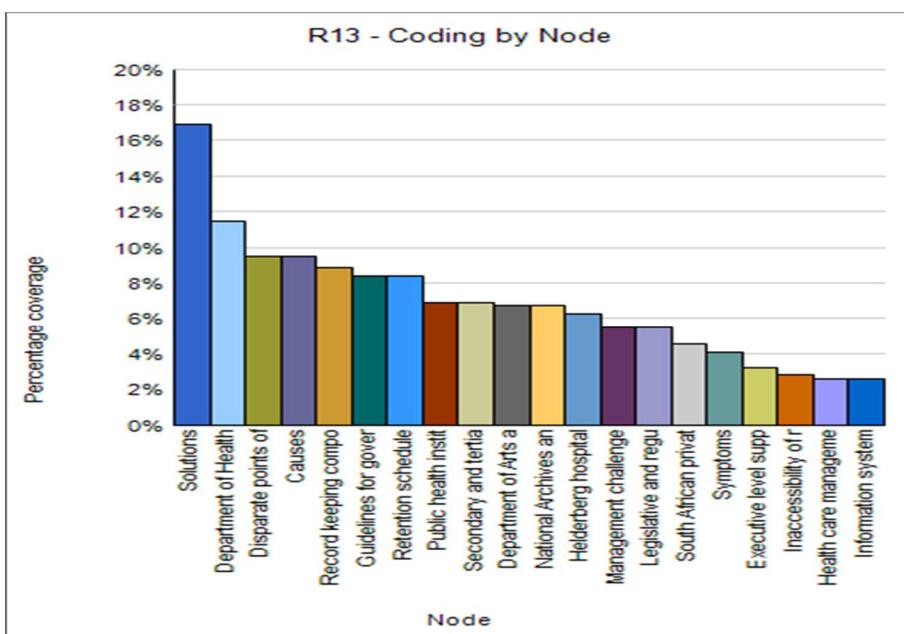


Figure 71: Coding themes from Respondent 13

Respondent 13 had a total of 34 nodes and, therefore, 6 nodes below the average. The first node leads at just above 16% of the nodes in the transcript while the second node is just below 12%.

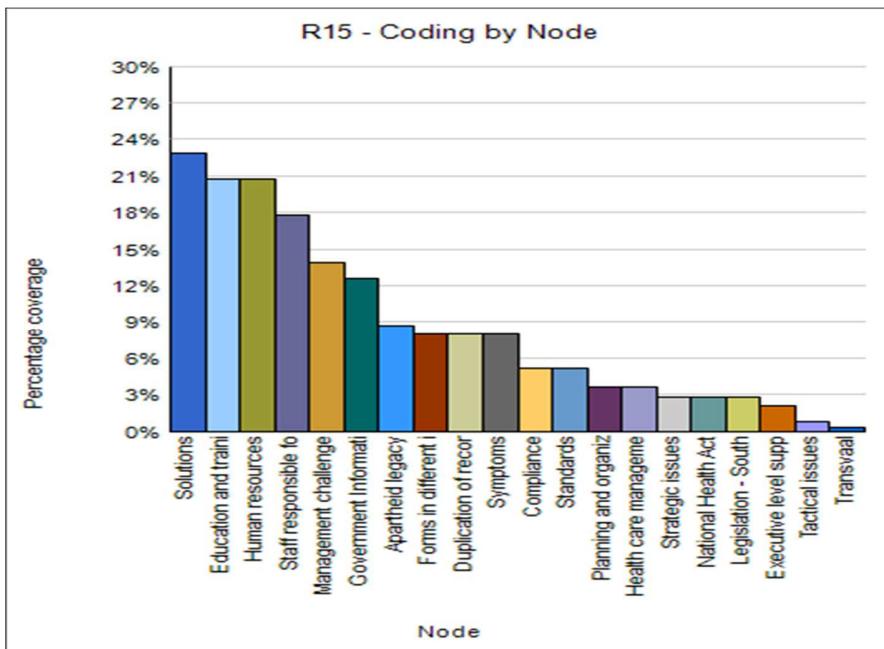


Figure 72: Coding themes from Respondent 15

Respondent 15 had a total of 29 nodes and, therefore, 11 nodes below the average. The first node leads at just around 23% of the nodes in the transcript while the second and third nodes are around 21%.

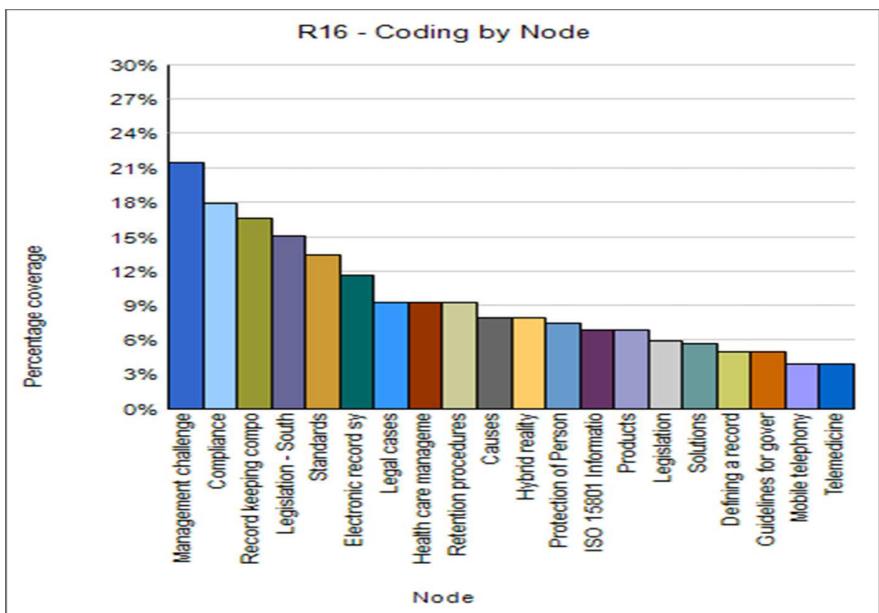


Figure 73: Coding themes from Respondent 16

Respondent 16 had a total of 32 nodes and, therefore, 8 nodes below the average. The first node leads at just above 21% of the nodes in the transcript while the second node is around 18%.

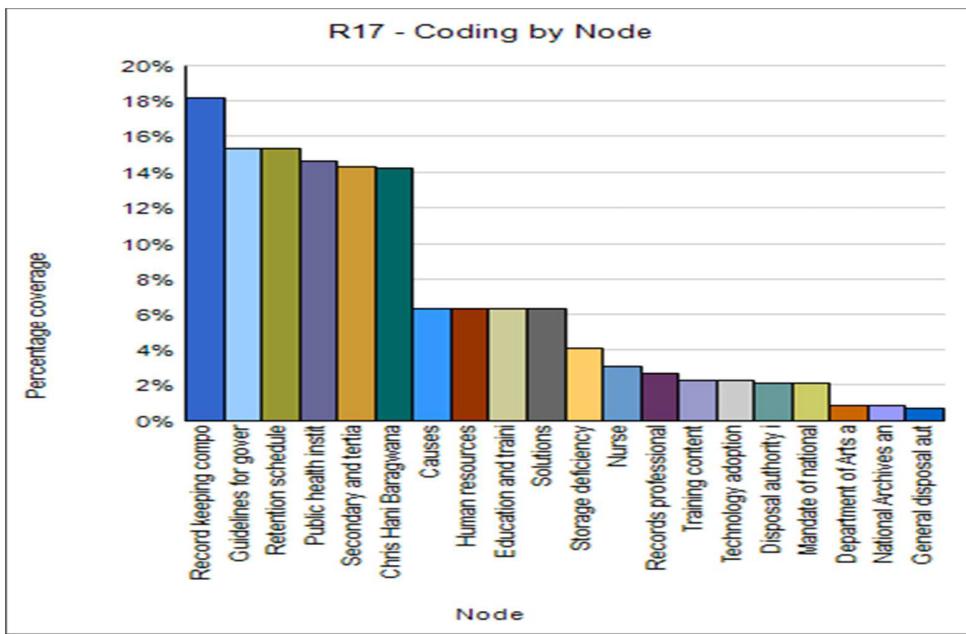


Figure 74: Coding themes from Respondent 17

Respondent 17 had a total of 31 nodes and, therefore, 9 nodes below the average. The first node leads at just above 18% of the nodes in the transcript while the second, third, fourth, fifth and sixth nodes are around 14%.

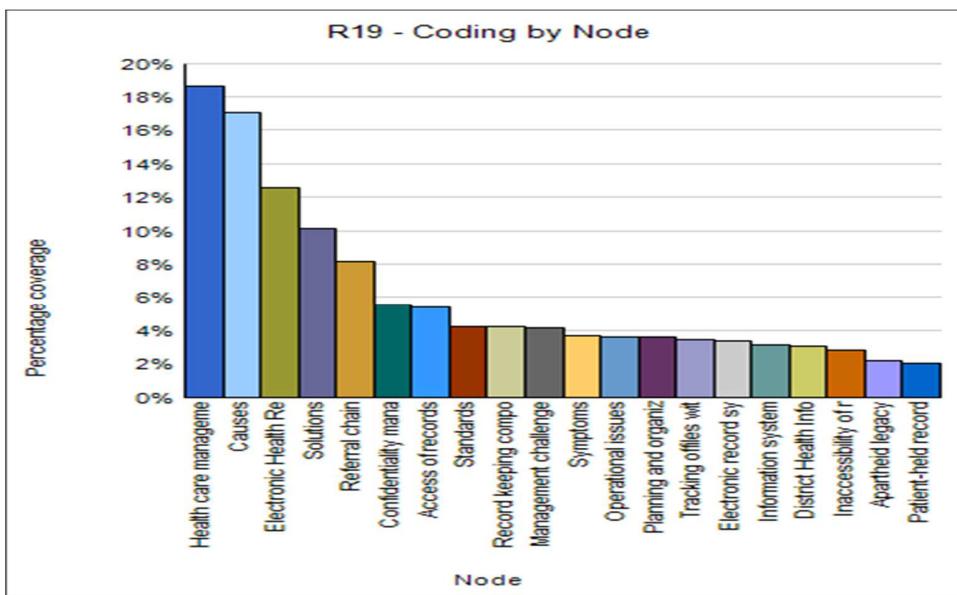


Figure 75: Coding themes from Respondent 19

Respondent 19 had a total of 66 nodes and, therefore, 26 nodes above the average. The first node leads at just above 18% of the nodes in the transcript while the second node is around 17%.

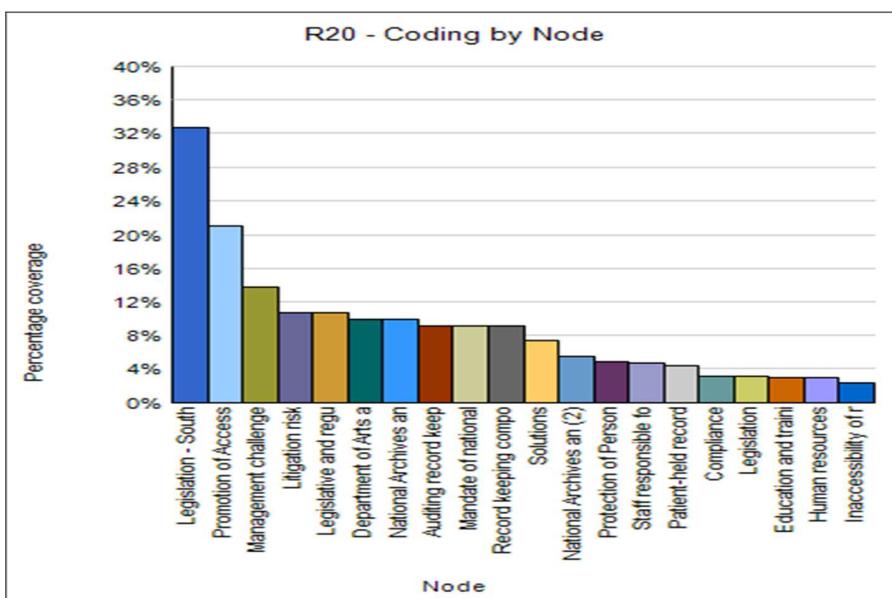


Figure 76: Coding themes from Respondent 20

Respondent 20 had a total of 27 nodes and, therefore, 13 nodes below the average. The first node leads at just above 32% of the nodes in the transcript while the second node is around 20%.

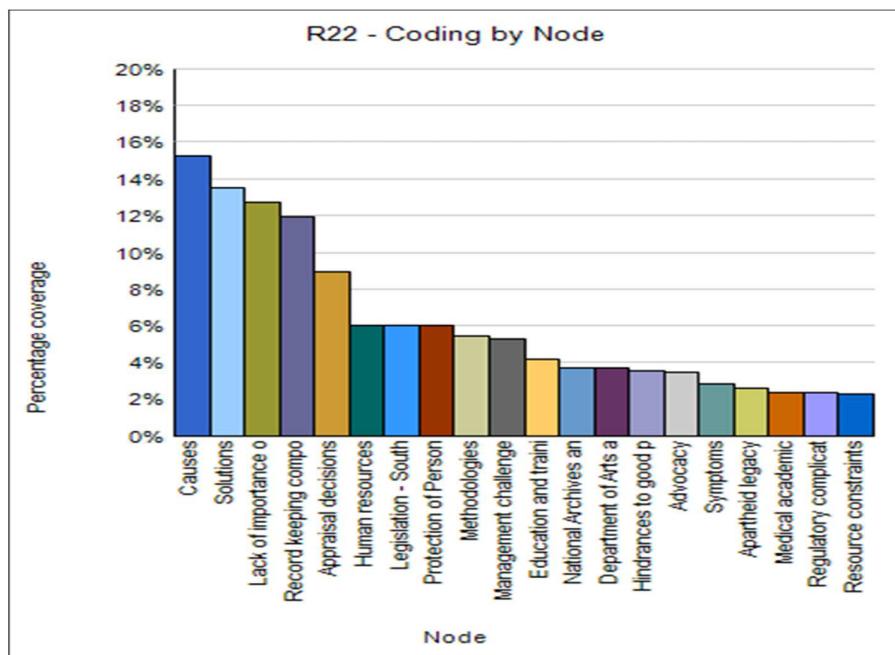


Figure 77: Coding themes from Respondent 22

Respondent 22 had a total of 44 nodes and, therefore, 4 nodes above the average. The first node leads at just above 15% of the nodes in the transcript while the second and third nodes are around 13%.

Of the 14 transcripts from Type Z respondents, eight had their nodes below the average while six had their nodes above the average. While the respondents below average were a majority, the degree was not as large as in Type Y which reflected the balanced nature of the distribution within the respondents' transcriptions. Respondent 11 that had the lowest number of nodes in the study is implying that even though the quantitative contributions may have been few, they were balanced.

Table 27: Type Z distribution

Below Average		Above Average	
Respondent 5	35 Nodes	Respondent 2	55 Nodes
Respondent 10	39 Nodes	Respondent 6	53 Nodes

Below Average		Above Average	
Respondent 11	11 Nodes	Respondent 7	61 Nodes
Respondent 13	34 Nodes	Respondent 12	43 Nodes
Respondent 15	29 Nodes	Respondent 19	66 Nodes
Respondent 16	32 Nodes	Respondent 22	44 Nodes
Respondent 17	31 Nodes		
Respondent 20	27 Nodes		

6.4.3 Overall comparison of respondent's transcripts

Creswell and Clarke (2007 p. 173-174) argue that the third stage of data analysis, as shown in Table 21, is not only about grouping categories but also comparing them in the quest to preparing for the fourth stage which is the interpretation of the emerging trends. Table 28 provides a grouping of all the respondents and transcripts in two basic categories, those below average on the left side and those above average on the right side. In addition the table includes the duration of the respondents' transcript recordings.

Table 28: Respondents and length of time of transcripts

Below Average Respondents		Duration of transcript	Above Average Respondents		Duration of transcript
Respondent 1	36 Nodes	13min 50sec	Respondent 2	55 Nodes	57min 4sec
Respondent 3 and 4	31 Nodes	16min 28sec	Respondent 6	53 Nodes	54min 27sec
Respondent 5	35 Nodes	17min 29sec	Respondent 7	61 Nodes	34min 51sec
Respondent 9	32 Nodes	22min 34sec	Respondent 8	59 Nodes	44min 20sec
Respondent 10	39 Nodes	19min 15sec	Respondent 12	43 Nodes	11min 14sec
Respondent 11	11 Nodes	3min 32sec	Respondent 18	74 Nodes	51min 43sec
Respondent 13	34 Nodes	9min 8sec	Respondent 19	66 Nodes	60min 30sec
Respondent 14	31 Nodes	22min 15sec	Respondent 22	44 Nodes	32min 26sec
Respondent 15	29 Nodes	12min 54sec			
Respondent 16	32 Nodes	15min 50sec			
Respondent 17	31 Nodes	16min 0sec			
Respondent 20	27 Nodes	21min 37sec			
Respondent 21	22 Nodes	8min 41sec			

As the table above reveals, the duration of a transcript does not necessarily determine the amount of nodes generated from the transcript. For instance, while Respondents 14 and 17 generated 31 nodes each, the duration of the transcript for Respondent 14 was 22 minutes 15 seconds while Respondent 17 was 16 minutes. Figure 78 shows the average period per node for each of the respondents.

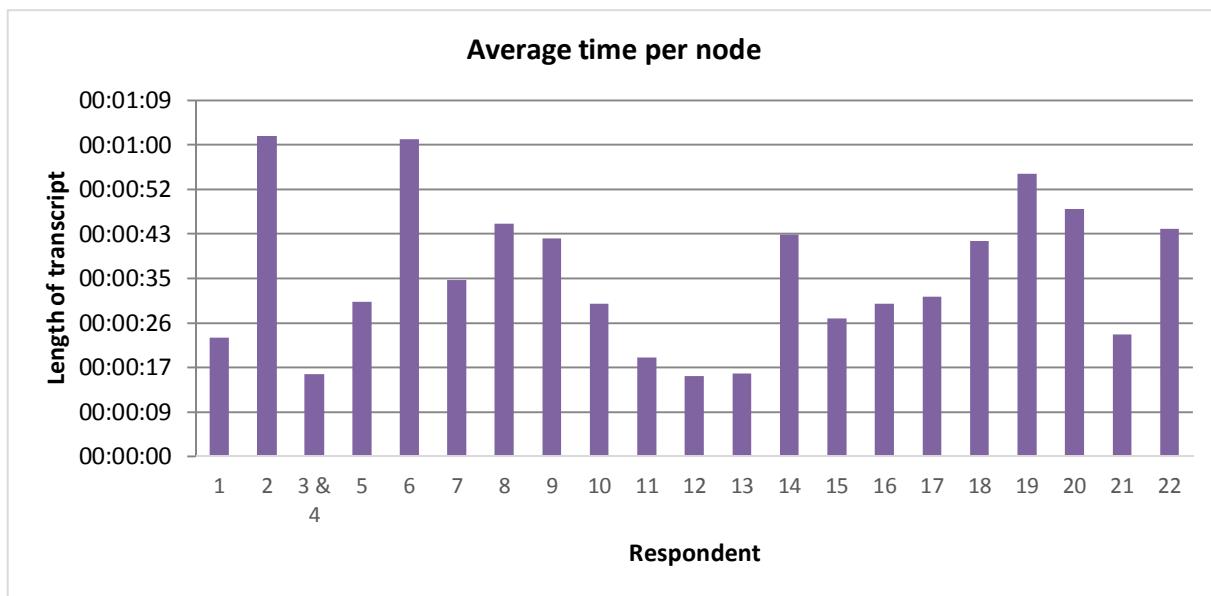


Figure 78: Average time per node

The figure above shows that Respondents 3 & 4, 12 and 13 have the lowest average of 16 seconds per node. On the other hand Respondents 2 and 6 had the highest average of 1 minute and 2 seconds per node.

Once all the preceding analyses are taken into consideration, the three most visible comparisons are number of nodes, the length of transcripts and the average time per node. Table 29 shows the top 5 respondents for each of the comparators.

Table 29: Top 5 by number of nodes and length of transcripts

	Number of nodes	Length of transcript	Average time per node
1 st position	Respondent 18 with 74 nodes	Respondent 19 with 60 minutes 30 seconds	Respondent 3&4, 12 and 13 with 16 seconds per node
2 nd position	Respondent 19 with 66 nodes	Respondent 2 with 57 minutes 4 seconds	

	Number of nodes	Length of transcript	Average time per node
3 rd position	Respondent 7 with 61 nodes	Respondent 6 with 54 minutes 27 seconds	
4 th position	Respondent 8 with 59 nodes	Respondent 18 with 51 minutes 43 seconds	Respondent 11 with 19 seconds per node
5 th position	Respondent 2 with 55 nodes	Respondent 8 with 44 minutes 20 seconds	Respondent 1 with 23 seconds per node

Based on the table above, Respondents 2, 8, 18 and 19 appear in both lists with the most number of nodes and longest transcripts. However none of the respondents in the first two columns feature in the last column. This implies that the richness of a transcript in terms of average number of nodes is neither determined by the length of the transcript nor the quantity of nodes. This suggests that during the interpretation process, themes could emerge from any respondents rather than just looking at respondents that spoke the longest.

6.5 Concluding remarks on Data Analysis

As discussed in preceding sections, this research collected qualitative data which necessitated the use of a qualitative analysis software package to both code and analyse the data. According to Newby(2013 p. 459) the process of qualitative analysis is of “shaping data into a form where it can be interpreted in such a way that it, at least, contributes to an understanding of the research issue”. In order to be able to do this, the chapter has demonstrated several levels of shaping of the data. This ranged from the word cloud, to tree maps and graphical representations of nodes.

The first level of exploring the data used a word cloud which is a visual depiction or a semantic view of a cluster of items (Carmel, Uziel et al. 2012 p. 2; Chen, Chen et al. 2012). Since it is a weighted listing of words to visual their frequency distribution, it is most efficiently calculated using data analysis software. The word cloud in Figure 47 above showed that the term “records” was the most preeminent with a marked difference of the singular form “record”. This visual depiction is important as an initial analysis but only at a preliminary level.

The second level of exploring the data used tree maps which provided an analysis of words or phrases and how they related to other words within a sentence. As the analysis demonstrated in Figure 53 and Figure 54 above two key phrases “medical record” and “health record” were used

very often in this research but the latter was the preferred concept. In addition, the respondents preferred to use the term “regulatory” with a number of other terms, the two most common being “environment” and “universe”. The tree map, therefore, offers a higher level of analysis sophistication than the word cloud.

The third level of analysis was the identification of categories through codes or, as NVivo calls them nodes, that were presented graphically. This graphic representation offers a more granular analysis of each respondent’s contribution to the discussions. This chapter analysed the respondent’s graphical representations collectively as well as individually.

The preceding discussions have demonstrated the power of using an analysis software package in assisting a researcher identifying patterns within data as well as relations between different categories of related themes that may not be evident without the power of data crunching such as frequency of nodes. Additionally, the illustrations provided an unambiguous graphical visualisation that helped illustrate these themes. The discussions have demonstrated a progressively more sophisticated level of data and theme exploration from the word cloud to the inventory of categories, the frequency of individual respondent themes to a consolidated view of those frequencies for all respondents.

However, as Creswell and Clarke (2007 p. 173-174) argue that researchers have to go beyond just comparing concepts or categories to identifying themes then interpreting them within the context of the research objectives. Baralt (2012 p. 239) argues that while “software provides powerful tools to the researcher”, it is the human mind that “drives coding decisions and the analysis”. Richards (2002 p. 269) warns researchers to guard against “coding fetishism” where “coding is so emphasised in the software that it may be difficult for some researchers to progress” to theory-generating levels of analysis (Baralt 2012 p. 239).

This chapter provided an analysis of the state of records management in public health care institutions in South Africa based on the data collected in this study. The next chapter takes the emerging themes in this chapter and presents the interpretation of the findings. It outlines the specific observations made by research respondents, weaving them intricately under particular themes in order to expound on the nuanced understanding of the challenges of managing records within the public health sector in South Africa based on the three objectives of the dissertation.

Chapter 7 – Data Interpretation

7.1. Introduction

According to Newby (2013 p. 459), the process of analysing qualitative data entails “shaping data into a form where it can be interpreted in such a way that it” contributes to an understanding of the research issue. There are five main stages of data analysis as shown in Table 30 (adapted from Creswell and Clarke 2007 p. 173-174; Denscombe 2007 p. 252).

Table 30: Five stages of analysis of qualitative data

Stage	Qualitative data
1. Data preparation	Transcribing the text; Cataloguing the text or visual data; Preparation of data and loading to software (if applicable)
2. Initial exploration of the data	Look for obvious recurrent themes or issue; Add notes to the data; Write memos to capture ideas
3. Analysis of the data	Code the data; Group the codes into categories or themes; Comparison of categories and themes; Quest for concepts (or fewer, more abstract categories) that encapsulate the categories
4. Representation and display of the data	Written interpretation of the findings; Illustration of points by quotes and pictures; Use of visual models, figures and tables
5. Validation of the data	Data and method triangulation; Member validation; Comparison with alternative explanation

The first, second and third stages were explored in Chapter 6 of this dissertation. In addition, the use of visualisation in the fourth stage was largely covered in Chapter 6. This chapter provides an interpretation of the data analysed in Chapter 6 for the 21 sets of transcripts that are drawn from the 22 respondents. The data interpretation is done illustrating different points with quotes, either verbatim or paraphrased, as well as triangulating of perspectives from the different respondents either affirming or negating each other.

There were several key observations made by all the respondents. According to most respondents, the overall management of records within the public health sector was less than optimal and was characterised by the duplication of records as well as poor quality of information

content within records resulting in poor patient history. In addition, the information management and retrieval processes were inefficient resulting in long waiting times for citizens requiring medical care. Each of these observations are discussed briefly below with a more comprehensive discussion of the respondents' comments as assessed through the dissertation's three main objectives in Sections 7.2, 7.3 and 7.4 of this chapter.

Respondent 19 noted that management of patient files was "the weak point in the entire flow of information" in health institutions. The most common symptom of this weakness was the existence of duplicate patient files for the same individual. Respondent 5 stated that duplication was chronic in many institutions that would have five or six files per patient while Respondent 21 argued the number could have been up to eight or nine files per patient. This duplication could have been instigated either by the institution or the patient. According to Respondent 19, large institutions didn't store patient files close to the administrative areas and when a patient required registration, it was easier to simply open a new file rather than spend time searching for the existing one. This initial duplication further compounded the problem with a single patient ending up with multiple copies of files scattered across the various medical service points in the institution, therefore, hindering the ability to efficiently manage a patient's master record.

Alternatively, there were instances when patients were the cause of the duplication. Respondent 5 shared an apt example:

Perhaps a valid reason, if you want to call it that way, if they got a HIV positive test, for instance, in one clinic they want to get a second opinion at a different clinic and they just go under a false name. So they have to re-do a whole test and they put the stress on the existing health care infrastructure.

According to Respondents 13, 16 and 21, this duplication of files for the same patient resulted in lack of continuity in medical care due to poor understanding of the patient's complete medical history. Respondent 12 argued that only 25-30% of the personal medical files were retrievable whenever needed. Respondent 20 shared a personal experience to illustrate the point:

I was operated on and about four or five years later there were complications. I went back to the hospital, didn't find the record and I was taken from pillar to post to say "no, we can't find the record". So if there was something critical that was in that record in terms of the complication that you then suffer later, you are then lost.

Respondent 22 mentioned cases where individuals had been subjected to inappropriate treatment or even died because the health institution had not kept proper records of treatment procedures.

The problems of duplication and lack of efficient retrieval of records was blamed on the preference for using paper rather than electronic files. Several respondents pointed out that most information contained in paper records was hardly accessible outside a particular medical service points in a large health institution. Respondent 15 added that in a number of institutions, there was no uniformity in forms used to collect information. This lack of uniformity would make it impossible to implement a single electronic system. Nonetheless, Respondent 12 provided two examples of institutions that had moved their records from hard-copy to digital format and had significantly improved access to these records.

The observations above provide the broad outline within which the rest of this chapter explores the findings of the research. Creswell and Plano Clarke (2007 p. 173-174) argue that data analysis has to go beyond just comparing concepts or categories to identifying themes then interpreting them within the context of the research objectives. The comparison of categories was done in Chapter 6 with the use of NVivo. The comparison provided the basis for initial identification of themes as visually represented in Appendix B. However, this chapter goes beyond merely identifying themes into interpreting them within the context of the research study. Thus, the rest of this chapter is structured cognisant of the three objectives of the dissertation as follows:

- Assess the legislative, policy and regulatory framework within which records are managed in public health care institutions in South Africa
- Assess the extent to which public health care institutions in South Africa are managing records
- Identify appropriate records management interventions at both policy and operational level in order to assist the management of records in health care institutions.

This chapter addresses these three objectives of the dissertation at differing levels of detail. The first objective is addressed substantially in Chapter 3 of this dissertation. However, a number of respondents had specific expertise in legislative, policy and regulatory issues and, therefore, offered insights and nuances not discussed in Chapter 3 and are covered in Section 7.2 of this chapter. The second objective is the one that is most extensively covered by the respondents

and is outlined in Section 7.3 of this chapter. As a result of observations made in Sections 7.2 and 7.3 respondents suggested a number of interventions in keeping with the third objective of the dissertation and this is covered in Section 7.4 of this chapter.

7.2 Assessing the legislative, policy and regulatory framework

Chapter 3 of this dissertation noted that the legislative, policy and regulatory environment in South Africa is complex not only because of its long tradition dating back more than 200 years but also because it is a hybrid environment blending three legal traditions: Roman-Dutch, British and customary law. Therefore, any discussion of individual laws, policies or regulations requires a historical perspective as well as a lateral assessment of peer legislative, policy and regulatory instruments. This section examines the legal and regulatory environment from the perspective of the respondents in four aspects: laws, regulations, standards as well as policy and procedures.

7.2.1 Laws

The respondents discussed a number of laws including:

- Consumer Protection Act (CPA),
- Electronic Communication and Transactions Act (ECT),
- National Archives Act (NAA),
- National Credit Act (NCA),
- National Health Act (NHA),
- Promotion of Access to Information Act (PAIA),
- Protection of Personal Information Act (POPIA), and
- Regulation of Interception of Communications Act (RICA).

Respondent 6 stated that more than 2000 new legislative and related regulatory instruments were “published by the government gazette and the government departmental websites per annum”. Respondent 8 argued that the current South Africa’s parliament had been the more active than previous parliaments in enacting legislation. However, all these and other laws in South Africa have to operate within a constitutional framework. Respondent 8 argued:

we need to go back to the Constitution as our supreme law. It says you've got these rights. It also says no rights are absolute so you get the limitations of rights. And in most

cases the Constitution says the legislature must provide laws that will deal with how these rights can be limited.

The discussion below outlines the most relevant pieces of legislation for the health sector in South Africa based on discussions with the respondents.

7.2.1.1 The National Health Act

The content of National Health Act (NHA) was not discussed in much detail by the respondents except in highlighting two aspects. First, Respondent 15 noted that the NHA had a section that “talks about the necessity to keep specific health records” suggesting that, from a legislative point of view, “there is a requirement to keep proper records”. Second, while discussing ownership of health records, Respondent 2 mentioned that according to the NHA “the data belongs to the patient”. This is significant in the way that health records are managed and could be used to argue for patient-held or patient-retained records, a matter discussed in more detail in Section 7.3.3 of this chapter.

7.2.1.2 The National Archives Act

The National Archives Act (NAA) was discussed at length by a number of respondents. Respondents 3 & 4 noted that the NAA provided guidance on the management of current records in both paper and electronic format for all governmental bodies at the national level of government. Respondent 13 added that, in provinces that did not have their own provincial archives act, then the NAA applied. This was important to note since public health care institutions fall under provincial rather than national legislation and, therefore, their health records would have to be managed under a provincial legislative framework.

Respondents highlighted two main issues, the first being that most decision-makers in the health sector were unaware of the existence of the NAA. According to Respondents 9 and 20, senior managers had either very little or no awareness of the provisions of the NAA. The second issue was that, assuming health institutions were aware of the legislation, they never felt compelled to comply, in part, because the cost of compliance outweighed the penalties such an institution could face. Respondent 1 illustrates this issue by stating:

I believe that the most a public sector organisation can be fined is two thousand Rand in terms of the National Archives Act. And I don't know of any organisation that has ever had that fine levied against them. The only potential threat is having a report done in Parliament about their non-compliance but I think...that will only ever happen in

conjunction with an audit finding, a financial audit finding. So the National Archives Act has absolutely no teeth and, in order to comply with it, you would actually be spending hundreds of thousands of Rands. So for organisations that don't view records management as anything other than filing pieces of paper into a file, why should they bother spending that kind of money on the Act? So yah...I think the Act is a useless piece of paper.

Respondents felt that at the core of this non-awareness and non-compliance was the weakness of the National Archives as an institution and outlined several reasons. Respondent 13, who was a previous employer of the National Archives, argued the institution had very little contact with public health care institutions. This would be expected because, legally, the interaction would have to be between health care institution or provincial health departments and their respective provincial archival institutions. Respondent 20 argued that another reason was that neither the government nor Parliament treated the National Archives as an important institution resulting in it being under-resourced. As an example, several respondents pointed to the issue of lack of adequate storage space at the national and provincial levels to preserve records for the long term.

Despite these challenges, Respondent 3 & 4 commended the National Archives for having taken a leadership role by developing an extensive range of records management publications that were regarded as prescripts which are available both in hard-copy format from the institution and online on the institution's website. While these documents were primarily for national governmental bodies, they had been used by provincial archives either they were or to model their own guidelines. These efforts were greatly appreciated by Respondent 9 who commended the work of the National Archives in communicating policies and procedures to institutions. Additionally, Respondent 6 noted that a local working group of professionals had been working on the best practice guidelines that would supplement the work of the National Archives but admitted the initial work in this regard had not yet borne much fruit.

7.2.1.3 Promotion of Access to Information Act

The Promotion of Access to Information Act (PAIA) draws from the Constitutional provision for access to information. Respondent 8 noted that in the years since its promulgation, there had been good precedent set particularly through the work of the South Africa Human Rights

Commission that had coordinated a lot of work including spearheading amendments like the introduction of fines for non-compliance, all of which had helped raise awareness.

Respondent 8 argued that PAIA had three classifications of information and used the illustration of an office environment. The first is ordinary information relating to an individual such as access to a copy of their employment agreement. The second is information relating to third parties connected to a disciplinary hearing. If, in this instance, a staff member is being investigated and had previously communicated with a third party, then this third party should know about the disciplinary proceedings. Information would have to be sifted before portions were shared depending on permissions granted by the third-party. The third classification related to other information such as commercial or proprietary information that should not be shared unless other laws, such as ones on intellectual property, were consulted.

According to Respondent 20, PAIA highlighted “the importance of health records as a category of records that needs special attention and its own access regulations” because of its sensitivity but lamented that public health care institutions did not seem to follow the law. Respondent 8 related the story of a former South African health minister whose health records were stolen while she was in hospital and then published by a newspaper. The publication resulted in animated public debate, on the one hand, how to balance access to information and freedom of expression and, on the other hand, the need for privacy. Respondent 8 noted that, considering health records could be stolen from a public health care institution without any trace until they were published, the event demonstrated weakness in institutional records management systems.

Respondent 20 argued that one of the weaknesses of PAIA was that it did not require the preservation of records and relied on other laws such as the NAA to necessitate this preservation. The only instance when PAIA required preservation was when a formal request had been made and by procedure, these records had to be preserved in order to facilitate access. However, since there was no enforcement mechanism by other laws, there was no proof that these records were being preserved. Respondent 20 argued that PAIA should, therefore, not be seen in terms of preservation but rather through its mandate relating to the Constitutional provision of access to information.

According to Respondent 8, while PAIA provisions discharged the constitutional right of access to information, they were not appropriate in every instance. A case in point was a lady whose husband died in a private hospital and who had used PAIA to make requests for information relating to what caused the death in order to sue the hospital. Respondent 8 elaborated that in this instance the bereaved lady lost the case based on provisions for accessing records through PAIA because the law couldn't be used to facilitate "a fishing expedition". Such expeditions would be undesirable because they are speculative and would be designed "to find something that would initiate proceedings which otherwise would have never commenced"(Roling 2007 p. 41). Instead the bereaved lady should have used the "normal adversarial processes" laid down within the discovery process of the court system. According to Respondent 8, a requestor using PAIA to request for 3rd party records would need to know precisely the kinds of records to be accessed in order to access them.

Respondent 1 was aware of a number of organisations that had "very bad records management systems but they seemed to be able, with a lot of effort and difficulty, to comply with PAIA requests". However, more often than not, poor records management systems in organisations were exposed when PAIA requests couldn't be fulfilled. Respondent 20 noted that such institutions preferred to look for grounds for refusing access to the records because it was much easier and cheaper than improving their records management systems. Nonetheless, Respondent 1 was optimistic that PAIA had "enough teeth" that would encourage institutions to spend money on improving records management systems because this would be fundamental to organisations responding to requests efficiently. Respondent 1 noted it was unfortunate that the link between efficient records management and efficient PAIA request responses had not been "publicised and made known to people". Therefore, it was not surprising that an additional challenge within institutions was the process of managing PAIA requests and identifying someone responsible to coordinate the responses.

7.2.1.4 Protection of Personal Information Act

At the time of the data collection for this doctoral study, the Protection of Personal Information Act (POPIA) had not been promulgated as an Act yet and had been undergoing revisions sometimes with radical changes. Therefore, respondents discussed general principles rather than specific provisions of the Act. According to Respondent 8, the Act would eventually be based on eight fundamental principles:

- accountability,

- processing limitations,
- purpose specification,
- further processing limitations,
- information quality,
- openness,
- security safeguards, and
- data subject participation.

Respondent 8 argued that POPIA would cover two levels of information, “ordinary personal information as defined in PAIA” as well as “special personal information that pertains to people’s religions or their health care status”. Respondent 20 reiterated that a key principle in the Act was that records could only be used for the purpose for which those records were collected and that they would not be preserved for longer than necessary once that purpose had been fulfilled. According to Respondent 8, the regime for protection of personal information required destruction of the information when certain conditions had been met, such as the passage of time or once the purposes for which the information was collected had been served. However, this would create challenges for health records because they may be needed for research beyond just being generated in order to facilitate provision of health services. Respondent 16 stated that, in the past, many hospitals had kept information indefinitely just in case somebody needed future medical procedures. The new Act would challenge this tradition of keeping everything. Respondent 16 noted that there would be additional challenges in addressing technological obsolescence in order to guarantee access of records by the long-term preservation of digital information.

According to Respondent 8, other pieces of legislation such as the Electronic Communications and Transactions Act and the National Credit Act had voluntary systems for the destruction of information, but those were strictly voluntary unlike in POPIA. For Respondent 6 the challenge would be whether medical information in patient files should also be destroyed according to the provisions of POPIA. This required determining whether the information collected had served its purposes. In the medical environment, this would require extensive discussion in instances of chronic illness or injuries with long-term effects. Respondent 1 stated that once medical information was defined as personal information in the promulgated Act, then public sector organisations would perpetually struggle to comply with POPIA without proper records management in place.

7.2.1.5 Protection of State Information Bill

According to Respondent 8, the Protection of State Information Bill (POSIB) dealt with State information and details such as the “classification of information, the nature, the methods, the levels of classification” and provision on their protection from destruction, loss or disclosure. POSIB was under discussion in order to replace the Protection of Information Act that was promulgated in the 1980s and covers the protection of State information which was formulated within the context of an apartheid regime. Respondent 8 argued that there was need to balance the provisions of POSIB instrument with other laws to ensure it doesn't contravene constitutional provisions such as access to information because no rights should be considered ultimate. While it was unlikely a vast majority of records in health institutions would be directly affected by this legal instrument, Respondent 8 argued that it was important to be aware of its existence.

7.2.1.6 Regulation of Interception of Communications Act

According to Respondent 8, the Regulation of Interception of Communications Act (RICA) was similar to many around the world that arose from a concern to address crime, particularly terrorism, and provides for the circumstances under which private communication could be intercepted. For Respondent 8, while privacy in South Africa was guaranteed in Section 14 of the Constitution, RICA made explicit the circumstances within which privacy could be circumvented in the process of communication. While the legislation had been in place for some time, Respondent 8 stated that amendments to and directives for the law had been withdrawn because minimal compliance had not yet been achieved. While it was unlikely a vast majority of records in health institutions would be directly affected by this legal instrument, Respondent 8 argued that it was important to be aware of its existence.

7.2.1.7 Electronic Communication and Transactions Act

According to Respondent 8, the Electronic Communication and Transaction (ECT) Act should be considered the enabling legislation that allows everything that was done on paper to be done electronically. Respondent 16 noted that the ECT Act had certain requirements with regards to authenticity, originality and retention but the Act did not go into detail on what needs to be done to meet these requirements. Respondent 6 echoed this by stating that the Act “does contain quite a few requirements that would necessitate proper records management systems because it does set some requirements in the evidentiary part for the maintenance of integrity of the information over time”.

Respondent 2 noted that, based on the ECT Act, if any data had been captured and was managed in an electronic system with some kind of encryption, then such data “was as good as a hand-written piece of paper”. However, other respondents noted that there was no specific mention of encryption in the ECT Act but rather the use of either an electronic signature or an advanced electronic signature.

Respondent 6 added that retention of records was briefly mentioned in the ECT Act since it had a voluntary system where, once one subscribes, then they may use information for a certain duration and for the purpose for which the information was given and once that purpose was served then the information had to be destroyed.

Respondent 8 stated that the ECT Act was technology neutral and, therefore, didn't need to be updated. The respondent added that if one looked at the format that health records were in (whether hard-copy, old microfiche, email, web browsers, text messages and instant messaging) then there would be problems for courts in interpreting the ECT Act in the context of mixed evidence cases. Respondent 8 used the example of a case where the court wanted to know whether the processes for managing information were consistent and reliable rather than just ad hoc. For Respondent 8, this meant that the ECT Act was all about “reliability and audit trail” and, therefore, cautioned medical people using technology “because they think it's cool and they have no idea what the risks are” adding:

You go for something like a bulk SMS service and you are going to send out reminders or you are going to tell people that they can get drugs from xyz, or whatever, it could be great. I mean... a lot of this SMS stuff started with CRM systems for customer service which is also used in marketing but in terms of health care...public health care using it, it's a great possibility. But you are going to need some careful risk assessment as to how it should be done because imagine that sort of SMS is sent to the wrong person and they say you don't have cancer and you do.... You see that is fantastic on the one hand because how else do you reach people in the rural areas? There are no landlines there. Cell phones are the way to do it. But have they assessed the risk? Because someone is going to get wise up one day and say something went wrong there and claim from the minister of health millions of Rand.

A few respondents suggested that some definitions seemed to be overreaching. Respondent 8 gave the example of 'processing of information' which is in the Act:

means any operation or activity or set of operations whether or not by automated means concerning personal information and including the collection, receipt, recording, organisation, collation, storage, updating, or modification, retrieval, operation, consultation, use and dissemination by any means of transmission, distribution, available in any form or any other form merging as well as blocking degradation erasure of information. There is nothing you can do with information that doesn't fall under the definition of processing.

According to Respondent 8, while the law had been in existence for a number of years there were hardly any court cases in South Africa, meaning that there was no set legal precedent in order to provide jurisprudential certainty. Respondent 16 argued that while the law was important, there was need to consider standards and particularly ISO 15801 being critical in the case of digitisation of records. According to Respondent 16, the challenge with having a standard was the need for endorsement from the South African government or a private industry body such as the Institute of Directors.

7.2.2 Regulations

Regulations are generally linked to legal instruments as their prescribed courses of action and provide guidelines for how these legal instruments should be implemented. Regulations may be developed by different arms of government but may also emanate from institutions outside the government. According to Respondent 6, the most well-known regulations in South Africa were issued by the King Committee on Corporate Governance supported by the Institute of Directors of South Africa. The regulations are commonly known as King I published in 1994, King II published in 2002 and King III published in 2009. As noted in Chapter 3 of this dissertation, King II and King III have been very influential in the governance landscape in the country. Respondent 8 argued that while King II pertained to listed companies, King III covers all organisations in both the public and private sector. According to Respondent 8, since King III advocates for a risk-based process, an organisation has to identify governance risks, explain how they would be handled and the means of mitigating these risks. According to Respondent 6, there was a very low key focus on regulatory issues in most government departments.

7.2.3 Standards

A number of respondents noted that health related standards were not widely known within the sector. In addition, the respondents with expertise in records management stated that standards with records management provisions were also not known within the larger public sector. The lack of knowledge implies that both health- related and general records management standards were often not implemented.

7.2.3.1 Health related standards

Respondent 15 argued that standards were critical because they allowed the sharing of information and included basic processes such as streamlining the structure of forms so that health institutions had uniform patient details in order to ensure efficient health service provision. Several respondents stated that many health institutions did not adhere to health related standards. Respondent 21 shared the experience of auditing records in health institutions and benchmarking them against international standards:

We look at the way that they are organised, the way that they are retrieved, and the kind of administration around the maintenance of records. And then the content of records, what should be in records in terms of the different professions who require that medical records reflect on the experience of a patient. Whether in fact the laboratory records are in place, laboratories also have questions as well and it's the integration of all of that.

Both international and national standards could be applicable within South Africa. Respondent 19 shared the experience of private health care standards developed by PHISC (Private Health care Information Standards Committee) that could also be used in public health care as well. According to Respondent 19, there was regular interaction between the PHISC, the National Department of Health and Standards South Africa in the sharing of ISO documents and adoption of international standards. However, this was not a view shared by other respondents who noted the muted interaction between the health sector and the standardisation community.

Respondent 19 added that there were efforts by both the private sector and the National Department of Health to standardise on Health Level-7 or HL7 as the transmission standard. HL7 is a vendor independent international standard that is used for transfer of clinical and administrative data between hospital information systems (Kongstvedt 2013 p. 653; Sunyaev 2011 p. 28). There were other standards for coding of health information such as for pharmaceuticals, for diagnoses such as ICD-10, and for procedures such as ICD-10-PCS and

CPT 4 (Current Procedural Terminology) that had been adopted locally. ICD-10 is the 10th revision of the International Classification of Diseases which replaced ICD-9 as the medical classification list with codes for “diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury and diseases” (Berger 2014 p. 154). ICD-10-PCS is an ICD-10 derivative with PCS standing for Procedural Coding System. According to Dalgleish (2013 p. 14), ICD-10-PCS is seen as a replacement for different sets codes that were used by hospitals (such as ICD-9-CM) or physicians (such as CPT).

Respondent 19 discussed two other standards: SNOMED and LOINC. SNOMED standards for Systematised Nomenclature of Medicine and is regularly used in clinical documentation and reporting since it is a systematic and “computer processable collection of medical terminology covering most areas of clinical information” (Martinez, Ferriol et al. 2008 p. 270). LOINC stands for Logical Observation Identifiers Names and Codes and is used for identifying medical laboratory observations being “a database and universal standard for identifying medical laboratory observations”(Duncan 2012 p. 48). Respondent 19 added:

Right now if I have a system that captures the blood pressure and I send that to another system there is no standard mechanism for sending it. HL7 can be used to send it but you have to know what you are interpreting it as, you have to know what coding system you are using and we don't have that. And I've been a proponent of LOINC because it is an open source open standard and although it's much more limited than SNOMED ...SNOMED is incredibly complex and extensive coding structure so we'll wait and see where we go with that.

Respondent 10 reiterated the importance of standards by arguing that the successful introduction of the electronic health record would require successful implementation of standards.

7.2.3.2 Records management standards

Respondents noted that there were numerous ISO standards that related to different aspects of records management and ISO 15489 being seen as the fundamental standard for the profession. Respondent 1 stated that while ISO 15489 had been adopted in South Africa, there was not a single organisation in either the private or public sector that had actually complied or decided to fully implement it. However, the University of South Africa was cited as an institution

using the standard as a guideline for implementing quality management systems within the organisation.

Several respondents cited ISO 15801 as a useful standard for the management of digital information. According to Respondent 6, both ISO 15489 and ISO 15801 were necessary to help maintain the integrity of records over time. However, implementation of the standards would require records professionals to have a good handle of the regulatory and legal environment within which an organisation operated. Respondent 16 added that it was necessary to have institutions audited against standards such as ISO 15801 but, for this to happen, there was need to have the standard recognised by a certification body such as the Institute of Directors or the South African government.

According to Respondent 6, there were numerous other records management standards including those dealing with “vital records, risk management for records, work process analysis for records” that addressed operational issues. At the time of the data collection the standard known as Management System for Records (MSR) was being developed to address issues at a strategic and managerial level. According to Respondent 6 the standard would address “the kind of controls and processes from a higher level that [are] implemented and set up within the organisation to manage records properly”. Respondent 6 added that this was necessary:

because of that perception from management that records are about filing, if we just deploy a couple of more filing clerks and we sought out the problems in the organisation.

Whereas, because of the proliferation of information in the electronic world and the relative importance, it now has become a very important function or job within any organisation.

Standards play a critical role in the establishment of best practice and provide roadmaps in the implementation process. Based on comments by respondents, neither health related standards nor general records management standards were sufficiently entrenched within the health sector in South Africa.

7.2.4 Policy and procedures

Several respondents highlighted the need for policy and procedures on records management in the health sector. Respondent 6 stated that there was a need to “create a strong policy environment”. Respondent 10 argued “the policy has got to say what needs to be done, how it will

be done" and who will implement it. Among the issues to be addressed in a records management policy include retention and disposal of records as well as implementation considerations such as the need for appropriately qualified and skilled people. Respondent 2 described the historical existence of a directorate of management advisory services in previous provincial government structures but that no longer exist. The directorate's responsibilities included mapping workflow processes as well as training and, therefore, provided policy and procedural guidance based on organisational assessments.

According to Respondent 10, while the responsibility for records management leadership in the public health sector was with the National Department of Health, there was a role for institutions to share some responsibility. Respondent 10 added:

Managers in the provinces also need to take responsibility to say, if we are going to be serious to implement this in a sustainable way, let's plan properly. What kind of organogram should there be at the central office in the different sizes of the institutions? You know, because only when you have people can you train them to execute properly.

According to Respondent 21, individual health institutions needed to develop policies and procedures to ensure the safety and confidentiality of records to mitigate the risk of loss by theft, fire, flood or any such disaster. In addition, institutions needed to develop guidance on retention of records. According to several Respondents, there were no policies and procedures in health institutions. Unfortunately, the reality according to Respondent 10 was that there was no leadership from the National Department of Health "(t)here is no policy. There is no decision. They are working on a new HIS [Health Information System] but it is so delinked from records management". In order to remedy this situation, there was need for model policies and procedures for health institutions. Among the contents of these policies and procedures include: the definition of records, how privacy and confidentiality issues would be handled, filing procedures, retention and disposal practices as well as archival practice. Each of these aspects is discussed in Sections 7.2.4.1, 7.2.4.2, 7.2.4.3, 7.2.4.4 and 7.2.4.5. Respondent 6 argued that in addition to having these policies and procedures, there was also need to elaborate how they would be implemented.

7.2.4.1 Defining records

According to Respondent 16, for one to manage a health record effectively one needs to know "what is really a record in the health environment, what is not a record, and what stuff we need

to keep just to provide better service to a patient but might not be a record". Respondent 7 expressed it succinctly as understanding a health record, how it was derived and its components. The definition of a record has been the subject of debate for a long time. According to Respondent 1, the definition to be found in the National Archives Act was too expansive and, possibly, this was deliberate so that "it could cover everything" but unfortunately it was too broad to be "meaningful in any organisation".

Several respondents left the issue of definition as an open question. Respondent 16 argued that it was critical to understand "the whole chain of creation and use of the records". For Respondent 7, this meant understanding how medical practitioners such as "doctors actually worked for a living" and the context within which those records were generated including understanding "evidence based medicine" and other concepts in the medical field.

7.2.4.2 Privacy and confidentiality issues

For the respondents, privacy and confidentiality revolved around three issues: access to records, the difference in regulation between the public and the private sector as well as the tensions between the Western and African cultural ways of understanding the concepts.

Respondents 2 and 19 argued that the contents within health records should only be accessible for those authorised to see them making the management of access to records the fundamental issue in addressing privacy and confidentiality concerns. Access concerns had to go beyond having full access to all content of records since even superficial access to information could breach privacy and confidentiality. For instance, Respondent 19 argued that access to a list of facilities that a patient had visited, such as a family planning clinic, could reveal what services they were seeking.

According to Respondent 2, there were vast differences between the public and private sectors on how privacy and confidentiality was regulated. In the private sector, there were policies and procedures on how to handle a health record "everything from how the package of information is meant to be, what is in that information, how its encrypted and de-encrypted, how its stored, how it can be viewed, it has to be de-personalised, it cannot even be associated with a geographical footprint". Respondent 2 added that Medical Aids Schemes in the private sector were not allowed access to clinical data even though they had facilitated payment processes for their client.

Respondent 2 contrasted this reality with the public sector where policies and procedures were not being enforced in any public health institution.

Lastly, Respondent 8 argued that there was tension between a Western understanding of privacy and African cultural ways. For instance, customary law dictated that one had to honour a leader in absolute terms meaning they were not to be questioned or doubted and, if they were, then this would constitute knocking them off a pedestal. This was particularly evident in the case where a former minister's health records were stolen and published in a newspaper. This tension in understanding privacy and confidentiality concerns would sit uncomfortably with the quest, in western understanding, for accountability and transparency from public figures. Respondent 18 argued, for instance, that the health records of prominent people such as Mr Mandela "should not be accessible to all and sundry".

7.2.4.3 Filing procedures

As noted at the beginning of Section 7.3 of this chapter, one of the main challenges within institutions was the poor retrievability of records. According to Respondent 21, files were often stored "all over the place" and were not properly organised. A number of respondents noted that in large health institutions, the dispersed nature of the medical service points meant that records were kept separately in pharmacies, surgery areas, maternity and other units. According to Respondent 5, even in smaller institutions such as clinics where the number of files were few and often kept in a central place, the records were haphazardly organised and patient files difficult to retrieve.

According to Respondent 11, the reason for poor filing procedures in institutions was because nobody was providing policy and procedural clarity resulting in different processes in different institutions. Respondents 3 & 4 stated that the National Archives had the obligation of providing leadership because it was responsible for approving file plans for all public institutions by "prescribing the principles of compilation, and examining and approving draft classification systems". Nonetheless, the lack of policy and procedural clarity should be a responsibility jointly borne by the National Archives as well as health institutions.

Respondents argued that at the National Archives, the policy for file plan development concentrated primarily on administrative records rather than on operational records. Operational records, also known as case files, were not considered as having historical value. Unfortunately,

patient files fell in this category and, therefore, were not slated for long term preservation. Respondent 3 & 4 argued that, for practical reasons, patient files were administered differently because they were bulky. According to Respondent 9, another class of administrative files known as correspondence files were also not included in approved file plans from the National Archives and, therefore, institutions didn't know where and how to file them.

There were also policy complications within health institutions which, having not received policy direction from the national or provincial archival institutions, didn't know how to design file plans that covered all the records within the institution. Respondent 6 described the design of file plans as an elaborate process that started with assessing the business needs of the organisation through to conducting a business process analysis, determining the handling rules for different types of records and developing a rudimentary file plan. Respondent 6 added that after the preceding processes, one had to do a records inventory to assess the records in place and determine how these records would then be reorganised into the new file plan. Unfortunately, many institutions often did not have the internal professional expertise to carry out these file plan design processes successfully.

Another challenge the health institutions faced was the delayed approval of file plans by the National Archives. This emanated from either poorly designed file plans from institutions due to lack of expertise or the lack of adequate resources at the National Archives to process the approvals in time or a combination of both. According to Respondent 6, the delays resulted in the deferral of implementation of the file plan that further hampered accompanying activities such as training of staff on the file plan structure, as well as other records management activities such as retention and disposal management and transfer of historically relevant records to archival institutions.

7.2.4.4 Retention and disposal practices

Retention and disposal practices relate to knowing how long to keep records and when to legally dispose of them. The respondents discussed a number of different issues relating to the topic including: the design of retention schedules, aspects of disposal authorities as well as the process of conducting appraisal of archival records.

According to Respondent 6 there were two reasons why records needed to be retained: legal reasons and business reasons. Respondent 6 argued that legal reasons could further be

distinguished between statutory compliance and evidence and, often, there was no clear demarcation between the two. Respondent 6 stated that business reasons related to “things like operational requirements, risk requirements, governance and policy, contractual obligations, the rules of industry organisations or charters that you subscribe to or are a member of, external standards that you wish to subscribe to”.

Unfortunately retention and disposal activities were not always well managed in health institutions. Respondents 17 and 22 contended that most health care institutions did not have any formal retention schedules and did not know how long to keep records. According to Respondent 2, the common practice for institutions facing space constraints for their records was to take the oldest records and “pulp them”. Respondent 17 stated that disposal of records was a major challenge because there were individuals who would get rid of records just because they were old. Respondent 17 added that health institutions had “no idea of the value of a record, especially the secondary value” because that had no frame of reference in terms of archival value of records. Respondent 22 argued that since institutions were indiscriminately disposing records, they were not preserving them for historical or long-term medical research purposes.

The challenges for retention and disposal can be broken down into three aspects: lack of clarity at the National Archives, lack of clarity within health institutions and the challenges brought about by new technologies.

Several respondents discussed aspects of lack of clarity at the National Archives. They argued that it was the responsibility of the National Archives to provide policy clarity with regards to retention and disposal. According to Respondent 22, there had been a debate within the National Archives about how to determine the value of different types of records from both philosophical and pragmatic perspectives. According to Respondents 3 & 4, 17 and 22, the National Archives would issue two main types of disposal authorities: Standing Disposal Authorities (SDA) and General Disposal Authorities (GDA). GDA would be issued for a category or categories of records that were used by more than one governmental body such as financial records, contract files or personal staff files (National Archives and Records Service of South Africa 2014). In contrast, SDA would be issued for a category or categories of records that were unique to a governmental body (Department of Agriculture [Limpopo Provincial Government South Africa] 2014 p. 4). Respondent 3 & 4 stated that SDA would be issued to a specific

institution. Respondent 17 stated that archival institutions often issued SDA's whenever a hospital or other institution asked for them rather than developing and distributing them for all institutions. Respondents 3 & 4 were aware of SDA prepared for records in hospitals during the historical era of the Transvaal Provincial Administration. This suggested that an overall SDA was not historically common in even in the pre-1990s. Respondent 22 stated that within these disposal authorities individual patient files were all regarded as ephemeral "that should be destroyed after a certain period of time and that period of time" was left up to health institutions to decide. Respondent 22 added that if these disposal authorities were implemented meticulously then nine-tenths of all records would "simply be destroyed immediately" and shared the case of a health institution that was established in South Africa in the late 1800s and had kept all its records including policy documentation and patient files. According to Respondent 22, if the National Archives found such patient records, they would be destroyed rather than preserved.

The second lack of clarity relates to retention and disposal within the individual institutions. Within health institutions there was a debate about whether both records and their derivatives should be kept for an equal amount of time. Respondent 16 shared the perspectives of institutions that wanted to keep all their records including "forms when somebody applied for a service" or "when they filled out the form when they went for an x-ray". According to Respondent 16, the key question to ask was if the information had been extracted from a form, would there be need to keep the form and whether the length of retention would be the same, for instance, for the form as for the x-ray. In many health institutions, there was no common understanding about how long records could be kept based on legal and business reasons. For instance, Respondent 17 had spoken with key managers at health institutions that believed records should be kept for five years but did not have a legal or procedural basis except that this was information passed on from their predecessors. Other respondents were more specific about where their retention periods were sourced. Respondent 18 stated that according to the Archives Act, any health related records older than five years could be disposed. Respondent 2 argued that according to the Health Act, X-rays that were previously kept for 15 years could be kept for five years. Respondent 18 also argued that Archives Act instructed children's records should be kept for twenty years. There was no indication from the Archives Act that there was any specific provision stating that general records should be kept for five years, or children's records for twenty years, or from reading the Health Act that x-rays should be kept for five years. However, Respondent 6 stated that certain laws did have retention guidelines within the body of

the law sometimes overtly stating what needs to be done and sometimes quite vague. Respondent 6 argued that any such guidelines needed to be moved from the body of the legislation and placed in a “section called retention and handling requirements” to make it easier to access and revise over time.

The third set of challenges relate to technology with views that it was cheaper to maintain large amounts of data and, therefore, the space constraints should not be a reason for disposing of records. However, this raised the question whether rules of retention should be changed because the format of the record had changed. If the format of the record had changed then this would presumably affect both legal and business reasons for retention. For the respondents it was a two-fold issue. On the one hand, South African laws may not allow the functional equivalence of certain digital records with their hard-copy counterparts. On the other hand, for business reasons digital records may be technically easier to retrieve and cheaper to store, but if there were concerns about long-term access to authentic and reliable records then challenges would continue to exist. For example, Respondent 2 argued that with the advent of new technology, would there be need records like x-rays to be kept for five years or much longer than that? According to Respondent 16 “digital x-rays and fancy things like audiograms” would be “extremely difficult to keep for the future”.

7.2.4.5 Archival practices

According to Respondents 3 & 4, retention and disposal schedules offer one of two options for records, the first being approved destruction of those records deemed transient and the second, transfer into archival custody. In keeping with the legal requirements, records with historical value from health institutions should be transferred to the custody of provincial archives. However, Respondent 22 argued that neither the national nor provincial archives had the capacity to manage any records accessioned from health institutions; therefore, an appraisal decision would have to be made at the institution. According to Respondent 22, the National Archives “adopted macro-appraisal as its basic conceptual and policy framework for appraisal in the mid-90s” that entailed “identifying functions of the state and sectors in society that should be prioritised in macro-appraisal”. According to Respondent 22, archival material from several departments had been assessed in the past including the Police and the Military but not the Department of Health. Since it seemed that neither the National Archives nor any of the provincial archives had accessioned records from health institutions, there had been an apparent impasse on the preservation of health related records with long term historical value in the country. For this

reason Respondent 10 argued that one provincial government was negotiating with a private off-site storage company to assist in managing some of the records from health institutions. However, this seemed likely as an interim solution and a more permanent one was necessary in order for provincial archives and, by extension, provincial governments to meet their legal obligation with regards to the preservation of records in the health sector.

As the discussions above relating to the legislative, policy and procedure as well as regulatory framework have demonstrated, the terrain remains complex requiring multi-faceted perspectives. While it was critical to understand this environment, Respondent 20 argued that the emphasis had to be on the impact it had on medical practice and ultimately the quality of health care services. Respondent 10 noted that, in some instances, institutions didn't care if patient records were lost particularly in medico-legal cases because the onus was on the institution to prove certain things. In this instance, the loss of a record could mean that medical negligence on the part of professionals within a health institution couldn't be proven in court. Respondent 18 described an incident in their health institution where a child was suspected of having a congenital disorder at birth but may have died because of apparent medical negligence. The courts wanted access to the CDG (Congenital Disorder of Glycosylation) record that monitored the activities of the child's heart. Respondent 18 described it as:

a long strip of paper that comes out with wavy lines and showing what's happening with the kid's heart. The argument in this case was the kid's heart already defective before it was born and was there somebody to blame and of course it died and whatever. So they wanted a CDG record. Now somebody went to look for the CDG record...now before apparently they were stored in the patient's folders but then some guy decided a few years ago this wasn't such a good idea and the stuff got put into boxes somewhere in the garage. Now of course nobody really knows what box contains what thing etcetera. So you know all they got, I believe, the boxes might or might not have been labelled by year but that was about it. And now the lawyers want this thing. And you know they sat there and people looked at this pile of little pieces looking like toilet rolls hanging out all over...you expect us to find this thing?

In this instance, regardless of the extent to which the institution knew about the legal and regulatory requirements, it was practice that was paramount in addressing this medico-legal case. The section below looks at the extent to which records management practice was manifested within health institutions.

7.3 Assessing the challenges of managing records

The literature review in Chapters 2, 3 & 4 outlined the numerous challenges facing the management of records in South Africa. These challenges can be placed in several categories: historical, technology and innovation, those unique to the circumstances of the public health sector's configuration, as well as those related to facilitating records management. Different provinces in the country experienced these challenges in varying degrees of intensity. According to Respondent 2, if one assessed the extent to which records were well managed in health institutions within the provinces, then there were "two leading provinces", four average provinces and the rest that were not doing well. Most of the respondents' observations provided an overall description and only occasionally providing regional or institutional nuances. The sections below address each of these challenges in greater detail.

7.3.1 Historical legacy

As noted in Chapter 2 of this dissertation, the unique socio-economic realities dating back several decades have greatly impacted the health system. Over the period of its long history, the governance of the South Africa's health system had been, during certain periods, chaotic and fragmented and resources poorly managed resulting in a highly inequitable, expensive and inefficient system (Schneider, Barron et al. 2007 p. 290). The inequity was most obvious in the racially fragmented health system during the apartheid period and whose vestiges were still very evident almost two decades since apartheid was officially dismantled. During the apartheid period, the health system consisted of 14 different operating health authorities, ten in the Homelands and the other four in what was known as "white" South Africa (Kautzky and Tollman 2008 p. 20; Van Rensburg and Harrison 1995 p. 118).

Respondents noted that due to the legacy of apartheid the historical challenges were both in the transformation of provincial health administrations as well as within individual institutions. Respondent 15 shared the challenges in Limpopo province that inherited four previous health administrations from Venda, Gazankula, Leboa and Transvaal, each with its own administrative idiosyncrasies. The structural integration process was difficult requiring the creation of both geographical and bureaucratic coherence (Kautzky and Tollman 2008 p. 23). Respondent 8 added that individuals recruited for the post-apartheid amalgamation were often not appropriately skilled, particularly in management and communication, in anticipation of the challenges brought about by the transformation.

At the institutional level, physical structures had been built during the apartheid era to run parallel services for separate races. Respondent 18 described a hospital where there were two sections for every medical service, one side for Whites and the other side for Non-Whites and each with separate entrances. As a result, there were two separate “departments of medical records” which resulted in logistical problems when trying to retrieve information. Two decades since the political dismantling of apartheid, duplication of services had been such a challenge that large health institutions, in particular, were finding it difficult to rectify, short of demolishing expensive physical infrastructure.

Beyond just physical vestiges of the apartheid era, is the records management legacy. Respondent 22 argued that under apartheid the efficient records management system was, essentially, for control purposes:

To the extent that the system needed recordkeeping in relation to individuals [and] communities it would be done extremely thoroughly, that would be a general rule. But in relation to Black South Africans it would be, very crudely, about controlling those lives and controlling those communities.

For this reason, according to Respondent 15, if one was to “understand the challenges around health records” one would have to “realise that it is part of the legacy” the country had to deal with and address.

7.3.2 Unique circumstances in the public health sector

When assessing the records management challenges in South Africa there were a number of features, unique to the public health sector, either because they describe how the sector functions (i.e. the referral system), or the activities undertaken (i.e. medical coding), or the devices used in health practice (i.e. DHIS), or the context within which the sector had to operate (i.e. unique cultural challenges). These are discussed in the sections below

7.3.2.1 Referral system

Respondent 5, 6 and 19 noted that the referral system was supposed to ensure appropriate health services at the appropriate level. When the referral system was functioning efficiently, the fundamental records management challenge would be sharing of records amongst the health institutions at the different levels of care. According to Respondent 19, ideally the referral

process consisted of “a piece of paper which had hastily been scribbled” called a referral letter with “minimal information about the health of patient” being referred. However, in South Africa the referral systems had not functioned as effectively. Respondent 5 described the situation in rural primary care institutions that often had nurses but only occasionally got visits from doctors. In such a situation, patients would regularly be referred to secondary and tertiary institutions whenever they required more sophisticated levels of care. According to Respondent 5, over time the patients realised that if they went straight to the hospital they were sure they could get a doctor’s appointment and, therefore, resorted to going straight to hospitals thereby circumventing primary care institutions.

The mobility of patients within the referral system is further complicated in three different ways. First, according to Respondent 16, patients would visit different institutions over a period of time that would offer the same level of care such as different secondary care hospitals. Second, Respondent 19 argued that patients would visit institutions in different provinces, which meant the institutions fall under different jurisdictions. Third, according Respondent 12, the advent of the introduction of National Health Insurance would result in patients being allowed to visit health institutions in both the public and private sector. All these challenges would make the referral system very difficult to manage from a records management perspective even in the best of times.

7.3.2.2 Medical coding

Respondents 10 and 12 argued that medical coding was critical to the documentation of medical diagnosis. As noted in Section 7.2 of this chapter, ICD-10 is the country’s standard coding procedure and medical professionals were expected to use it. According to Respondent 10:

Coding training is very expensive and it requires very advanced training because, if it’s someone with no health background, they need to be trained on anatomy and physiology because it’s all about what is wrong where. Certain codes have got to make sense or not. And then over and above the anatomy and physiology training, you then start the actual coding.

Respondent 12 noted that a large percentage of medical professionals, including nurses and doctors, found it difficult to master all the codes they needed to use. In addition, medical coding in the country was seen as an issue that would become increasingly exigent. Respondent 12 argued that the advent of the new National Health Insurance scheme would require the correct

use of medical codes otherwise inaccurate coding would risk denying health institutions their rightful financial compensation for services offered.

7.3.2.3 District Health Information System (DHIS)

As noted in Chapter 4, the DHIS is a system originally developed by the University of Oslo and the Health Information Systems Programme in the Western Cape Province and funded by NORAD between 1996 and 1998 (Mars and Seebregts 2008 p. 8; Vital Wave Consulting 2009 p. 89). Respondents 2, 5, 7 and 19 discussed the DHIS at length. Respondent 5 defined it as the daily collection of information using tick sheets and Respondent 2 described it as a “brilliant statistical collection system”. Respondent 19 considered the DHIS as an excellent system for holding facility level information since it captured “the number of visits and the number of this and the number of that based upon paper records that they’ve maintained in those facilities”. According to Respondent 19, this information was aggregated amongst several facilities, passed on to the provincial departments of health and eventually provided to the National Department of Health.

Respondent 19 argued that one of the weaknesses of DHIS was that it was based on collecting information on paper rather than electronically. While the DHIS was a good system, Respondent 2 stated that it was neither a patient management system nor a record system. Respondent 2 further elaborated that the management of records in health institutions depended entirely on registers and there was, therefore, “no way of knowing what went on in a visit, never mind an episode of a number of visits”. Respondent 12 argued that data in DHIS was collected long after the patients visited institutions and depended entirely on how accurately staff remembered the activities of the day. Respondent 2 concurred stating that the data in the DHIS was, therefore, poor quality and could not be trusted. For this reason Respondent 19 stated that there was no provincial health department that could provide in-depth statistical information such as “the percentage of cardiovascular disease” since information in the DHIS was very rudimentary. Consequently, Respondent 7 argued that clinical records should be by-products of clinical activity rather than extracts from registers kept by nurses.

7.3.2.4 South Africa’s unique cultural dynamics

A nation’s culture includes both the distinct ways that people live as well as how they represent their experiences (Kalman 2009 p. 4). Language is a key aspect of ones’ culture and South Africa stands out as being one of the few countries in the world with 11 official languages as stated in Chapter 6 of the Constitution. According to the Constitution, the national as well as

provincial governments have to ensure that all official languages must “enjoy parity of esteem and must be treated equitably” (South Africa 1996bSection 6 Part 4). Respondent 2 argued that the English language had dominated the process of documenting health activities in South Africa. Respondent 7 concurred by stating that there had been numerous challenges in health institutions when staff tried conducting health activities in local languages and maintaining records in English because not everyone, particularly in primary health care institutions, was comfortable writing in English.

Another aspect of culture is the use of names. Clasberry (2012 p. i) argues that personal names in Africa have meanings and could either hinder or enhance life initiatives. This is because they served to establish one’s cultural background, providing information about affinity, express one’s spirituality and philosophy of life. Respondent 2 shared the unique tradition of interchanging first and last name depending on an individual’s cultural norms. In many institutions where hard-copy patient files were placed in alphabetical order by surname, the process of file retrieval was hampered because of the lack of mechanisms to search for both names that had been used interchangeably. This resulted in the creation of multiple files for the same individual further compounding weaknesses in the records management systems within such health institutions.

7.3.3 Facilitating records management

There are three main aspects to facilitating records management within health institutions: the record content, the records professional and the records management culture. The sections below discuss each of these aspects while the overarching impact of information technology is addressed separately in the subsequent Section 7.3.4.

7.3.3.1 The record

According to Respondent 2, there were numerous instances where records related to the health of individuals were generated, the obvious example being regular medical care activities within health institutions. However, such records were also generated in the process, for instance, of accessing social services where citizens applying for social grants have to prove eligibility to the Department of Social Services by submitting certain required documentation from a doctor. This discussion will however, concentrate on records generated and managed within health institutions. Respondent 15 argued that records were often not highly valued within health institutions. Respondent 1 added that, within health institutions, most of the attention was given to

patient records and not as much on other organisations records such as “procurement documentation, financial documentation, and HR documentation”.

Regardless of the types of records, a number of respondents noted that the information quality within most records was generally poor. Respondent 14 stated that there were concerns “about the completeness of records and the quality of the data in the records”. For Respondents 14 and 16, this was attributed to actions either by patients or by staff of health institutions. According to a number of respondents, there were instances when patients falsified their identities when going to institutions. Respondent 5 speculated that in the case of HIV/AIDS testing, an individual would seek a second opinion and decide to use a different clinic under a false name. According to Respondent 7, people had also falsified their blood in order to alter the HIV/AIDS results for purposes of accessing government grants. Respondent 2 provided another example:

you have an appointment to go and see a doctor at, let's say, Dora Ngiza hospital. Say you've got a sore knee, but your next door neighbour needs to go but they don't have an appointment. So you say “here's my card, you go”. So now you have a third record because the reason why you went to Dora Ngiza was for the sore knee but the uncle next door has got a sore leg. And the hospital is not aware that they are now dealing with two patients with one folder.

The direct result on records management would be that the records couldn't be presumed as being authentic since the integrity of the content is in question. The larger unintended consequence would be that the health care infrastructure was placed under enormous strain. Discussions on the actions by staff that contribute to poor records management are in Section 7.3.3.2.

7.3.3.2 The records professional

Respondent 8 and 22 argued that there was a lack of expertise in the management of records in every sector in South Africa and particularly in the public health sector. For Respondent 17, most primary care institutions didn't have dedicated staff members to maintain records and this was left for nurses who were too busy with their medical responsibilities to make records management a priority. According to Respondents 3 & 4, while some large secondary and tertiary care institutions had dedicated staff members, the quality of their contribution was uneven and depended on individual initiatives. Respondents 1, 2, 12, 17 and 22 argued that many of the dedicated staff didn't have the appropriate experience and training to fulfil their responsibilities. Several respondents offered at least three reasons for the poor state of affairs.

First, according to Respondent 6, very little money and effort had been spent training records professionals. Respondent 2 and 9 stated that there had been no in-depth education and training for those responsible and some of these individuals were fortunate if they even got “five minutes on the job training”.

Second, for Respondent 9, there were no qualifications that records professionals in the health sector could work towards. Even though an individual may have worked in a registry for twenty five years and “knows how to do filing”, that individual wouldn’t know anything else. Respondent 10 added that while the National Archives provided a short course for the public sector, it introduced the concepts without much detail.

Third, according to Respondents 1 and 8, often records management positions were occupied by individuals that had the least education and lowest skill levels. According to Respondent 2, a majority of the people responsible for managing records were either “nurses that were nearing their retirement” or non-medical people that were willing to be paid a pittance in salary. Respondent 8 added that some staff had been given records management responsibilities for disciplinary reasons. Therefore, for Respondent 20, these positions had become a dumping zone for “redundant people” and for such individuals, education and training wouldn’t have produced positive results.

Respondent 22 added that, generally, records professionals had not been successful at demonstrating the relevance of their profession to society. This lack of relevance was reflected not just within health care institutions but also at the National Department of Health where institutional records management challenges required resolution. For instance, Respondents 3 & 4 mentioned an initiative by the National Department of Health to develop file plans which had not been finalised or implemented. Respondent 22 suggested that records management professionals could rely on other professionals such as historians or medical researchers that would care about the negligence in records management within health institutions.

Respondent 7 contrasted the weaknesses in the quality of records in South Africa with the situation in the UK where clinicians were directly involved in the generation of the health record and ensured the contents were accurate and reliable because this helped them do their job better. In South Africa it was non-clinicians that were involved in documenting the records

management processes. For Respondent 7, when administrators were responsible for records then they wouldn't care about them but when clinicians were in charge then they had a vested interest in quality records management.

Nonetheless, according to Respondent 22, when compared to the situation in the mid-1990s, there had been progress in "giving a higher profile to records management as a discipline, creating posts for records managers, recognizing qualifications in records management" as well as in the professionals' remunerations. Unfortunately, similar to the trend in other sectors within the country, Respondent 22 noted that many of these qualified professionals would often move to higher paying jobs elsewhere and, therefore, did not contribute to a viable pool of professional expertise in order to both introduce as well as implement changes in a consistent and sustainable manner.

7.3.3.3 The records management culture

Records management culture covers a number of threads including the importance of records management within health institutions, the processes of managing those records and the patient-retained record. Each of these threads are discussed below.

Respondents 1 and 22 noted that in South Africa, records management was generally not highly recognised as a legitimate field of management as noted by international ISO standards. Respondent 5, 9 and 20 argued that many senior managers in health institutions didn't consider records management important to them for two reasons. First, some managers had the perception that records management was limited to the practical activity of filing. Respondent 1 argued that if a manager didn't first recognise records management as a management discipline that was necessary within their organisation, then they wouldn't even bother to find details about international standards that they needed to implement.

Second, according to Respondent 22, many managers were either not aware or convinced that records management was fundamental to the mission of their health institutions and, therefore, they attended to more immediate issues like keeping theatres operation and saving lives. For Respondent 14, this may have been rooted in the insufficient understanding and recognition of the importance of records as a resource in the work of medical practitioners such as doctors, nurses and physiotherapists. Respondent 22 added that few managers recognised patient files as valuable for longer-term research goals and, therefore, needed to be retained and not

destroyed as ephemeral records. For Respondent 7, the lack of awareness amongst medical practitioners was surprising because South Africa's medical education system used a problem-oriented records management paradigm where practitioners documented "a decision tree way of thinking" that was ideal for demonstrating the clinical decision system and for managing records. Respondent 7 argued that unfortunately, this problem-oriented records management was antithetical to the use of the DHIS process of collecting statistical information from registers. According to Respondent 9, the lack of awareness of records management was pervasive even amongst policy makers in the Department of Health who didn't know which directorate to place the records management function, with the choice of either Knowledge Management or Information Technology. However, Respondent 14 preferred to see the glass half full arguing that even though the awareness had been acute since 1994, it had improved and that there was still room for further broadening of awareness particularly since records were now in both paper and electronic formats.

Another characteristic of records management culture in many health care institutions in the country is the presence of the patient-retained records. According to Respondent 10, this phenomenon was the result of patients having to "wait for hours while someone was looking for their records before they could be attended to". Therefore, institutions decided that if the patients kept their own records and brought them for every visit this would save on the period spent on searching for these records and the patients would get faster medical service. Respondent 17 argued that patients were given their files to take home fundamentally because health institutions managed records very poorly. Respondents 3 & 4 echo these sentiments by stating that health institutions preferred this paradigm "because of the difficulty of managing and retrieving" patient records. Respondent 10 stated that the paradigm was most common in primary care institutions. Respondents 3, 4 and 7 noted that a number of hospitals, including some of the largest in the country also practised this paradigm although not as widespread as in primary care institutions.

A number of respondents argued that most patients didn't manage their records well. Respondent 17 stated that choosing to give patients records often meant that patients damaged or lost these records resulting in potential breach of confidentiality of the contents of records. Ultimately this would mean poor services when those patients needed medical assistance. Respondent 20 argued:

you must not give the record to the patient so that he walks away with it. Because it's a common practice that a health practitioner looks after a patient they then make whatever recommendation they go and get medication and then they walk away with that record they are given the file to go home with it. Because it's an admission of failure in my mind and something that I think departments must be taken to task on. Because you don't admit your failure to that extent where you...dereliction of duty...where you now make it the responsibility of the patient to look after their own record whereas it's the health practitioner's responsibility or the institution to look after the record.

The presumption in the patient-retained records paradigm was that, since institutions had failed to manage records well, patients would be able to do that. According to Respondent 21, poorly managed records within these health institutions had hampered operational effectiveness and debilitated prospects for long-term medical research. Therefore, the health institutions that resorted to patients retaining their own records were abdicating their institutional responsibilities to manage these records efficiently and solved the retention issue by simply transferring the responsibility from the institution to the patient. Ideally it would have to be the responsibility of health institutions to manage patient records. This would ensure that records management principles such as the use of file plans and retention schedules would be adhered to consistently when the records were kept under institutional custody. Therefore, it was not surprising, according to Respondent 14, that there were efforts in the clinics to have these patient-retained records returned back although these efforts were not widespread in all the provinces. Respondent 19 differed with other respondents by arguing that South Africa had "never really moved towards any kind of patient-carried record" dampening the view that patient-retained records were a widespread phenomenon.

7.3.4 Technology and innovation

Information systems have been in place in South African hospitals as early as the 1970s and have been used to manage hospital operations in a variety of ways. Respondent 18 shared the experience of working as a doctor in the mid-1970s in a South African hospital where the doctor's notes were sent for typing after each ward visit and were ready for use in the next visit. Respondent 2 shared the experience of a material's management information system implemented in the mid-1980s in a large hospital in the Western Cape. The system kept track of both fixed assets as well as consumables including things like cups and saucers, bed sheets,

sanitary towels and toilet rolls. According to Respondent 2, the information system helped determine usage patterns and assisted in monitoring and reducing pilferage.

Over the last two or three decades, information systems have become more sophisticated in automating institutional processes. The sophistication is the result of innovations that have addressed certain challenges in the management of records within health institutions. According to Respondent 1 and 16, the push towards having more information systems within health institutions was because organisational processes were still “very manual and very paper-based”. Therefore, there was a considerable amount of frustration because hard-copy records can only be accessed by one person at a time unless there were efforts to photocopy such records. Additionally, transmission of hard-copy records over large geographical distances would require the use of couriers or through sending fax messages. Lastly, manual techniques of retrieving large amounts of records would often be arduous. Respondent 16 argued that a doctor would write on a piece of paper and that information would have to be physically transported to a pharmacist or any other part of the health institution for them to perform their activities. Unfortunately, the process was cumbersome and slow and the health professionals could not have simultaneous access to the records.

Therefore, information systems offered opportunities to overcome these challenges by ensuring multiple access to digital records, instant transmission and efficient retrieval using multiple search criteria. Information systems are, therefore, enhanced communication and coordination in health institutions. According to Respondent 18, information systems facilitated discussion between clinical personal, for instance, a pharmacist and a doctor discussing a particular prescription. Respondent 5 added that technological innovations have enabled remote access of medical expertise through telemedicine; particularly useful for rural clinics that only have occasional visits from doctors. Nonetheless, there were numerous challenges to introducing and managing any technologies or innovations in a sustainable manner. These are covered in the subsections below under the following themes:

- Systems implementation
- Electronic Health Record
- Storage
- Technology and its impact on the trustworthiness of records
- Hybrid reality

7.3.4.1 Systems implementation

The introduction of an information system within a health institution is a complex process. It requires understanding the existing processes within the institution and how technology could enhance them. According to Respondent 7, both health and non-health professionals needed to understand system implementation issues such as systems analysis, soft systems theory and chaos theory because “complex adaptive systems like hospitals need complex solutions”. According to Respondent 10, the complex work processes, particularly in large institutions, would involve varied activities such as: registration of patients, a station for collecting their vital signs, consultation areas where they see a nurse or doctor, an investigations area where they take specimens or x-rays and other areas like physiotherapy, counselling or in-patient wards. Augmenting the administrative processes of these sections would, therefore, be the key to success.

Unfortunately many health professionals didn't have a formal introduction to information systems. According to Respondent 2, “less than half of the nursing colleges...attached to a hospital with an information system even [had] one half day module on how to manage the information system” that these trainee nurses were supposed to use. Additionally, non-health professionals often didn't understand the full impact of the introduction of an information system. For instance, Respondent 7 argued that project managers saw the introduction of a new hospital information system merely as the implementation of technology rather than a revolutionary change of how the institution conducted its activities.

In addition, system implementation requires acknowledging that a health institution may have one or more legacy information systems. Respondent 5 noted that there were a considerable number of institutions with legacy systems that needed to be integrated with or upgraded to modern ones. Unfortunately, the transition process from one system to another had, in some cases, not been managed well. Respondent 2 cited the example of a large South African hospital where the information system had been changed five times within a decade. In another instance, while upgrading from a system that had been used for 20 years, authorities decided not to migrate data into the new system. For Respondent 2, there could have been a number of reasons for why the data may not have been migrated, for instance, due to system rigidity, but argued that there should be ways of ensuring historically valuable information was not lost in the upgrade process.

Finally, according to Respondent 10, a number of implementation issues were often ignored including the costs of software and hardware as well as human resource requirements. Respondent 18 noted that there were two types of costs for both software and hardware: capital costs at the introduction of a system and the operational costs to sustain the infrastructure. In addition, the human resources costs entailed getting expertise on how to implement the systems. Respondent 2 noted that since very few staff in health institutions had system implementation skills, the work was often outsourced to consultants. Respondent 2 added that the staff would get trained and “as soon as they were up to a certain level of training”, they and/or the supplier of the information system come to a deal where the staff resign and get employed by that company only to come back to the hospital for three times the money. It’s a win-win situation for two of the three parties, the health institution being the only loser.

7.3.4.2 Electronic health record

There have been efforts in South Africa to introduce an electronic health record (EHR) for several years. Respondents held differing views about what constituted the EHR project and how it should have been carried out. Initially, according to Respondent 19, the project was to introduce a smart-card health record as the EHR that would be “populated out of hospital information from most of the provincial facilities” that had information systems in place but be accessed and maintained at the primary care facilities “through a smart-card and a single card reader and PC”.

However, over time there had been numerous concerns about the project. For Respondent 12, the tender process was initially badly defined with specifications that looked more like a request for information rather than the scoping of objectives. For Respondent 12, the project had a top-down approach rather than having a good sense of the reality on the ground. Additionally, the project would have been very difficult to implement if the contents of the EHR would come from information systems used in provinces since each province would need a separate EHR project because they function independently both legally and infrastructure-wise. According to the Department of Health (2012c p. 14), there were at least 15 different patient management or hospital information systems in use in the different provinces as shown in Table 17 of this dissertation.

A number of additional challenges hampered the EHR project. For Respondent 19, there were jurisdictional challenges in managing the records of high number of migrant labour across

different provinces. Respondent 10 and 18 added that each health institution would require skilled staff members that are able to work on the computers resulting in enormous cost for both installing the technology as well as equipping individuals with requisite skills. Additionally, Respondent 19 noted that the EHR project was not only expected to cover the public sector but also encompass the private sector. For all these reasons, Respondent 10 and 21 argued that South Africa was “light years away” from realising the EHR project.

In order to counter these challenges, a number of respondents described private sector initiatives that could, for the time being, provide alternatives to the EHR. Respondent 12 owned a company that had developed an information system with several modules for institutions’ activities such as: patient administration, billing, pharmacy and inventory management. As a by-product of all these processes the system generated the patient’s health record. Respondent 19 was in another company that had developed a commercial version of the EHR. This personal health record had a backend system that collated a patients electronic health information from a variety of service providers in a common platform and, therefore, accessible from different health institutions.

7.3.4.3 Storage

Respondents 10, 17 and 19 noted that the most visible challenge with the management of records was often the lack of adequate storage space. Respondent 19 stated that records were often stored in disparate areas in an institution making retrieval inefficient and negatively affecting the quality of health care services offered. Respondent 10 and 22 made the general observation that most of the larger health institutions didn’t have a way of coping with the large volumes of records they had, resulting in records being kept outside regular storage areas and often found in passages, toilets and kitchens. Respondent 17 shared the experience of inspecting a health institution’s record storage area only to find it dirty and dusty, infested by pests, with poor lighting, and at risk of damage to the records from leaking water pipes.

National and provincial archival institutions are legally required to provide space for storage of semi-active records for public institutions. According to Respondent 22, these institutions didn’t have “the capacity to manage large volumes of records efficiently over time”. Therefore, several respondents noted that health institutions had to find different options to address this discrepancy including: use of microfiche technology, off-site storage and bulk scanning.

Respondent 10 and 18 argued that due to the significant numbers of hard-copy records in the 1970s and 1980s, large hospitals used microfilm and microfiche systems that reduced the space needed to store records. According to Respondent 18, many of these systems had become obsolete because their technical suppliers had either moved with technological curve or gone out of business. Respondent 10 shared the experience of a large hospital that had used a microfiche system for almost a decade but the system could no longer cope with the retrieval requirements from the vast amount of records it maintained.

Health institutions also used off-site storage companies as another option to address the storage issue. According to Respondents 19 and 22, the use of commercial companies to supply offsite storage services had been seen as a more sustainable solution. Respondent 10 added that one of the provincial departments of health had already started exploring possibilities of working with a commercial company but reiterated the need to have a comprehensive records management programme with policy and procedures within the institutions rather than entirely abdicating the records management responsibilities to the private firm.

According to Respondent 10, the third storage option for health institution was the use of “bulk scanning of existing paper records and getting them stored onto a PC”. According to Respondent 18, there were two types of scanning: back-scanning that simply scans legacy records and forward scanning where one identifies records needed for a future appointment and, therefore, the records being scanned in anticipation. There was limited back-scanning in the institution where Respondent 18 worked because there were “too many records in the warehouse to scan everything”. For Respondent 12, 13 and 16, scanning was seen as appropriate in order to leverage several benefits such as faster retrieval of records, provision of multiple access to the records and also allowing the institution to manage its records on-site. However, as noted in Section 7.3.4.4, issues of records trustworthiness need to be addressed for this option to remain viable for the long term.

7.3.4.4 Technology and its impact on records trustworthiness

According to Respondent 6 and 16, the use of technology and, in particular, the conversion of paper to digital records provided numerous benefits but also raised several legal questions on the trustworthiness of the records. According to Respondent 6, an exercise in scanning needed to follow formal procedures that were within an institutional policy environment and cognisant of national legislative requirements. Respondent 18 described instances in a health institution

where the digital copies of records were not sufficient to address legal obligations and, therefore, original paper records were necessary. For Respondent 6, merely scanning and disposing the paper may “destroy part of the chain of custody or part of evidence chain of that information” and provided an extensive explanation about characteristics inherent in paper:

The paper environment in a sense was really forgiving in that sense because of the forensic characteristics inherent in paper, if that same piece of paper lay around in various different offices over time, no-one had real custody over it. But at some point within discovery we use it in litigation. Then we could always, on a forensic basis, do things like carbon dating on the writing of a document. If you look at the writing, you could investigate or look at the indentation points in the handwriting to determine whether in fact this was someone's handwriting.

The other concern regarding trustworthiness was the risk of modifying digital content without trace. According to Respondent 18, while there was no fool-proof way to always stop humans from accessing and modifying digital records, institutions needed mechanisms such as passwords to manage access restrictions. For Respondent 6, there was no electronic equivalence to the hard-copy possibilities of carbon dating ink, dusting for fingerprints as well as studying other aspects of the document that could help determine authenticity and reliability. Therefore, Respondent 16 argued that “until things are tried and tested in the courts” there would be reluctance to fully shift to electronic records and get rid of paper records.

7.3.4.5 Hybrid reality

Respondents 1, 10 and 16 noted that there had been a concerted effort to introduce technology within health institutions with the vision of having a fully digital environment. However, as outlined in the preceding discussions of Section of 7.3.4, there were concerns with regards to both fulfilling legal obligations as well as multi-faceted technological pre-requisites such as integrating different information systems, managing change processes and getting appropriately skilled staff. In addition, Respondent 1 and 16 noted that changing the current “manual and very paper-based” records management traditions within health institutions would be difficult to phase out because health professionals still preferred to use paper. Respondent 10 shared the experience of one hospital where, even though it was supposed to be fully automated, there were parallel teams with one running an automated system and the other a manual system. According to Respondent 18, many health institutions required individuals systems to management their labs, x-rays and other services. In order for these systems to function only in

digital format it would require complete and flawless integration, something that would be very difficult to achieve. For these reasons, Respondent 19 argued that the transition to fully electronic format would likely take a while.

Respondent 10 noted that having one health institution with a totally digital environment while others that didn't have the technology would jeopardise the continuity of care for the patient whose records were not directly linked to each other across hospitals in the same region. Therefore, the logistical challenges were not just within a health institution but also between health institutions that were supposed to be offering complementary services. In this case, Respondent 7 stated that health institutions needed to introduce open rather than proprietary systems that would ensure ease of sharing of data.

For Respondent 14, health institutions would have to operate within a hybrid reality where both paper and digital records co-exist for the foreseeable future. Respondent 18 stated that a hybrid environment with the transition to a fully digital environment was dependant on whether an institution had the appropriate integration and quality control mechanisms. In this hybrid environment, Respondent 10 argued that automation needed to begin with basic processes of capturing routine data such as demographics that documented patient visits to a particular facility as well as information on billing which could be extracted from the discharge summary. In addition, for Respondent 14, technology could be used to track paper records thereby assist in patient management activities. Respondent 19 described an example of a large health institution where tracking of files revealed that patients spent a considerable amount of time at the pharmacy. Instead of taking 10 minutes to get there and back, patients would spend up to an hour "getting from the doctor who made the diagnosis down to the pharmacist". An investigation revealed that patients took the opportunity to meet and chat with friends while on their way to the pharmacy and that merely looking at numbers would not have revealed the social interaction opportunities. Within clinics, Respondent 7 argued that virtual registers could be used to keep records electronically and then compile reports at the end of the week in order to fulfil DHIS requirements more efficiently. For Respondent 19, the hybrid reality, therefore, meant that the EHR wouldn't consist of complete documentation of a patient's health encounter but rather a super-record constituting minimum patient information in digital format and the rest of the records in paper format.

However, not everyone believed that the hybrid environment should exist in perpetuity. Respondent 18 argued that it was necessary to run both electronic and paper systems “for a short time” with the ultimate aim of moving to the full digital environment as soon as possible.

7.3.5 Comparing primary health care institutions with secondary and tertiary health care institutions

In addition, to the challenges noted in the preceding discussion of Section 7.3.4, this section describes the nuanced differences found between primary health care institutions on the one hand, and secondary as well as tertiary health care institutions on the other. One nuanced difference is in the introduction of information systems in health institutions. Respondent 18 stated that the earliest introduction of an information system within the health sector was in a hospital in the 1970s with a system predating DOS, working within a mainframe type of environment. In contrast, most primary care institutions were introduced to information systems with the advent of DHIS in the late 1990s (Mars and Seebregts 2008 p. 8; Vital Wave Consulting 2009 p. 89).

7.3.5.1 Records management challenges in primary health care institutions

Respondent 19 argued that since primary health care institutions were small then they should be expected to have efficient records management. However, that was not the case and respondents observed three contributing factors: inadequate staffing for the records management function, poor implementation of technology to improve records management and rudimentary records management processes.

First, several respondents noted that, most clinics didn’t have dedicated staff to manage records. For Respondent 5, a typical rural clinic would have five to fifteen nurses with no doctor. These nurses were responsible to document and manage the documentation of all clinical activities. However, the nurses would have too many other pressing clinical duties to be engaged in accurate and efficient records management activities. According to Respondent 2, most of these nurses had never received any records management training and, therefore, shouldn’t be faulted for not fulfilling their records management responsibilities. According to Respondent 7, there were a few clinics where non-nurses were made responsible for the records, but this was the exception rather than the rule.

The second challenge was the extent to which electronic systems had been embraced in clinics. Respondent 19 noted that a number of clinics had tried implementing electronic systems but only about five percent of the clinics in the country had done so successfully. Respondent 19 added:

in the Eastern Cape, in Port Elizabeth, we had four clinics, big clinics with up to twenty doctors in each clinic entirely electronic. No paper records. That included all their things like their TB registers, their chronic patients, paediatric specialities... And all of those were fully electronic in those institutions. But there are very few like that. Out of something in the region of four thousand primary health care facilities in the country I don't believe you'll find more than a hundred have got any kind of computerisation that's of use.

Respondent 5 shared the experience of a number of small clinics that had introduced a primary health care clinic-based system that used an open source database with each clinic hosting a server and four or five laptops that were used by the nurses. Implementation of the system in these clinics started with the administration section but moved to the clinical sections, focusing on hypertension and diabetes. According to Respondent 5, the challenge of technology adoption at the clinic level was two-fold: the lack of infrastructure and the lack of technology skills. In terms of infrastructure, the absence of regular electricity supply in many remote part of the country hampered the reliability on technological application to consistently support institutional activities. In addition, the computer literacy levels in many of the small remote clinics was very basic, to the extent that issues such as word processing or even running virus scans were considered advanced by many of the staff, therefore, hindering rather than helping institutional productivity.

The third challenge was that the records kept in clinics were often very rudimentary. According to Respondent 10, some clinics would keep cards with patient details in boxes that were:

about 50 cm long and about 15 cm wide and they would file the cards in there alphabetical. So you would have a number of steel boxes and one would contain the *As* and one would contain the *Bs* and the *Cs* and so on. But population grew. The client base grew. And they grew out of space to keep those steel boxes.

In other clinics, according to Respondent 5, patient records consisted of pieces of papers kept in boxes while in other clinics there were no files or boxes, just pieces of papers. In yet other clinics, according to Respondent 7, medical activities were documented in registers. However, keeping information in registers had three challenges. First, the purpose of the information was

not for the clinical staff in the institution but rather for statistical information sent to head office. Second, there was often only a limited number of registers and the documentation process was cumbersome as nurses waited for each other to write down each encounter. Lastly, Respondent 7 noted that there were concerns about the validity of information in registers:

Now I talk to people who work in clinics and doctors who have been working around here for 30 years, and they reckon that probably four times that number is being seen. So why is there a difference between the recorded and the actual? Well people leave the recording until the end of the day, the end of the week and then fill in the register.

Respondent 2 argued that the only clinics that had good records management were those dealing with HIV/AIDS because funding agencies required accurate data collection stating:

What HIV/AIDS has done is it has introduced some systematic approach to documentation because you have to do that. You have to record certain things. That record has to be kept because people monitor it. And you have to produce statistics at sub-district, at district, at regional and then at provincial level and they in turn feed that up into the national level. Some of those processes take place on an information system, most are still paper-based.

However, according to Respondent 2 even in these HIV/AIDS clinics it would seem that records were merely kept to fulfil the needs of the funders rather than forming a basis for institutional memory.

7.3.5.2 Records management challenges in secondary and tertiary health care institutions

According to Respondents 2, 13, 14, 17, 18 and 22, there were two main challenges in the management of records in secondary and tertiary health care institutions: lack of adequate storage space and lack of institution-wide records efficiency.

According to Respondent 14, the most evident records management challenge in hospitals was the lack of adequate “physical space for storage of records”. For Respondent 18, this was not only because these institutions generated large amounts of records, but also that the institutions retained all their records without disposing any. Respondent 22 shared the case of a health institution that had been established in the late 1800s that had “never destroyed any records”. As noted in Sections 7.3.3 and 7.3.4 above, there are different ways hospitals had addressed the deluge of records. Some had tried to use technological options to varying degrees of

success. However, legal uncertainty and financial constraints had meant that no health institution operated in a fully digital environment.

For Respondent 2, a less evident but more disconcerting challenge was the presence of islands of efficiency in the midst of a dysfunctional records management environment in the health institution. This environment was typified by duplication of records at different medical service points. Respondent 13 described an institution that kept a central file in one part of the institution yet in another part, such as the pharmacy, there was a complete duplicate set in order to keep “the full record of all medication” given to a patient. Respondent 17 described a large hospital that had its paediatric section, general section and maternity ward working very independently. In such a large institution one of the sections may have managed their records very efficiently while all the other sections managed their records very poorly. For Respondent 17, these islands of efficiency were often the result of an individual staff member taking the initiative to address records management problems but without any centrally coordinated efforts across the entire health institution. Respondent 2 echoed this view stating that within large tertiary hospitals that were connected to teaching universities, the content of records was probably much better maintained because the “practising interns and consultants” that used the records for further research would “honour the content of the records more”.

As the sections above have illustrated, the challenges of managing records were numerous and multi-faceted. This would suggest there was no such thing as a silver bullet or single methodology that could address these challenges. Section 7.4 provides a general framework provided by the respondents to address the challenges of managing records in South Africa’s public health sector.

7.4 Identifying appropriate records management interventions

As shown in the preceding Section 7.3, there were numerous challenges within the country’s health sector. The third objective of this research study is identifying appropriate records management interventions at both policy and operational levels in order to assist the management of records in health care institutions. This section identifies these policy and operational interventions under two sections:

- legislative and regulatory that cover mostly policy level interventions, and
- records management infrastructure that cover mostly operational level interventions.

7.4.1 Legislative and regulatory framework

From a historical perspective, Respondent 22 noted that at the dawn of the new democratic dispensation, there was a crisis in many health institutions at every level and there was, therefore, a need to have both short term and long term goals for the extensive transformation required. According to Respondent 15, the transformation was not only needed in health institutions but also within the provincial administrations and particularly how their health departments would be structured, their strategic goals as well as staffing and financial resources.

Several respondents noted that South Africa's legislative and regulatory framework required sophisticated analysis because of its level of complexity. According to Respondent 6, there were approximately 1100 active Acts with about 200 applying to health institutions directly and, therefore, monitoring their provisions on issues such as "the retention of records, destruction and handling criteria" could be onerous. Respondent 8 illustrated the enormous nature by stating that a law may say a record had to be retained for two years while "another piece of legislation might say you need to keep it for five years" which means the record would need to be kept for the longer period to fulfil both laws. Therefore, for both Respondents 6 and 8, there was need for health institutions to prepare mechanisms for a thorough assessment of records retention requirements in all the applicable legislative instruments.

In addition, Respondent 8 argued that the issue of management of personal information emanating from existing and upcoming laws related to privacy needed prompt policy decisions from health institutions. Therefore, Respondent 8 advocated for health institutions to prepare privacy impact assessments in order to assess the kind and amount of reform required to revamp their records management systems. These assessments would identify the privacy requirements and prepare mitigating mechanisms to be undertaken by the health institutions.

The underlying theme within the legislative and regulatory framework discussion was compliance. Several respondents noted that it was not enough that a rule or provision existed and that health institutions were aware of their existence. For the respondents, it was more important that these institutions could demonstrate their compliance to the rule or provision. According to Respondent 8, 9 and 20, compliance could only be determined through audits conducted with a clear understanding of three important aspects:

- who should do the audit,
- how audits should be done, and
- the kind of audit requirements should be followed.

On the first issue of who should conduct audits, Respondent 20 argued that records management audits in health institutions should be conducted by the relevant provincial archival institutions that should determine how each of the health institutions within their jurisdictions “preserves records” and make them accessible.

The second issue was how audits should be conducted from the perspective of those conducting the audits as well as the institutions where the audits were conducted. From the perspective of those conducting the audit, Respondent 8 argued that there was need to determine the status quo within a health institution and then determine what laws and regulations applied to the records. From the perspective of the institutions where the audits were being conducted, Respondent 20 stated that many health institutions didn’t take remedial action whenever records management audits showed the institution had poor records management unless there were risks of being taken to court. Respondent 20 added that whenever most executives of health care institutions took preventive measures to mitigate the risk of medico-legal cases, improving records management was rarely one of those measures. Additionally, many health institutions responded reactively to audits. For Respondent 8, there was need for a proactive response which includes assessing what could go wrong with regards to records management and putting in place mitigating mechanisms. Respondent 6 added that, in order to prepare for litigation, institutions had to determine the kinds of records that need to be created and work towards their protection by ascribing “certain handling criteria and retention requirements”.

The third issue was the kind of audit requirements needed to be followed. Respondents 1 and 21 noted that there were a number of records management standards that could provide guidance but faulted the standards for not being designed as auditable requirements. Respondent 1 argued that ISO 15489 would have been much better if it was an auditable standard in order to have a better impact within an organisation. Respondent 1 admitted that merely having an auditable standard was not enough because a recommended list of changes based on a standard was not enough for a health institution. Respondent 1 added that it would also require “experienced records management personnel to interpret understand and

implement the standard". Respondent 21 argued that for audit requirements to be followed consistently, there was need for an accreditation mechanism with a comprehensive compliance regime. Respondent 21 described an institution in South Africa that had such a compliance regime that also included the assessment of health records in its assessment requirements. For instance, in order for the accreditation institution to conduct pre-operative and post-operative anaesthetic assessments in a health institution, they would audit the health institution's records to see if they met records management requirements. One such requirement would be the completeness of patient records looking at such details as immunisation, nutrition, biographical details of the patients such as educational background as well as copies of discharge summaries. These requirements were consistently audited regardless of the department being assessed within a health institution.

7.4.2 Records management infrastructure

The identification of operational level interventions to address records management challenges in health institutions is complex. Section 7.3 above identified numerous records management challenges which are both diverse and interlinked suggesting that there is no silver bullet to address all of them. The respondents identified a number of interventions and these are divided into three main sections:

- health sector,
- facilitating records management, and
- technology and innovation.

7.4.2.1 Health Sector

Several respondents suggested a number of interventions to address the three key challenges generally affecting the health sector as identified in Section 7.3: cultural differences, medical coding and the referral system.

As highlighted in Section 7.3.2.4, one of the main challenges in the cultural sphere was the varied ways that individuals would present their first names and surnames for patient registration processes making it difficult, in a manual records management system, to retrieve files. Several respondents suggested trying to impose a naming convention when initially registering patients. However, this was seen as too limiting particularly in larger institutions where a flexible electronic mechanism that searches all possible names during file retrieval would be more appropriate.

Another option was the use of the South African Identification Card (ID) number issued by the Department of Home Affairs. The ID number was already being used in many other activities such as citizen registration to vote, opening of and management of bank accounts, as well as verification for those entitled to receive social grants. However, Respondent 14 was uncomfortable with extending this use of the ID number to the health sector because of the risk of breaching privacy guidelines. The last option was the use of fingerprint technology which had been used in a number of smaller clinics where clients had low literacy levels. For Respondent 5, the main hindrance in using fingerprint technology was the reliance on electricity since it was often unreliable in many remote parts of the country. While renewable energy alternatives such as solar or wind could be more reliable, this would mean a high investment in infrastructure yet those scarce financial resources would be needed for more basic institutional requirements like medicines or surgical supplies.

The second challenge was on medical coding, where health professionals found it very difficult to master all the codes that they needed to use in order to accurately document the medical care they provided. Respondent 10 described the situation in one province that had decided to hire specially trained medical-coding staff members to add to their existing staff and thereby multiplying operational costs in the health institutions. Respondent 12 argued that the best way to address the coding challenges was the use of technology with software that would either allow keyword searching or that had customisation in order to provide easy access to the most frequently used medical codes for different categories of health professionals.

The third challenge related to the patients circumventing the referral system because of poor service at the primary care level. Respondents suggested a two-pronged approach: a patient management perspective and the perspective of managing records. From the patient management perspective it was essential that patients receive the appropriate level of care in the right institution. This would mean that minor ailments are handled in clinics thereby freeing secondary and tertiary level institutions to address more complicated health issues requiring higher levels of specialisation. Respondent 5 argued that the use of telemedicine, particularly in rural clinics, could offer assistance to patients who got visits from doctors only occasionally. From the perspective of managing records, Respondent 19 discussed the building of an electronic health repository in Northern Cape Province that provided a variety of institutions remote access to core health records of a patient. For Respondent 19, one of the advantages of the repository was that patients wouldn't be asked the same repetitive biographical or basic medical history

questions already available in their core health record such as blood group type, date of birth, allergies, chronic conditions etc. Another advantage would be in efficient management of supplies within institutions such as the distribution of medicines. According to Respondent 19, the patient should be considered the owner of the electronic record. Respondent 2 described the existence of data warehouses that collected information related to health transactions and that were employed for medical analysis. Unfortunately, these data warehouses were entirely managed by private institutions meaning that the rich data content couldn't be harnessed by public health institutions.

7.4.2.2 Facilitating records management

Section 7.3.3 offered analysis on three aspects of facilitating records management: the record, the record professional and the records management culture. The respondents offered suggestions to address these challenges as discussed below.

7.4.2.2.1 *The record*

According to Respondent 19, in theory the pressure to effectively manage the access to hard-copy records required institutions to compile a master file for each of their patients. For Respondent 19 the reality, especially in large health institutions, was that several copies of incomplete records were kept in different medical service points such as maternity or psychiatric wards. This kind of duplication made it difficult to manage retrieval and access of complete medical histories when they were required, for instance, in medical-legal cases. Respondent 18 argued that the solution would be to have digital records in technological environments that could facilitate multiple access within a strict permissions regime. Respondent 18 added that these systems would need passwords and "layers of security" in order to regulate access and monitor any breaches.

7.4.2.2.2 *The records professional*

Respondents 8, 17 and 22 argued that there was a lack of expertise in the management of records in the health sector in the country. Two levels of education and training would be required in order to address the challenge: a general awareness course for all health sector professionals and a detailed programme for all those directly responsible for records management within health institutions. Respondent 15 and 20 argued that all health sector

workers needed a basic understanding of records management and its relevance to their work in order to improve efficiency within the health institution.

For the Respondents 13, 14, 15 and 17, the education and training of those directly responsible for the records management function within health institutions was a much bigger challenge that required detailed planning and adequate financial and intellectual resources to implement. This was necessary both within specific institutions as well as the generic national level. Respondent 14 argued that within institutions there was need to recognise the records management function as a legitimate profession within the health sector with responsibilities such as “coding, managing records, managing records systems and so forth”. In this regard, Respondent 17 argued that health institutions needed to appoint individuals that would be directly responsible for records and then get them trained. For Respondent 13, managers needed to ensure that records professionals were not too low in “pecking order” within the health institution’s management structures as well as make certain that the records professionals’ career development was considered a priority. Respondents 14 and 15 argued that the records management staff often had a variety of academic backgrounds including: information management, information technology, librarianship or even came from the health sector such as nursing. According to Respondent 15, it was necessary to “streamline the training” of people from these diverse backgrounds in order to ensure that their prior learning did not work counter to the records management responsibilities, for instance, librarians managing records the same way that they would provide library services. Respondent 17 noted that ultimately the education and training of records management professionals needed to be in line with the realities within the health institution including storage needs, information systems used to manage the records and the legislative and regulatory requirements applicable.

From a generic national perspective, Respondents 8 and 22 argued that extensive education and training opportunities needed to be developed for the long term, complimented by appropriate career paths for the records professionals in the health sector. Respondent 15 argued that there was a need to create a professional category known as “health information practitioner” that would be responsible for the management of health records with sub-disciplines such as “health informatics”. For Respondent 14, this professional category and its sub-disciplines would require education and training programmes accredited by South African Qualifications Authority (SAQA). Respondent 14 described the situation in the US and other countries in the global north where there were separate associations for health records

management adding that South Africa only had the South African Health Informatics Association (SAHIA). According to Respondent 14, SAHIA could start a special interest group for health records management within South Africa while the Association for Health Information and Libraries in Africa (AHILA), even though it was an association for health librarians, could also offer opportunities for health records on a continental basis.

7.4.2.2.3 *The records management culture*

As noted in Section 7.3.2, the challenges related to records management culture are multi-faceted encompassing the importance of records management within health institutions and patient-retained records. Several respondents suggested a number of suggestions to address these challenges including:

- Provision of guidelines for filing as well as retention and disposition,
- Getting management support within health institutions,
- Ensuring government support, and
- Professional advocacy.

Each of these aspects is discussed below.

7.4.2.2.3.1 *Provision of guidelines for filing as well as retention and disposal*

The two most prominent tools for effective management of records are a file plan as well as a retention and disposition schedule. As discussed in Section 7.3.3.3, there were numerous challenges in file plan design but the paramount challenge was how different guidelines were used to design file plans for the management of patient records compared to other administrative records. Some health institutions facing serious filing problems had resorted to getting assistance from commercial companies. For instance, Respondent 11 worked for a company that offered a filing system solution for health institutions that, supposedly, made the retrieval processes systematic and easy to use. However, individual institutional responses were only stop gap measures and, as Respondent 11 noted, nobody was providing “policy and procedural clarity” resulting in varied filing procedures undertaken in different institutions. Respondents 3 & 4 suggested that, even though provincial archives were the institutions directly responsible for file plan design in health institutions, the National Archives should provide nationwide direction.

The suggestions made for retention and disposition schedules followed a similar pattern. On the one hand, Respondents 3 & 4 believed the responsibility for developing these schedules lay with the National Archives while on the other, Respondents 13 and 16 argued that this had to be done by either the National Department of Health or individual health institutions. According to Respondents 3 & 4, a number of retentions schedules for records in the health sector had already been designed and issued by the National Archives during the apartheid era but they needed updating. From a health institution's perspective, Respondent 6 argued that the development of a retention schedule required an "integrated approach amongst various disciplines within the organisation". According to Respondent 21, once records had to be disposed using the retention and disposal schedules, the disposal processes would have to comply with confidentiality and security requirements within laws and regulations of the country. Respondent 6 argued that there had to be a formal process for disposal of records that needed "to be documented along with the rationale for doing it [in order] to show diligence in future" in case there was a legal challenge and this would include having a destruction register. Respondent 17 argued that institutions that practiced patient-retained records were indirectly avoiding the responsibility of both determining a retention period for the file as well as managing the retention or disposal process. For this reason, Respondent 13 stated that the Department of Health needed to play a bigger role in the uptake of retention schedules within health institutions.

7.4.2.2.3.2 Getting management support within health institutions

Management support would be essential for any records management initiatives to succeed within a health institution. For Respondent 9, this meant getting support from both top and middle management within the organisation. Respondent 19 and 22 argued that these managers had to be individuals, not just with titles, but also with "the capacity to make a difference" by being responsible for allocating budgets and overseeing administrative processes in health institutions. The most visible support would be in the allocation of resources. According to Respondent 19, managerial support would mean allocating financial resources both directly and indirectly. Direct financial support included purchase of records supplies such as files and file cabinets as well as hiring and training of staff. Indirect financial support included ancillary structures such as facilities in which records were kept, the security mechanisms that protect these facilities, as well as communication equipment.

The less conspicuous management support mechanism but one that likely had a bigger impact would be the placement of the records management function within the organisational structure. Respondents 9 and 13 argued that if records management was left with lowly placed clerical staff within the institutional “pecking order” then progress would be hampered. For this reason Respondent 9 argued that the records management function had to be placed under a senior manager such as the Chief Information Officer or such similar person that not only managed a budget but was also able to strategically engage with fellow senior managers. Respondents 3 & 4 echoed this view by stating that since “records management is a management problem”, therefore, senior management in health care institutions needed to be aware of “the importance of records management and should take the responsibility for it”. Respondent 5 stated that the responsible senior manager would have to ensure records management objectives were operationalised at all times within the institution. In addition, Respondent 16 argued that health institutions needed performance management mechanisms that would monitor and evaluate the implementation processes to ensure these objectives were achieved.

7.4.2.2.3.3 *Ensuring Government support*

Several respondents described the role of the national and provincial spheres of government in addressing the records management challenge in the country. At the national level, respondents discussed the roles of two institutions: the National Department of Health and the National Archives. On the one hand, Respondent 12 argued that the National Department of Health needed to provide strategic guidance on records management to health institutions. For Respondent 13 this entailed providing “proper guidelines about what records to capture...and then how to manage those records” within health institutions. On the other hand Respondent 1, 16 and 22 argued that the National Archives needed to take a leadership role as “the custodian of records management” in the country’s public sector. Respondent 1 and 22 acknowledged capacity gaps within the National Archives and suggested the health institutions needed to explore relationships with private sector partners for issues such as storage services.

At the provincial sphere of government, Respondent 10 alluded to a public-private partnership in records management initiatives that had worked well in one of the provinces for over a decade and a half and that could be emulated by other provinces. Respondent 14 shared the experience of Limpopo province where the Provincial Department of Health had appointed staff with records management responsibilities in their job descriptions. In addition, Respondents 10 and 15 noted

that Limpopo's provincial administration had appointed a senior officer, the Government Information Technology Officer, as the one responsible for records management. This had the positive effect that records management was given prominence during strategic planning as well as implementation of province-wide projects.

7.4.2.2.3.4 *Professional advocacy*

Respondents 6 and 22 argued that even though there were wide-spread challenges in ensuring effective management of records in the health sector, ultimately records professionals would have to take responsibility for advocacy activities. Respondent 6 stated that records management professionals needed to conduct "a proper sensitisation exercise within South Africa" in order to increase awareness and bring about change in perceptions within the country. However, records professionals did not have to conduct professional advocacy on their own. For Respondent 22, even though records professionals could lobby through organisations such as "the association of medical practitioners or nurses" they had been reluctant to do so. Respondent 22 added:

we South Africans and we records practitioners are not really comfortable with these strategies. We are not good at politics, we tend to keep our heads down and we tend to wait for the system to enable us to do what we should be...we are not good at lobbying, we are not good at forming alliances, we are not good at blowing the whistle, taking risks.

Nonetheless, advocacy was seen as critical in galvanising support for the records management initiatives.

7.4.2.3 The use of technological innovation

As noted in Section 7.3.4, innovation within the health sector was intricately tied with discussions about technology. This section outlines the technological innovations discussed by the respondents:

- Pre-requisites to innovation,
- Innovations that assist in managing health records,
- Innovations that assist in improving institutional operations, and
- Technology is not a panacea.

Each of these aspects is discussed below.

7.4.2.3.1 *Pre-requisites to innovation*

Respondent 18 noted that before technology was introduced by any health institution, the environment had to be well prepared. First, people had to be computer literate. Second, it shouldn't be taken for granted that those that were computer literate would automatically embrace technology. Respondent 18 argued that some staff that were computer literate resisted technology because it changed the way they worked adding "many of our doctors and staff want a piece of paper in front of them [and] there is no way they are going to interact with a computer...so you know that is an issue to keep in mind". Third, was the issue of technological vendors or service providers. Respondent 18 identified two issues related to the management of technology service providers: reliability and monopoly. According to Respondent 18, there was a need to ensure that any company supplying systems was thoroughly vetted in order to guarantee its long-term financial viability. The respondent provided examples of technologies whose suppliers had gone out of business leaving health institutions stranded with obsolete technologies they could no longer use. In addition, it was necessary to ensure that vendors were not sole suppliers. For Respondent 18, a competitive bidding process would provide opportunities for a wider array of suppliers and ensure there was good value for the resources spent.

7.4.2.3.2 *Innovations that assist in managing health records*

One of the challenges of introducing technology was the reluctance by staff in health institutions to adopt new technology. Respondent 18 noted that many doctors were reluctant to type their medical observations into a computer because of the cumbersome nature of data input and preferred to write things on paper. A number of respondents provided options to address this challenge. Respondent 7 argued for the introduction of smart mobile phones to address clinicians' reluctance to using technology in the hospitals. For Respondent 16, this would require developing software applications that could automate note-taking and be used on mobile devices. Respondent 18 noted that there had been significant innovations in mobile devices, not only cell-phones but also notepads and other gadgets that were smaller than the regular computer which, therefore, increased the platform of technology devices on offer.

Respondents 18 and 19 highlighted the dichotomy between "digital natives and digital migrants", a term coined by Mark Prensky in 2001. According to Prensky (2001), digital natives were born in a world that makes them intuitively adept to computers and the internet while digital immigrants were those who have to learn how the digital world operates. For Respondent 18,

younger generation medical professionals that had “grown up with these technologies” were more likely to be adaptable to their use than the older generation of doctors and nurses. However, according to Respondent 19, there were concerns about whether these mobility-centric innovations would have an impact on records management “especially in the areas where it is traditionally difficult...to have a computer system in place”. Therefore, for Respondent 19, mobile technology innovations should not be introduced in isolation but rather as a holistic strategy within the records management regime.

According to Respondents 2 and 7, the management of paper records was too cumbersome and, therefore, an electronic health record was preferred. Respondent 2 argued that using a smart card identification document with health information, initially proposed by the government in the mid-1990s could introduce both the concept of the electronic health records as well as it being a patient-retained record. Respondent 7 noted that smart card electronic health records were common in several countries including Korea and Slovenia where there was a “combined health record card with the driving license and bank card”. According to Respondent 7, the advantage of an electronic health record was that it would provide “instant summaries” with information such as pathology and lab results as well as x-rays and save time on “repeat prescriptions and the accuracy of prescribing”.

For the electronic health record to be managed effectively in health institutions there was need for appropriate records management procedures. For Respondent 19, the introduction enterprise content management (ECM) systems could assist in managing access as well as version control of individual records. Respondent 13 described a hospital where patient records were being managed using an ECM application. Respondent 18 reiterated that regardless of the number of different modules of the ECM application required, from lab systems to x-ray management systems, these systems had to be fully integrated in order to attain efficiencies. According to Respondent 18, for an ECM application to run efficiently, the health institutions would need adequate technical support including the appointment of a systems administrator as well as appropriate training for the users. For Respondent 2, the ECM application would need to have appropriate metadata and keywords for efficient information retrieval. In addition, Respondent 18 argued that the implementation process required an overall project sponsor responsible for both the resource mobilisation as well as mapping and implementing the strategic direction.

Several respondents raised the issue of who should have access to patient records in health institutions and its intersection with privacy concerns over those records. Respondent 19 noted that often staff within health institutions had unrestrained access to all of patients records and argued for the need to have procedures that would limit access on a need-to-know basis. As noted in Section 7.3.3.3, several health institutions had abdicated the responsibility over records to patients by resorting to patient-retained records. Section 7.3.4.2 noted that several respondents supported the electronic health record initiative in the country. For Respondent 19 this meant that patients would contribute to the decisions making on access restrictions for their own health records. However, Respondent 14 found it troubling that, the public sector EHR project would adapt the smart-card using the national identification document number as a form of identification because it could risk the invasion of privacy. Respondent 14 hoped that there would be encryption and other security measures to ensure the protection of personal information. A more technologically complex solution was the use of cloud services to manage records. Respondent 7 shared the example of patients having access to their own records in the cloud, which would offer a centralised system. However, Respondent 8 argued that some of these cloud service providers stored the data outside South Africa and would raise concerns of legal challenges when national authorities in the host countries demanded access during investigative proceedings.

Finally, is the realisation that it may not be possible to create whole digital environments within all the health institutions for several reasons. Several respondents cautioned against the push to totally replace hard-copy documents with technological surrogates but rather consider the hybrid reality of both paper and digital records. According to Respondent 19, there were two aspects to consider in this hybrid reality: computerisation processes around the records as well as the content of the digital records. Respondent 6 noted that there had been efforts to convert paper records into digital records but often this was done without a robust policy environment or any best practice to guarantee the chain of custody and evidence resulting in the loss of metadata. Therefore, this hindered the trustworthiness of the digital records. As noted in Section 7.3.4.5, institutions would have to operate a hybrid environment for records for the foreseeable future because it would be financially as well as logically impossible to have an entirely digital environment in all health institutions in the country. However, management processes within these institutions could use technology to ensure the paper records were better administered.

7.4.2.3.3 *Innovations that assist in improving institutional operations*

Respondents noted that technology was not only useful for managing patient health records but also improving operational efficiency in health institutions. Respondent 2 argued that large health institutions, in particular, operated sophisticated technological environments with different information systems. On the one hand sophistication was in the hierarchical nature of the systems. For Respondent 2, there was often a low level system that fed into a high level system that eventually fed into another system with a “back-end warehouse” or data mart. On the other hand, was the variety of ways information systems could be used. For Respondent 16, information systems could be used in emergency service operations by capturing information at accidents scenes and transmitting it to the hospital to prepare operations ahead of the patient arriving. Respondent 7 described a scheduling systems that could be connected with communication system either through the telephone or text message notifications that could be used to manage medical professionals within large health institutions. For Respondent 7, a similar system could be used to manage patients in the waiting room that receive notification via text messages. Respondents 2 and 16 added that other information systems could be used to manage processes such as those in the pharmacy as well as for financial management.

7.4.2.3.4 *Technology is not a panacea*

Respondent 1 cautioned against considering technology as the panacea and argued that technology shouldn't drive the records management agenda but rather complement it. For Respondents 2 and 18, there were instances where health institutions believed that the introduction of consultants and off-the-shelf software packages would automatically solve records management problems. According to Respondent 1 and 19, this unfortunate belief was further bolstered by the fact that, often, records professionals unquestioningly relied on information technology professionals. According to Respondent 1, a majority of these information technology professionals didn't understand records management and were “not even aware of the existence of records management technology”. For this reason, records professionals needed to be well grounded in their own professional knowledge and be able to demonstrate how technology could enhance rather than obstruct records management objectives.

According to Respondents 3 & 4 while there were many digital initiatives taking place in the health sector in South Africa, the National Archives was legally mandated to determine “the

conditions subject to which electronic records systems shall be managed" in the public sector. Therefore, records professionals in the health sector needed to consult with the National Archives for appropriate guidance. Ultimately, for Respondents 1 and 19, records management problems required records management solutions rather than exclusively technology solutions.

7.5 Conclusion

Monette, Sullivan et al (2014 p. 429) argue that the purpose of data analysis is extracting meaning from very specific observations in order to learn something more abstract and general. In keeping with this purpose, this chapter has noted specific observations made by respondents and weaved them intricately under particular themes in order to enhance the nuanced understanding of the challenges of managing records within the public health sector in South Africa. The discussion was structured based on the three objectives of the dissertation:

- a) Assess the legislative, policy and regulatory framework within which records are managed in public health care institutions in South Africa,
- b) Assess the extent to which public health care institutions in South Africa are managing records, and
- c) Identify appropriate records management interventions at both policy and operational level in order to assist the management of records in health care institutions.

Within the first objective of the legislative and regulatory framework, the respondents demonstrated that the terrain is complex requiring multi-faceted perspectives. However, in understanding the complex interplay of different legal and regulatory instruments in South Africa, respondents emphasised of going beyond mere knowledge to compliance. Respondent 6 stated:

records compliance is the backbone of all the other compliance. For someone like in a health care institution or anyone in the public sector, if you want to comply with the Public Finance Act or the Municipal Finance Act, whichever level you are, then it's very difficult to comply with it without having proper records systems.

For the second objective, the respondents exhaustively discussed the challenges of managing records noting the historical legacy, the unique circumstances within the health sector such as the referral system as well as medical coding, the tripartite requirements of facilitating records management as well as the impact of technology and innovation.

For the third objective, the respondents highlighted a number of relevant interventions that should be put in place to address the challenges that were identified within the framework of the second objective. These include issues such as the development of guidelines, getting support from institutional management as well as both provincial and national spheres of government, and the pre-cautions to be taken in the adoption of technology and innovation.

As this chapter has demonstrated, the interviews have yielded a rich amount of data and the analysis process has demonstrated the vast array of issues and opinions held by the respondents. Hancock and Algozzine (2006 p. 59) noted that a researcher needs to continuously focus on the research questions being investigate in order to avoid being overwhelmed by the vast amount of information obtained. The structure of this chapter has been informed by this view.

This chapter has outlined the specific observations made by research respondents, weaving them intricately under particular themes in order to expound on the nuanced understanding of the challenges of managing records within the public health sector in South Africa based on the three objectives of the dissertation. The next chapter provides abstracted and broad observations based on very specific observations made in previous chapters. It provides as summary of findings as well as summary of recommendations. In keeping with the third objective of the dissertation, both the summary of findings and summary of recommendations are in two parts: policy level and operational level.

Chapter 8 – Summary of findings and recommendations

8.1 Introduction

Jonas, Goldsteen et al. (2007 p. 9) argue that health is the product of multiple factors including “genetic inheritance, the physical environment, and the social environment, as well as an individual’s behavioural and biologic response to these factors”. The central focus of health care systems is to restore health or prevent exacerbation of health problems. Any nation’s health care system is influenced by both external and internal factors. The external factors include: the political climate, stage of economic development, technological progress, social and cultural values, the physical environment, and population characteristics such as demographic and health trends (Shi and Singh 2005 p. 8). The internal factors are based on the key functions of a health care system: financing; provision of personal and non-personal services; resource generation; and stewardship (Nolte, McKee et al. 2005 p. 21-22; World Health Organization 2000 p. 44-45). The combined interaction of these internal and external forces determines the quality of health care delivered. The process of improving the quality health care delivery requires that health systems function efficiently and effectively. A key component of health care systems functioning effectively is the management of records. Several studies in South Africa have demonstrated that if health facilities are to provide quality services then they need efficient record management programmes (Brink 2004; Mahoro 2013; Marutha 2011; Weeks 2013c). These records management programmes need to ensure that the records being created or received are authentic and the systems maintaining them, whether in traditional hard copy format or in digital formats, are reliable (Bote, Termens et al. 2011; Iacovino 2004).

This doctoral study has examined the management of records in South Africa’s public health care sector by exploring the dissertation’s three objectives: assess the legislative, policy and regulatory contextual framework of South Africa’s health care system; asses the effectiveness of records management within public health care institutions; and identify appropriate interventions to address the challenges facing records management in the health care system. The study was structured in eight chapters. Chapter 1 provided a background of the study, statement of the problem as well as limitations of the study. Chapters 2, 3 and 4 provided an exhaustive analysis of the external and internal factors that have influenced South Africa’s health care system. Chapters 5, 6, and 7 provided the research methodology, the data collection process and analysis as well as the interpretation of the results obtained. This final chapter of the dissertation

ties everything together. It provides the overarching themes drawn from specific observations made in preceding chapters. The table below provides a summary of how each of the eight chapters was structured in order to address the research objectives.

Table 31: Summary of how each chapter of the dissertation meets the three objectives

Objectives	Theoretical framework	Research methodology	Data Analysis, interpretation, findings and recommendations
a) Assessment of the legislative, policy and regulatory framework within which records are managed in public health care institutions in South Africa.	<ul style="list-style-type: none"> • Chapter 3 outlined the legislative framework in the health sector, provided an analysis of specific South African legislation as well as the legislative experience from other countries. • Chapter 4.2 outlined the policy and regulatory framework of records management based on international standards. 	Basis for the research design and data collection techniques	<ul style="list-style-type: none"> • Chapter 6 provided an overview of the data with aspects of legislative, policy and regulatory framework. • Chapter 7.2 presented the interpretation of data analysed relating to the legislative, policy and regulatory framework within which records are managed in public health care institutions. • Chapter 8.2.1 provides a summary of policy level findings related managing records in public health care institutions.
b) Assessment of the extent to which public health care institutions in South Africa are managing records.	<ul style="list-style-type: none"> • Chapter 2 provided the historical context and organisational structure of the health sector and discussed the health care functions in the country's public health sector. • Chapter 4.3 discussed the management records in South Africa. • Chapter 4.4 provided an outline of the management of health information including specific discussions on health information systems in South Africa. 	Basis for the research design and data collection techniques	<ul style="list-style-type: none"> • Chapter 6 provided an overview of the themes related to managing records in South Africa. • Chapter 7.3 presented the interpretation of data analysed relating to the challenges in managing records in public health care institutions. • Chapter 8.2.2 provides a summary of operational level findings related to managing records in public health care institutions.
c) Identification of appropriate records management interventions at both policy and operational level in order to assist the management of records in health care institutions.		Basis for the research design and data collection techniques	<ul style="list-style-type: none"> • Chapter 6 provided emergent themes on the data analysis to assist in identifying potential interventions. • Chapter 7.4 presented the interpretation of data analysed relating to potential records management interventions. • Chapter 8.3 provides a summary of both policy and operational recommendations.

The sections below are divided into two main parts: a summary of findings in Section 8.2 as well as a summary of recommendations in Section 8.3. The findings and recommendations provide a distillation of discussions drawn from the literature review chapters as well as the data collected from the respondents. In keeping with the third objective of the dissertation, both the summary of findings and summary of recommendations are further divided in two parts: policy level and operational level. The dichotomy does not conceal the fact that the findings and recommendations are related and are constantly in interplay with each other within in the public health sector in South Africa.

8.2 *Summary of findings*

This study revealed that the management of records in South Africa's health sector has several areas of advanced development as well as numerous issues that need improvement. Amongst the strengths within the health sector is the sophisticated nature of legislative and regulatory instruments that also bear a long historical tradition. In addition, this study points out the areas that require attention in order to further improve on progress made thus far in Section 8.2.1 on policy findings and Section 8.2.2 on operational findings.

8.2.1 Policy findings

The policy findings are structured in three groups: legislation, regulatory guidelines and standards. While these aspects are discussed individually in this section, there are in constant interaction.

8.2.1.1 Legislation

The literature review revealed that the legislative terrain is complex. South Africa has a 'hybrid' or 'mixed' legal system, formed by interweaving of three distinct legal traditions: Roman Dutch law, British Common Law and African Customary Law (Alberts and Mollema 2014; Du Bois 2004 p. 9-16; Madhuku 2010 p. 50). While there are several dozen legislative instruments that touch on different aspects of managing records in the health sector, a number of them have been highlighted in this dissertation in particular: the National Archives Act (South Africa 1996d), the Electronic Communications and Transactions Act (South Africa 2002a), the Promotion of Access to Information Act (South Africa 2000c), the Protection of Personal Information Act (South Africa 2013), and the Protection of Information Act (South Africa 1982b).

Both the Promotion of Access to Information Act (PAIA) and the Protection of Personal Information Act (POPIA) have made special mention of health records. PAIA, which facilitates access to records, notes that access to health records should be done to ensure that the disclosure doesn't "cause serious harm" to the physical or mental health, or well-being of the requester (South Africa 2000c Sec 30). POPIA, which regulates the processing of personal information by both public and private institutions, notes that health information is considered a special kind of personal information and has to be managed effectively (South Africa 2013 Sec 32).

Respondent 22 argued that while South Africa had put together a number of "very sophisticated legislative instruments which were comparable to those in any country in the world" the compliance levels at health institutions were very rudimentary and contrary to the levels of sophistication expected by the legal instruments. Respondents 8, 9 and 20 attributed this poor compliance to the lack of awareness of the legislative provisions dealing with the management of records. This was most apparent when health institutions received PAIA requests and couldn't provide access to records because, in part, of their poor records management systems. A bright spot in this issue was the Limpopo Department of Health and Social Development that was commended in both 2008 and 2010 as the best performing provincial department in the country on responses to PAIA requests (Open Democracy Advice Centre and South African Human Rights Commission 2008 p. 7; Open Democracy Advice Centre and South African Human Rights Commission 2010 p. 17). However, it was worrying that that none of the other provincial departments of health nor the National Department of Health were doing well in this regard.

In addition, the respondents also noted a lack of an integrated approach in the different legislative instruments, for instance, on the issue of records retention. Many Acts didn't specify retention periods for records and the few that did would often appear contradictory. According to the respondents, most health institutions didn't have a common understanding of how long records could be kept. For instance, Respondent 17 had spoken with key managers at health institutions that believed records should be kept for five years but did not have a legal or procedural basis for this view except that this was information passed on from their predecessors. Other respondents argued that the Archives Act or the Health Act states that certain records, for instance, X-rays had to be kept for 5 years or 15 years. However, the

relevant Acts didn't specify any of these periods hence demonstrating the extent of the misinformation amongst some of the respondents.

8.2.1.2 Guidelines

The literature revealed that while there were numerous regulations within the health sector, very few provided detailed guidance on the management records. For instance, there are five documents outlining Standard Operating Procedures for District Health Information System (DHIS). Three of those are: Facility Level (Department of Health [South Africa] 2012b), Sub-District Level (Department of Health [South Africa] 2013d), and District Level (Department of Health [South Africa] 2013a). The three guidelines all state that patient records needed to be filed and they warned against inaccuracy and duplication within the records as well as prescribing safe storage for the records. The two additional Standard Operating Procedures are: the Provincial Level (Department of Health [South Africa] 2013c) and National Level (Department of Health [South Africa] 2013b) and they required that all staff, supervisors, line and program managers involved in information management have relevant levels of knowledge and skills in the management of paper and electronic records. However, none of these regulations provided definitions, processes and methodologies required to manage these health records. They also didn't provide a breakdown of the aspects that would constitute "relevant levels of knowledge and skills" for the staff.

In 2012, the National Department of Health published the eHealth strategy that noted the need to

- Implement the foundation of the Electronic Health Record (EHR) and particularly a national patient registry and Patient Master Index (PMI),
- Implement the PHC patient management and Electronic Medical Record (EMR) system/s at clinics, and
- Implement a uniform Integrated Document and Records Management System (EDRMS) at all levels (Department of Health [South Africa] 2012c p. 26).

However, there was little additional guidance on how these strategic initiatives would be implemented.

Beyond the Department of Health, the most comprehensive guidelines for records in the health sector were developed by the Health Professions Council of South Africa (HPCSA) and published in three editions between 2002 and 2008 (Health Professions Council of South Africa

2002; Health Professions Council of South Africa 2007; Health Professions Council of South Africa 2008). The guidelines provided a definition of the health records, what they constitute, and how they should be managed, addressing aspects such as storage, ownership as well as access.

A number of respondents noted the lack of specific guidelines for health records with Respondent 6 stating that in most government departments there was “a very low key focus on the regulatory issues”. Several respondents stated that even when there were general guidelines for managing records, very few public institutions were compliant. Respondent 13 noted that the National Archives had little direct contact with health institutions while Respondent 1 argued that the National Archives was a weak institution and couldn’t impose compliance.

The literature revealed that the National Archives did not have specific guidelines for health records but the institution had published regulatory guidance on the management of records in the form of Advisory Pamphlets (AP) that provide general rather than being specific guidance to the health sector. AP Number 1 addressed the management of public records (National Archives and Records Service of South Africa 2007d), AP Number 2 addressed the management of electronic records (National Archives and Records Service of South Africa 2007a) and AP Number 3 outlined the responsibilities of records professionals within a public institution and the prerequisite qualifications and experience for them to be appointed (National Archives and Records Service of South Africa 2007b). All the regulatory guidance from the National Archives remained very general rather than specific to the health sector. In addition the literature revealed that the National Archives does not have the capacity to manage digital records that may be transferred to its custody (The Archival Platform 2015 p. 102).

The discussion revealed that health institutions operated in parallel paths on regulatory guidelines with the few guidelines in the health sector seemingly divorced from guidelines designed for the management of records in the public sector in general.

8.2.1.3 Standards

The literature revealed that there were numerous general standards for records management at the national and international levels. The International Standards Organisation (ISO) had at least 98 records management related standards the covered issues such as digitisation processes, managing digital records, imaging and management systems for records. At the national level,

South Africa's most well developed standards related to managing digital records, first published in 2000 and later revised in 2006 (National Archives and Records Service of South Africa 2000; National Archives and Records Service of South Africa 2006b). In addition, a joint effort between the National Archives and State Information Technology Agency in order to assess Enterprise Content Management software applications existed from 2000 until 2008 (National Archives and Records Service of South Africa 2006a; State Information Technology Agency [South Africa] 2002; State Information Technology Agency [South Africa] 2005).

While a number of records management standards exist, the respondents noted that only a few were used in South Africa. Respondent 1 argued that only one educational institution was using ISO 15489 to inform its records management activities. Respondent 16 mentioned the use of ISO 15801 in some public sector institutions in the country while Respondent 6 mentioned the use of ISO 30300 and 30301 as important standards that were yet to be adopted. None of these standards seemed to be in use in health institutions.

The literature revealed that there were hardly any standards developed specifically for records management within South Africa's health sector. Nonetheless, the National Department of Health had established the Office of Health Standards Compliance in 2011 and the staff benchmarked their efforts with a similar office in the UK (Department of Health [South Africa] 2012a p. 23; Whittaker, Shaw et al. 2011 p. 64). This was significant since the UK Department of Health had developed two standards for records management within the health sector (Department of Health [United Kingdom] 2006; Department of Health [United Kingdom] 2009). However, there was no indication of the extent to which the UK standards had been considered during the benchmarking activity.

Several respondents noted that there were a number of health related standards including SNOMED, LOINC and ICD-10 but these were not discussed in much detail. In addition, these standards didn't seem to have any direct connection with the more than 98 ISO standards on records management. Therefore, the study revealed that standards in the health sector seemed to operate in parallel worlds. On the one hand there were health related standards that didn't directly cover records management issues. On the other hand, there were generic records management standards that didn't have specific application within the health sector.

8.2.2 Operational findings

This research study revealed that there were a number of defining characteristics at the operational level could be placed in three basic categories as noted in the sections below.

8.2.2.1 Historical legacy and organisational complexity

The literature review noted that South Africa's health sector had been indelibly affected by its historical legacy. The current socio-economic realities were most impacted by inequities of both the colonial as well as apartheid past resulting in a chaotic and fragmented health system that was expensive and inefficient to manage (Kautzky and Tollman 2008 p. 20). The legacy of this fragmentation is a system divided into two parallel sectors – “a public sector financed through general taxation for the majority and a private sector” (Schneider, Barron et al. 2007 p. 290).

Respondent 22 noted that even though the country was in a new political and socio-economic dispensation, some vestiges of the apartheid were difficult to erase. For instance, many of the country's large hospitals were built in the apartheid era with two sections for every medical service, one side for Whites and the other side for Non-Whites. As a result, there were two separate “departments of medical records” which resulted in logistical problems when trying to retrieve information. Two decades since the political dismantling of apartheid, the duplication of services continued to be a challenge for these large institutions that found it difficult to deal with logistical challenges short of demolishing the expensive physical infrastructure.

The literature noted that, not only did South Africa have a long historical legacy, it presently operated a complex health care provision system with three levels of care: primary, secondary and tertiary. The literature revealed that there were about 3800 health facilities that could be placed in 18 individual categories in the three levels of care (Department of Health [South Africa] 2007 p. 15-16; Health Systems Trust 2013; Von Holdt and Murphy 2007). Therefore the twin challenges of the legacy and current organisational complexity made operations difficult.

8.2.2.2 Technological innovation and infrastructure

The respondents noted that the organisational processes in most health institutions were still very manual and paper-based which led to considerable frustration. This is because hard-copy records can only be accessed by one person at a time unless there were efforts to photocopy such records. Additionally, transmission of hard-copy records over large geographical distances requires the use of couriers or through sending fax messages. Lastly, manual techniques of

retrieving large amounts of records are often be arduous. Therefore, technological innovations and requisite infrastructure would be necessary in order to alleviate these limitations.

The literature revealed that a large number of health institutions used information systems at different levels of care. At the primary health care level, the most common system is the DHIS that has been in use since the mid-1990s (Mars and Seebregts 2008 p. 8; Vital Wave Consulting 2009 p. 89). Staff members at primary health institutions would fill out paper-based registers and consolidate statistical information that would then be sent to sub-district, district, province and eventual national offices (Vital Wave Consulting 2009 p. 89-90). At the secondary and tertiary care level, there were at least 15 different patient management or hospital information systems being utilised in health institutions (Department of Health [South Africa] 2012c p. 14).

While the use of DHIS was widespread in primary health care institutions, Respondent 2 and 5 argued that the application was merely a statistical collection mechanism rather than a records management one. In addition, Respondent 7 argued that the trustworthiness of the information collected by the DHIS was in doubt because it was not assembled contemporaneous to the medical event but rather at the end of the day or of the week, whenever the clinical staff had time. At the secondary and tertiary levels, Respondent 18 noted that information systems had been used in hospitals since the mid-1970s. Respondent 5 noted that in many cases whenever upgrades were done, not all the data was migrated.

While the literature revealed that there were numerous technology applications that could be used to enhance the management of digital records these applications were not widely embraced in the country. The exception was the implementation of ECM systems in a few health institutions in the Western Cape. In 2011 two implementation projects began, one in Khayelitsha District Hospital and another in the Oncology Unit of Tygerburg Hospital (IT-Online 2013; OpenText 2012; Weeks 2013a). Both projects made significant progress to the extent that in 2013 the Western Cape Provincial Government offered a three year contract to roll out ECM applications to “any hospital and primary health care facility” identified by the Department of Health across the province (Bizcommunity 2013; PR Connections 2012; Weeks 2013b; Western Cape Government [South Africa] 2013 p. 1). This was probably the basis for the National Department of Health highlighting in its eHealth Strategy that the Western Cape as the most progressive in the effective management of health records (Department of Health [South Africa] 2012c p. 14).

8.2.2.3 Organisational impact

In 2012, the Department of Health (2012a p. 21) acknowledged the need to improve “information management and systems support” This had been echoed in several masters and doctoral research studies that examined the management of records in health institutions in the country over several decades. The studies covered a number of issues including: the completeness of records (Sekokotla 2000), the quality of records (Chandran 2002; Geoghegan 2000; Reddy 2003) and the impact of effectively managing records on the quality of health care service (Rapakwana 2004). In these studies, there were concerns about widespread weaknesses in records management procedures.

Several respondents reaffirmed the findings in the literature review. Respondent 19 noted that management of patient files was “the weak point in the entire flow of information” in health institutions and the most common symptom of this weakness was the existence of duplicate patient files for the same individual. Respondents 5 and 9 described duplication as chronic in many health institutions that would have between five and nine copies of files per patient. According to the respondents, this duplication of files for the same patient resulted in lack of continuity in health care due to poor understanding of the patient’s complete medical history. It also caused bottlenecks with only 25-30% of the personal medical files being retrieved whenever needed. Respondent 22 described some patients being subjected to inappropriate treatment sometime being fatal because the health institution had not managed the records effectively.

The respondents noted that phenomenon of patients retaining their records was significantly widespread particularly in primary health care institutions as well as in a few secondary and tertiary institutions and echoed in literature. The literature review revealed that that a substantial number of health care institutions resorted to having patient-retained health records (Kerry 1999; Norden 2002; Okorie 2003). The presumption in the patient-retained records paradigm was that, since institutions had failed to manage records well, then patients would be able to do that. However, with health institutions abdicating their responsibilities for the management of records, the dependence on the patient-retained records paradigm would hamstring the development of effective and sustainable records management programmes.

Finally, health institutions were negatively impacted by staffing challenges. Respondents 9 and 13 argued that if records management was left with lowly placed clerical staff within the institutional “pecking order” then sustainable improvement would be hampered. Both the literature review as well as interviews with respondents revealed that the Records Management profession wasn’t highly regarded. Respondent 17 argued that it was common for primary health institutions not to have dedicated staff to manage institutional records. Respondents 1, 2, 12, 17 and 22 noted that on the few occasions when there were dedicated staff, then they tended to be lowly skilled and poorly trained. Ngoepe (2013 p. 126) noted that the highest placed records professionals would only get to middle management. According to Respondent 22, records management professionals had not been successful in demonstrating their relevance of their profession. Respondent 7 added that there was a disconnect between the medical education process in South Africa that advocated for problem-oriented records management paradigm that was antithetical to DHIS that didn’t manage any health records but rather merely managed statistical information.

8.3 Summary of recommendations

Literature revealed that South Africa has been fundamentally impacted by the legacy of its historical developments of both administrative and legislative levels. Chapter 2 of this study outlined the seven phases of development of the health sector in the country with the most significant phases covering the period between the 1940s and early 1990s. While apartheid has often been blamed for the fragmented health system, Botha (2008 p. x) argues it was no longer acceptable for recent failures of the health care system and inequities in access to public health care to be blamed entirely on the legacy of apartheid. This is because there were expectations that the developments since the 1990s should have addressed these historical issues.

As the discussions in Section 8.2 have demonstrated, the health sector has numerous records management challenges at both policy and operational levels. Therefore, any recommendations should neither be seen as self-serving nor in isolation. All recommendations are aimed at improving the quality of health care provision in the public sector and do so in collaboration. For this reason, they have to be seen within the context of current developments in South Africa’s health sector. Two issues are illustrative of this context.

First, as discussed in Chapter 2 and 4 of this dissertation, South Africa the nation spends a significant 8% of its GDP on health expenditure. This is more than most other developing countries yet its health outcomes are considerably worse than many of its peer countries such as Brazil, India, Indonesia, Kenya and Nigeria (Thiede and Mutyambizi 2010 p. 189; World Health Organization 2011 p. 128-135). The National Department of Health noted this sub-optimal performance and committed itself to “re-engineering the health system to one that is based on a primary health care approach (PHC), with more emphasis on promotive and preventive (instead of curative) health care” that provides the basis for all interventions needed to achieve positive results (Department of Health [South Africa] 2010 p. 4). Between 2010 and 2012, the Department launched projects that would be targeted at the districts, municipal wards or schools that had the worst health outcomes in the country (Department of Health [South Africa] 2012a p. 9). These projects are on-going.

Second, as discussed in Chapter 4, South Africa is introducing the NHI over a 14 year period. The Department of Health (2012a p. 20) states that the goal of NHI would be “to ensure that all South Africans, irrespective of the socio-economic status, have access to good quality and affordable health services”. Therefore, the motivation of the NHI is the eradication of barriers limiting access to health care, and ensuring “financial risk protection from catastrophic health-related expenditures for households and individuals through a prepayment system” (Department of Health [South Africa] 2012a p. 20). The first five years would constitute “policy and legislative reform, strengthening of the health system, improving the service delivery platform and piloting various components of the NHI” (Department of Health [South Africa] 2012a p. 21). This demonstrates that the introduction of the NHI will both cause as well as result in radical changes in the policy and operational levels across the whole public health sector. Indeed radical changes are not only required within the health sector but across the public sector in general (Ngoepe 2013 p. 167).

These illustrative examples provide the backdrop to Section 8.3.1 that discusses the policy level recommendations as well as Section 8.3.1 that discusses the operational level recommendations.

8.3.1 Policy recommendations

As the section below demonstrates, there are more policy level recommendations than operational level ones. This is to be expected for two reasons. First, the nature of the dissertation's objectives necessitated an extensive discussion of South Africa's legislative and regulatory framework from its historical developments to its current status. This has revealed cavernous gaps that form the basis of mapping the opportunities for reform. Second, the data analysis and interpretation revealed that the fundamental challenges related to policy level challenges and these would manifest in operational symptoms. Therefore the policy level discussion is in two parts, the generic policy recommendations in Section 8.3.1.1 and specific policy recommendations in Section 8.3.1.2.

8.3.1.1 Guidelines/Regulations/Standards Compliance

The literature revealed a need for the development of guidelines in the form of regulations or procedures. For instance, the National Health Act acknowledges that a health record should be "created and maintained at that health establishment for every user of health services" (South Africa 2003bSec 13). In addition, the National Health Act requires that health institutions have control measures to "prevent unauthorised access" to health records (South Africa 2003bSec 17). It adds that the Minister may make regulations on how particular records should be managed (South Africa 2003bSec 68, Sec 90). Unfortunately no such national level regulations had been drafted at the time of this research. Considering that most health institutions are managed by provincial governments, these administrations share in the responsibility to ensure guidelines are developed (Geyer, Mogotlane et al. 2009 p. 26-27). Respondents 10, 14 and 15 noted the example of Limpopo's provincial administration that had made efforts to develop guidelines on management of records and the appointment of records professionals.

Respondents revealed that there were two parallel worlds between general records management guidelines and records management guidelines related to the health sector. While there were guidelines developed by the Health Professions Council of South Africa published in several editions that were still quite basic and only addressed issues superficially (Health Professions Council of South Africa 2002; Health Professions Council of South Africa 2007; Health Professions Council of South Africa 2008). In contrast, the UK Department of Health, which is a training partner with the National Department of Health, had already developed comprehensive guidelines (Department of Health [United Kingdom] 2006; Department of Health [United Kingdom] 2009). In addition at the institutional level, there were some guidelines such as

one developed by the International Records Management for managing hospital records (Millar 1999).

Literature revealed that there are numerous records management provisions within legislative, regulatory and procedural guidelines. For instance, the National Archives Act has a provision requiring the head of a governmental body to designate a records manager (South Africa 1996dSec 13(5)) and provides guidance on what qualifications the manager should have as well as their responsibilities (National Archives and Records Service of South Africa 2007b). Respondents 6, 8 and 9 argued that even though these provisions exist, knowledge of their existence was not enough and there was need to demonstrate compliance. Since all health professionals and other personnel are employed by the provincial government, the question of appointing and deploying records managers in public health care institutions would have to be addressed by the provincial governments (Carstens and Pearmain 2007 p. 233). However, there was the question of who would monitor to ensure records professionals are actually appointed within health institutions.

Once there is non-compliance, the legislative instruments have punitive mechanisms. For instance, while the National Archives has criminal liability related to the wilful damage of any public or non-public record in the control of a governmental body (South Africa 1996dSec 16), there is no reported prosecution under the Act. While the National Health Act also has a provision that imposes “criminal liability on those responsible for the management of health facilities” (South Africa 2003bSec 17), which would include mismanagement of records within those health facilities, there has been no reported prosecutions under the Act (Berger, Hassim et al. 2013 p. 36). However, on the issue of access to information, cases have been taken to court challenging actions of public officials over denial of access to records such as by civil society organisations like the South African History Archive and Open Democracy Advice Centre (Open Democracy Advice Centre 2013b; South African History Archive 2014a). One of the most celebrated court cases involved the South African History Archive against the Minister of Justice and the legal officer where, eventually, some of the inaccessible records were released (Bell 2012; Venter 2004). There is no indication that the justice system is useful in deterring non-compliance particularly for records in the health sector.

Finally, two interrelated issues that also need to be addressed in the development of guidelines and standards. First, there are concerns about privacy and confidentiality particularly relating to

who should have access to records. There were tensions between African and Western notions with the example of the former South African health minister's records that had allegedly been stolen and them made public by a newspaper. The publication resulted in an animated public debate on how to balance access to information and freedom of expression on the one hand and the need for privacy on the other. Second, there are concerns related to weak records management procedures and practices. As noted in the case of the stolen health records of the former minister of health, the event revealed vulnerabilities in institutional records management systems. As this dissertation has demonstrated, many operational records within health institutions were not included in file plan design. In addition, health institutions generally didn't have expertise in designing file plans while the National Archives, suffering from resource constraints, couldn't fulfil the demand for file plan approvals.

8.3.1.2 Specific policy recommendations

There are five specific issues that need individual attention at the policy level and be reflected in the standards and guidelines developed for records to be effectively managed in the health sector. Each of these are addressed individual in the sections below.

8.3.1.2.1 *Records definition and ownership*

Respondents 7 and 16 argued that the way in which a health record is defined should take into consideration how a health record is generated, its constituent components as well as the "chain of creation and use". South Africa has several features that make the definition and subsequent management of health records particularly difficult. First, there has been, historically, a considerable pattern of migrant labour amongst the population. Over the course of the lifetime of these individuals and their families, their health records would fall under different provincial jurisdictions. Second, based on the country's constitutional framework, health institutions are managed by provincial administrations which are therefore responsible for providing guidance and direction on the management of records. Third, the Department of Health (2012c p. 14) acknowledged there were at least 15 different patient management or hospital information systems in use amongst secondary and tertiary health institutions. Therefore efforts by the Department of Health to create the Electronic Health Record for each patient will have to deal with who owns the health record as part of defining the record. This question has both legal and practical implications.

In view of this context, this study notes that there are a number of possible recommended scenarios for the issue of ownership. In the first scenario, Respondent 19 argued that it would be easier if the patient was considered the owner. POPIA strongly suggests that health information belongs to an individual and should only be processed with their knowledge (South Africa 2013 Sec 72 (1) (e)). In the second scenario, the Health Professions Council of South Africa (2002 p. 9) states that public health institutions own the records and originals must be kept by the institution. A third possible scenario is the shared responsibility for ownership. The National Health Act (South Africa 2003b Sec 10) requires that patients should have full knowledge of health procedures as well as to receive “discharge reports” at the time of discharge, verbal for outpatients but must be in writing for inpatients.

8.3.1.2.2 *Records retention, appraisal and disposal*

The literature review demonstrated that the retention procedures for health records were ambiguous because legislative and regulatory instruments had different requirements. For instance, even though there is a National Archives policy on retention and disposal as well as both General Disposal and Standing Disposal Authorities, these guidelines were not up-to-date and the issue of retaining patient records was not succinctly addressed. A second example is POPIA which requires the disposition of information once the purpose for generating the record has been served. The challenge would be developing mechanisms to determine the disposition of health records that covered chronic illness or long-term injury. In addition, it was not clear how the legislation would impact longitudinal medical research that depended on health records with personal information.

The lack of uniformity is also evident in guidelines issued by the HPCSA as summarised in the table below (Health Professions Council of South Africa 2008 p. 4).

Table 32: Retention periods for different categories of health records

Type of record	Retention period
Most health records	Stored for a period of 6 years “from the date they become dormant”
Records belonging to individuals under the age of 18 and obstetric records	Stored until the individual reaches the age of 21
Records of mentally incompetent patients	Stored for the duration of their life
Records related to the Occupational Health	Stored for 20 years subsequent to patient receiving

Type of record	Retention period
and Safety Act	treatment
Records related to the exposure to asbestos	Stored for 25 years or more

According to the HPCSA (2008 p. 4), most health records should be stored for a period of six year or more “from the date they became dormant”. This requirement suggests that records have to be continuously monitored in order to determine when they initially become dormant and, from that point on, then kept for at least six years. The additional challenge becomes monitoring the specific categories of records that differ from the general rule which is already arduous to address.

Respondent 2, 6, 16 and 18 echoed this lack of consistency on retention periods for similar health records, drawing from their varied experiences and knowledge. Not only did their views on retention periods of specific records vary vastly from each other, they also couldn't link their views with precise legal or regulatory provisions. This suggested that their views must have developed through tradition based on a lack of health sector-wide clear guidelines. For Respondent 7 and 22 the responsibility for the development of retention and disposal guidelines lay heavily on the national and provincial archival institutions. Respondents 3 & 4 noted that historically there had been records retention guidelines for hospitals in the Transvaal Provincial Administration but these had not been updated. In addition, while some respondents could distinguish between General Disposal Authorities and Special Disposal Authorities, others were not aware of these differences. Respondent 22 argued that due to the confusing nature of retention and disposal requirements, some health institutions had resorted to keeping everything indefinitely. However, this came with huge cost implications related to space, equipment and human resources and resulted in poor access to health records when required for clinical activities. In addition, records with historical value need to be managed in archival institutions that undergo archival processing including appraisal, arrangement and description in order to facilitate provision of records access to a wider audience beyond just the health institution (Katuu 2015d; Williams 2006).

There was hardly any systematic appraisal of records taking place within health institutions in order to identify those records of historical value. Instead there was only ad-hoc appraisal often prompted by the immediate need to address space constraints rather than archival

requirements. As a result health institutions didn't transfers records with historical value to the provincial or national archives. In addition the view by the National Department of Health of the importance of the patient record was not shared by the National Archives. The National Department of Health's (2012c p. 26) eHealth Strategy aspires to create a national patient registry and a Patient Master Index. On the other hand the National Archives considers patient files as having transitory value. According to Respondent 22 patient files in health institutions are ephemeral and could be disposed after a number of years at the discretion of the institutions. For many of these institutions, this decision was largely based on space constraints. Respondent 22 argued that space shouldn't be the sole consideration in appraisal decisions. Respondent 10 provided an alternative to address the challenge of space management by giving the example of a provincial government that had negotiated with a private off-site storage company to assist in managing some of the records from health institutions.

Finally, the issue of retention and disposal also needed to address discrepancies when the same type of record in a health institution existed in different formats (i.e. hard copy and digital). For Respondent 16 this was exemplified by the challenge of keeping digital x-rays yet film copies also existed. Respondent 16 added the challenges of long-term preservation of digital records should be a factor to consider in whether digital copies were retained or not. The literature revealed that long-term preservation of digital records was a complex subject, one that required concerted efforts in order to be fully addressed (Bigelow 2012; Brown, Katuu et al. 2009 p. 33-46; Katuu 2012c).

8.3.1.2.3 Importance of records management in health institutions

The literature revealed that success factors for the implementation of records management programmes included: senior management support, change management, clear and comprehensive procedures and standards as well as appropriately skilled staff (Force 2013 p. 182; Kwatsha 2010 p. 107; Ngoepe 2008). However, the reality was less than ideal with lack of adequate procedures as well as lowly placed records professionals that have not yet been able to effectively influence managerial decision-making (Ngoepe 2013 p. 126).

Respondents 9 and 13 echoed the view that records management professionals were lowly placed and therefore had little influence to make changes. Respondent 3 & 4, 5, and 9 recommended the identification of highly placed managers who could lead records management

functions within health institutions. Respondent 9 argued that the records management function had to be placed under a senior manager such as the Chief Information Officer or a similar person that not only managed a budget but was also able to strategically engage with fellow senior managers. Respondents 3 & 4 echoed this view by stating that since records management was a management problem, then senior management in health care institution needed to be aware of its importance and take the responsibility for it. Respondent 5 stated that the responsible senior manager would have to ensure records management objectives were filtered down to lower levels within the institution. In addition, Respondent 16 argued that health institutions needed performance management mechanisms that would monitor and evaluate the implementation processes to ensure these objectives were achieved.

Respondents 10 and 14 shared the experience of the Department of Health in Limpopo Province where a senior officer, the Government Information Technology Officer, was made responsible for records management. As a result the records management function was given prominence during strategic planning as well as implementation of province-wide projects. This included the appointment of staff with records management responsibilities in their job descriptions and the funding of provincial-wide training of all staff that were responsible for managing records in health institutions.

8.3.1.2.4 *Health information systems*

The literature revealed that there were three HIS related gaps. First, at the primary health care level, the national eHealth strategy noted the need for a patient management and Electronic Medical Record systems in clinics (Department of Health [South Africa] 2012c p. 26). However, it was not clear how they would integrate with the current DHIS or the envisioned National Health Information System. Second, at the secondary and tertiary health care level there are numerous patient management and hospital information managements systems in the different provinces (Department of Health [South Africa] 2012c p. 14). It was also not clear how these systems would be integrated with the National Health Information System as envisioned in the National Health Act. Third, it is not clear how the Integrated Document and Records Management System would ensure that the Electronic Health Record is effectively managed as envisioned in the eHealth strategy (Department of Health [South Africa] 2012c p. 26). These three gaps would need to be clarified at a policy level before it is operationalised.

8.3.1.2.5 *Trustworthiness of records in the digital environment*

The literature revealed that there were a few health institutions using ECM applications to manage digital records in the Western Cape (Bizcommunity 2013; PR Connections 2012; Weeks 2013b; Western Cape Government [South Africa] 2013 p. 1). It is also likely that some digital records were being managed through the utilisation of information systems such as the DHIS in primary care institutions and HIS systems in secondary and tertiary institutions.

Respondent 8 noted that the legislative framework allowed functional equivalence between hardcopy and digital records through the ECT Act. Respondent 8 added that even though the Act had been in existence for a number of years there were hardly any test court cases in the country which meant that there was no set precedent in order to provide legal certainty. Respondent 16 argued that it was not only necessary to have laws but to also use standards through such as ISO 15801 to provide guidelines on mechanisms to ensure trustworthiness of digital records.

The legal certainty that would be brought by testing cases in court means that the procedures of adducing digital evidence had not been effectively tested and refined. Respondent 6 noted that there was no electronic equivalence to the hardcopy forensic possibilities of carbon dating ink, dusting for fingerprints as well as studying other aspects of the document that could help determine authenticity and reliability. This means subjects related to digital forensics need to be explored. Several commentators have noted the growing discipline of digital records forensics could begin to address these concerns (Duranti 2010; Xie 2011a).

8.3.2 Operational recommendations

According to the Department of Health (2012a p. 21), a number of initiatives have been undertaken in conjunction with the first phase of NHI implementation. These include “the establishment of the Office of Health Standards Compliance; the audit of public health facilities aimed at improving quality; appointment of District Clinical Specialist Support Teams; training of Primary Health Care Agents; and improving Information Management and Systems Support”. These practical activities demonstrate efforts by the Department of Health to identify and address issues. The recommendations below build on this context.

8.3.2.1 Baseline assessment on records management in health institutions

The National Health Care Facilities Baseline Report that examined the quality and functionality of services revealed a number of deficiencies within the health institutions (Health Systems Trust 2013 p. ix - x). However, the study didn't assess records management within these institutions. It would be important to have a nationwide baseline report that provides a starting point on the practical situation in health institutions nation-wide. A very limited study was undertaken in North West Province in 2004 (Brink 2004 p. 2-4). The initiative audited 23 health institutions and found that only 8% were minimally compliant to records management requirements. A nationwide report building on provincial initiatives would be highly informative.

8.3.2.2 Implementation of EDRMS in health institutions

According to the Department of Health (2012c p. 5), the fundamental goal of the eHealth Strategy is providing "the roadmap for achieving a well-functioning national health information system with the patient located at the centre". One of the arsenals to address the challenge is implementing an integrated EDRMS nationwide (Department of Health [South Africa] 2012c p. 26). The literature review demonstrated that a number of masters and doctoral level studies had been conducted examining EDRMS implementation within the country spanning more than a decade. These include: the use of an EDRMS in Polokwane Municipality (Makhura 2001), the implementation of EDRMS in the Office of the President (Kwatsha 2010) as well as implementation at the Office of the Premier in Eastern Cape (Munetsi 2011). Such studies could offer valuable lessons learnt from within national, provincial and local municipality levels with regards to EDRMS implementation. In addition, the provincial Department of Health in Western Cape Province had implemented ECM software applications in several institutions such as Tygerburg Hospital and Khayelitsha District Hospital with expected rollout in other health institutions in the province (OpenText 2012; PR Connections 2012; Weeks 2013a; Western Cape Government [South Africa] 2013). Therefore, an assessment of the lessons learnt from these experiences could inform the eHealth Strategy. For instance, Makhura (2001 p. 87) noted that many of the staff using the EDRMS in Polokwane Municipality did not have appropriate technical skills. In a study conducted a decade later, Munetsi (2011 p. 88) noted that implementation at the Office of the Premier was hampered because the staff also didn't have appropriate skills to use the application. Therefore, an integrated assessment of academic studies as well as a review of case studies would provide a baseline and inform the eHealth Strategy on key success factors and common pitfalls for planned EDRMS implementation (Katuu 2015c).

8.4. Concluding remarks

Monette, Sullivan et al (2014 p. 429) argue that the purpose of analysing and interpreting data is extracting meaning from very specific observations in order to learn something more abstract and general. This doctoral study, guided by the three research objectives, has conducted a comprehensive review of literature with an extensive analysis of data.

In order for research projects to have an impact on policy, on practice and on the thinking of professionals and academics, the findings must be credible and many factors affect credibility (Parahoo 2014 p. 73). Tritter (2007 p. 306) argues that the most fundamental factor to affect credibility has to do with the choices of research methods and techniques used. Based on the foregoing, the research mission in this research study, its interpretivist tradition and the use of qualitative research data might have raised concern about the study not being scientifically vigorous enough. For this reason, the research was designed with a complex web of data sources as discussed in Chapter 5. As Table 19 in this doctoral study illustrated, the research design was a matrix of one research method and two research techniques in order to guide the research project. Tritter (2007 p. 306) states that

the logic of the design, the management and process of the research, the methods used to collect data and their link to research questions, and the acceptance of the analytical framework adopted...will all affect the perceived validity of the findings. The degree of fit or triangulation between the findings when using different methods is an important mechanism for ensuring acceptance of research findings.

Chapters 5, 6, and 7 provided the research methodology, the data collection process and analysis as well as the interpretation of the results obtained from the data. This final chapter has provided the broad and abstracted observations outlined as summary of findings as well as summary of recommendations. There three final sets of remarks to make in the sections below.

8.4.1 Remarks on the research process

There are five concluding remarks to be made concerning the research process. First, the 22 respondents in this research came from different professional backgrounds and experiences. This means that even though they were asked the same set of questions, as shown in Appendix F, they offered very varied perspectives. For instance, their responses on the existence and use

of standards in the public health sector demonstrated their varied expertise and knowledge either within the health disciplines, in the records profession or in information technology development.

Second, the varied perspectives required nuanced understanding of the dynamics in the health sector as well as within the records profession in South Africa. This nuanced understanding had been outlined in Chapters 2, 3 and 4 of this dissertation. For instance, the management of records often happened in primary health institutions concurrently with the collection of statistics for the DHIS. On the other hand, the management of records in secondary and tertiary health institutions happened within an environment with different health information systems that were, for the most part, not interoperable.

Third, there were several instances when respondents' comments that seemed contradictory or counter-intuitive to the general narrative. This was understandable considering their varied backgrounds and experiences as well as their beliefs and perspectives. For instance, on the discussion about the management of both hard copy and digital records within a hybrid environment, Respondents 1, 16 and 19 argued that it would take a long transition period to move to a completely digital work environment while Respondent 18 argued that it would be a short period. Another example is the precise length of time that health records should be retained. Respondent 18 argued that any such records should be retained for only five years while Respondent 2 argued that x-rays, in particular, had to be retained for 15 years. This apparent contradiction demonstrated the legislative and regulatory dissonance that hinders the effective management of records within the health sector.

Fourth, it is apparent from this chapter that the recommendations lean heavily on the policy rather than operational level. This should be clear from the objectives of the dissertation that examine, in a holistic manner, the management of records within the health sector, alluding to a top-down approach stemming from the legislative and regulatory framework. Since there was no overt intention to conduct institutional level assessments for specific operational observations, the discussions in this study have leaned towards policy level analysis and recommendations.

Fifth, while all the respondents discussed the management of records in South Africa's public health care institutions, a number of them cited examples from 14 countries in different continents. These countries were from Africa (Kenya, Namibia, Rwanda and Zimbabwe), North

America (Canada and the USA), Europe (Holland, Romania, Slovenia and the UK), Asia (India and South Korea) and Oceania (Australia and New Zealand). The respondents, therefore, offered a very global perspective to the challenges and possible solutions to address the situation in South Africa.

8.4.2 Remarks about future research

This dissertation study has extensively explored the management of records in health institutions. However, there are a number of aspects that need additional research. First, the career development of records professionals for the health sector requires in-depth analysis. Both the literature review as well as data from the respondents highlighted the lack of formal career paths for records professionals in South Africa's health sector even though the National Archives had a general policy statement on records professionals in the public sector (National Archives and Records Service of South Africa 2007b). In contrast, records professionals in Kenya's health sector have been formally recognised through education and training opportunities since 1978. The most prominent programmes are in two post-secondary institutions: Kenya Medical Training College with a 2 year certificate programme and Technical University of Kenya with both certificate and diploma programmes (Kenya Medical Training College 2008; Technical University of Kenya 2013a; Technical University of Kenya 2013b). Therefore an in-depth analysis for records professionals in the health sector should be cognisant of the developments that have taken place within the Archives and Records Management profession in the country as well as the continent (Katuu 2015a; Katuu and Ngoepe 2015a).

Second, the eHealth Strategy notes the plan to implement a uniform Integrated Document and Records Management System at all levels of health institutions (Department of Health [South Africa] 2012c p. 26). As this dissertation has demonstrated, there have already been masters levels research studies on EDRMS implementations in Polokwane Municipality (Makhura 2001), the Office of the President (Kwatsha 2010) as well as the Office of the Premier in the Eastern Cape Province (Munetsi 2011). These individual studies as well as others should contribute to a comprehensive assessment that informs the National Department of Health before it embarks on this project. In addition, there are lessons to be learnt from countries that have made large-scale information technology investments in Health Information Systems but not significantly improved service delivery capacity (Hawari and Heeks 2010; Heeks 2006). This reality is common both in the developed and developing world with examples shared from HIS projects that have either

partially or totally failed in the UK and the US (Aldukheil 2013; Heeks 2006 p. 127). This would be in keeping with the eHealth's Strategy of "getting the basics right, taking an incremental approach, (and) building on what already exists" (Department of Health [South Africa] 2012c p. 6).

8.4.3 Remarks about findings and recommendations

Notwithstanding the areas of future research as noted in the preceding section, there are four overarching themes to worth noting from this dissertation's findings and recommendations. First, there is substantial legislative and regulatory dissonance in the management of health records in the country. While there are extensive legislative, regulatory and policy instruments that could be used for managing records in the health sector, a substantial number lack strategic coherence. For instance, the retention period for health records is not substantially addressed in legislative or regulatory instruments in the ambit of the National Archives or any national or provincial Department of Health.

Second, understanding the complex interplay of different legal and regulatory instruments in South Africa's public health sector is a critical first step, but it remains the beginning of the process (Katuu and Ngoepe 2015b). Respondent 8 acknowledged that over time the public sector had evolved from being ignorant of legislative instruments. Respondent 8 added:

Nine years ago nobody knew about these laws and nobody cared. Then they did know and they didn't care. And then they did know and did care but they didn't know what to do about it. Now they do know and they do care and they are saying help. That's a big change.

However, beyond having a sophisticated understanding, there is need for an equally sophisticated implementation process. Therefore, knowledge of the instruments has to be translated to practice through compliance in order to ultimately improve the quality of health services. For Respondent 1, 6, 9 and 16, effective records management in the health sector was intricately linked to compliance. According to Respondent 6:

records compliance is the backbone of all the other compliance. For...a health care institution or anyone in the public sector, if you want to comply with the Public Finance Act or the Municipal Finance Act, whichever level you are, then it's very difficult to comply with it without having proper records systems.

Third, this study outlined lessons to be learnt from other countries. For instance, between 2006 and 2009, the UK National Health Service published two parts of the Code of Practice for Records Management that included: guidelines, responsibilities and processes of managing records as well as details on records retention and disposal schedules for the different kinds of health as well as business and corporate records (Department of Health [United Kingdom] 2006; Department of Health [United Kingdom] 2009).

Fourth, while there are several areas of weakness in the management of records in South Africa's public health sector, that have been a number of pockets of excellence. For instance, the provincial administration in Limpopo appointed a senior officer responsible for records management who provided strategic and material support for the appointment and training of records professionals in health institutions. This likely contributed immensely to the Limpopo Department of Health and Social Development being recognised in the Golden Key Awards of both 2008 as the best performing provincial department in the country (Open Democracy Advice Centre and South African Human Rights Commission 2008 p. 7). In 2010, the department was again commended together with the Office of the Premier in Limpopo as the two "good practice institutions" in the country for having "developed effective PAIA implementation mechanisms" that register and track requests for information (Open Democracy Advice Centre and South African Human Rights Commission 2010 p. 17). Therefore, lessons learnt in such institutions within the country need to be emulated throughout the public health sector by developing and extending effective and efficient records management programmes in order to support the goal of quality health care in the country.

The four overarching themes of the findings and recommendations illustrate the unique contribution of this study by demonstrating the sheer multiplicity of recordkeeping practice within South Africa and the diversity of experiences within the public health sector.

Appendix A - South Africa's district and metropolitan municipalities

No.	Name	No.	Name	No.	Name
1	City of Cape Town	2	West Coast	3	Boland
4	Overberg	5	Eden	6	Central Karoo
7	Nelson Mandela Metro	8	Cacadu	9	Amatole
10	Chris Hani	11	Ukhahlamba	12	O R Tambo
13	Alfred Nzo	14	Xharlep	15	Motheo
16	Lejweleputswa	17	Thabo Mofutsanyane	18	Northern Free State
19	Naakwa	20	Pixley ka Seme	21	Slynda
22	Frances Baard	23	Kgalagadi	24	Bojanala
25	Central	26	Bophirima	27	Southern
28	West Rand	29	City of Johannesburg	30	Sedibeng
31	Ekuruleni	32	Metswedeng	33	City of Tshwane
34	Mopani	35	Vhembe	36	Capricorn
37	Waterberg	38	Greater Sekhukhune	39	Gert Sibande
40	Nkalanga	41	Ehlanzeni	42	Amajuba
43	Zululand	44	Umkhanyakude	45	Uthungulu
46	Umgonyathi	47	Uthukela	48	UMgungundlovu
49	iLembe	50	eThekwi	51	Ugu
52	Sisonke				

Appendix B - introductory letter from UNISA

22/09/2009 12:22 012-429-3792

INFO SCIENCE

PAGE 01/01



To whom it may concern

This is to confirm that Mr. Shadrack Katuu is a D Litt et Phil student with the Department of Information Sciences at the University of South Africa under my supervision. His research topic is "Managing records in South African public healthcare institutions – a critical analysis"

As part of his research, he will be conducting interviews with over a dozen individuals who have expertise on varied aspects of his research topic. Should Mr Katuu approach you to contribute to the research process, kindly provide the necessary assistance.

Should you have any concerns, please contact me:

Prof TB van der Walt
Department of Information Science
University of South Africa
PO Box 392
0003 Unisa
Pretoria

E-mail: vdwaltb@unisa.ac.za
Tel: +27 12 4296520

Kind regards

A handwritten signature in black ink that reads "Thomas van der Walt".

Prof TB van der Walt



University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Appendix C - Introductory letter to participants

Shadrack Katuu
PO Box 291569
Melville 2109
02 September 2009

TOPIC: Managing records in South African public health care institutions – a critical analysis

My name is Shadrack Katuu, a PhD student in the department of Information Science at the University of South Africa (UNISA). My doctoral study is a critical analysis of the role of effective records management in the provision of services in South Africa's public health care institutions.

This is a request for your participation in an interview session lasting about 30 minutes with regard to your knowledge and experience in the management of records in public health care institutions in South Africa.

All information you share will be kept strictly confidential and anonymised devoid of personal identifiers in compliance with freedom of information and privacy legislative and regulatory requirements. Attached is a form that has the confidentiality and privacy clauses this study adheres to. Should you agree with the provisions, kindly append your signature. Should you have any concerns please don't hesitate to contact me.

Kind regards,

Shadrack Katuu
PhD student
Department of Information Science UNISA
Cell: +27723411172
Fax: +27866500304

Appendix D - Confidentiality agreement

Information use and disclosure confidentiality agreement

- This agreement sets out terms and conditions under which information is collected and used for the purposes of a university graduate level research study conducted by Shadrack Katuu in partial fulfilment of the requirements of the University of South Africa Doctor of Philosophy programme.
- The study is being carried out consistent with ethical principles laid out by the University of South Africa as well as other institutions such as the National Research Foundation and the Medical Research Council of South Africa.
- The research study report will be published for academic and other review purposes in accordance with University of South Africa's graduate requirements.
- Research study results may be presented at conferences, professional seminars and used in the development of education programmes and published works.
- Participation is entirely voluntary
- During the course of the research study, interaction between participants and the researcher may cause study participants to become known to each other. Indeed, the nature of the research study is such that the development of a "community" is a desirable component and serves as a means to influence the direction of future research.
- Upon conclusion of the research study, participants will be given the option of being informed of findings and observations.
- Data collected during the research study will be used to identify and correlate the attributes of study participants, their workplace contexts, personal and academic characteristics.
- Specific data provided to the researcher will be used in aggregate or anonymous form to protect the confidentiality of the participant in compliance with provisions in the Promotion of Access to Information Act. This will be done through replacing names and personal identifiers with codes. The key to codes and the survey responses will be retained separately so that only the research is able to link surveys to respondents.
- Any information about individuals and organisations which is gained as a by-product of project interactions will be treated as confidential.
- Both the researcher and participants commit, with the signing of this agreement, to ethical, open and accurate exchange of information in the context of confidentiality described herewith.

Research signature	Research study participant signature
Name: Shadrack Katuu, Doctoral Student, UNISA Date:	Name: Date:

Appendix E: University of South Africa's signed ethical review clearance form

D OBSERVATIONS BY THE HIGHER DEGREES COMMITTEE OF THE DEPARTMENT OF 25/06/2010 IN THE COLLEGE OF HUMAN SCIENCES

D1. Is the proposal of an acceptable standard?

YES

NO, IT SHOULD BE REFERRED BACK TO THE CANDIDATE

COMMENTS: *Covers all the components of a research proposal adequately.*

D2 Are all reasonable guarantees and safeguards for the ethics of this study covered?

YES

NO, IT SHOULD BE REFERRED BACK TO THE RESEARCHER

COMMENTS: *Both the proposal and the covering letter to the instruments give adequate guarantees.*

We have reviewed this completed Summary Sheet and are satisfied that it meets the methodological, technical and ethical standards as set in the Department ofin the College of Human Sciences and that it is in compliance with the UNISA policy on research ethics.

Signed:	<i>Rivannette</i>
Name:	<i>PROF PATRICK NGULUBE</i>
Date:	<i>29/06/2010</i>

Appendix F – Semi structured questionnaire for research

Category	Questions
1	<ul style="list-style-type: none">○ What is understood to be the mandate of the Department of Health (DOH) with regards to the management of records in public health care institutions?○ What is the current state of records management in public health care institutions and what are the challenges?○ What interventions are in the pipeline to address these challenges? For example, are there guidelines akin to those in other countries like the UK?○ To what extent is records management incorporated in the information technology strategy of DOH
2	<ul style="list-style-type: none">○ What is the mandate of the National Archives and Records Service with regards to the management of records in public health care institutions?○ What is the current state of records management in public health care institutions and what are the challenges?○ What interventions are in the pipeline to address these challenges?
3	<ul style="list-style-type: none">○ What is the mandate of the Medical Research Council with regards to research relating to the management of records in public health care institutions?○ What research has been carried out so far and what are the key findings as well as recommendations of the research?○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa?
4	<ul style="list-style-type: none">○ To what extent is records management included in the health informatics curriculum?○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa and how does your curriculum address the challenges?○ What lessons can South Africa learn from abroad?○ What, in your opinion, are the future trends in this area of research?
5	<ul style="list-style-type: none">○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa?

Category	Questions
	<ul style="list-style-type: none"> ○ To what extent have records management requirements and functionalities been integrated in the accreditation mechanism that you have developed? ○ What, in your opinion, are the future trends both in terms of accreditation and the management of records in the public health sector?
6	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ To what extent have records management requirements and functionalities been integrated in the application system that you have developed? ○ What, in your opinion, are the future trends both in terms of technology and the management of records in the public health sector?
7	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ What, in your opinion, are the future trends in terms of the services you provide to health care institutions?
8a	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ What insights can you share with regards to the legal retention and disposition of health records, standards, Promotion of Access to Information Act and the new Privacy Bill? ○ What, in your opinion, are the future trends in terms of the expert advice you provide?
8b	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ What insights can you share with regards to Promotion of Access to Information Act? ○ What, in your opinion, are the future trends in terms of the expert advice you provide?
8c	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ What insights can you share with regards to the information security and the new Privacy Bill? ○ What, in your opinion, are the future trends in terms of the expert advice you provide?
9a	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ What insights can you share with regards to the National Archives Act, Promotion of Access to Information Act, the new Privacy Bill as well as records and document management standards?

Category	Questions
	<ul style="list-style-type: none"> ○ What, in your opinion, are the future trends in terms of the services you provide to health care institutions?
9b	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ How have you, as a service provider set about to address these challenges? ○ What, in your opinion, are the future trends in terms of the services you provide to health care institutions?
9c	<ul style="list-style-type: none"> ○ What, in your experience, are the main challenges in the management of records in public health care institutions in South Africa? ○ How have you, as a service provider set about to address these challenges? ○ What, in your opinion, are the future trends in terms of the services you provide to health care institutions?

Bibliography

Abankwah, R. (2008). Management of Audiovisual Materials in the member states of the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA). Pietermaritzburg, University of KwaZulu-Natal. Phd thesis.

Abbott, B. S. (1999). Preserving Electronic Memory: An Investigation into the Role played by the National Archives of South Africa in the Management of Electronic Records of Central Government. Pietermaritzburg, University of KwaZulu-Natal. Masters thesis.

Abdul Rani, A. (1998). The Development of a Records Management Function: Model based on a case study of Newcastle General Hospital. Newcastle upon Tyne, University of Northumbria. Masters thesis.

Adam, A. (2008). Implementing Electronic Document and Record Management Systems. Boca Raton, Auerbach Publications.

Adams, O. B., M. R. D. Poz, et al. (2003). Human, Physical and Intellectual Resource Generation: Proposals for Monitoring. Health Systems Performance Assessment: Debates, Methods and Empiricism. C. J. L. Murray and D. B. Evans. Geneva, World Health Organization: 273-288.

Adeleke, F. (2013). Constitutional Domestication of the Right of Access to Information in Africa: Retrospect and Prospects Access to Information in Africa: Law, Culture and Practice. F. Diallo and R. Calland. Leiden, Netherlands, Brill: 83-105.

Adjei, E. (2000). The Management of Medical Records in Government Hospitals in Ghana: An Agenda for Reform. London, University of London. Phd thesis.

Adler, E. and R. Clark (2015). An Invitation to Social Research: How it's done. Stamford, CT, Cengage Learning.

Afuaah, A. (2014). Business Model Innovation: Concepts, Analysis, and Cases. New York, NY, Routledge.

Aginam, O. (2002). "International Law and Communicable Diseases." Bulletin of the World Health Organization 80(12): 946-951.

AIIM (2010). "What is Enterprise Content Management." Retrieved 5th March, 2011, from <http://www.aiim.org/What-is-ECM-Enterprise-Content-Management.aspx>

Akazili, J. (2010). Equity in Health Care Financing in Ghana. Cape Town, University of Cape Town. Phd thesis.

Akpabio, A. E. E. (2013). Chief Information Officer's Role in Adopting an Interoperable Electronic Health Record System for Medical Data Exchange. Prescott Valley, AZ, Northcentral University. Phd thesis.

Al-Faris, H. (1995). The Impact of Computerized Patient Records on the Quality of Inpatient Care: The Perspectives of Physicians and Nurses. Washington DC, George Washington University. Phd thesis.

Albert, J. A. (2013). "Once Byten, Twice Shy: Preservation and Production of Electronic Healthcare Records." The Review of Litigation 32: 395-553.

Alberts, M. and N. Mollema (2014). "Developing Legal Terminology in African Languages as Aid to the Court Interpreter: A South African Perspective." Lexikos 23(1): 29-58.

Albery, L. R. (2001). The Effects of Reengineering on Hospital Performance Indicators. Kalamazoo, MI, Western Michigan University. Phd thesis.

Aldukheil, M. A. (2013). Developing a Systematic Architecture Approach for Designing an Enhanced Electronic Medical Record (EEMR) System. Southfield, MI, Lawrence Technological University. Phd thesis.

Alexander-Gooding, S. and S. Black (2005). "A National Response to ISO 15489: A Case Study of the Jamaican Experience." Information Management Journal 39(2): 62-66.

Allan, K., Ed. (2009). Paper Wars: Access to Information in South Africa. Johannesburg, Wits University Press.

Allotey, P. A. (1995). The Burden of Illness in Pregnancy in Rural Ghana: A Study of Maternal Morbidity and Interventions in Northern Ghana. Crawley, WA, University of Western Australia. Phd thesis.

An, X. and H. Jiao (2004). "Assessing Records Management in China against ISO 15489 and the Implications." Records Management Journal 14(1): 33-39.

Andrews, G. (2005). Strategic priorities for the National Health System. South African Health Review. Durban, Health Systems Trust: 2-15.

Ardern, C., A. Miller, et al. (2009). "Module 2: Planning and Managing an Electronic Records Management Programme." Training in Electronic Records Management. Retrieved 2nd November, 2014, from http://www.irmt.org/documents/educ_training/term%20modules/IRMT%20TERM%20Module%202.pdf.

Asiimwe, S. (2002). Use of Health Information for Operational and Strategic Decision-Making by Division Level Managers of Kampala City Council Health Department. Cape Town, University of Western Cape. Masters thesis.

Atherton, J. (1985). "From Lifecycle to Continuum: Some Thoughts on the Records Management–Archives Relationship." Archivaria 1(21): 43-51.

Babbie, E. R. (2008). The Basics of Social Research. Belmont, CA, Thomson Learning.

Bailey, S. (2006). Embedding Records Management into Business Processes. 1st Northumbria International Witness Seminary Conference Exploring the Essense of Records Management Engaging with Experts. S. Childs, S. Heaford and J. McLeod. Newcastle upon Tyne, School of Computing, Engineering & Information Sciences, Northumbria University.

Bailey, S. (2008). "Has EDRMS been a success? The case for the Prosecution." Records Management: The State of the Art. Retrieved 20th November, 2014, from <http://www.irms.org.uk/previousconferences/conference-2008/sessions-a-speakers?catid=68&id=421:has-edrm-been-a-success>.

Baird, A. (2012). Extending Adoption of Innovation Theory with Consumer Influence The Case of Personal Health Records (PHRs) and Patient Portals. Phoenix, AZ, Arizona State University. Phd thesis.

Baldeh, Y. H. J. (1997). Information for District Health Care Planning and Decision-Making in the Gambia: A Holistic Approach. Lancashire, University of Central Lancashire. Phd thesis.

Baldwin-Ragaven, L., J. d. Gruchy, et al., Eds. (1999). An Ambulance of the Wrong Colour: Health Professionals, Human Rights and Ethics in South Africa. Rondebosch, University of Cape Town Press.

Bantin, P. C. (1998). "Strategies for Managing Electronic Eecords: A New Archival Paradigm? An Affirmation of our Archival Traditions?" Archival Issues 23(1): 17-34.

Banyard, P. and C. Flanagan (2013). OCR Psychology: AS Core Studies and Psychological Investigations, Psychology Press.

Baralt, M. (2012). Coding Qualitative Data. Research Methods in Second Language Acquisition: A Practical Guide. A. Mackey and S. M. Gass. Chichester, West Sussex, Blackwell Publishing Ltd: 222-244.

Baron, K. P. (2012). Incorporating Personal Health Records into the Disease Management of Rural Heart Failure Patients. Fort Lauderdale, FL, Nova Southeastern University. Phd thesis.

Barr, D. A. (2011). Introduction to US Health Policy: The Organization, Financing and Delivery of Health. Baltimore, Maryland, John Hopkins University Press.

Barron, P., K. Strachan, et al. (1997). Year in Review. South African Health Review. P. Barron, K. Strachan and C. Ijsselmuiden. Durban, Health Systems Trust: xvii-xxii.

Bartlett, N. (1996). "Diplomatics for Photographic Images: Academic Exoticism?" The American Archivist 59(4): 486-494.

Bast, C. M. and M. Hawkins (2013). Foundations of Legal Research and Writing. Independence, KY, Cengage Learning.

Bazeley, P. and K. Jackson (2013). Qualitative Data Analysis with NVivo. Thousand Oaks, CA, Sage Publications Limited.

Beard, L., R. Schein, et al. (2012). "The Challenges in making Electronic Health Records accessible to Patients." Journal of the American Medical Informatics Association 19(1): 116-120.

Bearman, D. (1992). "Diplomatics, Weberian Bureaucracy and the Management of Electronic Records in Europe and America." The American Archivist 55(1): 168-181.

Beck, R. B. (2000). The History of South Africa. Connecticut, Greenwood Publishing Group.

Bekui, A. M. (1990). A Health Management Information System for the District Health Services in Ghana. Leeds, University of Leeds. Phd thesis.

Bell, T. (2012). "The 'Secrecy Act' is coming." Retrieved 15th February, 2014, from <http://terrybellwrites.com/2012/12/28/the-secrecy-act-is-coming/>.

Benson, T. (2001). "Why British GPs use Computers and Hospital Doctors Do Not." Journal of Biomedical Informatics 35: 42-46.

Berger, J., A. Hassim, et al., Eds. (2013). The National Health Act 61 of 2003 - A Guide. Cape Town, Siber Ink.

Berger, S. (2008). Fundamentals of Health Care Financial Management: A Practical Guide to Fiscal Issues and Activities. San Francisco, John Wiley and Sons.

Berger, S. (2014). Fundamentals of Health Care Financial Management: A Practical Guide to Fiscal Issues and Activities. San Francisco, CA, John Wiley & Sons.

Bernitz, H. (2014). Legal Aspects Related to Healthcare Insurance, Dental Practitioners, and Forensic Odontologists in South Africa. Forensic and Legal Dentistry. K. Rotzscher, Springer: 75-78.

Bezuidenhout, M. (2013). "Protection of Personal Information Bill - what it means for Law Practices." Retrieved 13th February, 2014, from <http://www.saflii.org/za/journals/DEREBUS/2013/18.html>.

Bhana, R. V. (2010). A review of Health Care Indicators in the South African District Health Information System used for Planning, Monitoring and Evaluation. Durban, University of KwaZulu-Natal. Masters thesis.

Bigelow, S. (2012). "Archivematica at the City of Vancouver Archives." Retrieved 2nd November, 2014, from <http://opensourcearchiving.org/content/archivematica-city-vancouver-archives>

Bizcommunity (2013). "Datacentrix awarded Two Western Cape Government ECM Health Tenders ". Retrieved 28th February, 2014, from <http://www.bizcommunity.com/Article/196/545/95301.html>.

Blecher, M. S., C. Day, et al. (2008). Primary Health Care Financing in the Public Sector. South African Health Review. P. Barron and J. Roma-Reardon. Durban, Health Systems Trust: 179-193.

Blignaut, P. J. (1999). Usability of a Computerized Patient Record System in a Busy Township Primary Health Care Clinic: A Feasibility Study. Bloemfontein, University of the Orange Free State. Phd thesis.

Borglund, E. and L.-M. Öberg (2006). Operational Use of Records. Paradigms Politics Paradoxes: 29th Information Systems Research Seminar in Scandinavia, Copenhagen, The IRIS Association.

Bote, J., M. Termens, et al. (2011). Evaluation of Healthcare Institutions for Long-Term Preservation of Electronic Health Records. ENTERprise Information Systems - Communications in Computer and Information Science Vilamoura, Portugal, Springer Berlin Heidelberg.

Botha, C. (2008). Introduction. Financing South Africa's National Health System through National Health Insurance: Possibilities and Challenges. C. Botha and M. Hendricks. Cape Town, Human Science Research Council: ix-xiv.

Boykin, A., S. Schoenhofer, et al. (2014). Health Care System Transformation for Nursing and Health Care Leaders: Implementing a Culture of Caring. New York, NY, Springer Publishing Company.

Bradshaw, D. and L. Mbobo (1995). Informatics Support. South African Health Review 1995. D. Harrison. Durban, Health Systems Trust.

Briggs, S. L. (2012). Developing Defensible EHR Clinical Documentation. Duluth, MN, The College of St. Scholastica. Masters thesis.

Brink, I. (2004). "Records Management in Health Institutions: A Department of Health project - North West Province, South Africa." ESARBICA Newsletter. Retrieved 2nd November, 2014, from <http://esarbica.com/ESARBICAnews2.pdf>.

Brown, A. (2014). A Phenomenological Study of Primary Healthcare: Assessing the Perceptions of Military Retirees. Phoenix, AZ, University of Phoenix. Phd thesis.

Brown, A., S. Katuu, et al. (2009). "Module 4: Preserving Electronic Records." Training in Electronic Records Management. Retrieved 2nd November, 2014, from http://www.imt.org/documents/educ_training/term%20modules/IRMT%20TERM%20Module%204.pdf

Bruijn, I. (2009). Ship's Surgeons of the Dutch East India Company: Commerce and the Progress of Medicine in the Eighteenth Century. Amsterdam, Leiden University Press.

Buch, E. (2000). The Health Sector Strategic Framework: A Review. South African Health Review. Durban, Health Systems Trust: 53-74.

Burger, D. (2009). Government System. South Africa Yearbook 2008/09. D. Burger. Pretoria, Government Communication & Information System: 280-309.

Burrows, E. H. (1958). A History of Medicine in South Africa up to the end of the Nineteenth Century. Cape Town, A A Balkema.

Bustelo, C. (2012). "ISO 15489 under review." Retrieved 2nd August, 2013, from <http://goo.gl/ivNU4J>.

Cadima, E. L., A. M. Caramelo, et al. (2005). Sampling Methods applied to Fisheries Science: A Manual. Rome, Food and Agriculture Organization of the United Nations.

Cain, P. (2002). "Model Requirements for the Management of Electronic Records (MoReq): A Critical Evaluation." Records Management Journal 12(1): 14-18.

Calland, R. (2009). Illuminating the Politics and the Practice of Access to Information in South Africa. Paper Wars: Access to Information in South Africa. K. Allan. Johannesburg, Wits University Press: 1-16.

Calland, R. (2013). The Zuma Years: South Africa's Changing Face of Power. Cape Town, Zebra.

Carmel, D., E. Uziel, et al. (2012). "Folksonomy-based Term Extraction for Word Cloud Generation." ACM Transactions on Intelligent Systems and Technology 3(4): 60.

Carstens, P. and D. Pearmain (2007). Foundational Principles of South African Medical Law. Durban, Lexis Nexis.

Cassels, A. (1997). "A Guide to Sector-wide Approaches for Health Development." WHO/ARA/97.12. Retrieved 7th November, 2013, from https://extranet.who.int/iris/restricted/bitstream/10665/63811/1/WHO_ARA_97.12.pdf.

Chandran, T. M. (2002). Emergency Care in the Free State province: A Retrospective Study of the Patient and Disease Profile and the Quality of Patient Records. Bloemfontein, University of Western Cape. Masters thesis.

Chen, J. M., M. C. Chen, et al. (2012). A Novel Approach to Monitoring and Creating significant Learning Experiences using Social Tag Cloud Navigation. International Conference on Computers in Education (ICCE).

Chua, Y. M. (2012). The Complex System Records Model: Recordkeeping for Wicked Problems. Los Angeles, CA, University of California Los Angeles. Masters thesis.

Cimtech (2013). Designing and Implementing an Information and Records Management Solution. Managing Information and Records: the Definitive Guide. Cimtech. Hatfield, Cimtech: 43-56.

Clarke, S. (2006). Context-Sensitive Policy Methods. Handbook of Public Policy Analysis: Theory, Politics and Methods. F. Fischer, G. J. Miller and M. Sidney. Boca Raton, FL, CRC Press.

Clasberry, E. U. (2012). Culture of Names in Africa - A Search for Cultural Identity, Xlibris Corporation.

CMS Watch (2010). "The ECM Report 2010." Retrieved 25th March, 2011, from <http://replay.waybackmachine.org/20090524222117/http://www.cmswatch.com/ECM/Report/>

Coetzer, X. P. (2012). The status of Records Management at the University of Zululand Ulundi, University of Zululand. Masters thesis.

Connaway, L. S. and R. R. Powell (2010). Basic Research Methods for Librarians. Westport, Libraries Unlimited.

Cook, T. (1984). "From Information to Knowledge: An Intellectual Paradigm for Archives." Archivaria 1(19): 28-49.

Cook, T. (2001). "Archival Science and Postmodernism: New Formulations for Old Concepts." Archival Science 1(1): 3-24.

Cook, T. and J. M. Schwartz (2002). "Archives, Records, and Power: From (Postmodern) Theory to (Archival) Performance." Archival Science 2(3-4): 171-185.

Coovadia, H., R. Jewkes, et al. (2009). "The Health and Health System of South Africa: Historical Roots of current Public Health Challenges." The Lancet 374(9692): 817-834.

Cowman, S. (2008). Triangulation. Nursing Research: Designs and Methods. R. Watson, H. McKenna, S. Cowman and J. Keady, Elsevier Health Sciences.

Craig, B. H. (1988). A Survey and Study of Hospital Records and Record-keeping in London (England) and Ontario (Canada) C. 1850 - C. 1950 with special reference to Eight Institutions. London, University of London. Phd thesis.

Creswell, J. W. and V. L. P. Clarke (2007). Designing and Conducting Mixed Methods. Thousand Oaks, CA, Sage.

Criel, B. (1998). District-based Health Insurance in sub-Saharan Africa. Antwerp, ITG Press.

Crisp, N. (2014). HIV/AIDS and National Health Insurance in South Africa. African Health Leaders: Making Change and Claiming the Future. F. Omaswa and N. Crisp. Oxford, Oxford University Press.

Crockett, M. and J. Foster (2004). "Using ISO 15489 as an Audit Tool." Information Management Journal 38(4): 46-53.

Cui, W., Y. Wu, et al. (2010). Context preserving Dynamic Word Cloud Visualization. Pacific Visualization Symposium, IEEE.

Cullinan, K. (2006). "Health Services in South Africa: A Basic Introduction." Retrieved 14th August, 2014, from http://www.health-e.org.za/wp-content/uploads/2013/04/Health_services_briefing_doc.pdf.

Cullinan, K. and A. Thom (2012). The State of the Nation's Health. Opinion Pieces by South African Thought Leaders. M. du Preez, Penguin UK.

Cunningham, A. (2010). "International Council on Archives Project - Principles and Functional Requirements for Records in Electronic Office Environments." Retrieved 24th March, 2012, from http://www.naa.gov.au/Images/Adrian%20Cunningham_tcm16-37084.pps.

Cvision Technologies (2011). "Electronic Document Management." Retrieved 11th June, 2011, from <http://www.cvisiontech.com/pdf/pdf-document/electronic-document-management.html?lang=eng>.

Dalgleish, C. (2013). ICD-10: A Comprehensive Guide: Education, Planning and Implementation. Clifton Park, NY, Dlemar.

Dam, W. (2006). "South Africa's Districts ". Retrieved 3rd November, 2013, from http://en.wikipedia.org/wiki/File:South_Africa_Districts_April_2006.png.

Dambisya, Y. M., S. I. Modipa, et al. (2009). Capital Flows in the Health Sector in South Africa: Implications for Equity and Access to Health Care. EQUINET Discussion Paper Series 76 Harare, Rhodes University, York University, TARSC, SEATINI, EQUINET.

David, M. and C. D. Sutton (2004). Social Research - The Basics. London, Sage Publications.

Davidson, B. (2013). Africa in History: Themes and Outlines. New York, Simon & Schuster.

Day, C., P. Barron, et al., Eds. (2009). District Health Barometer Year 2007/08. Durban, Health Systems Trust.

Day, C., F. Monticelli, et al., Eds. (2010). District Health Barometer Year 2008/09. Durban, Health Systems Trust.

Daymon, C. and I. Holloway (2011). Qualitative Research Methods in Public Relations and Marketing Communications. New York, NY, Routledge.

De Ferranti, D. (1985a). "Paying for Health Services in Developing Countries: A Call for Realism." World Health Forum 6: 99-105.

De Ferranti, D. (1985b). Paying for Health Services in Developing Countries: An Overview. World Bank Staff Working Papers: Number 721. Washington DC, World Bank.

De Ferranti, D. (2009, 21st September). "The Private Sector in Health In Developing Countries: The Comming Challenges, Changes, and Choices." Retrieved 26th October, 2013, from <http://goo.gl/9wL6ZI>.

De Haan, M., K. Dennhill, et al. (2005). The Health of Southern Africa. Cape Town, Juta and Co. Ltd.

De Lange, D. and D. Caelers (2007). "Missing Manto Records baffle Clinic." IOL News. Retrieved 3rd November, 2013, from <http://www.iol.co.za/news/politics/missing-manto-records-baffle-clinic-1.366413#.UnYyaxBGYo8>.

De Leon, H. S. (1989). Constitution for High School. Quezon City, Philippines, Rex Bookstore, Inc.

De Wet, L. (1999). The Presentation of A Model of An Electronic Patient Record System for Use in General Practice in South Africa. Bloemfontein, University of the Orange Free State. Phd thesis.

Deacon, H. (1997). "Cape Town and 'country' doctors in the Cape Colony during the first half of the Nineteenth Century." Social history of medicine 10(1): 25-52.

Delay, S., L. Gilson, et al. (2004). South Africa: Study of Non-State Providers of Basic Services. Birmingham, International Development Department, School of Public Policy, University of Birmingham.

Denscombe, M. (2007). The Good Research Guide for Small-Scale Social Research Projects. Berkshire, Open University Press.

Department of Agriculture [Limpopo Provincial Government South Africa] (2014). "Records Disposal Authority." Retrieved 13th July, 2014, from <http://policyresearch.limpopo.gov.za/bitstream/handle/123456789/856/Disposal.pdf?sequence=1>

Department of Arts and Culture [South Africa] (2010). "The demand for and supply of skills in Library and Information Services, Archival Services and Records Management." Retrieved 2nd March, 2015, from <http://www.national.archives.gov.za/Final%20Report%202015%20March2010.pdf>.

Department of Defense [United States] (2012). "Records Management Application: DoD 5015.02-STD RMA Design Criteria Standard." Retrieved 27th March, 2012, from <http://jtc.fhu.disa.mil/cgi/rma/standards.aspx>.

Department of Government Communication and Information System [South Africa] (2013). "Categories of Municipalities." Retrieved 26th October, 2013, from <http://www.gov.za/aboutgovt/localgovernment.htm>.

Department of Health - Western Cape Government [South Africa] (2014). "Annual Performance Plan 2014/2015." Retrieved 15th January, 2015, from <http://www.westerncape.gov.za/sites/www.westerncape.gov.za/files/doh-annual-performance-plan-2014-2015.pdf>.

Department of Health [South Africa] (1997). "White Paper for the Transformation of the Health System in South Africa." Retrieved 7th March, 2014, from http://www.polity.org.za/polity/govdocs/white_papers/health.html.

Department of Health [South Africa] (2007). "Guidelines for Maternity Care in South Africa: A Manual for Clinics, Community Health Centres and District Hospitals ". Retrieved 7th March, 2014, from <http://www.ais.up.ac.za/health/blocks/block9/Maternal%20Guidelines%202007.pdf>.

Department of Health [South Africa] (2010). "National Service Delivery Agreement: A Long and Healthy Life for All South Africans." Retrieved 7th March, 2014, from http://www.hst.org.za/sites/default/files/NSDA_booklet.pdf.

Department of Health [South Africa] (2011). "Human Resources for Health South Africa: HRH Strategy for the Health Sector - 2012/13 - 2016/17." Retrieved 5th October, 2014, from http://www.health.gov.za/docs/strategic/2012/HRM_strategy.pdf

Department of Health [South Africa] (2012a). "Annual Performance Plan 2012/13-2014/15." Retrieved 7th March, 2014, from http://www.health.gov.za/docs/strategic/2013/Annual_Performance_Plan_final.pdf.

Department of Health [South Africa] (2012b). "District Health Information System - Standard Operating Procedure: Facility Level." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2014/5SOPFacilitylevel.pdf>.

Department of Health [South Africa] (2012c). "eHealth Strategy South Africa 2012-2016." Retrieved 7th March, 2014, from http://www.health.gov.za/docs/strategic/2012/eHealth_Strategy_South_Africa_2012-2016.pdf.

Department of Health [South Africa] (2012d). "Policy on the Management of Public Hospitals." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2012/hospmanpolicy.pdf>.

Department of Health [South Africa] (2012e). "Regulations relating to Categories of Hospitals." Retrieved 7th March, 2014, from <http://www.health.gov.za/docs/regulation/2012/regr185.pdf>.

Department of Health [South Africa] (2013a). "District Health Information System - Standard Operating Procedure: District Level." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2014/3SOPDistrictlevel29Jan2014.pdf>

Department of Health [South Africa] (2013b). "District Health Information System - Standard Operating Procedure: National Level." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2014/1SOPNationallevel27Jan2014.pdf>.

Department of Health [South Africa] (2013c). "District Health Information System - Standard Operating Procedure: Provincial Level." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2014/2SOPProvinciallevel29Jan2014.pdf>.

Department of Health [South Africa] (2013d). "District Health Information System - Standard Operating Procedure: Sub-District Level." Retrieved 5th October, 2014, from <http://www.health.gov.za/docs/Policies/2014/4SOPSubdistrict29Jan2014.pdf>

Department of Health [South Africa] (2014). "Strategic Plan 2014/15 - 2018/19." Retrieved 30th September, 2014, from <http://www.health.gov.za/docs/strategic/2013/strategicplan.pdf>.

Department of Health [United Kingdom] (1998a). "HSC 1998/153: Using Electronic Patient Records in Hospitals Legal Requirements and Good Practice." Retrieved 20th January, 2014, from http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Healthservicecirculars/DH_4004847.

Department of Health [United Kingdom] (1998b). "HSC 1998/217: Preservation, Retention and Destruction of GP General Medical Services Records Relating to Patients." Retrieved 20th January, 2014, from http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/publicationsandstatistics/Lettersandcirculars/Healthservicecirculars/DH_4005007.

Department of Health [United Kingdom] (1999). "HSC 1999/053: For the Record – Managing Records in NHS Trusts and Health Authorities." Retrieved 20th January, 2014, from http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/publicationsandstatistics/lettersandcirculars/healthservicecirculars/dh_4003513.

Department of Health [United Kingdom] (2006). "Records Management: NHS Code of Practice Part 1." Retrieved 10th November, 2013, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200138/Records_Management_-_NHS_Code_of_Practice_Part_1.pdf.

Department of Health [United Kingdom] (2009). "Records Management: NHS Code of Practice Part 2." 2nd edition. Retrieved 10th November, 2013, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200139/Records_Management_-_NHS_Code_of_Practice_Part_2_second_edition.pdf.

Department of Health [United Kingdom] (2014). "NHS Records Management." Retrieved 20th January, 2014, from <http://www.connectingforhealth.nhs.uk/systemsandservices/infogov/records>.

Department of Transport [South Africa] (2010). "Draft Policy on the Restructuring of the Road Accident Fund as Compulsory Social Insurance in Relation to the Comprehensive Social Security System." Retrieved 7th March, 2014, from <http://www.pmg.org.za/files/policy/100212rafpolicy.pdf>.

Detwiller, M. (2006). Enhancing the Quality of Health Care Delivery through the use of Electronic Clinical Documentation. Victoria, BC, Royal Roads University Masters thesis.

DigitalNZ (2014). "Make it Digital." Retrieved 16th February, 2014, from <http://www.digitalnz.org/about>.

Ditlopo, P., D. Blaauw, et al. (2013). "Policy Implementation and Financial Incentives for Nurses in South Africa: A Case Study on the Occupation-Specific Dispensation." Global Health Action 6: 138-146.

DLM Forum Foundation (2011). " Moreq2010 - Modular Requirements for Records Systems." Retrieved 11th June, 2011, from http://moreq2010.eu/pdf/moreq2010_v01_v1_1_en.pdf.

Doherty, J., R. Kraus, et al. (1996). Health Facilities. South African Health Review. Durban, Health Systems Trust: 65-72.

Dollar, C. M. (1993). "Archivists and Records Managers in the Information Age." Archivaria 36(Autumn): 37-52.

Donaldson, C., K. Gerard, et al. (2005). Efficient Purchasing in Public and Private Healthcare Systems: Mission Impossible? The Public-Private Mix for Health. A. Maynard. Oxon, Radcliffe Publishing Ltd.

Douglas, G. P. (2009). Engineering an EMR System in the Developing World: Necessity is the Mother of Invention. Pittsburgh, PA, University of Pittsburgh. Phd thesis.

Douglas, G. P., Z. Landis-Lewis, et al. (2011). "Simplicity and Usability: Lessons from a Touchscreen Electronic Medical Record System in Malawi." Interactions 18(6): 50-53.

Du Bois, F. (2004). Introduction: History, System and Sources. Introduction to the Law of South Africa. C. G. Van der Merwe and J. E. Du Plessis. The Hague, Kluwer law international: 1-54.

Du Bois, F. (2010). "State Liability in South Africa: A Constitutional Remix." Tulane European & Civil Law Forum 25: 139-172.

DuBose-Morris, R. (2014). An Interpretative Phenomenological Analysis of Tele-health Champions. Fort Lauderdale, FL, Nova Southeastern University. Phd thesis.

Dumont, J. and K. Meyer (2004). The International Mobility of Health Professionals: An Evaluation and Analysis Based on the case of South Africa. Trends in International Migration. Paris, Organisation for Economic Co-Operation and Development: 150-205.

Duncan, I. (2012). Mining Health Claims Data for Assessing Patient Risk. Data Mining: Foundations and Intelligent Paradigms. D. E. Holmes and L. C. Jain. Santa Barbara, CA, Springer-Verlag.

Dural, J. (2006). Security and Digital Domain. Record Keeping in a Hybrid Environment: Managing the Creation, Use, Preservation and Disposal of Unpublished Information Objects in Context. A. Tough and M. Moss. Oxford, Chandos Publishing.

Duranti, L. (1998). Diplomatics: New Uses for An Old Science. Landham, MD, Scarecrow Press.

Duranti, L. (2010). "Digital Records as Evidence: Towards a Digital Records Forensics." International Conference on Surviving the Digital Wild Frontier. Retrieved 27th September, 2014, from

http://www.interpares.org/display_file.cfm?doc=ip3_canada_dissemination_cs_duranti_singapore_2010b.pdf.

Duranti, L., T. Eastwood, et al. (2002). Preservation of the Integrity of Electronic Records. Dordrecht, Springer.

Duranti, L. and H. MacNeil (1996). "The Protection of the Integrity of Electronic Records: An Overview of the UBC-MAS Research Project." Archivaria 42: 46-67.

Dusheiko, M. (2014). Patient Choice and Mobility in the UK Health System: Internal and External Markets. Health Care Provision and Patient Mobility. R. Levaggi and M. Montefiori. Milan, Springer: 81-132.

Dyjack, D. T. (1996). Development and Evaluation of an ISO 9000 Harmonized Occupational Health and Safety Management System. Ann Arbor, MI, University of Michigan. Phd thesis.

Eastwood, T., B. Ballaux, et al. (2008). "Appendix 14: Chain of Preservation Model - Diagrams and Definitions." International Research on Permanent Authentic Records in Electronic Systems (InterPARES) 2: Experiential, Interactive and Dynamic Records. Retrieved 11th March, 2012, from http://www.interpares.org/ip2/display_file.cfm?doc=ip2_book_appendix_14.pdf.

Eastwood, T., H. Hoffman, et al. (2008). Modelling Digital Records Creation, Maintenance and Preservation. International Research on Permanent Authentic Records in Electronic Systems (InterPARES) 2: Experiential, Interactive and Dynamic Records. L. Duranti and R. Preston. Vancouver, University of British Columbia: 193-260.

Edlund, B. and A. McDougall (2013). NVivo 10 Essentials. Stallarholmen, Form & Kunskap AB.

Eldridge, J. (2014). Data Analysis. Introduction to Nursing Research: Incorporating Evidence-Based Practice. C. Boswell and S. Cannon. Burlington, MA, Jones & Bartlett Publishers: 305-329.

Elekwachi, A. O. (2008). Limitations to the Utilization of Electronic Medical Records by Healthcare Professionals: A Case Study of Small Medical Practices. Minneapolis, MN, Capella University. Phd thesis.

Elkabir, A. (2000). Electronic Medical Records: Applicability in A South African context. Johannesburg, University of the Witwatersrand. Masters thesis.

Ellis, J. and C. Bustelo (2012). "Management Systems for Records." Retrieved 26th March, 2014, from <http://www.iso.org/iso/news.htm?refid=Ref1524>

Elloker, S., P. Olckers, et al. (2013). Crises, Routines and Innovations: The Complexities and Possibilities of Sub-District Management. South African Health Review 2012/13. A. Padarath and R. English. Durban, Health Sytems Trust: 161-173.

Engelbrecht, L. (2008). "SITA awards R1bn e-Health Tender." Retrieved 2nd March, 2014, from http://www.itweb.co.za/index.php?option=com_content&view=article&id=2878.

Engerman, S. L. and K. L. Sokoloff (2012). Five Hundred Years of European Colonization: Inequality and Paths of Development. Settler Economies in World History. C. Lloyd, J. Metzer and R. Sutch. Leiden, Koninklijke Brill NV: 65-105.

English, R. and A. Padarath (2013). Editorial. South African Health Review 2012/13. A. Padarath and R. English. Durban, Health Sytems Trust: vii-xi.

English, T. M. (2008). Impact of an Electronic Medical Record on adherence to current Diabetes Guidelines in a Family Medicine Centre. Birmingham, AL, University of Alabama at Birmingham Huntsville Campus. Phd thesis.

European Commission (2001). "Model Requirements for the Management of Electronic Records (MoReq)." Retrieved 3rd April, 2011, from <http://www.cornwell.co.uk/EDRM/moreq.asp>.

European Commission (2008). "Model Requirements for the Management of Electronic Records (MoReq) 2." Retrieved 1st April, 2011, from <http://www.moreq2.eu/moreq2>.

Evans, S. (2013, 29th April). "Culture of secrecy' still a threat to State Transparency." Mail and Guardian. Retrieved 7th April, 2014, from <http://mg.co.za/article/2013-04-29-culture-of-secrecy-still-a-threat-to-transparency-in-government>.

Fernandez, L. and J. T. Sprehe (2003, July/August). "Integrating an ERDMS in an IT environment." The Information Management Journal. from https://www.arma.org/bookstore/files/lessons_0703.pdf.

Flynn, K. C., E. W. Boorom, et al. (2010). Paperless Contract Folder's (PCF) DoD 5015.2 Certification. Monterey, CA, Naval Postgraduate School. Masters thesis.

Force, D. C. (2013). Pursuing the “usual and ordinary course of business”: An Exploratory Study of the role of Recordkeeping Standards in the Use of Records as Evidence in Canada. Vancouver, BC, University of British Columbia. Phd thesis.

Forland, L. (2000). Evaluating the Implementation of An Electronic Medical Record System for A Health Organization-Affiliated Family Practice Clinic. Victoria, BC, University of Victoria. Masters thesis.

Forman, L., Y. Pillay, et al. (2004). Health Legislation 1994-2003. South African Health Review. Durban, Health Systems Trust: 13-27.

Forster, M. E. L. (1990). Health Informatics in Developing Countries: An Analysis and Two African Case Studies. London, University of London. Phd thesis.

Fowler, F. J. (2009). Survey Research Methods. Thousand Oaks, California, Sage Publications.

Fox News (2009). "FBI Probes Hacker's \$10 Million Ransom Demand for Stolen Virginia Medical Records." Retrieved 3rd November, 2013, from <http://www.foxnews.com/story/2009/05/07/fbi-probes-hacker-10-million-ransom-demand-for-stolen-virginia-medical-records/>.

Fox, T. B. (2014). Examining Health Professional Educators' Adoption of Learning-Centered Pedagogy and Instructional Technologies. Philadelphia, PA, Drexel University. Phd thesis.

Franks, P. C. (2013). Records and Information Management, American Library Association.

Fresko, M. (2009). MoReq2: a European Contribution to the Preservation of Electronic Records. DigCCurr2009 Digital Curation: Practice, Promise and Prospects. H. Tibbo, C. Hank, C. A. Lee and R. Clemens. Chapel Hill, NC, DigCCurr2009: 37-41.

Friedman, I. (1999). Poverty, Human Rights and Health. South African Health Review. Durban, Health Systems Trust: 1-12.

Frost, R. (2011). "New ISO Management System Standards for Records Facilitate Transparency in Corporate Governance." Retrieved 26th March, 2014, from http://www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref1487.

Frye, K. (2011). Standardization of Medical Record Components in a Correctional Setting. Duluth, MN, The College of St. Scholastica. Masters thesis.

Galani, O. and A. Nikiforou (2006). Electronic Health Records. Handbook of Research on Informatics in Healthcare and Biomedicine. A. L. Athina. Hershey, Idea Group Reference.

Gallagher, D. C. (2006). The benefits of Quality Patient Medical Record Documentation: An Investigation of the Documentation Process for Acute Hospital Record Management. Saratoga Springs, NY, State University of New York Empire State College. Masters thesis.

Gambette, P. and J. Véronis (2010). Visualising a Text with a Tree Cloud. Classification as a Tool for Research. H. Locarek-Junge and C. Weihs. Berlin, Springer-Verlag: 561-569.

Ganiatsas, G., K. Starida, et al. (2006). Collaborative Environments for the health monitoring of Chronically Ill Children. Handbook of Research on Informatics in Healthcare and Biomedicine. A. L. Athina. Hershey, Idea Group Reference.

Garaba, F. (2011). An Investigation into the Management of the Records and Archives of Former Liberation Movements in East and Southern Africa held by National and Private Archival Institutions. Pietermaritzburg, University of KwaZulu-Natal Phd thesis.

Garrib, A., N. Stoops, et al. (2008). "An Evaluation of the District Health Information System in Rural South Africa." South African Medical Journal 98(7): 549-552.

Gartner (2003). "Magic Quadrant for Integrated Document Management." Retrieved 5th March, 2011, from http://www.project-consult.net/Files/Gartner_QM2003_IDM.pdf.

Geoghegan, M. D. (2000). A Review of whether Peri-Operative Nursing Records used in the Western Cape Metropolitan Health Region are in line with International Standards and Recommendations for Standard Content and Design Characteristics of the Western Cape. Cape Town, University of Cape Town. Masters thesis.

Gething, P. W. (2006). Spatiotemporal Modeling of Health Information Management System Data to quantify Malaria Treatment Burdens in the Kenyan Government's formal Health Sector. Southampton, University of Southampton. Phd thesis.

Geyer, N., S. Mogotlane, et al., Eds. (2009). Juta's Manual of Nursing - Volume 1. Cape Town, Juta and Co. Ltd.

Ghebrekidan, A. T. (2003). Corruption and Poor Health in Sub-Saharan Africa. Berkley, CA, University of California, Berkley. Phd thesis.

Gilbert, M. R., K. M. Shegda, et al. (2011). Magic Quadrant for Enterprise Content Management. Stamford, CT, Gartner.

Gladwin, J. (1999). An Informational Approach to Health Management in Low-Income Countries. Sheffield, University of Sheffield. Phd thesis.

Glesne, C. and A. Peshkin (1992). Becoming Qualitative Researchers: An Introduction. White Plains, New York, Longman.

Goh, E., S. Katuu, et al. (2009). "Module 3: Managing the Creation, Use and Disposal of Electronic Records." Training in Electronic Records Management. Retrieved 2nd November, 2014, from http://www.irmt.org/documents/educ_training/term%20modules/IRMT%20TERM%20Module%203.pdf.

Goldner, E. M., E. Jenkins, et al. (2011). A Concise Introduction to Mental Health in Canada. Toronto, ON, Canadian Scholars' Press.

Goldschmidt, P., P. Joseph, et al. (2012). "Designing an effective EDRMS based on Alter's Service Work System model." Records Management Journal 22(3): 152-169.

Goldsteen, R. L. and K. Goldsteen (2013). Jonas' Introduction to the US Health Care System. New York, NY, Springer Publishing Company.

Goodwin, C. J. (2010). Research in Psychology - Methods and Design. Hoboken, New Jersey, John Wiley and Sons.

Goodwin, N. (2009). National Health Systems: Overview. Health Systems Policy, Finance and Organization. G. Carrin. San Diego, CA, Elsevier: 393-407.

Gorard, S. and C. Taylor (2004). Combining Methods in Educational and Social Research. Berkshire, Open University Press.

Gorman, G. E. and P. Clayton (1997). Qualitative Research for the Information Professional: A Practical Handbook. London, Library Association Publishing.

Gottret, P. E. and G. J. Schieber (2006). Health Financing Revisited. Washington DC, The World Bank.

Goudge, J., J. Akazili, et al. (2012). "Social solidarity and willingness to tolerate Risk and Income-related Cross-Subsidies within Health Insurance: Experiences from Ghana, Tanzania and South Africa " Health Policy and Planning 27(Issue supplementary 1): i55-i63.

Govan, P. (2014). "Dentists and Protection of Personal Information Act, 2013 " South African Dental Journal 69(2): 78-81.

Grain, H. and P. M. Procter (2009). Using Health Data: Applying Technology to work Smarter. Chatswood, NSW, Elsevier Australia.

Gravetter, F. and L.-A. Forzano (2012). Research Methods for the Behavioural Sciences. Belmont CA, Cengage Learning.

Gray, A., M. Govender, et al. (2005). Health Legislation. South African Health Review. Durban, Health Systems Trust: 16-31.

Gray, A. and C. Jack (2008). Health Legislation and Policy. South African Health Review. Durban, Health Systems Trust: 31-50.

Gray, A. and K. Pillay (2006). Health Legislation and Policy. South African Health Review. Durban, Health Systems Trust: 3-17.

Gray, A., Y. Vawda, et al. (2011). Health Policy and Legislation. South African Health Review. Durban, Health Systems Trust: 1-15.

Grembowski, D. (2001). The Practice of Health Program Evaluation. Thousand Oaks, CA, Sage Publications.

Guercio, M. (1997). "Definitions of Electronic Records, the European Perspective." Archives and Museum Informatics 11(3-4): 219-222.

Gupta, B. C. and I. Guttman (2014). Statistics and Probability with Applications for Engineers and Scientists. Hoboken, NJ, John Wiley & Sons.

Hakim, C. (2000). Research Design: Successful Designs for Social and Economic Research. London, Routledge.

Hamilton, K. and J. Yau (2004). "The Global Tug-of-War for Health Care Workers." Retrieved 20th October, 2014, from <http://www.migrationpolicy.org/article/global-tug-war-health-care-workers>.

Hancock, D. R. and B. Algozzine (2006). Doing Case Study Research. New York, Teachers College Press.

Haneline, M. T. and W. C. Meeker (2011). Introduction to Public Health for Chiropractors. Sudbury, MA, Jones and Bartlett Publishers.

Hanmer, L. A. (2009). Factors associated with the successful Implementation of Computerised Hospital Information Systems in South Africa. Cape Town, University of Cape Town. Phd thesis.

Harris, V. (2005). "Record-Keeping and Records Continuum Thinkers: Examining a Seminal Australian Text (Archives: Recordkeeping in Society)." Archives and Manuscripts 33(2): 160-170.

Harrison, D. (2009). "An Overview of Health and Health Care in South Africa 1994–2010: Priorities, Progress and Prospects for New Gains." Retrieved 7th March, 2014, from <https://www.samedical.org/assets/files/doctors-corner/health-reviews/healthcare%20overview1994-2010.pdf>.

Harrison, D., P. Barron, et al. (1996). Preface. South African Health Review. Durban, Health Systems Trust: ix-x.

Harrison, S. and M. Qose (1998). Health Legislation. South African Health Review. Durban, Health Systems Trust: 17-27.

Harvey, R. (2002). Introduction. Research Methods for Students, Academics and Professionals – Information Management and Systems K. Williamson. Waga Waga, New South Wales, Charles Sturt University: xiii-xvii.

Hassan, D. K. (2006). Measuring Quality Performance in Health Care: The Effects of Joint Commission International Standards on Quality Performance. Minneapolis, MN, Walden University. Phd thesis.

Hassim, A., M. Heywood, et al., Eds. (2008). The National Health Act: A Guide. Cape Town, Siber Ink.

Hatch, J. A. (2002). Doing Qualitative Research in Education Settings. Albany, SUNY Press.

Hawari, A. a. and R. Heeks (2010). "Explaining ERP failure in Developing Countries: A Jordanian Case Study." iGovernment working paper. Retrieved 25th March, 2012, from http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/documents/di_wp45.pdf.

Hawkins, D. L. (1993). A Comparison of Two Nursing Documentation Systems in a Rural Community Hospital. Livonia, MI, Madonna University. Masters thesis.

Hayner, P. B. (2001). Unspeakable Truths: Transitional Justice and the Challenge of Truth Commissions. New York, NY, Routledge.

Health24 (2014). "2013-14: A Successful Health Story in Western Cape." Retrieved 15th January, 2015, from <http://www.health24.com/News/Public-Health/2013-14-A-successful-health-story-in-Western-Cape-20141014>.

Health Professions Council of South Africa (2002). "Guidelines on the Keeping of Patient Records - Booklet 11." Guidelines for Good Practice in the Health Care Professions. Retrieved 1st February, 2014, from <http://www0.sun.ac.za/ruralhealth/ukwanda/home/rudasaresources2009/More/Guidelines%20on%20Keeping%20of%20Patient%27s%20Records.pdf>.

Health Professions Council of South Africa (2007). "Guidelines on the Keeping of Patient Records - Booklet 15." Guidelines for Good Practice in the Health Care Professions. Retrieved 10th November, 2013, from http://www.hpcsa.co.za/downloads/conduct_ethics/rules/guidelines_patient.pdf.

Health Professions Council of South Africa (2008). "Guidelines on the Keeping of Patient Records - Booklet 14." Guidelines for Good Practice in the Health Care Professions. Retrieved 10th November, 2013, from http://www.hpcsa.co.za/downloads/conduct_ethics/rules/generic_ethical_rules/booklet_14_keeping_of_patient_records.pdf.

Health Professions Council of South Africa (2013). "Ethical Rules, Regulations and Policy Guidelines." Retrieved 10th November, 2013, from http://www.hpcsa.co.za/conduct_generic_ethical_rules.php.

Health Systems Trust (2009). "District Health Barometer Data." Retrieved 12th August, 2011, from http://www.hst.org.za/sites/default/files/DHBDATA_2007-08.zip.

Health Systems Trust (2013). "The National Health Care Facilities Baseline Audit." Retrieved 7th March, 2014, from http://www.hst.org.za/sites/default/files/NHFA_webready_0.pdf.

Healy, S. (2001). "ISO 15489 Records Management: Its Development and Significance." Records Management Journal 11(3): 133-142.

Heeks, R. (2006). "Health Information Systems: Failure, Success and Improvisation." International Journal of Medical Informatics 75(2): 125-137.

Henderson, P. C. (2011). AIDS, Intimacy and Care: A Kinship of Bones. Amsterdam, Amsterdam University Press.

Henry, L. J. (1998). "Schellenberg in Cyberspace." The American Archivist 61(2): 309-327.

Henttonen, P. (2009). "A Comparison of MoReq and SAHKE Metadata and Functional Requirements." Records Management Journal 19(1): 26-36.

Herbst, K., P. Littlejohns, et al. (1999). "Evaluating Computerised Health Information Systems - Hardware, Software and Humanware: Experiences from the Northern Province." Journal of Public Health Medicine 21(3): 305-310.

Hermann-Petrin, J. M. (2012). Role of Compatibility Views on Physician Adoption of Electronic Health Record Systems. Memphis, TN The University of Memphis. Phd thesis.

Hickson, M. (2008). Research Handbook for Health Care Professionals. Chichester, U.K., Wiley-Blackwell.

Ho, K. (2006). Improving the Quality of the Documentation System in a Health Care Environment. Denver, CO, Regis University. Masters thesis.

Hofman, H. (2008). "Appendix 15: Business-driven Recordkeeping Model - Diagrams and Definitions." International Research on Permanent Authentic Records in Electronic Systems (InterPARES) 2: Experiential, Interactive and Dynamic Records. Retrieved 11th March, 2012, from http://www.interpares.org/ip2/display_file.cfm?doc=ip2_book_appendix_15.pdf.

Holzinger, A., H. Burgsteiner, et al. (2006). Care2x in Medical Informatics Education. Handbook of Research on Informatics in Healthcare and Biomedicine. A. L. Athina. Hershey, Idea Group Reference: 81-87.

Hopkins, P. and H. Grange (2001). The Rocky Rioter Teargas Show: The Inside Story of the 1976 Soweto Uprising. Johannesburg, Struik Publishers.

Hugo, J. and L. Allan (2008). Doctors for Tomorrow: Family Medicine in South Africa. Grahamstown, NISC

Hunter, J. (2008). Foreward. South African Health Review. P. Barron and J. Roma-Reardon. Durban, Health Systems Trust: i.

Iacovino, L. (2004). "The Patient—Therapist Relationship: Reliable and Authentic Mental Health Records in a Shared Electronic Environment." Psychiatry, Psychology and Law 11(1): 63-72.

Iacovino, L. and B. Reed (2008). "Recordkeeping Research Tools in a Multi-Disciplinary context for Cross-Jurisdictional Health Records Systems." Archival Science: 37-68.

Ilie, V. (2005). What do Physicians want? Information Technology acceptance and usage by Healthcare Professionals. Orlando, FL, University of Central Florida. Phd thesis.

Illing, J. (2010). Thinking about Research: Framework, Ethics and Scholarship. Understanding Medical Education: Evidence, Theory and Practice. T. Swanwick. Oxford, UK, Wiley-Blackwell: 283-300.

International Standards Organization (2001a). ISO 15489-1:2001 Information and Documentation -- Records Management -- Part 1: General. Geneva, International Standards Organization.

International Standards Organization (2001b). ISO/TR 15489-2:2001 Information and Documentation -- Records Management -- Part 2: Guidelines. Geneva, International Standards Organization.

International Standards Organization (2005a). ISO 19005-1:2005 Document Management -- Electronic Document File Format for Long-term Preservation -- Part 1: Use of PDF 1.4 (PDF/A-1). Geneva, International Standards Organization.

International Standards Organization (2005b). ISO/TR 18492:2005 Document Management -- Long-term Preservation of Electronic Document-based Information Geneva, International Standards Organization.

International Standards Organization (2006a). ISO 22310:2006 Information and Documentation -- Guidelines for Standards Drafters for stating Records Management Requirements in Standards. Geneva, International Standards Organization.

International Standards Organization (2006b). ISO 23081-1:2006 Information and Documentation -- Records Management Processes -- Metadata for Records -- Part 1: Principles. Geneva, International Standards Organization.

International Standards Organization (2008a). ISO 32000-1:2008 Document Management -- Portable Document Format -- Part 1: PDF 1.7. Geneva, International Standards Organization.

International Standards Organization (2008b). ISO/TR 26122:2008 Information and Documentation -- Work Process Analysis for Records. Geneva, International Standards Organization.

International Standards Organization (2009a). ISO 12033: 2009 Document Management -- Electronic Imaging -- Guidance for the selection of Document Image Compression Methods. Geneva, International Standards Organization.

International Standards Organization (2009b). ISO 23081-2:2009 Information and Documentation -- Managing Metadata for Records -- Part 2: Conceptual and Implementation Issues. Geneva, International Standards Organization.

International Standards Organization (2009c). ISO/TR 15801:2009 Document Management -- Information Stored Electronically -- Recommendations for Trustworthiness and Reliability Geneva, International Standards Organization.

International Standards Organization (2009d). ISO/TR 22957:2009 Document Management -- Analysis, Selection and Implementation of Electronic Document Management Systems (EDMS). Geneva, International Standards Organization.

International Standards Organization (2010a). ISO 12029: 2010 Document Management -- Machine-readable Paper Forms -- Optimal Design for User Friendliness and Electronic Document Management Systems (EDMS). Geneva, International Standards Organization.

International Standards Organization (2010b). ISO 16175-1:2010 Information and Documentation -- Principles and Functional Requirements for Records in Electronic Office Environments -- Part 1: Overview and Statement of Principles. Geneva, International Standards Organization.

International Standards Organization (2010c). ISO 16175-3:2010 Information and Documentation -- Principles and Functional Requirements for Records in Electronic Office Environments -- Part 3: Guidelines and Functional Requirements for Records in Business Systems. Geneva, International Standards Organization.

International Standards Organization (2010d). ISO/TR 13028:2010 Information and Documentation - Implementation Guidelines for Digitization of Records. Geneva, International Standards Organization.

International Standards Organization (2011a). ISO 16175-2:2011 Principles and Functional Requirements for Records in Electronic Office Environments -- Part 2: Guidelines and Functional Requirements for Digital Records Management Systems._ Geneva, International Standards Organization.

International Standards Organization (2011b). ISO 19005-2:2011 Document Management -- Electronic Document File Format for Long-Term Preservation -- Part 2: Use of ISO 32000-1 (PDF/A-2) Geneva, International Standards Organization.

International Standards Organization (2011c). ISO 30300:2011 Information and Documentation - - Management Systems for Records -- Fundamentals and Vocabulary Geneva, International Standards Organization.

International Standards Organization (2011d). ISO 30301:2011 Information and Documentation - - Management Systems for Records -- Requirements Geneva, International Standards Organization.

International Standards Organization (2011e). ISO/TR 14105:2011 Document Management -- Change Management for Successful Electronic Document Management System (EDMS) Implementation. Geneva, International Standards Organization.

International Standards Organization (2011f). ISO/TR 23081-3:2011 Information and Documentation -- Managing Metadata for Records -- Part 3: Self-Assessment Method Geneva, International Standards Organization.

International Standards Organization (2012a). ISO 12651-1:2012 Document Management -- Electronic Document Management -- Vocabulary -- Part 1: Electronic Document Imaging. Geneva, International Standards Organization.

International Standards Organization (2012b). ISO 13008:2012 Information and Documentation - - Digital Records Conversion and Migration Process. Geneva, International Standards Organization.

International Standards Organization (2012c). ISO 14641-1:2012 Document Management -- Electronic Archiving -- Part 1: Specifications concerning the Design and the Operation of an Information System for Electronic Information Preservation. Geneva, International Standards Organization.

International Standards Organization (2012d). ISO 19005-3:2012 Document Management -- Electronic Document File Format for Long-term Preservation -- Part 3: Use of ISO 32000-1 with support for Embedded Files (PDF/A-3). Geneva, International Standards Organization.

International Standards Organization (2012e). ISO/TR 17068:2012 Information and Documentation - Trusted Third Party Repository for Digital Records. Geneva, International Standards Organization.

International Standards Organization (2014a). ISO 12651-2: 2014 Electronic Document Management -- Vocabulary -- Part 2: Workflow Management. Geneva, International Standards Organization.

International Standards Organization (2014b). ISO 14289-1:2014 Document Management Applications -- Electronic Document File Format Enhancement for Accessibility -- Part 1: Use of ISO 32000-1 (PDF/UA-1). Geneva, International Standards Organization.

International Standards Organization (2014c). "ISO/TC 46/SC 11 - Archives/Records Management." Retrieved 21st July, 2015, from http://www.iso.org/iso/home/standards_development/list_of_iso_technical_committees/iso_technical_committee.htm?commid=48856.

International Standards Organization (2014d). "ISO/TC 171 Document Management Applications." Retrieved 21st July, 2015, from http://www.iso.org/iso/standards_development/technical_committees/other_bodies/iso_technical_committee.htm?commid=53650.

InterPARES 2 Project (2007a). "Ontology A: Concept of a Record." Retrieved 15th February, 2014, from http://www.interpares.org/display_file.cfm?doc=ip2_ontology_a.pdf.

InterPARES 2 Project (2007b). "Ontology B: Concept of the Status of Transmission of a Record." Retrieved 15th February, 2014, from http://www.interpares.org/display_file.cfm?doc=ip2_ontology_b.pdf.

InterPARES 2 Project (2007c). "Terminology Database." Retrieved 11th March, 2012, from http://www.interpares.org/ip2/ip2_terminology_db.cfm

InterPARES 3 - TEAM Canada (2010). "City of Surrey, Legislative Services and Information Technology Divisions." Retrieved 1st April, 2014, from http://www.interpares.org/ip3/ip3_case_studies.cfm?team=1#cs14.

InterPARES 3 Project (2012). "Terminology Database." Retrieved 23rd February, 2014, from http://www.interpares.org/ip3/ip3_terminology_db.cfm?team=15.

InterPARES 3 Project: TEAM Canada (2012). "General Study 04 –International Standards Relevant to the InterPARES 3 Project." Retrieved 16th February, 2014, from http://www.interpares.org/ip3/display_file.cfm?doc=ip3_canada_gs04_international_standards.pdf.

Ismail, A. H. (2007). The Demographic Determinants of Reportable Incidents (RI) among Gold Miners at the Phumlanzi Occupational Centre, Harmony Gold Mine - A Retrospective Review of Health Records from January to December 2005. Ga-Rankuwa, Medical University of South Africa. Masters thesis.

IT-Online (2013). "Khayelitsha Hospital wins Award." Retrieved 28th February, 2014, from <http://it-online.co.za/2013/05/16/khayelitsha-hospital-wins-award/>.

Jain, R. K., H. C. Triandis, et al. (2010). Managing Research, Development and Innovation. Hoboken, New Jersey, John Wiley and Sons.

Jennett, N. (2004). Investing in Health for Accession. Health Policy and European Union Enlargement. M. McKee, L. MacLennan and E. Nolte. Berkshire, Open University Press.

Jimack, P., Ed. (2006). A History of the Two Indies. Aldershot, Ashgate Publishing Limited.

JISC infoNet (2007). "Implementing an Electronic Document and Records Management (EDRM) System." Retrieved 1st April, 2011, from <http://www.jiscinfonet.ac.uk/InfoKits/edrm>

JISC infoNet and Cimtech (2008). "Electronic Records Management Survey." Retrieved 2nd March, 2014, from <http://www.jiscinfonet.ac.uk/surveys/electronic-records-management-survey/>.

Joffres, C. and K. Rockwood (2006). The Use of Qualitative Research. Trial Designs and Outcomes in Dementia Therapeutic Research. K. Rockwood and S. Gauthier. Abingdon, Oxon, Taylor and Francis: 51-73.

Joint Interoperability Test Command [United States] (2015). "Records Management Application Product Register." Retrieved 25th July, 2015, from <http://jtc.fhu.disa.mil/projects/rma/reg.aspx>.

Jonas, S., R. Goldsteen, et al. (2007). Introduction to the US Health Care System. New York, Springer Publishing Company.

Joshi, M. S. (2000). Assessing Hospital Quality of Care: Is there a Link between Accreditation and Mortality? Ann Arbor, MI, University of Michigan. Phd thesis.

Kallepalli, V. N. V. (2003). A Security Framework for DICOM Images in Health Information Systems. Winnipeg, MB, University of Manitoba. Masters thesis.

Kalman, B. (2009). What is Culture? St Catherines, Ontario, Crabtree Publishing Company.

Kampffmeyer, U. (2006). "Enterprise Content Management." Retrieved 4th October, 2011, from http://www.project-consult.net/Files/ECM_White%20Paper_kff_2006.pdf.

Kanzi, N. (2010). An Investigation of the Role of Records Management with Specific Reference to Amathole District Municipality. Port Elizabeth, Nelson Mandela Metropolitan University. Masters thesis.

Katuu, S. (2012a). "Enterprise Content Management – An Overview of Phases, Standards and Best Practices Guidelines." Retrieved 2nd November, 2014, from http://www.bd.org.tr/index.php/bd/article/view/79/pdf_74

Katuu, S. (2012b). "Enterprise Content Management (ECM) implementation in South Africa." Records Management Journal 22(1): 37-56.

Katuu, S. (2012c). Enterprise Content Management and Digital Curation Applications – Maturity Model Connections. The Memory of the World in the Digital Age: Digitization and Preservation. L. Duranti and E. Shaffer. Vancouver, United Nations Educational Scientific and Cultural Organization: 1025-1041.

Katuu, S. (2015a). "The Development of Archives and Records Management Education and Training in Africa – Challenges and Opportunities." Archives and Manuscripts: The Journal of the Australian Society of Archivists 43(2): 96-119.

Katuu, S. (2015b). "Managing Digital Records in a Global Environment – An Assessment of the Landscape of International Standards and Best Practice Guidelines " The Electronic Library.

Katuu, S. (2015c). Managing Digital Records in a South African Public Sector Institution. INFUTURE2015: e-Institutions – Openness, Accessibility, and Preservation. Zagreb, Croatia, Department of Information and Communication Sciences, Faculty of Humanities and Social Sciences.

Katuu, S. (2015d). "User Studies and User Education Programmes in Archival Institutions." Aslib Journal of Information Management 67(4): 442-457.

Katuu, S. and M. Ngoepe (2015a). Managing Digital Heritage - An Analysis of the Education and Training Curriculum for Africa's Archives and Records Professionals. Digital Heritage International Congress 2015. Granada, Spain, Digital Heritage International Congress.

Katuu, S. and M. Ngoepe (2015b). Managing Digital Records within South Africa's Legislative and Regulatory Framework. 3rd International Conference on Cloud Security and Management ICCSM-2015. Tacoma, WA, University of Washington - Tacoma.

Kautzky, K. and S. M. Tollman (2008). A Perspective on Primary Health Care in South Africa. South African Health Review. Durban, Health Systems Trust: 17-30.

Keakopa, S. M. (2010). Management of Electronic Records, Lap Lambert Academic Publishing.

Kemoni, H. N. (2009). "Management of Electronic Records - Review of Empirical Studies from the Eastern, Southern Africa Regional Branch of the International Council on Archives (ESARBICA) region." Records Management Journal 19(3): 190-203.

Kenosi, L. (2008). Records, the Truth Commission and National Reconciliation: Accountability in Post-Apartheid South Africa. Pittsburgh, PA, University of Pittsburgh. Phd thesis.

Kenya Medical Training College (2008). "Health Records and Information Technology." Retrieved 18th October, 2014, from <http://www.kmtc.ac.ke/Academic-Courses/Certificate-Courses/Health-Records-and-Information-Technology>

Kepe, T. and D. Tessaro (2014). "Trading-off: Rural Food Security and Land Rights in South Africa." Land Use Policy 36: 267-274.

Kerry, T. P. (1999). Improving the Use of a Patient-Retained Medical Records in Emtshezi Sub-District. Ga-Rankuwa, Medical University of South Africa. Masters thesis.

Khan, A. A. (2012). A Correlational Analysis: Electronic Health Records (EHR) and Quality of Care in Critical Access Hospitals. Minneapolis, MN, Capella University. Phd thesis.

Khoza, T. (2008). "Dead Baby's Records Missing." News24 7th July 2008. Retrieved 3rd November, 2013, from <http://www.news24.com/SouthAfrica/News/Dead-babys-records-missing-20080707>.

Kim, E.-H. (2011). Evaluation of Patient-Controlled Personal Health Record on Different Populations: Impact of the Digital Divide on Its Use. Seattle, WA, University of Washington. Phd thesis.

Kinfu, Y. (2013). "The efficiency of the Health System in South Africa: Evidence from Stochastic Frontier Analysis." Applied Economics 45(8): 1003-1010.

Kirch, W., Ed. (2008). Encyclopedia of Public Health. Dresden, Springer.

Kisson, C. (2010). "Ten Years of Access to Information in South Africa: Some challenges to the effective implementation of PAIA." Retrieved 10th November, 2013, from <http://www.opendemocracy.org.za/wp-content/uploads/2010/10/Ten-Years-of-Access-to-Information-in-South-Africa-Some-challenges-to-the-effective-implementation-of-PAIA-by-Chantal-Kissoon.pdf>.

Klaaren, J. (2010). "PAIA Through the Courts: Case Law and Important Developments in PAIA Litigation." Retrieved 2nd August, 2011, from <http://www.opendemocracy.org.za/wp-content/uploads/2010/10/PAIA-Through-the-Courts-Case-Law-and-Important-Developments-in-PAIA-Litigation-by-Jonathan-Klaaren1.pdf>.

Kleynhans, A.-M. (2011). Is South Africa ready for a national Electronic Health Record (EHR)? Pretoria, University of South Africa. Masters thesis.

Klug, H. (2012). Access to Medicine and the Transformation of the South African State. Transnational Legal Ordering and State Change. G. C. Shaffer. Cambridge, UK, Cambridge University Press: 148-179.

Kok, P., G. Derik, et al., Eds. (2006). Migration in South and Southern Africa: Dynamics and Determinants. Cape Town, HSRC Press.

Kongstvedt, P., Ed. (2013). Essentials of Managed Health Care. Burlington, MA, Jones & Bartlett Publishers.

Koon, A. D., K. D. Rao, et al. (2013). "Embedding Health Policy and Systems Research into Decision-Making Processes in Low and Middle-Income Countries." Health Research Policy and Systems 11(30): 1-9.

Kothari, C. R. (2012). Research Methodology. New Delhi, New Age International Publishers.

Kulkarni, V. A. (2006). Implementation of Electronic Health Records: Modelling and Evaluating Healthcare Information Systems for Quality Improvements in the US Healthcare Industry. Minneapolis, MN, Capella University. Phd thesis.

Kutzin, J. (2008). Health Financing Policy: A Guide for Decision-Makers. Health financing policy paper. Copenhagen, World Health Organization Regional Office for Europe.

Kwatsha, N. (2010). Factors affecting the Implementation of Electronic Document and Records Management Systems. Stellenbosch, University of Stellenbosch. Masters thesis.

Lacour-Gayet, R. (1977). The History of South Africa, Hastings House.

Laidler, P. W. and M. Gleffand (1971). South Africa: Its Medical History 1652-1898 – A Medical and Social Study. Cape Town, Struik.

Lange, L. (2003). White, Poor and Angry: White Working Class Families in Johannesburg. Aldershot, Ashgate Publishing Limited.

Lappin, J. (2011). "How MoReq 2010 differs from previous Electronic Records Management (ERM) system specifications." Retrieved 25th October, 2014, from <http://thinkingrecords.co.uk/2011/05/06/how-moreq-2010-differs-from-previous-electronic-records-management-erm-system-specifications/>

Layel, R. (2013). "To Support or Not Support the DoD 5015.2 Standard (Some pet peeves and views on the debate from a RIM practitioner's perspective) ". Retrieved 5th March, 2014, from <http://www.aiim.org/community/blogs/community/To-Support-or-Not-Support-the-DoD-50152-Standard-%28Some-pet-peevess-and-views-on-the-debate-from-a-RIM-practitionere28099s-perspective%29>.

Lederman, R. (2004). "The Implications of Data Privacy Legislation for the Development of Hospital Information Systems." Health Information Management 33(1): 12-17.

Lemieux, V. (2001). "Let the Ghosts Speak: An Empirical Exploration of the 'Nature' of the Record." Archivaria 1(51): 81-111.

Leung, G. M. and J. Bacon-Shone (2006). Health Financing Reform. Hong Kong's Health System: Reflections, Perspectives and Vision. G. M. Leung and J. Bacon-Shone. Aberdeen, Hong Kong University Press.

Li, J. (2008). E-health Readiness Assessment for EHR Perspective. Kensington, NSW, University of New South Wales. Masters thesis.

Lighter, D. E. (2004). Medical Care. Encyclopedia of health care management. M. J. Stahl. Thousand Oaks, California, Sage Publications Inc.

Lilly, T. (2012). The Black African in Southern Africa: Images in British School Geography Books. The Imperial Curriculum: Racial Images and Education in the British Colonial Experience. J. Mangan. Oxon, UK, Routledge: 40-53.

Lindqvist, M. (2012). Keeping or Discarding Records: A Comparison and a Practical Use of Influential Standards for Electronic Records Management. Linköpings, Linköpings University. Bachelors thesis.

Littlejohns, P., J. Rawlinson, et al. (1999). "An Evaluation Programme for the Hospital Information System, Northern Province, South Africa." Retrieved 3rd November, 2013, from <http://www.bmjjournals.org/cgi/content/full/326/7394/860>.

Littlejohns, P., J. C. Wyatt, et al. (2003). "Evaluating Computerised Health Information Systems: Hard Lessons still to be Learnt." British Medical Journal: 860-863.

Liu, M. X. and D. Murphy (2013). The Document Explosion in the World of Big Data—Curriculum Considerations. Proceedings of the Information Systems Educators Conference ISSN. San Antonio, TX, Education Special Interest Group of the AITP. 30: 1-9.

Lizakowski, T. L. (2013). Assuring Data Documentation Quality in the Medical Record. Duluth, MN, The College of St. Scholastica. Masters thesis.

Lloyd, C. (2012). Institutional Patterns of the Settler Societies: Hybrid, Parallel, and Convergent. Settler Economies in World History. C. Lloyd, J. Metzer and R. Sutch. Leiden, Koninklijke Brill NV: 545-578.

Lueders, D. (2013). "On Why I No Longer Support the DoD 5015.2 Standard." Retrieved 5th March, 2014, from <http://www.aiim.org/community/blogs/expert/On-Why-I-No-Longer-Support-the-DoD-50152-Standard>.

MacNeil, H. (2004). "Contemporary Archival Diplomatics as a Method of Inquiry: Lessons learned from Two Research Projects." Archival Science 4(3-4): 199-232.

Madanamohan, M. (2005). System Integration in Healthcare Industry: A Case Study of one Healthcare Records Management Company. Chapel Hill, NC, University of North Carolina at Chapel Hill. Masters thesis.

Madhuku, L. (2010). An Introduction to Zimbabwean law. Harare, Weaver Press.

Maffei, F. R. (1997). Sustainable Healthcare and Information Technology Explosion: What is the Future for Patient Medical Records? Colorado Springs, CO, Colorado Technical University. Phd thesis.

Magda, B. (2008). Increasing Efficacy of Emergency Departments through Systems Analysis of Enterprise Architecture: Mitigating the Impact of Technological Change. Washington DC, George Washington University. Phd thesis.

Mahoney, M. R. (2012). The Other Zulus: The Spread of Zulu Ethnicity in Colonial South Africa. Durham, NC Duke University Press.

Mahoro, A. (2013). Examining the Inventory Management of Antiretroviral Drugs at Community Health Centres in the Cape Metropole, Western Cape Cape Town, University of Western Cape. Masters thesis.

Makhura, M. M. (2001). The Role of Electronic Records Management in a Service Organisation. Johannesburg, University of Johannesburg. Masters thesis.

Makhura, M. M. (2006). The contributions of Information User Behaviour and Records Management towards an Organization's Competitive Performance. Johannesburg, University of Johannesburg. Phd thesis.

Mandel, M. (2013). "I support DOD 5015.2; and encourage all Federal Agencies to adopt it ". Retrieved 5th March, 2014, from <http://www.aiim.org/community/blogs/expert/I-Support-DOD-50152-and-Encourage-ALL-Federal-Agencies-to-Adopt-It>.

Mangate, H. L. (2004). Maternal and Infant Health Profiles. Maternal and Newborn Care: A Complete Guide for Midwives and other Health Professionals. J. de Kock and C. van der Walt. Cape Town, Juta.

Mangiameli, R. (1998). The Development and Implementation of An Electronic Medical Folder. New York, NY, New York Medical College. Masters thesis.

Mars, M. and C. Seebregts (2008). "Country Case Study for e-Health: South Africa." American Medical Informatics Association conference. Retrieved 7th March, 2014, from <http://ehealth-connection.org/files/resources/County%20Case%20Study%20for%20eHealth%20South%20Africa.pdf>.

Martinez, D., P. Ferriol, et al. (2008). Virtual Health Platform for Medical Tourism Purposes. Medical and Care Compunetics 5. L. Bos, S. Laxminarayan and A. Marsh, IOS Press.

Marutha, N. S. (2011). Records Management in support of Service Delivery in the Public Health Care Sector of the Limpopo Province in South Africa. Pretoria, University of South Africa. Masters thesis.

Mashima, D. (2012). Safeguarding Health Data with enhanced Accountability and Patient Awareness. Atlanta, GA, Georgia Institute of Technology. Phd thesis.

Matshidze, P. and L. Hanmer (2007). Health Information Systems in the Private Health Sector. South African Health Review. Durban, Health Systems Trust: 89-102.

Mayanja, R. (2005). Decentralised Health Care Services Delivery in selected Districts in Uganda. Cape Town, University of Western Cape. Masters thesis.

Mayosi, B. M., J. E. Lawn, et al. (2012). "Health in South Africa: Changes and Challenges since 2009." The Lancet 380(9858): 2029-2043.

Mbananga, N., R. Madale, et al. (2002). "Evaluation of Hospital Information System in the Northern Province of South Africa: Using Outcome Measures." Retrieved 3rd November, 2013, from <http://www.mrc.ac.za/bod/nothern.pdf>.

McArdle, W. D., F. I. Katch, et al. (2006). Essentials of Exercise Physiology. Baltimore, MD, Lippincott Williams & Wilkins.

McDonald, J. (1995). "Managing Records in the Modern Office: Taming the Wild Frontier." Archivaria 39(Spring): 70-79.

- McDonald, J. (2011). Personal Email Communication. Washington DC: 2.
- McInnes, S. (1998). "Electronic Records: The New Archival Frontier?" Journal of the Society of Archivists 19(2): 211-220.
- McIntyre, D. (2010). Private Sector Involvement in Funding and Providing Health Services in South Africa: Implications for Equity and Access to Health Care. Equinet Discussion Paper Series 84. Harare, Health Economics Unit (UCT), ISER Rhodes University, EQUINET.
- McIntyre, D. E. (1995). Financing and Expenditure. South African Health Review 1995. D. Harrison. Durban, Health Systems Trust.
- McIntyre, D. E. and J. D. Doherty (2004). Health Care Financing and Expenditure - Progress since 1994 and remaining Challenges. Health and Health Care in South Africa. H. C. J. Van Rensburg. Pretoria, Van Schaik Publishers.
- McKemmish, S. (2001). "Placing Records Continuum Theory and Practice." Archival Science 1(4): 333-359.
- McKenzie, F. (2012). Trade, Dominance, Dependence and the End of the Settlement Era in Canada, Australia, New Zealand, South Africa 1920-1973. Settler Economies in World History. C. Lloyd, J. Metzer and R. Sutch. Leiden, Koninklijke Brill NV: 463-492.
- McLeod, H. and P. Grobler (2009). "The Role of Risk Equalization in moving from Voluntary Private Health Insurance to Mandatory Coverage: The Experience in South Africa." Advances in Health Economics and Health Services Research 21: 159-196.
- McLeod, J. (2004). "ISO 15489: Helpful, Hype or just not Hot?" Archives and Manuscripts 32(2): 90-113.
- McLeod, J. and S. Childs (2013). "A Strategic Approach to making sense of the "wicked" problem of ERM." Records Management Journal 23(2): 104-135.
- McLeod, J. and C. Hare (2010). "Development of RMJ: A mirror of the development of the profession and discipline of records management." Records Management Journal 20(1): 9-40.
- McQuoid-Mason, D. (2007). "Advance Directives and the National Health Act." South African Medical Journal 96(12): 1236-1238.
- McWay, D. (2009). Legal and Ethical Aspects of Health Information Management. Clifton Park, NY, Cengage Learning.
- McWay, D. C. (2008). Today's Health Information Management : An Integrated Approach. Clifton Park, NY, Thomson Delmar Learning.
- McWay, D. C. (2013). Today's Health Information Management : An Integrated Approach. Clifton Park, NY, Delmar Cengage Learning.

Mehta, T. (2012). "Drawing Supply and Demand curves in Excel." Retrieved 8th September 2014, from http://www.tushar-mehta.com/excel/charts/supply_and_demand.pdf.

Mendenhall, W., R. Beaver, et al. (2013). Introduction to probability and statistics. Boston, MA, Cengage Learning.

Mercer, H., M. Dal Poz, et al. (2002). "Human Resources for Health: Developing Policy Options for Change: Discussion Paper." Retrieved 7th March, 2014, from http://www.who.int/hrh/documents/en/Developing_policy_options.pdf.

Mertens, D. M. (2010). Research and Evaluation in Education and Psychology - Integrating Diversity with Quantitative, Qualitative, and Mixed Methods. Thousand Oaks, CA, Sage Publications.

Millar, L., Ed. (1999). Managing Public Sector Records: A Study Programme – Managing Hospital Records. London, International Records Management Trust.

Ministry of Justice [United Kingdom] (2012a). Health and Social Care Act 2012. London, The Stationery Office.

Ministry of Justice [United Kingdom] (2012b). Health and Social Care Act 2012 - Explanatory Notes. London, The Stationery Office.

Mitchell, J. M. (1992). The Role of Education in Quality Assurance Programs in Health Care Facilities in British Columbia and Washington State. Seattle, WA, Seattle University. Phd thesis.

Mokaba, B. and M. Bambo (1996). Socio-economic Context of Health. South African Health Review. Durban, Health Systems Trust: 11-18.

Molefe, S. P. (2003). Maintenance of Confidentiality of Patients' Records whilst using Information Technology. Pretoria, University of South Africa. Masters thesis.

Monette, D., T. Sullivan, et al. (2014). Applied Social Research: A Tool for the Human Services. Belmont, CA, Cengage Learning.

Moore, C. and R. Markham (2003). "Market Leaders emerging in Enterprise Content Management." Retrieved 5th March, 2011, from http://www.forrester.com/rb/Research/market_leaders_emerging_in_enterprise_content_management/q/id/30139/t/2

Morley, O. (2012). "The National Archives Digital Strategy." Retrieved 16th February, 2014, from <http://www.nationalarchives.gov.uk/documents/the-national-archives-digital-strategy.pdf>.

Morton, M. E. (2008). Use and Acceptance of an Electronic Health Record: Factors Affecting Physician Attitudes. Philadelphia, PA, Drexel University. Phd thesis.

Mostert, W. (2005). The Electronic Communications and Transactions Act: Guide for Consumers, Businesses and Public Bodies. Cape Town, Mostert Opperman Incorporated.

Mphatswe, W., K. Mate, et al. (2012). "Improving Public Health Information: A Data Quality Intervention in KwaZulu-Natal, South Africa." Bulletin of the World Health Organization 90(3): 176-182.

Mposo, N. (2013). "Missing records may set Prof free." IOL News. Retrieved 3rd November, 2013, from <http://www.iol.co.za/news/south-africa/western-cape/missing-records-may-set-prof-free-1.1447245#.UnYzGxBGYo8>.

Mrwebi, S. E. (2000). Records Management in a Management Consulting Firm. Johannesburg, University of Johannesburg. Masters thesis.

Msukwa, M. (2011). User Perceptions on Electronic Medical Record System (EMR) in Malawi. Blantyre, University of Malawi. Masters thesis.

Munetsi, N. (2011). Investigation into the state of Digital Records Management in the Provincial Government of Eastern Cape: A Case Study of the Office of the Premier Alice, University of Fort Hare. Masters thesis.

Murray, C. J. L. and J. Frenk (2000). "A Framework for Assessing the Performance of Health Systems." Bulletin of the World Health Organization 78(6): 717-731.

Mutemwa, R. I. (2001). Information and Decision-Making in District Health Systems in Zambia. Staffordshire, Keele University. Phd thesis.

Muyawala-Ilunga, J. (2009). The Challenges of Implementing Freedom of Information Law. Lusaka, University of Zambia. Bachelor thesis.

Nadasen, S. and A. Gray (2000). Health Legislation. South African Health Review. Durban, Health Systems Trust: 75-88.

Naidoo, K. S., K. Naidoo, et al. (2013). "Scaling up the delivery of Refractive Error Services within a District Health System: the KwaZulu-Natal, South Africa Experience." BMC Health Services Research 13(361).

Naidoo, S. (1997). Local Government Restructuring. South African Health Review. Durban, Health Systems Trust: 53-58.

Naidoo, S. (2013). "Patient's Access to Records." South African Dental Journal 68(1): 36-37.

Naidu, S. (2013). South Africa. Africa Yearbook A. Mehler, H. Melber and K. van Walraven. Leiden, Koninklijke Brill NV.

Nasson, B. (2012). "A Century of Postgraduate Anglo-Boer War (1899–1902) Studies: Masters' and Doctoral Studies Completed at Universities in South Africa, in English-speaking Countries and on the European Continent, 1908–2008." South African Historical Journal 64(2): 364-365.

National Archives and Records Administration [United States] (2012). "Department of Defense (DOD) Standard 50515.2." Retrieved 24th March, 2012, from <http://www.archives.gov/records-mgmt/initiatives/dod-standard-5015-2.html>.

National Archives and Records Administration [United States], Office of Management and Budget [United States], et al. (2005). "Federal Enterprise Architecture Records Management Profile." Retrieved 17th January, 2014, from <http://www.archives.gov/records-mgmt/pdf/rm-profile.pdf>.

National Archives and Records Service of South Africa (2000). "Guide to the Management of Electronic Records in Governmental Bodies." Retrieved 23rd February, 2014, from <http://www.national.archives.gov.za/rms/gmanerec.pdf>.

National Archives and Records Service of South Africa (2003a). "Directive D8: Prototype Schedule of Records other than Correspondence Files: Local Authorities." Retrieved 9th February, 2014, from <http://www.national.archives.gov.za/rms/dird8.pdf>.

National Archives and Records Service of South Africa (2003b). "Directive D11: General Disposal Authority Number AE1 for the Destruction of Ephemeral Electronic and Related records of all Governmental Bodies." Retrieved 9th February, 2014, from <http://www.national.archives.gov.za/rms/dird11.pdf>.

National Archives and Records Service of South Africa (2006a). "Circular 4 of 2006." Retrieved 22nd April, 2011, from http://www.national.archives.gov.za/rms/circulars/circular4_2006.htm.

National Archives and Records Service of South Africa (2006b). "Managing Electronic Records in Governmental Bodies: Policy, Principles and Requirements." Retrieved 23rd February, 2014, from http://www.national.archives.gov.za/rms/NARS_DMLIB-4878-v1-Managing_electronic_records_Policy_principles_and_Requirements_April_2006.PDF.

National Archives and Records Service of South Africa (2007a). "Advisory Pamphlet No 2 - Electronic records and the law: What governmental bodies need to know." Retrieved 4th December, 2013, from <http://www.national.archives.gov.za/Advisory%20Pamphlet%20No%202%20April%202012.pdf>.

National Archives and Records Service of South Africa (2007b). "Advisory Pamphlet No 3 - Records managers and the law: What governmental bodies need to know." Retrieved 4th December, 2013, from http://www.national.archives.gov.za/rms/ad_pamphlet3.PDF.

National Archives and Records Service of South Africa (2007c). "Advisory Pamphlet No 5 - Managing email and the law: What governmental bodies need to know ". Retrieved 4th December, 2013, from http://www.national.archives.gov.za/rms/ad_pamphlet5.PDF.

National Archives and Records Service of South Africa (2007d). "Advisory Pamphlet No. 1 - Managing Public Records and the Law: What governmental bodies need to know." Retrieved 4th December, 2013, from http://www.national.archives.gov.za/rms/ad_pamphlet1.PDF.

National Archives and Records Service of South Africa (2007e). "Records Management Policy." Retrieved 4th December, 2013, from http://www.national.archives.gov.za/rms/Records_Management_Policy_Manual_October_2007.pdf.

National Archives and Records Service of South Africa (2014). "General Disposal Authorities." Retrieved 13th July, 2014, from http://www.national.archives.gov.za/rms/general_disposalAuthorities.htm.

National Archives of Australia (2007). "Guidelines for Implementing the Specification for Electronic Records Management Systems Software." Retrieved 5th March, 2011, from <http://www.naa.gov.au/records-management/publications/ERMS-guidelines.aspx>

National Intelligence Agency [South Africa] (1996). Minimum Information Security Standard. Pretoria, Government Printer.

National PAIA Civil Society Network (2009). "PAIA Civil Society Network Shadow Report: 2009." Retrieved 14th April, 2011, from http://www.saha.org.za/resources/docs/Publications/FOIP_pub/CSN_Shadow.doc.

Ndlovu, S. M. (2006). The Soweto Uprising. The Road to Democracy in South Africa, Volume 2, 1970-1980. B. Magubane. Pretoria, South African Democratic Education Trust: 317-368.

Nell, J. L. (2006). Aspects of Confidentiality in Medical Law. Pretoria, University of Pretoria. Masters thesis.

Newby, P. (2013). Research Methods for Education. New York, Routledge.

Ngoepe, M. (2008). An Exploration of Records Management Trends in the South African Public Sector: A Case Study of the Department of Provincial and Local Government. Pretoria, University of South Africa. Masters thesis.

Ngoepe, M. (2013). Fostering a Framework to embed the Records Management Function into the Auditing Process in the South African Public Sector. Pretoria, University of South Africa. Phd thesis.

Ngoepe, M. and S. M. Keakopa (2011). "An Assessment of the State of National Archival and Records Systems in the ESARBICA region: A South Africa-Botswana Comparison." Records Management Journal 21(2): 145-160.

Ngoss, N. B. D. (2006). A Model for a secure fully wireless Telemedicine System. Johannesburg, University of Johannesburg. Masters thesis.

Ngulube, P. (2003). Preservation and Access to Public Records and Archives in South Africa. Pietermaritzburg, University of Natal. Phd thesis.

Nguyen, L. T., P. M. C. Swatman, et al. (2007, 5-7 December 2007). "EDMS, ERMS, ECMS or EDRMS: Fighting through the Acronyms towards a Strategy for Effective Corporate Records Management." 18th Australasian Conference on Information Systems. Retrieved 25th March, 2011, from <http://acis2007.usq.edu.au/assets/papers/132.pdf>

Nguyen, L. T., P. M. C. Swatman, et al. (2009). "EDRMS Implementations in the Australian Public Sector." ACIS 2009 Proceedings Paper 16. Retrieved 27th March, 2012, from <http://aisel.aisnet.org/acis2009/16/>.

Ngwena, C. and R. Cook (2005). Rights concerning Health. Socio-economic Rights in South Africa. D. Brand and C. Heyns. Pretoria, Pretoria University of Law Press.

Nkombua, L. (2000). A Survey of Injuries suffered by Patients treated for alleged Assault at the Casualty Department of Witbank Hospital. Pretoria, University of Pretoria. Masters thesis.

Nkundla, S., D. Potta, et al. (2004). "The Protection of Public Health Data – A Case Study." Information Security South Africa Conference. Retrieved 10th November, 2013, from <http://icsa.cs.up.ac.za/issa/2004/Proceedings/Full/036.pdf>.

Noll, R. T. (2009). Physician Acceptance of Computerized Physician Order Entry in Outpatient Settings: A Quantitative Analysis of Family Medicine within Maricopa County, Arizona. Minneapolis, MN, Capella University. Phd thesis.

Nolte, E., M. McKee, et al. (2005). Describing and Evaluating Health Systems. Handbook of Health Research Method. A. Bowling and S. Ebrahim. Berkshire, Open University Press: 12-44.

Norden, A. L. (2002). Patients' Thoughts on Patient Retained Medical Records. Ga-Rankuwa, Medical University of South Africa. Masters thesis.

Nordheim, S. and T. Päivärinta (2006). "Implementing Enterprise Content management: From Evolution through Strategy to Contradictions Out-Of-The-Box." European Journal of Information Systems 15: 648–662.

Ntuli, A. and C. Day (2004). Ten Years on have We got what we Ordered? South African Health Review. Durban, Health Systems Trust: 1-10.

Ochieng, O. G. (2005). "Factors influencing Diffusion of Electronic Medical Records: A Case Study in three Healthcare Institutions in Japan." The HIM Journal 34(4): 120-129.

Odom-Wesley, B. (1999). Consumer Informatics: Development of A Model for Documenting and Maintaining Family Records. Denton, TX, Texas Woman's University. Phd thesis.

Oellermann, I. (2006). "Repeat Criminal gets off as Records go missing." The Mercury. Retrieved 2nd April, 2011, from <http://www.highbeam.com/doc/1G1-152691424.html>.

Office of Public Sector Information [United Kingdom] (2000). Freedom of Information Act 2000. London, The Stationery Office.

Okorie, C. I. (2003). Why do Patients leave their Patient Retained Medical Records (PRMR) at home when they consult at Empilweni Gomo Health Centre, Eastern Cape? Ga-Rankuwa, Medical University of South Africa. Masters thesis.

Oliver, G. (2014). "International Records Management Standards: The challenges of achieving Consensus." Records Management Journal 24(1): 3-3.

Ombati, K. (2004). "Domesticating ISO 15489 and ISAD(G) at the Kenya National Archives and Documentation Service." ESARBICA Newsletter(2): 5-6.

Open Democracy Advice Centre (2010). "Issues raised during Oral Hearings on POPIA – Supplementary Submission by ODAC." Retrieved 10th November, 2014, from <http://www.opendemocracy.org.za/wp-content/uploads/2010/10/Supplementary-submission-October-on-POI.pdf>.

Open Democracy Advice Centre (2013a). "Access to Information." Retrieved 6th February, 2014, from <http://www.opendemocracy.org.za/index.php/what-we-do/access-to-information>.

Open Democracy Advice Centre (2013b). "Litigation." Retrieved 14th October, 2014, from <http://www.opendemocracy.org.za/index.php/what-we-do/legal/litigation>.

Open Democracy Advice Centre and South African Human Rights Commission (2008). "Golden Key Awards - Openness and Responsiveness Awards 2007/2008." Retrieved 10th November, 2013, from <http://www.sahrc.org.za/home/21/files/Reports/Golden%20Key%20Awards%202007-2008.pdf>.

Open Democracy Advice Centre and South African Human Rights Commission (2010). "Golden Key Awards 2010 Report." Retrieved 10th November, 2014, from <http://www.opendemocracy.org.za/wp-content/uploads/2010/10/2010-GKA-REPORT.pdf>.

OpenText (2012). "Khayelitsha Hospital - Amazing Enterprise Content Management OpenText Case Studies. Paperless and Waiting Room free." Retrieved 28th February, 2014, from <http://lgict.org.za/document/khayelitsha-hospital-amazing-enterprise-content-management-opentext-case-studies-paperless->.

Orel, A. and I. Bernik (2013). Implementing Healthcare Information Security: Standards Can Help. Data and Knowledge for Medical Decision Support. B. Blobel, A. Hasman and J. Zvarova. Amsterdam, European Federation for Medical Informatics: 195-199.

Orgill, M., N. Nxumalo, et al. (2013). Health Policy and Systems Research: Needs, Challenges and Opportunities in South Africa - A University Perspective. South African Health Review 2012/13. A. Padarath and R. English. Durban, Health Systems Trust: 151-160.

Paivarinta, T. and B. E. Munkvold (2005). Enterprise Content Management: An Integrated Perspective on Information Management. Proceedings of the 38th Annual Hawaii International Conference on System Sciences HICSS'05, Hawaii, IEEE.

Parahoo, K. (2014). Nursing Research: Principles, Process and Issues. New York, NY, Palgrave Macmillan.

Parliament of the Republic of South Africa (2007). "Report of the Ad Hoc Committee on the Review of Chapter 9 and Associated Institutions." Retrieved 2nd March, 2014, from <http://www.sahrc.org.za/home/21/files/Reports/Report%20of%20the%20Ad%20Hoc%20Committee%20of%20chapter%209.%202007.pdf>.

Pearmain, D. (2000). Impact of Changes to the Medical Schemes Act. South African Health Review. Durban, Health Systems Trust: 183-200.

Pearmain, D. (2007). Health Policy and Legislation. South African Health Review. Durban, Health Trust Systems: 19-31.

Peekhaus, W. (2011). "Biowatch South Africa and the Challenges in enforcing its Constitutional Right to Access to Information." Government Information Quarterly 28(4): 542-552.

Pelz-Sharpe, A. (2008, 21st November). "A new Definition of ECM?". Retrieved 8th June, 2011, from <http://www.realstorygroup.com/Blog/1432-A-new-definition-of-ECM>.

Pember, M. (2006). "Sorting out the Standards: What every Records and Information Professional should know " Records Management Journal 16(1): 21-33.

Phillips, H. (1984). Black October: The impact of the Spanish influenza epidemic of 1918 on South Africa. Cape Town, University of Cape Town. Phd thesis.

Phillips, R., C. McNaught, et al. (2012). Evaluating e-learning: Guiding Research and Practice. New York, Routledge.

Phooko, M. L. (2013). An Actionable Constitutional Right of ATI: The Case of Southern Africa. Access to Information in Africa: Law, Culture and Practice. F. Diallo and R. Calland. Leiden, Netherlands, Brill: 171-190.

Pickett, F. (2012). Health Information Management and the Health Care Institution. Health Information Management: Principles and Organization for Health Information Services. M. A. Skurka. San Francisco, CA, John Wiley & Sons. 19.

Pillay, K. (2000). Health Care Rights. Socio-Economic Rights in South Africa: A Resource Book. S. Liebenberg and K. Pillay. Cape Town, Community Law Centre, University of Western Cape: 219-254.

Pillay, L. (2014). "The partial commencement of the Protection of Personal Information Act, 2013." Retrieved 3rd October, 2014, from <http://www.hoganlovells.com/newsmedia/pubDetail.aspx?publication=10927>.

Pillay, Y., N. Marawa, et al. (2002). Health Legislation. South African Health Review. Durban, Health Systems Trust: 3-12.

Polgar, S. and S. A. Thomas (2013). Introduction to Research in the Health Sciences, Elsevier Health Sciences.

Pope, C., S. Ziebland, et al. (2000). "Analysing Qualitative Data." British Medical Journal 320(7227): 114-116.

Powell, R. R. and L. S. Connaway (2004). Basic Research Methods for Librarians. Westport, Libraries Unlimited.

PR Connections (2011). "Tygerberg Hospital Oncology Unit provides Online Access to Electronic Patient Records with Datacentrix." Retrieved 28th February, 2014, from http://www.itweb.co.za/index.php?option=com_content&view=article&id=46553.

PR Connections (2012). "Khayelitsha Hospital creates, maintains Electronic Patient Records." Retrieved 28th February, 2014, from http://www.itweb.co.za/index.php?option=com_content&view=article&id=54337.

Preker, A. S., R. R. Haslinger, et al. (2007). Stewardship, Governance, and Management. Public Ends, Private Means: Strategic Purchasing of Health Services. A. S. Preker, X. Liu, E. V. Velenyi and E. Baris. Washington DC, World Bank.

Prensky, M. (2001). "Digital Natives, Digital Immigrants Part 1." On the horizon 9(5): 1-6.

Prinsloo, R., M. Jansen-Verbek, et al. (1999). South Africa: Spatial Transformation in the Post-Apartheid Era. Leuven, Acco.

Prom, C. (2011). "Requirements for Electronic Records Management Systems." Retrieved 24th March, 2012, from <http://e-records.chrisprom.com/?p=1908>.

Public Record Office [United Kingdom] (2001). "e-Government Policy Framework for Electronic Records Management". Retrieved 16th February, 20014, from http://www.nationalarchives.gov.uk/documents/egov_framework.pdf.

Public Services Select Committee [South Africa] - Portforlio Committee on Public Works (2006). "Road Accident Fund, Restructuring & Combatting of Corruption, Payments to Beneficiaries: briefing by Department of Transport & the Road Accident Fund (RAF)." Retrieved 4th November, 2013, from <http://www.pmg.org.za/minutes/20060822-road-accident-fund-restructuring-combatting-corruption-payments-beneficiaries-brief>.

Public Services Select Committee [South Africa] - Portforlio Committee on Public Works (2012). "Road Accident Fund, Restructuring and Alignment: Department of Transport Briefing." Retrieved 4th November, 2013, from <http://www.pmg.org.za/report/20120228-department-transport-restructuring-road-accident-fund-get-it-aligned->.

Purcell, B. M. (2013). Examining the Relationship Between Electronic Health Record Interoperability and Quality Management. Prescott Valley, AZ, Northcentral University. Phd.

Rampfumedzi, D. P. (2006). Quality Control of Obstetric Nursing Records in a Selected Regional Hospital. Pretoria, University of South Africa. Masters thesis.

Rankin, F. (2006). Implementing EDRMS and shaping the Record. Record Keeping in a Hybrid Environment: Managing the Creation, Use, Preservation and Disposal of Unpublished Information Objects in Context. A. Tough and M. Moss. Oxford, Chandos Publishing.

Rapakwana, N. J. (2004). Client Satisfaction with regard to Accessibility of Primary Healthcare Services in Molemole Municipality of Limpopo Province. Pretoria, University of South Africa. Masters thesis.

Reddy, M. (2003). Impact of a Structured Record Card on the Management of Diabetic Patients at the Primary Care Level. Port Elizabeth, University of Port Elizabeth. Masters thesis.

Reich, L. J. (2011). On or Off the Record: The Physician Experience of the Transition to Electronic Health Record. Irvine, CA, University of California Irvine. Phd thesis.

Richards, L. (2002). "Qualitative Computing--A Methods Revolution?" International Journal of Social Research Methodology 5(3): 263-276.

Richards, R. J. (2012). A Study of the intent to fully utilize Electronic Personal Health Records in the Context of Privacy and Trust. Denton, TX, University of North Texas. Phd thesis.

Riddick, W. P. (2013). Managing the challenges of adopting Electronic Medical Records: An Exploratory Study of the challenges faced by African American Health Care Professionals. Minneapolis, MN, Capella University. Phd thesis.

Riofrio, H. and S. R. Matsuura (2004, May-June 2004). "DOD 5015.2: An Overview." Retrieved 5th April, 2011, from <http://www.aiim.org/Resources/Archive/Magazine/2004-May-Jun/28244>.

Roach, W. H., R. G. Hoban, et al. (2006). Medical Records and the Law. Sudbury, Mass, Jones and Bartlett Publishers.

Robb, D., M. A. d. Villiers, et al. (1997). Provincial Restructuring. South African Health Review. Durban, Health Systems Trust: 45-51.

Robitaille, D. (2005). Document Control. Chico, CA, Paton Professional.

Rodrigues, A. D. S. (2013). An Archival Collecting Framework for the records generated by South Africa's Portuguese Community-Based Organisation in Gauteng. Pretoria, University of South Africa. Phd thesis.

Rokx, C., G. Schieber, et al. (2009). Health Financing in Indonesia: A Reform Road Map. Washington DC, The World Bank.

Roling, S. (2007). Transparency and Access to Information in South Africa: An Evaluation of the Promotion of Access to Information Act 2 of 2000. Cape Town, University of Cape Town. Masters thesis.

Rooth, T. (2012). International Trade and Investment of the Settler Economies during the Twentieth Century: Argentina, Australia, Canada, New Zealand and South Africa. Settler Economies in World History. C. Lloyd, J. Metzer and R. Sutch. Leiden, Koninklijke Brill NV: 437-462.

Rowe, K. and K. Moodley (2013). "Patients as Consumers of Health Care in South Africa: The Ethical and Legal Implications." BMC Medical Ethics 14(15): 1-9.

Ruxwana, N. L. (2007). Technology Assessment of Rural Hospitals in the Eastern Cape Province. Pretoria, Tshwane University of Technology. Masters thesis.

Sait, L. (2001). Health Legislation. South African Health Review. Durban, Health Systems Trust: 1-16.

Saks, M. and A. Judith, Eds. (2007). Researching Health: Qualitative, Quantitative and Mixed Methods. Los Angeles, CA, SAGE Publications.

Sama, M. and V.-K. Nguyen (2008). Introduction: Governing the Health System in Africa. Governing the Health System in Africa. M. Sama and V.-K. Nguyen. Dakar, Senegal, Council for the Development of Social Science Research in Africa: 1-14.

Sampath, S. (2003). A Formal Specification of Electronic Patient Record Processing for an Integrated Distributed Health Care System. Winnipeg, MB University of Manitoba. Masters thesis.

Savage, M. and A. Benatar (1990). An Analysis of Health and Health Services. Critical Choices for South Africa: An Agenda for the 1990's. R. Schrire. Cape Town, Oxford: 147-167.

Sayer, P. (2006, 8th August). "OpenText to buy Hummingbird." Retrieved 12th June, 2011, from <http://www.infoworld.com/t/applications/open-text-buy-hummingbird-833>.

Schneider, H., P. Barron, et al. (2007). The Promise and the Practice of Transformation in South Africa's Health System. State of The Nation: South Africa 2007. S. Buhlungu, J. Daniel, R. Southall and J. Lutchman. Cape Town, HSRC Press: 289-311.

School of Library Archival and Information Studies [University of British Columbia] (1995). "Select List of Archival Terminology." Retrieved 15th February, 2014, from http://www.slais.ubc.ca/resources/students/Archival_Terminology.pdf.

Schuckman, C. (2006). The use of Personal Digital Assistant across four Medical Centre Colleges at the University of Cincinnati. Cincinnati, OH, University of Cincinnati. Masters thesis.

Search Marketing Group (2014). "Whither the Long Tail in SEO." Retrieved 8th September 2014, from <http://www.searchmarketinggroup.co.uk/smgt-papers/wither-long-tail-seo>.

Searle, C. (1965). The History of the Development of Nursing in South Africa 1652-1960: A Socio-History Survey. Cape Town, Struik.

Sebrié, E. M., E. Sandoya, et al. (2013). "Hospital Admissions for Acute Myocardial Infarction before and after implementation of a Comprehensive Smoke-Free Policy in Uruguay." Tobacco Control 22(e1): e16-e20.

Seedat, M., P. Kruger, et al. (2003). "Analysis of Records from an Urban African Psychological Service: Suggestions for Mental Health Systems Research." South African Journal of Psychology 33(1): 44-51.

Sekokotla, D. M. (2000). Assessment of the Completeness of Data on Daily Patient Administration Records at Mankweng Hospital for the period January 1999 to September 1999. Thohoyandou, University of Venda for Science and Technology. Masters thesis.

Senate Committee on Governmental Affairs [United States Congress] (1997). To Provide for a System to Classify Information in the Interests of National Security and a System to Declassify

such Information. Government Secrecy Act of 1997: report of the Committee on Governmental Affairs. United States Senate. Washington DC, US Government Printing Office. 105.

Senkubuge, F. and B. M. Mayosi (2013). The State of the National Health Research System in South Africa. South African Health Review 2012/13. A. Padarath and R. English. Durban, Health Sytems Trust: 141-149.

Serbanati, L. D. and F. L. Ricci (2013). EHR-centric integration of Health Information Systems. E-Health and Bioengineering Conference (EHB). Iasi, Romania IEEE: 1-4.

Shantz, A., J. Schoenberg, et al. (2013). Relevance of Employee Engagement Across Cultures from the Perspectives of HR Professional Associations. Employee Engagement in Theory and Practice. C. Truss, K. Alfes, R. Delbridge, A. Shantz and E. Soane. Oxon, Routledge.

Shea, C. M. (2008). Understanding sophistication in the context of electronic medical record systems. Raleigh, NC, North Carolina State University. Phd thesis.

Shea, D. C. (2000). The South African Truth Commission: The Politics of Reconciliation. Washington DC United States Institute of Peace.

Sheard, J. (2013). Quantitative Data Analysis. Research Methods: Information Systems, and Contexts. K. Williamson and G. Johanson. Prahran, Tilde University Press: 395-416.

Shegda, K. M., K. Chin, et al. (2004, 12th November 2004). "Building the Magic Quadrant for ECM 2004." Retrieved 5th April, 2011, from http://www.gartner.com/DisplayDocument?doc_cd=124032.

Shepherd, E. (1994). "Managing Electronic Records." Records Management Journal 4(1): 39-49.

Shepherd, E. and V. West (2003). "Are ISO 15489-1: 2001 and ISAD (G) compatible? Part 1." Records Management Journal 13(1): 9-23.

Shi, L. and D. Singh (2005). Essentials of the US Health Care System. Boston, Jones & Bartlett Publishers.

Shisana, O. (2008). A National Health System: Opportunities and Challenges for South Africa. Financing South Africa's National Health System through National Health Insurance: Possibilities and Challenges. C. Botha and M. Hendricks. Cape Town, Human Science Research Council: 1-6.

Sibanda, R. (2011). Developing a Service Quality Measurement Instrument for Archival Institutions. Pretoria, University of South Africa. Phd thesis.

Sibiya, M. N. (2009). A Model for the Integration of Primary Health Care Services in KwaZulu-Natal, South Africa. Durban, Durban University of Technology. Phd thesis.

Simons, A., J. vom Brocke, et al. (2014). Lessons Learned from Implementing Enterprise Content Management at the National Public Administration in Liechtenstein. Enterprise Content

Management in Information Systems Research. J. vom Brocke and A. Simons. Berlin, Springer: 199-216.

Sinclair, S. (2006). The GATS and the South Africa's National Health Act. South African Health Review. Durban, Health Trust Systems: 19-30.

Skurka, M. A. (1998). Health Information Management: Principles and Organization for Health Record Services. Chicago, AHA Press.

Slabbert, M. N. (2011). Medical Law in South Africa. Bedfordshire, UK, Kluwer Law International.

Slabbert, M. N. and M. S. Pepper (2011). "Medicine and the Law: the Consumer Protection Act - No-fault Liability of Health Care Providers." South African Medical Journal 101(11): 800-801.

Smith, K. (2007). Planning and Implementing Electronic Records Management : A Practical Guide. London, Facet Publishing.

Smith, S. L. J. (2010). Practical Tourism Research. Cambridge, MA, CAB International.

Snail, S. (2009). "Cyber Crime in South Africa–Hacking, Cracking, and other Unlawful Online Activities." Journal of Information, Law & Technology 1: 1-13.

Sommers, B. D., G. M. Kenney, et al. (2014). "New Evidence On The Affordable Care Act: Coverage Impacts Of Early Medicaid Expansions." Health Affairs 33(1): 78-87.

South Africa (1919). Public Health Act (Act 35 of 1919). Pretoria, Government Printer.

South Africa (1965). Medicines and Related Substances Act (Act 101 of 1965). Pretoria, Government Printer.

South Africa (1972). Foodstuffs, Cosmetics and Disinfectants Act (Act 54 of 1972). Pretoria, Government Printer.

South Africa (1973a). Hazardous Substances Act (Act 15 of 1973). Pretoria, Government Printer.

South Africa (1973b). Occupational Diseases in Mines and Works Act (Act 78 of 1973). Pretoria, Government Printer.

South Africa (1974a). Health Professions Act (Act 56 of 1974). Pretoria, Government Printer.

South Africa (1974b). International Health Regulations Act (Act 28 of 1974). Pretoria, Government Printer.

South Africa (1974c). Pharmacy Act (Act 53 of 1974). Pretoria, Government Printer.

South Africa (1979). Dental Technicians Act (Act 19 of 1979). Pretoria, Government Printer.

South Africa (1982a). Allied Health Professions Act (Act 63 of 1982). Pretoria, Government Printer.

South Africa (1982b). Protection of Information Act (Act 84 of 1982). Pretoria, Government Printer.

South Africa (1983). Human Tissues Act (Act 65 of 1983). Pretoria, Government Printer.

South Africa (1990). National Policy for Health Act (Act 116 of 1990). Pretoria, Government Printer.

South Africa (1991). South African Medical Research Council Act (Act 58 of 1991). Pretoria, Government Printer.

South Africa (1993a). Academic Health Centres Act (Act 86 of 1993). Pretoria, Government Printer.

South Africa (1993b). Tobacco Products Control Act (Act 83 of 1993). Pretoria, Government Printer.

South Africa (1994). Intelligence Services Act (Act 38 of 1994). Pretoria, Government Printer.

South Africa (1996a). Choice on Termination of Pregnancy Act (No. 92 of 1996). Pretoria, Government Printer.

South Africa (1996b). Constitution of the Republic of South Africa (Act 108 of 1996). Pretoria, Government Printer.

South Africa (1996c). Justice Laws Rationalisation Act (Act 18 of 1996). Pretoria, Government Printer.

South Africa (1996d). National Archives Act (Act 43 of 1996). Pretoria, Government Printer.

South Africa (1998a). Medical Schemes Act (Act 131 of 1998). Pretoria, Government Printer.

South Africa (1998b). Sterilisation Act (Act 44 of 1998). Pretoria, Government Printer.

South Africa (2000a). Council for Medical Schemes Levy Act (Act 58 of 2000) Pretoria, Government Printer.

South Africa (2000b). National Health Laboratory Service Act (Act 37 of 2000). Pretoria, Government Printer.

South Africa (2000c). Promotion of Access to Information Act (Act 2 of 2000). Pretoria, Government Printer.

South Africa (2002a). Electronic Communications and Transactions Act (Act 25 of 2002). Pretoria, Government Printer.

South Africa (2002b). Electronic Communications Security (Pty) Ltd Act (Act 68 of 2002). Pretoria, Government Printer.

South Africa (2002c). Intelligence Services Act (Act 65 of 2002). Pretoria, Government Printer.

South Africa (2002d). Mental Health Care Act (Act 17 of 2002). Pretoria, Government Printer.

South Africa (2003a). General Intelligence Laws Amendment Act (Act 52 of 2003). Pretoria, Government Printer.

South Africa (2003b). National Health (Act 61 of 2003). Pretoria, Government Printer.

South Africa (2004). Choice on Termination of Pregnancy Act (No. 38 of 2004). Pretoria, Government Printer.

South Africa (2005). Nursing Act (Act 33 of 2005). Pretoria, Government Printer.

South Africa (2007a). South African Red Cross Society and Legal Protection of Certain Emblems Act (Act 10 of 2007) Pretoria, Government Printer.

South Africa (2007b). Traditional Health Practitioners Act (Act 22 of 2007). Pretoria, Government Printer.

South Africa (2009). Protection of Personal Information Bill (Bill 9 of 2009). Pretoria, Government Printer.

South Africa (2013). Protection of Personal Information Act (Act 4 of 2013). Pretoria, Government Printer.

South African History Archive (2014a). "FOIP Litigation list." Retrieved 11th November, 2014, from

http://www.saha.org.za/about_saha/freedom_of_information_programme/foip_litigation.htm.

South African History Archive (2014b). "Freedom of Information Programme: Request Tracker Search." Retrieved 6th February, 2014, from http://foip.saha.org.za/request_tracker/search.

South African Law Reform Commission (2010). "Media Statement by the South African Law Reform Commission concerning its investigation into the Review of the Law of Evidence (Project 126)." Retrieved 2nd February, 2014, from http://www.justice.gov.za/salrc/media/2009_ip27_pr126_media.pdf.

Spinks, K. A. (2006). The impact of the Introduction of a Pilot Electronic Health Record System on General Practitioners' Work Practices in the Illawarra. Wollongong, NSW, University of Wollongong. Masters thesis.

Sprehe, J. T. (2000). "Integrating Records Management into Information Resources Management in US Government Agencies." *Government Information Quarterly* 17(1): 13-26.

Sprehe, J. T. (2005). "The positive benefits of Electronic Records Management in the Context of Enterprise Content Management." Government Information Quarterly 22(2): 297-303.

Stahl, B. C. (2008). Critical perspectives. New York, NY, Routledge.

State Information Technology Agency [South Africa] (2002). "Awarded Tenders - Groupware Software." Retrieved 25th March, 2012, from <http://www.sita.co.za/TendersAdministration/ViewAwarded.asp?tenderid=56>.

State Information Technology Agency [South Africa] (2005). "Awarded tender - Supply of Enterprise Content Management Solutions." Retrieved 25th March, 2012, from <http://www.sita.co.za/TendersAdministration/ViewAwarded.asp?tenderid=3743>.

State Security Agency [South Africa] (2010). "Media briefing - Summary: Protection of Information Bill." Retrieved 7th February, 2014, from <http://www.ssa.gov.za/Portals/0/SSA%20docs/Media%20Releases/2010/Summary%20of%20the%20Protection%20of%20Information%20Bill.pdf>.

State Security Agency [South Africa] (2011, 5th September). "Media Release: Ministry welcomes progress on the Protection of Information Bill." Retrieved 7th February, 2014, from http://www.ssa.gov.za/Portals/0/SSA%20docs/Media%20Releases/2011/Ministry_notes_progress_on_Info_Bill_02_Sept11.pdf.

State Security Agency [South Africa] (2012, 30th November). "Media Release: Ministry Welcomes NCOP Passing of the Protection of State Information Bill." Retrieved 7th February, 2014, from <http://www.ssa.gov.za/Portals/0/SSA%20docs/Media%20Releases/2012/Media%20Release%20Ministry%20Welcomes%20NCOP%20Passing%20of%20the%20Protection%20of%20State%20Information%20Bill%2030%20November%202012.pdf>.

State Security Agency [South Africa] (2013a, 2nd August). "Media Release: Statement on Recent Developments Relating to the State Security Agency." Retrieved 7th February, 2014, from <http://www.ssa.gov.za/Portals/0/SSA%20docs/Media%20Releases/2013/Media%20Release%20Statement%20on%20recent%20developments%20relating%20to%20the%20State%20Security%20Agency%202%20August%202013.pdf>.

State Security Agency [South Africa] (2013b, 12th November). "Media Release: Statement on the Protection of State Information Bill." Retrieved 7th February, 2014, from <http://www.ssa.gov.za/Portals/0/SSA%20docs/Media%20Releases/2013/Media%20Release%20Ministry%20of%20State%20Security%20welcomes%20passing%20of%20POSIB%2012%20November%202013.pdf>.

Statistics South Africa (2014). "Mid-year Population Estimates - 2014." Retrieved 19th October, 2014, from <http://beta2.statssa.gov.za/publications/P0302/P03022014.pdf>.

Steemson, M. (2011). "Top end heads up on RIM advancement." IQ: The RIM Quarterly 27(4): 45-46.

Streveler, D. J. and S. M. Sherlock (2009). Health Management Information Systems: Linking Purchasers and Providers. Designing and Implementing Health Care Provider Payment Systems: How-To Manuals. J. C. Langenbrunner, C. Cashin and S. O'Dougherty. Washington DC, World Bank: 263-306.

Sudibyo, Y. A. (2002). The Relationship of Business Process Capabilities and Internal Service Quality to Healthcare Service Quality, Patient Satisfaction, and Behavioral Intentions, and its Relationship to Business Performance. Fort Lauderdale, FL, Nova Southeastern University. Phd thesis.

Sullivan, L. E., Ed. (2009). The SAGE Glossary of the Social and Behavioral Sciences. Thousand Oaks, CA, SAGE Publications.

Suñol, R., W. Nicklin, et al. (2009). "Promoting Research into Healthcare Accreditation/External Evaluation: Advancing an ISQua Initiative." International Journal for Quality in Health Care 21(1): 27-28.

Sunyaev, A. (2011). Health-Care Telematics in Germany: Design and Application of a Security Analysis Method. Munchen, Springer.

Sutton, B. (1993). "The Rationale for Qualitative Research: A Review of Principles and Theoretical Foundations" Library Quarterly 63(4): 411-429.

Svärd, P. (2014a). Exploring Two Approaches to Information Management: Two Swedish Municipalities as Examples. Enterprise Content Management in Information Systems Research. J. vom Brocke and A. Simons. Berlin, Springer: 217-235.

Svärd, P. (2014b). "The impact of Information Culture on Information/Records Management: A Case Study of a Municipality in Belgium." Records Management Journal 24(1): 2-2.

Sys Research (2014). "Testing and Certification." Retrieved 25th October, 2014, from <http://sysresearch.org/moreq/index.php/testing-and-certification>.

Taha, J. (2012). The effects of Age, Cognition and Health Numeracy on use of a Patient Portal of An Electronic Medical Record (EMR). Coral Gables, FL University of Miami. Phd thesis.

Tanner, K. (2002). Survey Research. Research Methods for Students, Academics and Professionals – Information Management and Systems K. Williamson. Waga Waga, New South Wales, Charles Sturt University: 89-109.

Taobane, M. (2012). Utilisation de la simulation pour ameliorer les Horaires des Medecins et des Equipements dans un Departement de Radiooncologie. Montréal, QB, École Polytechnique de Montréal. Masters thesis.

Tavakoli, H. (2013). A Dictionary of Research Methodology and Statistics in Applied Linguistics. Tehran, Rahnama Press.

Technical University of Kenya (2013a). "Department of Health and Hospital Services Management." Retrieved 18th October, 2014, from <http://shst.tukeny.ac.ke/departments/health-and-hospital-services-management>.

Technical University of Kenya (2013b). "School of Health Sciences and Technology: Course Brochure 2013/2014." Retrieved 18th October, 2014, from <http://tukeny.ac.ke/sites/default/files/downloads/SHST.pdf>.

The Archival Platform (2015). "State of the Archives: An Analysis of South Africa's National Archival System." Retrieved 19th May, 2015, from http://www.archivalplatform.org/images/resources/State_of_the_Archive_FOR_WEB.pdf.

The Beehive (2014). "What are Stokvels?". Retrieved 30th September, 2014, from <http://durban.thebeehive.org/content/39/1344>

The National Archives [United Kingdom] (2004). "Guidelines on Developing a Policy for Managing Email." Retrieved February 16, 2014, from <http://www.nationalarchives.gov.uk/documents/information-management/managing-emails.pdf>.

The National Archives [United Kingdom] (2012). "Managing Digital Records without an Electronic Record Management System." Retrieved February 16, 2014, from <http://www.nationalarchives.gov.uk/documents/information-management/managing-electronic-records-without-an-erms-publication-edition.pdf>.

Thibodeau, K. and D. R. Prescott (1996). "Reengineering Records Management: The U.S Department of Defense Records Management Task Force." *Archiv & Computer* 6(1): 71-78.

Thiede, M. and V. Mutyambizi (2010). South Africa. *Global Marketplace for Private Health Insurance: Strength in Numbers*. A. S. Preker, P. Zweifel and O. P. Schellekens. Washington DC, World Bank.

Thomas, J. (1980). Evaluation of Hospital Information Systems with special reference to the Control of Medical Records at Groote Schuur Hospital. Cape Town, University of Cape Town. Masters thesis.

Thornton, E. A. (1930). "A Medical and Nursing Service for Natives in South Africa." *Journal of the Medical Association of South Africa* 4(17): 507-511.

Thumbiran, K. (2010). The role of Information Management in the Department of Health, with particular reference to eThekwi Emergency Medical Rescue Services in KwaZulu-Natal. Pietermaritzburg, University of KwaZulu-Natal. Masters thesis.

Thurston, A. (2012). "Trustworthy Records and Open Data." *The Journal of Community Informatics* 8(2).

Thurston, A. (2015). *Managing Records and Information for Transparent, Accountable, and Inclusive Governance in the Digital Environment: Lessons from Nordic Countries*. Washington DC, World Bank Group.

Thurston, A. and P. Cain (1995). "The Management of Public Sector Records Project: Managing the Records Lifecycle." Information Development 11(4): 198-205.

Timmerman, R. (2011). A Model for Creating and Maintaining Document Data Integrity In an Enterprise Electronic Health Record. Duluth, MN, The College of St. Scholastica. Masters thesis.

Tones, K. and S. Tilford (2001). Health Promotion: Effectiveness, Efficiency and Equity. Cheltenham, Nelson Thornes Ltd.

Toufayan, M. (2014). When British Justice (in African Colonies) Points Two Ways: On Dualism, Hybridity, and the Genealogy of Juridical Negritude in Taslim Olawale Elias. African Legal Theory and Contemporary Problems. O. Onazi. Dordrecht, Springer: 31-70.

Trace, C. B. (2002). "What is Recorded is never simply 'What Happened': Record Keeping in Modern Organizational Culture." Archival Science 2(1-2): 137-159.

Treasury Board of Canada (2010). "Standard for Electronic Documents and Records Management Solutions." Retrieved 21st July, 2015, from <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=18910§ion=text>

Tritter, J. (2007). Mixed Methods and Multidisciplinary Research in Health Care. Researching Health: Qualitative, Quantitative and Mixed Methods. M. Saks and A. Judith. Los Angeles, Sage: 301-318.

Tritter, J. (2012). Mixed Methods and Multidisciplinary Research in Health Care. Researching health: qualitative, quantitative and mixed methods. M. Saks and A. Judith. Los Angeles, Sage: 421-436.

Tshabalala-Msimang, M. (2008). Health within a Comprehensive System of Social Security: Is National Health Insurance an Appropriate Response? Financing South Africa's National Health System through National Health Insurance: Possibilities and Challenges. C. Botha and M. Hendricks. Cape Town, Human Science Research Council: 7-13.

Turner, J. (1990). "Experimenting with New Tools: Special Diplomatics and the Study of Authority in the United Church of Canada." Archivaria 30: 91-103.

UN HABITAT (2008). State of the World's Cities 2010/2011 - Bridging the Urban Divide. Nairobi, United Nations Human Settlement Programme.

Underwood, W. (2002). "A Formal Method for Analyzing the Authenticity Properties of Procedures for Preserving Digital Records." Proceedings of an International Conference on Digital Archives Technologies. Retrieved 20th November, 2014, from <http://perpos.gtri.gatech.edu/publications/ICDAT2002.pdf>.

United Kingdom Parliament (1998). Data Protection Act of 1998. London, The Stationery Office.

University of Texas Libraries (1986). "South Africa: Black Homelands." Retrieved 7th March, 2014, from http://www.lib.utexas.edu/maps/africa/south_african_homelands.gif.

Usman, M., A. W. Muzaffar, et al. (2009). Enterprise Content Management (ECM): Needs, Challenges and Recommendations. 2nd IEEE International Conference on Computer Science and Information Technology (ICCSIT). Beijing, China, IEEE: 283-289.

Uys, L. and L. Middleton, Eds. (2004). Mental Health Nursing: a South African Perspective. Cape Town, Juta and Co. Ltd.

Van der Westhuizen, C. (2013). "South Africa and National Security." Index on Censorship 42(2): 62-64.

Van Rensburg, H. C. J. (2004a). The Health Professions and Human Resources for Health - Status, Trends and Core Issues. Health and Health Care in South Africa. H. C. J. Van Rensburg. Pretoria, Van Schaik Publishers: 315-376.

Van Rensburg, H. C. J. (2004b). National Health Care Systems: Structure, Types and Dynamics. Health and Health Care in South Africa. H. C. J. Van Rensburg. Pretoria, Van Schaik Publishers.

Van Rensburg, H. C. J., A. Fourie, et al. (1992). Health Care in South Africa: Structure and Dynamics. Pretoria, Academica.

Van Rensburg, H. C. J. and D. Harrison (1995). History of Health Policy. South African Health Review. D. Harrison. Durban, Health Systems Trust: 95-118.

Van Rensburg, H. C. J. and A. J. Pelser (2004). The Transformation of the South African Health System. Health and Health Care in South Africa. H. C. J. Van Rensburg. Pretoria, Van Schaik Publishers: 109-170.

Van Vranken, R. A. (1996). The Computer-Based Patient Record and Health Information Management Professionals. Chicago, IL, Loyola University Chicago. Phd thesis.

Veal, A. J. and S. Darcy (2014). Research Methods in Sport Studies and Sport Management: A Practical Guide. New York, Routledge.

Venter, Z. (2004). "The Secret Files they didn't want you to see." Retrieved 15th February, 2014, from <http://www.iol.co.za/news/south-africa/the-secret-files-they-don-t-want-you-to-see-1.120915?ot=inmsa.ArticlePrintPageLayout.ot>.

Vijulie, I., E. Matei, et al. (2014). "The Role of Archaeological Landscape Restoration in Building the Local Tourism Image: The Gumelinta Archeo-Park." GeoJournal of Tourism & Geosites 13(1): 52-65.

Vital Wave Consulting (2009). "Health Information Systems in Developing Countries: A Landscape Analysis." Retrieved 6th October, 2013, from <http://www.vitalwaveconsulting.com/pdf/2011/Gates-Foundation-HIS-Analysis-2009.pdf>.

Vlok, M. E. (1996). Manual for Community Nursing and Communication Diseases: A Textbook for South Africa. Lansdowne, Juta & Co Ltd.

Von Holdt, K. and M. Murphy (2007). Public Hospitals in South Africa: Stressed Institutions, Disempowered Management. State of The Nation: South Africa 2007. S. Buhlungu, J. Daniel, R. Southall and J. Lutchman. Cape Town, HSRC Press: 312-341.

Vos Committee [Union of South Africa] (1925). Committee of enquiry re public hospitals and kindred institutions. Pretoria, Union of South Africa.

Wagner, E. R. and P. R. Kongstvedt (2013). Types of Health Insurers, Managed Health Care Organizations, and Integrated Health Care Delivery Systems. Essentials of Managed Health Care. P. Kongstvedt. Burlington, MA, Jones and Bartlett Learning: 21 - 45.

Walker, J., J. D. Darer, et al. (2014). "The Road toward Fully Transparent Medical Records." New England Journal of Medicine 370(1): 6-8.

Wasserman, H. (2009). "How to start a Stokvel." Retrieved 30th September, 2014, from <http://www.women24.com/CareersAndMoney/Money/Starting-a-stokvel-20090907>.

Watney, M. (2009). "Admissibility of Electronic Evidence in Criminal Proceedings: An Outline of the South African Legal Position." Journal of Information, Law & Technology 1: 1-10.

Weathington, B. L., C. J. L. Cunningham, et al. (2010). Research Methods for the Behavioral and Social Sciences. Hoboken, New Jersey, John Wiley and Sons Inc.

Webster, H. A. and A. S. White (1885). "Sketch Map of South Africa showing British Possessions July 1885." Scottish Geographical Magazine. Retrieved 7th March, 2014, from http://www.lib.utexas.edu/maps/historical/south_africa_1885.jpg.

Weeks, R. (2013a). "The convergence of systemic threads shaping a future South African Healthcare Dispensation: A Technology Management Perspective." Acta Commercii 13(1): 1-8.

Weeks, R. (2013b). The successful implementation of an Enterprise Content Management system within the South African Healthcare Services Sector. PICMET'13: Technology Management in the IT-Driven Services. San Jose, CA, IEEE: 2590-2597.

Weeks, R. V. (2013c). "Electronic Health Records: Managing the transformation from a Paper-Based to An Electronic System." Journal of Contemporary Management 10: 135-155.

Western Cape Government [South Africa] (2013). "Tygerberg hospital - Onder Ons Newsletter." Retrieved 28th February, 2014, from <http://www.westerncape.gov.za/sites/www.westerncape.gov.za/files/onder-ons-june-newsletter-2013.pdf>.

Whiteside, A. (2014). "South Africa's key health challenges." The ANNALS of the American Academy of Political and Social Science 652(1): 166-185.

Whittaker, S., C. Shaw, et al. (2011). Quality Standards for Healthcare Establishments in South Africa. South African Health Review. Durban, Health Systems Trust: 59-67.

WHO Regional Office for South-East Asia (2003). South-East Asian regional consultation on Health Systems Performance Assessment. Health Systems Performance Assessment: Debates, Methods and Empiricisms. C. J. I. Murray and D. B. Evans. Geneva, World Health Organization: 69-94.

Wiant, T. (2003). Policy and its Impact on Medical Records Security. Lexington, KY, University of Kentucky. Phd thesis.

Wijesinghe, R. (1996). A Document Management System for Regulatory Compliance (US FDA GMP, ISO 9000) in a Small Medical Device Manufacturing Environment using Lotus Notes. Houston, TX, University of Houston Clear Lake. Masters thesis.

Wilhelm, P. (2008). EDRMS Standards - A Critical Evaluation of the Benefits of Superseding National Standards with European Models focusing on TNA 2002 Replacement by MoReq2. Newcastle upon the Tyne, Northumbria University. Masters thesis.

Wilhelm, P. (2009). "An Evaluation of MoReq2 in the context of National EDRMS Standard Developments in the UK and Europe." Records Management Journal 19(2): 117-134.

Wilkins, L., P. M. C. Swatman, et al. (2009). "Achieved and Tangible Benefits: Lessons Learned from a Landmark EDRMS Implementation." Records Management Journal 19(1): 37-53.

Wilkins, M. A. J. (2008). The Health Information Managers as change agent in adopting Electronic Health Record Technology in Hospitals. Minneapolis, MN, Capella University. Phd thesis.

Williams, C. (2006). Managing Archives: Foundations, Principles and Practice. Oxford, Chandos Publishing.

Williams, F. (2007). The role of Electronic Medical Record in Nation Care Delivery, Development: Case Study of Ghana. Columbia, MO, University of Missouri-Columbia. Masters thesis.

Williamson, K. (2002a). Research Methods for Students, Academics and Professionals – Information Management and Systems Waga Waga, New South Wales, Charles Sturt University.

Williamson, K. (2002b). Research Techniques: Sampling. Research Methods for Students, Academics and Professionals – Information Management and Systems K. Williamson. Waga Waga, New South Wales, Charles Sturt University: 225-234.

Williamson, K. (2013a). Populations and Samples. Research Methods: Information Systems, and Contexts. K. Williamson and G. Johanson. Prahran, Tilde University Press: 331-348.

Williamson, K. (2013b). Rerseach Concepts. Research Methods: Information Systems, and Contexts. K. Williamson and G. Johanson. Prahran, Tilde University Press: 3-23.

Williamson, K., F. Burstein, et al. (2002). The Two Major Traditions of Research. Research Methods for Students, Academics and Professionals – Information Management and Systems K. Williamson. Waga Waga, New South Wales, Charles Sturt University: 25-47.

Williamson, K., L. M. Given, et al. (2013). Qualitative Data Analysis. Research Methods: Information Systems, and Contexts. K. Williamson and G. Johanson. Prahran, Tilde University Press: 417-439.

Williamson, K. and G. Johanson (2013). Research Methods: Information Systems, and Contexts. Prahran, Tilde University Press.

Wilson, W. (2010). Document Management System in Owner Companies during Project Execution. Potchefstroom North-West University. Masters thesis.

Win, K. T. (2005). The Application of the FMEA Risk Assessment Technique to Electronic Health Record Systems. Wollongong NSW, University of Wollongong. Phd thesis.

Winburn, A. L. (2014). A Phenomenological Study of Congregants exposed to Expository Preaching. Wake Forest, NC, Southeastern Baptist Theological Seminary. Phd thesis.

Winkiel, L. (2014). "Postcolonial Avant-Gardes and the World System of Modernity/Coloniality." Avant Garde Critical Studies 30(1): 97-116.

Wolf, E. R. (2010). Europe and the People without History. Berkeley, CA, Univ of California Press.

World Health Organization (2000). The World Health Report 2000: Health Systems - Improving Performance. Geneva, World Health Organization.

World Health Organization (2011). Health Expenditure. World Health Statistics 2011. Geneva, World Health Organization: 128-135.

Wu, R. (2012). Secure Sharing of Electronic Medical Records in Cloud Computing. Phoenix, AZ, Arizona State University. Masters.

Xiao, N. (2012). Essays on the impact of Health Information Technology on Health Care Providers and Patients. Buffalo, NY, State University of New York at Buffalo. Phd thesis.

Xie, L. (2006). Evaluation of the Electronic Document and Record Management Program in a Canadian Municipality. Vancouver, BC, University of British Columbia. Masters thesis.

Xie, S. L. (2011a). "Building Foundations for Digital Records Forensics: A Comparative Study of the Concept of Reproduction in Digital Records Management and Digital Forensics." The American Archivist 74(2): 576-599.

Xie, S. L. (2011b). "Preserving Digital records: Developments and Discoveries of the InterPARES Project." Retrieved 24th October, 2014, from http://www.ciferresearch.org/_Upload/project/20110818_9edf4e6d89ef79f4351e8ae77e27ebc0.pdf.

Yakel, E. (1995). Recordkeeping in Radiology: The Relationship between Activities and Records in Radiological Processes. Ann Arbor, MI, University of Michigan. Phd.

Yang, X. (2013). Conception and Characteristics of Expert Mathematics Teachers in China. Hong Kong, Springer.

Yes Media (2012a). "District Municipalities." Retrieved 26th October, 2013, from <http://www.localgovernment.co.za/districts/index/page:1/sort:id/direction:asc>.

Yes Media (2012b). "Local Municipalities." Retrieved 26th October, 2013, from http://www.localgovernment.co.za/locals/index/page:11/sort:province_id/direction:desc

Young, E. (2012). "The Puzzling Persistence of Dual Federalism." Nomos LIV: Liberty. Retrieved 7th February, 2014, from http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5365&context=faculty_scholarship.

Young, K. (2000). Informatics for Healthcare Professionals. Philadelphia, F A Davis Company.

Yusof, Z. M. and R. Chell (2000). "The Records Lifecycle: An Inadequate Concept for Technology Generated Records." Information Development 16(3): 135-141.