

**EXPLORING THE UNDERSTANDING OF ROUTINELY COLLECTED DATA BY THE  
HEALTH PRACTITIONERS IN A PRIMARY HEALTH CARE SETTING**

by

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Submitted in accordance with the requirement

For the degree of

**Masters of Public Health (General)**

In the subject

Health Studies

at the

**UNIVERSITY OF SOUTH AFRICA**

**SUPERVISOR: Dr Thuledi Makua**

November 2014

## **DEDICATION**

In memory of my late grandmother, Keitumetse Maria Molefi, a legendary, an icon and inspiration born and bred in Moshana village in North West Province in South Africa.

## THE DECLARATION

Student Number: 48342327

### DECLARATION

I declare that **EXPLORING THE UNDERSTANDING OF ROUTINELY COLLECTED DATA BY THE HEALTH PRACTITIONERS IN A PRIMARY HEALTH CARE SETTING** 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 and that this work has not been submitted for any other degree at any other institution.

.....

...../...../2015

Zachariah M Molefi

## **ACKNOWLEDGEMENT**

It is my pleasure to acknowledge the following colleagues and family members for their great contribution to the study. They were the reason for the success of the whole study. Their inputs, guidance and encouragement were highly appreciated and the completion of the study bears testimony to their efforts.

Dr Thuledi Makua, my research project supervisor (UNISA), thank you for the guidance and encouragement.

I express thankfulness for the employer, City of Tshwane Health and Social Development Department for funding the study through bursary scheme under the auspices of Ms Pinkie Lesolang and Dr Elfreda Oosthuizen (Training Section).

My appreciation also goes to study peer reviewers, Ms Sophy Moloko and Kgomotso Moerane for their input and contribution to the study.

My colleagues, Health Information Management Team: Ms Smangele Lukhele, Ms Mmapula Mabena, Mpho Senoamadi, Lesego Mamabolo, Gugu Molekoa, Tshepiso Machoga, Herbert Kabu and Gift Manganyi, also deserve mention.

Gratitude is also rendered to Tshwane District primary health care clinics management for granting permission and opening doors for the researcher during study data collection period.

The last but not least are my family members. These are my strength and inspiration, and include my wife Neo, my children Tshagofatso, Tsholofelo, Tshireletso, Goitseona and granddaughter Remofilwe, for their enormous support and understanding during the study period.

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### **ABSTRACT**

Health practitioners collect health data on a daily basis at health facility levels in order to monitor and evaluate the performance of priority national health programmes (District Health Plan 2012:6). Routine data quality for health programmes monitoring need a collective intervention to ensure clear understanding for what data to be collected at primary health care setting. The aim of the study is to explore the understanding of routine health data, determine the use of routine data and feedback mechanism at primary health care clinic setting. Quantitative descriptive research design was used to answer the research question on this research study. Structured data collection questionnaire was used for the study to accomplish the research purpose and reach the study objectives. A total of 400 participants was sampled, and 247 responded. One of the findings was that the understanding of routine health data by Health Practitioners was at 82.6% ( $\% = f/n*100$ ,  $f= 3242$  and  $n= 3926$ ).

**KEY TERMS:** Routine health data, data elements, health Indicators, data quality, Data validation, minimum data set, Understanding of daily collected data, use of routine and information feedback presentation.

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## CHAPTER 1

### ORIENTATION TO THE STUDY

#### 1.1 INTRODUCTION

Health practitioners collect health data on a daily basis at health facility levels in order to monitor and evaluate the performance of priority national health programmes (District Health Plan 2012:6). South African national department of health requires all health programme managers to review health programmes periodically using the prescribed supervisory in-depth review tool to evaluate the tool's relevance and proper programme implementation (PHC Supervisory Manual 2009:3).

According to Tshwane District in-depth review (2009:1), feedback sessions, poor data quality for health programmes monitoring need a collective intervention. This is to ensure clear understanding for what data to be collected, as well as to strengthen data quality improvement plans for health data. These are to be used for management decision making (DHMIS 2011: 25, Duran-Arenas et al 1998: 446).

Health facilities such as primary health care clinics collect data on a daily basis to report to National Department of Health accounting for daily health facility activities (DHMIS 2011:23). The standardised raw data collection tools called minimum data set (MDS) have been designed for implementation at all health care facility levels for health practitioners such as nurses and doctors to use to collect routine data (Williams & Stoops 2003:28, NIDS 2013:1).

Parahoo (2006:214) and Lippeveld, Sauerborn and Bodart (2000:185) contend that information was significantly used more if decision makers were convinced of its objectivity, reliability and validity. Potential users must be convinced that the data quality was an

important aspect to be taken into account not only at the start of the health information systems, and throughout the operations of the health information system through regular checks on data validity and reliability (Lippeveld 2001:39).

According to Lippeveld et al (2000:186), information was crucial at all levels of the health services, from the periphery to the centre. Information was also crucial for patients and clients management, health unit management, as well as health system planning and management (Williams & Stoops 2003: 22). This means that not only policy makers and managers need to make use of information in decision-making, but also health care providers including nurses and doctors.

## **1.2 BACKGROUND INFORMATION ABOUT THE RESEACH PROBLEM**

According to the National Health Act, 2003 (Act no. 61, 2003), the National Department of Health was required to facilitate and coordinate the establishment, implementation and maintenance of the information systems by provincial departments, district health councils, municipalities and the private health sectors at national, provincial and local levels in order to create a comprehensive national health information system. The District Health Information system was one such system that was used for deriving a combination of health statistics from various sources. This was mainly from routine information system used in the public sector to track health service delivery in sub-districts, districts, provincial and national (DHMIS 2011:9). It was mandatory that health facilities collect health data and use such data for facility operations and also report to all levels of government spheres (DHMIS 2011:23).

Health practitioners were trained to ensure common understanding of minimum data elements to be collected according to District Health Management Information System Policy (DHMIS 2011:15). Health data was validated from the entry point throughout all levels as higher level decision making was done based on activities reported by clinics (NIDS 2011:1).

### **1.2.1 The source of the research problem**

According to the Tshwane district In-depth review feedback (2009:13), there was a progressive lack of health information data usage and poor quality data at facility level which needed to be explored to rule out lack of commitment, and ignorance of the use of data at the clinic level. Health facilities not using their data for management functions such as planning, organising personnel to priority health programmes, budgeting and equitable distribution of staff, on high-level such as secondment of staffing benefits.

### **1.3 RESEARCH PROBLEM**

According to Williams & Stoops (2003:29), poor quality data impact negatively on service delivery as day-to-day clinics operations, rely on locally collected information for management decision making. For Data to be regarded as of good quality it must be complete, consistent, correct, timely, accurate, valid and relevant to health programme (DHMIS 2011:28, Williams & Stoops 2003:28). According to the National Department of Health Notifiable Medical Condition policy (2003:5), invalid data can give a wrong disease profile of the community that we serve, resulting in poor outbreak disease response that can be fatal to the community due to untimely emergency response.

According to Tshwane District in-depth review (2009:16), supervisory health programmes reviews showed insignificant use and misunderstanding by health practitioners resulting in inconsistent data collection and collection of data of poor quality. District Quality Supervisory Teams comprising all health programme specialists review all health programmes according to national policy and standard operating procedure to ensure proper implementation and compliance to NDoH policies (PHC Supervisor Manual 2009:12). Health information system programmes also form part of national policy and standard operating procedure reviewed periodically to ensure compliance with National policy and Standard operating procedure (PHC Supervisor Manual 2009:12).

## **1.4 PURPOSE OF THE STUDY**

### **1.4.1 Research Purpose**

The purpose of the study was to **explore** the understanding of the routinely collected data by the health practitioners in the primary health care clinics.

### **1.4.2 Research Objectives**

For **the objectives** to be achieved the following objectives were set:

- (i) To explore the understanding of routinely collected health information data by health practitioners at Tshwane district primary health care clinics.
- (ii) To determine the use of routine health information data by health practitioners at Tshwane primary health care clinics.
- (iii) To determine health information feedback mechanism at primary health care clinic setting.

## **1.5 SIGNIFICANCE OF THE STUDY**

The outcomes of the study assisted in identifying gaps in health information systems for corrective measures to be implemented. The routine information assisted in assessing the situation at clinics for baseline reports for annual general data audit preparation for the Auditor General as required by the District Management Health Information System Policy (DHMIS 2011:15).

The findings of the study strengthened the district health information system to function as a reliable, accurate, and valid source of data to account **for** resources such as capital and human allocation. All budget allocated and spent has to be accounted for to the National treasury using the nationally approved data source such as District health systems on periodic basis in line with the Municipal Financial Management Act, 2003 (Act no 56, 2003).

The outcomes of the study contributed constructively to the reliable quality data, understanding and improved use of health information at the clinic level. The study improved the use and understanding of health data for better service delivery planning and facility organization by Health Facility Management. The study also improved the equitable distribution of resources based on evidence-based information in terms of needs and resource allocations (District Health Plan 2012:15). Health Practitioners had knowledge of diseases burden and trends within the catchment area of the primary health care clinics due to significant improvement of feedback mechanism at the clinic. Strengthening Health feedback at all levels was necessary to ensure monitoring and evaluation of health programmes (DHMIS 2011:16).

The study identified the needs for professional development to address lack of understanding through workplace skill programmes to improve the quality data collection and usage at clinic level (Tshwane M&E plan 2013:17).

## 1.6 DEFINITIONS OF TERMS

**Clinical Nurse practitioners** in the study refers to senior facility health nurse practitioners responsible for both clinical and administrative duties at clinic level (DHP 2012:15).

**Daily collected health data** refers to day-to-day clinic activity statistics such as total number of patients seen per day (NIDS 2011).

**Data Champions** referred to health facility information officer responsible for collation, analysing and submission of health data to sub-district level (DHMIS SOP 2012)

**Data elements** refer to **raw data** collected at primary health care clinics to monitor and evaluate **disease burdens**. Example of raw data collected at clinics was “Total PHC Headcount”. Data elements were used as numerators and sometimes as denominators to calculate health indicators for National Health Indicator data set (NIDS 2011:1).

**Data quality** refers to data that was validated, reliable and accurate for management use for decision making. Quality data had to be timely available, correct, complete and consistent, (Williams & Stoops (2003:19).

**Data Validation rules** are a set of rules not to be violated, and used to validate the integrity of data that was auto run or manually applied on the collected monthly routine data and on the District Health Information system, (DHMIS 2011:18).

**Doctors** refers to medical practitioners with exclusion of those specialist medical practitioners and practising as Medical specialists in the City of Tshwane primary health care clinics (DHP 2012:6).

**Health Data** refers to both raw data and indicators collected at health facilities for daily routine activities such as total number of patients' visits to the clinic (NIDS 2011:1).

**Health facility** refers to the primary health care **clinic** and the two words in the study were used interchangeable (DHP 2012:5).

**Health Indicators**, according to Williams & Stoops (2003:10), refers to interpreted raw data into understandable meaningful information for health program performance status for use for informed decision-making. Examples of indicator types are Percentages (%), Proportions (200 new TB cases per 10 000 of total populations), Ratios (1:4) and number indicator (increase is PHC head count from 210 to 370).

**Health Practitioners** in the study referred to health care professionals such as nurses and doctors excluding health professional allied (DHP 2012:6).

**Minimum data set (MDS)** is a list of priority data elements that were to be collected at facility level according to health programmes such as expanded programme of immunisation (EPI) to measure programme performance. Data elements had nationally standardised definitions to ensure that all data collectors understand what need to be collected. Nationally standardised data collections with data elements were used to ensure that all provinces collect same data and follow the data flow process, (DHMIS 2011: 18).

**Professional Nurses** refers to registered professional nurses with exclusion of Auxiliary and Enrolled nursing categories in the City of Tshwane primary health care clinics DHP 2012:6).

**Routine** refers to day to day on going activities happening at the health facility, such as data collection that was done on daily basis (NIDS 2011:1).

**Understanding of daily collected data** refers to having the idea of what was supposed to be collected by nurses and Doctors as outlined in the National Health Indicator data set, understanding of standardised data elements and health indicator definitions (NIDS 2012:1).

**Use of daily collected data** refers to purposeful usage of data such as: for planning of clinics operations, management decision making, community disease profiling, health policies reviewing, monitoring and evaluating clinic performance, (DHMIS 2011:21).

## **1.7 THEORETICAL FOUNDATION OF THE STUDY**

### **1.7.1 Research Paradigm**

According to Polit & Beck (2008:13) the paradigms of human inquiry were characterised by the way they respond to philosophical questions such as "what is the nature of reality (Ontology), what is the relationship between the inquirer and the phenomenon being studied (Epistemology) and how should the inquirer obtain knowledge methodology. The researcher used the positivism paradigm for this study.

Polit & Beck (2011:739) refer to the positivism as "the investigation of phenomena that lend themselves to precise measures and qualification that involve a vigorous and controlled design". In a positivism, the researcher uses a structured approach defining the research problem and followed by the systematic approach to achieve the research objectives, (Joubert & Ehrlich 2007:77). The positivism was adopted for the study to achieve the objectives. The data were collected using the structured questionnaire to allow the quantitative numeric measures to explore the understanding of the health practitioners on routinely collected data. The positivism paradigm was used to answer the research question on whether the health practitioners understand the routinely collected health data. The three dominant approaches were also considered when deciding on the research paradigm, such as positivism (Brink et al 2012: 25).

### **1.7.2 Theoretical Framework**

Brink *et al* (2012:26) indicate that the framework assists the researcher to organise and provide a context in which the research problem was examined, gathering of data and the analysis of research data. Theoretical framework was evidently relied on propositional statement that resulted from the available theory such as Skinner's theory (Brink *et al* 2012: 26).

### **1.7.3 King's the theory of goal attainment**

King's open systems framework was the theoretical model used by nurse researchers (Polit & Beck 2007:122). Key study theses of the model were personal system, interpersonal systems and social system that were dynamic and interactive to attain the research goal and objectives (Polit & Beck 2007:122).

For this study, the researcher used the theory of goal attainment as the model that influences nurses as purposeful and rational beings. Exploring the nurses understanding the researcher intends to investigate their purpose and the rational they have when collecting the routinely gathered data.

## **1.8 RESEARCH DESIGN AND METHOD**

Polit & Beck (2011: 201) defined research design as an ultimate plan to answer the research question: Do nurses understand the routinely collected health data. According to Joubert & Ehrlich (2007:77) research design refers to the structured approach followed by the researcher to answer a research question. The study design determines how the population was sampled, data collection, data measure, analyse and ethical consideration (Joubert & Ehrlich 2007:77). Polit & Beck (2011: 201, define quantitative descriptive as an ultimate plan to answer the research question.

According to Joubert & Ehrlich (2007: 107), Data Collection Method was a list of questions that were answered by the respondent and gave indirect measures of the variables under

investigations. The Self-administered Structured Questionnaires method was the preferred method to collect research data. Self-administered questionnaires were distributed to the target population that were Clinical Nurse practitioners, professional nurses, and doctors. A structured questionnaire was designed and used as data collection methodology to collect data to answer to the research question.

According to Brink et al (2012:96), quantitative descriptive design forms the blue print of the study and determines the method to be applied to obtain information, participants, data collection, analysis, and interpretation of results. Descriptive study was design to gather more information on the study conducted and gave the natural picture of the situation as it unfold with any interferences (Burns & Grove 2003:195). The descriptive study was designed as the appropriate study plan to explore the understanding of the routinely collected data by the health practitioners in the primary health care clinics. The study design choice was based on the algorithm for determining type of study design (Burns & Grove 2003:201)

## **1.9 DATA COLLECTION**

According to Polit & Beck (2011:293), Data collection plan was critical in order to identify, data needs to be able to fulfil the purpose of the research. Quantitative research paradigm chosen required data to be collected in a structure controlled manner to ensure that there was a consistency in what was asked and how answers were reported in an effort to enhance objectivity, reduce biases and facilitate data analysis (Polit & Beck 2012: 293). A pre tested Self-administered Structured Questionnaires was the preferred method to collect research data. The 62% (247) of distributed questionnaires were completed and received by the researcher for analysis.

## **1.10 SAMPLING**

The targeted study sample of 400 was used with representative sampling size of 240 at 95% confidence interval with 4% margin of error allowed. The 62% (247) of distributed questionnaires were completed and received for analysis. The Figure was representative because the calculated acceptable sample size was 240 respondents from the total population size. The sampling was discussed in details in chapter 3 of the study.

## **1.11 DATA ANALYSIS**

According to Polit & Beck (2008: 642), the systematic framework such as flow of task was essential to be adopted in analysing quantitative data such as preliminary assessment, preliminary action, principal analysis, and interpretive phase. The crude data collected was analysed using the planned descriptive data analysis system as outlined in details in chapter 4 of the study.

## **1.12 SCOPE OF THE STUDY**

The study focused on the research title that was to explore the understanding of the routinely collected data by the health practitioners in the primary health care clinics. The scope of the study was to answer to the research question and achievement of the research objectives as outlined in Chapter 1 (1.4.2).

## **1.13 STRUCTURE OF THE DISSERTATION**

The structure of the dissertation includes five chapters as explained below.

### **1.13.1 Chapter 1: Orientation to the research study**

The orientation to the research study was the research project tour introducing the study, overview covering the background of the study, research problems, aims of the study,

theoretical context, research design, scope of the project and summary project contents (UNISA 2014:37).

### **1.13.2 Chapter 2: Literature review**

In this chapter the study, covers all aspects pertaining to available knowledge relevant to the research topic and the needs to research in order to close the knowledge gap contributing to new ideas for improvement of the community service delivery. According to McIntosh-Scott *et al* (2014:197) literature review was the summary of all applicable evidences on the research topic highlighting the available knowledge.

Google scholar and Pumed databases were used to search for the journals and articles available for knowledge related to the research title (Joubert & Ehrlich 2007:71). The relevant journals and articles were sourced from the databases to search for ideas published on the research topic. The database search concepts used were: routine health information, understanding health information, uses of routing health data, health data collection, district health information systems and data collection tools.

### **1.13.3 Chapter 3: Research design and methodology**

According to Botma *et al* (2010:272) research design refers to the approach the study used to complete the project and methodology referred to the instrument that was used to gather the primary data to respond to the research question. The research design was quantitative descriptive study design with questionnaire compiled to collect a numeric data that was analysed using descriptive statistical software (Joubert & Ehrlich 2007:77). Research design and methodology was covered in details in chapter 3 of the study.

### **1.13.4 Chapter 4: Data analysis, presentation and description of the research findings**

Chapter 4 of the study focused on data analysis using the verified descriptive statistical method by entering raw data into the MS Microsoft Excel version 2010. Analysed data

were presented in visual graphs, Figures and table then followed by narrative description detailed in Chapter 4.

#### **1.13.5 Chapter 5: Conclusion and recommendations:**

The study was completed with conclusion and recommendation as outlined. The recommendation ensured that **newly acquired**. Knowledge was shared with relevant stakeholders and used for the academic and community benefit in improving health status of the community we served.

#### **1.14 CONCLUSION**

The study orientation summarised the research project process that led to the outcome of the study that was to explore the understanding of routinely collected health data by Health Practitioners in Tshwane district primary health care clinics.

The study had been quite a fruitful journey that bared essential new knowledge benefitting innovation knowledge for future.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

According to Burns & Grove (2009:9), the purpose of literature reviewing was for the researcher to be familiarised with the available existing knowledge related to the study. Literature review focused on the research topic that was to investigate the understanding of the routinely collected data by the health practitioners in the primary health care clinics. In this chapter, the researcher reviewed the existing knowledge with regard to the research topic.

According to Lie (2014:1), the purpose of a literature review is to differentiate what has been reviewed with what need to be done. It is also meant to find new ideas and new perspectives contributing to the new knowledge in broader context of the research topic. According to Joubert & Ehrlich (2007:66), literature review was defined as looking further into the existing knowledge in order to justify the future researches and putting new ideas into context. Literature review was intended to give the perspective of available knowledge of research topic with the strength and limitations of the underling research (Joubert & Ehrlich 2007:66).

#### **2.2 THEORETICAL BASIS OF THE STUDY**

According to Brink *et al* (2012:20), the research and theory were interdependent and inseparable like research and actual practice. Theories are ideas acquired from daily observation and day-to-day practice that includes formulated and tested ideas supported by reliable scientific evidences (Brink *et al* 2012:20). Theory terms were used interchangeably and that includes; conceptual framework, conceptual model, paradigm, metaparadigm, theoretical framework and theoretical perspective (Brink *et al* 2012:21).

Looking at different theories, Grand theories were found to be applicable to the present study as they gave the global perspective of a discipline and the scope of practice with regard to the study title Brink et al 2012:21).

### **2.3 ROUTINELY COLLECTED DATA IN THE PRIMARY HEALTH CARE SETTING**

Computerized Health Information Systems are used mainly in the developing countries to collect routine health data and South Africa was one of the developing country that have implemented the District Health Information system since 1998 (Steward et al 2001:249, Williams & Stoops 2003:7). According to Joubert & Ehrlich (2007:172), a routine health information system collects, collates and processes health data on particular health related data elements on an on-going basis that influences national and international goals and policies.

In South Africa the approved routine health Information systems is District Health Information System for collection of routine primary health care clinics data (DHMIS 2011:9). It was required in terms of the National Health Act, 2003 (Act no 61, 2003) that the National department of Health facilitate and coordinate the implementation of health information system in all government spheres including provincial and local authority levels (DHMIS 2011:9). Health information cannot operate in isolation but operates within the framework of comprehensive health system to improve the individual and population health (Lippeveld 2001:3).

Globally, the Health Metric Network of the World Health Organization has developed a health system for country level routine health information system. This comprehensive Framework is universally accepted standard for guiding the collection. Reporting and use of health information by all countries such as developing countries and global agencies (Joubert & Ehrlich 2007:172).

According to Aung & Whittaker (2013:495), routine health information systems at all levels, including local level, need to be strengthened so that they provide up to date information to

be used for planning, organizing and monitoring of health status. The routine health information at facility level can be aggregated to create information of services offered to the target population on diseases burden to show population disease profile (Lippeveld 2001:1). Routine health information is used to assess the health facility utilization and population health impact (Steward et al 2001: 248).

According to Steward *et al* (2001: 248), in Mali the West African country, around 1987 the Child Survival Project was implemented in order to assess and evaluate the impact of maternal and child health illnesses. Save the Children Project encouraged and promoted use of health services such as child immunization, antenatal care, and change in social behaviour (Steward et al 2001:249). According Steward et al 2001:250), Mali Health Ministry used the Programme Health Information System (ProHIS), a community based health data system to collect the routine data and analysis.

## **2.4 HEALTH PRACTITIONERS UNDERSTANDING OF THE ROUTINELY COLLECTED DATA**

Lippeveld (2001:7) cited that the reason for poor data quality is that health practitioners such as nurses and Doctors do not receive enough training in data collection and standardized methodology for them to understand the required routine health data to be collected at health facility level. No feedback is provided to data collectors for them to understand and see the importance of collecting health data routinely and be motivated (Lippeveld 2001:7).

According to Aung & Whittaker (2013:496), the World Health Organization has compiled the important resources such as standard guidelines and assessment tool of health information systems. As cited by Aung & Whittaker (2013: 496), two frameworks are Health Matric Network's (HMN) for health information system assessment and Performance of Routine Information System Management (PRISM) that provide guidance on input, process and output of health information systems. Health practitioners that include nurses and doctors need to understand routine health information collected at local level and its use (DHMIS 2011:9).

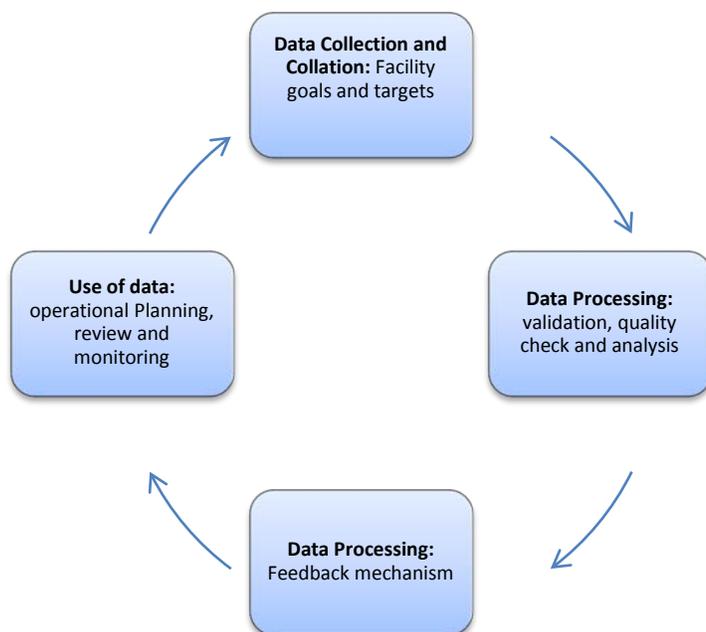


Figure 2.1: Information Cycle (Williams & Stoops 2003)

### 2.4.1 Health data elements

Health data elements refers to raw data or facility activities data collected from health facility by health Practitioners such as nurses and doctors (Williams & Stoops 2003:16). Health data elements are collected using the standardised tool called minimum data set (MDS) and have standardised definition for easy understanding of what to be collected at all levels (DHMIS 2011: 20). The current Minimum data set tool used to collect data at Tshwane District health facility was version 3 of 2013 as approved by National Health Information System Committee of South Africa (NHISSA) appointed by Minister of Health in line with section 74 of National Health Act, 2003 (Act no 61 (74), 2003, DHMIS 2011:9).

### 2.4.2 Health status indicators

According to Williams & Stoops (2003:16), health indicators were defined as follows by different authors: variables that help to measure health performance changes directly or indirectly. Indirect health measure of condition and variable that shows a give environment and can be used to evaluate change. Health indicators can be expressed as the number

count, as a proportion or as a ratio (Williams & Stoops 2003:16). According to the District health Management Information System policy (DHMIS 2011:22), health indicators measure trends and monitor progress towards the facility set target. The health indicators for them to be useful to health Authorities such as National Department of health and stakeholders, need to be reliable, appropriately valid, easy to understand and specific to local and national priority needs (DHMIS 2011:19, Williams & Stoops 2003:6). Health practitioners need to understand health indicators such as immunization coverage for children under 1 year old in Expanded Programme of Immunisation (EPI), for them to be able to use them at local level (DHMIS 2011:22).

### **2.4.3 District Health Information System**

The Health Act (2003:74), cites that the Minister of Health has the prerogative to decide on national priority health surveillance programme to monitor and evaluate health performance using the approved standardized surveillance health system. According to DHMIS Policy (2011:9), District Health Information System is the nationally approved data management system used to collect, collate and analyse health data nationally. South Africa is a member state of World Health Organization and the District Health Information System is in line with WHO data management system specifications for reporting WHO global priority health measuring programmes such as Millennium Development Goals (MDG Country Report 2013:1).

### **2.4.4 Health Data sets**

Williams & Stoops (2003:16) define health data set as the minimum amount of data that need to be collected at the health facility by the health practitioners routinely. Through training and orientation to minimum data set (MDS) by district health Information officer, the health practitioners are able to understand what data need to be collected routinely and its purpose to spheres of government (DHMIS 2011:22). Minimum data collected are important for the effective standardized management of health services and improvement of community health and social needs (DHP 2013: 56).

According to Williams & Stoop (2003:6) "challenges that must be addressed if training initiatives are to succeed in developing a culture of information use can be described in terms of three main areas that of the training programme, the organization that provides the service and the participants who need or undergo training. Accountability and transparency are facilitated if initiatives are specific, measurable, appropriate, realistic and time-bound. The training programme must be sensitive to service related issues, participant and content specific, yet be flexible to adapt to the local context, undergo realistic and regular programme review and establish monitoring and evaluation time frames".

#### **2.4.5 Data Quality**

Agil *et al* (2009:220) define routine health information system management performance as improved data quality and consistent use of health information. These scholars further described data quality as data that is relevant, complete, timely and accurate to be used for decision-making by health management. Simba & Mwangi (2005:7) mentioned that, though Pacific Island report shows gradual shift in the mortality pattern toward non-communicable diseases, routine information was not use to the uncertain data quality by high authorities. Data quality is very important for data to be regarded as reliable by authorities at all levels (Simba & Mwangi 2005:7)

In Mali, data quality is important, meaning that they have a data quality improvement plan in place to ensure that data used in Save the Children Project is of good quality; correct, consistent and complete (Steward *et al* 2001:249, Williams & Stoops 2003:28).

In 1998 the Mexico Secretary of Health emphasized the need for quality routine health data in health sectors in order to be used for management decision making at all levels of health care system (Duran-Arenas *et al* 1998: 446). Duran-Arenas *et al* (1998: 446) states that barriers in implementing health information quality improvement system in developing countries is due to the lack of timely and relevant information for decentralized management decision making. Mexican government has a clear health system strengthening pillars that shows health support and use of routinely collected epidemiological data in making diseases impact evaluation (Duran-Arenas *et al* 1998: 447).

#### **2.4.6 Use of routine health information**

According to Agil et al (2009:217), performance of routine health information management promotes the information culture practices and encourages health care authorities to take responsibility of their routine health data at local level. Routinely collected health information is used to strengthen evidence – based decision making at facility level (Agil et al 2009:218). Health information systems were developed in 1990 for implementation in the developing countries to be used to monitor WHO priority health indicators (Lippeveld (2001: 23).

Aug & Whittaker (2013:495 **say** that routine health is used for the following:

- Management planning of health facility
- Management decision making to allocate resources such as budget and health personnel
- Post disaster for disaster response planning
- For assessing the aftermath of a disaster to evaluate health problems, social issues and environmental health related diseases.

The following were described as the components of information systems: formation of health indicators, data collection, data communication, data processing, and analysis which resulted in use of information at all levels (Agil *et al* 2009:218).

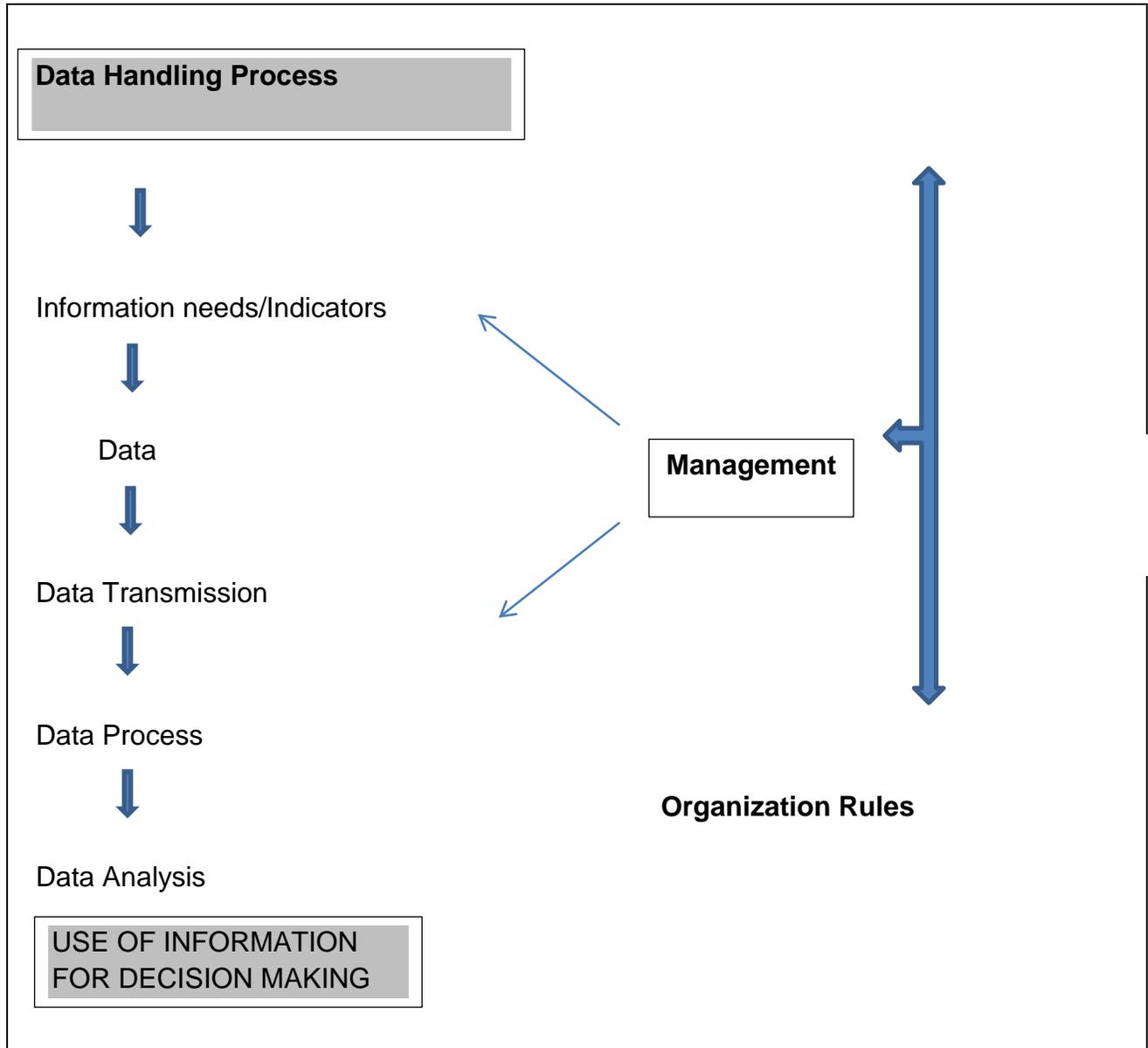


Figure 2.2: Health Information System (HIS) components diagram (Agil *et al* 2009:218)

International donors such as UNICEF and USAID supported the development of information systems with routine data collection on epidemiological surveillance

programmes such as Expanded Programme of Immunization, diarrheal diseases and respiratory diseases (Lippeveld et al (2001: 23).

Health personnel such as nurses and doctors need motivation, knowledge and skills to perform and collect good data quality and use such data at local level (Agil et al 2009: 219). Health facility staff training and orientation on the National Indicator Data Sets (NIDS), data collection tools and data flow process is crucial to ensure understanding of what need to be collected, when, how and for what purpose is routine data needed for (DHMIS 2011:19). The understanding of routine health information will ensure that the data collected will be of good quality, meaning they are complete with no omission, consistent trends, correct with verification and validation, timely available for use and accurate for management evidence –based decision making (DHMIS2011:20).

Lippeveld (2001:8), states that the routine health is used less for daily treatment decision making by health care providers due to the integrated and continuous services they provide to the catchment population. According to Lippeveld (2001:13), reasons for poor use of routine health data are:

- Poor data quality and irrelevant to a particular health facility.
  - No linkage of health care information and the catchment population.
  - A centralized information system at district levels.
  - Developing countries struggling with infrastructure for health information systems.
- Lippeveld (2001:7), experience have shown that decentralization of Health information system improve the use to routine data at lower level of data collection.

Training in routine health information usage impacts positively on the actual use of health information for service planning and daily health facility management (Lippeveld 2001:2). The effective way to promote the use of information is to decentralize health management to lower levels such as facility level and district levels (Lippeveld 2001:3).

### 2.4.6.1 Health Facility Planning

According to Williams & Stoop (2003:6), routinely collected data are used for facility planning by Health facility Managers. Figure 2.3, Management Planning cycle demonstrated the planning cycle within the facility.



Figure 2.3: Management Planning cycle (Williams & Stoop 2003)

Figure 2.3, Management Planning cycle (Williams & Stoop (2003:22) summarised the planning cycle within the facility.

### 2.4.6.2 Resource allocations

According to Aung & Whittaker (2013: 497), management relies on quality health data for resource allocation that is budget, personnel allocation, health and social relief resources such as nutrition, food security, medicines, infrastructures, health equipment, sanitation and hygiene promotion.

### 2.4.6.3 Health Status Feedback

Health information Management has the responsibility to give feedback of data collected at facility level to facility manager and data collectors such as nurses and Doctors on regular

basis indicating health status performances (Aung & Whittaker 2012: 499). According to DHMIS policy (2011:19), data flow process in data collection, collation and analysis must be followed by feedback mechanism by District Health Information Officer to Health Facility Management level and District Management level. According to Aung & Whittaker (2013: 502), feedback should be given on the timeliness, accuracy and analysis of data collected.

## **2.5 CONCLUSION**

This chapter reviewed literature, which referred to the available knowledge in the understanding of routine data in the primary health care setting by health practitioners. The literature review identified the use of routine health data, understanding of data elements, data quality check, validation of data and the significant of feedback presentation of routing data. The study highlighted the data handling process with role clarities of each level such as local, district, provincial, national and internationally to ensure understanding of responsibilities and accountabilities of each level (DHMIS 2011:9).

## CHAPTER 3

### RESEARCH DESIGN AND METHODOLOGY

#### 3.1 INTRODUCTION

In this chapter, the research focused on the study design and methodology applied to collect data used in achieving the research objectives. The emphasis was on the project planning and the approach that was used to answer the research question and achieve the set study objectives.

#### 3.2 RESEARCH DESIGN

According to Joubert & Ehrlich (2007:77), research design refers to the structured approach followed by the researcher to answer a research question. The choice of study design determines how the population was sampled, data were collected, data are measured and analysed (Joubert & Ehrlich 2007:78). Quantitative descriptive cross-sectional research design was used to answer the research question on this research study and achieved the study objectives as outlined. As cited in Joubert & Ehrlich (2007:79), in quantitative research design, the researcher used structured orderly approach to define the research problem following the systematic approach to achieve the research objectives.

Polit & Beck (2011:739) also referred to the Quantitative research design as the investigation of phenomena that lend themselves to precise measures and qualification that involved a vigorous and controlled design. Quantitative descriptive cross-sectional research design was adopted for the study to achieve the objective.

The observed quantitative study design concepts and principles include: rigour, causality, probability, bias and triangulation, discussed in detail below.

### **3.2.1 Rigour**

According to Brink et al (2012:97), "rigour refers to the principle of truth value of the research outcomes". The researcher strived for excellent results through discipline and accuracy in data collection during the study process by observing all research data collection and sampling ethical considerations. Data was collected using the approved data collection tool that was tested, evaluated and verified by the researcher through data collection instrument test run study and outcomes of test shown in table 5 as evidence of truthfulness.

### **3.2.2 Causality**

According to Brink et al (2012:97) health researchers were interested in all the factors that increase the probability that effects will happen. Causality basically means that things have causes and causes lead to effects (Burns & Grove 2011:253). The relationship of variables that causes health clinician not to use routinely collected health data at primary health clinics setting were explored to evaluate how causes led to effects resulting in causalities of non-understanding of routine data collection at primary health care setting.

### **3.2.3 Probability**

Brink et al (2012:98), "qualitative researcher used a probability orientation in designing studies to examine the probability that a given effects will occurs under a specified set of circumstances". Orientation to the data collection tool was explored to determine the relative rather than the absolute use of routinely collected data at primary health care setting.

### **3.2.4 Bias**

Bias means that an influence that produces distortion or an error (Brink et al 2012:98). The researcher minimized the possibility of bias by ensuring that the data collection instrument was not discussed during distribution process. Participants advised not to discuss the

questionnaires to ensure fairness and honesty in responding to questions to minimize biasness.

### **3.2.5 Research Setting**

The study was conducted in the Tshwane district primary health care clinics in Gauteng province with health practitioners randomly selected as research respondents. According to Joubert & Ehrlich (2007:95) probability sampling respondents stood an equal chance of being included in this study. Nurses, clinical practitioners and doctors collected routine data to account to their daily core function in line with National Department of health National indicator (DHMIS 2011:4).

Tshwane has a total population of 2,7 million (DHIS Population estimates 2011:4). Tshwane district is made up of seven sub-districts, namely sub district 1, 2, 3, 4, 5, 6 and 7, with health facilities distributed throughout all sub-districts. The district has the total number of 66 health facilities including community health centres, of which 23-health facilities fall under the City of Tshwane metropolitan municipality. This is illustrated in Figure 3.1 below.

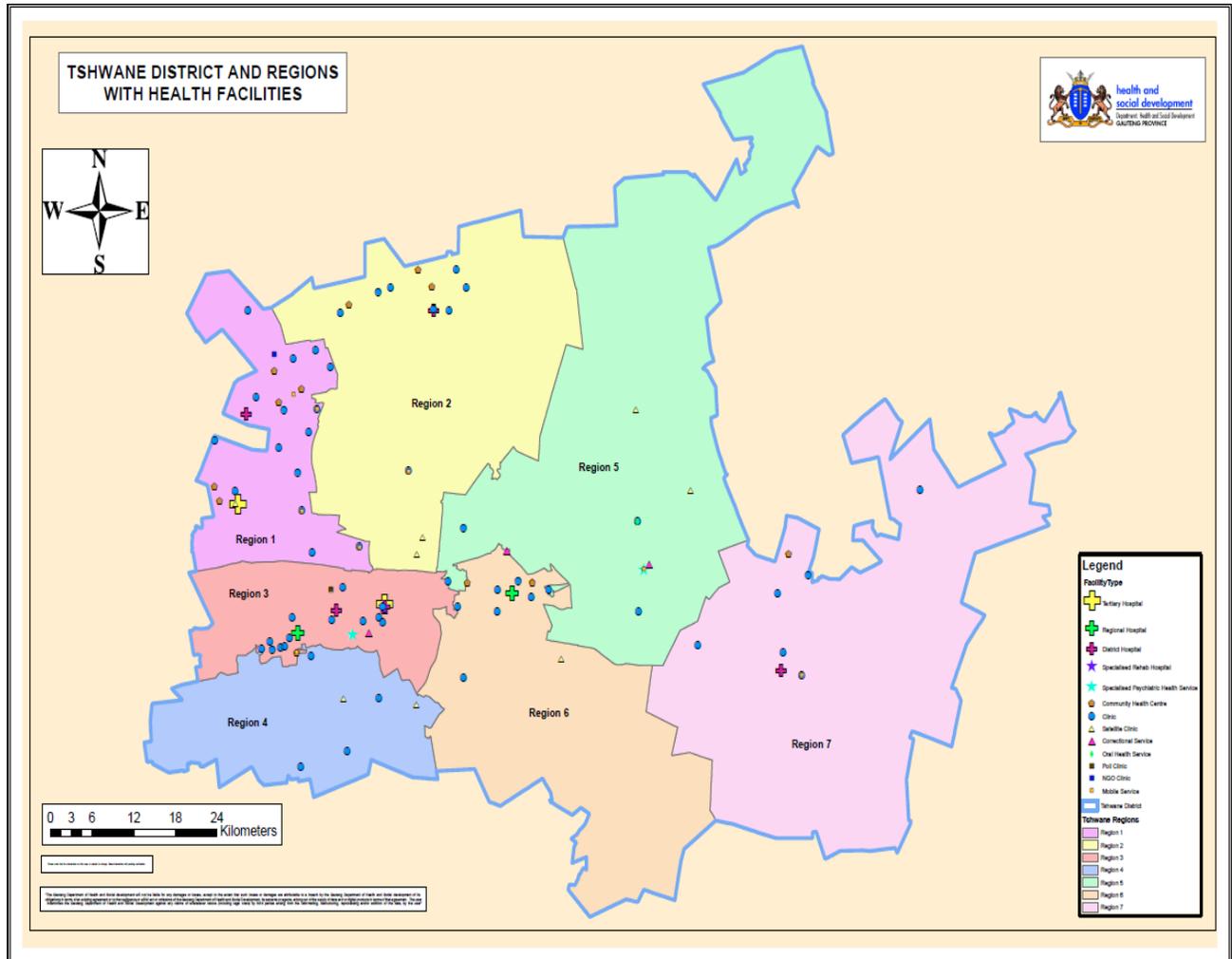


Figure 3.1: Tshwane District map: (GIS NDoH)

South Africa **was** is a member states of WHO Geneva declaration summit, and is expected to commit and report on their status with regard to Millennium Development Goals (MDG Country Report 2013:4). District Health Information System (DHIS) was the nationally recognised national health system used as health surveillance system to report on the South African disease burden, and is recognised by the World Health Organisation (WHO) as a health data elements and indicators reporting system (DHMIS 2011:7). A recognisable health information system that collects quality data that were validated and reliable for use by the South African government. It was imperative to ensure that accurate

data were used to report on the Millennium Development Goals status of South Africa for the World Health Organisation (MDG Country Report 2013: 4).

According to the National Health Act, 2003 (Act no. 61, 2003), the National Department of health was the custodian of all health related data collected at all health facilities level and that means that all researchers received ethical clearance prior to the use of any health related information to ensure that research ethical principles were followed when dealing with participants. Health raw data were collected at clinic level and captured on the district health information system at the sub-district level on a monthly basis after being validated for correctness, completeness, and consistency. District Health Information System process, analyses raw data into interpretable information to red flag health status performance (Williams & Stoops 2003:29). According to Williams & Stoops (2003:30), health Practitioners used interpreted health data at local level for decision-making, planning, and day-to-day operations.

According to Lippeveld *et al* 2000:187) the quality of data and ultimate use of the data collected through routine information system depend substantially on the relevance, simplicity, and layout on the data collection instruments. Only health data that will be used for health priority programmes reporting and management decision-making would be collected and not waste resources by collecting un-useful data at any level (DHMIS 2011:20). According to DHMIS policy (2011:9), an integrated data collection system such as DHIS tool was critical to avoid parallel data collection tools for same health programme monitoring.

The National Health Information System Committee of South Africa (NHISSA) was responsible for regulating health data elements and indicators data sets (NIDS 2011:19). The NHISSA's roles and responsibility included evaluation of successful implementation of District Health Management Information System Policy Framework. Technical Advisory Committee (TAC) was responsible for leadership and oversight for successful implementation of DHMIS policy at all levels (DHMIS 2011:18).

### **3.2.6 Population**

According to Joubert & Ehrlich (2007:94) target population needed to be clearly define in respect of person, place and time. The researcher collected data from the doctors and nurses working in Tshwane district as target population for the study. Tshwane district had a total study target population of 790 health practitioners eligible for inclusive in the study project, with other criteria of health professionals such as enrolled nurses and specialised doctors excluded because of the nature of their functions related to the research objective that was primary health care setting focus.

Polit & Beck (2008:337) defined population as the entire group of people that was of interest to the researcher to accomplish the study objectives. Health clinicians such as professional nurses and medical doctors were the group on interest to the researcher in exploring the use of routine data at health facility setting. All health practitioners deployed in Tshwane district primary health care clinics were the research population meeting the study criteria. Annexure A showed the study target population listing to source the representative sampling size.

#### **3.2.6.1 Exclusion Criteria**

The auxiliary nurses and enrolled nurses' categories were excluded for the study. The auxiliary nurses and enrolled nurses' categories work mostly under the supervision of professional Nurse in primary health care setting. The specialist medical doctors were also excluded for the purpose of this study. Specialist medical doctors were mostly allocated at district hospital level than primary health care clinics levels. Doctors and nurses off duty during the day of data collection were conveniently excluded.

### **3.2.7 Sampling**

According to Polit & Beck (2008:339) states that sampling was the process whereby the proportion of the targeted population was selected for the interpretations about the

population can be decided. Brink (2006:132) defined a sample as a part of or fraction of a whole selected by the researcher to participate in a research project. Probability sampling was used for the study, to give equal chance of target population to be included in the study.

Joubert & Ehrlich (2007:95), indicated that by using probability sampling gave conveniently available every element of the target population a chance of being selected on accessibility. Tshwane district Human resource study population listing was used to identify the targeted population, which were professional nurses and doctors as basis for sampling size determinates.

#### **3.2.7.1 Sampling Framework**

According to Joubert & Ehrlich (2007:95), Sampling framework was defined as a list of representatives of the target population or subjects for the study. Human resource personnel list was used as research sampling database to determine the health professionals such as nurses and doctors distribution at Tshwane district clinics setting. The target population was attached as ANNEXURE A, where the sampling framework was sourced for the eligible study population.

#### **3.2.7.2 Sample size**

Brink *et al* (2012:143) say that confidence interval was the margin of error while confidence level was the degree of certainty to the research findings, The confidence Interval Survey system was used to determine the quantitative sampling size of 400 respondents from the total target population of 890 at the confidence interval of 4 and 47%. The sample was according to survey system calculation, of which respondents' size of 240 at confidence interval of 4 at 95% confidence level was convincingly representative to achieve the study's

planned objectives. The 400 sample size of health practitioners was a substantial representative for the target population to achieve research purpose and minimise error.

According to Polit & Beck (2008:349) there was no formula in determining how much sample was required in quantitative study, however the larger the sample the more representative the research. No hard and fast rules can be applied to the determination of sample size; but both scientific and pragmatic factors influencing the sample size need to be considered (Brink et al 2012:143). Sampling error was considered when deciding on sampling size as indicated that the large sample sizes the decrease in sampling errors (Polit & Beck 2008:349),

### **3.2.8 Data Collection**

Joubert & Ehrlich (2007:106) referred to the collection of information as measurement for study. Measurement defined as the process by which values were obtained for the characteristics of target population. According to Polit & Beck (2011:293), data collection plan was critical in order to identify data needed to be able to fulfil the purpose of the research.

Parahoo (2006:55), mentioned that the questionnaire was a planned tool and advance developed before the commencement of data collection and not altered ensuring that all respondents answered same set of questions. The quantitative research paradigm chosen required data to be collected in a structure controlled manner to ensure that there was a consistency in what was asked and how answers were reported in an effort to enhance objectivity, reduce biases and facilitate data analysis (Polit & Beck 2011: 293).

#### **3.2.8.1 Data Collection Approach**

Polit & Beck (2011: 318) indicated that the self-designed structured self-administered questionnaires allowed the researcher to compute exactly what percentage of respondents felt stressed most of the time but will not provide information on pain intensity which was

difficult to respond to like in unstructured approach. Structured data collection questionnaire was used for the study to accomplish the research purpose and reach the study objectives. Polit & Beck (2011: 318) observed that structured self-administered questionnaires include a fixed set of questions that were answered in a specified sequence and with pre-determined responses such as yes or no.

According to Joubert & Ehrlich (2007:107), a questionnaire is a list of questions that were answered by the respondent and gave indirect measures of the variables under investigation. Questionnaires required the respondents to fill them in voluntarily after the consent was obtained. Self-administered structured questionnaire was preferred to collect research data because of its convenience and economic outcomes.

Self-administered Questionnaires were distributed to the target population in self-addressed envelopes, and sent through internal mail for facility data champions and facility managers to distribute to the target population and posted back to the researcher in the self-address envelopes provided. A detailed cover letter addressed to facility manager was sent with bundle of questionnaires for distribution.

Respondents were given more time to complete the questionnaire and gave them back to facility data champions and facility managers to post them back to the researcher. The questionnaires take an average of 9 minutes to complete according to the data collection tool evaluation outcomes as shown in Table 5. Researcher delivered questionnaires in central health facilities for completion due to their accessibility.

### ***3.2.8.2 Development and testing of the data collection Instrument***

According to Joubert & Ehrlich (2007:116), a pilot study was conducted as a test run of the main study in the smaller population of similar characteristics target population. In developing a questionnaire an instrument test run was needed to test the data collection instruments and refine it with in depth review for improvement.

One Primary health care clinic, Folang primary health care clinic was selected as questionnaire testing site to distribute the questionnaires to nurses and doctors after permission was granted to test the data collection instrument prior to the main study to check relevance, time spent to complete and understanding of language used. Data collection test study respondent feedback and time taken to complete the questionnaire were noted and applied to review the questionnaire to reduce error during main study data collection (Joubert & Ehrlich 2007:116).

The respondents were given questionnaires to respond to and asked to evaluate the manner in which the questions were phrased and feedback used to improve the data collection instrument. A total of 12 questionnaires was distributed to the respondents and 10 completed questionnaires were received back for evaluation. Table 3.1 showed the data collection instrument test run results in dashboard. The feedback analysis showed that the data collection instrument was 80% relevant, language 70% clear, 60% clearly structured and took respondents 9 minutes on average to complete the questionnaire.

Table 3.1 Data Collection Instrument Evaluation dashboard

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	Total
<b>Time taken</b>	5	10		20	5		5		5	10	<b>9 Min</b>
<b>Structured</b>											
<b>Clear</b>	1	1			1	1	1			1	<b>60%</b>
<b>Fair</b>		1		1	1				1		<b>40%</b>
<b>Vague</b>			1					1			<b>20%</b>
<b>Language used</b>											
<b>Clear</b>	1			1	1	1	1		1	1	<b>70%</b>
<b>Fair</b>		1	1					1			<b>30%</b>
<b>Vague</b>											<b>0%</b>
<b>Relevant</b>											
<b>Yes</b>	1		1	1	1	1	1		1	1	<b>80%</b>
<b>No</b>		1						1			<b>20%</b>
<b>Understanding data collection process</b>											<b>79%</b>
<b>Use of routine data by clinician</b>											<b>52%</b>

**Reliability:** Polit & Beck (2006:422) state that reliability and validity were not independent qualities of an instrument. Unreliable instrument contained errors and was inaccurate to measure the target variables. Pre-testing the instrument in one health facility with a few selected participants of the target population was critical to evaluate relevance, time spent to complete, language used and structuring of questions as shown in Table 5.

**Validity:** According to Polit & Beck (2006:424), validity is the degree to which an instrument measures what it was supposed to measure in order to accomplish the study purpose. The criterion related validity involved determining the relationship between an instrument and an external criterion was established by testing the instrument if it measure what it was supposed to measure and evaluating the outcomes.

### **3.2.8.3 Characteristics of the data collection instrument**

An open and closed ended Questions Questionnaire was developed for the study to collect data required to achieve the objective of the study. Polit & Beck (2011:740) define a questionnaire as document used to gather self-reported data via self-administration of questions. A Questionnaire is a structured data collection instrument with a fixed set of questions that can be open ended or closed ended, the research respondents were expected (Polit & Beck (2011: 371).

### **3.2.8.4 Ethical considerations related to data collection**

Permission to conduct research and collect data was requested from both Research and Ethical Committee of Tshwane District Health and Ethical Committee of UNISA. Both Institutions ethical committees issued a clearance certificates granting permission to collect research data observing data collection ethics. All respondents were issued with detailed research information letter (Annexure A), explaining their rights. Respondents were issued with concern forms (Annexure B) to sign and voluntarily responding to study with no binding obligatory legal or medical threats. All questionnaires feedback were treated as anonymous and analysed as that, to ensure none victimisation of research subjects.

The following ethical considerations were observed during data collection (The Belmont report, read from Polit & Beck 2011:152):

- Study subjects voluntarily participate in my study research on the above mentioned research topic.
- The written permissions to conduct the study were granted from both the Tshwane Health District Research Ethics Committee and UNISA Research Ethics Committee.
- All respondents were treated as anonymous and all information collected through questionnaires and interviews treated strictly confidential.
- Right to withdraw from the study at any time with no obligatory implications.

- Consent forms provided to sign if agree to participate in the study.
- Right not to answer any questions that were sensitive or violate any of their rights.

### **3.2.9 Data Analysis**

The service of District health information officer, Tshwane District Information Management Directorate was sourced to aid in analysing research data through MS Excel descriptive statistical software version 2010 and XLSTAT 2014. Other statistics analysis software such as McCallum Layton Statistical Calculator and Survey System Calculator were used to verify and validate the analysed data. Data analysis was discussed in Chapter 4.

### **3.3 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY**

As cited by Polit & Beck (2011:236) in quantitative study, the measure to enhance the rigour included ways to minimise biases and control confound variables and strengthen the inferences that can be made about causes and effects relationships.

Reliability: Polit & Beck (2006:422) state that reliability and validity were not independent qualities of an instrument. The data collection instrument was tested in Folang primary health care clinic to test reliability and relevancy to ensure it measure what was intended to achieve that was the investigation of routine health data by health care clinicians as shown in table 5.

**Validity:** According to Polit & Beck (2006:424), validity is the degree to which an instrument measured what it was supposed to measure. The criterion related validity that involved determining the relationship between an instrument and an external criterion established by testing the instrument and evaluating the test site outcomes.

The researcher developed a strategy to ensure nothing other than the independent variables interferes with the observed results. Homogeneous group such as doctors and

professional nurses were used as a way of controlling confounding variables as measure of internal validity.

**External validity:** According to Polit & Beck (2011:237), external validity concerns whether inferences about observed relationships will hold over variations in person, setting or measures of the outcomes and generalisation of causal inferences. Doctors and nurses distributed throughout all seven (7) Tshwane sub districts were conveniently none randomly selected, then results will be generalised due to large representative sample size of more than 240 out of 400 research population.

### **3.4 ETHICAL CONSIDERATION**

According to Joubert & Ehrlich (2007:30), Ethics was defined as a theory of moral values, the study of general nature of morals and of the specific moral choices to be made by a person and the standards governing the conduct of a person of members of a profession. Ethical standard was considered when dealing with institutions and respondents.

#### **3.4.1 Protecting the right of the Institution**

Tshwane District Health and Social Development Research and Ethical committee and Ethical Committee of UNISA granted a permission to conduct the study. The request for permission and approval letter which detailed the purpose, benefits and the possible risk of the research study outlined, seeking approval. See Annexures D, E & F.

**Confidentiality:** The information gathered during the study will not be shared with other institutions that were not directly involved in the study prior to written permission of the institution. Access to the collected data and analysed data was made available to Tshwane district clinic management and the University of South Africa for academic purpose. The study institutions were treated with confidentiality to protect the right of the institution.

### 3.4.2 Protecting the right of the Respondents

The Belmont Report (Polit & Beck 2011:152) articulated three broad principles such as beneficence, respect for human dignity and justice on which the standard of ethical conduct in research are based.

**Beneficence and non-maleficence** imposed a duty on the researcher to minimise harm and maximize benefits (Polit & Beck 2011:152). According to Polit & Beck (2011:152), during research, it was imperative that standard of ethical standard were observed to bear more benefits to participants. According to Polit & Beck (2011:153), the right to freedom from harm and discomfort by participants must be exercise by the researcher at all times as an obligation to avoid harm and discomfort. Consent to conduct the research was granted by respondents by signing the consent forms and detailed client information was developed and issued to all respondents emphasising their rights during research, see annexure B & C)

According the Belmont Report (Polit & Beck 2011:152), Respect for human dignity principle included the right to self-determination and right to full disclosure. Right to self-determination means that the participants should be treated as autonomous agent who can decide to take part on research or not to take part without risk of prejudice of treatment. The researcher fully disclosed the nature of the study, person's right to refuse participation with no risk of discrimination at workplace as Tshwane District Health employees.

According to Joubert & Ehrlich (2007:33), injustice occurs when some benefits to which a person was entitled were denied without good reason or when someone was imposed unduly. Polit & Beck (2011:152) refers to Justice as the right to fair treatment and the right to privacy by the research participants at all time. Questionnaires were distributed in privacy and the respondent response kept anonymous.

**Informed Consent and confidentiality:** The targeted population that was Doctors and professional Nurses were visited in their respective consulting room or rest rooms by the

researcher and Data Champion to distribute questionnaires after permission obtain from Facility Managers. Respondent were given an opportunity to ask question, get clarity without discussing questions, consent or decline to taking part in the study. Those who consent were issued with respondents' information sheet and questionnaire to complete.

### **3.5 CONCLUSION**

Chapter 3 highlighted the study framework in terms of how the study setup and plan implementation were conducted. The quantitative design was used to collect the numeric crude data for interpretation through the questionnaires (Parahoo 2006:56).

## **CHAPTER 4**

### **DATA ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS**

#### **4.1 INTRODUCTION**

In this chapter, the researcher focused on data analysis, presentation and description of the research findings. Primary data were used for the study with respondents being the Health practitioners working in primary health care clinics. The descriptive statistical methods such as Microsoft Excel 2010 Strata software, McCallum Layton Statistical Calculator and Survey System Calculator software were used to analyse the data.

#### **4.2 DATA MANAGEMENT AND ANALYSIS**

The respondents sent completed questionnaires to the researcher using self-addressed internal post mail services, some questionnaires were hand delivered by Data champions and Facility Managers as requested on the facility permission request letter. Ethical consideration was observed throughout the study by continuously reminding the target population of their rights to autonomy and self-determination which involved the rights to agree or disagree and the rights to be informed about study before giving informed consent (Saks & Allsop 2013:200).

The process of data management started when receiving the first respondents' questionnaires for analysis (Saks & Allsop 2013:200). The data coding began and data were grouped into variables such as gender and job categories of all research inclusive of the target population. According to Saks & Allsop (2013:201), data coding framework was the methodology used to translate the respondents' answers to the statistical database to analyse aggregated data.

The data were entered into the excel statistical database using pre-coded and allocated response codes allocated during data receiving period. The completed questionnaires were submitted to the researcher for analysis and responding to the research objectives outlined. Questionnaires were verified for data quality prior analysis, in terms of accuracy, completeness and consistency (Brown & Saunders 2008:28). Data clean-up included running frequency distribution margins and values outliers within normal ranges (Polit & Beck 2008:645)

According to Speziale & Carpenter (2003:218) the researcher dealt with tension between the conflicting truths so that they found the understanding of study purpose if conflict exists then supporting evidence justifying the arguments. Qualitative approach was used to collect data from Health Practitioners and the descriptive study design used to describes data to organise and summarise the data in answering the research question and study objectives.

Any elements of bias were ruled out during data verification process to ensure data respondents were all inclusive target population to rule out nonresponse bias (Polit & Beck 2008:649). Respondents were instructed not to discuss the questionnaires to ensure that the responses were honest and no external forces influencing the response such as others opinions.

The descriptive statistical method was used in analysing the research data primarily collected from the health practitioners. The result findings of the study were accurate and confirmed at 95% confidence interval with acceptable 4% margin of error. The descriptive statistical methods such as Microsoft Excel 2010 Strata software, McCallum Layton Statistical Calculator and Survey System Calculator software were used to analyse the data. The data was collected for the period of two months and that was in June and July month 2014.

### 4.3 RESEARCH RESULTS

Four hundred questionnaires were distributed to health practitioners within Tshwane District primary health care clinics to complete. Only 247 completed and returned them to the researcher for analysis. This means 62% responded. The representative sample size is 240 of the targeted population and response was actually above the required sample size. Sample size was discussed in details in Chapter 3 of the study.

The questionnaire was categorised into seven (7) sub categories, namely: demographic Data, data collection process, data management knowledge, data feedback, data verification, data utilisation and generating health information from collected data., understanding of routine data collected, data presentation and feedback, data verification and understanding of routine health information.

#### 4.3.1 Demographic Data

The demographic data was presented in four categories namely condition of employment, gender, age and job category.

##### 4.3.1.1 Age

Two hundred and forty three health practitioners responded to the age category question.

The Figure 4.1 illustrates the Health Practitioners by age.

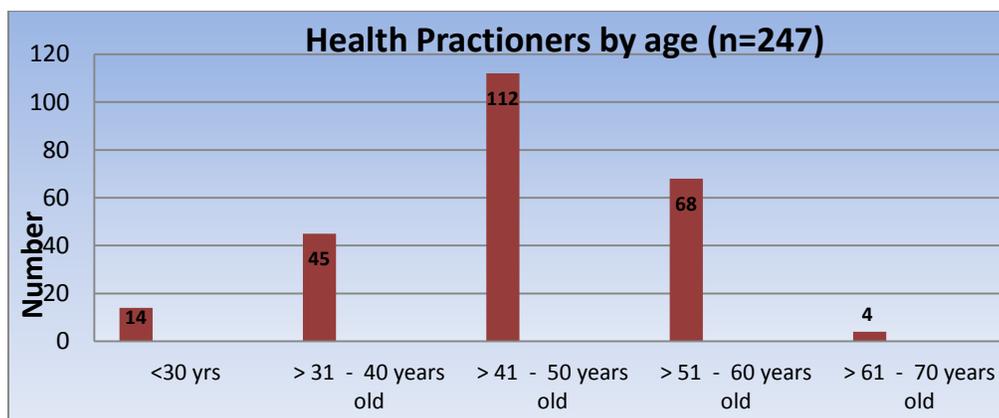


Figure 4.1 Health Practitioners by age

The Figure 4.1 illustrated that a total of 243 health practitioners responded to the age category question for the purpose study. Age group under <30 years old at 5.8% (14), 31 years - 40 years old at 18.5% (45), 41 years - 50 years old at 46.1% (112), 51 years - 60

years old at 28.0% (68) and 61 years - 70 years at 1.6% (4). The highest age group was 41 years - 50 years at 46.1 % and the least age group was 61 years - 70 years at 1.6 %.

#### 4.3.1.2 Gender

The Tshwane primary health care clinic personnel who responded to the study were predominately females, at 97.7% (218) and only 2.3% (5) males responded.

The Figure 4.2 illustrate the Health Practitioners by gender.

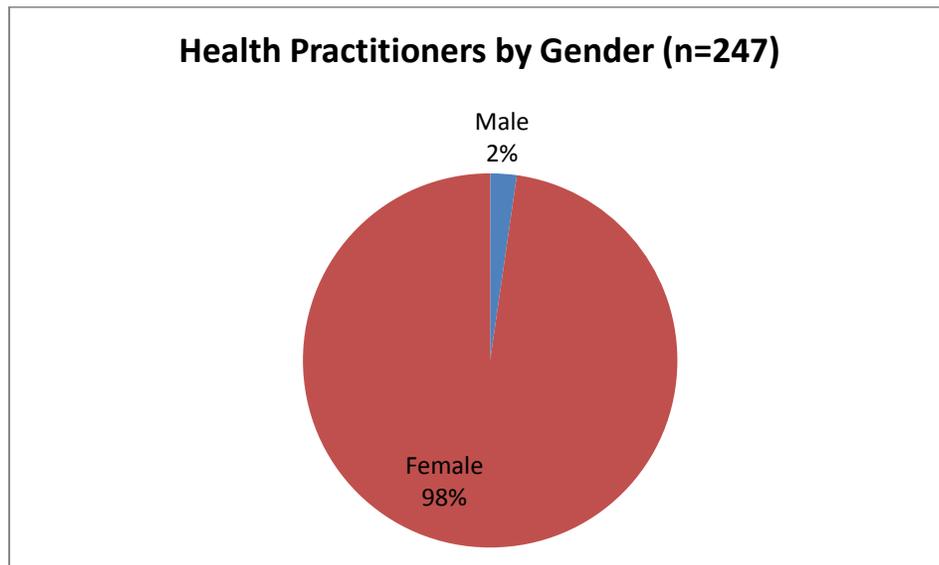


Figure 4.2 Health Practitioners by gender

Two hundred and eighteen respondents answered the gender category question indicating that females were the highest at 97.7% (213) with males at 2.3% (5).

#### 4.3.1.3 Employment condition

The Figure 4.3 illustrates the Health Practitioners conditions of employment.

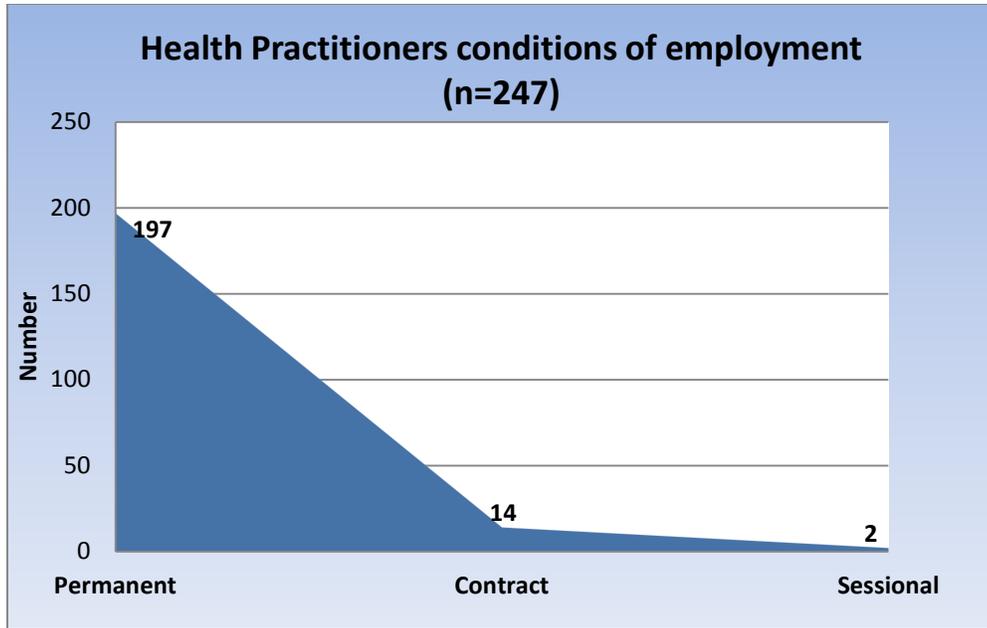


Figure 4.3 Health Practitioners conditions of employment

Figure 4.2 shows the Tshwane health district health practitioners condition of employment, permanent staff at 92.5% (197), contract at 6.6% (14) and sessional staff member at 0.9% (2). The total health practitioners responded were 213 (n=213).

#### **4.3.1.4 Job Category**

The Figure 4.4 illustrates the health practitioners' job categories.

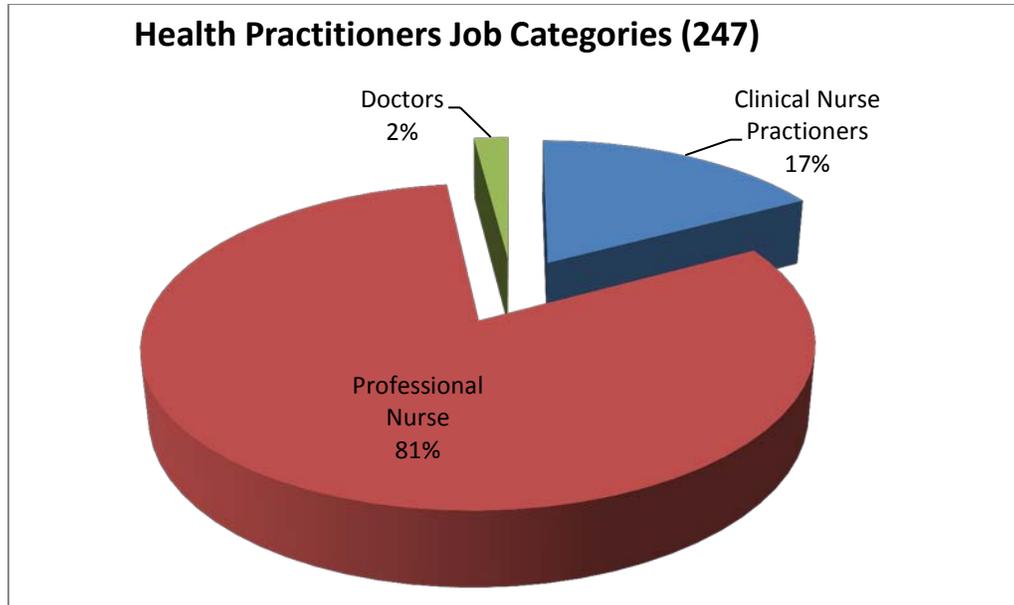


Figure 4.4 Health Practitioners Job Categories

The nurse category was the highest at 81% (198); followed by the clinical nurse category at 17% (42) and least responded category were doctors at 2% (5).

### 4.3.2 Data collection process

Data collection process was presented according to the following: who routinely collects data and importance of collecting data cross-tabulated with demographic data of respondents.

#### 4.3.2.1 Who routinely collects data

The Table 4.1 shows the Understanding data collection by Health Practitioners.

Table 4.1 Understanding Data Collection

Data collection process	Yes	No	<i>n</i>	%
Do you collect routine data (statistics) on a daily basis	244	3	247	98.8
Do you understand the importance of collecting daily data?	242	4	246	98.4

According to Table 4.1 above, the 98.8% (224) of Health Practitioners do collect routine data on a daily basis at Tshwane primary health care clinics and only 1.2% (3) indicated that they do not collect routine data on daily basis. Recording of routine data on daily minimum data set (MDS) was at 98.4% (243) routine data recording rate and with only 1.6% (4) of routine data none recording rate reported.

The understanding of importance of collection daily data was at 98.4% (242), with only 1.6% (4) of health practitioners indicating that they do not understand the importance of collection of daily data.

The Table 4.2 illustrate job categories in relation to routine data collection (n=245)

Table 4.2: Job Categories

Job Category	Collection of routine data (statistics) on daily basis					
	Yes		No		Total	
	Number	%	Number	%	Number	%
Clinical Nurse Practitioners	41	97.6%	1	2.4%	42	100.0%
Professional Nurses	196	99.0%	2	1.0%	198	100.0%
Doctors	5	100.0%	0	0.0%	5	100%
<b>Total</b>	<b>242</b>	<b>98.8%</b>	<b>3</b>	<b>1.2%</b>	<b>245</b>	<b>100.0%</b>

The Table 4.3 illustrate Recording of routine data cross-tabulated with Health Practitioners Job Categories.

Table 4.3 Recording of routine data cross-tabulated with Health Practitioners Job Categories

Job Category	Recording of all routine data on daily MDS register					
	Yes		No		Total	
	Number	%	Number	%	Number	%
Clinical Nurse Practitioners	41	97.6%	1	2.4%	42	100.0%
Professional Nurses	195	98.5%	3	1.5%	198	100.0%
Doctors	5	100.0%	0	0.0%	5	100%
<b>Total</b>	<b>241</b>	<b>98.4%</b>	<b>4</b>	<b>1.6%</b>	<b>245</b>	<b>100.0%</b>

#### 4.3.2.2 Importance of collecting data

According to Brown & Saunders (2008:41), cross tabulation was also referred to cross-classification used to summarise more than one variable. Cross tabulation table was used to show the relation between two variables in research studies. Table 4.3 above showed Recording of routine data cross-tabulated with health practitioners job categories. According to the table 4.3 above, 97.6% (41) of clinical nurse practitioners record all routine data on daily MDS register while only 2.4% (1) do not record routine data on daily MDS register.

The Professional Nurse that record all routine data on daily MDS register were at 98.5% (195) and only 1.5% (3) were not recording routine data on daily MDS register. The doctors recording all routine data on MDS register were at 100% (5). In average 98.4% (241) of health practitioners record routine data on MDS register while only 1.6% (4) do not record routine data on MDS register.

The Figure 4.5 Illustrates understanding importance of routine data collection by health practitioners

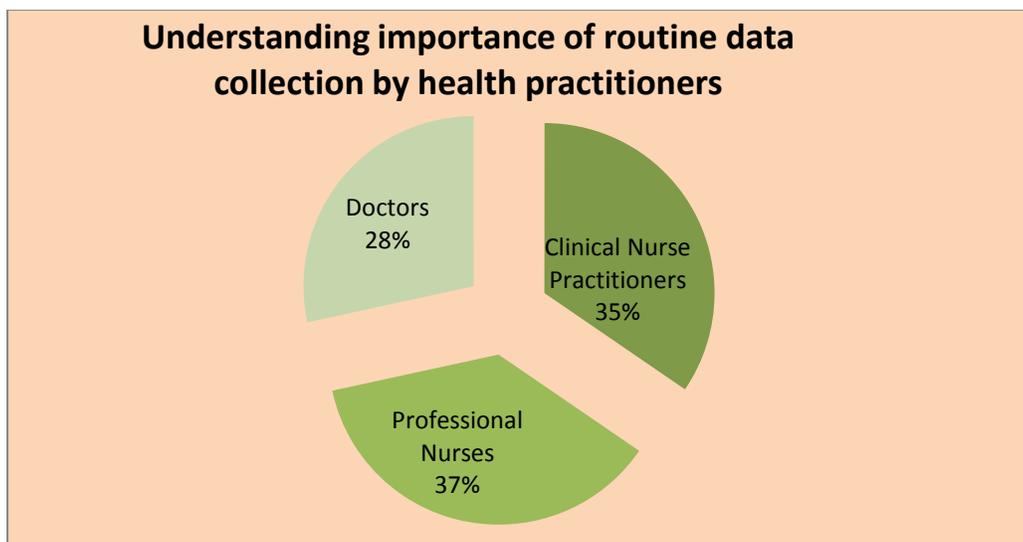


Figure 4.5 Understanding importance of routine data collection by health practitioners

The Figure 4.4 showed the proportion of Health Practitioners respondents in relation to the understanding of routine health data collected at the primary health care setting. The Professional Nurses have the highest proportion at 37%, followed by Clinical Nurses at

35% and the least proportion were Doctors at 28%. The average outcome was at 87.1% in terms of the proportion of understanding of routine data collection by health practitioners by job categories.

### 4.3.3 Knowledge of data

Knowledge of data was categorised into: attending orientation; attending 3-5 days training; differentiating between data elements and health indicators

#### 4.3.3.1 Attending orientation

Table 4.4 Attending orientation

<b>Understanding Data Collection</b>	<b>Yes</b>	<b>No</b>	<b>n</b>	<b>%</b>
Did you attend orientation of daily data collection tool (MDS) used?	208	36	244	85.2

The attendance of an orientation training of daily data collection tools used such as minimum data set was at 85.2% (208), with 14.8% (36) indicating none attendance to daily data collection tools training orientation.

#### 4.3.3.2 Attending 3-5 days training

Table 4.5 Attending 3-5 days training

<b>Understanding Data Collection</b>	<b>Yes</b>	<b>No</b>	<b>n</b>	<b>%</b>
Did you attend 3 – 5 days District health information system course?	135	108	243	55.6
Are you trained in minimum use of the data collection tool (MDS)?	181	53	234	77.4

The attendance of 3 - 5 days information management course was at 55.6% (135) and 44.4% (108) showing none attendance to the course. Health Practitioners were trained on

Minimum data set; at 77.4% (181) and only 22.6% (53) not trained on minimum data set course.

#### **4.3.3.3 Knowledge of data elements collected daily**

Table 4.6 Knowledge of data elements collected daily

<b>Understanding Data Collection</b>	<b>Yes</b>	<b>No</b>	<b>n</b>	<b>%</b>
Do you have knowledge of data elements collected daily?	235	12	247	95.1
Do you understand the difference between data elements and health indicators?	161	70	231	69.7
Do you have Data Champions in you facility?	122	11 1	233	52.4

Health Practitioners show knowledge of data elements collected daily at health care clinics with 95.1% (235) responded positively and only 4.9% (12) responded negatively.

##### *4.3.3.3.1 Respondents on "Data elements definition"*

According to the respondents to the question about data elements definition, the response were as follow; day to day activities at clinic 45% (17), inputs of health information 23% (9), raw data 15% (6), minimum tool for collection of daily and monthly data 13% (5), data instruments 5% (2) and I don't know responses 3% (1).

##### *4.3.3.3.2 Respondents' on "Health Indicator definition"*

The respondents defined the health indicators as follows; states of health status and challenges 29% (9), indicators of incident rate and coverage rate 23% (7), for calculating numerator and denominator 23% (7), health system performance 23% (7) and respondents with no ideas response 3% (1).

#### **4.3.4 Data verification**

Data verification was presented according to: who verifies data and what the qualities of good data are.

#### 4.3.4.1 Who verifies data

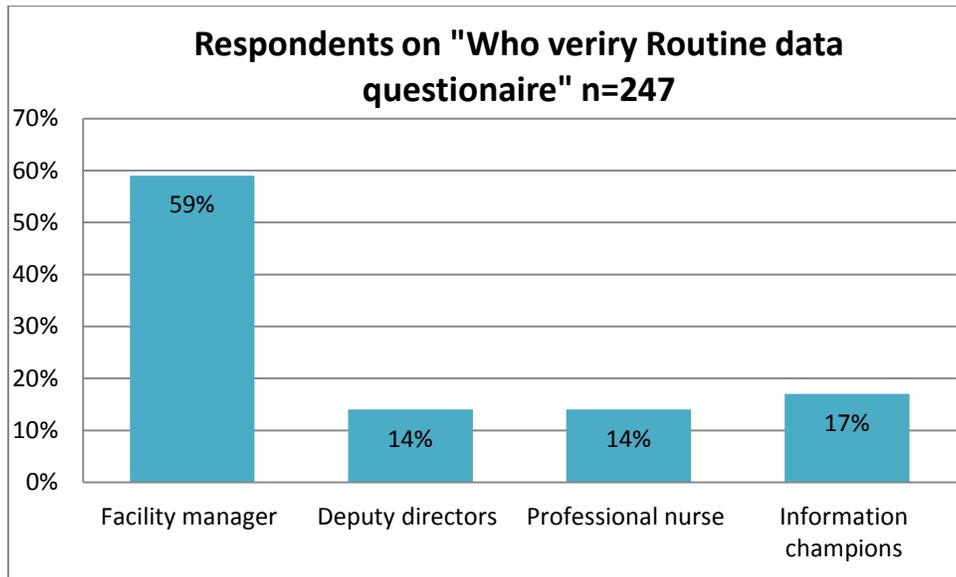


Figure 4.6 Respondents on who verify routine data (n=247)

According to the responses received during the study from the respondents (n=247), 59% (19) indicated that the facility manager verify routine data at clinic level, 14% (5) deputy directors verify data, 14% (5) professional nurse and 17% (6) indicated that the information champions verify data at clinic level. The study outcomes illustrates that the facility managers were the ultimate responsible person verifying routine data at clinic level.

#### 4.3.5 Data Presentation and Feedback

The Table 4.7 shows Data Presentation and Feedback

Table 4.7: Data Presentation and Feedback

<b>Data Presentation and Feedback</b>	<b>Yes</b>	<b>No</b>	<b>n</b>	<b>%</b>
Do you discuss data status or health information during clinic meeting as standing item	220	23	243	90.5
Do you ever request or ask for feedback from Facility Manager for Health status or data collected	163	76	239	68.2

Do you receive feedback on health status or performance of the clinic	210	31	241	87.1
Have you seen clinic health status or performance displayed in the notice board	216	24	240	90.0

Health Practitioners as shown in Table 4.5 above responded to data presentation and feedback mechanism. According to Table 4.5 research outcomes above, 68.2% (76) of Health Practitioners indicated that they had requested health status feedback from the Facility Manager, while 30.8% (76) do not request feedback on clinic health status performance at any given time. In average, 85.7 of Health Practitioners indicated that they received health status presentation and feedback at facility level.

About 90% (216) of Health Practitioners had seen a displayed health status performance on health facility notice board, while only 10% (24) claimed to have not seen health status performance report displayed.

The Figure 4.7 showed the responses on routine data presentation and feedback at Tshwane primary health care clinics by health practitioners.

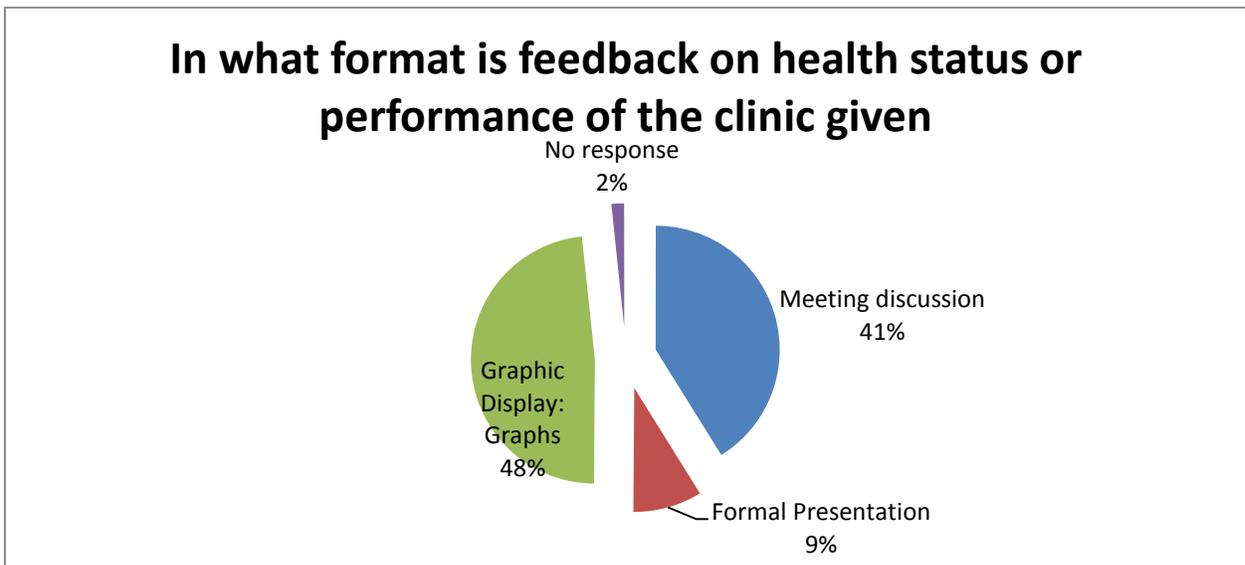


Figure 4.7 Feedback Format at Tshwane Primary Health care clinics

The Health Practitioners received feedback regularly in an average of 85.7% (212) while only 14.3% (35) indicating that they never received feedback. The feedback was presented

in a different format, namely Graphs display on notice board at 41% (101), formal feedback presentation at 9% (22), meeting discussion feedback at 48% (119) and only 2% (5) said they never responded to the question on receiving feedback. The data feedback frequency was also explored and the following findings were received; monthly feedback at 64% (158), quarterly at 26.1% (64), annually at 3.9(10) and did not answer question on frequency of receiving feedback at 6% (15).

### 4.3.6 Data Utilisation

The Table 4.8 illustrates the use of information by Health Practitioners at Primary health care setting.

Table 4.8: Use of information

Use of information	Yes	No	n	%
Do you use routinely collected data (statistics)	200	38	<b>238</b>	84.0
Do you have an action plan in place to address the disease burden in your clinic?	52	195	<b>247</b>	100

#### 4.3.6.1 Respondents' on "use of routine health information"

Table 4.8 above showed that respondents respond with regard to the use of health information at health facility level. The Health Practitioners responded positively at 84.0 (200) that they used routine health data and only 16.0% (38) responded negatively to the usage of health information at clinic setting.

The use of routine health information according to the respondents (n=247) were as follows from high score to the lowest score; use for quality improvement 29% (10), use for minimum data set monthly reporting 20% (7), measure personnel workload 14% (5), planning at clinic 14% (5), identifying disease outbreak 11% (4), for budgeting purpose 9% (3) and response unsure of use of routine health information at clinic level were at 3% (1).

Conclusive outcomes from the study show that the routine health information was used for service quality improvement at clinic level.

#### 4.3.7 Generating information knowledge from data collected

The Table 4.9 illustrates Generating information knowledge from data collected.

Table 4.9: Generating information knowledge from data collected

Generating information knowledge from data collected	Yes	No	n	%
<b>Do you know the common disease burden of your clinic catchment population?</b>	185	62	<b>247</b>	<b>81.9</b>

##### 4.3.7.1 Respondents' on "Diseases burden"

The health practitioners knew facility diseases burden with 81.9% (185) responded positively and only 18.1% (41) responded negatively and 62.7 (52) has action plan to monitor and evaluate disease burden at health facility level.

## 4.5 CONCLUSION

In conclusion Figure 4.7 illustrates the responds outcomes in exploring the understanding of routine collected data by health practitioners in Tshwane district primary health care clinics.

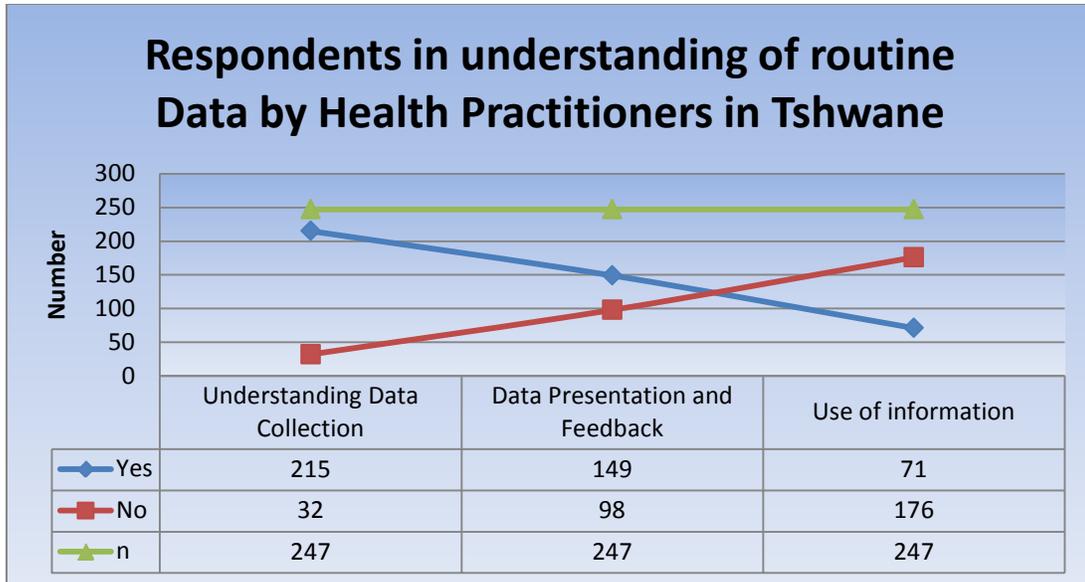


Figure 4.7 Respondents in understanding of routine health data by Health Practitioners in Tshwane

The Figure 4.7 showed that 87.1% (215) of health practitioners understand health routine collected data while only 12.9% (32) did not. The facility data presentation and feedback received responses at 60.5% (149) compared to the 14.3% (98) indicating that no presentation and feedback were received at clinic setting. The use of routine collected data at clinic setting was at 28.8% (71) while 71.2% (176) illustrating not using routine data at facility level.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

Chapter 5 focused on the study summary and interpretation of the research findings, contributions of the study, limitations of the study, concluding remarks and recommendation in terms of the study outcomes for implementation.

#### **5.2 RESEARCH DESIGN AND METHOD**

The study was quantitative descriptive cross-sectional design was used to explore the understanding of the routinely collected data by health practitioners in the primary health care clinics. Probability sampling was deployed to select the study respondents in primary health care clinics. The inclusive target population was limited to doctors, nurses with other categories nursing, doctors and allied health professionals excluded in the study.

The structured questionnaire was compiled to respond to the study purpose and objectives with reference to the literature review on the study title. The binomial questions were the ones to which respondents responded with yes or no, with narrative questions. The study was prospective and relied on primary data collected from the health practitioners. The accuracy of the questionnaire was tested prior to the study as explained in details in Chapter 3.

#### **5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS**

**Outcome 1:** Understanding of routine collected health information data by health practitioners at Tshwane district primary health care clinics:

- On average, **87.1%** of Health practitioners indicated that they had an understanding of routine data collection process at primary health care clinics, as indicated on Table 4.4. The achieved percentile of 87.1% was above the 50th percentile target line meaning that the research study objective has been achieved.

**Outcome 2:** Determine the use of routine health information data by health practitioners at Tshwane primary health care clinics:

- The Health Practitioners indicated that they had data champions at facility level as 52.4% (122) said *yes* while only 47.6% (111) said *no* to the question. The Health Practitioners knew facility diseases burden with 81.9% (185) responded positively and only 18.1% (41) responded negatively and 62.7 (52) have action plan to monitor and evaluate disease burden at health facility level. On average, **71.2%** of health practitioners use health information at primary health care setting.

**Outcome 3:** Determine health information feedback mechanism at primary health care clinic setting:

- About 90% (216) of Health Practitioners had seen a displayed health status performance on health facility notice board, while only 10% (24) claimed to have not seen health status performance report displayed. In average, 85.7 of Health Practitioners indicated that they received health status presentation and feedback at facility level.

## 5.4 LIMITATIONS OF THE STUDY

Lack of regular internal post services due to transport challenges in other health services was identified as a study limitation that influenced the completed questionnaires transitions. Some Health practitioners accepted the questionnaires and not completing and returning them indicated workload pressure as the reason. Lack of computer network connectivity to some health facilities, made it difficult for the researcher to send the reminder to return the sent questionnaires. Some eligible groups were on leave and not accessible as project planned. The researcher recommends that a similar study to be conducted in other provinces and nationally to strengthen and promote the use of routine information culture in health care environment.

## **5.5 RECOMMENDATIONS**

According to District Health Management Information System policy and the Health Information Management standard Operating procedure, all health practitioners were required to have an understanding of the routine collected health data at health facilities ( DHMIS 2011:19). In average, the understanding of routine data was at 87% according to the study, indicating the need for training of health practitioners at health facilities in order to achieve 100% understanding of routine collected health data. The routine health data collected were used to measure the country's performance on Millennium Development Goals and without good quality data and consistent data collection; MDG monitoring will be impossible (MDG Country Report 2013:11).

The health management is advised to strengthen health data collection through periodic health programme indicators feedback and annual health information workshop in the promotion of information culture among the health practitioners. The understanding of routine data collection to part of induction programme for all novice health employees at primary health care levels to promote quality and consistent routine data collection. Recommend that similar study be conducted in other district to explore the understanding of routine health data by health practitioners in health setting.

## **5.6 CONTRIBUTIONS OF THE STUDY**

The study highlighted the significance of national and international information culture by health practitioners in health care settings. The routine collected data were used for management decision making that include equitable budget allocation to health facilities as outlined in District Health Expenditure Review (DHER 2013:9). The routine data inform the community's need for new Infrastructure development and renovation of new clinics as part of National Health Insurance framework under Integrated Development Plan. The study highlighted the human resources allocation for such nurses and doctors based on health facility utilization rate and Health Practitioners workload.

The study contributed to the academic research portal in health information use in primary health care as part of reengineering of primary health care services through information technology. The study served as platform to highlight the best practice model in routine data collection in the City of Tshwane metropolitan municipality primary health care clinics.

The study aims and objectives were achieved as outlined in the project plan. The new knowledge was established and shared in the research district annual conference through poster presentation.

## **5.7 CONCLUSIONS**

After exploring the understanding of routine collected health information data by health practitioners at Tshwane district primary health care clinics, the researcher concluded that in average 83% of Health practitioners illustrated the understanding of the routinely collected data in the primary health care setting. The study was conducted only in Tshwane District and cannot be generalised to other districts in Gauteng Province. However it is strongly recommended that similar study be conducted in other districts for the outcomes to be generalised and contribute to strengthening of the use of quality routine health data in primary health care clinics.

## 6. REFERENCES

- Agil, A, Lippeveld, T & Dairiku, H. 2009. *PRISM Framework: a paradigm shift for designing, strengthening and developing routine health information systems. Health Policy and Planning* (24):217 - 228. Oxford University Press. From: <http://heapol.oxfordjournals.org/> (Accessed 11 March 2014)
- Aung, E & Whittaker, M. 2013. *Preparing Routine Health Information Systems for Immediate Health Response to Disasters. Health Policy and Planning* (28):495 - 507. Oxford University Press. From: <http://heapol.oxfordjournals.org/> (Accessed 05 March 2014)
- Botma, Y, Greeff, M, Mulaudzi, FM & Wright S C D. 2010. *Research in Health Sciences*. Cape Town. South Africa. Heinemann
- Brink, H, van der Walt, C & van Rensburg G. 2012. *Fundamentals of Research Methodology for Health care Professional*. 3rd edition. Cape Town. South Africa. Juta & Co Ltd
- Brown, RB & Saunders, M.2008. *Dealing with Statistics. What you need to know*. Mc Graw Hill Open University Press. United Kingdom
- Burns, N & Grove, SK. 2003. *Understanding Nursing Research*. 3rd edition. USA. Saunders
- Duran-Arenas, L, Reveri, CC, Canton, SF, Rodriguez, RS. Franco, F, Luna, RW & Catino, J. 1998. *Health Policy and Planning*. Oxford University Press. From: <http://heapol.oxfordjournals.org/> (Accessed 05 March 2014)
- Joubert, G & Ehrlich, R. 2007. *Epidemiology A Research Manual for South Africa*. Southern Africa: Oxford University Press.
- Lie, K. 2014. *Writing the Literature Review*. From:<http://www.ais.up.ac.za/med/tnm800> (accessed 27/02/2014)

Lippeveld, T, Sauerborn, R & Bodart, C (eds). 2000. *Design and Implementation of Health Information Systems*, World Health Organization .Vol 17 (2) 185 – 187  
<http://heapol.oxfordjournals.org/> (accessed: 12/03/2014)

Lippeveld, T. 2001. *Routine Health Information Systems: The Glue of a Unified Health System*. <http://heapol.oxfordjournals.org/> (accessed: 12/03/2014)

Lombaard, C, van der Merwe, L, Kele, T & Mouton, S. 2011. *Elementary Statistics for Business and Economics*. Heinemann. Cape Town

Mcintosh-Scott, A, Mason, T, Mason-Whitehead, E & Coyle D. 2014. *Key Concepts in Nursing and Health care Research*. SAGE Publications. London

Microsoft statistical software MS Excel. 2012. <http://www.XLstat.com/en/learning> (accessed 25/08/2014)

Parahoo, K. 2006. 2nd edition. *Nursing Research. Principles, Process and Issues*. New York. Palgrave Mcmillan

Polit, DF & Beck, CT. 2006. *Essentials of Nursing Research: Appraisal Evidence for Nursing Practice* . 7<sup>th</sup> Edition. Lippincott Williams & Wilkins

Polit, DF & Beck, CT. 2008. *Nursing Research Generating and assessing Evidence for Nursing practice*. 8<sup>th</sup> Edition. Lippincott Williams & Wilkins

Polit, DF & Beck, CT. 2011. *Nursing Research Generating and assessing Evidence for Nursing practice*. 9<sup>th</sup> Edition. Lippincott Williams & Wilkins

Saks, M & Allsop, J (edit).2013. *Researching Health. Qualitative, Quantitative & Mixed Methods*. SAGE Publications. London

Simba, DO & Mwangi, MA. 2005. *Quality of a routine data collection system for health:Tanzania*. Peer Review Article vol.7 (2) 1 - 7.

South Africa. 2011. *District Health Management Information System (DHMIS)*. Pretoria. Government Printer

South Africa. 2012. *District Health Plan (DHP)*. Tshwane District. Gauteng

South Africa. 2003. *Municipal Financial Management Act, no 56, 2003*. Pretoria: Government Printer.

South Africa. 2003. *National Department of Health Notifiable Medical Conditions Policy*. Pretoria. Government Printer

South Africa. 2003. *National Health Act, no 61, 2003, (as amended)*. Pretoria: Government Printer

South Africa. 2009. *Primary Health Care (PHC) Supervisory Manual*. Pretoria: Government Printer

South Africa. 2012. *DHMIS Standard Operating Procedure (SOP)*. Pretoria. Government Printer

South Africa. 2013. National Indicators Data Set (NIDS). National Department of Health. Pretoria: Government Printer

South Africa. 2013. *District Health Expenditure Review (DHER)*. Tshwane District. Gauteng

South Africa. 2013. *Monitoring and Evaluation Plan (M&E)*. Tshwane District. Gauteng Province

South Africa. 2011. District Health Information System Population. Tshwane District. Gauteng

South Africa. 2009. *Tshwane District In-depth Review*. Tshwane District. Pretoria

Speziale SJH, & Carpenter, D, R. 2003. *Qualitative Research in Nursing. Advancing the Humanistic Imperative*. 3rd edition. Lippincott Williams & Wilkins. Philadelphia

Statistics South Africa. 2013. *Millennium Development Goals (MDG), Country Report*. Library CIP Data. Pretoria RSA

Steward, JC, Schroeder, DG, Marsh. DR, Alhasane, S, Kone, D. 2001. *Health Policy and Planning*. Oxford University Press. From: <http://heapol.oxfordjournals.org/> (Accessed 05 March 2014)

University of South Africa. Department of Health Studies. 2014. *MNUALLL: Tutorial Letter 301/0/2014*. Pretoria

Williams, L & Stoop, N (eds). 2003. *Using Health Information for Local Action. Intermediate*. HISP.RSA

## ANNEXURES

### ANNEXURE A: Sampling Units Listing

No	CLINIC NAME	Drs,Clinical Nurses & PN		TOTAL	Random Selected
1	STANZA BOPAPE	3	51	54	√
2	LAUDIUM CHC	1	49	50	√
3	TEMBA	2	23		
4	SOSH 3	2	65		
5	KGABO	1	41		√
6	PHEDISONG 4	1	29		√
7	EERSTERUST	2	34		
8	DARK CITY	1	36		
9	BOEKENHOUT	0	29		
10	BOIKHUTSONG	1	16		
11	GARANKUWA	1	12	13	√
12	PRETORIA NORTH	1	14	15	
13	KT MOTUBATSE	4	21	25	√
14	MARIA RANTHO	1	18		
15	SISTERS OF MERCY	0	10	10	√
16	PHEDISONG 1	0	13	13	√
17	PHEDISONG 6	1	9		
18	SEDILEGA	0	10	10	√
19	SOSH 2	1	17	18	√
20	BLOCK JJ	0	10		√
21	BLOCK X	0	15	15	√
22	BLOCK TT	0	18		
23	TLAMELONG	1	8	9	√
24	WINTERVELD	0	12	12	√

25	KARENPAK		9	9	√
26	ROSSLYN		5	5	√
27	ADELAIDE TAMBO	1	9	10	√
28	DILOPYE	0	8	8	√
29	JUBILEE GATEWAY	1	15		
30	KEKANA GARDENS	0	6		
31	KEKANASTAD	1	10	11	√
32	MANDISA SHICEKA	0	13		
33	MORETELE EERSTE	1	8		
34	RAMOTSE		5		
35	REFENTSE	1	22	20	√
36	SUURMAN	0	15		
37	DOORNPOORT	0	0		
38	SKINNER	1	30		
39	BOPHELONG	1	16	17	√
40	ATTERIDGEVILLE	2	8	10	√
41	DANVILLE	0	7	7	
42	DASPOORT	0	0	0	
43	FF RIBEIRO	0	7	7	√
44	FOLANG	0	5	5	√
45	GAZANKULU	0	0	0	√
46	HERCULES	0	6	6	√
47	LOTUS GARDENS	0	8	8	√
48	PHOMOLONG	2	7	9	√
49	SAULSVILLE	0	3	3	√
50	ELDORAINE	0	0	0	
51	LYTTELTON	1	7	0	√
52	OLIEVENHOUTBOSCH	0	4	0	√
53	PV RYNEVELD	0	0	0	√
54	ROOIHUISKRAAL	0	2		

55	DEWAGENSDRIFT	0	1		
56	ONVERWACHT	0			
57	RAYTON	0	3		
58	REFILWE	3	6		
59	KANANA	0	1		
60	EASTLYNNE	2	6	8	√
61	STANZA BOP 2	0	5	5	√
62	UBUNTU				
63	HOLANI	1	12		
64	MAMELODI WEST	1	2	3	√
65	NELLMAPIUS	0	3	3	√
66	PHAHAMENG	0	2	2	√
	TOTAL	43	836	400	

## **ANNEXURE B : Research Information Sheet**

Dear Sir/Madam

**TITLE: Exploring the understanding of the routinely collected data by the health practitioners in the primary health care setting.**

My name is Zachariah Molefi, research student for studies in Masters of Public Health (MPH) at the University of South Africa (UNISA). I would like to invite you to voluntarily participate in my study research on the above mentioned research topic. The written permission to conduct the study has been granted from the Tshwane Health District Research Ethics Committee and UNISA Research Ethics Committee.

All respondents are treated as anonymous and all information collected through questionnaires and interviews will be treated strictly confidential. Your participation in the study will be highly appreciated and all respondent kept confidentially anonymous. You have the right to withdraw from the study at any time with no obligatory implications. If you consent to the study please complete the questionnaire provided (Annexure 6). Answer all questions as accurate, truly and honestly as possible. You have the right not to answer any questions posed to you that you feel are sensitive or violate any of your rights.

All completed questionnaires to handed over to me on site or be posted immediately after completion on the **INTERNAL MAIL POST BOX with the self-addressed envelope provided for ATTENTION: Zachariah Molefi, Sammy Mark Building, Room H1012.**

For further information related to the study, please contact me on telephone: **012 358 8831** or mobile **076 737 6238**.

Thank you for participating in my studies in advance.

Zachariah Molefi

**ANNEXURE C: Research Consent Form**

**CONSENT FORM FOR RESEARCH STUDY**

**TITTLE: Exploring the understanding of the routinely collected data by the health practitioners in the primary health care setting.**

I consent to participate voluntarily in the research study and understand that I am free to withdraw from the study at any time, without giving any reason for withdrawal.

I confirm that I have read and understand the Research Information Sheet for the study and had an opportunity to ask questions for clarity and satisfied to can participate willingly in these research as anonymous.

I give an informed consent to take participate in the research study.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

ZM Molefi  
Researcher

\_\_\_\_\_  
Signature & Date

## **ANNEXURE D: Site Permission Request Letter**

P.O. Box 27894

Sunnyside

0132

April 2014

The Chairperson  
City of Tshwane District Research Committee  
Pretoria  
0001

### **RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY**

**RESEARCH TITTLE: Exploring the understanding of the routinely collected data by the health practitioners in the PHC setting.**

I hereby request permission to conduct research in the Tshwane District Primary health care clinics. The abovementioned research is to be conducted as a prerequisite to complete my studies, Masters of Public Health degree, Department of Health Studies at the University of South Africa (UNISA).

The purpose of the study is to exploring the understanding of the routinely collected data by the health practitioners in the PHC setting. The study will strengthen the importance of quality routine data collection to monitor and evaluate health programmes for better service delivery in the City of Tshwane. The outcomes of the study will serve as baseline for annual general data audit preparation for the Auditor General as required by the District Management Health Information System Policy (2011:15).All information that will be gathered will be treated with strict confidence and observing norms and standard of ethical principles. Attached is the UNISA Ethical Clearance Certificate.

Any enquiries with regard to the research may be made to:

Zachariah Molefi (Researcher, Student number 48342327)

Contact: 012 358 8831 / 076 737 6238

E-mail: zachariahm2@tshwane.gov.za

Dr T Makua (supervisor)

## ANNEXURE E: UNISA Ethical Clearance Certificate



**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

**HS HDC/326/2014**

Date: 26 February 2014 Student No: 4834 232 7  
Project Title: Investigating the understanding of the routinely collected data by the health practitioners in the PHC setting.  
Researcher: Zachariah Modise Molefi  
Degree: Masters In Public Health Code: DLMPH95  
Supervisor: Mr TP Makua  
Qualification: M Tech  
Joint Supervisor: -

**DECISION OF COMMITTEE**

Approved

Conditionally Approved

**Prof L Roets  
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki  
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

**PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES**

## ANNEXURE F: District (Site) Ethical Clearance Certificate



*Kupakshwani! Gauteng Working Better*

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### TSHWANE RESEARCH COMMITTEE

### CLEARANCE CERTIFICATE

Meeting: N/A

PROJECT NUMBER: 17/2014

Title: Investigating the understanding of the routinely collected data by the health practitioners in the PHC setting.

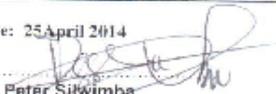
Researcher: Zachariah Modise Molefi  
Supervisor: Mr T Makua  
Department: Faculty of Health Sciences

#### DECISION OF THE COMMITTEE

Approved

*NB: THIS OFFICE REQUESTED A FULL REPORT ON THE OUTCOME OF THE RESEARCH DONE*

Date: 25 April 2014

  
Mr. Peter Silwimba  
Chairperson Tshwane Research Committee  
Tshwane District

  
Mr. M. Pitsi  
Chief Director  
Tshwane District

Date: 2014-05-05

NOTE: Resubmission of the protocol by researcher(s) is required if there is departure from the protocol procedures as approved by the committee.