Utilisation of the Road to Health Chart to improve the health of children under five years of age

by

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SUPERVISOR: PROFESSOR HUMAN SP

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DEDICATION

I dedicate this study to my beloved parents, Mr Mafanzhoni Piet Mudau and Mrs Tshinakaho Rosina Mudau for the support and inspiration they gave me throughout my life.

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DECLARATION

I declare that **UTILISATION OF THE ROAD TO HEALTH CHART TO IMPROVE THE HEALTH OF CHILDREN UNDER FIVE YEARS OF AGE** is my own work and that 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 before for any other degree at any institution.

MUDAU TSHIMANGADZO SELINA **NOVEMBER 2010**

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UTILISATION OF THE ROAD TO HEALTH CHART TO IMPROVE THE HEALTH OF CHILDREN UNDER FIVE YEARS OF AGE.

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ABSTRACT

The objectives of this study were to determine the nature of data recorded on the Road to Health Card (RtHC) and its utilisation by nurses at primary health care setting, comparing it with norms and standards on the RtHC guideline, and to provide guidelines for optimal utilisation of the RtHC by health workers. A quantitative non-experimental descriptive method was used. Two methods were used to collect data; document analysis of the RtHC and structure observation of nurses. A structured exit interview of caregivers was conducted to validate observations from nurses. A sample size of 18 nurses from all categories from six clinics was observed, and 36 RtHC of children under five years of age were analysed. Results indicated that data recorded on the RtHC was mostly inaccurate, incomplete and not interpreted. The study identified a need to train health workers on optimal utilisation of the RtHC facilitating health improvement of children under five years of age.

Key concepts: Road to health Chart, growth monitoring, child, infant, young child, nurse, caregiver, integrated management of childhood illness, utilisation, Integrated nutrition programme

TABLE OF CONTENTS

LIST OF ABBREVATIONS

ANC-	AFRICAN NATIONAL CONGRESS
ARI-	ACUTE RESPIRATORY INFECTION
DHS-	DISTRICT HEALTH SYSTEM
EPI-	EXPANDED PROGRAMME ON IMMUNISATIONS
GOBI-FFF-	GROWTH MONITORING, ORAL REHYDRATION, BREASTFEEDING, IMMUNISATION, FEMALE EDUCATION, FAMILY SPACING, FOOD SUPPLEMENTS
HIV/AIDS-	HUMAN IMMUNO DEFICIENCY VIRUS, ACQUIRED IMMUNO DEFICIENY SYNDROME
INP-	INTEGRATED NUTRITION PROGRAMME
IMCI-	INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS
MDG-	MILLENUIM DEVELOPMEMENT GOALS
ORS-	ORAL REHYDRATION SOLUTION
NHS-	NATIONAL HEALTH SYSTEM
PHS-	PROVINCIAL HEALTH SYSTEM
PHC-	PRIMARY HEALTH CARE
PMTCT-	PREVENTION OF MOTHER TO CHILD TRANSMISSION
RtHC-	ROAD TO HEALTH CHART
SANC-	SOUTH AFRCAN NURSING COUNCIL
TB-	TUBERCULOSIS
UNCEF-	UNITED CHILDRENÕS EDUCATION FUND
WHO-	WORLD HEALTH OGANISATION

CHAPTER 1
ORIENTATION OF THE STUDY

1.1 INTRODUCTION

According to the World Health Organization (WHO), the impact of ñhealth for allò must be measured to assess improvements in health status of the population (WHO 1990: 16). Health care of children is a high priority because of the importance of the health of children as an indicator for measuring the health of the general population. The WHO and United Nation Childrenôs Fund (UNICEF) have adopted strategies for improvement of childôs health, of which South Africa (SA) as a member State should adhere to (Kibel & Wagsstaff 2003: 151).

One of the important strategies to improve the survival and development of children set by UNICEF include the GOBI-FFF strategy, which comprises growth monitoring, oral rehydration therapy, and promotion of breastfeeding, food supply, family planning and female education (Kibel & Wagsstaff 2003: 151). GOBIFFF is considered to be a cost effective strategy that could strengthen child health and reduce infant mortality and morbidity.

The effects of prevention and intervention strategies to address infant mortality should be measurable, monitored and recorded on a regular basis to ensure progress or improvement of the growth and health related issues of the child (South Africa 2001: 250) and (Kibel & Wagsstaff 2003: 151).

The Road to Health Chart (RtHC) is designed as an ñimprovement tool for recording of activities done for a child on every visit to a clinic or doctorò (South Africa [Sa]a). The topic under study aims to explore and describe the utilisation of the RtHC by nurses as prescribed by the standard guidelines of South Africa ([Sa]a) in the context of selected clinics within the Vhembe district of Limpopo province in South Africa with particular reference to the Siloam Hospital area. This chapter provides an overview and context of this study.

1.2 BACKGROUND OF THE PROBLEM

The problem was identified while working in the clinics as a facilitator of a programme on Integrated Management of Childhood Illnesses (IMCI). It was identified that information recorded in the RtHC was often not complete and that most parents or nurses were not informed of what was contained in the RtHC. This practice jeopardises the purpose and standards of the RtHC leading to delayed detection of growth development problems of children. Ireland, Power, Wood and Hoogenhout (2004: x) argued that the broad spectrum of childhood diseases in Southern Africa causing mortality and morbidity can be prevented if detected and treated earlier. Kibel & Wagsstaff (2003: 160) state that the RtHC is a visible record of a childôs development and that parents should be advised and taught how to interpret the weight on the graph as a home based record of child health and development and to utilise the information to the benefit of the child. If parents and/or the nurses are not empowered to prevent malnutrition, to identify and manage developmental issues and to promote effective immunisation against childhood diseases, the whole purpose of the RtHC is defeated.

1.3 STATEMENT OF THE PROBLEM

The RtHC is a recommended tool or method of growth monitoring as advocated by Dr David Morley (Kibel & Wagsstaff 2003: 160). It is recommended as an aid to identify and discuss any health deviation or progress on the development of a child. While it is generally assumed that nurses use the RtHC in their facilities as an instrument for child health and growth monitoring processes, evidence exists from other related studies that the RtHC standards and norms are being compromised and the RtHC is not used effectively (Schoeman, Hendricks, Hattingh, Benade, Laubscher and Dhansay 2006: 9,1007 and Tarwa 2007: 15a). In a study conducted by Tarwa (2007: 15a) at three different centers, Soshanguve III Clinic, Jubilee Hospital and Ga-Rankuwa Hospital in South Africa, to assess the use of the RtHC, it was found that health workers seldom asked for the RtHC from parents and when it was used, the utilisation of the information was not done effectively. In a study conducted at Western Cape Province in South Africa by Schoeman, Hendricks, Hattingh, Benade, Laubscher and Dhansay (2006: 9,007) to determine the practice of nurses in targeting nutritionally-at-risk children, it was found that nursesôpoor identification of these children was due to failure to plot weight on weight-for-age chart and poor utilisation of the RtHC. The Department of Health has identified record keeping as an area of concern and which can lead to inadequate diagnosis, inefficient use of resources,

poor information, poor referral systems and poor service delivery (South Africa 2007c; 3). The RtHC is recommended as the best tool to monitor child growth, evaluate nutritional status of the community and can be used to render comprehensive child care (Cole 2002: 385 and Kibel & Wagsstaff 2003:154 and South Africa[sa] a). There is no evidence of the study done within the Vhembe District on the utilisation of the RtHC. Findings from studies such as those mentioned above have prompted the researcher to assess the utilisation of the RtHC within the clinics under Siloam Hospital at Vhembe District. This study originates from these research questions:

1. What are the demographic characteristics of nurses within the study area? The following characteristics were assessed: academic qualifications, experience in clinic and work-related short courses attended.
2. What is the nature of data recorded on the RtHC by nurses within the study area?
3. Are nurses within the study area adhering to norms and standards prescribed by the guideline of the RtHC of the Department of Health in South Africa?

The study concerns itself with the assessment of the utilisation of the RtHC by nurses at the clinics within the Siloam Hospital area according to the South African child health guidelines (South Africa [Sa]a).

In South Africa, however, despite the fact that the RtHC has been used to monitor growth among children, the infant mortality rate remains high. UNICEF (2009: 82) has reported that under five mortality in South Africa in 2006 was at 67%. One of the assumed reasons for this alarming infant mortality rates is the inability of nurses to use the RtHC effectively.

1.4 SIGNIFICANCE OF THE STUDY

The significance of this study is clearly related to the high infant mortality rate in South Africa and the findings will have value for health authorities, the nurses who use the RtHC and the community. Health authorities would be able to identify in-service training needs for nurses to emphasize the importance of accurate data for planning purposes. The effective use of the RtHC will assist both the nurses and the respective communities under observation to prevent childhood diseases, identify developmental and nutritional deficiencies among children under five years of age early and to improve the health knowledge of mothers and other people caring for the children. Accurate data will lead to

evidence-based prioritisation of health issues and assist in determining trends and health needs.

1.5 PURPOSE OF THE STUDY

The purpose of the study is to improve the utilisation of RtHC as a tool to improve the health of children less than five years of age within the context of primary health care clinics in the Siloam Hospital study area.

1.6 RESEARCH OBJECTIVES

The objectives of this study were:

1) To determine the nature of data currently recorded on the RtHC and compare this with the set norms and standards.
2) To determine the utilisation of the RtHC by nurses at primary health care level and compare the utilisation with expected norms and standards.
3) To provide guidelines for optimum utilisation of the RtHC at primary health care level.

1.7 DEFINITION OF KEY CONCEPTS

In research, concepts and contrasts are meaningful words or phrases that can be analysed on their right to give a greater understanding. Variables and terms contained in research questions must be defined to provide a clear meaning to the researcher and other researchers.

Babbie (2001: 124) states that Social Science Research focuses on the meanings given to words by people in the study. The same author defines concepts in three ways; real, nominal and operational definitions. *A nominal definition* is one that is applied to a particular term without claiming that the definition represents a real entity. This is given to a term to overcome disagreements or confusion over what a term really means, for example, in this study a child is defined as a male or female of less than 5 (five) years of age. This is not necessarily in line with the definition of a child as stated in the South African Child Act 2005 in which a child is defined as a person less than 18 years of age. An *operational definition* specifies a concept with the aim of being able to measure and observes issues related to the specific concept. An operational definition achieves maximum clarity about

what a concept means in a study, for example, defining and limiting a health worker as any nurse working at the clinic excluding doctors and other personnel in the health field. Babbie (2001: 124) cites Carl Hempelôs (1952: 6) caution on ñrealò definition stating that, ñé a real definition according to traditional logic is not a stipulation determining the meaning of the same expression but a statement of the ñessential attributesò of some entityò. The nominal definition of caregiver in this study indicates attributes like anyone staying with a child during the day or night which could also mean giving care to a sick person. For the purpose of achieving maximum clarity of concepts in the study nominal and operational definitions will be used as cited by Babbie (2001: 124-12) and De Vos (2003: 35).

Road to Health Chart- (RtHC) is a chart made of Tyvek paper that is tear and waterproof; predominantly green on a white background, of A3 size used for recording of peri-natal events, immunisation, development and illness and it is valuable in providing continuous comprehensive child care. The RtHC is an important tool used to record activities done for children under five years to identify and address risk factors in children with the intention of decreasing infant mortality and morbidity (Kibel & Wagsstaff 2003: 161). A copy of the RtHC is attached as Annexure B.

Growth monitoring - involves activities, such as measuring of height, weight, physical development, giving nutritional supplements and occurrences of diseases in a child. In this study growth monitoring means assessment and recording of peri-natal events; height, weight, head circumference, physical development and illness, and advices given to parents or caregivers.

Child ï according to the South African Child Act 38 of 2005, a child means a male or female below 18 years. For the purpose of this study a child shall mean a male or female from birth to five years of age because the RtHC is used for children under five years of age.

Young child- is a child from 12 months up to five years of age (South Africa 200d: 33).

Infant- is a child less than one year of age (South Africa 2007d: 31).

Caregiver - anyone caring for a child; could be a mother, father, siblings or any relative or guardian staying or looking after a child during the day or night. Caregivers are included as according to South Africa (2007a: 17; 24) parents should be educated on appropriate child care practices and health workers should provide accurate and complete information on

child feeding practices. Therefore, implementation of this recommendation needs to be assessed in this study.

Nurse- ñNurseò in this study it includes all categories of nurses who are enrolled or registered with the South African Nursing Council. These include professional nurses as they are directly involved in the assessment and treatment of children under five; enrolled nurses and nursing assistants . Enrolled nurses and Nursing Assistants are included in the study because they are involved in the process by weighing children, recording the findings and giving health education to the community.

Integrated Nutritional Programme - is a programme that focuses on nutritional promotional activities and sets norms and standards to measure their achievements (South Africa 2001: 67). It differs from other programmes like the primary school nutritional programmes because the focus of this programme is on improvement of nutritional status through health facility- based, communityï based, and nutritional promotional activities for children below five years with the aim of reducing mortality and morbidity. The study will focus on facility based activities done for children under five years as prescribed by criteria of this State funded nutritional programme. The integration and assessment of the implementation of the Integrated Nutritional Programme in terms of the RtHC is therefore important.

Expanded Programme on Immunisation (EPI) - The RtHC further includes the Expanded Programme on Immunisation (EPI) because of the importance of immunization on child and infant mortality and morbidity. According to the standards in the programme the district staff is responsible for the implementation of the programme at all levels of care (South Africa 2001: 67).

Integrated Management of Childhood Illness (IMCI) -is a term given to the strategy developed by the WHO and adopted by many countries to prevent common and/or important childhood diseases. It provides for intensive health worker training and follow- up supervision and support in the use of standardized protocols for safe triage, assessment and integrated management of childhood problems. It is a sequel and further development of previous WHO strategies for childhood survival, integrating vertical programmes such as GOBIFFF, Expanded Programme on Immunisations (EPI), and Acute Respiratory Infections (ARI). The strategy is included in the study because according to South Africa (2001: 19) all children should be treated according to IMCI guidelines and the RtHC is used

for recording by health workers (Coovadia & Wittenberg 2006: 19-20; WHO & UNICEF 1999: 14).

Utilisation - according to (Cassell Concise 1992: 10) means usefulness or designed for general use. In this study it shall mean recording of data by health workers in the chart and giving appropriate health education as prescribed in the standard guidelines of the RtHC (South Africa [Sa]a).

1.8 RESEARCH DESIGN

A quantitative non-experimental method was used for this study. The method was used to contrast a picture of a phenomenon, explore events, people or situations as they naturally occurred (Woods & Haber 2002: 222). Variables such as nurses and the Road to Health to Chart were not controlled since the utilisation of these charts and the category or experience of the nurse who used this chart fell outside the intervention or control of this researcher. A descriptive survey was used because detailed data was collected to justify and assess current health practices within a specific context. Guidelines to improve the health practice can be concluded from data obtained in descriptive survey because the design helps to justify and assess a current situation. Descriptive studies are used to search for accurate information about groups; situations or particular subjects. In this study information on the nature and extent of the use of the chart by nurses at clinics were obtained. An in-depth discussion on the research design is given in Chapter 3 (Woods & Haber 2002: 222-224).

1.9 STUDY POPULATION

A study population is a well-defined set of elements that have specific properties such as a set of health professionals and a set of documents namely the Road to Health Chart (Wood & Haber 2002: 240). The study population is all categories of nurses working in primary health care clinics in the Siloam Hospital area and caregivers who brought children to the particular clinic. Both nurses and caregivers have the potential to utilise Road to Health Charts as a tool to improve the childôs health.

1.10 SAMPLING AND SAMPLING TECHNIQUES

Sampling is the process of selecting subjects from a designated population to represent the whole population (Wood & Haber 2002: 242). Probability sampling method was used for

this study. In this method every member or element has a chance of being selected to participate in the study. A simple random sampling method was used. In this study a sample was drawn from the total study population. An off-duty rooster was used as a sampling frame to randomly select nurses who voluntarily participated in this study. The Caregivers were selected through convenience sampling because they were approached to participate while visiting the clinic. This study did not require reference to the entire Siloam Hospital area to achieve its objectives and therefore a few clinics in the Phadzima and Makhado local areas of the Siloam Hospital area were selected for observation. The particular clinics were conveniently accessible to the researcher and the authorities in the area were willing to undertake the study. To avoid the researcherôs possible biases on the selection of the clinics, a sampling frame for the accessible clinics was drawn and particulars of their details were briefly explained in Chapter 3. There were 12 clinics in the study area of which six were the focus of this study.

1.11 LIMITATION OF THE STUDY

There were limitations in obtaining the desired sample of the population as nurses were shift workers who were not available at will. However, the majority of nurses in the study area were at work on Wednesdays and therefore Wednesdays were targeted for data collection.

1.12 THEORETICAL FRAMEWORK

A theoretical framework is a set of ideas that directs, explains, guides and predicts the nature of phenomenon under study (Brink 2006: 24; De Vos et al 2009: 40). It helps to organise the study, provides a context to examine the problem and gather and analyse data. The theoretical framework of this study is the standards set on the guideline of how to use the Road to Health Chart. Details are given in Chapter 2.

1.13 METHOD OF DATA COLLECTION

Three methods were used to collect relevant data. Document analysis of the Road to Health Chart, structured observation by the researcher to observe the utilisation of the data on the RtHC by the nurses and a structured exit interview with caregivers to validate the observations made by the researcher formed the main instruments for data collection. A structured check list (Annexure F), based on the acceptable norms for data to be recorded

on the RtHC was used to determine whether the relevant information had been recorded and how the particular information was utilised by nurses.

The method is suitable for this study because it gives the researcher an opportunity to access or obtain directly captured record of behavior and events. A checklist was used to minimise possible biases and subjectivity of the researcher (Berg 2004: 79; Burns & Grove 2005: 149; Wood & Haber 2002: 298). Details were given in Chapter 3.

1.14 DATA ANALYSIS

Descriptive statistics are used to describe and analyse data. Data are presented by using graphs and tables to simplify and enhance its meaning. An experienced statistician assisted with the analyses and interpretation of data as recommended by Polit and Beck (2004: 452-465).

1.15 VALIDITY AND RELIABILITY OF INSTRUMENT

Validity is the ability of the instrument to measure whatôs suppose to be measured, like an hemoglobin meter that is only valid to measure red blood cell levels and not temperature. Reliability is the accuracy and consistency of measures, which is obtained when the same instrument is used again under similar conditions. The language used is simple and clear to all. Full details are given in Chapter 3 (Wood & Haber 2002: 314).

1.16 ETHICAL CONSIDERATIONS

Permission to conduct this study in the Siloam Hospital area was requested from the Limpopo Department of Health and Social Development Research Committee (Annexure C & D) and clinic managers and it was granted. Individual Informed consent (Annexure E) was obtained from the particular respondents. This means that the respondents have adequate information regarding the research and have the power of free choice, enabling the respondents to voluntarily consent to or decline participation in this study. The following pieces of information were disclosed to the subjects; status, study purpose, type of data to be collected, nature of commitment expected from the respondents, subject selection procedure, potential risk and benefit, confidentiality pledge, voluntary consent and their right to withdraw at any stage of data collection. The respondentsô right of self determination was respected by allowing them to withdraw from this study if one wanted to, without the risk of being judged. This applied to both nurses and caregivers involved in this

study. Caregivers were assured that even if they declined or withdrew from this study their children were still covered to receive total care needed in the particular clinics and were not to be victimised or judged.

Principle of justice- this means that participants were selected fairly with due consideration of the problem under study. Subjects in this study were selected randomly based on the age of the child, that is, less than five years, not considering sex, social status, health status and any other preference by the researcher.

Anonymity- subject identity cannot be linked even by the researcher with his or her individual response since codes were used to identify the respondents for the purpose of data recording and analysis.

Deception of subjects was avoided by giving appropriate information about the nature, results and conclusions of the study. Misconceptions on the RtHC were clarified. Results were given as they truly appeared and false statements were avoided.

Plagiarism was avoided by acknowledging sources where information was obtained from other sources.

Confidentiality and privacy ï confidentiality entails that no information provided by the respondents should be made available to any other person, where as privacy is when a person behaves or thinks as he pleases without interpretation and without the possibility that private conduct or thoughts could later be misused to embarrass or humiliate the respondents. Subjects were not asked to write their names on instruments.

Scientific honesty- this means the researcher should be able to respect the scientific community by protecting its integrity of scientific knowledge. Report will be given on what is actually done without forging or fabrication. Data obtained from the subjects will be taken as is, not to please or support the likes of the researcher (Brink 2003: 40-47; McBurney & White 2004: 57; Wood & Haber 2002: 271 ï 277).

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the literature used in this study. This literature review investigates the views of other related studies in different regions including South Africa for the purpose of assisting the researcher to identify knowledge gaps, to stimulate further reading, to identify and define related concepts to the topic and to determine trends and developments in the field of study. This chapter forms the theoretical framework of this study.

This chapter discusses child health care from general to specifics, focussing on the South African health care system with particular reference to the specific aspects of the RtHC; its origin, content and relevance to health care of children under five years of age.

Sources consulted were obtained from the libraries, departmental policies of the Department of Health; reports and guidelines, journals and internet data banks (Bak 2004: 16-19; Unisa MNUALLL\301\2008: 50; Schoeman 2004: 15).

2.2 HEALTH CARE DELIVERY SYSTEM IN SOUTH AFRICA

Before 1994 the South African health care system was fragmented and had ineffective management characterised by poor coordination and distribution of resources (ANC 1994b: 45). It was transformed in 1994 into a single National Health Care System which brought together all the role players in care delivery both in public and private sector. It was divided into national, provincial, district and community levels of policy making and service delivery with one Minister of Health at national level (Muller 2002: 83).

The integrated health system provided for free health care for the aged, pregnant women and children under five years of age. The African National Congress (ANC) developed the health care plan with a health policy based on Primary Health Care (PHC) philosophy as developed by the World Health Organisation (Muller 2002: 83). The national health plan in South Africa was therefore based on equity in terms of socio-development as well as promotion and maintenance of health. The aim was to ensure equity of peopleôs rights through the PHC with emphasis on provision of comprehensive health care, accessibility and affordability of health service to all the citizens of South Africa (Muller 2002: 83).

The framework of the health plan is based on legally formalised functions for each level of health care delivery and specified and decentralised allocation of authority of responsibilities.

2.2.1 National Level

Health related policy made at national level ensures that South Africa has a single, equitable and integrated health system. The Ministry of Health at national level is responsible for policy making, strategic planning and coordinating the general health provision strategies of the country (ANC 1994a: 68). This ensures that power is shared within all the levels of government to ensure coherence, equity and efficiency in health care delivery. The National Health Ministry is responsible for national health legislation and setting of norms and standards governing health provision in South Africa. The Ministry is also responsible for international originations such as the WHO and the UNICEF and Ministers of Health of other countries (South Africa 2001b: 4). It further monitors the delivery of health within the provinces and districts and takes over some functions in the provinces in cases of failure or any incapacity or incapability to render such services. It determines national priorities, plans and ensures the implementations thereof. It supports preventive interventions within the provinces and districts. The national Ministry of Health also provides support to health authorities with delegated responsibilities and participates in human resource planning and allocation of resources. They are further responsible for special services like national research institutions (ANC 1994a: 70).

2.2.2 Provincial Level

The Department of Health at provincial level supports and monitors the activities of the districts as required by the national health legislation and policies. It identifies the developmental needs of the provinces and mobilises and allocates resources for health service delivery at district level (ANC 1994a: 66). The Health Departments at provincial level are responsible for specialised hospitals and services that cannot cost-effectively be offered at the level of district and region. Health service delivery at district level is through a referral system in which patients are referred to higher level and more specialised services if necessary.

2.2.3 The District Health System (DHS)

The District Health System was implemented from 1995 with the aim of overcoming fragmentation, equity, comprehensive health delivery, effectiveness and quality, access to services, local accountability, community participation, development and inter-sectoral approach and sustainability (Muller 2002: 86, South Africa 2001b: 7). The DHS represents the national, provincial and local authorities by ensuring policy and strategic implementation. It ensures that health care is delivered close to the people in societies within an urban or rural context and ensures inter-sectoral collaboration at homes, schools, work place and communities. District health systems are also responsible for planning services according to the local needs and ensure effective health care administration with the assistance of the provincial departments. The respective district may enter into collaborative partnerships with private agencies such as non-governmental organisations in the provision of health care for particular services like HIV/AIDS programmes or services offered by the private sector (South Africa 2001a: 5).

For the DHS to reach its goals it is necessary for inter-departmental and inter-sectoral collaboration to address other health risks that could originate from other sectors such as the Department of Water Affairs to provide pure water supply to the community. The DHS enhances building a culture of community participation and capacity building through the PHC approach and to involve community members in planning and implementation of their health needs (Van Rensburg 2004: 144). It ensures quality services through continued monitoring and evaluation of services rendered in the clinics and health centres (Jooste 2003:330, ANC 1994b 45). The primary health care approach is integrated into all levels of health care provision through structured and organised referral systems. An under five child can be referred by a PHC nurse from the clinic to the local or district hospital for health problems that cannot be effectively managed at the primary health care clinic for example (Van Rensburg 2004: 149).

2.3 LEVELS OF CARE

Health care is currently delivered in three levels in South Africa, that is, the primary; secondary and tertiary level. The Primary level of health care provides promotive and preventive health care which includes giving health education and preventing diseases and giving relevant treatment after assessment and diagnosis of disease. It is the entry point of health system for diagnoses; treatment and preventive services and home care, and simple

uncomplicated surgery and emergency care (Williams & Torrens 2008: 274). Health education is the basis of preventive medicine which helps in changing attitudes towards healthy behaviour (Vlok 2003: 226). Primary level of care is rendered at the clinics or health centres in particular communities. In South Africa this care is freely available and it is believed it can reduce child mortality by approximately 50%, because nurses in the clinics can manage most of diseases presented by children under five years of age (Ireland et al 2004: xi). Children with severe dehydration or complications of childhood diseases are referred to higher levels of care.

The Secondary level ensures the early treatment of diseases and prevention of complications. Non-specialised curative care is given at health facilities to deal with ailments at their earliest stages, for example, giving antibiotics for pneumonia and to prevent complications of diseases and death (Kibel & Wagstaff 2001: 167). This level of care is mainly directed to the district hospitals when the nurses, after properly assessing and diagnosing a child referred that patient child to the hospital for specialist treatment if the condition cannot be treated at the clinic to prevent complications such as severe pneumonia (South Africa 1994-2000).

The Tertiary level ensures the limitation of disabilities and rehabilitation when disability has occurred so the affected individual returns to normal functioning and integrated into society again (De Haan 2005: 23-24). This level of care in this study is when a child is referred to provincial hospital for conditions like heart problems.

2.3.1 The Primary Health Care System

Primary Health Care (PHC) is defined as õessential health care based on practically, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation in the community and at a cost that the community and the country can afford to maintain at every stage of development in a spirit of self reliance and self determinationò (ANC 1994a: 20).

Primary Health Care offers a viable alternative for sustainable and equitable health development for every citizen in the country. The WHO has indicated amongst other principles, that, PHC should use an integrated approach that links promotive, preventive, curative and rehabilitative health services. Treatment should be as simple but effective as

possible and offered by a trained and competent health worker as soon as possible to prevent complications and further development of diseases (De Haan 2005: 25). PHC services should be rendered within a multi-disciplinary and team approach (Stanhope 2004: 59).

The South African health policy is based on the PHC philosophy as developed at the Alma Ata Declaration in 1976 which includes the following health service delivery system:

a) Maternal and child health care, including antenatal and delivery care, family planning and well baby clinics.
b) Environmental health care including safe water supply and safe sanitation.
c) Health promotion and health education.
d) Access to health data and information.
e) Prevent and control communicable diseases, including access to immunisation services.
f) Access to primary curative services for treatment of minor ailments or communicable endemic conditions.
g) Rehabilitative services.
h) Services to persons in the community, including school health, workplace services and community development (De Haan 2005: 25).

2.4 HEALTH CARE TEAM

District Health System (DHS) and PHC are made possible by the involvement of different role players that collaborate towards the same goal, namely provision of holistic quality care to all citizens of the country (De Haan 2005: 26). The health team consists of members from different specialities and disciplines and include professionals, volunteers and community members. (Ireland et al 2004: x). It is recommended that health team must work together and all levels of care be integrated at primary, secondary and tertiary levels.

A health team may include doctors, nurses, social workers, dentists, physiotherapists, occupational therapists, dieticians, speech and hearing therapists, psychologist and optometrists (Vlok 2003: 42). Traditional healers form part of the health team and those who are registered and recognised by medical schemes can consult patient clients who then can claim for medical reimbursements from their respective medical insurers and schemes (de Haan 2005: 27). The cultural background of the general public in South Africa

calls for the recognition of the traditional healers as part of the health team since the majority of people particularly Africans make use of the traditional healers for heath care provision (Van Rensburg 2004: 545-549).

It is important to understand that not all children are brought to the clinics or hospitals when sick because of the beliefs of the parents and attitudes towards western medicine in South Africa and therefore traditional healers have to be part of the planning of health promotion so that possible harmful practices are corrected before they result in unwarranted complications (Hattingh, Dreyer & Roos 2006: 169).

As a result of the shortage of professionals of other disciplines, nurses are often expected to fulfil extended roles such as assessing, diagnosing and treating children only referring all cases beyond their scope of practise to advanced levels (Uys 2007: 27). These extended responsibilities place an increased responsibility on the shoulders of nurses in terms of knowledge and skills. The health of the community and specifically children is negatively affected if nurses at primary health care level do not have the support of effective referral systems, sustainable resources and the support of available specialised professionals to whom patients with more specialised or complicated conditions can be referred to. Within the nursing discipline various categories form part of a nursing team, namely professional nurses with different specialities, enrolled and assistant nurses. Each of these categories has a specific scope of practice that is regulated by the South African Nursing Council (SANC) and within which they may legally function. At primary health care level, all these categories of nurses can be involved at various levels to utilise the RtHC.

2.5 CHALLENGES OF HEALTH CARE PROVISION IN SOUTH AFRICA

2.5.1 Burden of Diseases

The restructuring of health care delivery in South Africa did not mean the solving of all the problems overnight. The burden of diseases creates a high demand on health service provision and health care workers. It has been reported that transmission rate of HIV virus from mother to child in 2006/2007 financial year rated between 10 % to 30 %, of which 70 % of anti-natal attendances 26 % tested positive for example. This implies that nurses need to be vigilant in providing comprehensive child health to identify any health deviation to those exposed to HIV infections thus reducing morbidity and

mortality rates (South Africa 2008a: 4). The following was identified as disease profile within the health districts: HIV\AIDS and sexually transmitted infections, TB, gastroenteritis and malaria (South Africa 2007c:18).

2.5.2 **Shortage of health personnel**.

Shortage of health personnel in sub-Saharan Africa has become a nightmare for governments particularly when considering that the health sub-sector is continuously faced with increased emigrations of health personnel to industrialised western countries such as the United Kingdom, Australia, Canada and the United States of America. The oil rich Middle East countries have also benefitted considerably over these emigrations (Bach 2006; Mbanefoh [Sa] 8; Mouton, Boshoff, Kulati, Teng-Zeng 2007:34). For example, of the total Africa doctors who have emigrated to the United States of America and Canada by 2005, 14 % were from South Africa. Also, there were approximately 933 South African trained nurses working in the United Kingdom by 2005 (Bach 2006:11).However, it should be noted that South Africa has also benefited from other sub-Saharan Africa emigrations particularly those from the Anglophone countries (Mouton, Boshoff, Kulati, Teng-Zeng 2007:34).

According to Akunyili (2006), these emigrations result in severe shortages of nurses in the health sector mostly in sub-Saharan Africa. As a result of personnel shortages, approximately 60% of health care institutions in South Africa are currently struggling to fill vacant positions particularly the 32 000 nursing vacancies available (Kautzky & Tollman:[Sa] 8). These increased emigrations result from various factors such as political strives, corruption, government misrule, poor remunerations, poor job conditions, lack of conducive organisational environments, poor social security benefits, under-funding and poor budgets in health as a result of poor economies and poor infrastructure and health equipment (Akunyili 2006; Bach 2006: 17-18;Mbanefoh [Sa]: 7).

2.5.3 Lack of Infrastructure and Resources

According to Mbanefoh ([Sa]3), most sub-Saharan Africa countries are faced with stringent budgets as a result of budgetary requirements as laid down by international monetary organisations such as the World Bank (WB) and the International monetary Fund (IMF) who fund most of the development projects in sub-Saharan Africa.

Therefore, governments are faced with depleted budgets in crucial public service provision agencies such as health and education. With small budgets, basic equipment at most public health institutions such as clinics, health emergency services, road infrastructure among others were therefore not properly standardised (South Africa 2007c: 18). Evidence exists that lack of proper infrastructure and resources caused amongst others crowding of patients, infection of patients through health system and malfunctioning equipment resulting in preventable losses of life particularly amongst children (Cullinan 2006).

2.5.4 Poor management in health institutions

More services added for nurses to deliver without addition of new posts, where the same nurse works 24 hours continuously without relief for four to eight days. Also, abuse of patients, theft of medicines; linen and other stock (Cullinan 2006) were rife in South Africa health institutions as a result of poor management.

2.6 MORBIDITY AND MORTALITY RATES IN SOUTH AFRICA

South Africa is experiencing a huge pressure of the burden of disease which is aggravated by the prevalence of HIV \AIDS and TB infections which makes women and children vulnerable (Netcare 2008).

Table 2.1 Infant Mortality Rate in South Africa

2001	2002	2003	2004	2005	2006	2007
51.1	50.7	49.8	48.8	47.6	46.5	45.2

(South Africa 2009:37)

Table 2.1 indicates infant mortality rates for infants under one year of age in South Africa for a period of seven years from 2001 to 2007 (South Africa 2009: 37). The data shows that there is high infant mortality rates in South Africa with the least mortality rate recorded in 2007 at 45.2% while the highest infant mortality rate was recorded in 2001 at 51.1%. This means that there has been a decline of infant mortality rates in South Africa between 2001 and 2007 by at least 5.9% (South Africa 2009:37) despite the fact that the rates are still significantly high particularly in the infant category of under five years of age which was approximately 67% in 2006 as reported by the UNICEF (2009: 82).

The following have been reported to be the major causes of death for children under five years of age: pneumonia (8%), injuries (3%), diarrhoea (8%), under-nutrition (1\3), HIV/AIDS (46%) and other (12%) (UNICEF 2009:82) as indicated in Tables 2.2 TB and HIV infection are common in South Africa (South Africa 2009b:3).UNICEF (2009:132) reported that South Africa has approximately 280 000 children living with HIV\AIDS. The state of child mortality and morbidity in South Africa requires a strict implementation of strategies aimed at reducing occurrences of diseases and deaths by all health workers.

Table 2.2 Tuberculosis incidence per 100,000 populations

2002	2003	2004	2005	2006	2007
779.8	851.7	898	925.2	940.2	948.2

(South Africa Tuberculosis 2007)

Integrated Management of Childhood Illness (IMCI) is a strategy developed by the WHO and UNICEF in the early 1995 and adopted by South Africa in 1996 (South Africa [Sa] c: 3). It was introduced with the aim of reducing mortality and morbidity of children under five years of age caused by diarrhoea, acute respiratory infections, measles, malaria and malnutrition. The strategy has three components replacing the single approach guideline of vertical programmes that were prevalent at that time by an integrated approach (Victora et al 2006: 792; WHO 1999:1) and it focuses on the child as a whole and not the particular disease. The components are as follows:

a) Improvement of case management skills of health workers; by training health workers to manage childhood illness comprehensively.

b) Strengthening the health system to better deal with child health issues; by providing support visits to trained personnel to monitor and identify resource supply to implement the programme at clinics.

c) Improving health care practises in the home and community through household and community component.

The strategy promotes the involvement of parents or caregivers in counselling, identification of signs and giving of treatment and preventive measures (Kibel & Wagstaff 2003: 320-322). IMCI incorporates aspects included in GOBIFFF, like monitoring growth and development with each well child services, involving mothers and families in weighing

and general health of the mother (Northern Province 2000: 3-4,19). It helps in reducing child morbidity and mortality because it does not only focus on curative care but also emphasises the prevention of complications like severe pneumonia amongst others, through counselling of the caregiver in observing signs of severity of illness in the child and advising on when to return to the clinic immediately. Every sick child should be compulsorily assessed for malnutrition, immunisation status, TB and HIV/AIDS in South Africa (South Africa 2009a: 25). The assessment is done to monitor any deviations from health and giving preventive and curative cure where it is needed before it is too late, thus reducing child mortality and morbidity through the RtHC.

2.7 COMPREHENSIVE CHILD HEALTH CARE

Comprehensive health care is care directed towards providing physical, mental, social and spiritual needs of the child and parent or caregiver, with due consideration of personal, cultural and spiritual beliefs, values and practices (South Africa 2005a: 9). This definition is in line with the definition of health by the WHO stating ñHealth is a state of complete physical, mental and spiritual well being, not merely the absence of disease or infirmityò (Stanhope & Lancaster 2004: 52). Comprehensive child health was developed by Dr Morley with the aim of early diagnosis, treatment and health education. It provides low cost preventive and curative care through health education (Vlok 2003: 401).

Comprehensive assessment of a child is important for early detection of complications like malnutrition. The Department of Health indicated that there is a vicious circle of malnutrition and infection, because malnutrition makes one to be vulnerable to infection and chronic infection leads to malnutrition (South Africa 2007a: 2). Muller (2002: 87) recommended that child health should be comprehensive and integrated. If comprehensive child care is not rendered prompt interventions will not be done, thus failing to reach the Millennium Development Goal (MDG) 4 of reducing infant morbidity and mortality by 2/3 between 1990 and 2015(South Africa 2007b: 23). Comprehensive child PHC should include child welfare or well-baby clinic that provides mother craft counselling and immunisations against vaccine preventable diseases, and education of mothers on housecraft and preparation of healthy meals. (Vlok 2003: 35) Cohen, Toni & Cesta (2001: 145) states nurses should integrate the health care of each patient with every contact whether sick or well, in the delivery of daily services.

2.8 THE MILLENNUIM DEVELOPMENT GOALS (MDG)

The Millennium Development Goals (MDG) was created at the United Nation Millennium Summit which is the leadersôlargest gathering in New York in 2000 (MDG 2006). It was adopted by world leaders with the promise to free all men, women and children from abject and dehumanising extreme poverty. It has eight goals which are: eradication of extreme poverty; achievement of universal primary education; promotion of gender equality and empowerment of women; reduction of child mortality rates; improvement of maternal health; combating HIV and AIDS, malaria and other diseases; ensuring environmental sustainability and development of a global partnership for development.

These goals have monitoring indicators to check the progress towards the achievement of the goal. This study will focus on goal 4 for reducing child mortality by 2/3 between 1990 and 2015. The monitoring indicators of goal 4 are reducing under five mortality rates, reducing infant mortality rate and the proportion of under one year measles immunisation. Under five mortality is reported to be at 85% globally (MDG 2009) and at 67 % in South Africa (Unicef 2009). Egypt is reported to be the best performer in the reduction of under five mortality while Botswana, Swaziland and Zimbabwe are the worst in under five mortalities (MDG 2009).

Measles is a major cause of under five mortality although there are improvements of immunisation coverage in many countries (MDG 2009). The MDG (2009) further reports that South Africa is at 85 %, Zimbabwe 90 % and Swaziland 57 % in measles immunisation coverage. It is reported that in 2007 over one million children died before 5 years of age globally while pneumonia and diarrhoea are the biggest killers of children under five years of age amounting to 40 % of deaths globally.

2.9 GROWTH MONITORING, ORAL REHYDRATION, BREASTFEEDING AND IMMUNISATION, FEMALE EDUCATION, FAMILY SPACING AND FOOD SUPPLEMENTS (GOBI -FFF)

Growth monitoring by RtHC, oral rehydration, breastfeeding and immunisation (GOBI) are the child survival strategies developed by the WHO and UNICEF as means to reduce child mortality and morbidity. The strategy was introduced three years after the Alma Ata Declaration by WHO and UNICEF when Primary Health Care (PHC) was adopted. The UNICEF published a report that PHC is costly and it was expected to take a long time to

implement. The GOBI-FFF Strategy was therefore launched as a ñchild survival revolutionò and is considered to be cheap, easy to apply, accessible using simple technology. The objective is to reduce infant and child mortality and morbidity rates (Dennill & Swanepoel 2008: 10). The GOBI-FFF strategy was introduced to replace the existing vertical programmes on child health. Vertical programmes imply that services rendered are not integrated with a ñone-stopò approach, but focuses only on one that was not looking into child growth holistically (Kibel & Wagstaff 2003: 153). GOBI was further revised and updated at the Bellagio meeting of the UNICEF, WHO and other interested parties in 1984 after realizing that it was only focussing on the child and excluding the mother or caregiver, who plays a major role in growth and development of a child. The 3 FFFs; female education, family spacing and food supplements were added to render a comprehensive service to the child (Dennill & Swanepoel 2008: 10, Kibel & Wagstaff 2003:153). Each one of them will be briefly discussed hereunder:

2.9.1 Growth Monitoring

Growth monitoring and promotion is considered the most useful tool in child health; because through regular growth monitoring, developmental and nutritional problems can be detected earlier (South Africa [Sa] a: 1). The monitoring of childôs growth through regular monitoring of weight, height, length, immunisation and nutritional status, helps to identify probable growth flattering which could be due to infections or insufficient diet or social or emotional disturbances (Kibel 2003: 27-29).

Growth monitoring is a process where the childôs growth and development is measured or monitored with the aim of identifying deficiencies as early as possible. These include any abnormalities in terms of physical, mental and social development and growth (Stanhope & Lancaster 2004: 349). Although the RtHC mainly makes provision for the monitoring of physical growth and development, nurses are expected to also identify and refer any signs of concern regarding social and mental development. Regular growth monitoring, which include measuring the weight, measuring height, head circumference and body length. is recommended to be done in the first 5 years of life to assess weight and nutritional status with weight recorded on the chart against the age on the percentile curves (Dennill & Swanepoel 2008: 11). Development is the observable changes of the body marked by complex gaining of skills and functioning, for example development milestones such as starting to sit or walk. Growth and development are independent, interrelated processes

because one needs to grow physically to be able to walk (Berman, Snyder, Kozier & Erb 2008: 349).

2.9.1.1 Weight

The baseline weight of every child is taken immediately after delivery at the place of birth or when the child is taken to the health facility if born outside the facility. Uys (2007: 100) says that weight gain is the single most important yardstick of physical development. Babies loose 5% to 10% of their birth weight within one week of delivery because of loss of fluids (Berman at al 2008: 369).

Weight gain is expected to be rapid within the first six months and it normally doubles after 6 months and triples by 12 months, Uys (2007: 101) indicates that weight gain occurs at 30g per day and Berman et al (2008: 369) talks of a gain by 150g to 210g per week, which leads to the same weekly total of 210g. Girls grow faster than boys (Kibel & Wagstaff 2003: 34) Regular weight charting gives reliable data to assess growth rate. Growth failure and any weight less than 60th percentile before six months should be investigated to determine and treat the cause or refer the child in time to prevent severe complications. (Coovadia & Wittenberg 2005: 193). Early detection of children who are at-risk helps to identify problems like childhood obesity, nutritional deficiencies, failure to thrive, growth faltering and stunting, to mention a few (South Africa 2007a: 2, Paoletti 2007: 39). Malnutrition is one of the major contributing factors for mortality of children under five years of age in South Africa (South Africa 2007a: 13).Under five mortality is an indicator that measures human and economic development of the country that is used by UNICEF (Solash & Goga 2007: 104). It is recommended that children should be weighed monthly for the first 2 years of life then every 3 month from 2nd to 5th year (South Africa 2008b: 58).

2.9.1.2 Height and Length

Height is a valuable growth measurement of a child (Kibel & Wagstaff 2003: 29). Height is the measurement that is taken when on a standing position, and length is measurement taken at a recumbent position (Berman at al 2008: 369). Length of babies differs due to gender; (females are smaller than males), ethnicity, nutritional status of the mother during pregnancy or the nutritional status of the child and genetic make -up of parents. From 2 years of age, height increases by 10-12cm, slows down at 2-3 years by 6-8cm and then increases again from 4-5 years by 6-8cm each year (Berman at al 2008: 374). Reduced

height-for-age indicates an underlying problem like chronic illness or a long standing growth problem like malnutrition or hormonal deficiency (Kibel & Wagstaff 2003: 29).

2.9.1.3 Head Circumference

The purpose of determining the head circumference is to detect normal growth and protein-energy -malnutrition that could affect the intellectual development of a child (Boyle & Holben 2006; 321).

Brain growth peaks during the first year of life (Kibel & Wagstaff 2003: 29). The size of the brain of toddlers increase by 2.5% in first year, at 2 years it increases to reach 70-80% of the size of the adult brain. The measuring of the head circumference should be done at every visit until 2 years. Berman et al (2008: 374) indicates that chest circumference should be measured as well, but the South African guideline of the RtHC does not include it.

2.9.2 Oral Rehydration Solution (ORS)

It is reported that 4-5 million children die each year of diarrhoea (Dennill & Swanepoel 2008: 11). Children are extremely vulnerable because of the dehydrating nature of diarrhoea they die quickly of diarrhoea than adults because of dehydration (Rehydration Project 2008). ORS is a simple and cost effective treatment to replace fluids lost by diarrhoea and\or vomiting (Dennill & Swanepoel 2008: 10). ORS is compiled out of common household ingredients and caregivers should be taught to use it as soon as a baby starts vomiting or having loose stools. The solution is prepared by mixing 8 teaspoons of sugar and half teaspoon of salt in one litre of clean boiled water. (Kibel & Wagstaff 2003:154). Cavagnnero, Daelmans, Gupta, Scherpbier & Shankar (2008:1288) and Gouws, Bryce, Pariyo, Schellenberg, Amaral & Habitcht (2005:614) recommend that in maintaining good health there are interventions that can be started at home or in the community if community members are well informed and have the support of health professionals if necessary. One such intervention is the prevention and management of diarrhoea and can reduce the duration and complications of illness.

2.9.3 Breast Feeding

Breastfeeding is marketed as the ñbest for infant feedingò (Dennill & Swanepoel 2008; 10). The Department of Health recommended that babies must be breastfed exclusively from birth till 4-6 months (South Africa 2001b:67). Exclusive breastfeeding is giving only breast

milk without any additional supplements such as water or any other liquid or fluid, food and medicine unless prescribed by doctor (South Africa 2007a:27). Exclusive breastfeeding is believed to protect the integrity of intestinal mucosa which hinders the passage of HIV. Exclusive breastfeeding results in less health problems as compared to mixed feeding from an infected mother. WHO reported that breastfeeding saves the lives of more than 1.5 million children per year (Boyle & Holben 2006: 434).

It is recommended that new mothers should be given the relevant information and support to avoid early weaning and not to introduce artificial feeding in case of problems (Coovadia & Wittenberg 2003: 180). The promotion of breastfeeding up to 2 years is threatened by HIV pandemic because of the possibility of HIV transmission through breast milk at 12 to 29% (FPD 2009: 99). It is recommended that all pregnant mothers be given objective unbiased infant feeding counselling so that informed decision on feeding choice is taken (South Africa 2007d: 13). HIV positive mothers who choose to breastfeed exclusively are to breastfeed for 4 to 6 months or use formula feeding exclusively for 6 months until complementary feeds are introduced. Exclusive breastfeeding by an infected mother carries 5% chance of HIV transmission and other infections like cytomegalovirus. It is however; recommended that the risk of illness and death from not breastfeeding is greater than the risk of HIV infection through breastfeeding (FPD 2009: 101, South Africa 2009b: 17).

The use of formula feeding have disadvantages such as; increased risk of diarrhoea, pneumonia, allergies, malnutrition, and it is expensive (FPD 2009: 101). Breastfeeding delays the onset of menstruation of the women after delivery of the baby which helps in delaying pregnancy thus giving time to recover and be able to take care of the child (South Africa 2003:84). It is recommended that the importance of breastfeeding be always promoted to uninfected mothers while assisting infected mothers to take informed feeding choices (FPD 2009: 101) Nutritional preferences of the mother should be indicated on the RtHC, including the time when solids are introduced (South Africa 2001: 68). AIDS orphans should be given replacement feeding such as milk formula and caregivers should be informed of the importance of exclusive formula feeding (South Africa 2007d: 20). The RtHC guidelines recommend that risk factors on children be indicated on RtHC so that necessary advice and referrals can be made to prevent complications (South Africa [Sa]a). Different cultural practices have some impact on breastfeeding. An example babies in rural Thailand are given rice porridge to protect the baby from ñspirit parentò (Riordan and Gill-

Hopple 2001) while babies in Britain and the Caribbean Island are often given ñgrape waterò for gas for example. Such practises impacts on exclusive breastfeeding which could be risky if the mother is HIV infected. In other areas like Northern America children are breastfed for 3 to 4 years of age (Riordan and Gill-Hopple 2001). Cultural barriers that prevent exclusive breastfeeding amongst the Africans includes, giving water before 6 months because of pressure of grannies in the villages in Cameron because its believed that breast milk is incomplete. While public breastfeeding is a problem in some western countries, it is well accepted in some African countries such as, Libya, Zambia, Zimbabwe, Kenya and Ghana (Cultural barriers).

2.9.3.1 Benefits of Breastfeeding

a) Breast milk improves immunity of the baby as antibodies will be transferred from mother to the baby, thus protecting against infection.
b) Contains all nutrients; energy, proteins and minerals.
c) Stabilises intestinal mucosa.
d) It is cost effective.
e) It is always available.
f) Contraceptive benefit to the mother called lactational amenorrhoeal method. This is a method that is very effective if the woman is exclusively breastfeeding, amenorrhoeic and the baby is less than 6 months (South Africa 2003: 84 and South Africa 2007a: 28).

2.9.4 Immunisation

Immunisation is the process of artificially introducing a diseases antigen into the body with the aim of stimulating the body to produce an immune response (Kibel & Wagstaff 2003: 161).A vaccine is a suspension of attenuated or inactivated micro-organisms; such as bacteria, virus or a fraction micro-organisms administered to induce immunity and prevention infectious diseases (Hackenberry & Wilson 2007: 534).

It has been reported that more than 5 million children die in the developing countries due to vaccine preventable diseases (Cameron 2007: 30, Dennill & Swanepoel 2008: 11). Vaccines have been providing children with protection against potentially serious illness for many years (Edinburg 2001: 10). There is a strong relationship between measles infection and serious diarrhoea because of cellular damage of the absorptive surface of bowels

(Coovadia & Wittenberg 2005: 259). Measles vaccine given at 9 months is believed to prevent deaths related to diarrhoea by 25% (Kibel & Wagstaff 2003: 344).

Immunisation is considered to be the best in improving infant and child survival because it prevents death from major infectious diseases such as measles, polio, TB, Whooping cough, neonatal tetanus, diphtheria and yellow fever (Arevshaticin, Clement, Lwanga, Misore, Ndumbe, Seward & Taylor 2007: 449 and Dennill & Swanepoel 2008: 11. Edinburg (2001: 10) states that failure to immunise one child does not only affect that child alone, because if the child is infected by diseases like measles this will spread to those around him or her. The Department of Health in South Africa showed concern in 2007 when it embarked on the national measles and polio campaign for children under five years of age after polio outbreak in the neighbouring country Namibia (South Africa 2007f). It is claimed that more than 30 million children are unimmunised because of factors such as, vaccines unavailable, parents not informed of return dates and why children should be immunised (Boyle 2006: 435). The Vhembe district health plan (2007-2008: 18); the district wherein the clinics understudy are located: reported 95% general immunisation coverage with Musina Local area; within the same district, at 90% and indicated that it is due to cross border clients from other countries. The 2006/7 drop- out rate in this district is reported to be 7.93% of which 6% is from the clinics under study. A study done to assess the quality of child health by Gouws et al (2005: 617) found that immunisation status was checked in 95.9% at Tanzania, 53.7% Uganda and 62.2% Brazil. However the South African progress report on the achievement of MDG of 2005 indicated an increase of immunisation coverage from 78% of 2002 to 83% in 2006 (South Africa 2007b:24). In 2007 South Africa was at 97% immunisation coverage as reported by the Department of Health (South Africa 2007f). Stanhope and Lancaster (2004: 631) emphasises that parents should be encouraged to bring children for immunisation by addressing their concerns and fears.

The South African Department of Health has adopted the Expanded Programme on Immunisation (EPI) which is developed by the WHO. The programme was reviewed in 1994 with the aim to achieve and sustain immunisation coverage of 90% by year 2000.The programme also aimed at preventing and controlling communicable diseases by giving vaccination to children from birth up to five years of age according to the old programme and currently 12 years in the new programme (South Africa 2008). The programme was revised after South Africa had achieved a Neonatal Tetanus Elimination Status from the WHO in 2003 (South Africa [Sa] d). A development was set to ensure elimination of

Measles and Polio and to investigate all cases of adverse effect following immunisation (South Africa 2005b: 5). This was followed by another development of new immunisation schedule to maintain the status, so new Tetanus Vaccine was introduced to provide lifelong protection from Tetanus and was implemented from the 1st February 2008. The vaccine meant changes on the programme because the 5 years DT (Diphtheria Tetanus) vaccine was replaced with a 6 years and 12 years TD (Diftavax) vaccine. The programme was also emphasized in the MDG 4 which is targeted to reducing child mortality by providing global immunisation of all children. The success of the programme was noted when South Africa was declared ñPolio Freeò in October 2006 by the African Regional Certification Commission which is a subcommittee of the Global Certification Commission (South Africa 2007b:24).

The programme provides protection from vaccine preventable infections to children and women, but the study will only concentrate on children vaccines. The South African EPI gives immunisations to Polio, Tuberculosis, Tetanus, Diphtheria, Pertussis, Hepatitis B, Haemophilic Influenza Type B and Measles according to this schedule:

Table 2.3 EPI revised childhood immunisation schedule

Age of the child	Vaccine needed
At birth	Polio & BCG(anti-tuberculosis vaccine)
6 weeks	POLIO & DTP-Hib (Diphtheria, Tetanus, Pertussis and Haemophilus Influenzae type B) and Hepititis B
10 weeks	Polio & DTP-Hib (Diphtheria, Tetanus, Pertussis and Haemophilus Influenzae type B) and Hepatitis B
14 weeks	Polio, DTP-Hib (Diphtheria, Tetanus & Pertussis and Haemophilus influenzae type B) + Hepatitis B
9 months	Measles
18 months	Measles and DTP (Diphtheria, Tetanus & Pertussis)
6 years	Polio & Tetanus and reduced amount of Diphtheria
12 years	Td (Tetanus and reduced amount of Diphtheria)

(South Africa [Sa]d

The national department of health is currently adopting a revised immunisation schedule with the aim of joining hands with the international community in preventing death, and reduce suffering (South Africa 2009c: 3).

Changes in the schedule:

a. The revised schedule is introducing Pneumococcal Conjugate Vaccine, Rotavirus Vaccine and Pentavalent Vaccine.
b. Revised administration of live attenuated vaccines; BCG, Measles and oral Polio to symptomatic HIV infected children.
c. Concurrent administration of live attenuated vaccines; Measles and BCG.
d. Revised EPI schedule with and without the pentavalent vaccine.

Table 2.4 revised schedules with pentavelent vaccines

AGE OF CHILD	**VACCINE NEEDED**	**HOW AND WHERE IS IT GIVEN?**
At birth	OPV (0) and BCG	**Drops by mouth and intradermally \right arm**
6 weeks	OPV (1), RT (1)	**Drops by mouth**
	RT (1), PCV7 (i)	**Liquid by mouth**
	DTP\HIB(1), HEP B (1)	**Intramuscularly left thigh**
10 weeks	DTaP-IPV/Hib (2),	**Intramuscularly left thigh**
	Heb (2)	**Intramuscular right thigh**
9 months	Measles 1	**Intramuscular left thigh**
	PCV 3	**Intramuscular right thigh**
18 months	DTaP-IPV /Hib (4), Measles 2	**Intramuscular left arm , Intramuscular right arm**
6 years	Td Vaccine	**Intramuscular left arm**
12 years	**Td Vaccine**	**Intramuscular left arm**

(South Africa 2009c:4)

There are targets set by EPI Global Advisory Group which are:

a) Provide a mix of complementary strategies.
b) Provide immunisation at every point of contact.
c) Reduce drop-out rate between 1st and 3rd dose of vaccination.

d) Improve service to the disadvantaged in rural and urban areas (Kibel & Wagstaff 2003: 155).

2.9.5 Family Spacing

It was recommended that women should be advised on the importance of child spacing, so that they take decisions that benefit them and the family (Dennill & Swanepoel 2008: 12). Advising mothers on child spacing helps to reduce and prevent pregnancy related illness and deaths which could consequently make the mother weak and unproductive to care for the child, with related family burdens (Hattingh, Dreyer & Roos 2006: 163). Child spacing and timing benefits the mother and child because closely spaced pregnancies affects the health and nutritional status of the mother causing low birth weights that predisposes to health risk on both the mother and the baby (Kibel &Wagstaff 2003: 156). Birth control methods advised to the mother should be indicated on the RtHC.

2.9.6 Food Supplements

Food supplementation is recommended for children and lactating mothers because they are mostly affected by under-nutrition. A food supplement for pregnant mothers helps to prevent low birth weights thus preventing infant death (Kibel & Wagstaff 2003: 156). The Integrated Nutrition Programme (INP) is programme developed with the aim of reducing child under-nutrition, and nutritional deficiency amongst children and women based on comprehensive and integrated approach (Schoeman, Hendricks, Hattingh, Benade, Laubschier & Dhasay (2006: 1008). It is a national programme that focuses on nutritional promotion activities, and sets norms and standards to measure the outcomes of such activities (South Africa 2001b: 67). The programme seeks to reduce prevalence of malnutrition through implementation of various interventions like, growth monitoring and development and provision of food supplementations (South Africa 2003b: ii).

The activities included in the programme are growth monitoring, breastfeeding, early detection of malnutrition, providing food supplements and fortification of staple food. It is based on the vision to reach optimum nutrition for all South Africans, with an aim of improving nutrition through health-facility-based, community based and nutrition promotion activities. The programme promotes the realization of Goal 1 in MDG; of eradication of extreme poverty and hunger and Goal 4 of reducing child mortality (South Africa 2007b: 5). In an endeavour to eradicate extreme hunger in MDG, it is recommended that food parcels

be provided at the health facilities to reduce number of weights at less than 60% centile amongst children under five years. Report from the Department of Health (South Africa 2007d: 10) indicates that malnutrition, including stunting, underweight for age, wasting, obesity and Vitamin A deficiency is still prevalent in South Africa.

The WHO has recommended that Vitamin A capsules be included in the routine immunisation and immunisation campaigns of children in countries where deficiency is prevalent (South Africa 2002: 2). South Africa has thus decided to include vitamin A in maternal health, EPI and IMCI. It has been estimated that about 250 million children have Vitamin A deficiency worldwide; with South Africa at 33% while Limpopo is 43% (South Africa 2002: 1). Vitamin A capsules helps to improve resistance to disease to and reduce measles mortality by 50%, reduce diarrhoea by 33% and reduce all causes of mortality by 23%. It has been recommended that every child and mother should be screened if eligible to receive Vitamin A doses given be recorded on the RtHC (South Africa 2002: 3-4). It is recommended that children receive Vitamin A capsules from birth if not breastfed or from six months if breastfed and thereafter every six monthly up to five years of age. Vitamin A supplement is also recommended for curative treatment in case of measles, persistent diarrhoea, severe under nutrition and clinical vitamin A deficiency to prevent complications. An activity to monitor giving of vitamin A includes the use of clinic registers, womenôs card and the RtHC where recording is done after being given the capsule.

Table 2.5 preventive vitamin a supplementation protocol

Target groups	Dosage	Schedule
Non-breastfed infants (0-5 months)	50 000 IU	A single dose at the age of 6 weeks
All infants 6-11 months	100 000 IU	A single dose from 6 months or up to 11 months
All infants 12-60 months	200 000 IU	A single dose at 12 months then every 6 months up to 60 months
All post partum women	**200 000 IU**	**A single dose 6 weeks after delivery , not later than 6-8 weeks after delivery**

(South Africa 2002: 3)

2.9.7 Female Education

It is suggested that there is a link between mothersô literacy level and child mortality (Kibel & Wagstaff 2003: 156), because illiterate or low literacy mothers are found to be non-compliance to treatment, give incorrect dosage which leads to poor healing or complications (Mayer and Villaire 2004: 441). It is stated that people with low literacy skills cannot adequately understand the instructions on a medicine or information leaflet and are overwhelmed by the information and becomes reluctant to seek clarity (Mayer 2004: 440-441). Parents should be given easy - to - read materials using local language and demonstrations done where possible. These materials unfortunately serve the literate group only, the illiterate group benefits from health information given orally by nurses. The RTHC guideline recommends that caregivers should be involved in the care of children by showing the progress of growth curve of the child thus empowering caregivers to take informed decision for their health (South Africa [Sa]a).

A study by Engelbrecht & Kasiram (2007: 6) recommended that education and communication with individual families is important for comprehension of issues of child health. A study done in Mali by Ayoya, Bendech, Baker,Quattara, Diane, Mahy, Nichols, Toure & Franco (2007 : 1243-1279) found that information given through the media like TVs radios were not understood by parents because of language and illiteracy. This is because of the language used in TV and advertising media is not known or understood by the audience which makes it less effective. The Ottawa Charter on achieving ñHealth for Allò recommends that this health goal can be achieved by developing personal skills of people (Dennill & Swanepoel 2008: 14). It also emphasised that health education on aspects such as preventable infectious diseases, management of diarrhoea to prevent dehydration, birth spacing, and more; should be given so that people will be able to take informed decision to improve the quality of health of their children (Smith 2005: 13-14). It is recommended that health workers should transfer skills on management of malnutrition to caregivers and parents to improve nutritional status of children in the communities (South Africa 2003b: ii).

2.10 THE ROAD TO HEALTH CHART (RTHC)

The RtHC is tool used to provide an accurate home-based record of the childôs health and development (South Africa (Sa): 1). Its aim is to provide a tool used to promote comprehensive child health while complementing the actions of the mother or caregiver

and all involved in the health care. It is advocated as best for routine growth monitoring and is considered by the South African Department of Health as a quickest method for early detection of diseases, developmental, nutritional problems and children needing extra care(Kibel & Wagstaff 2003: 154, Ben-Joseph, Dowshe & Izenberg 2006: 290). It is a primary tool to monitor growth (Cole 2002: 385).

The South African RtHC is developed by the Department of Health; Nutrition, and Youth Directorate, used as a uniform standard clinical record for children under five years. It is issued to a legal parent or guardian after the birth of baby (South Africa [Sa] b: 36-37). It is considered the best way of monitoring weight gain and detecting malnutrition (South Africa 2007a:4). Globally the card comes in many forms and varies from country to country. The RtHC is known in various parts of the world by different names, such as the growth card, pink card, pre-school card, child chart and clinic card (Kibel & Wagstaff 2003: 163, Cole 2002: 395, Ben-Joseph at al 2006: 154, Nursing Standards, 2007: 8). The RtHC used in South Africa is attached as Annexure A.

The RtHC was developed by David Morley as a weight-for-age graph; which he called Ilesha, in the late 1950s in West Africa. This first version of this concept used a calendar to plot weight against the month. David Morley further developed it to be Teaching Aid At Low Cost (TALC). This was a home based tool for comprehensive child care and became known as the RtHC. It then started to spread to other countries in the 1970s as part of growth monitoring, oral rehydration, breastfeeding and immunisation (GOBI) (Kibel & Wagstaff 1997:131; Morley & Elmore-Meegan [Sa]: 1).

In April 2006 the WHO published a new set of international growth charts for infants and preschoolers up to five years, with the aim of promoting its use by both developing and developed countries (Ben-Joseph et al 2007: 290). The RtHC in South Africa has been revised into a document that is currently again being revised because of the introduction of new vaccines in 2008-2009. The RtHC has been developed with an aim to replace existing vertical programmes of immunisation and to promote a comprehensive approach to child health care. Programmes included in the RtHC strategy are Expanded Programme on Immunisation (EPI), Integrated Nutrition Programme (INP) and Integrated Management of Childhood Illnesses (IMCI) as well as TB treatment and Prevention of Mother to Child Transmission (PMTCT).

2.10.1 Benefits of the RtHC

The RtHC has the following advantages to nurses, parents, the child and the community at large:

a) Promotes sharing of information between health professionals and parents or caregivers.
b) Promotes good relationship between health workers and parents or caregivers.
c) It is an effective diagnostic tool when used effectively
d) Can be used in community studies.
e) It serves as mobile data bank for the benefit of the child thus promoting continuity of care (Kibel & Wagstaff 2003: 1).

The aim of screening is to detect disease before they actually occur. Webb, Bain & Prize (2005: 290-291) recommends that early detection have the following benefits:

a. Screening tests will detect people who are likely to develop the disease so testing confirms the presence of the disease or not.
b. In case of growth monitoring early detection of any deviation will warrant prompt actions by health worker concerned before it is too late. It leads to early treatment and prevention of complications, for example, identifying missed opportunities in immunisation and then giving the vaccine due to the child.
c. It reduces morbidity and mortality in the country.
d. It protects the general public from exposure to diseases, like screening done to immigrants for diseases like foot-and mouth disease.

2.10.2 Characteristics of the RtHC

The following are the characteristics of the RtHC:

a) Issue, ownership and responsibility

The card is to be issued at birth by the health service facility where the child is born, if the child is born outside health facility any encounter with child should be the opportunity to issue and complete necessary information on the card. It should be owned by the parent or legal guardian of the child. It should be presented to the health worker at every visit and childôs progress be recorded to show respect and improve decision making of the caregiver and health facility management.

b) Frequency of use- the health worker who examines the child should request to check information recorded on the card to get background information and reinforce value of RtHC to the caregiver. It is recommended that routine weighing, plotting, interpretation and feedback be done.

c) Health and demographic information -The childôs full names and identification number the gender should be recorded on the RtHC. The peri-natal/antenatal information of activities done before, during delivery and after birth is recorded indicating the gestational age of the pregnancy, complications during pregnancy on the space provided. The childôs date and place of birth is indicated whether clinic, hospital or home, birth weight, body length, and head circumference is recorded to give baseline data for references on growth progress. Key words are used for this information such as, never attended ANC, WR positive. The number of siblings born and those alive is indicated, and if there is death the reasons indicated as well.

d) Parents or caregiver identification-full names of parents, or a person staying with child should be recorded on the space provided. The name of the health worker who gave the chart to parents is recorded too.

e) A growth monitoring graph. This is where the growth progress of the child is recorded. There are four solid lines called centiles, that is, 3rd, 60th, 50th and 97th. The centiles represents the average weight of most children in the same age group. Children on between the 3rd and 97th centile are of normal weight, while below 60th centile are likely to be malnourished and those above 97th centile are obese.

f) Visual and hearing screening-vision screening should be assessed from 6 weeks, where a child can follow horizontal moving objects like a pen with both eyes. Hearing is assessed when the child is less than 12 months.

g) Vitamin A supplements-Vitamins A given is recorded on the provided space indicating the date and signature of the nurse who gave it. Details have been given under food supplements paragraph 2.15.6.

h) Immunisation record- Immunisations given are recorded on schedule provided indicating the name of vaccine given, date, site and signature of the nurse who gave it. The name; date site, route of vaccine is recorded to assist in reporting of adverse effects following immunisation of the child (Cameron 2006: 33).

i) In need of special care- children at risk should be indicated and the type of risk involved and so that timely advise and referral is done. Children born by mothers

with low maternal weight are at high risk of have low-weight-for-age that could continue as the child grows (Coovadia & Wittenberg 2005: 120). Children born by adolescent mothers need special care because these mothers cannot meet the demands of child care (South Africa 2009b: 27).

j) Health worker consultation sheet- clinical notes of the child should be recorded on the A4 fold of the cards. Short keywords notes taking 2 to 8 lines, including assessment of growth and actions taken so that other health workers can know what was previously done for the child.

k) Hospital admissions- the bottom right of the health worker consultation sheet is for the recording of discharge diagnoses and key follow up notes.

l) Clinic address -The health worker completing the chart should indicate the name of the clinic where it was first issued, and then if parents or caregiver relocates the new clinic is also recorded.

2.11 PRINCIPLES OF RECORD KEEPING

Berman et al (2008: 255) recommends that a record should describe the full range of activities done on or for the patient or client irrespective of the prescribed standards of the institution. Records are a reminder of what happened and forms an integral part of clinical practice and legal requirements (Clinical record keepingé 2008**)**. A nurse has an obligation not only to observe the rules and guidelines set by the department, in this case guidelines that direct the correct usage of the RtHC, but also to record her professional activities and interventions. The Department of Health has identified record keeping as an area of concern and which can lead to inadequate diagnosis, inefficient use of resources, poor information, and poor service delivery (South Africa 2007c; 3). The following are the basic principles of record keeping:

a) Identification of the client.
b) Context of the situation (condition of client, any other observations such as expression of pain, etc).
c) The nature, date and time for intervention.
d) Provide a clear evidence of assessment processes, care plans and outcome of the intervention.
e) People /persons involved during the interaction.
f) Identification of the health worker who provided care.

Good record keeping helps protect the welfare of patients/clients by promoting:

- Å High standards of clinical care.
- Å Continuity of care.
- Å Better communication and dissemination of information between members of the inter-professional health care team.
- Å An accurate account of treatment and care planning and delivery
- Å The ability to identify risks and detect problems, such as the changes in patient/clients condition at any stage (Clinical record keepingé 2008).

Any record keeping should be legible, accurate and comprehensive. Only recognised abbreviations are allowed and should be kept in mind that all records can be used in legal cases.

2.12 THEORETICAL FRAMEWORK

Theoretical framework is a set of ideas that directs, explain, guide and predict the nature of phenomenon under study (Brink 2006: 24; De Vos et al 2009: 40). It helps to organize the study, provide a context to examine the problem and provides the framework to gather and analyse data. The theoretical framework of this study is the standards set by the Department of Health as the guidelines of how to use the RtHC. These guidelines will give direction on the type and scope of information to be included in the research instruments. These guidelines (South Africa [Sa]a) (Annexure A) address the following items or encounter with the child at health facilities:

a) Issue, ownership and responsibility-This has been discussed in the previous paragraph.
b) Frequency of use- The health worker who examines the child should be request to check information recorded on the card to get background information and reinforce value of RtHC to the caregiver. It is recommended that routine weighing, plotting, interpretation and feedback be done.
c) Growth monitoring chart- This is where the childôs growth progress of weight, height and head circumference is recorded. It has the vertical and the horizontal axis. The vertical axis records the weight and it is measured in kilograms and plotted on the left and right margin of each year. The horizontal axis records age. The birth month and year is recorded on the first bold block, and this is to be filled in by the nurse who issues the chard at birth at birth.

d) Health and demographic information -The childôs full names, identification number and gender should be recorded on the RtHC. The peri-natal/antenatal information of activities done before, during delivery and after birth is recorded indicating the gestational age of the pregnancy, complications during pregnancy on the space provided. The childôs date and place of birth; whether clinic, hospital or home, birth weight, body length, and head circumference is recorded to give baseline data for references on growth progress. Key words are used for information such as, never attended ANC, WR positive. The number of siblings born and those alive is indicated, and if there is death the reasons indicated as well.

e) Parents or caregiver identification- Full names of parents, or a person staying with child should be recorded on the space provided. The name of the health worker who gave the chart to parents is recorded too.

f) Visual And Hearing Screening-Vision screening should is assessed from 6 weeks, where a child can follow horizontal moving objects like a pen with both eyes. Hearing is assessed when the child is less than 12 months.

g) Vitamin A Supplements- Vitamins A given is recorded on the provided space indicating the date and signature of by the nurse who gave it.

h) Immunisation record- Immunisations given are recorded on schedule provided indicating the name of vaccine given, date, site and signature of the nurse who gave it.

i) In Need of special care- children at risk is should be indicated and the type of risk involved and so that timely advise and referral is done.

j) Health worker consultation sheet- clinical notes of the child should be recorded on the A4 fold of the cards. Short keywords notes taking 2 to 8 lines, including assessment of growth and actions taken so that other health workers can know what was previously done for the child.

k) Hospital admissions- the bottom right of the health worker consultation sheet is for the recording of discharge diagnoses and key follow up notes.

l) Clinic address -The health worker completing the chart should indicate the name of the clinic where it was first issued, and then if parents or caregiver relocates the new clinic is also recorded.

2.13 CONCLUSION

The literature review revealed that the RtHC is a tool for growth monitoring used by nurses in different facilities in many countries for children under five years of age (Cole 2002: 385; Morley & Meegan 2007: 1; Schoeman et al 2006: 1008-1010; South Africa [Sa]a and Tarwa 2007: 15c) . It was also identified that poor utilisation of the RtHC affects the health policy planners locally and internationally, the child and the community at large (Cavagnero et al 2008: 1285-1288; Gouws et al 2005: 614; Paoletti 2007: 39; South Africa 2007b: 22-24 and Victora et al 2006: 792-794). Chapter 3 will discuss the research methodology.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

The chapter outlines the research methodology. The research design, population, sampling and sampling technique, data collection method were discussed and applied to the study.

3.2 RESEARCH METHODOLOGY

3.2.1 Research Design

A quantitative non-experimental descriptive method was used. The method is used to contrast a picture of a phenomenon, explore events, people or situations as they naturally occur (Wood & Haber 2002: 222). The method presents an accurate picture of the population if it is representative of the situation. In this study an understanding of the reality of how nurses are utilising the RtHC in the care of children under five years of age and the nature of data recorded on the RtHC are investigated using this approach. The actions and intervention by nurses are observed in terms of their assessment of children, recording of the findings on the RtHC and how they utilised this information.

In descriptive studies, relationships amongst variables are identified to obtain an overall picture of phenomenon being studied and not to examine the degree of the relationship. Descriptive surveys have been used to collect detailed data to justify and assess current health practices by presenting a picture of a specific setting; Phadzima and Makhado Local area clinics of the Siloam Hospital area in the Vhembe district of Limpopo Province in South Africa.

3.2.2 Study Population

A study population is a well defined set of elements that have certain properties; like a set of people, in this study being health professionals and a set of the RtHC (Wood & Haber 2002: 240 and Burns & Grove 2005: 341). The target population was all health care workers under the twelve clinics under Siloam Hospital at Phadzima and Makhado local area. The accessible population was all health care workers from the 6 clinics within the local areas. Health care workers in the study are limited to nurses

of all categories; professional nurses, enrolled nurses and assistant nurses. Enrolled nurses and assistant nurses are included in this study because they are involved in child health by weighing, children, recording the findings and giving health education to the community.

3.2.3 Sampling and Sampling Techniques

Sampling is the process of selecting subjects from a designated population to represent the whole population (Wood & Haber 2002: 242). Probability sampling method was used. Probability sampling allows every member or element in the study population to stand an equal chance of being selected into the study (Bless, Hagson-Smith & Kagee 2006: 101). The method has an advantage of reducing sampling bias because the researcher cannot choose subjects based on likings, disagreements, illness state or inability to cope with the study.

3.2.3.1 Sampling: Nurses

A simple random method was used for nurses, using the duty roster as sampling frame as recommended by Burns & Grove (2005: 346) and Stommel & Wills (2004: 305). The inclusion criteria were the following:

- Nurses who are registered or enrolled with South African Nursing Council.
- Nurses should have been on duty at the clinic on the day of the survey.
- Nurses should be involved in the provision of care to children under five years of age on the day of the survey.

The sample for nurses therefore was all nurses in the particular selected clinic that complied with the inclusion criteria.

Clinics included in the study:

- Although the clinics *per se* are not being studied, they created the contextual environment for the study. Clinics that were chosen for the study provided services to children under five years of age on the duration of the study.
- According to Wood and Haber (2002: 256) ñthe general rule of thumb is to use largest sample possibleò. The larger the sample the more representative the population is likely to be, smaller samples produce less accurate results. Using

larger samples gives better chance of generalising the results to the whole district since two local areas are used out of possible 18 areas.

Six out of the total of 12 clinics were selected as research sites. The selection criteria included convenience and access to the researcher. The clinics all provided services to children under five of age and it was assumed that activities and interventions related to the RtHC in 50% of the clinics may be representative of the real situation in all the clinics in the local district. The clinics were chosen based on their accessibility of the roads because other clinics had bad gravel roads that were difficult to reach by the researcherôs car. Clinics and local areas understudy were assigned code to maintain confidentiality. At local area 1A; A, B, and C clinics were used; while at local area 2B; clinic D, E and F were used for data collection.

3.2.3.2 Sampling of documents (RtHC)

The documents used for analysis that were included in the study were the Road to Health Chats (RtHC) that have been used for children under five years of age who were brought to the clinic by a parent, caregiver or guardian and who were seen by a nurse. A total of 6 cases were included for each clinic.

The sampling method resulted in analysing and observing 36 cases/incidents in six of the 12 clinics of the study area.

3.3 DATA COLLECTION

Data was collected in the Vhembe District of Limpopo Province in South Africa, from nurses based at clinics under Phadzima and Makhado local area of the Siloam Hospital area. From the 12 clinics used for this study, each local area was represented by three clinics. Data were collected on a Wednesday because this was the day when most nurses were on duty. In so doing an opportunity was given for as many nurses as possible to participate in this study. This resulted in some of the clinics to be visited on four consecutive Wednesdays. Pilot study was not done.

3.3.1 Approaches to Data Collection

Two methods were used to collect data; document analysis of the Road to Health Chart (RtHC) by the researcher and observation of nurses using a structured checklist (Annexure

F), while rendering care to children under five years of age. A structured interview was conducted by the researcher with caregivers to validate the findings obtained through observation of nurses.

3.3.2 Document Analysis

Document analysis is a method of data collection using available data or records that can be used in both quantitative and qualitative research (Wood &Haber 2002: 304). Available data or records can be used to collect information from formal organisations such as hospital records, census, personal diaries, videos, newspapers and organisational financial reports amongst others.

3.3.2.1 Advantages of document analysis

a) It is time economical because it is readily available for use by the researcher. It reduces reactivity of subjects because they are not available. In this study the RtHC was readily available as the child visits the clinic. In some instances some of the information such as the personal information about the client and records of previous visits were already recorded on the RtHC. Records have to be kept for at least three years and allow for examination of trends. In the case of this study the RtHC was designed to follow up the child from birth to five years of age. The responsibility for safe keeping of the RtHC was with the parent, caregiver or guardian and not with the respective clinic. There were no missing RtHC during their visit to the clinic and the researcher had access to these records, Records provide the safety of anonymity because the physical presence of person involved is not necessary. In the case of this study however, because of the context of the situation, the documents were analysed in the presence of the child and the parent, nurse or guardian.

3.3.2.2 Disadvantages of document analysis

a) Institutions or individuals may deny access to the necessary records. In this study briefing of caregivers was done by the researcher to overcome the challenge of a possible denial to analyse the RtHCs.
b) Infringement of privacy of individuals because documents may contain personal and confidential information.

c) Validation of the quality and accuracy of data can be challenged, particularly if data is used retrospectively.
d) The relevance of data for the purpose of the study may be questionable and may lead to bias since the original purpose of recording was not done according to the parameters of a particular study.
e) Lack of standardised formats of records may lead to bias in terms of personal preferences and individual interpretations. In this study the RTHC is standardised by the Department of Health; South Africa, and clear guidelines are provided to all health facilities Documents contain a bulk of information which may involve time consuming processes to obtain relevant data (De Vos et al 2002: 326 and Woods & Haber 2002: 304). In this study the RtHC is kept by caregivers who present it to the nurses when bringing the child for consultation.

3.3.3 Structured Observation

Structured observation is a method of data collection where a decision is made prior the observation on what is to be observed and how to ensure every variable is observed in a similar manner in each instance (Burns & Grove 2005: 395). The method can be used in the following:

a) To observe the work site to provide information on the use of space, traffic flows, and more, were managers can obtain information on work processes.
b) Observe work behavior such as body language, time taken on some activities at work.
c) To observe social behavior that can be used to enforce changes such as in safety inspections, union officials and media reports (Welman, Kruger, and Mitchell 2005: 170-171).

In this study the method was used to observe nurses as they render care to children under five years of age and to observe the information recorded on the RtHC. Structured observation was conducted on nurses by using a checklist that was guided by internationally accepted norms for assessing development processes and health of children under five years of age. Using checklists is a technique to determine and record if an expected behavior in terms of pre-determined norms occurred or not (Burns & Grove 2005: 395). (Polit & Beck 2006: 308). Guidelines designed by the Department of Health

for the use of the RtHC were used as framework to categories used on the checklist. (Refer to Annexure F).

3.3.3.1 Advantages of structured observation

a) The method provides the researcher the opportunity to observe and capture information in a real and contextualised situation.
b) A structured observation instrument, such as a checklist provides an objective structure which decreased researcher bias. The method ensures consistency. A Checklist in this study was constructed guided by the research objectives and the norms and standards of the RtHC as a theoretical framework of the study.
c) The method can be used to study human behavior. In this study the behavior of nurses as they utilise the RtHC in recording and interpreting findings while treating children under five years of age.

3.3.3.2 Disadvantages of structured observation

a) Hawthorne effect-subjects or participants under observation may react in a way thought to be desired by the researcher. The researcher in this study controlled this by having an exit structured interview with the caregiver to validate the findings by determining of actions and interventions by nurses are the normal or have just occurred during the period of observation.
b) Observation without using structured instruments such as checklists may lead to researcher biases because of choosing behavior of personal interest. Consistency and reliability of the observation by a once off observation of the phenomenon, is a challenge and may result in conclusions based on assumptions and perceptions.
c) Ethical principles may be violated if the participantõs consent is not obtained before observation (Berg 2004: 7; Burns & Grove 2005: 395, Polit & Beck 2006: 310 & Wood & Haber 2002: 298).

3.3.3.3 Structured interview

Structured interview is strategy that provides control by the researcher over the contentment of the interview. The method provides the opportunity to prepare the questions before the interview and order of questions is designed in a specified manner to meet the objectives of the study. In this study the researcher designed

the questions and was submitted to the supervisor for control of content validity. In this study the researcher conducted the interview with the caregivers after consultation with the nurse to check the validity of the behavior of nurse during observation (Burns & Grove 2005:396).

3.3.3.3 Advantages of the method

It is a flexible method that allows the researcher to explore the information in greater depth than with other methods.

Interpersonal skills can be used to obtain more information from subjects

It has more response rate than questionnaires thus providing more representative sample.

It allows collection of data from subjects who cannot read or write or are unable to express themselves (Burns & Grove 2005:396).

Disadvantages of the method

The method is costly because the researcher needs time to collect data.

The cost of time and costs sample size could be limited.

It has increased threat of subject bias due to inconsistency of data collection from one subject to another (Burns & Grove 2005:397).

3.4 DATA ANALYSIS

3.4.1 Data Coding, Capturing and Cleaning

Data was collected from each respondent using three instruments, which were linked by assigning each respondent a unique identifying code. The instrument consisted of close and open-ended questions. Each close item in the instrument was coded to enable the statistical processing. Data was captured using the Statistical Package for Social Sciences (SPSS Version 16.0) software. A double entry system was used whereby data from each questionnaire was entered twice and the results compared. Data from the hard copy of the checklist was entered into the electronic system and then information entered is compared with the original data to verify and check for consistency. The questionnaire is considered entered correctly if the items showed no difference. If any difference between the two was observed, the entry was thoroughly checked and data capturing errors corrected. After all the questionnaires were entered, each was then linked using the unique identifying code. Data was then cleaned to check the consistency of the captured data with the instrument (SPSS 2007).

3.4.2 Validity and Reliability of the Instrument

Validity is the ability of the instrument to measure what it is suppose to measure, like a hemoglobin meter that is only used to measure red blood cells level and not temperature. Related concepts like weight, height and head circumference and other concepts related to RtHC were used in developing the instrument. The instruments were developed based on the guideline of the RtHC developed by the Department of Health which is the theoretical framework of the study to ensure content validity. Checklists were developed to tick data recorded on the RtHC and for observations made while nurses render care to children under five years of age. A structured questionnaire was developed to validate observations from nurses. All the instruments were checked by the research supervisor for content relevance and were adjusted accordingly.

Face validity is the way the instrument appears whether it looks simple or complicated to measure what it is suppose to measure or childish to subjects and other experts. In this study the instrument was presented to the supervisor for checking and relevant corrections were made.

Internal validity is the when the results of the study are true reflection of reality rather than the results of extraneous variables (Burns & Grove 2005: 215). Consistency of the measuring instrument was maintained by using a structured checklist to observe nurses and a structured questionnaire for exit interview with caregivers. Subjects were randomly selected using an off duty rooster as a sampling frame and every second nurse on each category was selected for the study.

External validity is the ability of the results to be generalised beyond the sample used in the study (Burns & Grove 2005: 218). Clinics that participated in the study were randomly selected and all accepted to participate in the study. Subjects selected were willing to participate in the study and no one dropped out of the study.

The Hawthorne Effect, which is the subjectõs knowledge of being, observed that influences their behavior during data collection and possibly changes their actions, was controlled by observing the actions and interventions of one nurse in at least two different incidents (two different children). The Hawthorne Effect was further controlled by having a structured exit interview with caregivers after consultation to find out if the behavior of the nurse was the normal when dealing with this particular caregiver during different visits to the clinic. This method was also used by Arifeen et al (2005: 261) in a study of assessing the quality of care for children under five years of age in Bangladesh.

Reliability is the ability of the accuracy and consistency of the instrument to, which is obtained when the instrument is used under the same condition (Brink 2006:101, Wood & Haber 2003: 3140).

3.5 ETHICAL CONSIDERATIONS

Permission to collect data from the study area clinics was requested from the Limpopo Department of Health and Social Development research committee (Annexure D) and clinic managers (Annexure C) as recommended by Brynard & Hanekom (2005: 33). Permission was granted.

Written consents were obtained from the participating nurses. Adequate information was provided to enable them to make an informed decision about their participation on a voluntary basis. (Annexure E) Information provided to participants included the purpose, nature and value of the study. They were assured about maintaining the principle of anonymity and that they may withdraw from the study at any stage, without any negative

consequences. De Vos et al (2002: 59) recommends that research must be presented from accurate and complete facts taken from sources that have not been forced by the researcher. Even though children were not subjects under study, verbal consent was obtained from caregivers because of the presence of the researcher during their consultation, thus respecting their privacy.

Anonymity was maintained by using codes for clinics and subjects under study and this will only be known by the researcher. The researcher maintained honesty to the research institution by avoiding fabrication, falsification and plagiarism. Fabrication is making up of results and their recording. Falsification is manipulation of research process or omitting data reports. This was prevented by using a qualified statistician for data analysis and recording (Burns & Grove 2005: 204: McBurney & White 2004: 57 and Wood & Haber 2003: 271-277).

3.6 CONCLUSION

The data collection process was helpful in providing first-hand experience on how data is collected and also the challenges involved. The next chapter will with analysis, presentation and description of research findings.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1. INTRODUCTION

In this chapter the management and analysis of data collected through structured observation of the RtHC used by nurses and a structured interview of caregivers are discussed. Research results are analysed and interpreted with the aim of finding scientific evidence on which recommendations which are discussed in detail in chapter 5 of this study are based.

4.2. DATA MANAGEMENT AND ANALYSIS

Closed data items on the questionnaire were analysed by means of frequency tables and cross-tabulations. Questions X ï X in the checklist in Annexure F provided information on the profile of the nurses who participated in this study, identification of the child, relevant medical and social history of the child, growth monitoring criteria, services rendered according to the purpose of the visit, interventions based on services needed and professional communication. Where necessary, cross-tabulations were used to show relationships between different items in the questionnaire. Data were presented in the form of tables and graphs to make it simple to understand.

Open ended questions (Questions x-y on the checklist in Annexure F) which covered information on experience of the caregivers after consultation, whether their queries on the child were addressed or not, the kind of information or feedback given after consultation, whether nurses usually provided caregivers with information on growth and development of the child and if caregivers were involved in decision making about the health of the child were categorised, analysed and discussed. Data from open ended structured exit interview with caregivers was co-coded by a qualified statistician and analysed.

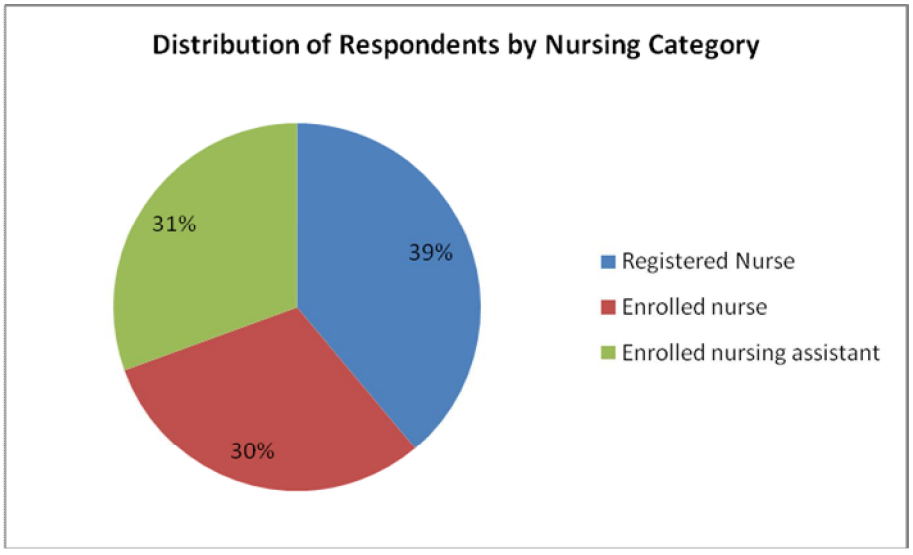
4.3. FINDINGS

4.3.1. Profile of Nurses

4.3.1.1. Category of nurse and their professional experience in primary health care clinics

The study sample consisted of randomly selected nurses from six clinics of the study area which were involved at some or other level in assessing the growth and development of children. These clinics were selected based on their accessibility not on their performance. The participants consisted of professional nurses (39 %), enrolled nurses (30 %) and enrolled auxiliary nurses (31 %). Sixty one per cent of the nurses (61 %) of whom the majority (38%) were registered nurses had more than ten (10) years experience in the PHC clinics, 19.4 % of the respondents had 2-4 years experience and a further 19.4 % had 5-9 years of work experience in the PHC clinics.

Figure 4.1 Pie Chart for nursing categories



The results revealed that service in the PHC clinics in the study area was provided by a high percentage of registered nurses with more than 10 years experience in the PHC environment. This finding creates an expectation that the large number of well experienced

nurses in terms of the interpretation and utilisation of the RtHC should result in effective and comprehensive child health care.

4.3.1.2. Qualifications

It was found that all the registered nurses had obtained relevant qualifications for comprehensive health care delivery to children under five years of age, over and above their basic qualifications. The study revealed that 64.3 % of the nurses had an additional qualification in community nursing, 42.9 % had obtained additional qualifications in health assessment, treatment and care as well as midwifery while one fifth of the registered nurses (21.4 %) had received additional training in midwifery only as indicated in Table 4.1.

Enrolled nurses and the enrolled nursing assistants practice within a different scope of practice and are mainly involved with the taking of vital health signs including weighing of the babies. They are often responsible of doing these assessments and record their findings prior to the child being attended to by the registered nurse who is responsible for doing the child consultation. Enrolled nurses and nursing assistants function under direct or indirect care of a registered nurse. If assessment of the child is therefore not recorded accurately or comprehensively, it should be the responsibility of the registered nurse to follow up on and correct these issues. (R 217, 1993, paragraph 6(2) (b) & (f); SANC 1978, paragraph (1) & (5)). Referring the child to a registered nurse for final consultation by the enrolled nurse or nursing assistant is also in line with the national guidelines on the use of the RtHC (South Africa [Sa]a).

Table 4.1 Professional qualification of nurses

	Professional Qualifications				Other professional qualification			
	Community Health Nursing including basic community health nursing	Advanced Midwife	Post basic pediatric nursing	No Professional Qualification	Midwifery	No other professional qualification	PHC	PHC and Midwifery
Registered Nurse	9	0	1	4	3	1	4	6
	64.3%	0.0%	7.1%	28.6%	21.4 %	7.1%	28.6%	42.9%
Enrolled nurse	0	0	0	11	0	11	0	0
	0.0%	0.0%	.0%	100%	.0%	100.0%	0.0%	0.0%
Enrolled nursing assistant	0	0	0	11	0	11	0	0
	0.0%	0.0%	0.0%	100%	.0%	100.0%	0.0%	0.0%
Total	9	0	1	26	3	23	4	6
	25.0%	0.0%	2.8%	72.2%	8.3%	63.9%	11.1%	16.7%

4.3.1.3. Additional short courses to professional training

In the previous discussion, the emphasis was on additional formal qualifications of the nurses who participated in this study. There are also informal short courses which are attended by all categories of nurses to update their knowledge and skills in specific areas of their practice. The definition of a short course is a formal job related education undertaken for one or more days in a recognised institution. The results of this study revealed that ninety per cent of the professional nurses attended such additional short courses. It was found that nurses who participated in this study attended short courses in Integrated Management of Childhood Illness (IMCI) (71.4%), Prevention of Mother to Child Transmission of HIV (PMTCT) (64.3%), Treatment and management of Tuberculosis (TB), Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS) (78.6 %) and breastfeeding enhancement (64.3 %).

Nurses having additional qualifications relevant to the rendering of an effective and comprehensive health care create the expectation that the RtHC is a valuable tool to achieve an effective and comprehensive health care particularly to children under five years of age if the RtHC is optimally used. Contrary to this expectation however the results of this study revealed that the RtHC was not completed comprehensively and accurately in this study area to justify the expectations. The results of this study revealed some of the following shortcomings:

- 94.9 % of the RtHC did not have serology results as indicated in Table 4.32.
- In 94.4 % of cases gestational age on delivery was not recorded as shown in Table 4.31.
- 92.9 % % of the registered nurses had not assessed children for nutrition and breastfeeding as indicated in Table 4.11.
- Only 14.3 % of cases had indicated the weight curve on the graph of the RtHC as shown in Table 4.6.
- In 78. 6 % of cases registered nurses did not give follow-up dates for assessment of nutritional status of children as indicated in Table 4.3.

It therefore became evident that registered nurses did not use their professional skills that contribute to comprehensive child care as expected by the Department of Health as indicated in Tables 4.6, 4.8 and 4.11.

With regards to the utilisation of enrolled nurses who participated in this study and who were also provided with the opportunity to attend short courses as indicated in Table 4.2, it seems as if the application of the knowledge and skills obtained in these course were not applied when using the RtHC taking into consideration of the following observations:

- Although 54.5 % of enrolled nurses had attended breastfeeding course as shown in Table 4.2 they still could not use the knowledge they had acquired to record and advice the caregivers on child breastfeeding in 81.8 % of the RtHC.
- It was found that only 18.2 % of the enrolled nurses were familiar with the RtHC and could record and utilise the information to give relevant intervention for the child as shown in Figure 4.4.

Table 4.2 Additional Short Courses to Professional training

	Short Courses in Addition to Professional Qualification						
	IMC for Professional Nurses	IMCI for Nurses Auxiliaries	PMTCT	TB and HIV/AIDS	Breastfeeding	TB	Adherence
Registered Nurse	10	0	9	11	9	3	2
	71.4%	0.0%	64.3%	78.6%	64.3%	21.4%	14.3%
Enrolled nurse	0	0	0	6	6	0	0
	0.0%	0.0%	.0%	54.5%	54.5%	.0%	.0%
Enrolled nursing assistant	0	0	0	0	0	3	0
	0.0%	0.0%	.0%	.0%	.0%	27.3%	.0%
Total	10	0	9	17	15	6	2
	27.8%	0.0%	25.0%	47.2%	41.7%	16.7%	5.6%

Table 4.3 Nutritional status

	Nutritional status				
	not applicable	Scheduling of follow up visit	applicable but not done	No Response	Total
Registered Nurse	1	1	11	1	14
	7.1%	7.1%	78.6%	7.1%	100.0%
Enrolled nurse	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Enrolled nursing assistance	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Total	3	3	29	1	36
	8.3%	8.3%	80.6%	2.8%	100.0%

	Weight in kilograms						
	Feedback and relevant education	Referral	Scheduling of follow up visit	Present but incomplete, inaccurate or irrelevant	applicable but not done	No Response	Total
Registered Nurse	1	0	2	9	1	1	14
	7.1%	.0%	14.3%	64.3%	7.1%	7.1%	100.0%
Enrolled nurse	2	1	0	6	2	0	11
	18.2%	9.1%	.0%	54.5%	18.2%	.0%	100.0%
Enrolled nursing assistance	0	1	1	8	1	0	11
	.0%	9.1%	9.1%	72.7%	9.1%	.0%	100.0%
Total	3	2	3	23	4	1	36
	8.3%	5.6%	8.3%	63.9%	11.1%	2.8%	100.0%

Table 4.4 Weight in kilograms

4.3.1.4. Experience in a Primary Health Care Clinic

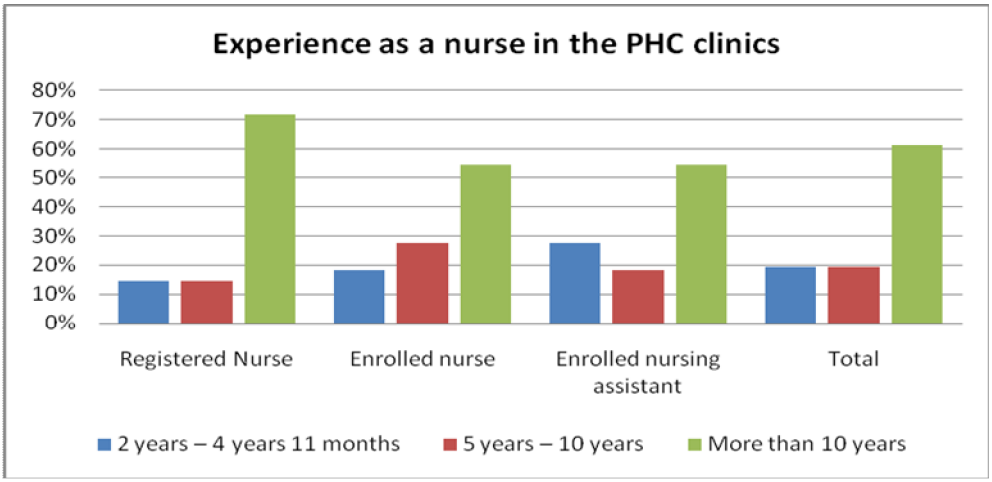
The majority of registered nurses (71.4 %) indicated that they had more than 10 years experience working in the PHC clinics. If all nurse categories are combined 61.1 % had more than 10 years experience in the PHC clinics and 19.4% have 2-4 years of experience. The experience of nurses does not correlate with the expectations about their skills and knowledge about providing comprehensive care to children under five years of age or the utilisation of the RtHC. As shown in Table 4.4: 64.3 % of registered nurses in this study recorded the weight of the child on the RtHC. Weight is said to be accurately recorded if after the weighing of the child the observation results is plotted on the graph curve and the respective dots are correctly joined. The total number of children weighed was 100 % (Table 4.4), of this number of children weighed; registered nurses gave follow up dates to only 14.3 % while assistant nurses gave follow up dates to only 7.1 % of the children. In only 7.1% of cases did the registered nurses utilise the information on the RtHC to give feedback to caregivers. This indicates failure of nurses to use the experience and

qualifications they have. In only 14.3% indicated in Table 4.9 the registered nurses did do the actual developmental assessment of the children who were due for such assessment, with 85.7% not done. This suggests that caregivers in the study area are not informed about important milestones of their children and do not receive the necessary guidelines based on the RtHC to effectively care for the children. The results further revealed that nutritional assessment of babies, which form the basis for the early identification of malnutrition and influence the decision to provide caregivers with food supplements were only conducted in 14. 3% by registered nurses with another 14.3 % not accurately done and 64.3% not assessed (Table 4.16). This contradicts the INP recommendation that every child under five years of age should be assessed for nutritional status (South Africa 2001b: 67).

Table 4.5 Experience as a nurse in the PHC Clinics

	Experience as a nurse in the PHC clinics			
	2 years ï 4 years 11 months	5 years ï 10 years	More than 10 years	Total
Registered Nurse	2	2	10	14
	14.3%	14.3%	71.4%	100.0%
Enrolled nurse	2	3	6	11
	18.2%	27.3%	54.5%	100.0%
Enrolled nursing assistant	3	2	6	11
	27.3%	18.2%	54.5%	100.0%
Total	7	7	22	36
	19.4%	19.4%	61.1%	100.0%

Figure 4.2 Experience of nurses in PHC clinics



The majority of the registered nurses (71.4 %) had more than 10 years of work experience in PHC Clinics. The number of years spent in the clinics needs to be proved by the competency of skills gained from services rendered at every day encounter with the children. Nursing competency that stems from training and experience of a nurse depends on combining interpersonal and technical skills with critical thinking (Uys 2007: 29). The findings of this study presents that nurses of all categories were not using their experience: and the qualifications in the utilisation of the RtHC to effectively render care to children under five years of age in the study area. It can be concluded that there is underutilisation of skills and qualifications by nurses with less output of value for money spent on training of nurses by the Department of Health in South Africa.

4.3.2. Levels of Implementation of the GOBI-FFF Approach by Nurses

It was previously mentioned that the RtHC was designed in line with the GOBI-FFF approach. This approach was reviewed in detail in Chapter 2. By integrating the findings from document analysis, observation and interviews with the caregivers, conclusions could be derived on the level of implementation of the GOBI-FFF approach by nurses who participated in this study.

4.3.2.1. Growth Monitoring

The assessment of growth monitoring was based on the physical assessment, interaction between the nurse and the caregiver and the nature of information recorded on the RtHC in terms of height, weight, head circumference, physical development, and illness and feeding of the individual child.

In Table 4.6, the case for which the weight of the child was measured and the outcome plotted on the growth curve on the RtHC is indicated. It shows that this was done in only 16.7% of cases, regardless of the category of the nurse involved in the procedure. It was interesting to note that the enrolled nurse category was the most likely to perform this activity in line with the guidelines (27.3%) while in only 9.1% of the cases where enrolled nursing assistant was allocated this task, the guidelines were followed.

Table 4.6 weight in kilograms- graphic curve

	Weight in kilograms ï graphic curve				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	2	8	3	1	14
	14.3%	57.1%	21.4%	7.1%	100.0%
Enrolled nurse	3	6	1	1	11
	27.3%	54.5%	9.1%	9.1%	100.0%
Enrolled nursing assistance	1	7	3	0	11
	9.1%	63.6%	27.3%	.0%	100.0%
Total number of cases	6	21	7	2	36
	16.7%	58.3%	19.4%	5.6%	100.0%

The norms and standards of the RtHC guidelines (South Africa [Sa]a) recommend that children under two years of age should have their head circumferences and height measured monthly. Solarsh and Goga (2007: 117) indicate that weight-for-age estimates provide national trends of anthropometric status of different population groups. Regular measuring of height and weight for children helps in deciding whether a child is underweight or not which needs to be investigated and treated. Malnutrition is associated with many deaths of babies and the growth profile of children measured against the

national norm is therefore one of the most sensitive indicators to address infant mortality rates (South Africa 2007: 1). It is therefore of paramount importance that nurses of all categories should be vigilant in the implementation of the guidelines on growth monitoring.

Table 4.7 Head circumference in centimeters- graphic curve

	Head circumference in centimeters - graphic curve				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	0	1	11	2	14
	.0%	7.1%	78.6%	14.3%	100.0%
Enrolled nurse	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Enrolled nursing assistance	0	0	11	0	11
	.0%	.0%	100.0%	.0%	100.0%
Total number of cases	1	2	31	2	36
	2.8%	5.6%	86.1%	5.6%	100.0%

The measuring and plotting of the head circumference curve on the RtHC was absent in 86.1 % of the cases, in 11.2 % of the cases the measuring was either incomplete, inaccurate or totally absent. Only in 2.8 % of cases were the guidelines on the measurement of head circumference followed and accurately recorded while 5.6 % showed no responses in all the nursing categories. Registered nurses, despite their experience and additional qualifications, did not comply with the guidelines in 78.6 % of the cases. It was noted that in cases where the initial assessment of children was done by enrolled nursing assistants head circumference was not measured at all. The purpose of determining the head circumference is to detect normal growth and protein-energy-malnutrition that could affect the intellectual development of a child (Boyle & Holben 2006: 321). Failure of nurses to record head circumference on the RtHC may result in the children with actual or potential intellectual challenges, not been referred to the relevant professionals, in time.

Meaningful interpretation of physical development of children under five years of age can only be done in terms of weight-for-height. Tables 4,6 and 4.7 should therefore both be

taken into consideration when conclusions are made about the level of compliance to the guidelines about growth monitoring. It is a major concern that although only in 16.7% (6) of the 36 observed cases, weight was determined; a total lack of meaningful interpretation is evident because only in 2.8% (1) of the 36 cases was the height of the child recorded on the RtHC. The conclusion can therefore be made that interpretation in terms of weight-forï height is totally absent in these clinics.

Table 4.8 Height in centimeters

	Height in centimeters ï graphic curve			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	0	12	2	14
	.0%	85.7%	14.3%	100.0%
Enrolled nurse	1	10	0	11
	9.1%	90.9%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total number of cases	1	33	2	36
	2.8%	91.7%	5.6%	100.0%

Table 4.9 Developmental stages ï vision and hearing

	Developmental stages according to age - including vision and hearing				
	Scheduling of follow up visit	Present but incomplete, inaccurate or irrelevant	applicable but not done	No Response	Total
Registered Nurse	1	0	12	1	14
	7.1%	.0%	85.7%	7.1%	100.0%
Enrolled nurse	1	0	10	0	11
	9.1%	.0%	90.9%	.0%	100.0%
Enrolled nursing assistance	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Total	3	1	31	1	36
	8.3%	2.8%	86.1%	2.8%	100.0%

Physical developmental of children under five years of age was not recorded in 92.9 % of cases while there were 7.1 % of non-responses as indicated in Table 4.9.

The failure of assessing physical development of the child by registered nurses indicates that knowledge gained in midwifery and community nursing is not correlated into practice when rendering child care. Assessment and recording of physical development assist nurses to identify any abnormalities in terms of milestones of child development. In cases where abnormalities have been identified, these children are referred to other health team members such as physiotherapists (South Africa [Sa]a).

4.3.2.2. Oral Rehydration

Table 4.10 Oral rehydration

	Rehydration					
	Not applicable	feedback and relevant education	Scheduling of follow up visit	Present but incomplete, inaccurate or irrelevant	No Response	Total
Registered Nurse	8	2	1	1	2	14
	57.1%	14.3%	7.1%	7.1%	14.3%	100.0%
Enrolled nurse	8	1	0	1	0	10
	80.0%	10.0%	.0%	10.0%	.0%	100.0%
Enrolled nursing assistance	7	0	0	1	3	11
	63.6%	.0%	.0%	9.1%	27.3%	100.0%
Total	23	3	1	3	5	35
	65.7%	8.6%	2.9%	8.6%	14.3%	100.0%

Oral rehydration therapy (ORS) was not applicable in 65.7 % but 8.6 % was applicable of which 2.9 % were given follow up dates and 8.6 % with incomplete information given and 14.3 % of no responses. It is a concern when parents are not properly advised on rehydration in the event of diarrhea because it is claimed that children die quickly due to dehydration (Rehdration Project 2008). Failure to give follow up dates to children means that there is no close monitoring of complications or progress from dehydration. This limits the aim of interventions as children with diarrhea or vomiting die of dehydration. Giving ORS advice to the caregivers promotes confidence in managing and preventing dehydration even in future illnesses (Kibel & Wagstaff 2003: 155). Similar findings were recorded by Arifeen et al (2005: 263) in Bangladesh where only 13 % of the children were correctly treated. Of the 8.6 % advised on ORS, only 2.9 % was scheduled for follow up

visit. Although ORS is important in correcting dehydration, details on how it was prescribed by nurses were not obtained since it was not the main focus of this study.

4.3.2.3. Breastfeeding

Table 4.11 Nutritional status as per observation - including breastfeeding by mother

	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	0	13	1	14
	.0%	92.9%	7.1%	100.0%
Enrolled nurse	1	9	1	11
	9.1%	81.8%	9.1%	100.0%
Enrolled nursing assistance	0	10	1	11
	.0%	90.9%	9.1%	100.0%
Total	1	32	3	36
	2.8%	88.9%	8.3%	100.0%

Breastfeeding of the child was accurately recorded by 9.1 % of enrolled nurses, while 92, 9 % of registered nurses did not record on the RtHC. The absence of the feeding type of the child on the RtHC means that the promotion of breastfeeding is not done to caregivers and the training on breastfeeding received by nurses as indicated in Table4.11 is not utilised. Failure to record feeding type on the RtHC limits the fulfilment of the tool. It is recommended that health workers should have time to support HIV positive mothers who opted for formula feeding and breastfeeding mothers as well (South Africa 2007d: 24).

4.3.2.4. Immunisation

Table 4.12 Immunisation status - scheduled according to immunisation history

	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	9	4	0	1	14
	64.3%	28.6%	.0%	7.1%	100.0%
Enrolled nurse	8	2	1	0	11
	72.7%	18.2%	9.1%	.0%	100.0%
Enrolled nursing assistance	5	4	2	0	11
	45.5%	36.4%	18.2%	.0%	100.0%
Total	22	10	3	1	36
	61.1%	27.8%	8.3%	2.8%	100.0%

Immunisation status on the provided spaces of the RtHC was recorded in 64.3 % by registered nurses being accurate and complying with the norms and 28.6 % of inaccurate recordings by registered nurses. Enrolled nurses recorded immunisation status in 72.7&% of the RtHC being compliant with the norms of the RtHC. There were 27, 8 % inaccurately recorded RtHCs by all categories and this means that available data is not kept according to norms and standards of the RtHC and proper interpretation of growth monitoring can therefore not be done. The RtHC guideline (South Africa [Sa]a) recommends that immunisations given should have a date and signature of the nurses who gave it. In this study, complete and accurate professional details for registered nurses were indicated in 78.6 % which were accurately recorded, with 7.1 % inaccurately recorded and 7.1 % absentees on the RtHC and 7.1 % of non-responses. Enrolled nurses had indicated accurate professional details and signatures in 45.5 % with 9.1 % inaccurately recorded and 45.5 % not indicated. This contradicts the principle of record keeping as indicated in (Berman 2008:255 and White 2003: 96-101). Without recording of immunisation history on the provided spaces of the RtHC, the Department of Health cannot compile accurate data on immunisation coverage status of the country. If immunisations are not recorded on the RtHC it could imply that children are not fully immunised and such report could mean planning of mass campaign by the Department of Health which is costly and painful to the children.

Table 4.13 Signatures and professional details

	Immunisation : Signature and professional details of the person who immunised the child				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	11	1	1	1	14
	78.6%	7.1%	7.1%	7.1%	100.0%
Enrolled nurse	5	1	5	0	11
	45.5%	9.1%	45.5%	.0%	100.0%
Enrolled nursing assistance	5	3	3	0	11
	45.5%	27.3%	27.3%	.0%	100.0%
Total	21	5	9	1	36
	58.3%	13.9%	25.0%	2.8%	100.0%

Table 4.14 Immunisation

	Not applicable	**feedback and relevant education**	**Scheduling of follow up visit**	**Present but incomplete, inaccurate or irrelevant**	**Applicable but not done**	**No Response**	**Total**
Registered Nurse	2	5	0	0	3	4	**14**
	14.3%	35.7%	.0%	.0%	21.4%	28.6%	**100.0%**
Enrolled nurse	2	7	0	0	0	2	**11**
	18.2%	63.6%	.0%	.0%	.0%	18.2%	**100.0%**
Enrolled nursing assistance	1	4	1	2	1	2	**11**
	9.1%	36.4%	9.1%	18.2%	9.1%	18.2%	**100.0%**
Total	5	16	1	2	4	8	**36**
	13.9%	**44.4%**	**2.8%**	**5.6%**	**11.1%**	**22.2%**	**100.0%**

Registered nurses gave feedback and education to 35.7 % of caregivers, 21.4 % of children was applicable for immunisation but not done, with 14.3 % and 28.6 % of no responses and no follow-up dates given to caregivers. These findings indicate that registered nurses were not applying their critical thinking when giving immunisations, because with 21.4 % of the children not immunised in a day and of those immunised there were no follow-up dates given for the next service, immunisation coverage targets can

therefore not be reached. This shows that services were given because routine dictates so without focusing on collective overall objective of the Department of Health.

Enrolled assistant nurses gave follow up dates for immunisation to 18.2 % of caregivers while registered and enrolled nurses did not give any follow up date. This indicates that enrolled assistant nurses can be involved in immunisations in giving relevant advices since they are not permitted to immunise by the scope of practice. When caregivers are not advised of the necessary immunisation dates of the child, it impacts in the goal to reduce infectious diseases amongst children (Kibel and Wagstaff 2003:200). The RtHC guideline norms and standards recommend that immunisation status must be checked at every visit to the clinic (South Africa [Sa]a). The failure to give feedback to caregivers was confirmed through the exit interview that 57.1 % of caregivers were neither involved nor given feedback on the growth and development of the child. This confirms the report by Boyle(2006:435) that more than 30 million children worldwide are unimmunised because of factors such as unavailability of vaccines, parents not informed of return dates and the reasons for child immunisation (Boyle 2006:435).

4.3.2.5. Family Planning

Table 4.15 Family planning \ birth control implemented by parent

	Family planning / birth control implemented by parents		
Nursing Category	Absent	No response	Total
Registered Nurse	13	1	14
	92.9%	7.1%	100.0%
Enrolled nurse	11	0	11
	100.0%	.0%	100.0%
Enrolled nursing assistance	10	1	11
	90.9%	9.1%	100.0%
Total	34	2	36
	94.4%	5.6%	100.0%

Family planning or birth control methods of the mother were not recorded in 94.4 % and 5.6% gave no response. Failure to record birth control used by the mother on the RtHC means that nurses are ignorant or unaware of the relationship between health of the mother and that of the child. This contradicts the recommendation of GOBI-FFF that mothers should receive birth spacing advices as a means to promote good health thus reducing child and mortality rate (Kibel & Wagstaff 2003:153) as it is believed that multiple

births predisposes to maternal low weight and prematurity or low birth weight (Coovadia & Wittenberg 2005: 119).

4.3.2.6. Food Supplement

Table 4.16 Nutritional assessment

	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	2	2	9	1	14
	14.3%	14.3%	64.3%	7.1%	100.0%
Enrolled nurse	1	1	8	1	11
	9.1%	9.1%	72.7%	9.1%	100.0%
Enrolled nursing assistance	0	1	8	2	11
	.0%	9.1%	72.7%	18.2%	100.0%
Total	3	4	25	4	36
	8.3%	11.1%	69.4%	11.1%	100.0%

The nutritional status of the child is checked by all categories of nurses. Recording of information showed the following:

Nutritional assessment was not recorded on 69.4 % of the RtHC. In 8.3 % of cases the recording was complete and accurately done, and in 11.1 % of cases no information was recorded with a further 11.1 % of no response. If the pattern of recording of nutritional status is assessed in terms of the nurse categories, it was found that registered nurses did not assess or record nutritional status in 64.3 % of cases. In 14.3 % of cases the information recorded on the RtHC complied with the RtHC guideline norms while 14.3 % did not comply and 7.1 % of non-response. Enrolled nurses had 72, 7 % no feeding assessment done, 9.1 % not correctly done and 9.1 % correctly done. With 69.4 % of nutritional assessments not done by all nurses, there is a possibility that the area could be affected by problems such as obesity, marasmus, kwashiorkor or underweight which are not detected. This goes beyond the individual child and clinic, but affects the whole Department of Health as the actual nutritional status and interventions of the nation cannot be determined and healthy communities (Coovadia & Wittenberg 2005: 119).

4.4. COMPLIANCE OF RECORDING ON THE RTHC IN TERMS OF CRITERIA AND GUIDELINES OF RECORD KEEPING

Table 4.17 Date, name, signature and category of nurse responsible for feedback and education on RtHC

	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Applicable but absent	No Response	Total
Registered Nurse	4	2	7	1	14
	28.6%	14.3%	50.0%	7.1%	100.0%
Enrolled nurse	4	3	4	0	11
	36.4%	27.3%	36.4%	.0%	100.0%
Enrolled nursing assistance	2	3	6	0	11
	18.2%	27.3%	54.5%	.0%	100.0%
Total	10	8	17	1	36
	27.8%	22.2%	47.2%	2.8%	100.0%

Table 4.18 Date, name, signature and category of health worker responsible for assessment clearly indicated on road to health chart

	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Applicable but absent	No Response	Total
Registered Nurse	3	5	5	1	14
	21.4%	35.7%	35.7%	7.1%	100.0%
Enrolled nurse	6	2	3	0	11
	54.5%	18.2%	27.3%	.0%	100.0%
Enrolled nursing assistance	2	2	7	0	11
	18.2%	18.2%	63.6%	.0%	100.0%
Total	11	9	15	1	36
	30.6%	25.0%	41.7%	2.8%	100.0%

In less than half of the records that were assessed, 30.6 % had the date of consultation, name of nurse and signature of the nurse responsible for the childôs assessment accurately recorded, 25.0 % incomplete and inaccurately recorded, the same information was absent on 41.7 % of the cards while 2.8 % had no response.

Absence of crucial information such as signature of the nurse means that the particular nurse who dispensed the service to the child would not be identified. This further shows

that professionalism is not maintained in record keeping by nurses in the clinics. White (2003: 96) recommends that facts about patients should be recorded as seen, heard or done. This means that spaces provided on the RtHC for recording return dates are not utilised and the aim of providing an accurate home-based tool for caregivers has been compromised. This was confirmed at the exit discussions held with the caregivers by the researcher as 44.4 % of caregivers indicated that they were not given time to ask questions as nurses were in a hurry. Smith (2005: 4) states that parents should be given relevant information for the services needed, so that they can make informed choices and provide quality care of the child at home. Withholding feedback to caregivers was also found in a study done by Arifeen et al (2005: 263) where only one caregiver out of 274 was given advice on when to return to the clinic in case of complications on the child.

Table 4.19 Date, name and signature of the nurse

	Date, name, signature and category of health worker responsible for intervention clearly indicated on Road to health chart				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Applicable but absent	No Response	Total
Registered Nurse	3	2	8	1	14
	21.4%	14.3%	57.1%	7.1%	100.0%
Enrolled nurse	4	3	4	0	11
	36.4%	27.3%	36.4%	.0%	100.0%
Enrolled nursing assistance	1	3	7	0	11
	9.1%	27.3%	63.6%	.0%	100.0%
Total	8	8	19	1	36
	22.2%	22.2%	52.8%	2.8%	100.0%

Table4.20 Adherence to confidentiality

	Not applicable	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Applicable but absent	No Response	Total
Registered Nurse	1	11	1	0	1	14
	7.1%	78.6%	7.1%	.0%	7.1%	100.0%
Enrolled nurse	0	6	1	4	0	11
	.0%	54.5%	9.1%	36.4%	.0%	100.0%
Enrolled nursing assistance	1	5	0	5	0	11
	9.1%	45.5%	.0%	45.5%	.0%	100.0%
Total	2	22	2	9	1	36
	5.6%	61.1%	5.6%	25.0%	2.8%	100.0%

Professional confidentiality was maintained by 61.1 % of nurses who were able to maintain individual privacy on the client while 25.0 % did not maintain individual privacy because they attended clients in a group which prevents individualized care and respect of caregivers. This behavior of nurses indicates that nurses failed to regard a child and the caregiver as individuals with unique personalities and health needs. Failure of nurses to maintain confidentiality prevents caregivers the freedom to ask questions related to child growth. This was confirmed in the exit interview in Table 4.39 where parents indicated that they did not ask questions as nurses were in a hurry, for example. Maintaining professional confidentiality through individualised care giving in growth monitoring, helps in giving advice and support to mothers with sensitive issues such as HIV positive status who often face social stigma associated with HIV (Coovadia & Wittenberg 2006: 185).

Figure 4.3 Familiarity with professional communications

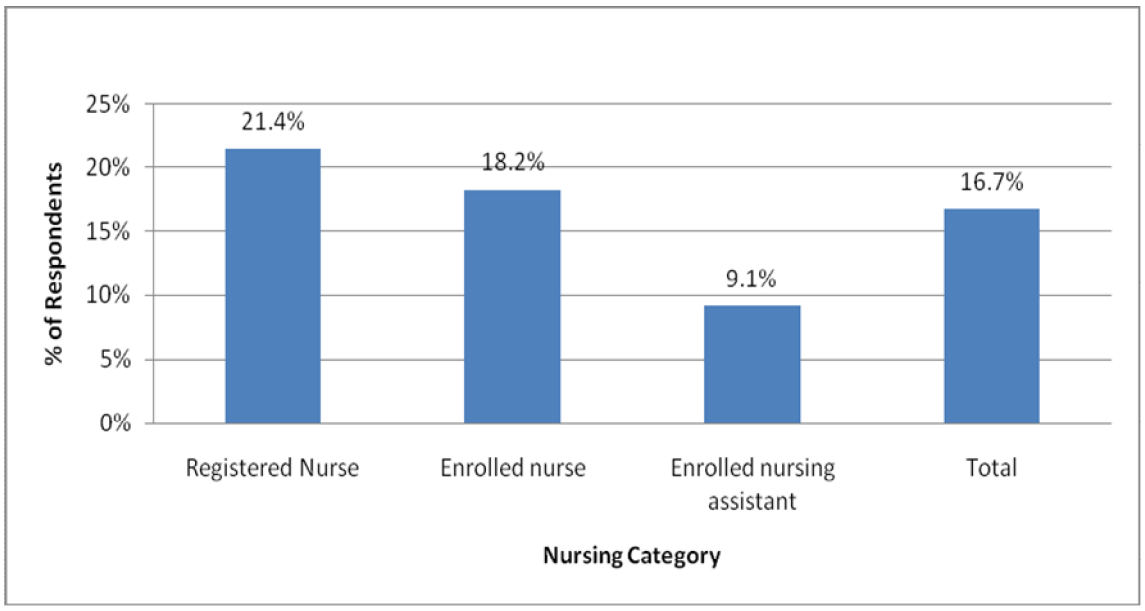


Figure 4.4 Familiarity with Growth monitoring criteria

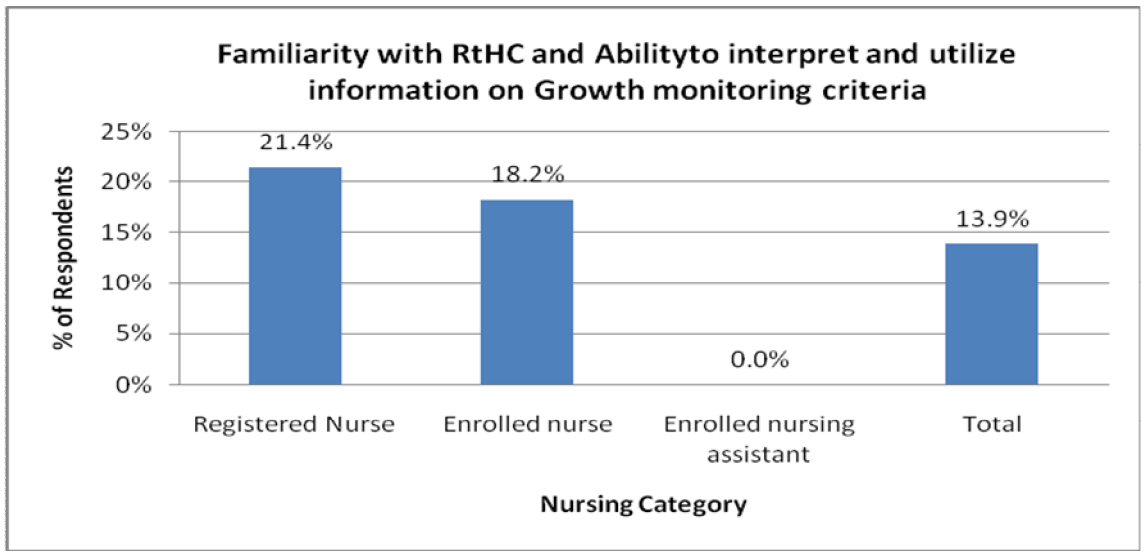


Figure 4.4 concludes that a small number of all nurses; 13.9 %, were familiar with the use and interpretation of the RtHC. Observations from the implementation of GOBI-FFF revealed that the strategy is not fully implemented by all nursing categories as indicated for an example; by poor recording of weight, inaccurate weight curves, absence of recording of breastfeeding, poor nutritional assessment done and poor involvement of caregivers in child health progress and related advices.

4.4.1. The nature of data recorded on the road to health chart through observation

The information recorded on the RtHC that were analysed in the study was checked against the norms and standards as described by the guidelines provided with the RtHC (Annexure A). Thirty six RtHC cards were analysed and the findings discussed.

4.4.1.1. Personal information of the child

Personal information of the child is necessary for giving correct treatment of the child based on correct identification of the name, gender, address and contact details of the parents.

Table 4.21 Identification number of the child

	Identification number of child			
Nursing Category	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	2	11	1	14
	14.3%	78.6%	7.1%	100.0%
Enrolled nurse	2	9	0	11
	18.2%	81.8%	.0%	100.0%
Enrolled nursing assistance	1	10	0	11
	9.1%	90.9%	.0%	100.0%
Total	5	30	1	36
	13.9%	83.3%	2.8%	100.0%

Of the 36 RtHC observed, 30 (83.3 %) did not have the identification number of the child with 13.9 % accurately recorded on the RtHC and 2.8 % no response. This indicates that nurses did not mind to confirm the child being treated and cared for by verifying the name with the identification number of the child. Nurses are concentrating on the name of the child alone as indicated in table 4.19 that 94.4 % of the RtHC had the name of the child with 2.8 % inaccurately recorded and 2.8 % no response. The principle of patient identification regarding name, gender, residential address and identification number was not maintained as recommended in White (2003: 96-101).

Table 4.22 Name of the child

	Name of child			
Nursing Category	Present and accurate. Comply with norm	Present but incomplete or inaccurate	No response	Total
Registered Nurse	13	0	1	14
	92.9%	.0%	7.1%	100.0%
Enrolled nurse	11	0	0	11
	100.0%	.0%	.0%	100.0%
Enrolled nursing assistance	10	1	0	11
	90.9%	9.1%	.0%	100.0%
Total	34	1	1	36
	94.4%	2.8%	2.8%	100.0%

Table 4.23 Residential address of the child

Nursing Category	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	0	13	1	14
	.0%	92.9%	7.1%	100.0%
Enrolled nurse	2	8	1	11
	18.2%	72.7%	9.1%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	2	32	2	36
	5.6%	88.9%	5.6%	100.0%

The residential address of the child was accurately recorded by registered nurses in 5.6 % of the RtHC and absent in 88.9 % with 5.6 % non-response. The focus here was mainly on registered nurses because of their training and scope of practice than the other categories. This means that registered nurses are not taking the environment in which the child is growing in relation to the health of the community. The absence of the residential address prevents nurses in providing knowledge of possible factors prevalent in the area that might affect growth and development of the child. For an example a child from poor communities is at risk of both morbidity and mortality as they are prone to infections due to lack of food supply in the families (Coovadia & Wittenberg 2005: 33).

Table 4.24 Gender of the child

	Gender of child			
Nursing Category	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	11	1	2	14
	78.6%	7.1%	14.3%	100.0%
Enrolled nurse	11	0	0	11
	100.0%	.0%	.0%	100.0%
Enrolled nursing assistance	11	0	0	11
	100.0%	.0%	.0%	100.0%
Total	33	1	2	36
	91.7%	2.8%	5.6%	100.0%

Registered nurses accurately recorded gender of the child in 78.6 % of the RtHC and 7.1 % not recorded with 14.3 % non-responses. All the RtHC observed from enrolled and assistant nurses were accurately recorded. With complete recording of the gender of the child, caregivers will be given relevant advice on the expected growth pattern of the child since boys and girls do not follow the same pattern of growth as recommended by Kibel & Wagstaff (2003: 34).

Table 4.25 Contact details of parent or caregiver

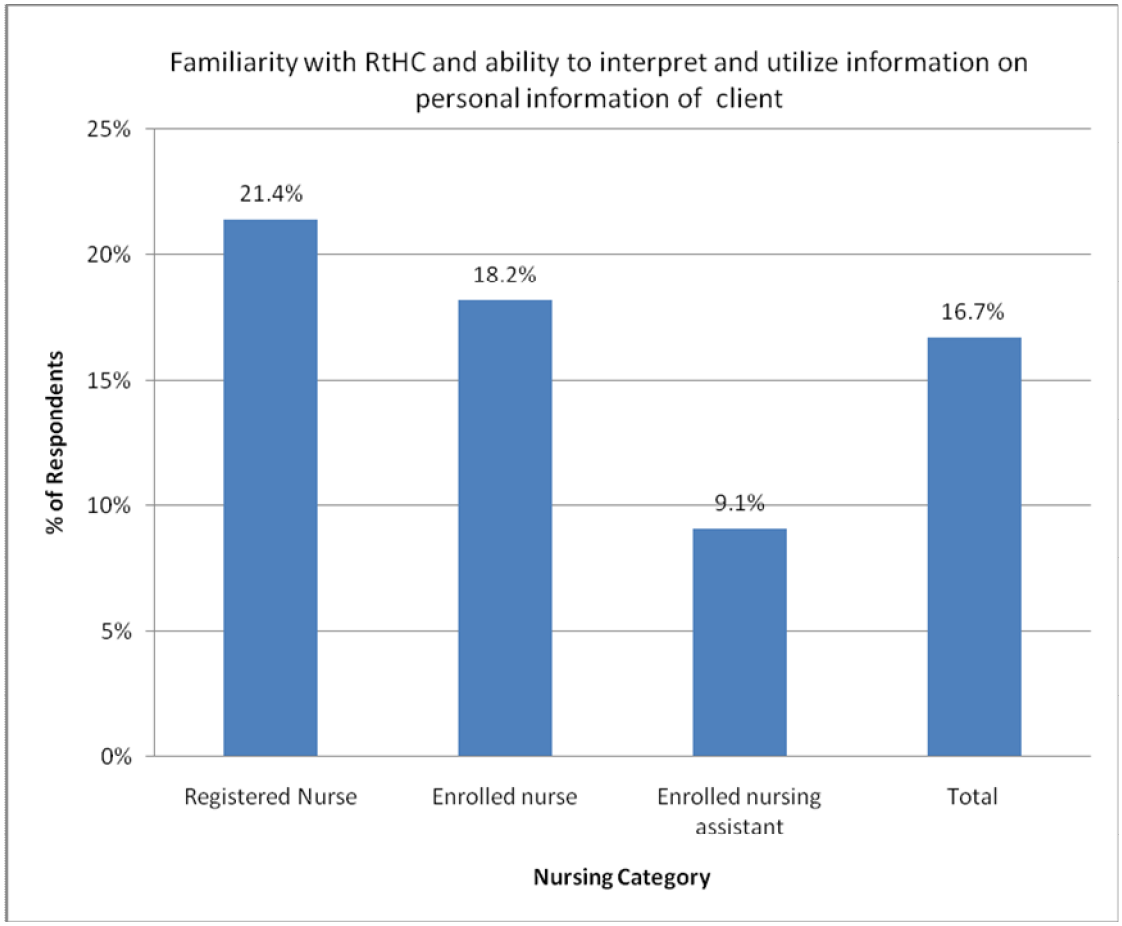
Nursing Category	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	1	12	1	14
	7.1%	85.7%	7.1%	100.0%
Enrolled nurse	0	11	0	11
	.0%	100.0%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	1	34	1	36
	2.8%	94.4%	2.8%	100.0%

Contact details of the caregiver was accurately recorded in 2.8 % of the RtHC with 94.4 % not recorded and 2.8 % no response. This could indicate that nurses do not take caregivers as being important for the health of children under five years. This means that in an emergency in the absence of the caregiver interventions could be delayed because no contacts are available to summon the caregiver.

Table 4.26 Personal information of the child

	Personal information of client				
	No Response	Familiar with RtHC and able to interpret and utilize information	Uncertain about the RtHC; Do not know whether or not how to record information	Familiar with RtHC; Record relevant information but do not interpret and give the feedback to parent or caregiver	Total
Registered Nurse	0	3	0	11	14
	.0%	21.4%	.0%	78.6%	100.0%
Enrolled nurse	0	2	2	7	11
	.0%	18.2%	18.2%	63.6%	100.0%
Enrolled nursing assistant	1	1	0	9	11
	9.1%	9.1%	.0%	81.8%	100.0%
Total	1	6	2	27	36
	2.8%	16.7%	5.6%	75.0%	100.0%

Figure 4.5 Personal information of the child



A nurse in this study is familiar with the RtHC when is able to know what the RtHC is and its use on the recording and interpretation of child health information. Table 4.24 concludes 16.7 % of nurses are able to record and interpret information on the RtHC while 75 % of the nurses recorded relevant information but do not interpret and give feedback to the caregiver with 5.6 % being uncertain of how to record information on the RtHC and 2.8 % not applicable. This is confirmed by good recording of the name and gender of the child with minimal recording of the identification number, residential address and contact details of the parents. It proves that data is not collated and analysed to give meaning out of which the plan of action can be derived.

The findings from the recording of personal information of the child by all categories of nurses indicate that the norms and standards of the RtHC of recording are not adhered to. Incomplete or inaccurate recording may lead to wrong treatment of the child, because in health settings a person is correctly identified with an identification number on the records

to confirm the name as recommended in Berman (2008: 255). White (2003: 96) states that records without the date and signatures of the nurse responsible of care given, gives the problem of tracing in case of adverse effects from drugs and causes overdoses if the next nurse is to give the same dose on the same date because it is not indicated.

4.4.1.2. Relevant medical and social history of the client

Relevant medical and social history in this study relates to items such as; birth weight, head circumference, length, serology results of the mother, perinatal and ante-natal history, complications during and after labour, family structure and economic status of the family, Registered nurses are to record medical history that includes; diagnoses and keys points at discharge after admission so that necessary follow up can be done at home by the nearest clinic. Economic structure was recorded in 80.6% but was incomplete with 19.4% non response. Without the recoding of the economic status of the parents on the RtHC it means that a child is seen separate from the parents and nurses are ignorant of the effects of parental situations on child health. The economic structure indicated on the RtHC helps to guide nurses on the type of assistance parents might like in case of a single unemployed mother who will need assistance through grants from the welfare department (South Africa [Sa]).

Table 4.27 Economic status of the mother

	Economic status / economic observations		
Nursing Category	Absent	No response	Total
Registered Nurse	9	5	14
	64.3%	35.7%	100.0%
Enrolled nurse	10	1	11
	90.9%	9.1%	100.0%
Enrolled nursing assistance	10	1	11
	90.9%	9.1%	100.0%
Total	29	7	36
	80.6%	19.4%	100.0%

Registered nurse are to record the social and economic status of the parents on the sections marked ñn need of specialò on the RtHC when issuing the RtHC after delivery. The RtHC guide line states that this is to ensure that proper advices and referral to other services like social grants for in case the mother is unemployed and has no financial support (South Africa [Sa]a).

Table 4.28 Accessibility of the clinic

	Accessibility of clinic		
Nursing Category	Absent	No response	Total
Registered Nurse	13	1	14
	92.9%	7.1%	100.0%
Enrolled nurse	11	0	11
	100.0%	.0%	100.0%
Enrolled nursing assistance	11	0	11
	100.0%	.0%	100.0%
Total	35	1	36
	97.2%	2.8%	100.0%

Accessibility of clinic was not indicated in 97.2% with 2.8% no response. The recording of the accessibility to the clinic is closely related to the residential address because access can only be determined in relation to the distance of the residential area of the child from the clinic.

Table 4.29 Date of birth

	Date of Birth			
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	No response	Total
Registered Nurse	12	1	1	14
	85.7%	7.1%	7.1%	100.0%
Enrolled nurse	10	1	0	11
	90.9%		.0%	100.0%
Enrolled nursing assistance	11	0	0	11
	100.0%	.0%	.0%	100.0%
Total	33	2	1	36
	91.7%	5.6%	2.8%	100.0%

The date of birth of the child was accurately recorded in 91.7 % with 5.6 % recorded incompletely or inaccurately with 2.8 %. The correct recording of the birth day indicates adherence to prescribed RtHC guidelines, and this recording of dates helps to determine

the weigh-for-age of the child hence determining the centile in which the child is (Kibel & Wagstaff 200: 119).

Table 4.30 Place of birth

	Place of birth		
	Present and accurate. Comply with norm	No response	Total
Registered Nurse	13	1	14
	92.9%	7.1%	100.0%
Enrolled nurse	11	0	11
	100.0%	.0%	100.0%
Enrolled nursing assistance	11	0	11
	100.0%	.0%	100.0%
Total	35	1	36
	97.2%	2.8%	100.0%

The place of birth of the child was accurately recorded in 97.2 % with 2.8 % no response. The place of birth identifies if the child is born at home or health facility. The place of birth determines possible complications that may put the child at risks such as birth complications like infections if the child is born at home where aseptic technique is not followed, thus causing a raise in morbidity and mortality rates (Coovadia & Wittenberg 2005: 150).

Table 4.31 Gestational age

	Gestational age			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	0	13	1	14
	.0%	92.9%	7.1%	100.0%
Enrolled nurse	1	10	0	11
	9.1%	90.9%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	1	34	1	36
	2.8%	94.4%	2.8%	100.0%

Gestational age was not recorded in 94.4 % of the RtHC while 2.8 % of those recorded were inaccurate and incomplete. Without the recording of the gestational age of the pregnancy of the mother by nurses indicates that, nurses will not be able to keep a close eye on children at risk such as premature to give extra care to prevent problems like poor weight gain. Without the gestational age, caregivers will not be given relevant nutritional advices to enhance growth in case of prematurity (Coovadia & Wittenberg 2005:113).

Table 4.32 Serology results

	Serology results			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	0	13	1	14
	.0%	92.9%	7.1%	100.0%
Enrolled nurse	1	10	0	11
	9.1%	90.9%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	1	34	1	36
	2.8%	94.4%	2.8%	100.0%

Serology results were recorded in 2.8 % of the RtHC with 94.4 % not recorded. These results help to check for possible signs of syphilis on the baby if the mother had positive results during pregnancy for treatment to be given. The absence of serology results on the

RtHC shows that registered nurses are not thoughtful of the possibility of the transmission of the syphilis infections from the mother to child before or during child birth, therefore necessary interventions on the child may not be given after birth as recommended by Coovadia & Wittenberg (2005: 272).

Table 4.33 Key points for follow up

	Key point for follow up			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	1	12	1	14
	7.1%	85.7%	7.1%	100.0%
Enrolled nurse	3	8	0	11
	27.3%	72.7%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	4	31	1	36
	11.1%	86.1%	2.8%	100.0%

Key points for follow up are recorded to indicate admissions and diagnoses if the child was admitted and follow up instructions given at hospital or instructions given at the clinic in cases such as growth flattering. Key points for follow up were given in 11.1 % with 86.1 % not recorded and 2.8 % of no response. No intervention was done based on key points for follow up as it was not recorded on the RtHC. The researcher observed that a child with low weight was sent home without recording key points for follow up, and this affects the continuality of care by other health workers. This implies that close monitoring of the weight of the child will not be done and possible investigations for the cause of the problem will also not be done and therefore nutritional status of the child and that of the community will not be improved as recommended in Coovadia & Wittenberg (2006: 119). Without key points for follow up after discharge from any health facility or after diagnosing a particular problem means that there will not be continuity of care on the child and lack of team spirit.

Table 4.34 Height curve

	Height in centimeters - graphic curve			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	0	12	2	14
	.0%	85.7%	14.3%	100.0%
Enrolled nurse	1	10	0	11
	9.1%	90.9%	.0%	100.0%
Enrolled nursing assistance	0	11	0	11
	.0%	100.0%	.0%	100.0%
Total	1	33	2	36
	2.8%	91.7%	5.6%	100.0%

Recorded graphic curves of height was accurately recorded in 2.8 % of all the observed RtHC while it was absent in 91.7 % of the RtHC, and 5.6 % of non-response. Without the recording of height measurement proper consideration of normal growth as compared with weight of the child will not be done. Stunting cannot be assessed and no interventions will be done as recommended by (Kibel & Wagstaff 2003: 29).

Table 4.35 Weight in Kilograms - graphic curve

	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	2	8	3	1	14
	14.3%	57.1%	21.4%	7.1%	100.0%
Enrolled nurse	3	6	1	1	11
	27.3%	54.5%	9.1%	9.1%	100.0%
Enrolled nursing assistance	1	7	3	0	11
	9.1%	63.6%	27.3%	.0%	100.0%
Total	6	21	7	2	36
	16.7%	58.3%	19.4%	5.6%	100.0%

Weight was accurately recorded in 16.7 % of the RtHC with 58.3 % inaccurate recording, 19.4 % absent and a further no response of 5.6 %. Regular and accurate recording of weight helps to detect the centile pattern of the child whether it is on 97th, 50th, 60th or 3rd

centile on the RtHC thus deciding if the child is low weight or overweight and interventions are done (Coovadia & Wittenberg 2005: 23). The pattern of recording of weight (table 4.34) and height (table 4.35) by nurses in this study indicates that nurses do not know the relationship of height and weight on the child. Thirty three RtHC had no height recorded while only six RtHC had weight accurately recorded. This shows that the total meaning of growth curves and centiles is not fully understood by nurses in the study area. This shows that a strategy needs to be designed to make nurses aware of the full meaning of the RtHC as tool to monitor growth.

Table 4.36 head circumference curve

	Head circumference in centimeters - graphic curve				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	0	1	11	2	14
	.0%	7.1%	78.6%	14.3%	100.0%
Enrolled nurse	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Enrolled nursing assistance	0	0	11	0	11
	.0%	.0%	100.0%	.0%	100.0%
Total	1	2	31	2	36
	2.8%	5.6%	86.1%	5.6%	100.0%

Head circumference was accurately recorded in 2.8 % of the RtHC with inaccurate recording on 5.6 % and 86.1 % absent and a further 5.6 % of non-responses. Head circumference helps to detect abnormalities on the size of the head of the child whether growing bigger (hydrocephalus) or too small (microcephalus) (Kibel & Wagstaff 2003: 34). This shows that nurses are not concerned with the size of the head of the child but only of weight as indicated in table 4.35. Recording of weight, height, length, head circumference, economic status and gestational age maintains the principle of indicating the nature of the person involved in the care (White 2003: 96 -101) since it makes nurses aware of what can be possibly expected on the child.

The results of the observations made on the nature of data recorded by nurses on the RtHC for growth monitoring indicates that, important information that benefits the child and the department is not accurately recorded. It is also found that reliable information is not

readily available to monitor the nutritional pattern of children in the community, the immunisation coverage in the area, the economic status of parents and the disease profile of the community which could be observed through key follow up on discharge and relevant medical history of the child and mother.

4.4.2. Utilisation of the information on the RtHC

4.4.2.1. Interventions based on observations during the day of the observation by the researcher

Interventions in this study is the ability of nurses to assess and use the information to intervene in a specific situation either by referring the child to other health team members, providing health education, nutritional advise or supplements, determine a follow-up date and to explain the importance of immunisation. Fifty percent of the registered nurses did not give vitamin A as indicated on the RtHC schedule to the child. This means that necessary interventions needed by the child were ignored. For example, feedback was only given to 5.6 % of the caregivers while 2.8 % received follow up dates for next vitamin A dose. Exit interview with the caregivers indicated that 57.1 % did not receive feedback from the registered nurses as shown in table 4.37. Lack of interventions and feedback undermine the argument presented by Engelbrecht & Kasima (2007: 6) that doing so builds nurse-client relationships and understanding of what is to be achieved through RtHC. In this study exit interview found that 78.6 % of the caregivers were not involved in children and health decisions as relevant information was withheld by the registered nurses from them during clinic visits.

Table 4.37 Vitamin supplement

	Vitamin supplement						
	Not applicable	Feedback and relevant education	Scheduling of follow up visit	Present but incomplete, inaccurate or irrelevant	applicable but not done	No Response	Total
Registered Nurse	2	0	1	1	7	3	14
	14.3%	.0%	7.1%	7.1%	50.0%	21.4%	100.0 %
Enrolled nurse	2	1	0	2	6	0	11
	18.2%	9.1%	.0%	18.2%	54.5%	.0%	100.0 %
Enrolled nursing assistance	0	1	0	7	3	0	11
	.0%	9.1%	.0%	63.6%	27.3%	.0%	100.0 %
Total	4	2	1	10	16	3	36
	11.1%	5.6%	2.8%	27.8%	44.4%	8.3%	100.0 %

Findings of this study indicate 27.8 % of the RtHC had vitamin A supplements accurately recorded with 44.4 % not recorded. Of those who recorded the vitamin A supplements, 5.6 % of them were given feedback on the importance of vitamin A and 2.8 % were not given follow up dates for next dose of vitamin A. This means that the majority of children in the study area will not receive the full benefits of vitamin A supplementation by the age of five years but will have micro-nutrient deficiency prevalent for a long time. Reliable data will not be available to monitor and evaluate the effectiveness of the programme. This means that having a well articulated programme of vitamin A supplementation is not enough. There is a need to ensure that its objectives are reached. This confirms indications by Solarsh and Goga (2007:121) who stated that although vitamin A supplementation is part of the national programme in South Africa, there is no reliable data on its coverage.

Table 4.38 Involvement of caregivers in decision making

Are you usually involved in the decision making of the matter about the health of the child?

	Frequency	Percent
No	11	78.6
No Response	1	7.1
no, I am told what to do	1	7.1
no, no return date given	1	7.1
Total: Nursing Category = Registered Nurse	14	100.0

Table 4.39 affirms the results of 2.8 % of caregivers in Table 4.37 who were not given feedback for the next dose of vitamin A as 78.6 % indicated that they were not involved in decision making of matters of the health of their children, 7.1 % were not given return dates, a further 7.1 % not told what to do and a further 7.1 % of non-responses. Failure to involve caregivers limits their full participation on health matters and leaves the whole burden of health on the health service providers alone. For optimal management of child health good communication between caregivers and health workers is important as stated by Coovadia and Wittenberg (2005: 114).

Table 4.39 Information giving to caregivers by registered nurses

Does the nurse usually provide you with valuable information about the child and the growth and the development of the child when you visit the clinic?

	Frequency	Percent
No	8	57.1
no, she is in a hurry, I donôt want to waste her time	1	7.1
not always	2	14.3
Sometimes	1	7.1
Yes, how to take treatment	1	7.1
Yes, preparation of ORS	1	7.1
Total: Nursing Category = Registered Nurse	14	100.0

Exit interview of caregivers in table 4.39 indicates that 57.1 % registered nurses were always in a hurry and 14.3 % seldom gave information on growth and development with 7.1 % advised on giving ORS and a further 7.1 % advised on treatment taking. Lack of caregiver involvement in child health could mean that parents are to be dependent to nurses on every aspect of child health because they are not empowered to deal with problems at home. This poor involvement of caregivers defeats the aim of the RtHC guideline of using the RtHC to assist parents with a tool to provide complement actions of the caregivers done at home for the child (South Africa [Sa]a) as confirmed in Table 4.38 and 4.40.

Table 4.40 Information giving by enrolled nurses

Does the nurse usually provide you with valuable information about the child and the growth and the development of the child when you visit the clinic?

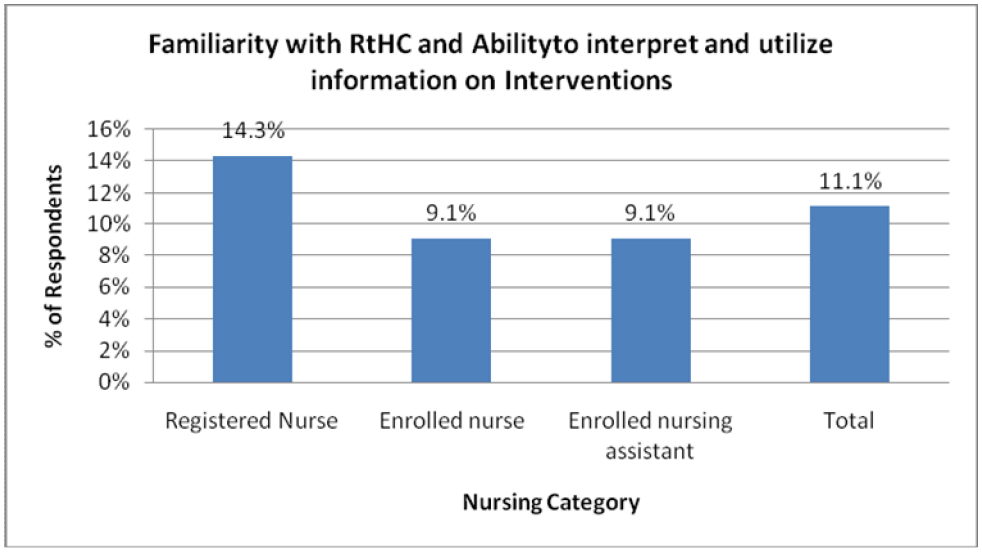
	Frequency	Percent
Just when to come back	1	9.1
No	6	54.5
Sometimes	1	9.1
Yes	2	18.2
Yes - the preparation of ORS	1	9.1
Total: Nursing Category = Enrolled nurse	11	100.0

Table 4.41 involvement in decision making by enrolled nurses

Are you usually involved in the decision making of the matter about the health of the child?

	Frequency	Percent
No	10	90.9
Yes	1	9.1
Total: Nursing Category = Enrolled nurse	11	100.0

Figure 4.6 Interventions



The results on the Figure 4.6 indicate poor use of child information to give relevant interventions and advice to parents and caregivers. Only 14.3 % of the professional nurses compared to 85, 7 % could record, interpret and give necessary interventions and advices to parents or caregivers as indicated in Figure 4.4.

Assessments were done but irrelevant or incomplete medications were given in 33.3 % of the children. The researcher observed that at least four children were given antibiotics for common cold and without full explanation of how the treatment should be taken. Only 21.4 % were correctly diagnosed and received relevant treatment from registered nurses while 42.9 % were irrelevantly diagnosed and only 7.1 % given follow up date after treatment.

Table 4.42 Diagnoses of illness

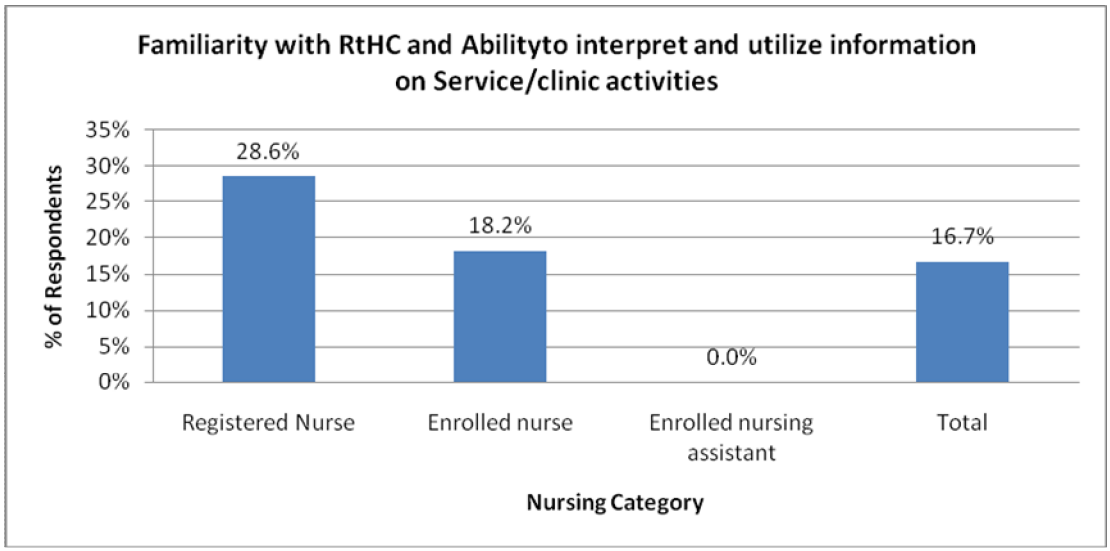
	Diagnosis of childhood disease and appropriate intervention (e. g. providing medication or other treatment)						
	Not applicable	feedback and relevant education	Scheduling of follow up visit	Present but incomplete, inaccurate or irrelevant	applicable but not done	No Response	Total
Registered Nurse	0	3	1	6	1	3	14
	.0%	21.4%	7.1%	42.9%	7.1%	21.4%	100.0%
Enrolled nurse	5	1	0	2	3	0	11
	45.5%	9.1%	.0%	18.2%	27.3%	.0%	100.0%
Enrolled nursing assistance	4	2	0	4	1	0	11
	36.4%	18.2%	.0%	36.4%	9.1%	.0%	100.0%
Total	9	6	1	12	5	3	36
	25.0%	16.7%	2.8%	33.3%	13.9%	8.3%	100.0%

The diagnoses of the child was indicated in 33.4 % but were irrelevant with 8.3 % not done, while 25.0% was tot applicable and 2.8 % of the diagnosed children caregivers had received follow up dates for review and 16.7 % received feedback and advice on the diagnose. Irrelevant diagnoses by nurses in this study indicate that incorrect treatment was given to children limiting the aim of the RtHC guideline of early detection of illness to prevent complications (South Africa [Sa]a).

Table 4.43 Clinic service and interventions

	Service/clinic activities				
	No Response	Familiar with RtHC and able to interpret and give feedback to parent or caregiver utilize information	Uncertain about the RtHC; Do not know whether or not how to record information	Familiar with RtHC; Record relevant information but do not interpret and give the feedback to parent or caregiver	Total
Registered Nurse	0	4	0	10	14
	.0%	28.6%	.0%	71.4%	100.0%
Enrolled nurse	0	2	3	6	11
	.0%	18.2%	27.3%	54.5%	100.0%
Enrolled nursing assistant	2	0	1	8	11
	18.2%	.0%	9.1%	72.7%	100.0%
Total	2	6	4	24	36
	5.6%	16.7%	11.1%	66.7%	100.0%

Figure 4.7 Clinic service and interventions



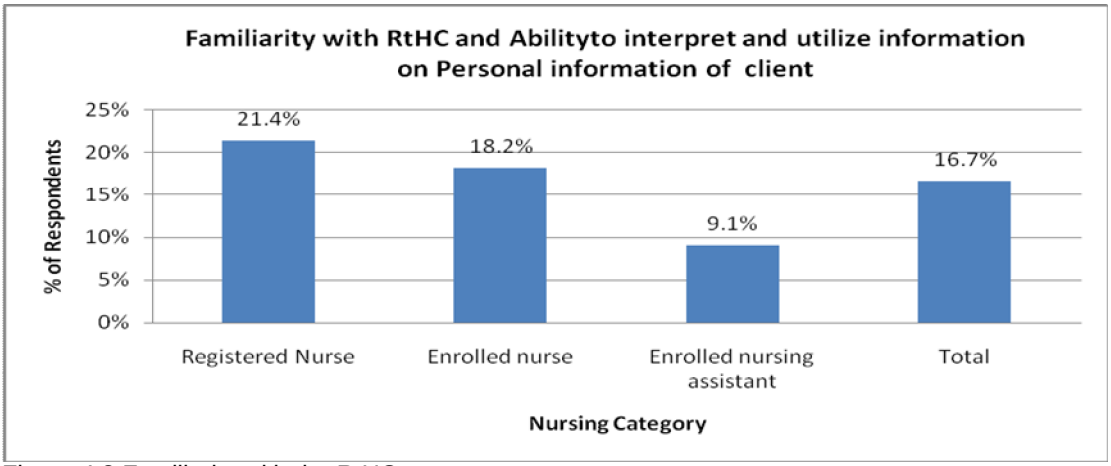


Figure 4.8 Familiarity with the RtHC

Out of the 14 registered nurses, only 21.4% were familiar with the RtHC; that is they were able to interpret and utilize the information on the RtHC. Most (11 out of 14) registered nurses were able to record information but are unable to interpret or make use of the information. Nutritional status was assessed in 2.8% while 91.7% of children were not assessed. This confirms the findings reported on growth monitoring section in this study that 91.7 % height curves were absent on the RtHC with only 2.8 % present but incomplete, 58.3 % of the weight recorded were complete and accurate while 19.4 % did not have records.

Table 4.44 Immunisation: Name of vaccine

	Present and accurate. Comply with norm	No response	Total
Registered Nurse	13	1	14
	92.9%	7.1%	100.0%
Enrolled nurse	11	0	11
	100.0%	.0%	100.0%
Enrolled nursing assistance	11	0	11
	100.0%	.0%	100.0%
Total	35	1	36
	97.2%	2.8%	100.0%

Immunisation activities were recorded with the name of the vaccine identified in 97.2 % with 2.8 % of no responses. The name of the vaccine helps in case of adverse reaction to the vaccine when follow up is to be done on particular vaccine.

Table 4.45 Immunisation site

	Immunisation : Site of vaccine				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	2	0	11	1	14
	14.3%	.0%	78.6%	7.1%	100.0%
Enrolled nurse	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Enrolled nursing assistance	0	0	11	0	11
	.0%	.0%	100.0%	.0%	100.0%
Total	3	1	31	1	36
	8.3%	2.8%	86.1%	2.8%	100.0%

The site of vaccine was absent in 86.1% of the RtHC with 2.8 % inaccurate recording, 8.3 % accurate recording while 2.8 % had no response. Without the site of vaccine indicated, it becomes a problem in case of adverse effects after immunisations because it cannot be decided if the reaction is due to the site or not. It is claimed that wrong site causes local reaction and abscess (South Africa 2005: 39).

Table 4.46 Date of immunisation

	Immunisation : Date of vaccine			
	Present and accurate. Comply with norm	Absent	No response	Total
Registered Nurse	9	4	1	14
	64.3%	28.6%	7.1%	100.0%
Enrolled nurse	9	2	0	11
	81.8%	18.2%	.0%	100.0%
Enrolled nursing assistance	11	0	0	11
	100.0%	.0%	.0%	100.0%
Total	29	6	1	36
	80.6%	16.7%	2.8%	100.0%

The date of vaccine was accurately recorded in 80.6% of the RTH with 16.7 % not recorded and 2.8 % no response. It is recommended that immunisation doses be given at four weeks interval (South Africa 2005: 23). Absence of the immunisation date gives problem because it will not be known when the next dose should be given because interval cannot be calculated. This leads low immunisation coverage in the area.

Table 4.47 Immunisation route

	Immunisation : Route of vaccine				
	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	No response	Total
Registered Nurse	0	0	12	2	14
	.0%	.0%	85.7%	14.3%	100.0%
Enrolled nurse	1	1	9	0	11
	9.1%	9.1%	81.8%	.0%	100.0%
Enrolled nursing assistance	0	0	11	0	11
	.0%	.0%	100.0%	.0%	100.0%
Total	1	1	32	2	36
	2.8%	2.8%	88.9%	5.6%	100.0%

The route of injection was accurately recorded in 2.8 % with 2.8 % inaccurately recorded, and was absent in 88.9 % of the RtHC and a further 5.6 % no response. The name of vaccine; date, route and site are interrelated because this information is vital when

recording adverse effects following immunisation of the child as recommended by Cameron (2006: 33). Inaccurate record keeping after immunisations is a problem because the parents and health personnel will not know if the child is full immunised or not and if reactions occurs surveillance procedures will be difficult to do.

4.5. CONCLUSIONS

The results revealed a need to revitalise the importance of using the RtHC in children under five years of age in growth monitoring for all categories of nurses. The following are the conclusions:

Conclusions on the nurse's profile- nurses of all categories, qualifications and experience are not using their skills and knowledge in the recording and interpretation of findings during assessment of children under five years of age in the RtHC instrument. Despite their impressive qualifications, additional courses and experience of more than ten years in PHC clinics, the majority of nurses are failing to integrate the care of children in the daily rendering of child care as recommended by Cohen et al (2001:145).

Implementing the GOBI-FFF assessment principles- regular measurement and plotting of weight, height and head circumference of the child on the graph curves is not done as prescribed by the RTHC guideline. Feeding assessment, counseling and recording is not recorded on the RtHC by nurses. Feeding options are not recorded on the RtHC.

Nutritional supplements are minimally given and route schedule of vitamin A is not followed by nurses. Family spacing, methods and advice are not recorded on the RtHC.

Nature of data recorded on the RtHC through observation- data recorded on the RTHC does not conform to norms and standards of the RtHC. It is mostly inaccurate and incomplete. Interventions given are not signed for by nurses.

Utilisation of the information on the RtHC- information on the RtHC is not used to interpret and give relevant treatment to children and feedback to caregivers. Correct utilization of the RtHC through correct interpretation of the recorded information helps with early diagnoses and prompt treatment of the child to prevent morbidity and mortality of children under five years of age (Coovadia & Wittenberg 2005: 113).

Chapter five of this study gives the summary and interpretation of the study results, conclusions and recommendations.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The chapter contains a summary of the research design and focuses on the conclusions and recommendations based on the interpretation of the study findings. The interpretation of the findings in terms of the objectives is reported, the value and limitation of the study are also discussed in the chapter.

5.1.1 Research Design and Method

A quantitative non-experiential method was used in this study. A descriptive survey was conducted with the purpose of exploring the nature and the extent of the utilisation of the RtHC as a tool to improve the health of children under five years of age in the clinics within the jurisdiction of the mentioned study area. The objectives of this study were (1) to determine the nature of data currently recorded on the RtHC and compare this information with expected norms and standards on the RtHC (2) to determine the utilisation of the RtHC by nurses at (PHC) level and compare the utilisation with the expected norms and standards and (3) to provide guidelines for optimum utilisation of the RtHC at primary health care level.

Two instruments were used to collect data; an observation guide according to which the actions and interactions of nurses were observed, a check list according to which information recorded on the RtHC was assessed and field notes used after discussion with the parent or caregiver of the child after consultation with the health worker. A checklist was used to record the activities recorded on the RtHC and activities done and recorded by a sample of 36 randomly selected nurses of all categories from six clinics. A structured exit interview was also held with caregivers to determine if the behavior of the nurses was usual or had changed because of the presence of the researcher. Data collection was complemented with field notes by the researcher during visits to the clinics. SPSS version 16.1 software was used to analyse the data.

5.2 SUMMARY AND INTERPRETATION OF RESEARCH FINDINGS

Research findings were summarised and interpreted with the recommendations given accordingly thereafter. The recommendations are expected to serve as guidelines for optimal utilisation of the RtHC in terms of the objectives of this study.

5.2.1 Determining the nature of data recorded on the RtHC and comparison with the expected norms and standards.

The findings on growth monitoring indicate that data recorded on the RtHC were inaccurately recorded. Weight was accurately recorded in only 14.3 % by registered nurses with 57.1 % inaccurately recorded while 63.6 % of the enrolled nurses recorded the data inaccurately. Height curves were absent in 91.2 % of the RtHC with only 2.8 % accurate recordings. Head circumference was not recorded in 86.1 % of the cases. This shows that nurses were not properly monitoring child growth because only the weight of the child was considered important than the height. Recorded graphic curves of height was not indicated in 91.2 % of the RtHCs, weight was absent in 19.4 % and head circumference 86.1 % absent of the RtHC.

These measurements are interrelated because the nutritional status of the child can be decided based on the weight-for height, height-for age or weight-for age if plotted on the graph space of the RtHC (Kibel & Wagstaff 2003:119-120). Nutritional assessment was accurate in 8.3 % and 69.4 % respectively with breastfeeding not recorded in 92.9 %. This indicates that nurses who were weighing the children, cared less to know what these children were eating and their full response to nutrients taken. Nutritional assessment was accurately recorded in 8.3 % and 69.4 % absent and breastfeeding not recorded in 92.9 %. This shows that the even after acquiring the necessary job related trainings and the experience gained in more than ten years by majority of registered nurses, this knowledge is not used to interpret findings and give the needed intervention by the child. This is further indicates that nurses are not prepared to give value for in respect of the trainings provided by the department to improve the health of children under five years of age.

Physical development was not recorded in 92.9 % of the RtHC. More than thirty percent of the RtHC did not have the date of consultation, name and signature of the nurse who rendered care to the particular child. This indicated that the RtHC is not considered an important record by nurses, which is in contradiction to the prescribed guidelines by the Department of Health.

Relevant medical history was not accurately recorded because 80.6 % of the RtHC did not have the economic status of the parents and 94.4 % of family planning methods of the mother not recorded. Serology results of the mother and gestational age of pregnancy were not recorded in 94.4 % of the RtHC. This pattern of recording of the economic status, family planning and gestational age and serology results indicates that; nurses consulted a child separate from the mother and did not consider the effects of parental circumstances and their influence on child health. The name, date and place of the child were recorded in more than 90 % of the RtHC while the contact details of the parents were accurately recorded in 2.8 % of the RtHC. This shows inconsistency in data recording which may be concluded that some information is regarded as more important than the other. The nature of data recorded on the RtHC by nurses of all categories is inaccurate and growth monitoring is therefore not fully implemented in the study area.

5.2.1.1 Recommendations

The findings of this study have provided direction on the nature of steps to be taken to assist nurses in achieving optimum use of the RtHC tool in providing comprehensive child health care. The study showed that nurses are not fully aware of the norms and standards, and the importance of the RtHC as a tool for child growth monitoring. This means that training in this matter is strongly needed if the Department of Health is to achieve the reduction of infant mortality and morbidity as prescribed in the MDGs. It is further suggested that training and updates in the use of the RtHC should be emphasized before the new RtHC is used as it is more comprehensive than the current one, so that the objectives of its use are achieved.

5.2.2 Determining the utilisation of the RtHC by nurses at primary health level in comparison with expected norms and standards

The study sample consisted of randomly selected nurses from six clinics which were involved at some or other level in assessing the growth and development of children. These nurses included 39 % of professional nurses, 30 % of enrolled nurses and 31 % of enrolled auxiliary nurses. The majority of nurses (61 %) most of whom were registered nurses at 38.9 % had more than ten years experience in the PHC clinics, 19.4 % had 2-4 years and a further 19.4 % of them with 5-9 years working experience. All registered nurses had additional qualifications over and above the basic general nursing qualification. Just over 60 % had an additional qualification in community nursing, 42.9 % had obtained additional qualifications in health assessment, treatment and care as well as midwifery.

It was also found that nurses of all categories regardless of their experiences were equally unaware or ignorant about the norms and standards of the utilisation of the RtHC in recording child health care given. Growth monitoring is partially done as only 14.3 % of weight is accurately recorded by registered nurses and 57.1 % inaccurately recorded with 21.4 % absent. Enrolled nurses had correctly plotted weight on 9.1 % of the RtHC with 63.6 % inaccurately and incompletely recorded, with 27% no recording of weight. This implies that only 9.1 % of children received the relevant intervention by enrolled nurses; while there were 27 % of children who were not provided with the health information from which they could benefit based on the information on the RtHC. The fact that 14, 3 % had weight accurately recorded on the RtHC by registered nurses indicated that nurses know what should be done but are inconsistent on doing it, which could prove useful to investigate the reason for this omission by nurses.

51.7 % of caregivers were not involved in growth and development of the child by registered nurses, with 54.5 % not involved by enrolled nurses. Lack of caregiver involvement in child health could mean that parents are to be dependent to nurses on every aspect of child health because they are not empowered to deal with problems at home. This means that strategy GOBI-FFF is not implemented and its goals will not be reached, since female education is important in the strategy. Empowering caregivers with information such as growth monitoring; immunisations needed by the child, feeding options, treatment and prevention of dehydration helps to reduce child morbidity and mortality.

5.2.2.1 Guidelines for improved utilisation of the RtHC

The guidelines and recommendations that will result in improved utilization of the RtHC in terms of the norms and standards of the Department of Health are discussed below:

a) Small pocket sized pamphlets issued by the Department of Health with information that reminds nurses on the principles of the RtHC, can be issued to all health workers in primary health care facilities. These principles can include: plotting of weight, height, head circumference, giving of vitamin A capsule and Mabendazole tablets, checking and plotting of immunisations and checking the feeding options and nutritional status of the child with each visit to the any health facility. These pamphlets can also be attached on the RtHC so that it becomes an integral part of the RtHC so that it is a quick reminder to the health professional every time the RtHC is used.

b) A monitoring team can be selected from the professional nurses within the districts to monitor and evaluate the utilization of the RtHC. The team can do the monitoring through supervision visits and then utilise the opportunity for additional training and motivation to utilise the RtHC optimally.

c) Regular bimonthly meetings to discuss under five morbidity and mortality within the districts could provide an opportunity for monitoring trends and emphasise the importance of integration and collaboration between intervention programmes such as PMTCT, TB & HIV\AIDS, breastfeeding, EPI, INP, IMCI and others in promoting child health thus reducing child morbidity and mortality.

d) Workshops on the importance of the GOBI-FFF strategy in the districts should include nurses as well as caregivers. It is important to identify community leaders to buy into the concept in an attempt to address the unacceptable high infant mortality in the country. These workshops should be facilitated by well informed health professionals.

e) Future studies can be done looking at challenges faced by nurses preventing the utilisation of the RtHC as prescribed in the guideline.

f) Future study is recommended to assess the partnership of health care workers and caregivers in the improvement of child health.

g) Future study is recommended to explore and describe challenges faced by nurses in delivering quality care in programmes such as TB, HIV/AIDS, nutritional supplementation and EPI as prescribed by the departmental policies.

5.3 CONCLUSIONS

This study showed that data recorded on the RtHC was incomplete and does not comply with the norms and standards prescribed in the RtHC guideline (Annexure A). It was also found that the RtHC was not utilised effectively by nurses because information was recorded but not effectively and efficiently utilised to guide the necessary intervention needed by the child. It was also found that care givers were not involved in the care of their children. Registered nurses have been empowered by the Department of Health to render comprehensive health care at PHC level by offering on the job short courses like IMCI, TB & HIV/AIDS collaboration, PMTCT, breastfeeding amongst others but this objective was not fully implemented.

The findings of this study confirm indications by the Department of Health that nationally representative data in health and nutritional status indices in the country is limited (South Africa 2003b: 6).

5.4 LIMITATIONS OF THE STUDY

The results of this study cannot be generalised for all nurses within the Vhembe District because only a small area, that is two out of 18 local areas were covered as a result of limited resources on the researcher. The study questionnaire did not include the section of determining the reasons of nurses for not utilising the RtHC effectively which could have helped in planning for remedial measures of the problems they faced.

5.5 CONTRIBUTION OF THE STUDY

This study gave a glimpse of the short comings of nurses in the use of the RtHC in recording of growth monitoring of children under five years of age. This study identified the need for In-service training for all nursing categories at Siloam Hospital clinics area in the

utilisation of the RtHC and suggested gaps in the understanding of why nurses do not adhere to the existing norms and standards of the RtHC. These can be researched further in follow up studies.

Implementation of the guidelines and recommendations should result in improving the utilisation of the RTHC which should have an impact on reducing the infant morbidity and mortality rate of the area.

Informing and empowering of the caregivers of infants is of the utmost importance to meet the objectives of both the RtHC and the GOBI-FFF strategies.

Table 5.1 Summary of findings

Issue	Norms and standard	Findings	Implications or meaning of findings	Conclusion	Recommendation
Growth monitoring: 1. Weight, height, body length and growth curves	To measured and plot on growth curves monthly for 2 years and 3 monthly up to 5 years.	Weight was measured and plotted on 9.1 % of the RtHC, height curve and head circumference was plotted in 2.8 % prescribed	Nurses are not fully implementing the norms and standards of the RtHC. 2. Poor growth monitoring resulting in failure to identify growth problems like underweight, failure to thrive that needs intervention	Comprehensive child care is not fully rendered by nurses.	**It is recommended that small pocket sized pamphlets be issued by the department of health with information that reminds nurses on plotting of weight, height, head circumference, giving of vitamin A and mabendazole, checking and plotting of immunisations and checking the feeding options and nutritional status of the child with each visit to the any health facility.**
2.Oral rehydration	None specific but every care and advices given to caregivers should be recorded on RtHC	Partially advised to caregiver	Poor involvement of caregivers that undermines the female education of GOBI-FFF		**It is recommended that a workshop on GOBI-FFF be held in the districts so that nurses are revitalized on the importance and the long term effects of the**

					strategy on child health and community at large.
Breastfeeding	Feeding choice and type should be noted on the RtHC	Breastfeeding was recorded in 2.8 % and 88.9 % not recorded.	Relevant advices and encouragements are not given to caregivers. Trainings received by nurses on breastfeeding are not implemented as expected by the department.		
Immunisation	To be recorded indicating name of vaccine, date, site and signature of person who administered it on RtHC	Recorded in 64.3 % with 97.2 % names of vaccine, 80.6 % date given, 13.9 % of signatures and 8.3 % of site injected,	Immunisation schedule were not followed as prescribed leading to missed opportunities and high drop out rate leading to low immunisation coverage.		**It is recommended that regular bimonthly under five morbidity and mortality meetings be held within the districts so that nurses are made aware of shortcomings and efforts needed to promote child health.**
Family spacing by parent	The type of contraceptive of the mother should be indicated on the RtHC	It was not recorded in 97.2 % of the RtHC	The full impetus of the relationship of the health of the mother and the child is not taken into consideration by nurses. Effects of multiple pregnancies and the possibility of low birth weight of the child are not considered.		**The importance of an integrated and holistic approach to assessment, monitoring and intervention should be emphasised**
Female education	Short notes on advices	Half of caregivers (57.1 %)	Caregiver are treated as passive	This study showed	**There should be a system**

	given to the caregiver such as ORS preparation should be noted on the RtHC	were not given advices on immunisation given and return date; ORS 8.6 % and 16.7 % were advised on how to give prescribed treatments of the child.	recipients of care are not empowered to solve future health problems like diarrhea	that health workers were not fully aware of the importance of recording of information on the RtHC and the full involvement of caregivers in decision making of the care of children	**to monitor and evaluate the utilisation of the RtHC by health professionals**
Food supplements	Nutritional assessments and feeding type of the child should be indicated on the RtHC. Supplements such as Vitamin A should be given per schedule and recorded on provided spaces	Vitamin A was recorded in 27. 8% of the RtHC. Feeding advices were given in 5.6 % of caregivers.	Potential nutritional problems are not fully addresses and nutritional interventions are not given. In the absence of full nutritional assessment of children, the real nutritional status of children in the area cannot be known.		**The importance of an integrated and wholistic approach to assessment, monitoring and intervention should be emphasized.**
Health and demographic information	Minimum data about the childôs name, identification, parents details, and address of the child should be clearly noted as much as possible on the RtHC.	94.4 % of the RtHC had the name of the child recorded with 83. 3 % without the identification number of the child. Residential address was not recorded in 88.9 % of the RtHC and 94.4 % absence of parents contact details.	This indicates the child is not linked with the parents and the circumstances of the parents are not regarded as having an influence on the health and growth of the child.		**The importance of an integrated and wholistic approach to assessment, monitoring and intervention should be emphasized**

Perinatal/ Antenatal information	Date, place of birth should be recorded; weight, height and head circumference at birth should be recorded as baseline data to monitor growth progress. Serology results and outcomes during and after delivery should be noted as well.			It was also found that the RtHC was not utilised effectively by nurses because information was recorded but not utilised to guide the necessary intervention needed by the child	**The importance of an integrated and wholistic approach to assessment, monitoring and intervention should be emphasized**
Hospital admissions and any need of special care on the child such as economic and social status of the parents.	Special needs should of the child and key points for follow up after discharge should be noted to offer support and advises on the caregiver.	Key points for follow up were noted on 11.1 %, economic and social status were absent in 80.6 % with.	This implies that needed interventions were not given; referrals to other health team members could not be done in the absence of crucial information of the child.	The RtHC is not treated as valuable tool to record growth progress of the child.	**The importance of an integrated and wholistic approach to assessment, monitoring and intervention should be emphasized**

Health worker consultation sheet	**Short keywords of care given, assessments done and interventions are to be indicated on the provided A4 side of the RtHC with name and signature of the person giving the care indicated**	**Assessments such as breastfeeding, nutritional status, ORS given and special care were partially recorded as indicated above. names and signatures of nurses who gave care were recorded in 22.2 % of RtHC.**	**Poor record keeping have negative effects on the child because there will not be continuity of care or over dosage in case of drugs. Absence of names and signatures may indicate that the RtHC is not treated as a valuable tool to monitor child health as it is believed to be by the department of health.**		**It is therefore recommended that workshops be held to update nurses on the correct utilisation of the RtHC**

"*A little e knowledge that acts is worth infinitely more than much knowledge that is idle".* Kahlil Gibran.

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ANNEXURE A

The Road to Health Chart

Guidelines for Health Workers.

These guidelines are issued with each pack (100) of the Road to Health Chart (RtHC). The aims of this chart are to have an accurate home-based record of a childøs health and development, to promote the relationship between health workers and the parent(s)/caregiver of the child and to improve the identification of children needing extra care. The chart is based on the Teaching Aids at Low Cost (TALC) chart and other charts previously developed and used in many parts of South Africa. The chart has been updated and improved, and the layout was developed by the national Directorates for Nutrition, Child & Youth Health and provincial contributions. It is generally agreed that the format of the chart should be uniform throughout the country to accommodate children moving from one area to another and to make training and ongoing support easier. The chart can also be used for evaluating community nutritional status over time and the monitoring of immunisation coverage.

Background.

The Road to Health Chart (RtHC) is often the only ongoing link between health workers *(including doctors)* and a childøs parent(s)/caregivers. If used properly, it promotes these relationships, improves decisions and helps to focus on those children needing extra care.

Growth monitoring and promotion are of the most useful tools available in child health. Routine and regular growth monitoring and promotion is the easiest and quickest method available for the early detection of disease, developmental and nutritional problems, and for the positive reinforcement of behaviors that promote growth in children. The most sensitive indicator of a childøs growth is weight.

Experts have made the following recommendations to the national Department of Health on the use of the chart:

- It should be used as the standard Road to Health Chart and clinical record in all regions of the country.

- The revision, distribution and printing of the Road to Health Chart are to be the responsibility of the national Department of Health.
- No other versions of the Road to Health Chart should be printed.

Material and protection

The chart is made of Tyvek® paper that is tear- and waterproof to ensure that the chart will not be easily damaged or soiled. Since this chart should be kept throughout the life of a child, durability of the chart is important.

Colour

The print is predominantly green on a white *background* for the sections that must be completed by health workers to make black/blue ink more legible. Headings/examples are printed in black on white. A pen with a fine point should be used, with ink that does not run when wet, e.g. fine ballpoint.

Size

The chart is an A3 size to allow adequate space for proper record keeping. The chart is designed to fold into an A4 size along its length and then into a flyer format along three further folds. The flyer format makes it easy to handle and store.

1. Use of the Road to Health Chart

1.1 Issue, ownership and responsibility

This chart must be issued at birth by the health service concerned. Some sections on the chart may be discussed and completed on admission to the labour ward. If birth takes place at home, the first opportunity after delivery should be used to issue the chart. The RtHC is the property of the childõs parent(s) or legal guardian. The chart should be presented to the health worker at every visit to a health facility. Filling the childõs details and progress in on the chart, shows respect for the parent(s)/caregiver and will improve both effective decision making and health facility management..

1.2 Frequency of use

Health workers who examine young children should request to check the information recorded on the chart at every visit; this provides useful rapid background information, and reinforces its value to the parent(s)/caregiver. Routine weighing, plotting, interpretation and feedback are recommended monthly during the first two years of life, and regularly after that at three month intervals. This amounts to 36 times within the first five years, providing reasonable opportunity to promote a good relationship between health workers with the parent(s)/caregiver and child, to detect problems early and to initiate intervention.

2. Layout of information.

2.1 Growth monitoring chart

This is a graph that records the childõs growth progress..

2.1.1 Identification

The top left corner on the growth monitoring chart provides space to record the childõs name. This should be checked every time that the childõs weight is recorded.

2.1.2 Growth monitoring. (Make sure the scale weighs accurately)

(i) Vertical axis

This is the weight axis. It is represented in kilograms both on the left and right margin of each year, starting at 0kg with the 2,5kg line highlighted. The vertical axis is marked at 0,5kg intervals *(dotted lines)* with the 1kg intervals *(solid lines)* exactly one centimeter apart. The child should be weighed naked or with minimal clothing *(example: vest and nappy)*. The accuracy of weighing and plotting on the growth graphs should always be double checked by a second health worker for every 10^{th} to 20^{th} child. The weighing scale used, should be **zeroed daily** and **calibrated weekly** with standard 5kg and 10kg weights.

(ii) Horizontal axis

This is the age axis. The age scale has one space *(column)* per month for the entire period. This prevents confusion in labeling the axis and plotting weight in later years. Each month is represented by a block in which the health worker has to write the appropriate month.

The *first block* of each year is outlined in bold and represents the space for the *birth month* to be recorded. It also provides enough space for the *year of birth* to be inserted *(see example)*. The first year and the birth month of each year should be filled in *at birth*, in neat *block letters,* by the health worker who issues the chart. The completion of each month of life is numbered on the age-axis. The childôs age can be read immediately from the age scale at any time, provided the months have been correctly labeled.

(iii) Standards and reference curves

The National Centre for Health Statistics (NCHS) standards were used as it is currently the most frequently used standard values on available cards. The four solid lines plotted on the growth monitoring graph are called centiles.

A centile represents an average weight of most children in the same age group. If the weights of 100 healthy children, according to age groups, are plotted on the graph and the average weight within each age group is calculated, plotted and linked, it will represent the 50th centile reference curve (bold curve on graph). The weights of the 100 healthy children will be scattered around the 50th centile, with more weights near to it rather than far above or below it. To obtain a normal range of weights, an upper and lower reference curve is also plotted. On the graph it is represented by the 97th and 3rd centile reference curves (the 2 curves above and below the 50th centile). This means that of the weights plotted of a 100 healthy children, the weight of 3 healthy children will fall above the 97th centile and the weight of 3 healthy children will fall below the 3rd centile. If a child's weight does fall above the 97th or below the 3rd centile it does not necessarily mean that the child is overweight/underweight or sick, but rather the direction of the child's growth that is important. However, if a child's weight is near or below the 4th line or 60% of average weight, the child is likely to be seriously malnourished.

(iv) Growth direction

2.2 Health and demographic information.

This information is shown on two-thirds of an A4 sheet, next to the growth monitoring chart for children aged three to five years. The chart attempts to present the minimum data

needed as clearly as possible. The name **Road to Health Chart (RtHC)** is a message of the chartôs value. A statement, placed at the heading of this section, reminds the parent(s) /caregiver of the need for the chart to accompany the child at every visit to a health facility.

2.2.1 Child identification

The name and identification number of the child to be stated in full. Tick boy or girl.

2.2.2 Perinatal/Antenatal information

The date of the childôs birth is important, as is the place of birth. If a child is born at a maternity home, clinic, health centre or hospital it must be noted as such in the space provided. If a child is born at home, it should be clearly stated *(home delivery)*. Birth weight, birth length, head circumference and gestational age are recorded as baseline data upon which to evaluate future changes. Relevant serology results should also be recorded. Complications during pregnancy and child delivery may influence the health and development of a child. Key words must be used to record this under the heading *Problems during pregnancy /birth/neonatally*. For example:

during pregnancy:	never attended ANC, WR positive,
	TT not given, high BP.
during labour:	Prolonged 2nd stage, forceps.
neonatal:	Premature, incubator for 2 weeks.

The number of sisters/brothers born, and the number alive, must be indicated. The reason(s) for the death of any of the childôs sisters/brothers, must be recorded under the heading *Reason(s) for death(s):*

2.2.3 Parents/caregiver identification

The motherôs and fatherôs names must be stated in full. If the child lives with someone else, for instance a family member or guardian, this personôs name must also be stated. A space is also provided to record the name of the health worker who provided the parent(s)/caregiver with the chart and laid the foundation for the road to health.

2.2.4 Visual/hearing screening

Visual test: From 6 weeks onwards a baby should be able to follow horizontally with both eyes a moving object *(pencil/pen),* held about 20-30cm from the face, from full left gaze to full right gaze. From 3 years onwards simple eye charts can be used.

Voice test: Stand at arm's length behind a young child *(>12 months)* and say something in a **soft whisper**. If the child accurately repeats what was said, the child has normal hearing in at least one ear. If the child cannot understand what was said, repeat something else in a **normal conversational voice**. If the child cannot hear your whispered voice, but can hear your conversational voice, the child has a moderate hearing impairment. If the child still cannot hear, say something in a **loud voice**. If the child cannot hear your conversational voice, but can hear your load voice, then the child has a severe hearing impairment.

2.2.5 Vitamin A supplementation

When vitamin A supplementation is given to a child, it must be noted on the Vitamin a supplementation chart by date given and signature of the health worker, who administered it.

2.2.6 In need of special care

This information must be recorded so that extra time can be given to discuss problems, provide encouragement and special advice, and early follow-up or referral as necessary. If the child is at risk, record the relevant information under *In need of special care*.

2.2.7 Immunisation record

A primary schedule *(with boosters)* for immunisations is given, citing vaccine and prescribed injection site details. Space is provided for other vaccinations. Immunisations must be recorded by date given together with the signature of the health worker who administered it.

IMMUNISATIONS			**IMMUNISATIONS**	
Age of child	***Vaccine***		***Age of child***	***Vaccine***
At birth	BCG[1] Polio vaccine		14 weeks old	Polio vaccine DTP vaccine Hib vaccine Hepatitis vaccine
6 weeks old	Polio vaccine DTP[2] vaccine Hib[3] vaccine Hepatitis vaccine		9 months old	Measles vaccine
10 weeks old	Polio vaccine DTP vaccine Hib vaccine Hepatitis vaccine		18 months old	Polio vaccine DTP vaccine Measles vaccine
			5 years old	Polio vaccine DT[4] vaccine

[1] vaccine against tuberculosis

[2] vaccine against diphtheria, whooping cough and tetanus (lock-jaw)

[3] vaccine against *Haemophilus influenzae* type b

[4] vaccine against diphtheria and tetanus only

2.3 Health worker consultation sheet..

2.3.1 Health worker consultation.

The space for clinical notes covers two A4 sheets on the inside fold of the RtHC. It should be used for making short keyword notes, including assessment of growth and actions taken, so that all health workers seeing a child know what has previously been decided/noted of that child. Each entry should take no more than 2-8 lines per visit. For example:

02/02/2000: Cough, fever for two days.
Rapid breathing, T38^{B}C
Pneumonia, Rx amoxycillin 125mg tds x 5 days.

2.3.2 Hospital admissions

At the bottom right of the health workersô consultation sheet is a table to record hospital admissions. On discharge from a hospital, record the *discharge diagnosis* and any key points for follow-up.

2.3.3 Clinic address

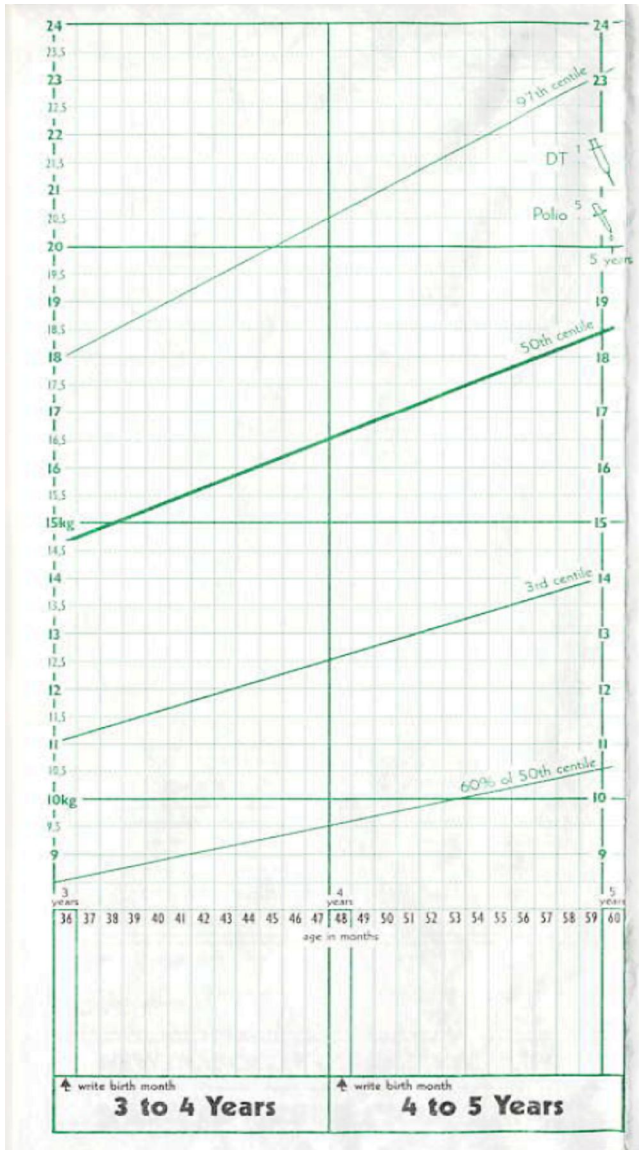
The address of the clinic regularly visited by the parent(s)/caregiver must be completed in full by the health worker. If the babyôs family moves to another town/city/rural area, the address of the new clinic visited, must be completed.

3. Future of the Road to Health Chart

The concept and general layout of the chart are very similar to the previous RtHC versions. Research on improving the RtHCôs use in the field is encouraged. Comments or enquiries can be forwarded to the following address:

Road to Health Chart
Directorate Nutrition
Department of Health
Private Bag X828
PRETORIA 0001
Fax: (012) 312-3112
Tel: (012) 312-0065

ANNEXURE B



Road to Health Chart

IMPORTANT: always bring this chart when you visit any health clinic, doctor or hospital and present the chart on school entry

Department of Health

GW 8/123

Child's name: boy ☐ girl ☐

Child's ID number

Date of birth: day / month / year — Place of birth

Birth weight — Birth length — Birth head circumference

Problems during pregnancy / birth / neonatally

APGAR 1 min / 5 min — Gestational age (wks) — Mother's Serology

Mother's file numbers — Antenatal: — Delivery:

RtHC information given by:

Mother's name:

Father's name:

Who does the child live with?

How many children has the mother had?

Number born ☐ Number alive now ☐ Date information given: dd mm yy

Reason(s) for death(s):

Visual screening

Pencil test (>6 weeks)

Result: L: yes no R: yes no Date tested: dd mm yy

Snellen Chart test: conduct with E-chart (5> years)

Result: L: / R: \ / Date tested: dd mm yy

Hearing screening

Does baby appear to listen when someone is talking or singing? (at 3 months)

Result: yes no Date tested: dd mm yy

Does baby turn to a loud noise? (at 6 months)

Result: L: yes no R: yes no Date tested: dd mm yy

Voice test: Hearing impairment (>12 months)

Result: Normal hearing / Moderate impairment / Severe impairment Date tested: dd mm yy

IMMUNISATIONS

	Batch no:	Vaccine	Site	Date given (day / month / year)	Signature
PRIMARY SCHEDULE		BCG	Right arm	/ /	
		Polio 0	Oral	/ /	
		Polio 1	Oral	/ /	
		DTP 1	Left thigh	/ /	
		Hib 1	Left thigh	/ /	
		DTP 1 / Hep B 1 (combined)	Left thigh	/ /	
		Hep B 1	Right thigh	/ /	
		Polio 2	Oral	/ /	
		DTP 2	Left thigh	/ /	
		Hib 2	Left thigh	/ /	
		DTP 2 / Hep B 2 (combined)	Left thigh	/ /	
		Hep B 2	Right thigh	/ /	
		Polio 3	Oral	/ /	
		DTP 3	Left thigh	/ /	
		Hib 3	Left thigh	/ /	
		DTP 3 / Hep B 3 (combined)	Left thigh	/ /	
		Hep B 3	Right thigh	/ /	
		Measles 1	Right thigh	/ /	
BOOSTERS		Polio 4	Oral	/ /	
		DTP 4	Left arm	/ /	
		Measles 2	Right arm	/ /	
		Polio 5	Oral	/ /	
		DT 1	Left arm	/ /	

In need of special care (mark with X)

Was the baby **less than 2,5kg** at birth	yes no	Are any brothers or sisters **underweight**?	yes no
Is the baby a **twin**?	yes no	Is the baby **bottle fed**?	yes no
Household **TB** contact?	yes no	Does the mother need more **family support**?	yes no
Are there any reasons for **taking extra care**?	yes no	(for example: single parent etc.)	

Address of clinic(s) visited

Clinic 1:	Clinic 2:

Child's name: _____

IMMUNISATIONS

BCG

Polio 0 1 2 3

Hib, DTP & Hep B 1 2 3

Measles 1

birth 6wks 10wks 14wks 9mths

DTP 4

Polio 4

Measles 2

18mths

Discuss:
- Breastfeeding
- Child spacing
- Food intake
- Oral rehydration solution

97th centile

50th centile

3rd centile

60% of 50th centile

I can talk

write birth month and year

Birth to 1 Year

write birth month

1 to 2 Years

write birth month

2 to 3 Years

Growth Monitoring Chart

Chart revised: August 2002

Watch the direction of the curve showing the child's growth

GOOD
Means the child is growing well.

DANGER SIGN
Not gaining weight.
Find out why

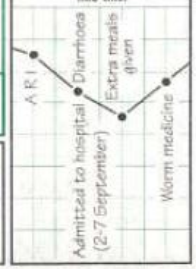
VERY DANGEROUS
Child may be ill, needs extra care.

Date for next visit

nr.	day	month	year
1	/	/	
2	/	/	
3	/	/	
4	/	/	
5	/	/	
6	/	/	
7	/	/	
8	/	/	
9	/	/	
10	/	/	
11	/	/	
12	/	/	
13	/	/	
14	/	/	
15	/	/	
16	/	/	
17	/	/	
18	/	/	
19	/	/	
20	/	/	
21	/	/	
22	/	/	
23	/	/	
24	/	/	

Write on the chart
- Any illness e.g.
  - diarrhoea,
  - ARI, etc.
- Admission to hospital,
- Solids introduced,
- Breastfeeding stopped,
- Birth of next child, etc.

like this:



Date	Clinical notes, diagnosis & treatment (and signature) (use key words, write legibly - 2 to 8 lines per visit)
	④
	continue in column 5

Date	Clinical notes, diagnosis & treatment (and signature) (use key words, write legibly - 2 to 8 lines per visit)
	⑤

VITAMIN A SUPPLEMENTATION

Supplementation: age in months	Schedule	Date given day / month / year	Signature
PROPHYLAXIS			
Mother at delivery (not later than 6-8 weeks)	1 × 200 000 IU	/ /	
Infant not breastfed (at 6 weeks)	1 × 50 000 IU	/ /	
At 6 months* (up to 11mths)	1 × 100 000 IU	/ /	
At 12 - 60 months (mark with X)	1 × 200 000 IU every 6 months	12mths / / ; 18mths / / ; 24mths / / 30mths / / ; 36mths / / ; 42mths / / 48mths / / ; 54mths / / ; 60mths / /	

TREATMENT OF :

(NOT if prophylactic dose was given within previous month)

Dosage according to following age group: 2-5mths: 50 000IU
(See IMCI classification) 6-11mths: 100 000IU
12-60mths: 200 000IU

Persistent diarrhoea/ Diarrhoea with severe dehydration	Immediate	1 × ....IU	/ /	
Measles	Immediate	1 × ....IU	/ /	
	24h repeat	1 × ....IU	/ /	
Xerophthalmia	Immediate	1 × ....IU	/ /	
	24h repeat	1 × ....IU	/ /	
Severe malnutrition	Immediate	1 × ....IU	/ /	

* *Allow a period of at least one month between doses*

A PASSPORT FOR HEALTHY CHILDREN

Show mothers you value the use of the Road to Health Chart and they will take care of it

HOSPITAL ADMISSIONS

Hospital name	Admission number	Date of admission	Date of discharge	Discharge diagnosis
		/ /	/ /	
		/ /	/ /	
		/ /	/ /	
		/ /	/ /	
		/ /	/ /	

Road to Health Chart (RtHC)

HEALTH WORKER CONSULTATION SHEET

Child's name :

Date of birth : dd mm yy

Does the child have any allergies?
Specify:

Date	Clinical notes, diagnosis & treatment (and signature) (use key words, write legibly - 2 to 8 lines per visit)
	①

continue in column 2

Date	Clinical notes, diagnosis & treatment (and signature) (use key words, write legibly - 2 to 8 lines per visit)
	②

continue in column 3

Date	Clinical notes, diagnosis & treatment (and signature) (use key words, write legibly - 2 to 8 lines per visit)
	③

continue in column 4

ANNEXURE C

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT

Enquiries: Ramalivhana NJ/Malomane EL

Ref: 4/2/2

8 June, 2009
Mudau T.S
College of Human Sciences
University of South Africa
SOVENGA

Dear Mudau T.S

"Utilisation of the Road to Health Chart to improve the health of children under five years"

Permission is hereby granted to Mudau T.S to conduct a study as mentioned above in Limpopo Province, South Africa

- The Department of Health and Social Development will expect a copy of the completed research for its own resource centre after completion of the study.
- The researcher is expected to avoid disrupting services in the course of his study
- The Researcher/s should be prepared to assist in interpretation and implementation of the recommendations where possible
- The Institution management where the study is being conducted should be made aware of this,
- A copy of the permission letter can be forwarded to Management of the Institutions concerned

10/07/09

HEAD OF DEPARTMENT
HEALTH AND SOCIAL DEVELOPMENT
LIMPOPO PROVINCE

ANNEXURE D

APPENDIX 6

UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee (HSREC)
College of Human Sciences
CLEARANCE CERTIFICATE

Date of meeting: 2008-04-23
Project No: DIS702/30697395

Project Title:
The Utilisation of the Road to Health Chart for children under five years

Researcher: MS TS Mudau

Supervisor/Promoter: Prof SP Human

Joint Supervisor/Joint Promoter: Not applicable
Department: Health Studies, UNISA

Degree: MA Health Studies

DECISION OF COMMITTEE
The committee has assessed the ethical implications of the intended research as submitted in a comprehensive research proposal and is satisfied that ethical principles will be maintained and no respondent or institution will be at risk for any harm or will be exposed to unethical procedures.

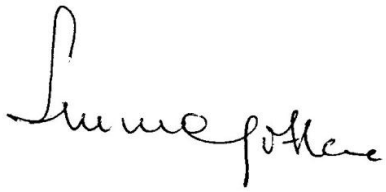
Anonymity of respondents and institutions will be maintained. Data collected and anlaysed will not used to implicate any person or institution.

No financial sponsorship is applicable. The research is been conducted to allow the candidate to illustrate competence in application of an appropriate and scientific research project and in so doing to obtain the degree MA in Health Studies. Although the criteria for research at Master's level are not to give evidence of originality or to make a major contribution to the body of scientific knowledge, it is envisaged that stakeholders may potentially find the research results and recommendations of value.

The decision of the committee is that the research has been approved in terms of ethical principles.

Date: …2008 -04-25

Prof TR Mavundla
RESEARCH COORDINATOR



……..
Prof SM Mogotlane
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

Note: Should any department be contemplated from the research procedure as approved, the researcher(s) must submit the protocol to the committee.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRES

ANNEXURE E

REQUESITION OF SUBJECTS TO PARTICIPATE IN THE STUDY

Title: The utilisation of the Road to Health Chart to improve health of children under five years.

I am Selina Mudau a student doing Masters Nursing at the University of South Africa. Am under taking research on the ñUtilisation of the Road to Health Chart for children under five years. The study will benefit the department in evaluating health workersôpractice and planning of training so that quality care is given to children under five years.

Your permission to participate in the study is requested. The study will be done by me, and you are free to participate and withdraw anytime in the process of the study. Your withdrawal from the study will be judged negatively, your child will receive the care needed by nurses in the clinic.

As a nurse you will be observed while treating the child and the information recorded on the chart will be checked against a checklist of the study.

Your name is not needed for the study and any information given will be held confidentially by me.

The study will not subject the child in any kind of treatment, only the Road to Health Chart will be used to check the information recorded by the nurses as focus of the study. The study will be conducted for a day only. You (caregiver or parent) will be requested to participate in a short interview after consultation of the child to help validate the information written on the chart by the nurse.

Should you have any questions after the study be free to call me at 0825739589.

The study and its procedures have been approved by the appropriate committee in the Department of Health Limpopo and UNISA research committee.

I have discussed the procedure with subjects and in my opinion subjects understand risks, benefits and obligations involved.

Investigator Date

I understand that my participation is voluntary and that am free to withdraw any time in the study without penalty.

I hereby give my consent to participate in the project.

Signature of subject Signature of Witness Date

ANNEXURE F

1

Serial number

Date: _____

THE UTILISATION OF THE ROAD TO HEALTH CHART FOR CHILDREN UNDER FIVE YEARS

CHECK LIST OF INFORMATION RECORDED THE RTHC

1. Identification and personal information

Item	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	Notes and comments
Identification number of child				
Name of child				
Residential address of child				
Gender of child				
Contact details of parent or caregiver				

2 Relevant medical and social history

Item	Present and accurate. Comply with norm	Present but incomplete or inaccurate	Absent	Notes and comments
Family structure				
Economic status/economic observations				
Family planning/birth control implemented by parents				
Accessibility of clinic				
Frequency of visits to clinic				
Relevant pre- and peri- and postnatal history				
Date of birth of child				
Place of birth				
Length at birth				
Head circumference at birth				

Gestational age				
Serology results				
Complications				
Hospital admissions				
Discharge diagnose				
Key points for follow up				

3 Growth monitoring criteria

Item	**Present and accurate. Comply with norm**	**Present but incomplete or inaccurate**	**Absent**	**Notes and comments**
Height in centimetres – graphic curve				
Weight in kilograms – graphic curve				
Head circumference in centimetres Graphic curve				
Immunisation status – scheduled according to immunisation history				
Nutritional status as per observation – including breastfeeding by mother				
Developmental stages according to age – including vision and hearing				

4 Services rendered according to purpose of visit

Item	**Present and accurate. Comply with norm**	**Present but incomplete or inaccurate**	**Absent**	**Notes and comments**
Immunisation				
• Name of vaccine				
• Site of vaccine				
• Route of vaccine				

• Date of vaccine				
• Signature and professional details of person who immunised the child				
Nutritional assessment				
• Weight assessed and recorded				
• Feeding history taken and recorded				
• Nutritional status observed and recorded				
Developmental stages assessed				
• Social development assessed and recorded				
• Physical development assessed and recorded				
• Emotional development assessed and recorded				

5 Intervention based on observations during the clinic visit on the day of the observation by researcher

Item	**Not applicable**	**Present and accurate. Comply with norm. Indicate: (1) Feedback and relevant education (2) Referral (3) Scheduling of follow up visit**	**Present but incomplete, inaccurate or irrelevant**	**Applicable but not done**	**Notes and comments**
Height in centimetres					
Weight in kilograms					
Nutritional status					
Developmental stages according to age – including vision and hearing					
Providing of food supplement and education					

4

on preparation					
Vitamin supplement					
Immunisation					
Rehydration					
Diagnosis of childhood disease and appropriate intervention (e.g. providing medication or other treatment					
Contact details of clinic and/or health worker for information, follow-up or in case of emergency					

6 Professional communication

Item	**Not applicable**	**Present and accurate. Comply with norm**	**Present but incomplete or inaccurate**	**Applicable but absent**	**Notes and comments**
Date, name, signature and category of health worker responsible for assessment clearly indicated on Road to health chart					
Date, name, signature and category of health worker responsible for feedback and education clearly indicated on Road to health chart					
Date, name, signature and category of health worker responsible for intervention clearly indicated on Road to health chart					
Referral to hospital effective, accurate and according to clinic policy					
Referral to other member of health team or social team (such as social worker, dentist, home affairs) effective, accurate and according to clinic policy					
Maintaining professional confidentiality					

THE UTILSATION OF THE ROAD TO HEALTH CHART FOR CHILDREN UNDER FIVE YEARS

FIELDNOTES ON DISCUSSIONS WITH PARENT OR CAREGIVER AFTER THE CONSULTATION WITH THE HEALTH WORKER

X	Y

Was the consultation a positive or negative experience? Why?

Where all the questions and queries that **you** had about the child, the health services or any other matter related to utilizing the health services adequately answered?

What aspects did the health worker give you information and feedback on without you asking for it specifically?

Does the nurse usually provide you with valuable information about the child and the growth and development of the child when you visit the clinic?

Are you usually involved in the decision making of matter about the health of the child?