

*An Explorative Study of
Growth Monitoring
as a component of
Primary Health Care
in the Durban South Central Region*

By

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DECLARATION

I KHETHIWE NATALIA MASONDO declare that *The study exploring growth monitoring practices of professional nurses in the Umlazi Clinics* is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.


K.N. MASONDO

DEDICATION

This work is dedicated to the following:

- *My colleagues engaged in the provision of community health care, especially by giving children a better chance of achieving and maintaining quality of life by fulfilling the mission of "Health for All by the year 2000".*
- *The communities who provide dynamic environment in which the nursing profession is practised.*
- *To my past post-basic Child Nursing Science students and colleagues at work who inspired me to seek more knowledge about child health care.*
- *My children Linda, Phumlani and Sibusisiwe.*
- *My husband Fanyana Michael Masondo who has provided me with challenges for progress in education.*
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→ The nurse managers-in-charge of these clinics under study for giving me permission to collect data.

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- My husband whose sincere commitment to my progress and development has kept the same pace that made me to continue with this study, even in times of difficulty.
- My children for their full support and patience for the duration of this study.

ABSTRACT

The aim of the study was to pursue an exploratory, descriptive, contextual study to investigate knowledge and practices of professional nurses working in the Umlazi clinics with regard to how they: assess normal growth: assess deviations from normal growth: record and interpret growth findings using the Road to Health Card: communicate all information with regard to health surveillance of children to mothers and use of the Road to Health Card as means of referral to other health care services.

A simple random sample was selected from a population of professional nurses working in the four clinics under study and from a population of mothers utilizing these clinics for both growth monitoring and minor ailments. For the purpose of investigation, questionnaires and interview schedules consisting of both structured and unstructured questions were utilised.

The study revealed that there were many barriers to provision of quality growth monitoring programmes in the Umlazi Clinics that were under study. These included shortage of staff, shortage of equipment and medicines which resulted in weighing of children not being done as frequently as required. Mothers were not given accurate information about the growth parameters of their children, especially with regard to the Road to Health Chart. Mothers could not interpret the growth patterns in the Road to Health Card. The study also revealed that although the mothers were aware that they were supposed to carry the Road to Health Card each time they visited the clinic, doctor or hospital, they did not carry these cards as required stating the reasons that the children were not weighed when they attended minor ailment clinics and that the health workers did not ask for the Road to Health Cards during these visits.

Based on the above results of the study, a client-centred approach is recommended as a possible solution to these problems, since these are a concern of both the

clinic health workers and that of the mothers who utilise these clinics for growth monitoring: guidelines with regard to the above recommendations include: in-service education conducted more frequently re-growth monitoring: improvement of the size of the Road to Health Chart for reinforcement of health education: inclusion of fathers in growth monitoring health education programmes: the Road to Health Card information to be written in the mother's home language: accompaniment of clinic supervisors during their routine visits to the clinic by the local police at least twice a month and re-establishment of clinic committees where these have stopped to function.

For the purpose of this study the words "Road to Health Chart" and "Road to Health Card" will be used interchangeably.

SAMEVATTING

Met hierdie studie is daar beoog om 'n eksploratiewe, beskrywende en gekontekstualiseerde studie te onderneem van die kennis en praktyk van professionele verpleegsters wat werkzaam is in die klinieke in Umlazi. Daar is beoog om vas te stel hoe hulle: normale groei bepaal; afwykings van normale groei bepaal; bevindings met betrekking tot groei opteken en interpreteer met behulp van die Pad tot Gesondheid-kaart; inligting aan moeders oordra in verband met die gesondheidsrekord van kinders; en die gebruik van die Pad tot Gesondheid-kaart in die verwysing van moeders na ander gesondheidsdienste.

'n Ewekansige steekproef is geneem van 'n groep professionele verpleegsters werkzaam in die vier klinieke wat deel uitmaak van die studie en van 'n groep moeders wat hierdie klinieke besoek vir die kontrolering van hul kinders se groei sowel as vir die behandeling van geringe siektes. Vir die doel van die ondersoek is vraelyste en onderhoudskedules gebruik wat bestaan het uit gestruktureerde sowel as ongestruktureerde vrae.

Die ondersoek het aan die lig gebring dat daar verskeie struikelblokke is in die lewering van gehaltesdiens in die kontrolering van groei in kinders in die Umlaziklinieke wat deel uitgemaak het van die studie. Hierdie faktore sluit in personeeltekorte, asook 'n tekort aan toerusting en medikasie, en dit het tot gevolg gehad dat kinders nie gereeld genoeg geweeg kon word nie. Moeders het nie voldoende inligting ontvang in verband met die parameters wat betrekking het op die groeiverloop van hul kinders nie, veral met verwysing na die Pad tot Gesondheid-tabel. Moeders was nie in staat om die groeipatrone, soos op die kaart aangedui, te interpreteer nie. Ofskoon moeders bewus was daarvan dat hulle die kaart moes toon wanneer klinieke besoek word, het hulle dit nie altyd gedoen nie. Die redes aangevoer was dat dat kinders in elk geval nie geweeg word wanneer hulle klinieke bywoon nie en dat gesondheidsorgwerkers ook nie vir die kaart gevra het tydens hierdie besoeke nie.

Aan die hand van die bevindings van hierdie studie word aanbeveel dat 'n klientgeörienteerde benadering gevolg word ten einde hierdie probleme te bowe te kom, aangesien sowel die kliniekpersoneel as die moeders wat die klinieke benut daardeur geraak word. Riglyne met betrekking tot bogenoemde aanbevelings sluit die volgende in:

- ▶ Meer gereelde indiensopleiding met betrekking tot groeikontrolle
- ▶ Veranderings aan die grootte van die Pad tot Gesondheid-tabel wat gebruik word in gesondheidsopvoeding
- ▶ Insluiting van vaders in gesondheidsopvoedingsprogramme betreffende groeikontrolle
- ▶ Publikasie van die Pad tot Gesondheid-kaart in die moeder se huistaal
- ▶ Ten minste twee polisiebegeleide roetinebesoeke per maand deur klinieksupervisors
- ▶ Herinstelling van kliniekkomitees waar sodanige komitees nie meer funksioneer nie.

Vir die doel van hierdie studie word die terme "Pad to Gesondheid-tabel" and "Pad tot Gesondheid-kaart" afwissellend gebruik.

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CHAPTER 1

1.1 INTRODUCTION

ORIENTATION TO THE STUDY

An investment in the health of children is an investment in the future of the nation. If a society is to survive the threat of diseases, provision must be made for optimum child health care. Children are a vulnerable group that need special protection and support from both their families and the health care workers (National Health Plan for South Africa, 1994:44). "Health for all by the year 2000" is a global strategy of the World Health Organisation (WHO) of which Primary Health Care is a vehicle (Vlok, 1991). Accordingly, this study delineates ways in which the target of WHO may be redressed in South Africa, with special emphasis on adopting effective use of the Road to Health Card.

Primary Health Care, on the other hand is defined as "essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation, and at a cost that the community can afford. The strategy of Primary Health Care forms the overall social and economic development of the community (Dennill King, Lock & Swanepoel, 1995).

In this dissertation I will use the concept "Road to Health Card" as it is commonly known by the health workers and the mothers and the concept "Road to Health Chart" as referred by its designer David Morley.

Growth monitoring, as a component of Primary Health Care, and practically as a method of monitoring growth of children, can help reduce the vast number of child deaths and strengthen Primary Health Care (Loening, 1991; Vlok, 1996). The Growth Chart (Road to Health Chart), also commonly known as the Percentile

Chart, is a tool used by health care workers in the well-baby clinics and hospital outpatient departments. The content of this Chart is specific to the process of growth monitoring and is laid out in a manner that is easily understood by the mother as well as the health care worker (Vlok, 1996).

An exploratory and descriptive study on growth monitoring in the Durban South Central Umlazi District (Region F) will establish in terms of scientific criteria if the strategy of "Health for all by the year 2000" is attainable or not, especially if the use of the growth chart by health care workers is utilized.

1.2 BACKGROUND

Research has shown that most growth monitoring programmes in developing countries have not yet succeeded in reducing malnutrition, which is a binding of great concern to paediatric specialists (Chopra & Saunders, 1999; Khanum, 1998; Sohal, Wilkinson & Morley, 1998). Problems in growth monitoring have been identified as far back as 1951, when the World Health Organisation (WHO) showed interest in the recording and interpretation of growth data as an indication of the health and nutritional status of the child. A debate emanated about the use of a variety of instruments developed for assessing the health and nutritional status of individuals and that of the community. Consequently, confusion arose within the health service, as to which instrument was the most desirable for local, regional and international comparisons.

A new version of a growth chart was then finally jointly drawn by WHO and the Food and Agricultural Organisation (FAO) with the aid of comments and appraisals from all participants and staff of WHO regional offices. The above-mentioned growth chart is based on the format developed by David Morley and as a result of his experiences in the Third World Countries, and is also referred to as the Road to Health Chart (Pre-school record chart). The Road to Health Chart

strategy also serves as a growth monitoring teaching aid to improve mothers' understanding of growth curves (Sohal, Wilkinson & Morley, 1998).

Continuation of growth monitoring is also maintained, since the mother is given this chart after birth of her child and instructed to retain and produce the Chart whenever she takes her child to any clinic, hospital or private doctor (as means of communication between health services).

1.3 MOTIVATION FOR THE STUDY

The researcher was motivated towards conducting this study as a result of her work experience in the paediatric wards and paediatric outpatient department of one of the largest hospitals in the Durban functional area, also during her clinical accompaniment for students doing the Child Nursing Science Diploma Course in which growth monitoring is part of the course programme.

The need for in-depth, contextual monitoring of growth programmes was identified by the researcher notably, as an urgent community need. Conducting a study of this nature has not yet been of interest to nurse educators, but has been of great interest to researchers of the Medical Profession.

1.4 OBJECTIVE OF THE STUDY

The objective of this study is to explore and describe the knowledge and practices of health care workers with regard to how they:

- ▶ assess normal growth of children under the age of 5 years
- ▶ assess deviations from normal growth of children

- ▶ record and interpret growth findings using the Road to Health Chart
- ▶ communicate all information with regard to health surveillance of children to mothers
- ▶ use the Road to Health Chart as means of referral to other health care services.

1.5 RESEARCH QUESTION

What is the level of awareness and knowledge that both professional nurses and mothers have regarding growth monitoring of children visiting the well-baby clinics? What problems do both professional nurses and mothers face regarding growth monitoring?

1.6 SIGNIFICANCE OF THE PROBLEM

South Africa is a developing country where many factors that affect growth of the child prevail. These include the high unemployment rate, overcrowding, and HIV/AIDS status of both the mother and the child. The researcher therefore perceives this study as significant in increasing the level of awareness and knowledge of both professional nurses and mothers regarding growth monitoring through simple, graphic presentation using the Road to Health Chart. The intention of this study is also to provoke participation, specifically of other nurse researchers to become motivated to conduct further studies of this nature.

1.7 DELIMITATION OF THE STUDY

This study will be conducted specifically in the Umlazi clinics, which are under the Durban Functional Region. (Region F). Findings of the study will be

generalised to the participating institutions exclusively. The researcher plans to publish the study and communicate the findings to the head of the hospital responsible for administering the above-mentioned clinics and the Department of Health (Superintendent of the health district system).

1.8 ETHICAL CONSIDERATIONS

Informed consent will be obtained from the participating mothers and professional nurses of the clinics where the study will be conducted.

The names of participating individuals and institutions (Clinics) will not be required to reflect on the questionnaire in order to ensure anonymity. However, the province in which the clinics operate will be mentioned in the report.

Permission to conduct the study will be obtained from the Department of Health KwaZulu-Natal (Superintendent of the district health system) and head of the institution under which the above-mentioned clinics operate, by means of a letter which will include (a) who the researcher is; (b) the purpose of the study; (c) potential risks and benefits to the subjects and clinics; and (d) communication of the results.

1.9 LITERATURE REVIEW

Extensive literature review was conducted of research on growth monitoring by members of the medical profession both internationally and nationally. It was found that no such research had previously been done by nurse researchers, and that only a few nurse authors included growth monitoring in their publications.

1.10 THEORETICAL FRAMEWORK

Primary Health Care will be used as a theoretical framework for this study, but Guba's model of trustworthiness will be used for data collection purposes.

Primary Health Care is health care based on primary, secondary and tertiary prevention of health problems, therefore, an essential part of the comprehensive health care plan of South Africa, especially for the monitoring of growth and prevention of illness in children (Kibel & Wagstaff, 1995:123-124; 137-138).

Guba's model for assessing the trustworthiness of qualitative data will be used as a theoretical framework for this study, Guba (1981) cited in De Vos (1998:348-350) prescribes truth value, applicability, consistability and neutrality, as criteria applicable to the assessment of qualitative research.

Guba perceives truth value as usually obtained from the discovery of human experiences, as lived and perceived by the researcher. This study will focus on obtaining data as experienced by the participants of the study, in their clinical working environments. De Vos (1998:349) and Lincoln and Guba (1985) argue that researchers need to focus on testing their findings against various groups that researchers used for data collection or persons familiar with the phenomenon being studied. Thus professional nurses working in these clinics, and mothers utilizing these clinics were chosen as participants for this study especially for data collection purposes.

According to Guba (1981) the strength of a qualitative method is conducted in a natural setting with few controlling variables, therefore each situation is unique and is less amenable to generalisation. He further asserts that according to this model applicability is referred to as "fittingness or transferability" in that findings must fit into contexts outside the study situations. Such situations are determined by the degree of similarity or goodness of fit between the two contexts.

According to Lincoln and Guba (1985) cited in De Vos (1998:345) the third criterion of trustworthiness is whether the findings of the study would be consistent, if the enquiry were replicated, with the same subjects or in a similar context.

The fourth criterion according to Guba's model is that of neutrality. The emphasis of neutrality in qualitative research is shifted from the researcher to the date, so that rather than looking at neutrality of the investigator, the neutrality of the date is considered.

1.11 RESEARCH METHODOLOGY

An exploratory, descriptive and contextual design will be used for the purpose of this study, involving professional nurses working in the seven Umlazi Clinics and mothers (clients) served by these clinics.

1.12 SAMPLE AND SAMPLING

In this study two different population sets will be used. There will be a population of professional nurses working in the seven clinics and mothers (clients) served by these clinics. Each clinic and professional nurse will be assigned a number.

1.13 METHODS OF DATA COLLECTION

Triangulation technique will be used for data collection. Triangulation refers to the use of multiple referents to draw conclusions about what constitutes the truth, in other words by using multiple methods and perspectives it is hoped that true information can be sorted out from information with errors (Polit & Hungler, 1993:254).

The concept "Triangulation" is sometimes used to designate a conscious combination of quantitative and qualitative methodology (De Vos, 2000:359). For this study the research will administer structured interview schedule to mothers attending the clinics, questionnaires will be handed to the professional nurses working at the clinics and a checklist using participant observation will be used to collect other information such as how the weights are plotted in the Road to Health Card.

1.14 VALIDITY AND RELIABILITY

The researcher will develop the interview schedule and questionnaire taking into consideration the linkage of both questionnaire and interview schedule to the theoretical framework.

The interviews will be conducted by the researcher herself, so as to clarify misunderstanding pertaining the tool.

1.15 DATA ANALYSIS

Descriptive statistics will be used to analyze the quantitative and qualitative data. Qualitative data will be reduced by selection, focus, simplification and transformation. The responses of participants will be clustered according to similar patterns or characteristics.

1.16 DEFINITION OF THE CONCEPTS

Growth Monitoring

Refers to measurement of the increase in size, composition and distribution of tissues.

GOBI-FFF

WHO principle, a component of PHC that has shown to decrease morbidity and mortality in South Africa. It includes:

G = Growth monitoring

O = Oral rehydration

B = Breast-feeding

I = child immunization

F = Food supplements

F = Family spacing

Well-Baby Clinic

Refers to clinic for monitoring health and nutritional status of the under-five children for the purpose of promotion of health e.g. through immunisation and growth monitoring.

Sick Baby Clinic

Refers to the clinic where sick babies are assessed and managed and where necessary referral to other health services are offered.

Expanded Programme on
Immunisation in South Africa
(EPI)

Is a support programme, which forms part of comprehensive Primary Health Care, for prevention of deaths and decrease of preventable childhood disease by immunisation of children and women.

South Central Region

Refers to the area south of central Durban.

District Health System

Refers to level of health system under the Regional health system

Research Report

Research report will be made available to the Department of Health (Superintendent of the District Health System) and to the head of the institution that administrates the clinics which have been selected for the purpose of this study. Results and recommendations pertaining to the study will be included in the research report.

1.17 CONCLUSION

Chapter one of this study dealt with orientation to the study with regard to the following: background, motivation to the study, its objectives, research question, significance of the problem, delimitations, ethical considerations, literature review, theoretical framework to be used for the study, research methodology, sample and sampling, methods to be used for data collection, validity and reliability, how data will be analyzed and definition of the concepts.

CHAPTER 2

REVIEW OF THE LITERATURE ON GROWTH MONITORING

2.1 INTRODUCTION

The literature review for this study focused on the concepts of growth, growth monitoring, historical background of growth monitoring, the Road to Health Chart, criteria for satisfactory and unsatisfactory growth, international and national perspectives on growth monitoring, and the relationship between growth monitoring and primary health care.

2.2 THE CONCEPT OF GROWTH

Most authors refer to growth and development as a unit, which expresses the sum of the numerous changes taking place during the lifetime of an individual. In the review growth is described as the increase in size, composition and distribution of tissues, and is said to be associated with changes in their function, proportion, and shape. According to the authors, normal progression from one stage to another can only take place if specific biological, emotional and social needs that are important during foetal life and childhood are met. On the other hand development is described as the increase in the complexity of structures and their function. According to the authors, all the above mean that growth involves a change in quality whereas development involves a quantitative change (Ebrahim, 1993:72; Coovadia & Loening, 1995:18; Coovadia & Wittenberg, 1998:34; Whaley & Wong, 1995:106).

The literature review further revealed that growth can also be influenced by genetic factors, such as the size of the parents which can influence the size of the child. Genetic factors account for people, in some tribal groups, growing taller than those in other tribal groups (Ebrahim, 1993:72).

According to Ebrahim (1978:40) growth becomes distorted in the absence of a healthy endocrine system. This author states that, by far the most important hormone governing growth, is the growth hormone of the anterior pituitary gland. In the absence of the growth hormone, height is reduced, and infantile body proportions are retained in adult life.

Research shows that nutrition has a profound influence on growth of the child especially in the developing countries. Karlberg (cited in Hopp, 1997:6) in his study conducted in Nepal, has documented growth failure in children under six months, when growth is predominantly nutrition dependent, together with a decrease in the impact of under-nutrition in subsequent years.

Chronic illness, infections, handicap, emotional illness, metabolic abnormalities and congenital deformities have been found to affect growth by most authors (Ebrahim, 1993:76; Coovadia & Loening, 1995:18-21; Coovadia & Wittenberg, 1998:33).

Coovadia and Wittenberg (1998:20) state that in large families of low socio-economic status, there is a relationship between family size and short stature possibly because there is less food available. Kibel and Wagstaff (1995:23) assert that a sound knowledge of the patterns of normal growth and the factors, which influence growth itself, are prerequisites for the effective practice of child health.

In the review the researcher also found that factors such as family disruption, illiteracy, war, civil unrest, unwanted or too many pregnancies may all have a profound influence on growth of the child, but may be beyond the control of the mother (Ebrahim, 1993:81; Coovadia & Loening, 1995:22; Coovadia & Wittenberg, 1998:32).

WHO (1998:72) assert that urban environment can be particularly hostile to children and further states that density of human population, accompanied by lack

of basic urban services result in increasing environmental risks such as poor housing, lack of parental supervision and even abandonment and other consequences of urban poverty, which are endemic and contribute to high morbidity and mortality among children.

In addition, WHO (1998:73) states that children are the most vulnerable members of society in times of armed conflicts and asserts that in the past decade 2-million children have died as a result of war, of which deaths of children are up to 24 times greater than in times of peace. According to WHO at present there may be more than 4-million children in the world, who have been disabled by landmines because of armed conflict.

2.3 GROWTH MONITORING

Coovadia and Wittenberg (1998:21) define growth monitoring as the periodic and regular measuring and recording of child weight over age (time). These authors maintain that growth monitoring is not only a form of child health surveillance, but it also includes recording of growth faltering, as poor weight gain is considered to be a sensitive screening technique for early detection of nutritional problems and illness in young children. The above definition has been supported by Hosono, Okazaki, Kagimote, Ogawa, Matunaga, Oishi, Ohno, Yamauchi, Joh, Atashi, Yamamoto, Kohno, Honma, and Shakya (1988:350-355) who define growth monitoring as one of the basic methods that defines the health and nutritional status of children. WHO (1981:32) emphasizes that nutritional status is a positive health indicator, therefore anthropometric measurements to assess growth and development, particularly the physical growth and development of young children, are most widely used indicators of nutritional status in a community.

Chopra (1999:1) asserts that growth monitoring and promotion (GMP) has the potential to prevent much under-nutrition and for integrate the care of the child. Chopra further explains that growth monitoring and promotion is central to the

Government's Integrated Nutrition Programme (INP), and other childhood programmes such as the Integrated Management of Childhood Illness (IMCI). According to Chopra, at a community level GMP can also be a powerful tool for increasing community awareness of under-nutrition and to mobilising their action. This researcher asserts that studies of the performance of GMP at health facilities have been disappointing and often the full potential of GMP is not realised. The research findings consequently stress the importance of programme managers and clinic supervisors being able to assess rapidly the quality of GMP and identify ways of improving its performance.

2.4 HISTORICAL BACKGROUND OF GROWTH MONITORING

The review conducted by the researcher revealed history of growth monitoring as dating back as far as the era prior to the 1970s. In the fifth report of the World Health Assembly (covering the period 1962-1972) the WHO underlined in particular the slow progress in improving the health status of developing countries and the underlying gap in health status and access to health care between and within countries. Most authors maintain that since 1952 the WHO in its capacity as the directing and coordinating authority on international health work, periodically assessed the global health situation and reported on the world health salient findings and main problems in achieving improvements.

These authors further state that it was during the designation of the International Year of Child in 1979, a great enthusiasm for the well-being of children was generated both nationally and internationally, with the interest focused on issues covering the survival, development and protection of children throughout the world.

According to the review in 1981 the WHO adopted the strategy of Health for All by the year 2000 with Primary Health Care (PHC), as the key approach for its

achievement. The WHO further stated that this strategy was strengthened by the improvement of goals to form core components for the achievement of health for all, covering policy, economic resources and their distribution and improvements in nutrition, literacy, mortality and income.

The authors further maintain that all the above-mentioned goals were associated with good general health, but failed to define explicit ways in which the health of children may be improved. The specific issue of child wellbeing was then discussed by the United Nations International Children's Emergency Fund (UNICEF), WHO and an International group of specialists in child health and development at a meeting in the USA in 1983 (Kibel & Wagstaff, 1995:123-124; Vlok, 1996:26-28; WHO, 1981:9; WHO, 1998:140-145).

According to the authors of the history of growth monitoring, participants recognised that the deteriorating economic situation together with millions of child deaths from preventable diseases, called for a situation which would combine effective low-cost health technology with social mobilisation. These authors contend that, the propositions evolving from this meeting formed the basis of the 1982/3 report on the state of the world children. In the report the executive director, Dr James Grant announced a children's revolution for survival and development known as the GOBIFFF strategy, which comprised a brief outline of elements: G - growth monitoring; O - oral rehydration therapy; B - promotion of breast-feeding; I - child immunization; F - family planning or child spacing; F - food supplements and F - female education.

2.5 THE ROAD TO HEALTH CHART

According to literature review the Road to Health (RHT) Chart is a tool for monitoring growth and is used at well-baby clinics and outpatient departments of hospitals. This chart, also commonly known as the Preschool Record Chart;

Percentile Chart or Parent Held Chart is said to have been advocated by Professor David Morley as a result of his experiences in the third world countries, and can also be used for surveillance of immunization and nutritional status of children (Ebrahim, 1993:78; Coovadia & Wittenberg, 1998:24-25; Dept of Health South Africa 1996; Kibel, 1995:124; Vlok, 1996:393).

According to Vlok (1996:393) these charts are continually being modified to enhance their practical value, as a result of comments from staff at district and provincial levels. The Dept of Health South Africa (1995:155) maintains that such improvements are of great importance to the health of children. The literature review also revealed that the following recommendations were made and accepted by many services in South Africa: there should be a standard version of the Road to Health Chart for the whole country: no other chart must be printed: printing must be paid for centrally: strong plastic envelopes must be provided to protect the chart: charts must be uncluttered and must be printed in one language (preferably in the mother's home language): the standard Road to Health Chart should be promoted to all areas of the country. According to the Department of Health South Africa (1996) the Road to Health Chart was updated in 1996 and of note are the additions of the *Haemophilus B* vaccine (Hib), the change from the subcutaneous BCG vaccine to the new intradermal one, and also more space that has been provided for the health worker to record the child's health progress.

Kibel and Wagstaff (1995:124) maintain that for the health worker, the Road to Health Charts are an aid to the identification of growth faltering and provides the health worker with a chance to discuss with parents the child's health, growth and nutrition. Furthermore, Kibel and Wagstaff assert that for the parents and caregivers, the Road to Health Chart is a simple record of the child's growth, parents can be shown how to plot the weight on the Road to Health Chart and how to recognise problem growth patterns by understanding the percentile lines, thus providing them with an opportunity to participate in the monitoring of the child's nutritional state.

The above-mentioned research suggests that the Road to Health Chart shows whether steady weight gain is taking place and when motion intervention is needed. These authors further maintain that the Road to Health Chart also provides a home-based record of prenatal events, immunization, development and illness that it is a valuable resource in the provision of continuous and comprehensive child health care. However, Kibel and Wagstaff (1995:124) also state that the Road to Health Chart has limited application in situations where there are scarce resources and inadequate infrastructure support, including lack of governmental support of nutrition, the role of the child health chart is equally limited in these circumstances and will be an ineffectual tool.

Morley & Woodland (1979:3) quote an expression by a mother in a village in Madurai South India, when giving advice to others, mothers said "The Growth Chart is like an astrologer's prediction for your child, buy one for him".

2.6 ASSESSMENT OF GROWTH

The literature review conducted by the researcher showed that the basic components for the assessment of physical growth are measurements of height or length, weight and head circumference. Other standard measurements documented include recording of anterior and posterior fontanelles, skinfolds thickness and mid upper arm circumference, although these are said to be rarely used (Alexander & Shields, 1997; Ebrahim, 1978:40-41; Coovadia & Loening, 1995:24; Coovadia & Wittenberg, 1998:34).

According to WHO (1981:32) anthropometric measurements to assess growth are also widely used as indicators of nutritional status in a community.

The review conducted by the researcher also revealed techniques of measurements documented by different authors.

2.7 TECHNIQUES FOR MEASUREMENT

2.7.1 Weight

In the review most authors stress that the weight of the infant / child naked, or with minimum clothing, is preferably taken at the same time of the day with the same scale. They also emphasise that the scale should be checked for accuracy at regular intervals with weight usually taken to the nearest 100g in the older child and 10g in infants. Coovadia and Loening (1995:24); Coovadia and Wittenberg (1998:34); Kibel and Wagstaff (1995:24) assert that the infant should be weighed monthly as growth during this period is extremely rapid and that for the second and third year, the child should be weighed at least twice a year and more frequently in communities where there is a high incidence of malnutrition. These authors stress that weight is a poor indicator of general growth in an older child and adolescent, and may reflect the amount of body fat present rather than any increase in lean body mass or physical size.

The Department of Health South Africa (1995:155) differs from the above frequency of weight measurement for the second and third year age groups. It is stated that for these age groups routine weighing is recommended two to three-monthly in the second and third year, and six-monthly in the fourth and fifth year. It is further stated that this amounts to 24-28 times within the first five years, including monthly routine weighing of the first year group, and that this will promote reasonable opportunity to promote a good health worker-mother-child relationship, and thus can result in early detection of health problems

2.7.2 Length or Height

Kibel and Wagstaff (1995:29) emphasise accurate measurement as essential, while scrupulous attention is important, if height is to be a useful parameter of growth.

The authors further explain that for the under 3 year old child, length is measured in recumbent position and after 3 years, height is measured standing. Moreover they state that since the normal potential for growth is genetically determined, the parental height is important. The authors also point out that, although growth charts that take into account the mid, parental heights that are available, they are not used for screening purposes. According to most authors, height is a valuable parameter for the older child.

2.7.3 Head circumference

According to Coovadia and Wittenberg (1998) head circumference represents maximum measure around the head in the horizontal plane. Accordingly, they emphasise use of a non-stretchable tape at the maximum point of the occipita - frontal diameter.

2.8 CRITERIA FOR SATISFACTORY AND UNSATISFACTORY GROWTH

The literature review conducted by the researcher revealed that the Road to Health Chart incorporates mass graph for the plotting of weight. It is stated that there is wide variation amongst children at any age in length, weight, and head circumference, and also with the rate of growth from one age to the next. According to authors, this variation within the normal range at a given age is said to be expressed conventionally as centiles or percentiles, i.e. the solid line on the graph represents the given age and is said to be expressed conventionally as Centiles, or Percentiles, i.e., the solid line on the graph represents the 50th percentile (for boys) and the 3rd and 97th percentile for girls. The authors maintain that the lowest broken line is called the "marasmus" line. It is further stated that weight is based on the National Centre for Health Statistics (USA, NCHS), therefore in the normal child, values for height, weight, and head

circumference tend to conform and follow the same percentiles until puberty, and accurate longitudinal measurements plotted on a standard percentile chart are more informative than single measurements. According to the literature review, the normal limits presumed by the growth charts lie between the 3rd and 97th percentile, and the population in this case being all the children from birth to the age of 6 years (Ebrahim, 1993:57; Coovadia & Loening, 1995; Kibel & Wagstaff, 1995:132).

According to Coovadia and Wittenberg (1998:25) in comparing the values of a measurement in a child with that of a standard, a measurement below the 3rd or above the 97th percentile should alert one of the possibility of an abnormal state of health. However, before any deductions are made, certain sources of error are checked i.e. incorrect method of measurement e.g.:

- ▶ An error of 2,5 cm in length changes percentile ranking from 25th to 5th and *vice-versa*.
- ▶ Incorrect assessment of age, e.g. rounding off four-and-a-half months to five months.
- ▶ Failure to consider gestational age, i.e. to correct for prematurity.

Coovadia and Wittenberg (1998:28) further state that for weight and height, a child who is found to be constantly below the 3rd centile, but who gains consistently in these measurements at an acceptable rate, due consideration should be given to birth weight, parental size, and possible genetic causes.

2.8.1 Weight-for-Age

According to Kibel and Wagstaff (1995:97:98), Coovadia and Wittenberg (1998:34) a low weight for age is associated with body composition such as low

serum albumin, and also reflects both stunting of growth and consequently long-term malnutrition. They further explain that weight for age it is also useful for monitoring the nutritional status of the community by identifying the proportion of children with the weight for age, say of less than 80% of an agreed standard. It is further argued that changes in this indicator can be observed over a short period of time; however, in some societies obtaining accurate ages of children can be a problem. This finding has been supported by WHO (1981:32; 1988:67) defining low birth weight as a weight at birth of less than 2,500g (i.e. up to and including 2,499g) irrespective of gestational age. According to WHO, birth weight can be a valuable indicator of the community's nutrition. It is also explained that this indicator could be expressed as the number of children per 1 000 live births whose birth weight is lower than a certain norm i.e. 2,500 grams, and that low birth weight may also be related to certain diseases such as malaria and nutritional deficiencies. Nzimande (1988:129) maintains that normally the weight of a child doubles during the first 4 to 5 months and trebles during the first year of life and each child's progress against his or her own potential is described by the percentile level along which he tends to travel, i.e. the curve along which his successive measurements fall (personal growth).

According to Vlok (1996:396) the weight of the child that falls between the 3rd and 97th centile can be considered as normal and if the weight falls between the 3rd and zero centile the weight loss denotes failure to thrive, which may indicate under-nutrition. She further states that if the child's weight falls beyond the normal distribution range, a state of malnutrition (either overfeeding or starvation) is suggested.

2.8.2 Weight for Height

According to a literature review, weight for height is indicative of stunting, a result of long-term dietary inadequacy, reflecting socioeconomic deprivation.

Kibel and Wagstaff (1995:98) maintain that weight for height may be used when the age is unknown. They further assert that a low weight for height is termed wasting and as a community tool, has application in documenting famine outcomes. According to WHO (cited in Solarsh *et al.*, 1997:6) low weight for height is a figure of 5-10%, wasting in a population or group is regarded as moderate prevalence and more than 10% as a severe problem, which would need immediate nutritional support.

Referring to obesity Coovadia and Loening (1995:28) attempted to explain that there are no generally accepted definitions of obesity, except when associated with excess fat. The methods used for attempting to classify obesity are all based on relationship between weight and height or skinfolds measurements, but none of the adopted classification is considered satisfactory.

According to Health Systems Trust (1999:4) and WHO (1998:69) obesity is defined by the World Health Organisation as being more than two standard deviations above the reference median weight for height. The authors contend that being obese does not mean that one is well-nourished.

2.8.3 Height for age

Kibel and Wagstaff (1995:98) contend that deviations in length or height become obvious more slowly than do weight changes, thus this parameter of growth faltering reflects chronicity and is termed "stunting". WHO (cited in Hester *et al.*, 1997:6) regards a population to be moderately affected if 25-50% of its children under 5 years of age are stunted, and severely affected if more than 50% are stunted.

2.8.4 Head circumference

Kibel and Wagstaff (1995:30) assert that normal head growth with low weight at birth occurs with later onset of intra-uterine malnutrition and when such an infant is delivered from the hostile environment and is adequately fed, there is likely to be rapid catch-up of growth.

They also describe microcephaly as head circumference below the 3rd centile and that often reflects a cerebral insult affecting brain growth prenatally or in the early childhood; however, the phenomenon may also be due to general growth retardation with other parameters such as weight and length, also being below the 3rd percentile. The researcher further describes macrocephaly or a large head circumference as a head measurement that is above the 97th centile and contend that it is mostly due to hydrocephalus which is not the result of an abnormality of physical growth, but rather of abnormal accumulation of cerebrospinal fluid. The authors state that crossing of head growth centiles detected during physical assessment, should alert clinicians of probable abnormalities and for this reason, regular monitoring is particularly indicated in such infants.

2.8.5 Mid upper arm circumference

According to Kibel and Wagstaff (1995:98) mid upper arm circumference measurements have been used extensively to assess wasting (e.g. in targeting food during disaster and conflict in children under the age of 5 years, using cut-off of 13,5 (12,5 cm to detect severe marasmus). They maintain that the technique is useful in the field, but is not age independent and therefore, may over-estimate the problem in young children and under-estimate the severity of the problem in older children. Furthermore, Kibel and Wagstaff state that many mild to moderate cases of malnutrition will not be detected by this strategy.

2.8.6 Skinfolds thickness

According to Kibel and Wagstaff (1995:98) the use of this measurement is generally restricted to research studies.

2.9 **INTERNATIONAL AND NATIONAL PERSPECTIVES OF GROWTH MONITORING**

2.9.1 International Perspectives

According to the WHO report (1998:61-65) viewed globally the improvements in infant and child health in the past 50 years have been nothing less than spectacular and appears to continue into the next century.

The WHO further reports that 210 of every 1 000 babies born in 1955 have died before their fifth birthday, which gives a total of 10,6-million deaths in that year. In addition WHO states that by 1995 the death rate had fallen to 78 per 1 000 babies (10,6 million deaths) and that this should decline further to 37 per 1 000 by 2025, when it is projected that the total number of deaths will be 5,1-million.

The WHO report has revealed that living conditions of families, the prevalence and modes of transmission of infectious disease agents and the nutritional status of the child are among the strongest immediate determinants that set the different levels of under-5 mortality rates around the world. This report by the WHO further reveals that the decline in deaths among the under-5s in the developed countries since the late 1940s, is largely attributable to improvements in sanitation, water supply, food supply and distribution and also general hygiene. Also stated in the report is the steady decline of childhood diseases such as diphtheria, scarlet fever, and rheumatic heart diseases, which was evident well before vaccines and antibiotics became widely available.

The WHO further reports that although a similar decline is now occurring in the developing world, mainly as a consequence of general improvement in sanitation, water supply, education and access to preventive and curative care in the community, with progress mainly due to the historical lessons learned and the advent of new knowledge and technologies, many under-developed countries have unfortunately not been able to make or sustain similar progress over years. According to the WHO report, in a few countries child mortality levels are still above 200 per 1 000 live births and in others the levels are declining slowly at a rate of no more than 1-2% per year. It is also reported that major causes of death in the developing world are: malaria, malnutrition, measles, acute respiratory infections, diarrhoea, with other major causes being related to pregnancy, childbirth, sepsis, neonatal tetanus and AIDS.

The WHO also views these deaths in the under-5s as a tragedy since all the above-mentioned conditions could be prevented and treated within the resources of most, although not all countries. It is further stated that the greatest positive impact on child mortality results from a combination of immunization, improved maternal health, family planning and improved nutrition interventions that affect nutritional status and prevent or provide effective treatment for common infectious diseases.

Documented in the WHO report is the immunization programmes which were largely restricted to industrialized countries, and often only partially implemented since 1948.

2.9.1.1 Expanded programme of immunization

The WHO asserts that not until the formation of WHO's Expanded Programme on Immunization (EPI) in 1974, when less than 5% of children were being immunized, the developing countries began to create national schedules and programmes. Today approximately 20% of the world's children remain unimmunized.

The WHO report further reveals that from 1981 there was a four-fold increase from approximately 20% to reach the 1990 goal of 80% immunization coverage among infants worldwide with BCG, measles and the third dose of DPT (diphtheria, pertussis, tetanus) and oral polio-virus vaccines, with an estimated 3-million young lives having been saved from measles, tetanus and pertussis in 1990 alone. It is also stated that by 1995, over 80% of the world's children had been immunized against polio, measles, diphtheria, pertussis and tuberculosis. In addition during this year, further to the 500-million immunization contacts with children under 1 year of age, a record of 300-million children throughout the world (almost half of those under the age of 5 years) were immunized during mass campaigns against polio.

2.9.1.2 Vaccination coverage as viewed by the WHO

Documented in the WHO report is the fact that, despite successes, children are still slipping through the safety-net e.g. even though globally 80% of children are immunized against measles, vaccination coverage is variable. There are frequently pockets of low coverage, especially among the urban poor, where children are in frequent contact with each other and easily transmit disease. Research shows that the incidence of paralytic polio in the developing world began to decrease only after routine immunization of infants with oral polio vaccine (OPV) in the late 1970s. According to the WHO report virtually all endemic countries in the world have now begun to implement the WHO-recommended strategies to eradicate polio, supplementing mass immunization with OPV and surveillance for acute flaccid paralysis. Polio has been eradicated from the Americas since 1991 and is on the verge of eradication in Europe and the Western Pacific. The WHO also maintains that the major reservoirs of wild virus transmissions are in South Asia and sub-Saharan Africa, although eradication activities are progressing well in virtually all endemic countries of this region.

According to the WHO report, countries with the lowest immunization coverage are nearly always those countries with internal conflicts, where infrastructures are weakened or destroyed, resulting in large numbers of children remaining unimmunized, even during outbreaks of vaccine-preventable diseases. Intense efforts to accelerate polio eradication in such circumstance include using such techniques as "days of tranquillity" when fighting stops to allow immunization to take place.

Measles morbidity and mortality is reported to have fallen by 78% and 88% respectively by 1996 worldwide compared to the pre-vaccine era. The WHO report (1998:65) reveals that during the 1990s, the widespread use of innovative measles control strategies in the Americas and countries as diverse as Mongolia, South Africa and the United Kingdom demonstrated that high-levels measles control and even interruption of transmission is feasible over large geographical areas and that the evaluation of these countries and regional elimination strategies will provide valuable information for developing a global measles eradication strategy.

2.9.1.3 Mortality statistics

According to the WHO (1998:71), although mortality statistics are becoming more reliable, little is still known concerning morbidity of children in different settings. WHO asserts that it is crucial to get accurate dates or at least estimates of morbidity, in order to train personnel, to prepare relevant programmes and services and to evaluate performance. The WHO stresses the importance of targeting morbidity, so as to succeed in combating childhood diseases through appropriate care, including prevention, especially because of the ongoing epidemiological transition in the developing world. WHO advocates that the common infectious diseases of childhood are coming under control through a combination of health promotion, prevention and simplified standard treatment

requirement, but at the same time, the healthy growth and development of many children is threatened by very rapid, often disruptive social, cultural and economic changes.

2.9.1.4 Emerging morbidity as viewed by the WHO

In terms of emerging morbidity the WHO views AIDS as representing the most crucial challenge, because of the impact on women, children and families. In the WHO report paediatric AIDS is said to be substantially under-recognised and under-reported, because of difficulties in establishing the diagnosis of HIV infection in infancy, as well as clinical features overlapping with those of the other severe diseases of childhood. However, in 1997 about 95% of the estimated number of deaths in children under 15 years of age occurred in the under-5 age group, and perinatal transmission had been well documented with 15-35% of children of HIV-positive mothers being infected, accounting for the majority of children with AIDS. WHO projects that if current trends continue, by the year 2000 over 12-million women will have been infected and 4-million will have died of AIDS, whereas their uninfected infants will constitute a growing group of potential orphans, since most of their HIV-infected mothers will die of AIDS within 5-10 years of their birth. It is further projected that by the year 2000 as many as 10-million children under 10 years of age may be orphaned as a result of maternal AIDS in sub-Saharan Africa, but the most alarming trends of HIV infection are in South-East Asia (WHO, 1998:70-71).

2.9.1.5 Low birth weight infants

According to WHO estimates, globally 25-million low-birth weight infants are born each year, constituting 17% of all live births, nearly 95% of them in developing world. This varies widely between the regions of the world with levels of 32% in Southern Asia (but 90% in Eastern Asia), 11-16% in Africa and 10-

12% in Latin America and the Caribbean. WHO advocates that the increase in the survival of low-birth weight infants in industrialised countries, often with high rates of long-term developmental impairment, has generated an intense scientific and ethical debate about the implication of perinatal interventions which increase survival rate, but also result in an increase in severe handicaps. The WHO views this as a clear need for further research in some of these areas (WHO, 1998:68).

WHO (1998:68-69) further maintains that many children in developing countries are subject to multiple risks with, very often, a deterioration of their situation at the weaning period, since being born with a low weight and fed with a sub-optimal breast-feeding practice, they are at increased risk of protein-energy malnutrition. The WHO stresses that nothing but breast milk is required for the first 4-6 months of life, with neither substitutes nor supplement, nor even water, since breast-feeding is one of the most effective, low-cost interventions for neonatal health. WHO also asserts that even in developing countries breast-feeding lowers the rate of respiratory and gastro-intestinal illness to one-fourth (1:4) that of non-breast-fed babies.

2.9.1.6 Breast-feeding as viewed by the WHO

According to WHO estimates exclusive breast-feeding rates globally remain low, with 35% of infants being fed only on breast milk at some point between birth and four months of age. However, as awareness of the advantages of breast-feeding grows in both developing and developed countries, more Member States are taking steps to protect and promote breast-feeding, and rates are now increasing. It is also stated, however, that in countries where malnutrition and mortality rates are high, these rates remain low, and many countries (especially in Europe) continue to have low breast-feeding rates, although these are slowly improving.

2.9.1.7 Protein energy malnutrition

Documented in the WHO report is the estimation of children world-wide that are affected by protein-energy malnutrition, iron deficiency anaemia, vitamin A deficiency and childhood obesity. WHO estimates that 76% of children with protein-energy malnutrition live in Asia (mainly Southern Asia), 21% in Africa and 3% in Latin America, and that as many as 206-million children in developing countries are stunted (stunting associated with poor developmental attainment in children and functional impairment in adults). WHO stresses that efforts to accelerate economic development significantly, will be unsuccessful until optimal growth and development are ensured (WHO, 1998:69).

According to WHO (1998:69) iodine deficiency has been described as the world's single most significant cause of preventable brain damage and mental retardation. Iodine deficiency disorders account for 1% of the world's population (834-million people) that are affected by goitre. Inadequate iodine status of the mother, is associated with a greater incidence of still-births, spontaneous abortions, congenital abnormalities, low birth weight, infant and child mortality, and may also lead to cretinism. It is also stated that IQ scores of iodine-deficient, children are lower than those who are not iodine deficient and significant improvement in mental development, school performance and motor development has been demonstrated with iodine supplementation of primary school children.

2.9.1.8 Childhood obesity as viewed by the WHO

Childhood obesity and its consequences have been reported to be a global emergency problem. According to WHO data from 79 developing countries and a number of industrialized countries, by WHO standards ($> +2$ standard deviations above the reference median weight for height) about 22-million children aged under-5 are overweight, obesity affects almost 10% of school children in

industrialized countries, and high rates are also emerging in some of the developing ones, which results in 30% of obese children becoming obese adults. According to WHO obesity is a significant risk factor for a range of serious non-communicable diseases and conditions. The report further explains that WHO has initiated a review of associated morbidity and mortality with a view to developing guidelines for member states on obesity prevention and management. WHO further advocates that improved prevention and therapy for childhood obesity are the most cost-effective approaches to reduce morbidity and mortality due to obesity in adulthood, and stresses three potential approaches for prevention in order to deal with this problem: reduction in dietary intake, increase in the energy spent on activity and reduction in activity. According to WHO, children with potentially lethal complications of obesity such as sleep apnoea require rapid and sustained weight reduction and asserts that one possible approach in children is a carbohydrate-free diet under careful monitoring and follow-up. It is further ascertained that the role of drugs in the treatment of obesity is not clear, but some interventions aimed at both parents and children have been successful (e.g. modifications in diet, lifestyle activities and behaviour (WHO, 1998:69-70).

2.9.1.9 Vitamin A deficiency in children

Vitamin A deficiency has also been documented as affecting as many as 256-million children in more than 75 countries and is the world's most prevalent cause of blindness. The WHO report further states that Vitamin A deficiency is the cause of eye damage of some 2,7-million preschool-age children, that an estimated 350 000 go blind every year, and up to 60% die within a few months of becoming blind. According to WHO, Vitamin A deficiency is also linked with an increase in the severity of infections, particularly measles and diarrhoeal disease, and is also attributed to the estimated 960 000 childhood deaths from measles each year. This is a conclusion based on a meta-analysis of 10 controlled mortality trials in populations where Xerophthalmia (eye condition caused by Vitamin A deficiency)

is present. It is further stated that the review by the same authors, found very little evidence to suggest that Vitamin A status affects the prevalence of general morbidity in young children. According to the review, deficiency occurs where diets contain insufficient Vitamin A for the basic needs of growth and development, for physiological functions, and for periods of added stress due to illness. Furthermore, that infants who are born depleted of vitamin A need more of this vitamin than can be supplied through their mothers' milk after 4-6 months of nursing if they are to be prevented from developing deficiency.

WHO further stresses that improvement in Vitamin A status may reduce the chance of infectious diseases progressing to their severe forms. Its supplementation has been shown to be effective in reducing mortality by as much as 23 % from these diseases in areas where deficiency is common. This has been confirmed by studies in Ghana and Brazil the results indicated that Vitamin A supplementation is associated with a decrease in the severity of infectious diseases (WHO, 1998:73).

During literature review, the author discovered that many studies have been conducted on growth monitoring and promotion by international researchers. Valadez, Brown, Varagas, and Morley (1996:381-387) document that local supervisors used a lot quality assurance sampling (LQAS) during routine household visits to assess the technical quality of Costa Rican community-based health workers (CHW): measuring and recording weights of children, interpreting their growth trend and providing nutrition education to mothers. According to these authors, supervisors sampled 10 households in each of 12 Health Areas (4-8 hours per area), with no more than two performance errors allowed for each CHW. It was found that this LQAS decision rule resulted in judgements with a sensitivity and specificity of about 95 %. The authors maintain that three categories of results were reported:

- ▶ CHW adequately weighted children, calculated ages, identified children requiring nutritional services and used the growth chart.
- ▶ They needed to improve referral, education and documentation skills.
- ▶ The lack of system support to regularly provide growth cards, supplementary feeding to identified oral nourished children and other essential materials may have discouraged some CHW, resulting in them not applying their skills.

It is stated that conclusions made following the above results include: supervisors regularly using the Lot Quality Assurance should, by the sixth round of supervision, identify at least 90% of inadequately performing CHW and that this paper demonstrates the strength of LQAS namely, to be used easily by low level local health workers to identify poorly functioning components of growth monitoring and promotion.

2.9.1.10 Study on infants' growth

Literature review done by the researcher revealed a study titled "An evaluation of infants growth in the Kingdom of Nepal". According to the review, this was a His Majesty's Government / Japan International Cooperation Agency Primary Health Care Project in collaboration with the Saitana prefectural Government. This project began in 1993 for the purpose of improving the health status of the people in model districts of the Kingdom of Nepal, since growth monitoring is one of the basic methods that defines health and nutritional status of children. The method used by the researchers involved measuring of anthropometric indices of 759 children in the Bhaktapur district. The World Health Organization prototype growth chart and national growth standard for Japanese Children (1990) were used

to analyze the growth data. According to the researchers the results of this study revealed that the average body weight growth curve of children up to 4 months of age, followed the 50th percentile reference curve: for children of 5-12 months of age, there was a delay in body weight gain and the growth curve reached the 3rd percentile curve: for children more than 1 year old, the growth curve moved below the 3rd percentile curve: catch-up growth did not occur before the children reached 5 years of age. The main causes of catch-up growth being hampered were chronic under-nutrition and inadequate nutritional balance. The researcher of the study further concluded that as this was the first opportunity to evaluate infant growth in this district, the first important consequence of the results was to analyze the causes of growth faltering and failure to thrive in Nepalese children. Even more important was the need to give appropriate counselling on improving feeding and other health-related practices, and the most important consequence of all was to instruct Nepalese health workers, that utilising the growth charts is an integral part of health care (Hosono, Okazaki, Kagimote, Ogawa, Matunaga, Oishi, Ohno, Yamauchi, Joh, Atashi, Yamamoto, Kohno, Honma, and Shakya (1998:350-355).

2.9.1.11 Study on growth monitoring

Sohal, Wilkinson and Morley (1998:160-162) conducted a study on growth monitoring. According to these researchers most growth monitoring programmes in developing countries have not been successful in reducing malnutrition. They view this problem as due at least in part to the exclusion of mothers from the process of growth monitoring, whereas an essential requisite for greater participation is for mothers to understand the meaning of a growth chart. According to a review for this study titled "The Growth Monitoring Teaching Aid (GMTA), water added to a bucket suspended below the recording scales was used as an educational game which attempts to expedite the process of understanding growth curves. Thirty mothers were divided into an experimental group who used the GMTA for 1-4 hours and a control group who did not use it. Six questions were then used to test each subject's understanding of growth curves. Paired tests

revealed that the experimental group significantly increased their understanding of growth, whereas the control group did not. The researchers further found that the mean score for the experimental group prior to playing was 1,43; this increased to 5,27 after playing the game ($P < 0,0001$). The researchers concluded that the GMTA by rapidly improving the present poor level of understanding of growth curves, may allow greater maternal participation in growth monitoring.

2.9.1.12 Study on maternal comprehension

On a similar note Senanayake, Gunawardena and Peiris (1997:359-361) conducted a study on maternal comprehension of two growth monitoring charts in order to identify mothers with poor comprehension. The researchers conducted an experimental prospective study in a child welfare clinic at the De Soysa Hospital for Women, Colombo, Sri Lanka. Nine hundred and thirty-two (932) mothers were studied regarding their interpretation of the type of growth chart their infants had been allocated. A total of 413 mothers interpreted the "Road to health" Chart and 519 mothers interpreted the revised chart. According to the researchers a validated scoring system was used to assess comprehension and to ensure that the two groups of mothers were comparable. According to the results, 62,4% (324) mothers who interpreted the revised chart had good comprehension and only 20,6% (85) mothers had similar comprehension with the Road to Health Chart. The results further revealed that education up to or beyond grade 8 in school significantly had improved comprehension. The researchers also concluded that the design of the growth chart has a powerful effect on maternal comprehension of growth patterns; length of schooling rather than literacy alone, is an indication of a comprehending mother. It was also maintained that the policy implications of these findings are that governments and agencies may need to redesign parent held growth charts to achieve better comprehension by mothers.

2.9.1.13 Assessment of nutritional status of children under 5 years in Dar-Es-Salaam

Matee, Msengi, Simon, Lyamuya, Mwinula, Mbeni, Samaranayake and Scheutz (1997:368-371) assert that they designed a study to assess the nutritional status of children under 5 years of age attending mother-child health (MCH) clinics in Dar-Es-Salaam. They maintain that this was a cross-sectional anthropometric study involving children 6-24 months old who from July to August 1993 were attending Magomeni MCH clinics for routine growth monitoring and for vaccination between May to August 1994. They further assert that the data collected included age, birth weight, sex, weight, height, breast-feeding status and HIV-1 serostatus. Of the 1 854 children enrolled (961 boys and 893 girls) 31,6% were stunted, 14,6% were underweight and 2,9% were wasted. According to researchers, the highest percentage of stunting and wasting was observed between 11 and 25 months and 36-40 months. Of the 849 children tested for HIV-1, 14 (1,7%) were seropositive and two out of 770 (0,3) were born with low weight. They also found that HIV seropositivity and low birth weight were both associated with stunting and wasting. The researchers concluded that malnutrition is still a sizeable problem among children attending urban MCH clinics in Dar-Es-Salaam, especially among those aged less than 3 years, to whom special malnutrition control strategies should be targeted. There is also a need to identify factors responsible for the observed decline in MCH attendance with age and to correct the situation.

2.9.1.14 Study on evaluation of growth monitoring programmes in children of Kinshasha

Another study, titled "Evaluation of Growth Monitoring Programme in Children in Kinshasha" was conducted by Mapatano, Lusamba and Banea (1997:96-99). According to these researchers a high dropout rate was noted at the under-five clinic of the University of Kinshasha Teaching Hospital. A preliminary study

carried out in March 1984 on 197 children indicated that none of them had completed the five-year period on a growth monitoring programme. Five hundred (500) mothers of children attending the under-five-year clinic were then randomly selected from the 1 224 who registered between September 1983 and August 1984 and were interviewed at home during a six-week period. The researchers assert that this study confirmed the dropout problem. They also discuss whether mothers should abandon the visits early, and conclude that health workers should be trained to advise mothers to bring their children to the programme up to five years of age, although the attendance frequency may be reduced from the second year onwards.

2.9.1.15 Trends in growth in England and Scotland

Another study by Hughes, Chinn and Ronna (1997:182-189) investigated trends in growth in England and Scotland from 1972 to 1994. The aim was to monitor the growth of 5 to 11-year old English and Scottish children. According to the researchers, no similar data are available from any other study. They used a mixed longitudinal research design. They explain that 7 000 children in England were sampled in the first year, falling to 5 000. In Scotland the original sample was 2 000, but this was enlarged to 3 500. The results showed the following outcome measurements for height, weight for height, index and triceps skinfolds thickness: height for English children in most age groups increased by more than 1 cm and by more than 2 cm in Scotland during the period 1972 to 1994; Triceps skinfolds measurement increased by almost 8% in 7-year old English and by 7% in 7-year old Scottish girls. In Scotland triceps skinfolds measurement increased by nearly 10% in 7-year old boys and by 11% in 7-year old girls. Weight for height index followed a similar pattern. The conclusion included that children in England and Scotland are becoming taller for a given age; the increases in fatness indicate an urgent need for realistic interventions for reductions in obesity in the whole population; as the weight for height index is less sensitive than skinfolds-thickness, researchers recommend triceps and subscapular skinfolds thickness measurements for monitoring obesity in children. These findings confirm the WHO report (1998).

Rider, Samuels, Wilson and Homer (1996:293-297) maintain that a constraint in the practice of general paediatrics is an emphasis on infant nutrition and monitoring of growth and that much of the new research and publications concerning nutrition in childhood in the past year continues to focus on breast-feeding - its short-term and long-term benefits and strategies to increase the number of women who successfully nurse their infants. They further assert that the documentation of breast-feeding benefits is becoming increasingly strong, even in developed countries such as the United States. At the same time the many weaknesses in the health care system's support of this important health-promoting behaviour continues to be documented. They also assert that separate from breast-feeding *per se*, additional articles examining the state of nutrition among children in the United States show that despite the relative affluence, malnutrition remains prevalent and that the poor and the chronically ill appear particularly vulnerable to inadequate nutrition and should remain a focus of their efforts at nutritional monitoring and support.

2.9.2 National Perspectives

The literature review conducted by the researcher revealed that the new South African Government of National Unity that came to power in 1994, realises that every person has the right to optimal health care, therefore is committed to the promotion of health through prevention and education. The review further explains that the African National Congress (ANC) recognises the need for total transformation of the health sector in South Africa, and therefore initiated the process of developing an overall National Health Care Plan based on Primary Health Care (PHC) approach. According to the review this National Health Plan for South Africa is linked to the Reconstruction and Development Programme (RDP) that was developed to try and redress the harmful effects caused by social and economic injustices, to eradicate poverty, increase efficiency and promote greater control by communities and individuals in overall aspects of their lives. It is also stated that the PHC approach will not only bring about radical

transformation of the health services and of training and research but will also bring about change in the attitudes of both the health service providers and of the demanding health care services.

2.9.2.1 The National Health Plan of South Africa and child growth

According to the National Health Care Plan, the South African government recognises young children as vulnerable and dependent on their mothers, therefore maintains that mother and child (MCH) be located within the general policy providing access to an adequate standard of living, with special emphasis on health promotion and disease prevention, which will have a greater impact on child survival than treatment (ANC, 1994:7, 44; Department of Health South Africa: 1996:1).

ANC (1994:44-45) further defines the principal trends on policy on MCH, which were translated into action through the following mechanisms:

- ▶ Promotion of the survival, protection and development of children and their mothers through a system of appropriate health care delivery, health personnel, education, training and support, research and a range of related programmes.
- ▶ Promotion of breast-feeding through health education programmes and the development of supportive environments for working mothers to allow continuation of breast-feeding and of enforcement of the code of ethics on breast milk substitutes.
- ▶ Advocate and ensure the rights of the children as articulated in the United Nations Convention on the Rights of the Child, and work towards the promotion and development of a charter for the rights of women.

- ▶ Emphasis on the role and responsibility of men in supporting maternal and child health.
- ▶ Strengthening health education programmes in the management of diarrhoeal diseases.
- ▶ Rapidly improving immunisation coverage through the Expanded Programme on Immunisation (EPI) using methods that will ensure its sustainability.
- ▶ Availability of all PHC Services at the same venue which are affordable and accessible to all mothers and their children.
- ▶ Free health services to be available in the public sector to all citizens under the age of six years as well as pregnant mothers.

According to literature review, the NHP of South Africa also stresses the inclusion of the nutrition component in the integrated PHC services, so as to help identify and address nutritional related disorders by defining the principal tenets of the policy on nutrition through the following mechanisms:

- ▶ Promotion of sound health and nutrition practices that will be developed within community focused interventions.
- ▶ Regular monitoring being used as a tool for the promotion of growth of young children.
- ▶ Appropriate treatment and rehabilitation for those individuals already affected.

- ▶ The vulnerable, especially young children, to be protected by measures to ensure adequate care and the social support they need.
- ▶ Current information and skills will be provided, so that they can promote adequate nutrition.
- ▶ Assessment and control programmes to be developed to address the prevalence, impact and causes of micronutrient disorders.
- ▶ Appropriate information for surveillance, monitoring and evaluation will be collected and feedback provided to ensure rational planning and effective decision-making.
- ▶ Intersectoral action at all levels to improve household access to sufficient food.

2.9.2.2 Commitment in the implementation of principal tenets documented by Tollman

The researcher during literature review found that some of the districts in South Africa have already committed themselves to the implementation of the above principal tenets, as evidenced in an example documented by Tollman (cited in HST, 1996:10-11). According to this author, PHC services in the Agincourt Subdistrict of Bushbuckridge were reorganized to address its quality shortfalls. Tollman asserts that there was a need for this subdistrict to move from the concept of the clinic as a point of clinical care alone, towards a health and development unit which balances curative, preventive and development functions. He further maintains that the Agincourt nutrition programme involved the community in problems such as malnutrition and monitoring of growth in children, which had to be followed up with gardening plans and cooking demonstrations. This author

states that he discovered that the project has now changed from the individual child to community interventions, following the trend to uplift the community as a whole and also of shifting from a curative to a preventive approach.

2.9.2.3 Quality assurance in health care

Morris (cited in HST, 1999:175-181) describes the South African Public Service Batho Pele (People First) document which serves as a guide to ensure a quality customer health service. According to this author, the Quality Assurance (Q.A.) Directorate in the National Department of Health is currently engaged in the process of developing standards for district health services at various levels. It is stated that this initiative builds on the process of developing a core package for PHC and the recognition that any service description needs to address the issue of quality and standards. It is further stated that this shift in the paradigm and pattern in which people think, also out of which the goals, rules and feedback structures arise, are the most powerful ways of changing organizations and health programmes, and that visionary leadership is therefore of crucial importance. According to Morris, national norms and standards will improve the quality of health care, if they are implemented in a client-centred way, as they are not in themselves the answer. According to the author norms and standards based on best practice, set at a national level, will ensure a greater move towards equity and will be a benchmark from which provinces and districts can relate and determine their own individual standards.

Another quality care initiative has been documented by Morris (cited in HST, 1999:179-180). Morris maintains that the South African Department of Health commissioned a literature review on the quality of care in districts in 1999. According to the author, this review worked on the definitions "good quality care is the care that meet acceptable technical standards as well as the needs and expectations of the users and communities". It is stated that the focus was on what

was going on in the facilities rather than access and appropriate utilisation. The review used two national surveys in 3 provinces (North West, Northern Cape and Northern Province) and another one in the Eastern Cape.

According to the review, results of this survey revealed several positive trends particularly in the more rural and disadvantaged provinces. They include improvements in communication generally and major improvements in the electricity supply in the Free State, Northern Province and KwaZulu-Natal. Overall interrupted water supply was also reported to have changed a little in clinics since 1990; emergency response time was said to have shown no improvement, and there seemed to be few problems with the availability of a working refrigerator (92 % in 1998). It is further stated that during these surveys, essential equipment was also checked and it was found that baby scales were available and working in over 90% of clinics and baumanometers in 89% of clinics. The author further states that vaccine coverage was also used in this review as an indicator of service output and, although large differences within provinces were expected, was found to be high enough to provide "reasonable" herd immunity, with all provinces except the Eastern Cape (58%) having an immunization rate over 70% (completed child immunization schedule).

Another quality improvement initiative found during literature review was that of Bambisana Hospital in Lusikisiki in the Eastern Cape where the Quality Improvement Cycle was used to improve child-nutrition. The author asserts that this quality improvement initiative was started as a result of doctors and nurses having realised that childhood nutrition was not being adequately dealt with, and that the Road to Health (RTH) Chart was not properly utilised. It is stated that during discussions, it was decided that the issues around childhood nutrition and growth monitoring would be approached using the Quality Improvement Cycle. According to the review, the process was started as a training workshop with nurses from the clinic and hospital and also with one of the doctors involved, followed by identifying major issues in the health service.

The author further explains that a combined clinic-hospital team and sub-teams were formed at each facility. The team then worked on the issues identified at the initial meeting, identifying the key ones and then drew up problem statements. Standards were also developed around each of the important issues, followed by an analysis which was done over five weeks, using registers, auditing Road to Health Charts, checking knowledge of health-workers and evaluating existing protocols.

The following solutions were said to be found based on the findings: monthly on the job education and training including community health care worker training during supervisory visits; feedback on problem analysis to staff, and organizing Road to Health days for the community.

2.9.2.4 Implementation of Road to Health strategies

According to this author, the following solutions were implemented: scales have been ordered for, and some supplied to clinics; protocols have been developed and presented at the in-service training courses; training on the use of scales and the Road to Health Charts has been done; results have been given back to staff; clinic supervisory visits will start depending on transport availability; Road to Health days in the community have been organised; regular monitoring and evaluation is done through regular quality improvement meetings for the subdistrict and during supervisory visits in the facilities; in-service training is done regularly, addressing the training gaps identified during these meetings (Morris cited in HST, 1999:184-189).

Ntayiya Mntuyedwa, Nomabunqa, Klaas, Gogo and Magaqa (cited in HST, 1998:1-4) conducted a survey of 600 households in July 1997 on various aspects of maternal and child health in the Mount Frere health district with the objective of making health promotion more effective and efficient. These researchers documented some of the findings of this survey as follows:

The child health card could only be produced by three-fifths of all the caretakers; only 35% of children aged 1-4 years were fully immunised at the age of 1 year; 40% of infant deaths in the past 3 years were due to diarrhoea; only 20% of caretakers had used sugar-salt solution (SSS) the last time their children had diarrhoea and only 24% knew the correct formula for making SSS; over 40% children were given enemas during the most recent episode of diarrhoea and one in five (1:5) respondents aged 15-49 years did not know how HIV is transmitted. According to the researchers these findings gave a clear indication of the need for effective health promotion in the health district. They assert that although health promotion was accepted as a priority by the district health workers, a lack of coordination, the shortage of time and resources, and a lack of skills were seen as problems. It is also stated that following these results, members of the Interim District Management Team and the District Health Promotion officers held a meeting in February 1998 to discuss how they could improve the situation.

2.9.2.5 Integrated nutrition programme

Another study conducted by the Mount Frere Nutrition Team titled "Improving Growth Monitoring and Promotion (GMP) in PHC Clinics" was found during literature review by the researcher. This research supports the ANC National Health Plan Policy that stresses the PHC element of intersectoral collaboration in the restructuring of services. According to the review, this is a local intersectoral nutrition team consisting of representatives from within health (nutrition, maternal and child health, environmental health offices, etc.) and from other sectors (education, welfare and agriculture).

It is stated that this team has developed a district plan for the implementation of an Integrated Nutrition Programme, which considers the assessment of the quality of nutrition actions in health facilities as an important part of the programme. The researchers maintain that in order to assess the quality of growth monitoring the team had to develop a set of simple tools, mainly structured observations, exit

interviews, case studies and structured interviews. According to literature review findings from the structured observations and exit interviews revealed shortcomings such as a few carers were individually greeted; there were no calibration of scales; a minority of carers were given feedback about the weight and growth of their children and only a few carers could report whether the child had grown or faltered. The results also revealed that on the other hand a majority of weights were accurately plotted and there were no missed immunisations. When it came to the interpretation of growth charts, the results of this study were as follows:

- ▶ Most nurses were able to interpret growth, even picking up a slight deviation from the typical curve in the second year of life.
- ▶ Most nurses picked up growth faltering and identified it as a concern although no-one labelled it as growth faltering, and nurses correctly linked such growth to disease, lack of adequate feeding and the need to monitor the child closely.
- ▶ Nurses performed well on growth failure with important links being made between growth failure and such things as chronic disease, sudden changes in feeding practices, and the possibility of incorrectly prepared milk substitutes, but not all nurses recognised that this represented a seriously ill child in need of close observation and referral to hospital. No-one labelled this growth curve as growth failure.
- ▶ Most nurses were able to attribute sudden loss of weight to common causes such as acute illness especially diarrhoeal disease, and abrupt cessation of breast-feeding. No-one picked up on the fact that this sudden drop in weight was preceded by 2 months of growth failure.
- ▶ Some nurses felt that the period of rapid growth was normal.

2.9.2.6 Deficiencies in growth monitoring programme

According to the researchers a number of deficiencies in the performance of GMP was uncovered by the nutrition team, by using a simple set of evaluation tools. These deficiencies included a misunderstanding of the purpose of the growth monitoring programme, lack of training, low motivation, poor morale and poor resource management. These deficiencies are not restricted to Mount Frere or to growth monitoring, but have implications to other districts and programmes which include:

- ▶ Development of a shared understanding and vision of quality of care and visible commitment of the senior management at the provincial, regional and district levels, as well as from the clinic supervisors and the clinic, to improving quality of care.
- ▶ Clarity on the purpose of the activity, since there was a widespread misunderstanding about the purpose of GMP which, according to the researchers, involved informing health workers of the use of GMP for tailoring individual nutrition education messages, promoting good growth (rather than for surveillance) and integrating maternal and child health services.
- ▶ Tackling the problem systematically, for instance by having workshops which go over the mechanism of weighing, plotting and revising some of the messages that should accompany this. The researchers also found that the main problem of poor growth monitoring was mostly not one of knowledge, but of behaviour, and that this involves the perception that heavy workloads and a lack of resources seriously hamper the quality of GMP and in most cases is linked to the low morale and motivation of clinic nurses. They further assert that this concern has to be taken seriously and

the following strategies can be used in collaboration with clinic nurses so as to overcome barriers:

- ▶ District programme managers need to think about the skills and resources required to implement effective GMP. This can be facilitated by drawing up a detailed plan of activities associated with GMP in local settings.
- ▶ This plan should include the development of simple protocols outlining the steps involved in performing good growth promotion such as greeting the mother, undressing the child, and the development of appropriate messages for the care of a child whose growth is faltering.
- ▶ Local teams can then plan how they will change to optimise GMP activities. Unless the physical environment and available time are satisfactory, the quality of GMP will always be poor. Clinic staff should consider how their clinic and services are organized. Improvements in the overall care of patients could be made through a rearrangement of the patient queuing system, directing "at-risk" growth faltering children to a more experienced nurse, finding ways to spread the load over a longer period of time, establishing "protected nursing time for priority clients" (such as children and pregnant women) and making space and privacy available for counselling.
- ▶ Community volunteers could be trained to assist in these sessions either to weigh and plot or to assist with counselling.
- ▶ By adopting a team approach, clinic supervisors and members of the district management team who visit clinics should begin to do this in a more supportive way. In the past, visits to clinics were considered to be "supervisory visits" intended to check up on clinic staff. In Mount Frere,

an understanding of the difficulties and constraints that the clinic nurses work under had led to a shift in attitude whereby clinic supervisors and clinic staff see themselves as a team working together towards a set of common and shared objectives.

2.9.2.7 Recommendations of growth monitoring researchers

According to the researchers, reinforcing action throughout the health system could be another way of tackling problems of GMP through the following:

- ▶ Reinforcement of the importance of GMP at all levels of care and throughout the health system. For example it should become common practice for the Road to Health Card (RTHC) to be demanded every time a child is seen anywhere in health services, and that Paediatric medical officers working in the hospital should therefore make it routine to ask for the Road to Health Card and to examine it. It is also stated that this is not only good clinical practice, but it also sends a positive reinforcing message about GMP.
- ▶ An important element of GMP is to connect growth to the wider causes of malnutrition. Successful GMP is therefore an activity that links health facility action with community-based action.
- ▶ Assessing and monitoring the quality of GMP will help to identify issues such as the supply of drugs and equipment to clinics, as well as communication problems.
- ▶ The District management team must ensure that these support systems are functioning in order to allow clinical staff to practice good quality care (Chopra, Puoanet, Sanders & Zulu, 1999:1-4).

Chopra & Sanders (1997:875-878) document that childhood nutrition is a serious public health problem in South Africa and that growth monitoring is a central tool in attempts to prevent and detect under-nutrition. They maintain that despite widespread adoption of international and national agencies, there has been very little evidence which shows that it has made an impact in reducing malnutrition. They further assert that an important problem has been the conceptual confusion as to the exact role of growth monitoring.

Literature review also revealed that South Africa's First Demographic and Health Survey indicates that infant mortality and maternal mortality rates are alarmingly high, with wide provincial variation. The rate of infant mortality in the Eastern Cape is 61,2%, almost twice as high as in the Western Cape, where the rate is 30,2%. This survey also indicates that in the Eastern Cape and KwaZulu-Natal rates are around 50% and only the Northern Cape has achieved 80% immunization coverage. It is further asserted that these figures show that for some parts of the country the standard of health care is lower than it is in many other poorer sub-Saharan countries (Crisp and Ntuli, 1999:vii).

According to the review growth patterns of South African infants and children have been studied in some detail by several authors on children from different parts of the country showing similar results. Coovadia *et al.* (cited in HST, 1997:7) reported on 5 732 urban black children aged 0-12 years from KwaZulu-Natal. The author states that compared to Harvard reference standards, the younger children were generally heavier than international standards and the height of children aged 0-2 years were similar to international standards.

Richardson and Sinwell (1984, also cited in HST, 1997:7) monitored the growth of Tswana infants in the rural North West Province and found that these babies were short at birth (mean 43 cm, NCHS reference: 50 cm) but that the mean birth weight of 3,3 kg was comparable to international standard. He asserts that weights

were maintained for 7 months but faltered thereafter, despite continuous breast-feeding, indicating that breast milk alone was not sufficient and that weaning practices were not adequate.

According to literature review conducted by the researcher, the nutritional status of South African children was described by the Vitamin A Consultative Group in 1994 as follows: one third of all children have a marginal vitamin A status, with children living in rural areas and those mothers who were poorly educated being the most disadvantaged. This group concluded that South Africa has a serious public health problem of vitamin A deficiency and that vitamin A has been shown to increase childhood morbidity and mortality from infections; one-fifth of children in the country are anaemic; children in the 6 to 23 months age group were most affected; nearly one quarter of all children were stunted, and one in ten (1:10) children were underweight. According to the Vitamin Consultative Group, this translates to approximately 660 000 preschool children being identified as under-nourished and 1,5-million being stunted because of long-term malnutrition; although 90% of children under 3 years had been breast-fed for a certain amount of time, an increasing number of children in urban areas are breast-fed for less than 3 months (MHC, 1996:3).

2.9.3 Relationship between Growth Monitoring and Comprehensive Primary Health Care

Chopra, Saunders, McCoy and Cloete (1998:1563-1564) maintain that the Government's White Paper on Health defines comprehensive PHC as the "provision of preventive, promotive and rehabilitative care". They advocate that the inclusion of preventive and promotive aspects is welcome and points to the importance of intersectoral collaboration and the centrality of active community involvement for effective health interventions. The authors further assert that all the major health problems facing South Africa, namely HIV, T.B., diarrhoea,

malnutrition and mental illness, to name but a few, are clearly rooted in poverty, social inequalities and disempowerment, and that is why the comprehensive approach has been promoted as the most appropriate and effective strategy for South Africa. They state that, in contrast to the narrow range of activities specified in the PHC package, the National Integrated Nutrition Policy explicitly recognises the wider determinants of under-nutrition and has outlined a more comprehensive approach; furthermore that health centre activities such as growth monitoring and treatment of severe malnutrition are important components of such a programme, but that they are situated within a broader approach that also includes community-based programmes.

WHO (1981:51-52) outlines the selection of priority indicators to monitor progress towards health for all policies based on the PHC concept. WHO advocates that nutritional indicators are obtained most conveniently through PHC health personnel and through data collection, provided that data instruments are available and personnel is properly trained in their use, e.g. as low birth weight is one of the most readily recognisable risk factors for survival of a baby, it is highly desirable that birth weight be measured for every newborn child by the personnel attending the birth. The percentage of low birth weight will then be obtained through data aggregation. WHO further asserts that the validity of this indicator is enhanced as the rate of attendance of trained personnel at birth is improved. It is further maintained that the use of home-based weight-for-age can greatly simplify the collection of nutritional data through a PHC contract point or health institution.

Harrison, Hillary, De V Heese, Mann and Berelowitz (2000:12) following results of their study of errors in anthropometric measurements in infants, concluded that there are serious deficits in the way growth is measured in some Cape Town hospitals and child health clinics. They further state that steps must be taken to ensure that all clinics have a stable, comfortable environment temperature with no draughts, so as to encourage mothers to undress their infants, since the study

revealed an error introduced by weighing the baby fully clothed. Milk intake, stool and urine output. They recommend that infants under 9 months of age be weighed naked no more than two-weekly and the older ones no more than monthly.

In another study by Shields and Alexander (1997:587) errors were also found in repeated tests of weights of infants, and in the weight changes brought about by biological variation. These researchers advocate that, when infants are weighed at well-baby or infant welfare clinics, and the weight changes from one visit to the next, this should be used as a guide to the welfare of the child; furthermore that infant welfare clinic nurses are expert clinicians who use weight measurements as a rough indicator of well-being only, as it is well-known by them that these measurements are fraught with error. The researchers therefore recommend that babies under nine months of age, be weighed on clinic visits no less than a fortnight apart and older infants at least one month apart, and that if they are weighed more often, the weight changes detected will be less than the amount of error which affects the measurement.

According to WHO (1981:20) indicators relating to the degree of equity of distribution of financial resources, facilities and manpower are important for assessing health achievements e.g. proportion of the total health resources going to PHC by region or district. WHO stresses another important qualitative indicator namely community involvement, and asserts that one indicator of the seriousness of political commitment is the level of community involvement in health decision-making and the existence of effective mechanisms for people to express demands and needs. WHO maintains that the term "Community involvement" has been given preference over "Community participation" because it is not sufficient merely to participate, which may simply be a passive response. Instead there should be mechanisms, and processes to enable people to become actively involved and to take responsibility for some decisions and activities jointly with health professionals.

Levinson and Berg (1996:7) highlights the importance of operational and policy research in nutrition. It is stated that their research was directed by the needs and questions of those who are actually developing and implementing integrated nutrition programmes at community level. These researchers do not focus on discovering new medical knowledge about nutrition but on identifying interventions that are successful, sustainable and efficient, in other words, research was conducted on what should be done and how it should be done. The researchers, present examples of integrated community-based nutrition programmes with similar principles:

- ▶ Interventions to improve the nutrition of communities cannot be separated from measures to promote economic development and community participation.
- ▶ Interventions that focus on giving out food are not long-term solutions and may be harmful.
- ▶ Community participation and partnerships are crucial e.g. communities, especially with the help of community health workers (CHW), can take on growth monitoring and screening.
- ▶ The decision to stop funding CHWs is robbing many communities of one of the most useful ways of establishing real community-based nutrition projects.
- ▶ Advice on nutrition and agriculture must be appropriate to the local environment and the social and cultural norms of the community.
- ▶ The health service must work with other sectors such as agriculture and welfare.

WHO (1981:58) advocates that in order to monitor accessibility, a number of questions can be asked. For example:

- ▶ Are primary health care services (related to health problems) e.g. treatment of malaria, oral rehydration for diarrhoea, including essential drugs, available within the community at all times?
- ▶ Is first-level referral ambulatory care available within one hour's travel time (or within six kilometres)?
- ▶ Is maternal and child health care (defining what elements are to be included e.g. antenatal care, nutritional surveillance, immunization) available weekly or monthly, within the community or within half an hour's walking distance, and is delivery care available at all times in the community?
- ▶ Are referral facilities within two hours reach? (this relates to the facilities such as roads, transport and cost of transport.)
- ▶ Are facilities available for monitoring health hazards at the workplace and for the health surveillance of workers exposed to hazards causing occupational diseases?

WHO (1998:59) further stresses that not everyone who has physical access to services and in need of services actually use them, since in many cases there are cultural and economic barriers and before identifying these cultural and economic accessibility indicators, it is necessary to estimate the proportion of the accessible population in need of the services who actually use them.

Sukati (1997:764) evaluates indicators to monitor the achievement of PHC goals in Swaziland. Sukati maintains that in the area of childhood immunization, an immunization coverage of 89% had been reported: reduction in morbidity for

specific conditions were achieved, except for tuberculosis. The infant mortality rate was 95 per 1000 live births. An under-5 mortality rate of 141 per 1000 live births and maternal mortality rate of 110 per 1000 live births were reported. This researcher further states that whereas intersectoral collaboration had earlier been identified as one of the key means or achieving structures proposed to enhance inter-sectoral collaboration at regional level were virtually defunct, "Health for All" due to shortage of personnel, especially nurses in all clinics, a need to clarify the relationship between government and a mission facilities and lack of support from the ministry for regional health management. Access to health services was reported to be a problem and was also strongly linked to the cultural beliefs of the Swazi people. It is stated that within the Swazi culture, the man must give permission for the woman to use any health service, including family planning, and programmes have been identified that target men as primary recipients of health education or services.

According to Sukati, there is a need for implementation of the principles of universal availability, intersectoral collaboration, community involvement and provision of accessible and acceptable health services in Swaziland.

According to literature review, although movement towards community-based programmes and nutrition surveillance in South Africa is now available, there are some lessons that can be learned from these programmes, such as:

- ▶ Growth monitoring can be used to promote community-based surveillance, and to provide information upon which the communities can act.
- ▶ Training, supervision and information dissemination is essential. It is also important to identify indicators to monitor success.

- ▶ Building on existing infrastructure and capabilities within communities and linking up with non-governmental organizations (NGOs) and other organizations, who have long-standing relationships with the communities, is essential.
- ▶ Identifying and capitalising on indigenous resources and capabilities within countries is important which means that there has to be political commitment (Fincham, 1997:8).

2.9.4 Conclusion

A comprehensive PHC approach is considered to be the solution to the health-related problems faced by both the international and national communities; these include HIV-AIDS, tuberculosis, malnutrition, obesity, Vitamin A deficiency and many more. This approach is related to growth monitoring and promotion since all the above problems are rooted in poverty and social inequalities, especially those that affect maternal and child health.

CHAPTER 3

OVERVIEW OF THE RESEARCH METHODOLOGY AND DISCUSSION OF AREA OF RESEARCH

3.1 INTRODUCTION

The purpose of this chapter is to give an overview of the research methodology, which entails the design, and data collection. The area where the research was conducted will also be discussed.

3.2 THE AREA OF RESEARCH

This research was conducted in the Umlazi Township clinics which are affiliated to the Prince Mshiyeni Hospital which is a community hospital that works closely with these clinics (ANC, 1994:62; Shandu, 2001).

3.2.1 Site and situation of Umlazi Township

Umlazi is a large township, characterised by both formal and informal houses. It is situated about 30 kilometres south of Durban. Geographically it is within the South Central Durban metropolitan area. Umlazi is subdivided into 26 sections, using all the letters of the alphabet except I and O, before going on to AA, BB, CC etc. when referring to various parts of this huge township (Ngobese, 1997; Townsend, 1991:33).

3.2.2 Population estimates

Population estimates for Umlazi given during the 1995 census was 300 000 (Ngobese, 1997:39) and that of 1996 census was 339 715 (Southern African

Statistics, 1997), and the midyear population estimates for the year 2000 is 373 719 (Unicity Planning, 2000).

3.2.3 Early history of Umlazi Township

The early history of Umlazi, according to Ndaba (1997:30-33) and Townsend (1991:23) dates back to the year 1846 when Theophilus Shepstone was appointed by the British Colonial authorities as Diplomatic Agent to the "Native Tribes" of Natal. This was after the establishment of Port Natal in 1824 when the number of white settlers was increasing dramatically. By 1844 Natal had been annexed as an autonomous district of the Cape Colony, and thus part of the British empire. This meant that all the African tribes south of the Thukela river fell under the Governor of Natal, who in turn was subordinate to the Governor of the Cape Colony.

Shepstone then used a system of assigning all the African tribes of Natal into six "locations", thus in 1847 the Umlazi location was gazetted (Townsend, 1991:23).

According to Ndaba (1997:30-33) and Townsend (1991:23) this location stretched from the Mlazi River to the Mkomazi River. Of the many tribal areas within the Umlazi location, one of the largest was the Cele tribal area which included the strip of land between the Mlazi and Mbokodweni Rivers. The adjoining tribal area to the south was the Makhanya tribal area. The researchers further state that in line with the christianising mission of the British empire, parts of the locations were demarcated as "Mission Reserves" after 1956 and a number of these mission reserves were demarcated in the Umlazi location. One of these was the Umlazi Mission Reserve which was granted to the Anglican Church. In fact most of the later proclaimed township of Umlazi fell on land that was formerly part of the Umlazi Mission Reserve.

The original Umlazi Mission Station was located on the eastern side of the hill of Umlazi Glebe overlooking what is now known as Reunion railway station, and this is where the priests lived. Legal control of the mission reserve fell under chief Cele's jurisdiction (Ndaba, 1997:23-32; Townsend, 1991:26).

Townsend (1991:27) further documents that land for building houses in the Umlazi Township had to be expropriated from the original tribal owners with:

- (a) the portion of the land required to be deproclaimed as part of the original tribal area;
- (b) this piece of land to be proclaimed as part of the new township; and
- (c) the tribal owners to be compensated financially or allocated alternative sites elsewhere.

It is further stated that ownership of the land between the Siphingo and Mbokodweni rivers remained under some control of the Cele tribal authority and many of those whose land was expropriated chose to move south to Folweni. Later, when it was discovered that the land was not to be used for township housing, many of these original owners immediately began to rent out their old properties to newcomers. A similar thing happened within the township. As the need for housing increased, a number of squatter settlements (known as tintowns) sprang up in the vicinity (Townsend, 1991:30-31).

Squatters from the tintown of Umlazi Glebe were given houses in Glebeland and when the family housing in Glebelands was demolished in 1964, the Glebe hostels were erected, while these families were moved to R-section of Umlazi township (Townsend, 1991:31).

According to Maasdorp and Ellison (1975:61) cited in Townsend (1991:31), when the removals from Cato Manor took place in the early 60s people were unwilling to move into the formal township houses of Umlazi. As a result about 30 000 to 40 000 persons vanished into new squatter settlements around Umlazi and some of these people gathered on what was later to be the Umlazi golf course, and erected shacks. This settlement became known as "Magaba-ge-Jubane". It is documented that this informal settlement was short-lived and by 1962 had been destroyed by the Department of Bantu Administration officials under Minister De Wet Nel, despite interdicts drawn up by the lawyer Rowley Arenstein to restrain them and prevent the demolition.

The squatter settlement of Malukazi is another tintown that developed from about 1944 and grew gradually until 1964 when these families, who numbered about 1 500, were given houses in various sections of Umlazi Township (mainly in section D) when the squatter settlement was demolished. According to Townsend (1991:33), since many of Malukazi residents either could not afford the rents or did not qualify for section 10(1) rights, they were forced to move into smaller squatter settlements: Bhekithemba, Maga and a second site known as "Malukazi", but situated on what is known as Z-section.

Townsend (1991:33) also documents that in 1972 the KwaZulu government was formalised and in 1974 the Bhekithemba, Malukazi and Mgaga informal settlements were demolished, followed by the 1973 Umlazi councillors' support of the KwaZulu and South African government decision. Also following the Umlazi Residents' Association's negotiations with various offices in KwaZulu, eventually, Chief Minister M.G. Buthelezi stopped the demolitions on condition that the squatters moved to Folweni. It is further documented that in 1974 when most of the remaining squatters moved to Folweni, a few did choose to remain at Mgaga and Malukazi since they did not qualify as citizens of KwaZulu.

3.2.4 The New Umlazi Township

According to Townsend (1991:26) the idea of converting the Umlazi Mission Reserve into a township was mooted by the government in the early 1940s following an argument that the neighbouring Cato Manor informal settlement was a slum. The construction of V-section of the Umlazi Township began in 1956 and by 1957 Umlazi Glebe already had 700 formal houses built by the Durban Corporation. However, the housing programme in Umlazi Township only began in earnest after 1960 when the removal of Cato Manor was well under way. Out of the 19 000 houses that were built in Umlazi Township by 1970, only 62 were privately built for upper income owners (so-called "self-built houses"). The rest were all low cost four-roomed houses built by the state and rented out from the township management office. Since then most of the 9 000 houses built since 1970 have been middle and upper income developer or owner-built houses.

According to Morris (1992) cited in Ngobese (1997:41) all formal houses in Umlazi Township have full services which include waterborne sewerage, provision of safe water supply and proper disposal of refuse services (Ngobese, 1997:41-42).

The halt of the construction of low-cost housing by the state resulted in overcrowding and deterioration of conditions of the four-roomed houses so that in the late 1970s it became untenable. The continued migration within the formal township also expanded. It is stated that backyard shacks that were rented out by the official tenants also proliferated and that by 1986 these were estimated at 3 465 (Brande cited in Townsend, 1991:37).

A new wave of informal settlements with no proper infrastructure and no proper refuse disposal, with no clean water supply, etc. began in early 1987. Squatters moved on to vacant land in some of the sections of the township. Informal settlements gradually became more dense. Some are located on the periphery of

Umlazi, but well within the township proper, some close to the entrance to Umlazi, while some centrally situated. It would seem that during 1990 most of the land invasions in Umlazi had occurred on small pockets of land, because all the larger pieces of land had already been squatted on. The rumblings of the waves of land invasions in Umlazi as documented by Townsend (1991:39-41), are becoming louder and louder day by day.

3.3 UMLAZI CLINICS

There are seven (7) clinics in Umlazi. These clinics all offer a comprehensive range of preventive, promotive, curative and rehabilitative services, but that are of less specialised level. These clinics are located in some of the sections of Umlazi Township, hence named after that particular section: K, L, D, Q, U, H and V clinics. The seven clinics are affiliated to Prince Mshiyeni Hospital, which is the local community hospital (also known as a District or non-specialist hospital).

Prince Mshiyeni Hospital works closely with local clinics and is responsible for the coordination of services in these clinics by providing the necessary support to staff, supplying all equipment such as scales for weighing babies, and providing essential drugs such as vaccines, etc. (Shandu, 2000).

For the purpose of this study, only four (4) out of the seven clinics were utilised, and for data collection mainly K, L, D and Q clinics.

NB See Annexure I for Map of Clinics

3.4 SAMPLING OF CLINICS

A simple random sampling was used for this study. Each clinic was assigned a number which was written on a piece of paper and an independent observer was

chosen to pick the numbers "at random". Clinics had equal chances of being selected. This was also important to avoid bias of the sample.

3.5 RESEARCH METHODOLOGY

An exploratory descriptive contextual design was used to describe phenomena. A qualitative design was also used, where participant observation by the researcher was necessary to collect data.

Data was collected from the mothers who had brought their babies to the well-baby clinics and also to the minor ailment clinics which operated in the same clinics under study.

Permission to collect data was obtained for the Provincial Department of Health (KZN) with the following requirements:

- ▶ The researcher had to produce a written request, in the form of a letter from the University of Zululand confirming her student status.
- ▶ A certificate of Ethical Clearance, from the Ethics Committee, confirming that ethical requirements such as confidentiality, anonymity, availability of results for the subjects and informed consent were adhered to.

Permission was also obtained from the regional Hospital Superintendent and Deputy Director after producing the letter authorising research to be conducted.

The Deputy Director responsible for community services was approached, who gave permission that Umlazi clinics could be utilised, and the professional nurse-in-charge of each clinic was also notified and gave permission for staff participation.

3.6 SAMPLING OF STAFF MEMBERS

The target group for this study was professional nurses working in the four clinics that were selected by random sampling. The sample consisted of 25 registered nurses who were selected by availability of staff members in the four clinics under study. A convenient sample was therefore used.

3.7 QUESTIONNAIRE

A questionnaire consisting of both open- and close-ended questions was used for obtaining data from the participating professional nurses. A letter of request for participating and for explaining about the research was also provided for each participant.

3.8 ACTUAL DATA COLLECTION FOR PROFESSIONAL NURSES

A suitable venue was obtained where the participants signed an informed consent to accept the offer. The questionnaire was then handed to the participants who had to respond.

3.9 QUESTIONS IN THE QUESTIONNAIRE

The first section of the questionnaire consisted of biographical information such as age, sex, marital status, years of experience and qualifications.

The second section of the questionnaire consisted of aspects such as turnover of growth monitoring, availability of time for statistics, weighing of babies, health education sessions, assistance by other categories of staff, and in-service education.

The third section of the questionnaire explored the perceptions of staff regarding staffing, workload, hours of work, appropriateness of duties allocated to clinic nurses and problems experienced in the clinics which could interfere with the quality of job performance.

A separate checklist was used by the researcher to obtain in-depth knowledge regarding the actual growth monitoring practices in the clinics. The researcher saw the need for this information as important, because there seemed to be either a lack of knowledge by mothers regarding growth monitoring or inability of the nurses to perform growth monitoring, due to Road to Health Cards which were identified by the researcher to be having gaps when conducting student accompaniments in the clinics.

3.10 THE QUESTIONS IN THE CHECKLIST

The first section of the checklist consisted of interpersonal aspects such as greeting the client, explaining of procedures before weighing the baby, calibration of the scale, weighing of baby (naked or with minimal clothing), correct plotting of weight on the Road to Health Card, and ability to identify and interpret growth faltering.

The second section of the checklist consisted of the nursing intervention such as ability to give feedback to the mother regarding growth and development, making appropriate referral, identifying problems with immunization and intervention, health education programmes and topics covered, correct recording in the Road to Health Card, standard procedures for maintaining the cold chain and availability of teaching aids such as posters and hand-outs.

3.11 DATA COLLECTION USING PARTICIPANT OBSERVATION

In accordance with this viewpoint, the professional nurses were informed by the researcher that a visit was to be paid by her to conduct participant observation, which is part of the qualitative research methodology. The researcher believes that it is imperative to use this methodology which was developed during the traditional periods (1905 to 1940s) and was used by researchers such as Malinowski, Mead and Brown (De Vos, 1998:348-350).

The methodology aims at writing objective accounts of lived experiences (Fieldwork, as stated by De Vos (1998:244). This phase known as the modernist phase builds on to the traditional periods of social realism and nationalism. According to De Vos (1998:244) this new method of truth determination introduced in the 1980s would best describe and interpret experiences of other people and settings. The researcher therefore focused this stage of data collection on the model of truthfulness and honesty of participants when information is given.

3.12 CONCLUSION

Chapter 3 of this study dealt with an overview of the research methodology, which entails data collection. The area where research was conducted, was also discussed.

CHAPTER 4

RESEARCH FINDINGS / RESULTS

4.1 INTRODUCTION

This chapter of the study deals with data analysis, presentation and discussion of research findings from clinics L, Q, D and K as described in the sample in Chapter 3.

4.2 THE QUESTIONNAIRE

Part of the information presented in this chapter was obtained from questionnaires completed by professional nurses working in the four clinics under study. Analysis of open-ended questions was done manually and close-ended questions were analyzed by means of a statistical analysis programme (SAP). The data will be presented in the form of tables, pie and bar graphs.

4.2.1 Biographical data

The researcher deemed it necessary to include biographical data of respondents such as age and years of experience. The reason was that, this data might have an influence on the monitoring and promotion of growth of children, as evidenced by Chopra *et al.* (cited in HST, 1999:1-4), who stated that improvements in the quality of growth monitoring programmes could be made by directing the "at risk" growth faltering children to a more experienced nurse. Ebrahim (1978:88) documented broken homes, death of one parent or lack of parental care as factors known to be associated with malnutrition or serious illnesses.

4.2.1.1 Age distribution

Table 4.1 Age distribution of professional nurses - N = 25

Age in years	Frequency	Percentage
20-30	4	16
31-40	18	72
Above 40	3	12
TOTALS	25	100

Table 4.1 indicates that the majority of clinic professional nurses were in their middle ages with ages 31-40 years ranking the highest 18 (72%), followed by 20-30 years with 4 16%. Therefore it is assumed that they possess adequate experience and are mature enough both personally and professionally to be able to conduct growth monitoring and promotion programmes.

4.2.1.2 Gender

Table 4.2 Gender distribution of professional nurses - N = 25

Gender	Frequency	Percentage
Female	25	100
Male	0	0
TOTAL	25	100

Table 4.2 depicts that all 25 (100%) professional nurses who participated in the study were females. This generally confirms the view that nursing is a female-

dominated profession. Although there has been an improvement over the past years in the training of males, only three percent (3%) males were trained as registered nurses in the KwaZulu region alone in 1987. These were the results of a study conducted by Gumbi in 1987 (Mtetwa, 1999:76).

4.2.1.3 Marital status

Table 4.3 Marital status of professional nurses - N = 25

Marital status	Frequency	Percentage
Married	17	68
Single	8	32
Divorced	0	0
Widowed	0	0
Separated	0	0
TOTALS	25	100

Table 4.3 depicts that 17 respondents (68%) were married. 8 were single (32%) and none of the respondents were divorced, widowed or separated.

4.2.1.4 Experience

Table 4.4 Experience of professional nurses - N =25

Experience	Frequency	Percentage
Below 1 year	2	8
1-2 years	1	4
3-4 years	3	12
Above 4 years	19	76
TOTALS	25	100

Table 4.4 above depicts that the respondents with experience of above 4 years ranked highest 19 (76%) followed by those with experience of 3-4 years = 3 (12%). From this the researcher deduces that the respondents have adequate experience necessary for rendering quality growth and promotion in children.

4.2.1.5 Clinical staffing

Table 4.5 Clinical staffing of clinics under study

Clinic code	No. 1	No. 2	No. 3	No. 4	Total	%
Professional nurses	7	10	11	5	33	68
Enrolled nurses	2	3	4	2	11	22
Enrolled Nursing Assistants	0	2	2	1	5	10
TOTALS	9	15	17	8	49	100

Table 4.5 above indicates that clinic staff possess adequate professional knowledge and experience to be able to impart knowledge and skills pertaining to growth monitoring and promotion to both members of the clinic health team and mothers utilizing these clinics, since the category of professional nurse ranked 33 (68%) which is the highest, followed by the enrolled nurse category with 11 (22%). This has been supported by Ntaya *et al.* (1998:1), who documented that results of a survey in 1997 of 600 households in various aspects of maternal and child health care, showed that one in five respondents did not know how HIV is transmitted and that only 36% of children aged 1-4 years were fully immunised. The researchers further stated that these findings indicated that there was a need for effective health promotion in the health districts.

4.2.1.6 Turnover for growth monitoring

Table 4.6 Turnover for growth monitoring in clinics

Clinic code	October	November	Totals
No. 1	560	757	1 317
No. 2	614	551	1 165
No. 3	837	1 227	2 064
No. 4	969	1 010	1 979

According to the National Health Plan of South Africa regular monitoring will be used as a tool for the promotion of growth of young children (ANC, 1994:49).

4.2.1.7 Availability of time for statistics

The purpose of this item was to establish whether clinic nurses had time for statistics. Kunene cited in Nzimande (1998:266) states that statistics in health care are essential for evaluation of the effectiveness of health care programmes at primary, secondary and tertiary levels: this will enable authorities to allocate scarce resources according to priorities whilst focusing on equitable distribution, and to supply information for epidemiological surveys and medical or nursing research. This has also been supported by the WHO (1981:60), which stresses that statistics such as the number of children who receive particular immunizations or the number of children receiving regular nutritional surveillance (specifying minimum number of contacts per year), is a method of assessing health care for children in a district or any other defined geographical area. Therefore the researcher deemed it necessary to ascertain whether nurses at these clinics had time for statistics.

Out of the 25 respondents, 24 (96%) agreed that they do get time for statistics and only one respondent (4%) gave a response that she does not get time for statistics. Therefore it is assumed that the clinic nurses do get time for statistics.

4.2.1.8 Number of patients who have their weights checked daily

Table 4.8 Patients' weights checked daily - N = 55

Clinic code	Frequency	Percentage
No. 1	20	36,4
No. 2	20	36,4
No. 3	15	27,2
No. 4	0	0
TOTAL	55	100

According to table 4.8 clinics No. 1 and No. 2 have the majority of responses, 20 (36,4%) respectively, followed by clinic No. 3 with 15 (27,2%) responses. Clinic No. 4 had no responses (0%). The reason given for nil responses in clinic No. 4 was that no scale was available in the clinic for weighing babies. Coovadia and Wittenberg (1998:24) stress the importance of the introduction of the Road to Health Card. They assert that it enables parents as well as health workers to see at a glance whether the child is gaining weight or not. The researcher therefore concludes that mothers attending growth monitoring in clinic No. 4 do not have such an opportunity of knowing whether their children are gaining weight or not.

4.2.1.9 Does the clinic professional nurse have a helper

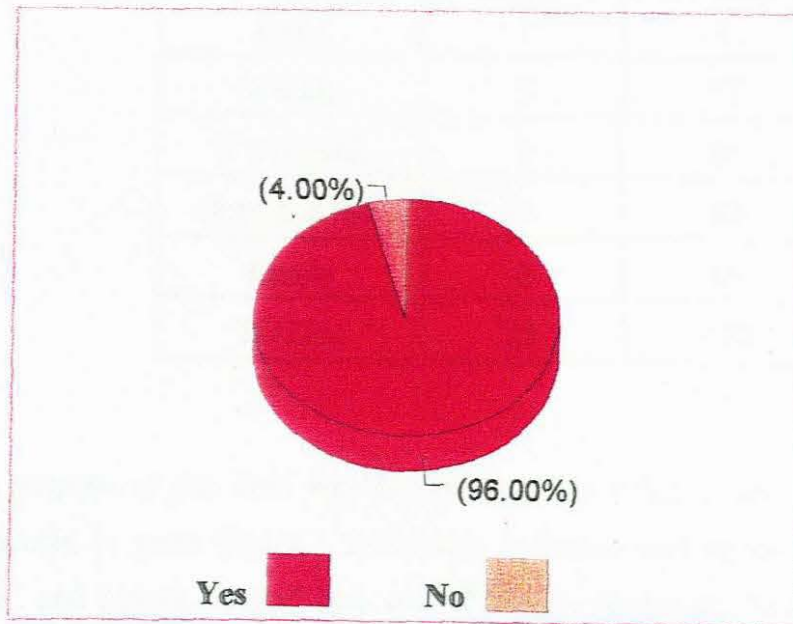
Table 4.9 Availability of a helper in the clinic - N = 25

Availability of a helper	Frequency	Percentage
Yes	25	100
No	0	0
TOTAL	25	100

All 25 (100%) respondents agreed that they do have a helper to check on the weights of children. The researcher therefore assumes that in these clinics other categories of staff are utilized for weighing babies. This has been supported by Chopra *et al.* (1994:1-4) who recommend that community volunteers could be trained to assist in weighing and plotting weights in the Road to Health Cards.

4.2.1.10 Do clinic nurses have knowledge and understanding about the Road to Health Card?

Figure 4.10 Knowledge and understanding of the Road to Health Card by clinic nurses - N = 25



According to Figure 4.10, the majority of respondents, 24 (96%), stated that they do have knowledge and understanding about the Road to Health Card. Only one (4%) respondent stated that she was not knowledgeable and did not have understanding of the Road to Health Card. The importance of the clinic nurses to understand and possess adequate knowledge about the Road to Health Card was also identified by both the doctors and nurses of the Bambisanani hospital. This quality assurance team also made recommendations that staff should be trained on the use of the Road to Health Card and as a result these recommendations have been implemented.

4.2.1.11 In-service education on growth monitoring in the clinics

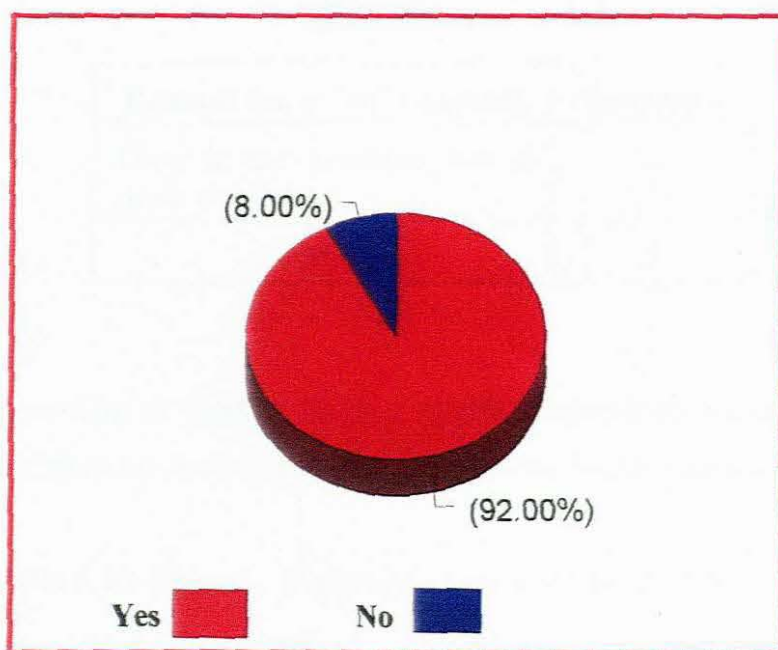
Table 4.11 Frequency of growth monitoring in-service in the clinics - N = 25

Category	Frequency	Percentage
Daily	1	4
Weekly	3	12
3 x a week	9	36
Once a month	3	12
Rarely	9	36
TOTAL	25	100

The purpose of this item was to establish how often in-service education was conducted in these clinics. Table 4.11 indicates that responses of "3 times a week" and that of "rarely" both scored highest responses, 9 (36%) respectively. The researcher therefore concludes that responses to this item could not be accurate, since respondents from the same clinic gave different responses on the same category. Respondents also gave paired responses 3 (12%) on categories "weekly: and "once a month". The "daily" category ranked least response 1 (4%).

4.2.1.12 Availability of a one-to-one health education

Figure 4.12 Conduction of a one-to-one health education - N = 25



According to Figure 4.12, 23 (92%) of respondents gave a response of "yes" to conduction of a one-to-one health education and only 2 (8%) responded by a "no" response.

4.2.1.13 Reasons stated for a one-to-one health education

Table 4.13 (i) Reasons for a "no" response to a one-to-one health education - N = 2

Reasons for a "no" response	Frequency	Percentage
Time is not available due to clinic workload	2	100
TOTAL	2	100

According to Table 4.13 (i) 2 (100%) respondents indicated that time was not available for them to conduct a one-to-one health education.

Table 4.13 (ii) Reasons for responses given in 4.12 - N = 23

Reasons for a "yes" response	Frequency	Percentage
Promotes good client-nurse relations	8	16
Client's right to confidentiality and privacy is maintained	6	12
Client becomes free to give full account of her problems	11	22
Health education is directed to that particular individual's needs	5	10
In the absence of other mothers, the clients are free to ask questions	10	20
Patients or client understand much better, thus health education is more effective than in group health education	10	20
TOTAL	50	100

NB Respondents gave more than one response.

According to table 4.13 the majority of respondents, 11 (22%) thought a one-to-one health education allows the client to become free to give full account of her problems, followed by the response of 10 (20%) respectively where respondents felt that the client is free to ask questions in the absence of other mothers.

4.2.1.14 Feelings of staff about clinic staffing

Table 4.14 Clinic staffing - N = 25

Feelings about staffing	Frequency	Percentage
Good	4	16
Average	9	36
Bad	12	48
TOTAL	25	100

According to table 2.14 the majority of responses, 12 (48%) indicates that clinic nurses feel that clinic staffing is bad, followed by 9 (36%) responses which indicate feelings of average clinic staffing. Only 4 (16%) respondents felt that clinic staffing was good.

4.2.1.15 Feelings of staff about clinic workload

Table 4.15 Clinic workload

Feelings about staffing	Frequency	Percentage
Average	4	16
Heavy	16	64
Too heavy	5	20
TOTAL	25	100

Table 4.15 indicates that the majority, 16 (64%), of respondents feel that clinic workload is heavy, followed by a response of 5 (20%) which indicated that respondents feel that clinic workload is too heavy. Only 4 (16%) felt that clinic workload is average.

4.2.1.16 Perceptions of clinic staff about the attitude of the community towards clinic services

4.16 Attitude of the community towards clinic services - N = 25

Attitude of community towards clinic services	Frequency	Percentage
Positive	15	60
Negative	10	40
TOTAL	25	100

According to Table 4.16, 15 (60%) respondents felt that the attitude of the community towards clinic services is positive, whereas 10 (40%) of the respondents felt that it is negative.

4.2.1.17 Feelings about appropriateness of staff clinic duties

Table 4.17 Appropriateness of staff clinic duties - N = 25

Clinic duties	Frequency	Percentage
Yes	24	96
No	1	4
TOTAL	25	100

According to Table 4.17, 24 (96% of the 25 respondents indicated that duties performed by nurses at all these clinics are appropriate and only 1 (4%) indicate that they are not appropriate.

4.2.18 Feelings about appropriateness of clinic working hours for both clients and for nurses

Table 4.18 Feelings on appropriateness of clinic working hours by nurses and clients

Feelings about appropriateness of clinic hours	Clinic Nurses		Clients	
	F	%	F	%
Yes	20	80	10	40
No	-		8	32
Not sure	5	20	7	28
TOTAL	25	100	25	100

F = Frequency
% = Percentage

According to Table 4.18, 20 (80%) of the respondents indicate that clinic hours for nurses are appropriate. Only 5 (20%) feel they are not appropriate. 10 (40%) of the respondents indicated that clinic working hours for the clients are appropriate, 8 (32%) felt they are not appropriate and 7 (28%) responded by indicating that they are not sure.

4.2.1.19 Factors that contribute to under-performance of staff in the clinics

Table 4.19 Nature of problems encountered by clinic nurses that could contribute to under-performance

Problems	Frequency	Percentage
Heavy workload	17	68
Shortage of medicines	15	60
Shortage of equipment	7	28
Shortage of staff	7	28
Lack of space (privacy)	5	20
Poor working conditions	5	20
Low salaries	3	12

NB The scores in Table 4.19 will not add up to 25 or 200% because an item was checked by more than one respondent.

Problems identified by respondents included heavy workload 17 (68%), shortage of medicines 15 (60%), shortage of equipment 7 (28%), shortage of staff 7 (28%), lack of space (privacy) 5 (30%), poor working conditions 5 (20%) and low salaries 3 (12%).

The above-named problems have also been identified by district health workers in the Mount Frere district in the Eastern Cape during a survey carried out on various aspects of maternal and child health. It was stated that this district experienced lack of coordination, shortage of time and resources that led to the implementation of specific "vertical" health promotion activities.

4.3 INTERVIEW SCHEDULES

Information obtained by means of interview schedules was elicited from the mothers and child-carers of children attending both the well-baby and minor ailment clinics in the four Umlazi clinics under study.

The researcher used structured questions and to a lesser extent unstructured questions to elicit information from the respondents. Probing questions were also sometimes used in order to lead the respondent to a more fully and accurate answer. Gordon (1989:49) cited in Bailey (1987:193) argues that, to help the respondent to remember facts accurately, the interview must be sufficiently unstructured and flexible for the interviewer to be able to return to the same topic several times if necessary, to stimulate the memory or to enable her to probe vague portions of the respondent's account. Analysis of open-ended questions was also done manually and the close-ended questions analyzed by means of statistical analysis (SAP). The data will be presented in the form of tables, bar and pie diagrams.

4.3.1 Biographical data

The researcher found it necessary to include the biographical data of the respondents such as age, marital status and educational standard, since these factors have a profound influence on growth and development of the child (Kibel & Wagstaff, 1996:18-19).

4.3.1.1 Age distribution

Table 4.3.1 Age distribution of children - N = 60

Age group in years	Frequency	Percentage
0-1 years	49	81
2-3 years	10	17
4-5 years	1	2
TOTAL	60	100

Table 4.3.1 indicates that the majority of children attending growth monitoring programmes in these clinics were in the early years of age with 0-1 year ranking highest (81%), followed by 2-3 years with 17%. It is therefore assumed that mothers bring their children for growth monitoring during the first years of life, then less frequently from the second to the third year of life, and seldom after the third year of life. The findings of this study confirm the results of a study which was conducted by Mapatono *et al.* (1997:96-99), following the identification of a high dropout rate of children attending the under-five clinic at the University of Kinshasha Teaching hospital. The results of this study indicate that none of these children had completed the five-year period of growth monitoring. The researchers then concluded that health workers should be trained to advise mothers to bring their children to growth monitoring programmes up to five years, though the attendance frequently may be reduced from the second year onwards.

4.3.1.2 Gender

Table 4.3.2 Gender distribution of children attending Growth Monitoring Programmes

Gender	Frequency	Percentage
Male	24	42
Female	36	58
TOTAL	60	100

Table 4.3.2 depicts that out of 60 children who participated in the study only 24 (42%) were males and 36 (58%) were females. The researcher deemed it important to include this data in the study since the age factor affects physical growth of a child. Coovadia and Wittenberg (1998:21) contend that a century ago the average male did not reach final height until the age of 23 years, but he now reaches it by 13 to 17 years. Coovadia and Loening (1995:27) also state that there is a variation within normal percentile ranges, where lines in charts for boys and girls are separate or combined. The researcher therefore deemed it necessary to include this variable in the collection of data for this study.

4.3.1.3 Mother's age

Table 4.3.3 Age distribution for mothers of children attending Growth Monitoring Programmes - N = 60

Mother's Age	Frequency	Percentage
15-25 years	38	63
26-35 years	21	35
36-45 years	1	2
Over 45 years	0	0
TOTAL	60	100

Table 4.3.3 depicts that out of 60 mothers who participated in the study, age group 15-25 years ranked highest frequency 38 (63%), followed by 26-35 years, 21 (35%).

4.3.1.4 Marital status

Table 4.3.4 Marital status of mothers- N = 60

Marital status	Frequency	Percentage
Single	55	92
Married	5	8
Divorced	0	0
Widowed		0
Separated	0	0
TOTAL	60	100

Table 4.3.4 indicates the distribution of total marital status as completed by the respondents. Ranking high in order is single mothers, 55 (92%), while married mothers were only 5 (8%). The researcher deemed it necessary to include this variable in the collection of data for this study, since it is an important factor that affects growth and development of a child.

4.3.1.5 Educational standard

Table 4.3.5 Educational standard of mothers

Marital status	Frequency	Percentage
Std 5-7	23	38
Std 8-10	35	58
Above Std 10	2	4
TOTAL	60	100

Table 4.3.5 indicates that mothers with an educational standard of 8-10 ranked high in the distribution, 35 (58%) followed by those with a standard 5-7 level of education with a distribution of 23 (28%). Level of education of the mother has been documented by several authors and researchers to be a factor that affects growth and development of the child. Senanayake *et al.* (1997:359-361) confirm these findings, following their study conducted with an objective to investigate the maternal comprehension of two different growth charts and to identify the group of mothers with poor comprehension. This study reveals that education up to beyond grade 8 in school significantly improved comprehension, and it was therefore concluded that length of schooling, rather than literacy alone, is an indication of a comprehending mother. The researcher therefore found it important to include this item for data collection purposes.

4.3.1.6 Physical accessibility

Figure 4.3.6 Physical accessibility of the clinics to the mothers - N = 60

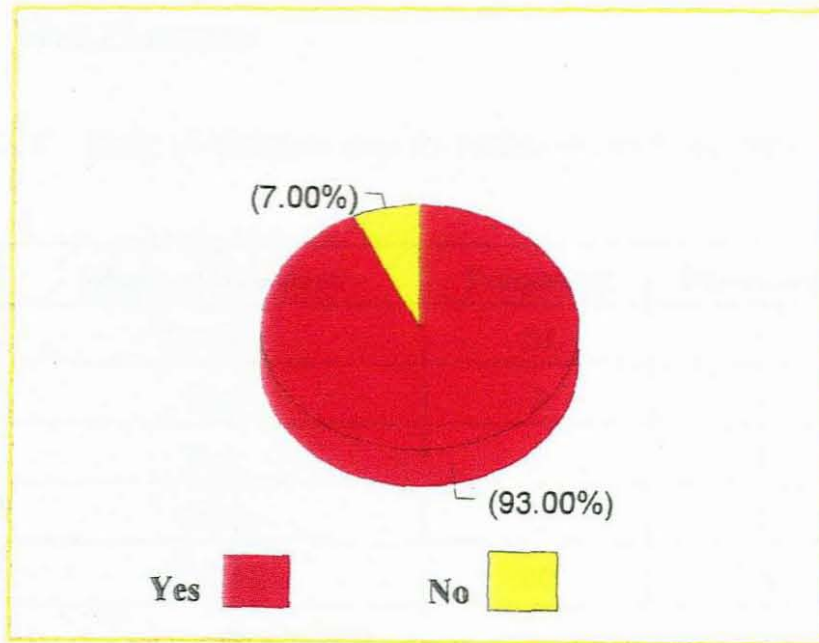


Figure 4.3.6 indicates that clinics in Umlazi are located near the clients' homes and the mothers utilize these clinics as evidenced by the high ranking of the "yes" response of 56 (93%) while only 4(7%) respondents gave a "no" response. This finding supports the aim of the National Health Plan of South Africa which emphasises the importance of bringing health services closer to the people who need them most (ANC, 1994:62).

4.3.1.7 Reason for not utilizing the nearest clinic

For this item, mothers who gave a response that indicates that they do not utilize the clinics nearest to their homes were required to state reasons for such a response. Their reasons were as follows:

- There is no clinic nearer my home, which is "R"-section
- I prefer to come to this clinic when I want my baby weighed because the clinic next to my home does not weigh babies.

4.3.1.8 Mode of transport

Table 4.3.8 Mode of transport used by mother to reach the clinic - N = 60

Mode of transport	Frequency	Percentage
By foot	56	92
Taxi	2	4
Bus	2	4
Other	0	0
TOTAL	60	100

Table 4.3.8 depicts travelling by foot to clinics as ranking highest in the distribution, 56 (92%). This item also indicates that clinics in Umlazi are located near clients' homes. WHO (1981:26) documents that one hour's walking time or half-an-hour travel time by ox-wagon to a health service is considered physically accessible for those utilizing it.

4.3.1.9 Carrying of Road to Health Cards

Table 4.3.9 Carrying of Road to Health Cards

Road to Health Card is available	Distribution	Percentage
Yes	35	58
No	25	42
TOTAL	60	100

The purpose of this item was to establish the number of mothers who carry the Road to Health Card whenever they attend the clinics, whether a well-baby or a minor ailment clinic. The above results indicate that there is still a number of mothers who do not always carry the Road to Health Card when visiting the clinic for a minor ailment problem. This has been evidenced by the fact that the mothers who did not carry the Road to Health Card were attending the minor ailment clinic. The reason given to this response was that the nurses do not ask for these cards when it is not an immunization day, therefore, the mothers have preferred not to carry the card with her when attending the clinic. Vlok (1996:396) stresses that when the Road to Health card is issued to the mother on the birth of her child, she is instructed to retain the card and is taught to produce it whenever she takes her child to any clinic. The researcher asserts that although the "yes" responses ranked 35 (58%) which is more than the "no" responses, which ranked 25 (42%), this figure shows that there is still a number of mothers who do not always carry the Road to Health Cards when visiting health centres.

4.3.1.10 Main function of the Road to Health Card

Table 4.3.10 Mothers' knowledge about the Road to Health Card - N = 60

Mothers' knowledge	Distribution	Percentage
For immunization	52	87
It is a child's health record	4	7
It is a child's school entry card	27	45
Will help me to collect birth certificate	5	9
It is for weight check	5	9
Shows growth of child	10	17

The purpose of table 4.10 was to establish how knowledgeable the mothers are with regard to the function of the Road to Health Card. The respondents were allowed to give more than one response, therefore the total number of distribution and percentages could not be totalled up by the researcher. Most respondents 51 (87%) gave immunization as the main function of the Road to Health Card. Response of a school entry card ranked second in the distribution with 27 (45%) responses. Table 4.10 depicts that only 10 (17%) out of 60 mothers who participated in the study responded in an acceptable manner. Chopra and Sariders (1997:875-8) contend that childhood under-nutrition is still a serious public health problem in South Africa and the reason for this is the conceptual confusion as to the exact role of growth monitoring. Sohal *et al.* (1997:562-563) also recommends the use of growth monitoring teaching aids to improve mothers' understanding of the child's growth. For this item, the responses that gave the same meaning were grouped together and integrated as one response.

4.3.1.11 Who gave the above information?

Table 4.3.11 Source of information with regard to Road to Health Card
N = 60

Source of information	Distribution	Percentage
Clinic Nurse	33	55
Doctor	0	0
Media e.g. radio	0	0
Other (state) e.g. hospital	26	43
Nobody	1	2
TOTAL	60	100

Table 4.11 indicates that clinic nurses rank highest with regard to dissemination of information regarding growth monitoring, 33 (55%), followed by other sources especially the hospital, 26 (43%). Most of the respondents indicated that such information was communicated to them by hospital nurses when the Road to Health cards were given to them on discharge after delivery of their babies. The researcher concludes that there are still members of the health team who do not realise that the Road to Health Card is an important teaching guide (tool) that helps mothers to understand the growth of their children by being able to interpret the centile lines in relation to the concept of "Road to Health".

4.3.1.12 Other information that was communicated to the mother

The purpose of this item was to establish what other information was communicated to mothers, besides the purpose of the Road to Health Card. Again responses that were thought to be having the same meaning although phrased differently, were grouped together as one response by the researcher. Other respondents gave more than one response. The following responses were communicated by the respondents.

4.3.1.12.1 " I must always carry the card when visiting the doctor, clinic or hospital. "

4.3.1.12.2 " My child is growing well. "

4.3.1.12.3 " Should keep the card clean. "

4.3.1.12.4 " I must not lose the card because I will not get another one. "

4.3.1.12.5 " My child is growing well (after weighing the child). "

4.3.1.12.6 " I was given health education about general hygiene such as to keep my child clean, how to feed my baby. "

4.3.1.12.7 " After weighing my child, I am told when to come back to the clinic. "

4.3.1.12.8 " I was told about the importance of breast-feeding. "

4.3.1.12.9 " Nothing was communicated to me. "

4.3.1.12.10 " Nothing was communicated to me. I read the information on the card on my own. I was able to see that the baby on the card was sleeping on his stomach, walking etc. I could also read about polio drops but did not understand about the other information on the card such as measles, etc. "

4.3.1.13 Mothers' opinions with regard to clinic services.

The purpose of this item was to establish the views of the clients or mothers utilizing the clinic services with regard to the quality of health care in these clinics. The following responses were given by the respondents.

4.3.1.13.1 " There are good human relations, although a few nurses have negative attitudes towards the clients. "

4.3.1.13.2 " At times medicines and vaccines are not available and we are told when to come back. "

4.3.1.13.3 " I am able to have my child seen when he is sick, also immunized, although at times vaccines and medicines are not available. "

- 4.3.1.13.4 " Children are never weighed because there is no scale. "
- 4.3.1.13.5 " Waiting-time is too long. I think it is because work is commenced late, at times after tea-time and also that the clerk sometimes comes late. "
- 4.3.1.13.6 " No information is communicated to me about the progress of my child. "
- 4.3.1.13.7 " The card system here is good because one is attended to according to his or her time of arrival at the clinic, although a limited number of patients is attended per day. "
- 4.3.1.13.8 " Child is weighed on immunization days only, unlike in the hospital. "
- 4.3.1.13.9 " Waiting-time is alright. "

4.4 CHECKLIST FOR THE ASSESSMENT OF NURSES' CLINICAL PERFORMANCE (PARTICIPANT OBSERVATION)

In-depth information regarding the actual growth monitoring programme was obtained by the researcher by means of participant observation, using a structured checklist, for the purpose of data collection for this study, as described in chapter 3. The four Umlazi clinics under study were visited by the researcher after having obtained permission to conduct the study from the Superintendent General of Health of the KwaZulu-Natal province and also from the Chief Professional-in-charge of the clinics under study.

The researcher reported on these clinics on scheduled dates adhering to the clinic working times - 07:00-16:00. A formal introduction was conducted in the

morning by the professional nurse-in-charge of that particular clinic, for the purpose of informing both the mothers utilizing these clinics and the clinic nurses of the researcher's presence. Bailey (1987:244) asserts that observation may either be covert, with subjects unaware that they are being observed or overt, with the observer visible to the subjects, aware that they are being observed. The researcher also used a coding system by means of figures to ensure the ethical issue of anonymity.

4.4.1 Participant observation using checklist

The researcher also had to engage in participant observation to obtain data for this study. This method of data collection enabled the researcher to actually observe, understand and make informed judgements about the activities of growth monitoring and promotion by the clinic nurses of the four clinics under study. Their behaviours were best studied in their natural settings as indicated in chapter 3.

Data obtained through participant observation from the four clinics is not being separated for purpose of data analysis except where specific points need to be highlighted.

Data is presented in the form of tables and graphs. Frequencies of the number of responses to each behaviour observed in the checklist were tallied, to obtain the number of times each behaviour was observed. The behaviour could be observed more than once from each respondent.

Item 14.1.1 Indicates that full explanation was given before commencing procedures such as weighing babies, was observed 43 (72%) times by the researcher. This activity was not observed to only 17 (28%) times.

- Item 14.1.2 This behaviour according to Table 14.1 (a) and Figure 14.1 (b) was observed 40 times (67%). Respondents did not greet child or client individually 20 times (33%). This shows that the majority of respondents do perform this activity at these clinics. Morris (cited in HST, 1999:179-180) documents "greeting clients individually is contributing to quality client care, as it promotes interaction with client", therefore the researcher found it imperative to analyze this item.
- Item 14.1.3 Respondents were observed on whether they did request Road to Health Cards or not from mothers. Table 14.1 (a) indicates that this activity was observed 35 times (58%), whereas it was also not observed 25 (41%) times. According to the Department of Health (RSA) (1998:155) health workers must always request to look at the Road to Health Card, as this activity provides useful rapid information and reinforces its value to the mother.
- Item 14.1.4 This item was aimed at finding out if there were babies that were not weighed at all. According to table 14.1 (a) half 30 (50%) of the babies under study were found to have not been weighed. This was disappointing as routine and regular weight monitoring is considered the easiest and quickest method available for the detection of disease and nutritional problems in children (Department of Health (RSA), 1998:155). A reason for not weighing babies in this one clinic was that there was no scale in the clinic.
- Item 14.1.5 The researcher found it necessary to include this item, since it has been documented that, to obtain accurate measurement of weight the infant or child, naked or with little clothing is recommended

(Coovadia & Wittenberg, 1998:36). Table 14.1 (a) indicates that 30 (50%) babies were weighed with little clothing.

- Item 14.1.6 This item checked on whether feedback about weight and growth of babies was given to the mothers. According to Table 13.1 (a) and (b) (42%) responses were checked under the "yes" column and 35 (58%) under the "no" column. This shows that the number of mothers who were not given feedback about weight and growth of their children exceeds that of those who were given the feedback. Morris (1999:185) again stresses the need for interaction with the clients, so as to ensure quality of growth monitoring programmes.
- Item 14.1.7 According to Table 14.1 (a) only 20 (33%) of the checked responses indicated that all weights recorded in the Road to Health Card were plotted in graph form. Ebrahim (1978:47) asserts that, when weight is charted in graph form on the child's card, it conveys more information than when it is written down as a series of figures.
- Item 14.1.8 The purpose of this item was to check if there were any time when weights were not plotted in the Road to Health Card. Table 14.1 (a) indicated that 15 (25%) of checked responses had no weights plotted in the Road to Health Card. For example, birth weight or other subsequent weights were not recorded. This is also sad because it is important for all clinics to measure the growth by weighing the child each time he or she visits the clinic, to ascertain if the child is growing well or not (Ebrahim, 1978:47).
- Item 14.1.9 This item was used to check if babies were weighed naked. 15 (25%) babies under study were weighed naked according to Table

14.1 (a) and (b). These were all from clinic No. 2. This is the standard policy of this clinic. As mentioned in the previous item (baby weighed with little clothing), a child can be weighed naked or with a little clothing.

Item 14.1.10 10 (63%) missed opportunities were identified and appropriate intervention taken. 6 (37%) were not identified as missed opportunities by the respondents. This is also of concern since health workers are trained to advise mothers to bring their children to growth monitoring programmes (Mapatano, 1997:96:99).

Item 14.1.11 Was used for checking if children who need referral to hospital and other health services were identified. Table 14.1 (a) and (b) indicate that 6 (86%) of these children were identified and only 1 (14%) was not identified. This is an indication that clinic nurses are able to identify children who need referral to hospital and other health services.

Item 14.1.12 The purpose of this item was to check if the other health information was recorded correctly in the Road to Health Card.

Table 14.1 (a) and Figure 14.1 (b) indicate that 53 (88%) of the checked Road to Health Cards have all the other information recorded in Road to Health Cards. Only 7 (12%) Road to Health Cards had incomplete information recorded.

4.4.2 Other items in checklist

Item 14.1.3 The purpose of this item was to ascertain if the clinics had educational programmes. According to Table 14.1 (c) all four

clinics had educational programmes, 4 (100%). This indicated that the goal of health for all by using the Primary Health Care which involves preventive and promotive care is being observed by the four clinics in Umlazi (ANC, 1994:20).

Item 14.1.14 Required the researcher to state the topics included in the educational programmes, and these include:

- | | |
|--------------------------------|------------|
| - Advantages of breast-feeding | = 4 (100%) |
| - Management of diarrhoea | = 4 (100%) |
| - General hygiene | = 4 (100%) |
| - Child abuse | = 2 (50%) |
| - Milestones | = 2 (50%) |
| - Family planning | = 4 (100%) |

According to the checklist all four clinics had the above topics on their educational programmes except two clinics who did not include child abuse and milestones in their list.

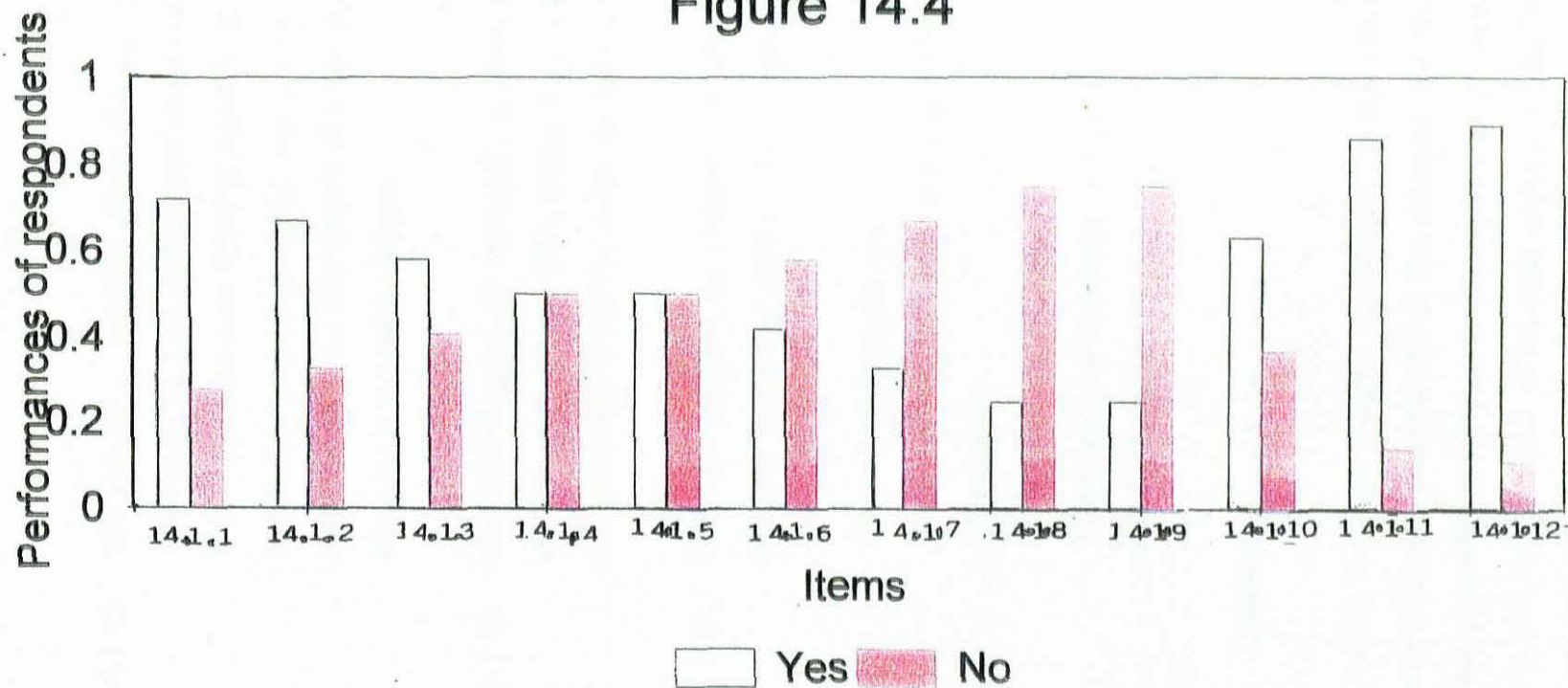
Table 14.1 (a) Clinical performance of clinic nurses using a checklist (participant observation)

Behaviour observed		Yes		No	
		F	%	F	%
14.1.1	Full explanation given to mother before procedure (e.g. weighing)	43	72	17	28
14.1.2	Child or client greeted individually	40	67	20	33
14.1.3	Requested Road to Health card from mother	35	58	25	41
14.1.4	Weighing of babies not done	30	50	30	50
14.1.5	Babies weighed with little clothing	30	50	30	50
14.1.6	Feedback about weight and growth of babies given to mother	25	42	35	58
14.1.7	All weights plotted in graph form	20	33	40	67
14.1.8	Weights not plotted in the Road to Health Card (e.g. birth weight or other subsequent weights)	15	25	45	75
14.1.9	Babies weighed naked	15	25	45	75
14.1.10	Identified missed opportunities and appropriate intervention taken	10	63	6	37
14.1.11	Identified children who need referral to hospital or other health services.	6	86	1	14
14.1.12	All other information is recorded correctly in the Road to Health Card	25	89	3	11

NB Respondents could respond more than once to each item.

Clinical Performances of Clinic Nurse

Figure 14.4



- Item 14.1.15 The purpose of this item was to check if the clinics under study maintained the cold chain according to standard procedure. All 4 (100%) clinics were found to maintain the cold chain according to standard procedure. This was a very good practice, since maintenance of the cold chain means successful prevention of the killer but preventable diseases.
- Item 14.1.16 This item required the researcher to check if health information is reinforced by any other means e.g. posters. According to respondents all 4 (100%) clinics do have posters.
- Item 14.1.17 This item required the researcher to state the type of posters displayed in the four clinics. These include:
- Hepatitis B immunization
 - Breast-feeding technique, policy and advantages
 - Milestones
 - Prevention of child abuse
 - Management of diarrhoea
 - Family planning.

4.4.3 Conclusion

Chapter 4 dealt with data analysis, presentation, interpretation and discussion of the research findings. Analysis and of data revealed that there are activities that are still not adequately performed in the clinics such as plotting the weight in a graph form, and reinforcement of the main objective of the Road to Health Card. Mothers are not yet full participants in the growth monitoring programmes as evidenced by their interpretation of the function of the Road to Health Card. Aspects like identification of missed opportunities and intervening accordingly and greeting of clients individually were items that scored high in the response.

CHAPTER 5

SUMMARY OF THE FINDINGS, CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS AND GUIDELINES

5.1 INTRODUCTION

This chapter of the study focuses on a brief overview of the study. Areas of major emphasis will be the Summary of Findings, Conclusions, Limitations, Recommendations, Guidelines and Suggestions for further study.

5.2 SUMMARY OF THE STUDY

This study focused on growth monitoring as a component of primary health care as a practical method of monitoring growth of children, in order to help prevent the vast number of child deaths by providing optimum child health care through simple graphic presentation using the Road to Health Chart.

In-depth collection of information was done by the researcher, by exploring and describing the knowledge and practices of health care workers working in the Umlazi clinics. These clinics are located in the Durban South Central Umlazi District (Region F) and this study will help to establish if the strategy of "Health for All" is attainable or not, especially the use of the growth chart by health care workers.

5.2.1 Research Question

The research for this study was undertaken to ascertain if there is a relationship between growth monitoring and the improvement of health and nutritional status of children. By exploring and describing the level of knowledge and practices of

both clinic nurses and mothers utilizing these clinics, the researcher believed that it would be possible to confirm if there indeed is a relationship between growth monitoring and the improvement of the health and nutritional status of children. The Department of Health RSA (1998:155) and Vlok (1996:393) assert that growth monitoring is a practical method that can help reduce the vast number of child deaths and also strengthen primary health care.

5.2.2 Objectives of the study

The study aimed at exploring and describing the knowledge and practices of health care workers with regard to how they:

- ▶ Assess deviations from normal growth of children.
- ▶ Record and interpret growth findings using the Road to Health Chart.
- ▶ Communicate all information with regard to health surveillance of children to mothers.
- ▶ Use the Road to Health Chart as means of referral to other health care services.

5.2.3 Reviewed literature

Literature review focused on the concept of growth and growth monitoring, historical background of growth monitoring, discussion about the Road to Health Card, assessment of growth and techniques of measuring growth, including criteria for both satisfactory and unsatisfactory growth.

The researcher found it important to focus on both international and national perspectives when discussing growth monitoring. Studies conducted by many

researchers on this subject were discussed, and the relationship between growth monitoring and comprehensive primary health care was also discussed.

5.2.4 Methodology

5.2.4.1 Research design

An explorative, descriptive and contextual design was used for this study. The researcher preferred this method for collecting data since in-depth actual experiences of participants were observed, described and recorded. Triangulation technique was used for this research. It constitutes four types namely: Data, investigation, theory and method triangulation.

5.2.4.2 Population and Sample

Two different populations were used for the purpose of this study. A population is the "total possible membership of a group being studied whereas a sample is only a fraction of the population" (Polit & Hungler, 1993:83). The population of this study was all the professional nurses working in the four clinics in Umlazi and the mothers utilizing these clinics for growth monitoring and also for minor ailments.

The sample for this study was 25 professional nurses and 60 mothers utilizing these clinics.

5.2.4.3 Research instruments

Questionnaires, interview schedules and a checklist were used to elicit information from the professional nurses working in these clinics, and mothers utilizing these clinics. A checklist was used for collecting information during participant observation.

5.2.4.3.1 The questionnaire

Structured questionnaires were used to collect data from the 25 professional nurses working in the four clinics and had both open-ended and closed-end questions. The researcher preferred this method of data collection since all respondents were subjected to responding exactly to the same questions, in the same order and with the same set of options for their responses (Polit & Hungler, 1993:202).

5.2.4.3.2 The interview schedule

The interview schedules were used to elicit information from the mothers utilizing the four clinics under study. It also contained both structured and unstructured questions. The researcher conducted the interviews herself and this allowed for collection of data from respondents who were unable to complete the questionnaire.

5.2.4.3.3 The checklist

The checklist enabled the researcher to collect data by means of participant observation. In section 1 of the checklist, the behaviours of the clinic nurses under study were observed by the researcher and all the respondents were subjected to the same questions on the checklist. Observed frequencies of the behaviours listed in the checklist were checked so as to get the actual number of times each behaviour was observed.

In section 2 of the checklist, the researcher examined the Road to Health Cards on how the weights were plotted, and in section three other information that is important for growth monitoring and promotion were checked. These include checking if the cold chain was maintained according to the required standards, availability of health education programmes, etc.

5.2.4.4 Process of data analysis

Data from questionnaires, interview schedules and checklists is presented in the form of tables and graphs obtained from the participants from the four clinics under study. This data was not separated for the purpose of data analysis except where specific points needed to be highlighted as described in chapter 4.

Data was analyzed manually by means of content analysis. Polit and Hungler (1995:638) describe content analysis as a procedure for analysing written or verbal communications in a systematic and objective fashion, typically with the goal of the quantitatively measuring variables.

5.3 RESEARCH FINDINGS

5.3.1 Biographic and Educational Data

5.3.1.1 Gender

The results of this study revealed that all 25 (100%) nurses who participated in the study were predominantly female and also showed that the majority of children attending growth monitoring programmes in the four clinics are females 36 (58%) and that male children were 25 (42%).

5.3.1.2 Age group

Of the 25 professional nurses who participated in the study 18 (72%) fell into the age group of 31-40 years and this gives an assumption that these nurses are mature enough to make sound decisions with regard to growth monitoring both personally and professionally.

Table 4.3 showed that age distribution of children under study, age group 0-1 year had the majority frequencies of 49 (81 %). These results confirm previous research that revealed that mothers bring their children less frequently for growth monitoring after 1 year (Mapatano *et al.*, 1997:96-99).

Age distribution for mothers under study showed that the 15-25 age group scored the majority 38 (63%), and this is the youngest age group of mothers attending these clinics. The researcher concluded that there is an urgent need for health education on family planning and prevention of HIV/AIDS which are also seen as contributory factors in the growth of the child.

5.3.1.3 Marital status

According to table 4.3 the majority responses regarding marital status of professional nurses showed that 17 (68%) of clinic nurses were married followed by 8 (32%) single nurses and that of mothers showed single mothers as the majority group 55 (92%). This indicates a need for health-related programmes such as family planning, as marital status of the mother is considered a factor that can affect the growth of the child.

5.3.1.4 Educational status

According to table 4.5 professional nurses were the majority nurses working in the clinics, which meant that they are qualified enough to promote quality growth monitoring, since they possess the necessary knowledge and skills. On the other hand, mothers of babies attending these clinics with Std 8-10 had the highest responses 35 (58%) followed by Std 5-7 23 (38%). This indicates that mothers attending growth monitoring programmes in the four clinics are capable of understanding the growth of their children and also of identifying growth faltering by means of percentile lines. The researcher therefore stresses the need to teach

mothers how to interpret the growth of their children using the Road to Health Chart, as this reinforces whatever health education about growth monitoring has been given to mothers.

5.3.1.5 Physical accessibility

Table 4.6 indicates that clinics in Umlazi are situated within reasonable distance of the community of Umlazi, as evidenced by the majority of respondents who checked "yes": 56 (93%) out of 4 (7%). This is a very important aspect for mothers to be able to reach the clinics for growth monitoring programmes. The physical accessibility was also confirmed by Table 4.8 which indicated that the majority of respondents reach the clinics by foot 56 (92%). This also indicates that these mothers do not have the problem of missing out on growth monitoring due to transport problems. Only 4 (7%) respondents stated that there is no clinic where they are staying, and that they have to take a taxi to reach a clinic at R3 return fare. These results confirm WHO guidelines for clinic accessibility which is that of half an hour's walking distance or within the community (WHO, 1981:58).

5.3.2 Other Information specific to Growth Monitoring

5.3.2.1 Carrying of Road to Health Cards

Although most respondents do carry Road to Health Cards, 35 (58%) the results of this study show that there is still a considerable number of mothers who do not carry the cards, the reason given being that when they attend minor ailment clinics the nurses do not ask for them.

5.3.2.2 Mothers' perceptions about the function of the Road to Health Card

Most mothers thought the Road to Health Card was only for immunization purposes, 52 (87%), while only 5 (8%) gave a response that it is for checking the growth of the child and 10 (17%) responded to this item by indicating that it shows the growth of the child. This indicated an urgent intervention, since mothers are the pillars of growth of their children.

5.3.2.3 Source of Road to Health Card

Although most mothers responded by indicating that this information was given to them by nurses, the researcher realises that there is also a need for in-service education for the clinic nurses, so as to be able to inform the mothers about the correct function of the Road to Health Card, and how to use it for identifying the children that are at risk.

5.3.2.4 Weighing and recording of weights in the Road to Health Card

These items were checked by means of participant observation using a checklist. According to the results of this study, babies that were not having their weights recorded 30 (50%), were from the clinic which had no scale. Another reason revealed by the study was that children are only weighed when they come for growth monitoring and not during visits to the minor ailment clinic. The researcher asserts that this could result in those children that are at risk to be missed by the health care workers, since growth monitoring is a tool that helps monitor the health and growth of child especially for the purpose of allowing the mother to participate fully in her child's health.

Also of concern to the researcher is the plotting of weights in the Road to Health Cards. According to item 14.1.7. only 20 (33%) of the weights were plotted correctly in a graph form on the Road to Health Card. 15 (25%) cards had no

weights plotted although it is reflected in the Road to Health Card that the mother did attend the growth monitoring programme at one stage.

Still on the point about weight, item 14.1.6 indicates that, although mothers were given feedback about the progress of their babies 25 (42%), in most cases this was not communicated effectively to the mother, as evidenced by some of the open-ended responses given by mothers such as "I was not told about this card, but I read the information on the card on my own and did realise that there was a child sleeping on the stomach at three months of age, but I could not understand about the other information (e.g. vaccines)". (As indicated in Table 4.3.1.12 under "Other information that was communicated to the mother").

5.3.2.5 Clinical staffing

Clinical staffing has also been documented as a contributory factor in the quality of growth monitoring programmes. The results of this study revealed that professional nurses are the majority in these clinics, 33 (68%), followed by enrolled nurses 11 (22%). This indicates that nurses possess the required knowledge and skills with regard to growth monitoring.

According to WHO (cited in ANC, 1994:1) the population ratio of 10 000 is used as a guideline in the distribution of clinic health personnel. The four Umlazi clinics' population is approximately 17 019 for the months of October and November 2001, which shows that clinics at Umlazi have far exceeded the WHO guidelines for clinic staffing. The results of this study also revealed that shortage of staff has been the main problem of shortfalls in the provision of quality health care, which includes inadequate health information on growth monitoring to mothers and carers attending these clinics.

5.3.2.6 Daily weighing of patients

According to the results of this study 55 patients are weighed daily in the four clinics combined. The researcher assumes that the low number of children weighed daily may be due to the non-availability of the scale in one of the clinics and in that children are only weighed when they are attending the growth monitoring programmes only and not visits to the minor ailment clinics.

5.3.2.7 Availability of a helper

The results of this study revealed that all these clinics did have a helper for weighing of babies and as stated in chapter 4, the researcher concluded that other categories of staff are utilised for weighing babies.

5.3.2.8 Knowledge and understanding of the Road to Health Card

24 out of 25 (96%) professional nurses stated that they possess the necessary knowledge and skills with regard to the Road to Health Card. Only one (4%) stated that she did not have the necessary knowledge and skill with regard to the Road to Health Card. The researcher feels that there is a great need for in-service education for these nurses on effective communication of the Road to Health Card information to mothers.

5.3.2.9 Conduction of in-service education

According to the results of this study, the majority of the respondents checked the category of 3 times a week with a frequency of 9 (36%) and rarely demonstrated a paired score, followed by weekly and once a month, also paired but with a score of 3 (12%). The researcher concluded that this was not adequately responded to, since some of the respondents in the same clinic checked different categories of

the number of times in-service education on growth monitoring was conducted in these clinics.

5.3.2.10 Ability of clinic nurses to conduct a one-to-one health education

According to results of this study clinic nurses are able to conduct a one-to-one health education: 23 (92%). Only 2 (8%) responded by stating that they are not able to conduct a one-to-one health education. The main reason for being able to conduct a one-to-one health education given by most of the respondents, was that clients become free to give a full account of their problems to the nurse, during the absence of another person (as stated in Chapter 4, Table 4.3 (ii)).

Another reason for not being able to conduct a one-to-one health education was that there was no time available due to staff shortage.

According to results of this study, staff feel that staffing is bad 12 (48%) and average 9 (36%) in the clinics. The researcher asserts that such poor staffing is a contributory factor towards shortfalls in the provision of growth monitoring. Staffing norms according to WHO (1987) is 1:500 (Thipanyana & Mavundla, 1998:23).

5.3.2.11 Feelings of staff with regard to clinic workload

According to this item the majority of respondents feel that clinic workload is heavy 16 (64%) and this can also pose a threat to quality growth monitoring in the clinics.

5.3.2.12 Attitude of the community towards clinic services

The majority of clinic staff indicated that the community had a positive attitude towards clinic services 15 (60%) and 10 (40%) felt that the community has a

negative attitude towards the clinic services, with no reason for such responses being given by the respondents. On the other hand, the mothers utilizing these clinics felt that clinic staff attitudes were good except for a few nurses who had negative attitudes.

5.3.2.13 Clinic duties

The results of this study revealed that 24 (96%) of clinic nurses feel that clinic duties are appropriate and only one (4%) felt that they were not appropriate.

5.3.2.14 Problems that could contribute to poor growth monitoring programmes

According to the results of this study, heavy workload rates are highest as in the rating of problems 17 (68%), in spite of help from part-time professional nurses followed by shortage of medicines 15 (60%). Low salaries 3 (12%) had the lowest responses, and other causes mentioned were: shortage of equipment 7 (28%): shortage of staff 7 (28%): shortage of space (privacy) 5 (20%) and poor working conditions 5 (20%).

5.3.1.15 Number of mothers carrying the Road to Health Card

This study revealed that 35 (58%) mothers out of 60 were carrying the cards, and 25 (42%) did not carry the Road to Health Card. This is an indication that there are still mothers who do not carry the card when attending the doctor, clinic or any health facility. The reason given by those mothers was that nurses do not ask for it when they have come for other problems besides growth monitoring, and this was evidenced by the fact that all of the 25 (42%) mothers who did not carry the cards had come to the clinics for minor ailments.

5.3.2.16 Mothers' knowledge about the Road to Health Card

The results of this study revealed that the majority of the mothers thought the main function of the Road to Health Card was that it was for immunization purposes 52 (87%), followed by that it is for school entry purposes 27 (45%). Other functions of this card that were given by the mothers include: it will help the mother to collect birth certificate 5 (8%), for weight check 5 (8%), and it shows growth of the child 10 (17%). According to Chopra and Sanders (1997:875-8) the reason for the continuation of malnutrition still being a serious public health problem is the conceptual confusion as to the actual role of the Road to Health Card in growth monitoring.

According to Kibel and Wagstaff (1995:132) the concept of "Road to Health" was coined by Dr David Morley who developed this visual record for continuation of comprehensive health care. Since graphs are not easily understood by people with limited education, using the concept of "Road to Health" when referring to percentile lines was found to be ideal in teaching normal growth ranges to mothers and carers. It is also stated that emphasis must be placed on an adequate rate of growth rather than just the position on the graph. See Annexure 2

5.3.3 Other items in the checklist investigated

The results of this study revealed that in all the four clinics 4 (100%) health education programmes were available and that the following topics were included in the programmes: advantages of breast-feeding, management of diarrhoea, general hygiene, child abuse, milestones and family planning.

5.3.3.1 Nurse-client communication

The results of this study revealed that 43 (72%) of the nurses were able to give full explanation to the mothers before commencing procedures (e.g. weighing).

Ability to greet child or mother individually was scored 40 (70%) times and where this behaviour was not observed 30 times (33%).

Results also revealed that 35 (58%) of the mothers were not given feedback about the growth and health status of their children. This is an indication that the number of mothers that were not given feedback exceeds those that were given feedback, therefore most of the mothers will not be able to identify deviations from normal growth or even be able to assess normal growth of their children.

5.4 DELIMITATION AND SCOPE OF THE STUDY

This study was conducted in the Umlazi Township, which is located in the Durban South Central Region (Region F). Only four of the seven clinics were utilised for this study. Children under 5 years of age attending both the well-baby and minor ailment clinics were studied. These children were from both formal and informal settlements of this township as shown in the Umlazi Township Clinic Map (annexure 1).

Findings of the study are also generalised to the participating institutions only.

The researcher plans to publish the study and communicate the findings with the head of the institution under which these clinics operate and also the Department of Health (Superintendent of the health district system).

5.5 RECOMMENDATIONS

More coordinated approaches can be initiated by the clinic staff in collaboration with the supervisors of the clinics and health teams at provincial and local levels. Few examples of such initiatives have already been commenced by some local health workers, that also included the local communities that are served by these clinics. These should be client-centred, since some of the problems encountered in these clinics are a concern of both the health workers and the communities they serve.

5.6 SUGGESTED GUIDELINES

- ▶ In-service education re growth monitoring and promotion should be given more frequently to both the clinic staff and mothers attending these clinics.
- ▶ Large charts showing the Road to Health Card must be supplied to all the clinics for use by health workers as visual aids. This will permit the mother to see at a reasonable distance the information and diagrams of the Road to Health Chart. As a result this will permit group health education on growth monitoring where a one-to-one education is not possible, especially due to workload.
- ▶ Fathers attending these clinics should also be included in the growth monitoring health education sessions with an aim of reinforcing the Road to Health Card objectives.
- ▶ Information in the Road to Health Card should also be written in the mother's home language as previously suggested by the Department of Health RSA, since some of the mothers are not able to read the language by which the information in the card is communicated.
- ▶ Visit by the clinic supervisors should also be more frequent, so as to give support to the clinic staff, and problems such as shortage of equipment and medicines could be attended to more effectively. Problem of transport experienced by the supervisors can also be dealt with at both Provincial and local levels.
- ▶ Accompaniment of the clinic supervisors by the local police could be discussed with the Department of Police at Umlazi.

- ▶ Clinic Committees should be re-established where these have stopped functioning due to previous problems encountered.

5.7 CONCLUSION

From the results of this study, it has become obvious that many barriers to provision of adequate and effective quality growth monitoring programmes still exist. These include shortage of staff, shortage of equipment and medicine, which have resulted in especially weighing of children not being done as required and staff becoming demotivated. Staff have been able to perform other growth monitoring activities such as doing statistics and explanations prior to procedures, and must be congratulated since they are doing their best in spite of experiencing problems in performing their tasks.

The research also revealed that growth monitoring and promotion information has not been adequately and effectively communicated to mothers. Some mothers could not interpret information contained in the RTHC. Feedback was not always given to mothers after weighing and plotting of the weight in the RTHC.

It was also found at times that weights were not recorded in the RTHC and when they were recorded they were not plotted in a graph form. It has been common practice for the clinic staff to demand the RTHC each time a child is seen at the well-baby clinic only, and not on other visits. As a result mothers have stopped carrying RTHC when attending minor ailment clinics, or visiting a doctor. South Africa is a developing country where factors such as HIV/AIDS, unemployment, child abandonment etc prevail. Regular and efficient monitoring using the RTHC with mothers' full participation is a valuable method of promoting health and child growth.

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ANNEXURE A

Copy of the Research Proposal

RESEARCH PROPOSAL

NAME: *MRS K.N. MASONDO*

STUDENT NO: *996332*

COURSE OF STUDY: *M.A. Cur*

TITLE: *EXPLORING GROWTH
MONITORING AS A
COMPONENT OF PRIMARY
HEALTH CARE IN THE
DURBAN SOUTH CENTRAL
REGION.*

SUPERVISOR: *PROF D. NZIMAKWE*

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1 INTRODUCTION

An investment in the health of children is an investment in the future of the nation. If a society is to survive provision must be made for optimum child health care. Children are a vulnerable group that need special protection and support from both their families and the health care workers (National Health Plan for S.A., 1994:44). "Health for all by the year 2000" is a global strategy of the World Health Organisation (WHO) of which Primary Health Care is a vehicle (Vlok, 1991).

Primary Health Care, on the other hand is defined as "essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation, and at a cost that the community can afford. It forms the overall social and economic development of the community (Dennill King, Lock & Swanepoel, 1995).

Growth monitoring as a component of Primary Health Care and practically as a method of monitoring growth of children can help reduce the vast number of children deaths and strengthen Primary Health Care (Loening, 1991; Vlok, 1996). The Growth Chart (Road to Health Chart) also commonly known as the Percentile Chart is a tool used by health care workers in the well-baby clinics and hospital outpatient departments. The content of this Chart is specific to the process of growth monitoring and is laid out in a manner that is easily understood by the mother as well as the health care worker (Vlok, 1996).

An exploratory and descriptive study on growth monitoring in the Durban South Central Umlazi District (Region F) will help establish if the strategy of "Health for

all by the year 2000" is attainable or not, especially the use of the growth chart by health care workers.

2 BACKGROUND

Research has shown that most growth monitoring programmes in developing countries have not yet succeeded in reducing malnutrition and this is of great concern to paediatric specialists (Chopra & Saunders, 1999; Khanum, 1998; Sohal, Wilkinson & Morley, 1998). Problems in growth monitoring have been identified as far back as 1951, when World Health Organisation (WHO) showed interest in the recording and interpretation of growth data as an indication of health and nutritional status of the child. This emanated from the use of a variety of instruments developed for assessing the health and nutritional status of individuals and that of the community, which gave rise to confusion within the health service, as to which instrument was the most desirable for local, regional and international comparisons.

A new version of a growth chart was then finally jointly drawn by WHO and Food and Agricultural Organisation (FAO) with the aid of comments and appraisals from all participants and staff of WHO regional offices. This growth chart is based on the format developed by David Morley as a result of his experiences in the Third World Countries and is also referred to as the Road to Health Chart (Pre-school record chart). It also serves as a growth monitoring teaching aid to improve mothers' understanding of growth curves (Sohal, Wilkinson & Morley, 1998).

Continuation of growth monitoring is also maintained, since the mother is given this chart after birth of her child and instructed to retain and produce it whenever she takes her child to any clinic, hospital or private doctor (as means of communication between health services).

3 MOTIVATION FOR THE STUDY

The researcher was motivated towards conducting this study as a result of her work experience in the paediatric wards and paediatric outpatient department of one of the largest hospitals in the Durban functional area, also during her clinical accompaniment for students doing the Child Nursing Science Diploma Course in which growth monitoring is part of the course programme.

The need for in-depth, contextual monitoring of growth programmes was identified by the researcher. Conducting a study of this nature has not yet been of interest to nurse educators, but has been of great interest to researchers of the Medical Profession.

4 OBJECTIVE OF THE STUDY

The objective of this study is to explore and describe the knowledge and practices of health care workers with regard to how they:

- ▶ Assess normal growth of children under the age of 5 years.
- ▶ Assess deviations from normal growth of children.
- ▶ Record and interpret growth findings using the Road to Health Chart.
- ▶ Communicate all information with regard to health surveillance of children to mothers.
- ▶ Use the Road to Health Chart as means of referral to other health care services.

5 RESEARCH QUESTION

What is the level of awareness and knowledge that both professional nurses and mothers have regarding growth monitoring of children visiting the well baby clinics? What problems do both professional nurses and mothers face regarding growth monitoring?

6 SIGNIFICANCE OF THE PROBLEM

South Africa is a developing country where many factors that affect growth of the child prevail. These include the high unemployment rate, overcrowding, and HIV/AIDS status of both the mother and the child. The researcher therefore perceives this study as significant in increasing the level of awareness and knowledge of both professional nurses and mothers regarding growth monitoring through simple, graphic presentation using the Road to Health Chart. Other Nurse researchers will also become motivated to conduct further studies of this nature.

7 DELIMITATION OF THE STUDY

This study will only be conducted in the Umlazi clinics which are under the Durban Functional Region (Region F). Findings of the study will be generalised to the participating institutions only. The researcher plans to publish the study and communicate the findings with the head of the institution under which these clinics operate and the Department of Health (Superintendent of the health district system).

8 ETHICAL CONSIDERATIONS

Informed consent will be obtained from the participating mothers and professional nurses of the clinics where the study will be conducted.

The names of participating individuals and institutions (Clinics) will not be required to reflect on the questionnaire to ensure anonymity, however the province in which the clinics operate will be mentioned in the report.

Permission to conduct the study will be obtained from the Department of Health KwaZulu-Natal (Superintendent of the district health system) and head of the institution under which these clinics operate by means of a letter which will include (a) who the researcher is; (b) the purpose of the study; (c) potential risks and benefits to the subjects and clinics; and (d) communication of the results.

9 LITERATURE REVIEW

Extensive literature review has been done on growth monitoring by members of the medical profession both internationally and nationally but no such research was found to have been conducted by nurse researchers during literature review. Only a few nurse authors included growth monitoring in their books.

10 THEORETICAL FRAMEWORK

Primary Health Care will be used as a theoretical framework for this study, but Guba's model of trustworthiness will be used for data collection purposes.

Primary Health Care is health care based on primary, secondary and tertiary prevention of health problems, therefore, an essential part of the comprehensive health care plan of South Africa, especially for the monitoring of growth and prevention of illness in children (Kibel & Wagstaff, 1995:123-124; 137-138).

Guba's model for assessing the trustworthiness of qualitative data will be used as a theoretical framework for this study, Guba (1981) cited in De Vos (1998:348-350) prescribes truth value, applicability, consistability and neutrality, as criteria applicable to the assessment of qualitative research.

Guba perceives truth value as usually obtained from the discovery of human experiences, as lived and perceived by the researcher. This study will focus on obtaining data as experienced by the participants of the study, in their clinical working environments. De Vos (1998:349) and Lincoln and Guba (1985) argue that researchers need to focus on testing their findings against various groups that researchers used for data collection or persons familiar with the phenomenon being studied. Thus professional nurses working in these clinics, and mothers utilizing these clinics were chosen as participants for this study especially for data collection purposes.

According to Guba (1981) the strength of a qualitative method is conducted in a natural setting with few controlling variables, therefore each situation is unique and is less amenable to generalisation. He further asserts that according to this model applicability is referred to as "fittingness or transferability" in that findings must fit into contexts outside the study situations. Such situations are determined by the degree of similarity or goodness of fit between the two contexts.

11 RESEARCH METHODOLOGY

An exploratory, descriptive and contextual design will be used for the purpose of this study, involving professional nurses working in the seven Umlazi Clinics and mothers (clients) served by these clinics.

12 SAMPLE AND SAMPLING

In this study two different population sets will be used. There will be a population of professional nurses working in the seven clinics and mothers (clients) served by these clinics. Each clinic and professional nurse will be assigned a number.

13 METHODS OF DATA COLLECTION

An interview schedule and a questionnaire will be used as methods of data collection, respectively. A structured interview schedule will be administered to mothers attending the clinics and questionnaires will be administered to professional nurses.

14 VALIDITY AND RELIABILITY

The researcher will develop the interview schedule and questionnaire taking into consideration the linkage of both questionnaire and interview schedule to the theoretical framework.

The interviews will be done by the researcher herself, so as to clarify misunderstanding pertaining the tool.

15 DATA ANALYSIS

Descriptive statistics will be used to analyze the quantitative and qualitative data. Qualitative data will be reduced by selection, focus, simplification and transformation, that is, responses of participants will be clustered according to similar patterns or characteristics.

16 DEFINITION OF THE CONCEPTS

Growth Monitoring

Refers to measurement of the increase in size, composition and distribution of tissues.

Primary Health Care

Refers to an essential health care based on practical, scientifically sound and socially-acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and a cost that the community can afford (MacDonald, 1993).

GOBL-FFF

WHO principle, a component of PHC that has shown to decrease morbidity and mortality in South Africa. It includes:

G = Growth monitoring

O = Oral rehydration.

- B = Breast-feeding
- I = child immunization;
- F = Food supplements
- F = Family spacing

Well Baby Clinic

Refers to clinic for monitoring health and nutritional status of the under-five children for the purpose of promotion of health e.g. through immunisation and growth monitoring.

Sick Baby Clinic

Refers to the clinic where sick babies are assessed and managed where necessary referral to other health services is done.

Expanded Programme on
Immunisation in South Africa
(EPI)

Is a support programme which forms part of a comprehensive Primary Health Care, for prevention of deaths and decrease of preventable childhood disease by immunisation of children and women.

South Central Region

Refers to the area south central of Durban.

District Health System

Refers to level of health system under the Regional health system

Research Report

Research report will be made available to the Department of Health (Superintendent of the District Health System) and to the head of the institution under which clinics in which the study is conducted operate. Results and recommendations pertaining to the study will be included in the research report.

17. Proposed Work Schedule

- | | |
|--|---------------|
| - Research Proposal | August 1999 |
| - Data Collection | February 2000 |
| - Data Analysis | May 2000 |
| - Compilation of Research Findings | October 2001 |
| - Compilation of Writing Research Report | February 2001 |

ANNEXURE B

**Certificate of Clearance by the
Research Committee
University of Zululand
(Durban-Umlazi Campus)**

UNIVERSITY OF ZULULAND
DURBAN-UMLAZI CAMPUS

CERTIFICATE OF CLEARANCE BY THE ETHICS COMMITTEE

NAME OF STUDENT: MRS KHETHIWE NATALIA MASONDO

DEGREE: M. Cur

RESEARCH TITLE: GROWTH MONITORING AS A COMPONENT OF
PRIMARY HEALTH CARE IN THE DURBAN SOUTH CENTRAL REGION

The ethics committee hereby declare that the research proposal for the study mentioned has been scrutinized for accuracy and ethical standards in the following manner.

A. The proposal meets the professional code of ethics of the researcher:

☒ Yes ☐ No

B. The proposal also meets the following ethical requirements:-

	YES	NO
1. Provision has been made to obtain informed consent of participants.	X	
2. Potential psychological and physical risks have been considered and minimized.	X	
3. Provision has been made to avoid undue intrusion with regard to participants and community.	X	
4. Rights of participants will be safe-guarded in relation to:		
4.1 Measures for the protection of anonymity and the maintenances of confidentiality.	X	
4.2 Access to research information and findings	X	
4.3 Termination of involvement without compromise	X	
4.4 Misleading promises regarding benefits of the research	X	
4.5 Availability of results after the study	X	

SIGNATURE OF STUDENT: *Natalia Masondo* DATE: 8.12.2000

SIGNATURE OF SUPERVISOR: *Theresa* DATE: 8/12/2000

SIGNATURE OF CHAIRPERSON OF THE COMMITTEE: *D. Nzimakwe*

DATE: 8/12/2000

UNIVERSITY OF ZULULAND DUC.
NURSING SCIENCE DEPARTMENT
PROF. D. NZIMAKWE
ASS. H.O.D. VICE DEAN OF ARTS

8/12/2000

ANNEXURE C

**Letter to
The Superintendent-General for Health KZN
requesting permission to conduct research**

KING EDWARD VIII HOSPITAL
COLLEGE OF NURSING
PRIVATE BAG CONGELLA
4013
21ST OCTOBER 1999

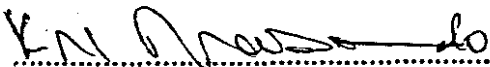
THE SECRETARY GENERAL OF HEALTH
DEPARTMENT OF HEALTH KZN
PRIVATE BAG X9051
PIETERMARITZBURG

REQUEST TO CONDUCT RESEARCH

I hereby request permission to conduct research in the Durban south central Region (Region F Umlazi Clinics).

The title of my research is "Exploring Growth Monitoring as a Component of Primary Health Care."
Also find enclosed the Certificate of Clearance by the research committee of the University of Zululand (Durban-Umlazi Campus) and the letter from my supervisor confirming my student status.

Yours faithfully



MRS. KN MASONDO
STUDENT NO. 996332

ANNEXURE D

**Letter granting permission to conduct research
by the Superintendent-General for Health KZN**

PROVINCE OF
KWAZULU-NATAL
HEALTH SERVICES

ISIFUNDAZWE
SEKWAZULU-NATALI
EZEMPILO

PROVINSIE
KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

NATALIA
330 LONGMARKET STREET
PIETERMARITZBURG

TEL. 033-3952111
FAX 033-3436744

Private Bag : N9051
Esikhwama Seposi : Pietermaritzburg
Privaatsak : 3200

Enquiries: Dr Y.L. Mbele
Extension: 2793
Reference: 9/2/3/R - Vol.3

01 FEB 2001

Mrs K. Masondo
King Edward VIII Hospital
College of Nursing
Private Bag
CONGELLA
4013

Dear Madam

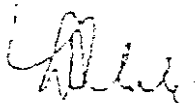
**REQUEST FOR PERMISSION TO CONDUCT RESEARCH : GROWTH AS A COMPONENT OF
PRIMARY HEALTH CARE IN THE DURBAN SOUTH CENTRAL REGION**

Your research proposal dated 30 January 2001 refers.

Please be advised that authority is granted to conduct research subject to :-

- (a) Prior approval being obtained from the Head of Institution involved;
- (b) Confidentiality is maintained;
- (c) The Department is acknowledged; and
- (c) The Department receives a copy of the report on completion.

Yours sincerely



SECRETARY: DEPARTMENT OF HEALTH
KWAZULU-NATAL

A.K. Masondo

File
1-2-2001
AK

ANNEXURE E

**Letter to the Superintendent of
Prince Mshiyeni Hospital
requesting permission to conduct research
in Umlazi Clinics**

UMLAZI

4031

12TH FEBRUARY 2001

THE CHIEF MEDICAL SUPERINTENDENT
PRINCE MSHIYENI MEMORIAL HOSPITAL
PRIVATE BAG X07
MOBENI
4060

ATTENTION Dr KA JANOWISKI

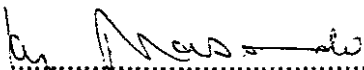
I kindly request permission to conduct research in the Umlazi Clinics (Clinics K, L, M and Q). This is a requirement for my Master's degree in community health.

The title for my research is "Exploring Growth Monitoring as a component of Primary Health Care in the Durban South Central Region of KZN.

I also enclose the copy of the letter from the Secretary. Department of Health Kwa Zulu Natal which ensures the granting of permission to conduct research.

I also want to confirm that the results of this study will be communicated to you.

Yours faithfully



MRS KN MASONDO

STUDENT NO. 996332

ANNEXURE F

**Letter from the Superintendent and
Chief Nursing Service Manager
(Prince Mshiyeni Hospital)
granting permission to conduct research
in the Umlazi Clinics (K, L, M, Q)**

PROVINCE OF
KWAZULU-NATAL
HEALTH SERVICES

ISIFUNDAZWE
SAKWAZULU-NATAL
EZEMPLO

PROVINSIE
KWAZULU-NAT.
GESONDHEIDSD

OFFICE OF: MEDICAL SUPERINTENDENT

PRINCE MSHIYENI MEMORIAL HOSPITAL DURBAN, R S A

Ikheli Leposi : Private Bag X07

Postal Address : Mobeni

Pos Adres : 4060

Imibuzo :

Enquiries : DR K A JANOWSKI

Navrae :

Fax No :

Fax No : 031 9073334

E-mail : kajanowski@yahoo.com

Usuku :

Date : 2001-02-16

Datum :

Ucingo :

Tel No : 031 90

Tel No :

Inkomba :

Reference :

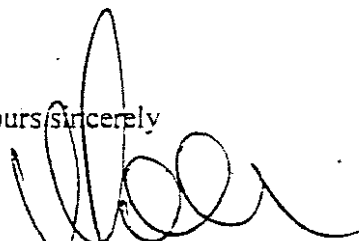
Verwysing :

Dear Mrs K N Masondo

Re: Exploring Growth Monitoring as a component of Primary Health Care in the Durban South Central Region of KZN

The Management of Prince Mshiyeni Memorial Hospital has a pleasure to inform you that your request to conduct medical research in the Umlazi Clinics (K, L M and Q) has been granted..

Yours sincerely



Dr K A Janowski
Medical Superintendent

Copy to:

- Mrs O Shandu
- Chief Matron D E Z Redebe
- Dr Newman

ANNEXURE G

**Letter to Superintendent-General for Health
confirming student status**

University of Zululand:



DURBAN-UMLAZI CAMPUS

✉ Private Bag X10
ISIPINGO 4110
South Africa
☎ 031-9075055
Fax: 031-9073011

Ref:

16 September 1999

Attention : Prof. Green-Thompson
Secretary General for Health
Department of Health
Kwa-Zulu Natal
Private Bag 9051
PIETERMARITZBURG
3200

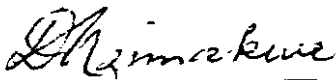
Dear Prof. Green-Thompson

CONFIRMATION OF STUDENT STATUS FOR MRS K.N. MASONDO

I hereby confirm that the above student is registered with the University of Zululand in the Durban-Umlazi Campus from 1999.

She is required to do the research study as a requirement for the Masters Degree in the Community Health Nursing which she has registered for. The topic of her study is "Exploring growth monitoring as a component of Primary Health Care in the Durban South Central Region of Kwa-Zulu Natal". The student has successfully completed the research proposal.

Yours sincerely


PROF. D. NZIMAKWE
ASSISTANT HOD
NURSING SCIENCE DEPT.

ANNEXURE H

Research Questionnaire, Checklist and Interview Schedule

UNIVERSITY OF ZULULAND
UMLAZI - DURBAN CAMPUS
ISIPINGO
19 06 01

DEAR COLLEAGUE

I KINDLY REQUEST YOU TO HELP ME WITH COLLECTION OF DATA FOR MY
RESEARCH STUDY ON GROWTH MONITORING BY COMPLETING THIS
QUESTIONNAIRE. CONFIDENTIALITY WILL BE ENSURED BY OMITTING YOUR
IDENTIFICATION (NOT ENTERING) YOUR NAME ON THE QUESTIONNAIRE.
THIS INFORMATION WILL HELP IN THE IDENTIFICATION AND FINDING OF
SOLUTION TO GROWTH MONITORING PROBLEMS.

THANK YOU

YOURS FAITHFULLY


MRS K.N. MASONDO
(M. CUR STUDENT)

**STRUCTURED QUESTIONNAIRE FOR DATA COLLECTION FOR THE
EXPLORATION OF GROWTH MONITORING AS A COMPONENT OF
PRIMARY HEALTH CARE FROM PROFESSIONAL WORKING AT UMILAZI
CLINICS**

1. CLINIC CODE :

**ANSWER THE FOLLOWING QUESTIONS BY PLACING A TICK IN
THE APPROPRIATE BOX**

2. PERSONAL PARTICULARS

2.1 AGE

20 – 30 YRS
31 – 40 YRS
ABOVE 40

2.2 MARITAL STATUS

MARRIED
SINGLE
DIVORCED
WIDOWED
SEPARATED

2.3 SEX

FEMALE
MALE

2.4 EXPERIENCE

BELOW 1 YR
1 – 2 YRS
3 – 4 YRS
ABOVE 4

2.5 QUALIFICATIONS

2.6 CLINIC STAFFING (STATE NUMBERS)

**PROFESSIONAL NURSES
ENROLLED NURSES
NURSING ASSISTANTS**

3. WHAT IS THE TURN OVER FOR GROWTH MONITORING
(PUT INFORMATION IN THE BOX PROVIDED.)

PER DAY	PER MONTH

4. DO YOU HAVE TIME FOR STATISTICS?

YES	NO
-----	----

IF YES PLEASE ANSWER 4.1

4.1 STATE REASON FOR NOT BEING ABLE TO DO STATISTICS.

5. HOW MANY PATIENTS HAVE THEIR WEIGHTS CHECKED DAILY?

--

6. DO YOU HAVE A HELPER SUCH AS A NURSING ASSISTANT TO CHECK UP WEIGHT?

YES	NO
-----	----

IF NO ANSWER 6.1

6.1 STATE REASON FOR NOT HAVING A HELPER.

7. DO YOU UNDERSTAND/HAVE KNOWLEDGE ABOUT THE ROAD TO HEALTH CARD

8. HOW OFTEN DO YOU HAVE INSERVICE EDUCATION ON GROWTH MONITORING?

--

9. DO YOU HAVE A ONE TO ONE PATIENT HEALTH EDUCATION?/

YES	NO
-----	----

9.1 STATE REASONS FOR THE ABOVE ANSWER.

10. NEXT TO EACH STATEMENT LISTED BELOW INDICATE YOUR FEELINGS WITH A TICK

10.1 CLINIC STAFFING

GOOD	AVERAGE	BAD
------	---------	-----

10.2 CLINIC WORK LOAD

AVERAGE	HEAVY	TOO HEAVY
---------	-------	-----------

10.3 WHAHT ARE YOUR PERCEPTIONS ABOUT THE ATTITUDE OF THE COMMUNITYWITH REGARD TO THE CLINIC SERVICES

POSITIVE	NEGATIVE
----------	----------

10.4 ARE CLINIC DUTIES PERFORMED BY THE NURSES APPROPRIATE

YES	NO
-----	----

10.5 DO YOU FEEL HOURS ARE APPROPRIATE FOR :

	YES	NO	NOT SURE
CLIENTS			
CLINICSTAFF			

11. WHAT PROBLEMS DO YOU THINK COULD CONTRIBUTE TO UNDER PERFORMANCE OF STAFF ? BRIEFLY EXPLAIN.

PERFORMANCE (PARTICIPANT OBSERVATION)

[illegible]

1. Greets client or child individually
2. Asks for the road to health card from the mother
3. Give full explanation to mother or child before commencing the procedure (e.g. weighing the baby)
4. Calibrates the scale before weighing the baby
5. Weighs the baby naked
6. Weighs the baby with a few clothing
7. Does not undress the baby
8. Weight plotted correctly in a graph form
9. Identifies and interpretes growth faltering
10. Gives feed back about the weight and growth of the child to mother
11. Identify children who need referral to the hospital or other health services
12. Identifies missed opportunities (e.g. immunizations)
13. Intervenes appropriately to missed opportunities
14. Does the clinic have health education program. If yes see 14.1
14. State topics covered in the program
15. Maintain the cold chain according to standard procedure
16. If the other health information is recorded correctly the road to health card
17. How is the health information re-inforced to mothers (e.g. Posters)

**INTERVIEW SCHEDULE TO ELICIT INFORMATION FROM
MOTHERS AND CHILD CARERS OF BABIES AND CHILDREN
ATTENDING GROWTH MONITORING PROGRAMS IN THE UMLAZI
CLINICS.**

The following information to be entered in the boxes provided

1.Clinic Code

2.Child clinic card number

3.Home Address

4.Place the tick on the appropriate box

4.1.Child's age

0-1year

2-3yrs

4-5yrs

4.2.Child's sex

Male

Female

4.3.Mother's age

15-25yrs

26-35yrs

36-45yrs

Above 45yrs

Not known

4.4.Parent's marital status

Single

Married

Divorced

Widowed

Separated

5. Is there a clinic next to your home?

If yes answer question 5.1.

5.1. What made you not utilize the clinic next to your home?

5.2. Which mode of transport did you use to reach this clinic?

Bus
Taxi
Own car
By foot
Other

5.3. Did you bring child's health card ?

Yes
No

5.4. What do think is the main function of growth monitoring program

5.5. Who gave you the above information

Clinic nurse
Doctor
Medial
Other

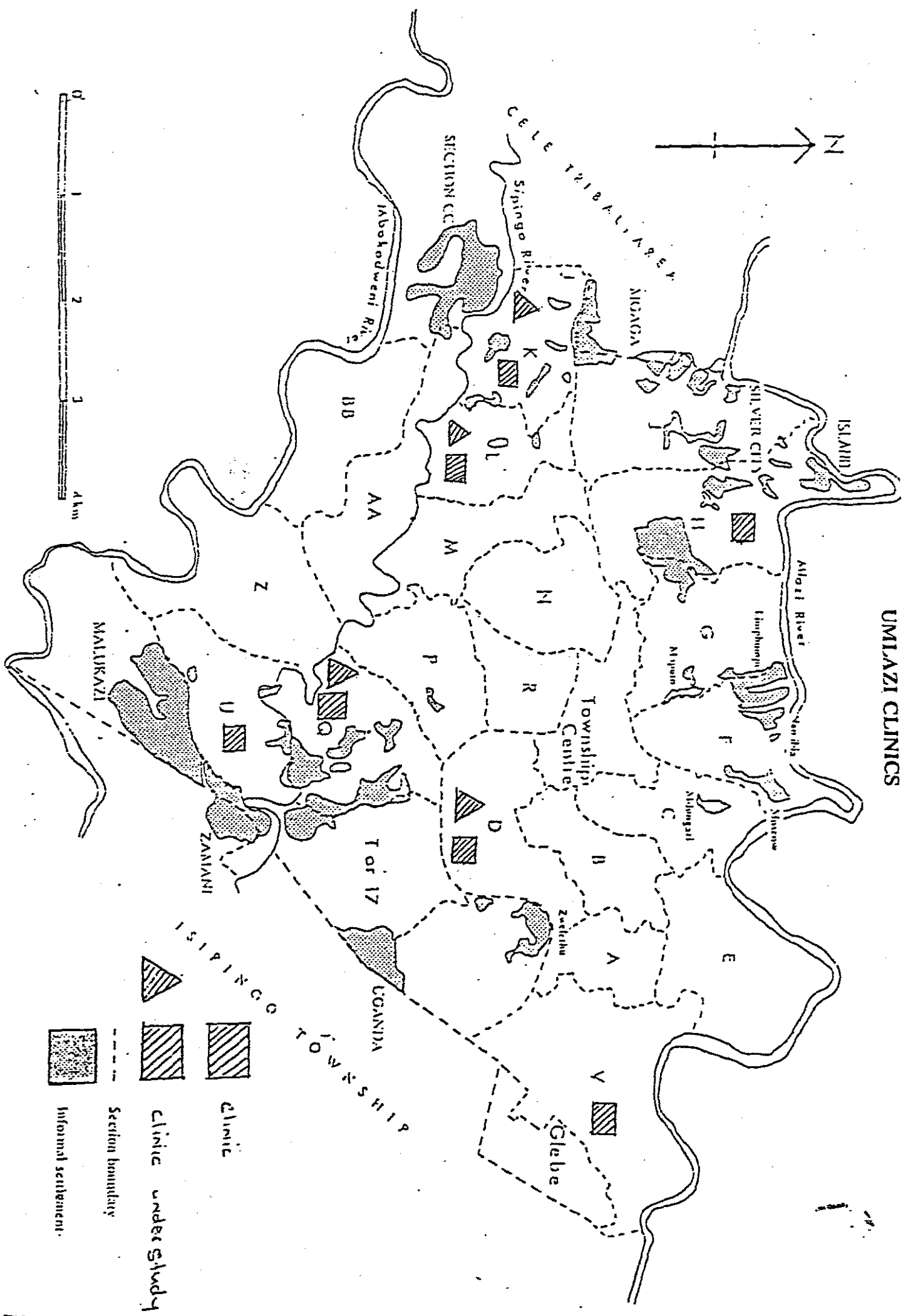
5.6. What other health information were you given during your visit to the clinic?

5.7. What is your opinion with regard to clinic services?

ANNEXURE I

Map showing clinics in Umlazi

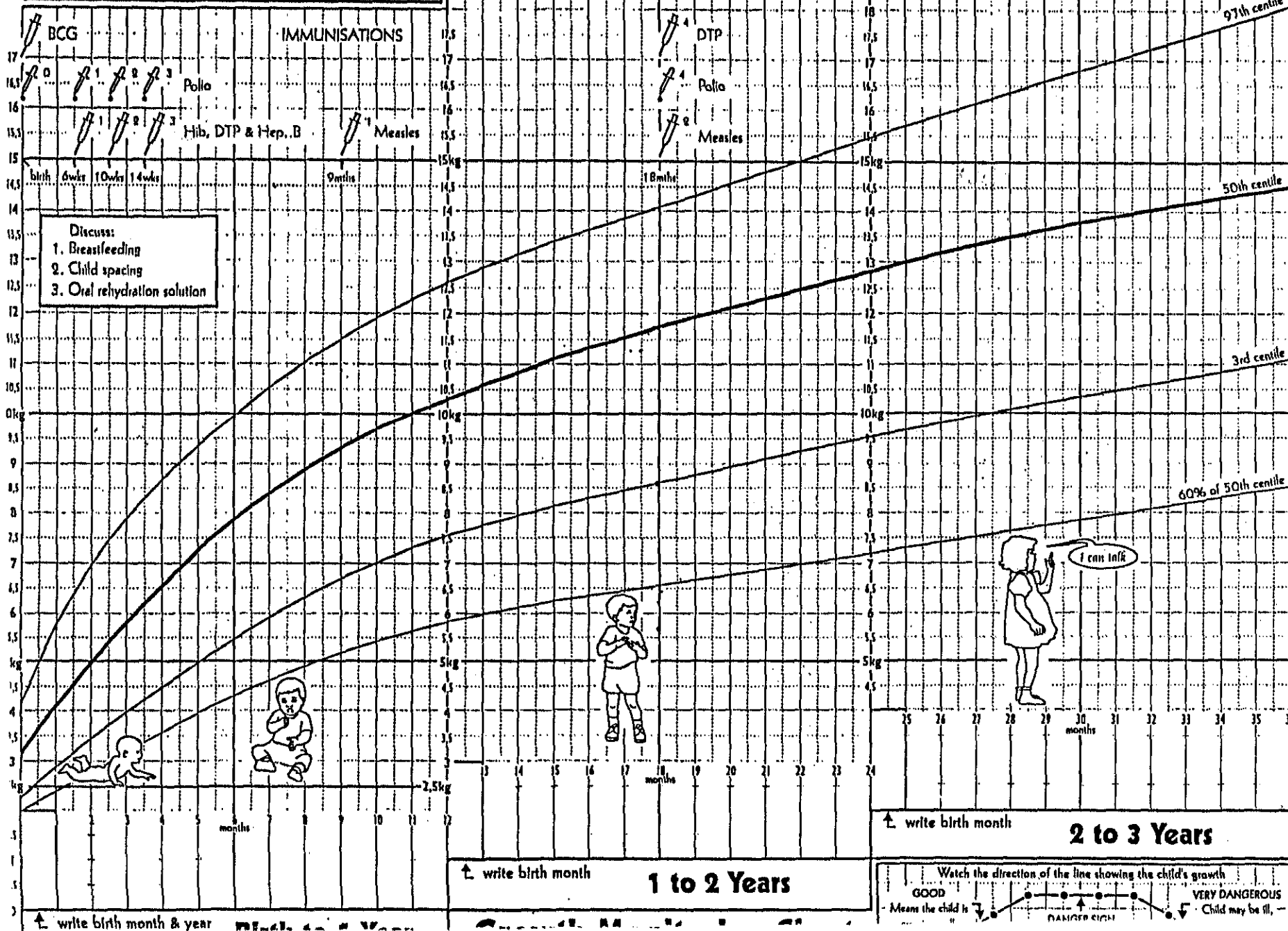
UMIAZI CLINICS



ANNEXURE 2

Copy of the Road to Health Chart

Child's name: _____



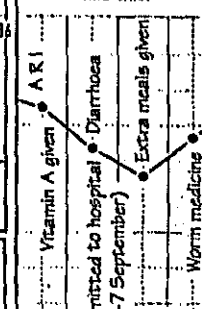
Date for next visit

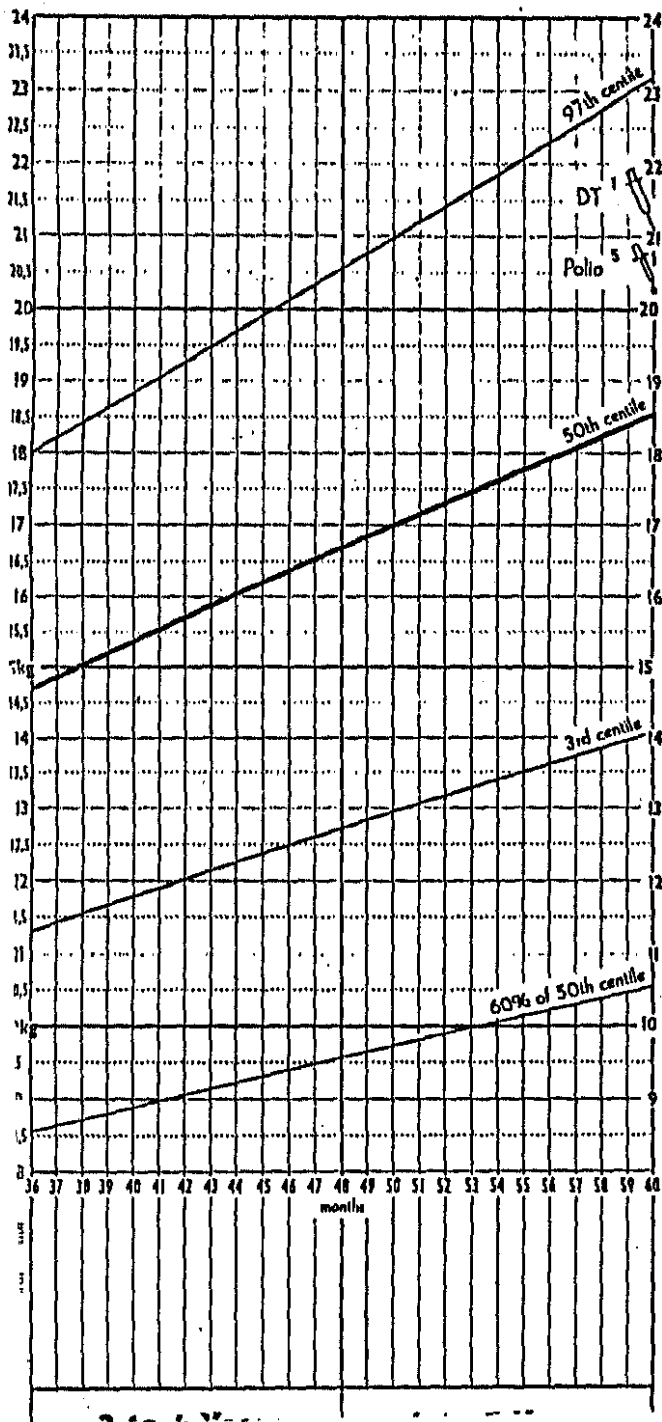
nr.	day	month	year
1	/	/	/
2	/	/	/
3	/	/	/
4	/	/	/
5	/	/	/
6	/	/	/
7	/	/	/
8	/	/	/
9	/	/	/
10	/	/	/
11	/	/	/
12	/	/	/
13	/	/	/
14	/	/	/
15	/	/	/
16	/	/	/
17	/	/	/
18	/	/	/
19	/	/	/
20	/	/	/

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:





Road to Health Chart

Department of Health



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

GW B/193

Child's name		boy <input type="checkbox"/>	girl <input type="checkbox"/>
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.		Gestational age (wks)	Mother's Serology
Mother's file numbers -		Antenatal: Delivery:	
Card given and mother taught by:			
Mother's name:			
Father's name:			
Who does the child live with?			
How many children has the mother had?			
Date information given:		Number born	
day		month	
year		Number alive now	
Vision screening (3-5 years)		Hearing screening (7-9 months)	
Date:		Manchester Rattle used? yes no	
day		month	
year		year	
Result: L: R:		Result: L: R:	
Address of Clinic 1 visited:		Address of Clinic 2 visited:	

IMMUNISATIONS			
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	/ /
	Hep B 1	Right thigh	/ /
	Polio 2	Oral	/ /
	DTP 2	Left thigh	/ /
	Hib 2	Left thigh	/ /
	Hep B 2	Right thigh	/ /
	Polio 3	Oral	/ /
	DTP 3	Left thigh	/ /
BOOSTERS	Hib 3	Left thigh	/ /
	Hep B 3	Right thigh	/ /
	Measles 1	Right thigh	/ /
	Polio 4	Oral	/ /
	DTP 4	Left arm	/ /
BCG Repeat		Right arm	/ /
Other ()		/ /	/ /
Other ()		/ /	/ /
Vitamin A			
Date given	Signature	Date given	Signature
/ /		/ /	
/ /		/ /	
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
TB contact?	yes no	Does the mother need more family support?	yes no
Are there any reasons for taking extra care?		(for example: single parent etc.)	
yes no			

HEALTH WORKER CONSULTATION

Date of birth : | day | month | year |

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

[illegible][illegible][illegible]

