

**A QUALITATIVE ASSESSMENT OF THE PRELIMINARY FOOD-BASED DIETARY
GUIDELINES FOR INFANTS 6-12 MONTHS OF AGE IN THE GREATER OUDTSHOORN
AREA**

**A Research Project Thesis
presented to the Department of Human Nutrition in the Faculty of Health Sciences
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in partial fulfilment of the requirements for the degree
Master of Nutrition**



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Confidentiality: A

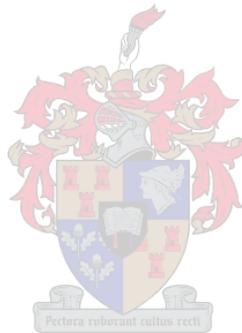
December 2004

DECLARATION OF AUTHENTICITY

Hereby I, Julanda van der Merwe, declare that this research project is my own original work, that all sources have been accurately reported and acknowledged, and that this document has not previously in its entirety or in part been submitted at any university in order to obtain an academic qualification.

Signature:

1-10-2004



ABSTRACT

Objectives and scope of investigation

Following the 1996 recommendations of a FAO/WHO expert panel for the development of food-based dietary guidelines (FBDGs) unique and specific to the needs of the populations of different countries, a South African FBDG Working Group was formed and ultimately also a Paediatric FBDG (PFBDG) Working Group with the task of the latter being the development of FBDGs for children younger than 7 years. A set of preliminary PFBDGs, chosen to address the most pressing paediatric public health issues, namely protein-energy malnutrition, micronutrient deficiencies and infectious diseases, were formulated for each age group sub-category (0-6 months, 6-12 months and 1-7 years). The following set of preliminary PFBDGs for the age group 6-12 months were approved by the Working Group to be subjected to consumer testing:

- **Enjoy time with your baby**
- **From six months start giving your baby small amounts of solid foods**
- **Gradually increase your baby's meals to five times a day**
- **Keep breast feeding your baby**
- **Offer your baby clean, safe water regularly**
- **Teach your baby to drink from a cup**
- **Take your baby to the clinic every month**

Assessment of the consumer's comprehension, interpretation of the proposed guidelines, and ability to apply them, was considered essential before the PFBDGs could be finalised, disseminated to the consumer, and implemented as an educational tool for health professionals and community workers. This study was also the first in which PFBDGs were tested, and was intended to be a pilot study for further testing of PFBDGs for this age category in other parts of the country, adapted for different circumstances.

The investigation was conducted among women who were mothers or caregivers to infants 6-12 months of age in the Afrikaans-, English- and Xhosa-speaking communities of the greater Oudtshoorn area, including Bongulethu, Bridgeton and Toekomsrus and its adjacent rural areas of Dysselsdorp, Calitzdorp, Uniondale, Ladismith and Zoar.

Methodology

The study was designed to be an observational, descriptive and cross-sectional study. Qualitative data was collected from a sample of 64 volunteers who took part in ten focus group discussions each attended by between 3 and 11 participants. Group discussions were recorded on videotape and quantitative and qualitative questionnaires measured pre-discussion knowledge and comprehension of guidelines, perceived hindrances to compliance with guidelines and perceived importance of guidelines as well as socio-demographic data.

Results and conclusions

With this study, useful and enlightening information was obtained which met the research objectives. Participants discussed the guidelines in depth and information obtained from the questionnaires were found to support what was said during the discussions. Body language or non-verbal communication as observed, and recorded on videotape, also complemented the information gained from the discussions.

Summarily it can be said that the guidelines were well-received and perceived as important by the majority of respondents, although some of the guidelines were initially not well-understood without explanation. Furthermore, the fact that the applicability of the guideline on prolonged breast feeding seems to be the most problematic, is a cause for concern.

In view of the results obtained in this study, it can be concluded that PFBDGs will have to be supported by extensive and appropriate educational material to be effective when introduced to the public.

The findings of this study will be submitted to the PFBDG Working group for consideration before finalisation of the guidelines for the age group 6-12 months.

OPSOMMING

Doelwitte en omvang van die studie

Na aanleiding van die 1996 aanbevelings van 'n VLO/WGO paneel van kenners vir die ontwikkeling van voedselgebaseerde dieetriglyne (VGDR) wat uniek en spesifiek gerig is tot die behoeftes van die bevolkings van verskillende lande, is 'n Suid-Afrikaanse VGDR Werkgroep gevorm en uiteindelik ook 'n Pediatriese VGDR (PVGDR) Werkgroep met die opdrag van laasgenoemde om VGDR te ontwikkel vir kinders jonger as 7 jaar. 'n Stel voorlopige Pediatriese VGDR, gekies om die mees dringende pediatriese publieke gesondheidsvraagstukke, naamlik proteïen-energie wanvoeding, mikronutriënttekorte en infektiewe siektetoestande aan te spreek, is geformuleer vir elke ouderdomsgroep subkategorie (0-6 maande, 6-12 maande en 1-7 jaar). Die volgende stel voorlopige PVGDR vir die ouderdomsgroep 6-12 maande is deur die Werkgroep goedgekeur om aan verbruikerstoetsing te onderwerp:

- **Geniet tyd saam met jou baba**
- **Begin vanaf ses maande om jou baba klein hoeveelhede vaste kos te gee**
- **Vermeerder jou baba se maaltye geleidelik na vyf keer per dag**
- **Hou aan om jou baba te borsvoed**
- **Bied gereeld vir jou baba skoon, veilige drinkwater aan**
- **Leer jou baba om uit 'n koppie te drink**
- **Neem jou baba elke maand kliniek toe**

Evaluering van die verbruiker se begrip, interpretasie van die riglyne en die vermoë om die riglyne te implementeer, is as noodsaaklik beskou voordat die PVGDR gefinaliseer kon word, vrygestel kon word aan die publiek, en aan professionele- en gemeenskapsgesondheidswerkers beskikbaar gestel kon word as 'n onderrighulpmiddel. Hierdie studie was die eerste waarin PVGDR getoets is en dit is bedoel as 'n voorloperstudie vir verdere toetsing van PVGDR vir hierdie ouderdomskategorie in ander dele van die land en aangepas vir ander omstandighede.

Die ondersoek is gedoen onder vroue wat moeders of versorgers van babas van 6-12 maande was in die Afrikaans- Engels- en Xhosasprekende gemeenskappe van die groter Oudtshoorn area wat Bongulethu, Bridgton en Toekomsrus insluit asook die nabygeleë plattelandse gemeenskappe van Dysselsdorp, Calitzdorp, Uniondale, Ladismith en Zoar.

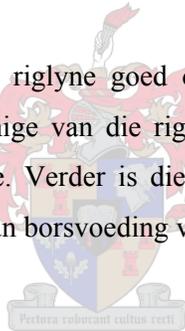
Metodiek

Die studie is ontwerp om 'n waarnemende en beskrywende analise van 'n deursnee van die studiepopulasie moontlik te maak. Kwalitatiewe data is verkry van 'n proefmonster van 64 vrywilligers wat deelgeneem het aan tien fokusgroep besprekings wat elk deur 3 tot 11 persone bygewoon is. Groepbesprekings is op videoband opgeneem en kwantitatiewe en kwalitatiewe vraelyste het voorbesprekings kennis en begrip van die voorgestelde riglyne, vermeende verhinderings tot uitvoering van die riglyne en vermeende belangrikheid van riglyne sowel as sosio-demografiese inligting gemeet.

Resultate en gevolgtrekkings

Met hierdie studie is bruikbare en verhelderende inligting verkry wat beantwoord het aan die doelwitte van die studie. Deelnemers het die riglyne in diepte bespreek en dit is bevind dat inligting wat van die vraelyste verkry is, ook dit bevestig het wat gedurende die sessies bespreek is. Lyftaal en nie-verbale kommunikasie soos waargeneem en soos op videoband vasgelê, het ook die inligting ondersteun wat van die besprekingsessies verkry is.

Opsommend kan gesê word dat die riglyne goed ontvang is en as belangrik beskou is deur die meerderheid van respondente. Sommige van die riglyne was nie vir deelnemers goed verstaanbaar sonder meegaande verduideliking nie. Verder is die feit dat die toepasbaarheid van die riglyn met betrekking tot 'n verlengde tydperk van borsvoeding voorgekom het as die mees problematiese, 'n rede tot kommer

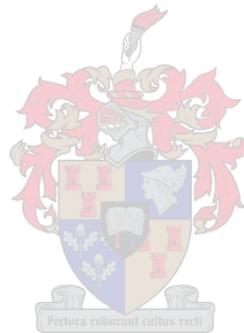


In die lig van die resultate van hierdie studie, kan daar tot die slotsom gekom word dat PVGDRE ondersteun sal moet word deur omvattende en gepaste onderrigmateriaal om effektief te kan wees wanneer dit aan die publiek bekend gestel word.

Die bevindings van hierdie studie sal aan die Pediatrisiese VGDR Werkgroep voorgelê word vir oorweging voordat riglyne vir die ouderdomsgroep 6-12 maande gefinaliseer word.

DEDICATION

For the children of the Little Karoo



ACKNOWLEDGEMENTS

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Finally, I wish to thank my husband Peet for his continued support and understanding and my son, Josua, and my daughter, Yolande, for their constant encouragement.

LIST OF ACRONYMS AND ABBREVIATIONS

AA	Arachidonic Acid
AI	Adequate Intake
BCG	Bacille Calmette Guerin
DHA	Docosahexanoic Acid
DOH	Department of Health
DRI _s	Dietary Reference Intakes
EAR	Estimated Average Requirement
ECC	Early Childhood Caries
FAO	Food and Agriculture Organisation
FAS	Foetal Alcohol Syndrome
FBDG _s	Food-Based Dietary Guidelines
PFBDG	Paediatric Food-Based Dietary Guidelines
HIV/AIDS	Human Immuno-deficiency Virus/ Acquired Immuno-deficiency Syndrome
IMCI	Integrated Management of Childhood Illnesses
INP	Integrated Nutrition Programme
IU	International Units
LBW	Low Birth Weight
LCPUFA	Long Chain Poly-unsaturated Fatty Acid
MRC	Medical Research Council
NCHS	National Centre for Health Statistics
NFCS	National Food Consumption Survey
ORS	Oral Rehydration Solution
PEM	Protein Energy Malnutrition
RDAs	Recommended Dietary Allowances
SAVACG	South African Vitamin A Consultative Group
SD	Standard Deviation
TB	Tuberculosis
UNICEF	United Nations Children's Fund
US	United States
USA	United States of America
VGDR _e	Voedselgebaseerde Dieetriglyne
WHO	World Health Organisation

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Teks vir fokusgroep besprekings
Umbhalo ekuzakugxininiswa kuwo ziingxoxo zamaqela
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CHAPTER 1

INTRODUCTION

1.1 Background to the development of Paediatric Food-Based Dietary Guidelines in South Africa

In 1996, a joint FAO/WHO expert panel ¹ proposed the development of food-based dietary guidelines which would be unique and specific to the needs of the populations of different countries. Following a process recommended by this expert panel, a South African FBDG Working Group started, in 1997, to develop a single set of food-based dietary guidelines (FBDGs) aimed at optimal nutrition for all South Africans over 5 years old without special dietary needs. ²

1.1.1 Development of Food-Based Dietary Guidelines for the general population

A set of preliminary guidelines were developed according to the FAO/WHO specifications to address under- and over-nutrition in different communities and to optimize nutrition in disadvantaged as well as affluent communities. The guidelines were based on existing eating patterns, accommodating various South African dietary cultures and the focus changed from emphasis on nutrients, to locally available foods. Guidelines were intended to make dietary concepts more understandable and accessible to the lay public. ³

In formulating dietary guidelines for the general population, it was agreed by the Working Group, that each guideline should have only one easy, understandable message, formulated in such a way that people from different cultures and literacy levels would grasp its meaning. ³

Additionally it was decided that guidelines should be:

- User-friendly and not confusing
- Formulated in a positive way without the use of any negative words such as avoid, decrease, limit, cut out or eat less
- Compatible with the different cultures and eating patterns of the target population
- Based on affordable, available foods which are widely consumed
- Sustainable

Furthermore guidelines should:

- Encourage environmentally-friendly agriculture
- Help people choose the most appropriate diet they can afford
- Emphasise the joy of eating
- Not create guilt feelings or have negative associations with foods. ³

1.1.2 Development of Food-Based Dietary Guidelines for children

At a meeting of the FBDG Working Group on 18 January 2000 in Durban, a decision was taken to form additional working groups to investigate the development of FBDGs for specific priority groups including HIV/AIDS sufferers, the elderly, pregnant and lactating women and children under five years. The decision to develop separate guidelines for young children was based on the unique needs of children with regard to growth and development and specific diet-related public health issues, mainly under-nutrition.³

As a result of this decision, a Paediatric FBDG (PFBDG) Working Group was formed at a meeting held on 14 December 2000 in Cape Town with the task to develop FBDGs for children younger than 5 years. Initially the age group categories of 0-2 years and 2-5 years were agreed upon. Sub-categories of 0-6 months, 6-12 months and 12-24 months were selected for the 0-2 year old group.⁴ At a subsequent meeting⁵ however, it was decided to raise the 5 year age limit to 7 years, as this age corresponds to one of the RDA cut-offs for both genders and would cover most pre-schoolers. Ultimately, 3 age sub-categories were identified for development of specific PFBDGs, namely 0-6 months, 6-12 months and 12-84 months. The development process is visually represented in Figure 1.1.

Differentiation among these age sub-categories is appropriate for the reason that dietary needs differ to a great extent among the various age groups. While infants younger than six months should be exclusively breast fed and children older than one year should partake in the usual family meals, the diet of the infant between six and twelve months poses a unique challenge to the mother, caregiver and health professionals. This is the age marked by the gradual introduction of complementary foods, while the child is still being breast fed. From the evidence included in the literature review, covered in a subsequent chapter, it is clear how important the correct choice and method of introduction of complementary foods is to the health and well-being of the young child.

In May 2003,⁶ after thorough review of relevant literature, discussions with various role-players and pre-testing for understandability, a set of preliminary PFBDGs were approved by the Working Group to be subjected to consumer testing. The proposed guidelines were considered to be the most appropriate ones for each age group and chosen to address the most pressing paediatric public health issues, namely protein-energy malnutrition, micronutrient deficiencies and infectious diseases.^{7,8,9}

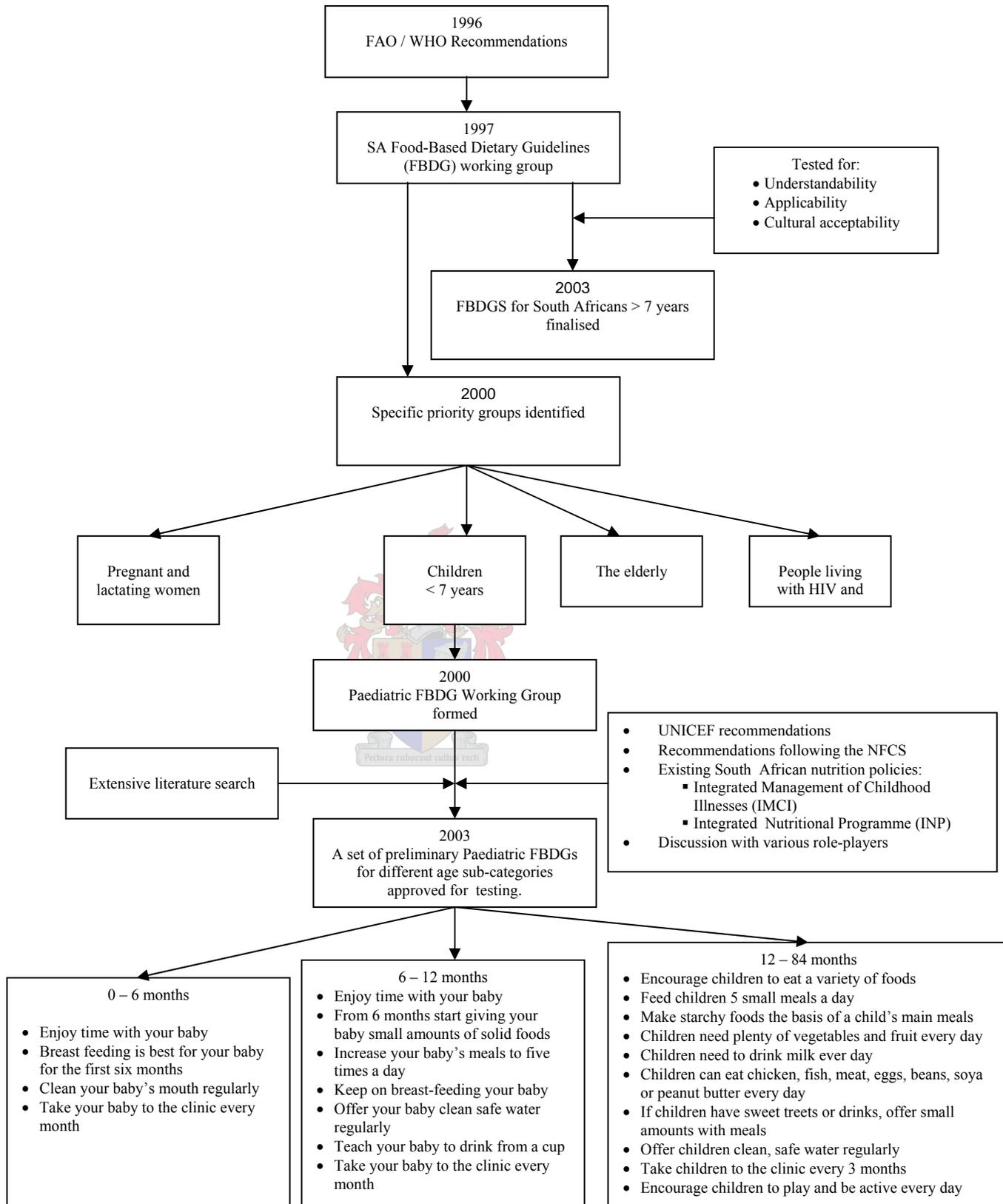


Figure 1.1: The process of developing PFBDGs for different age sub-categories in South Africa

The preliminary guidelines, specifically designed for the age group 6-12 months, follow:

- **Enjoy time with your baby**
- **From six months start giving your baby small amounts of solid foods**
- **Gradually increase your baby's meals to five times a day**
- **Keep breast feeding your baby**
- **Offer your baby clean, safe water regularly**
- **Teach your baby to drink from a cup**
- **Take your baby to the clinic every month**

1.2 Study aims and objectives

As stated in the FAO/WHO document, the existence of dietary guidelines would not automatically imply implementation, but the public should be able to relate to the guidelines as far as comprehensibility, practicality and cultural acceptability is concerned. Field-testing the guidelines for these qualities among the target population is a prerequisite for their release.¹ Hence, assessment of the consumer's comprehension, interpretation of the FBDGs, and ability to apply them, was considered essential before the FBDGs could be finalised, disseminated to the consumer, and implemented as an educational tool for health professionals and community workers.

1.2.1 General aim of the study

On the basis of the aforementioned, this study was aimed at applying the criteria of understandability, applicability and cultural acceptability to the preliminary PFBDGs specifically designed for the age group 6-12 months, which is characterised by the introduction of a diversity of family and culture-specific foods. It was also the first study in which PFBDGs were tested, and was intended to be a pilot study for testing FBDGs for this age category which could be repeated in other parts of the country, adapted for different circumstances. In other words, the general aim of the study was to determine how the newly proposed PFBDGs for children of 6-12 months of age were perceived, understood and accepted by mothers and/or caregivers¹ of children of the relevant age from different language, cultural and socio-economic backgrounds.

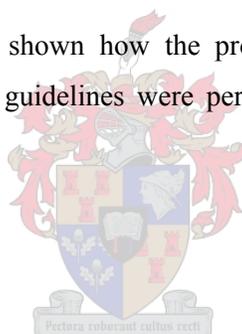
¹ A care-giver is a person other than the mother of the infant who cares for the baby while the mother is at work. This person can be a relative, friend or professional care-giver such as the manager of a day-care centre.

1.2.2 Specific objectives of the study

For qualitative studies, research objectives can only be formulated broadly and not framed around variables which are defined in rigorous measurable dimensions or in terms of specific hypotheses.¹⁰ Specific objectives of this study were therefore assessment of the aspects listed below among women, who were mothers or caregivers of infants 6-12 months of age, in Afrikaans-, English- and Xhosa speaking language groups and among Black, Coloured and White cultural groups in Oudtshoorn and nearby rural towns and villages in the Little Karoo region of the Western Cape province:

- The mother's or care-giver's understanding of the individual guidelines
- The mother or care-giver's interpretation of individual guidelines
- Perceived ability of mothers and/or caregivers to practically implement the guidelines
- Hindrances to the implementation of the guidelines as perceived by the mother or care-giver
- Perceived importance of individual FBDGs
- Relationship of demographic characteristics to the outcome of the above assessments

In subsequent chapters it will be shown how the proposed guidelines relate to relevant, current literature, how field-testing of the guidelines were performed as well as the conclusions that were reached.



CHAPTER 2

LITERATURE REVIEW

2.1 Literature included in the review

Current, related literature on the background to the development of FBDGs for infants of 6-12 months, the nutritional status of children in South Africa, feeding practices inducing malnutrition and government strategies to combat malnutrition, are referred to and discussed in this review. It will also be demonstrated how the proposed guidelines relate to current recommendations regarding infant feeding.

2.2 The nutritional status of children in South Africa

To establish a background for the development of South African FBDGs for the very important period between 6 and 12 months of age in the young infant's life, a look at the nutritional status of children in South Africa warrants attention, so as to identify the major public health issues in this age group which need to be addressed using the PFBDGs.

2.2.1 Prevalence of malnutrition in South Africa

The National Household Survey of Health Inequalities in South Africa, conducted in 1994, included a nationally representative sample of 4000 out of 7,594,000 households and it was reported that 23% of adult respondents declared themselves too poor to properly feed their preschool children, while only 8% reported receiving supplemental food from a health facility. Seventy percent of black children < 5 years were found to live in rural areas, mostly in households with incomes below R900,00 per month, which was in this survey considered to be a minimum living level. Seventy percent of these children were living in homes with no electricity, 32% were without access to piped water and 22% without a toilet of any sort.¹¹

Furthermore, it was reported by the South African Vitamin A Consultative Group (SAVACG) in 1995 that 33.3% of South African children of 6-71 months of age suffered from vitamin A deficiency and had serum values of ≤ 20 $\mu\text{g}/\text{dl}$. This study also found a 21.4% prevalence of anaemia with 10% prevalence attributable to iron deficiency. The SAVACG study indicated that only 3% of South African pre-school children had weight-for-height falling below -2 SDs, indicating that wasting was not a major problem in this age group. However, on average, 9% of South African pre-schoolers had a weight-for-age less than -2 SDs, therefore being underweight, and 23 % had a height-for-age less than -2 SDs, indicating that stunting was a major problem and that the national average for stunting was

more than twice the value for being underweight. While these percentages did not vary significantly with age, it was observed that 6-11 month old children had a lower prevalence of low weight-for-age and height-for-age. Furthermore the prevalence of stunting was found to be the highest among children living in traditional and informal housing and had poorly educated mothers.⁷

The findings of the SAVACG study correlate extremely well with those of the National Food Consumption Survey (NFCS), in 1999. With the NFCS it was established that 1 out of every 10 children (10.3%) in the age group 1-9 years in South Africa was underweight and just over 1 out of 5 children (21.6%) was stunted, indicating chronic under-nutrition. Children in the age group 1-3 years were the most severely affected, as well as those living in rural areas and on commercial farms. However, in the Western Cape, just fewer than 15% of children were reported to be stunted in contrast with the much higher national figure. Again wasting was shown not to be common in South Africa, with a prevalence rate of only 3.75%.⁸

The level of maternal education was a strong determinant for under- and over-nutrition in this study. A higher level of maternal education was associated with over-nutrition and a higher obesity rate among children while a lower level of maternal education was associated with under-nutrition. It was also established with the NFCS that in approximately 50% of the Households included in this study, the father was a wage earner and that in 17% of households, the father was unemployed. Twenty percent of mothers were wage earners while 50% were unemployed. In 57% of households the monthly income varied between R100 and R1000.00 per month. Furthermore, 52% of households experienced hunger, while 23% were at risk for hunger and only 25% appeared food secure. Again households in informal urban and tribal areas and on commercial farms were the worst off. A consistent association between hunger and hunger risk and anthropometric status was evident and confirms the findings of the National Household Survey of Health Inequalities and the SAVACG studies.⁸

2.2.2 Malnutrition and infectious diseases

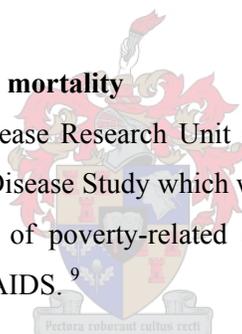
It is well known that malnutrition and infectious diseases constitute a vicious cycle with infectious diseases contributing to malnutrition and malnutrition on the other hand making children more susceptible to infectious disease. In South Africa the most common infectious diseases leading to malnutrition and childhood mortality are HIV/AIDS, measles, diarrhoea and acute respiratory infections.^{12, 13}

Looking at the global situation, WHO statistics indicate that more than 10 million children, in low and middle income countries, die annually before they reach the age of 5 years. Seven in every 10 of these deaths result from only 5 conditions, which are all treatable as well as preventable, namely pneumonia, diarrhoea, malaria, measles and malnutrition.¹³

Repeated infections pose a very real danger to infants who are being introduced to complementary foods, as shown in a study on growth, feeding practices and infections in black infants by Delport and co-workers. It was reported in this study that 26% of the infants in the study had experienced an infection by the age of 6 months and at 9 months, 40% of the infants had experienced an infection in the preceding 3 months, indicating a steady increase in infections from 3 to 9 months. Seventy four percent of these incidences were due to Upper Respiratory Tract infections and only 17% to Lower Respiratory Tract infections and diarrhoea, although the latter two are considered to be the main cause of mortality among infants.^{9,14} Diarrhoeal infections are considered to be mostly caused by unhygienic conditions and contaminated water.¹⁵

2.2.3 Specific causes of premature mortality

In March 2003, the Burden of Disease Research Unit of the MRC issued initial estimates from the South African National Burden of Disease Study which was conducted in 2000, stating that the country suffers under a quadruple burden of poverty-related conditions, including malnutrition, emerging chronic diseases, injuries and HIV/AIDS.⁹



Among the top 20 specific causes of premature mortality in South Africa (Table 2.1) are diseases such as diarrhoea, Low birth weight (LBW) and Protein Energy Malnutrition (PEM), which are directly nutrition-related, and HIV/AIDS, Tuberculosis and Lower Respiratory Infections which are indirectly nutrition-related. The infant mortality rate of 59 per 1000 live births and the under-five mortality rate of 95 per 1000 live births,⁹ constitute an increase in the infant mortality rate of 45 per 1000 live births and the under-five mortality rate of 59 per 1000 live births reported in the South African Demographic and Health Survey of 1998.¹⁶

HIV and AIDS are assumed to contribute to a high number of deaths among infants while it is postulated on the other hand that the relatively low ranking of diarrhoea as cause of death may be the result of national endeavour to provide safe water to all South Africans.⁹

Table 2.1: The ranking of some nutrition-related diseases as causes of premature mortality in South Africa⁹

Ranking	Disease	% of premature deaths
1 st	HIV/AIDS	39
3 rd	Tuberculosis	5
5 th	Diarrhoeal diseases	3.8
6 th	Lower respiratory infections	3.8
7 th	Low birth weight	3.3
10 th	Protein Energy Malnutrition	1.4

2.2.4 Nutritional status of children in the Little Karoo

In the Little Karoo area, where the study was executed, figures regarding malnutrition were based on information gained via the District Health Information System which had been implemented by the Department of Health in the middle nineties with the purpose of collecting data regarding child health in different regions. Three of the 27 indicators on which data were routinely collected pertain directly to nutritional status, namely the number of children <5 years who are weighed, number of children <5 years who are experiencing growth faltering and the number of children <5 years with severe malnutrition, including children with visible signs of marasmus and kwashiorkor. The following incidence rates were reported by the Department of Health (DOH) Southern Cape/Karoo region in 2003.¹⁷

- Underweight: 5.4%
- Severe malnutrition: 0.8%
- Growth faltering: 6.8%

It is strongly suspected that the prevalence of malnutrition is underestimated by these figures in the light of the severe poverty which exists in the Little Karoo. Under-reporting may be the result of the malnutrition register not being used optimally or not used at all. It was also found that children being treated for illnesses are not always holistically evaluated and cases of growth faltering are thus not identified or recorded. Many health service points were found not to have reported any growth faltering cases during 2002, which is an unrealistic situation. Cases of growth faltering being reported can therefore be considered to be a small tip of the iceberg.¹⁷

2.3 Child feeding practices contributing to malnutrition

Underwood states that ideally, the 6-12 month period should be marked by a gradual transition from exclusive breast feeding to increased intake of suitable family foods while maintaining optimal growth and development. However, due to a variety of adverse conditions, this process of weaning the infant to a diversity of adult type foods can be a hazardous exercise, especially in deprived environments. The majority of children who are reared in deprived conditions with associated maternal illiteracy, limited social contacts and inadequate hygiene, commonly suffer from repeated respiratory and diarrhoeal infections. Especially the introduction of liquids other than breast milk, such as water, could carry a great risk of gastro-intestinal diseases. Unwashed hands and breasts used to feed the baby with and dirty clothing used to wipe a mouth for instance, may be equally dangerous. If infections occur too frequently or prolonged, catch-up in food intake and growth may never occur.^{15, 18}

In different cultures, the time of initiating the weaning process and the time of finally terminating breast feeding, the variety, quantity and quality of weaning foods provided, as well as the manner in which it is provided differs greatly. In more affluent societies infants are often introduced to a variety of liquid and semi-solid foods before the age of six months, but in less affluent societies and especially those in rural areas, complementary foods given before six months usually lack variety in texture and taste.¹⁸

2.3.1 Feeding practices contributing to malnutrition in South Africa

Too often complementary foods are introduced too soon or too late, the frequency and amounts less than required for normal growth, or their consistency or energy density inappropriate.¹⁵

Delport reported in her previously mentioned study of 1997 a sharp increase in the prevalence of growth retardation or stunting in the 12 to 18 month category.¹⁴ Since stunting is an indication of long term malnutrition,⁷ Faber postulates in her findings on complementary feeding practices in low socio-economic urban and rural communities in 1997, that the high prevalence of stunting could at least be partly due to poor feeding practices in the period following the introduction of complementary foods¹⁹

In a more recent study of infants from birth to 12 months in the Limpopo province, Mamabolo²⁰ reported that only 4.1% of 170 infants were still exclusively breast fed at 6 months of age. Solids, comprising mainly of maize- and sorghum meal, were introduced as early as 1 month in 17.2% of subjects. A progressively lower height-for-age z score was observed in the 12 month period with no difference in the mean height-for-age z scores between those infants with a z score ≤ -2 SDs at birth

and those who were not stunted at birth. The frequency of stunting in the 6-12 month age group was found to be 35%.²⁰

Feeding practices from birth onwards, especially the early introduction of solids, is stated as the main reason for the deficit in linear growth with a simultaneous increase in adiposity and/or oedema, as evident in weight-for-height z scores of ≥ 2 SDs. As in the NFCS⁸ previously mentioned, the mother's level of education appeared to play a role in the weight status of the child, with lower weight-for-age and weight gain from birth seen in infants of mothers with only primary school education.²⁰

The following common causes of growth failure have been described in the literature.^{7, 9, 21, 22, 23}

- Lack of breast feeding
- Poor breast feeding practices
- Incorrect or inappropriate complementary feeding practices, such as
 - Early introduction of solid foods
 - Incorrect order of offering solids and breast milk
 - Inadequate substitute bottle feeds
 - Insufficient energy density of complementary foods
- Food insecurity
- Ignorance
- Lack of maternal care/substitute caregiver
- Poor hygiene
- Disease caused by incorrect timing of introduction of complementary foods or contamination of complementary foods
- Frequent and severe infections, aggravated by HIV/AIDS and Tuberculosis
- Parasitic infestations
- Iron deficiency anaemia
- Vitamin deficiencies, especially vitamin A
- Foetal Alcohol Syndrome

The early and inappropriate introduction of complementary foods, in some cases as early as 1 month of age, seems to be one of the greatest problems regarding infant feeding in South Africa. Most infants have been introduced to complementary foods at the age of 3 months¹⁴ and more than 80% of infants in rural areas and more than 50% in urban areas receive solids at 4 months of age.²² It should be remembered that the renal and gastro-intestinal physiology as well as the local immune response has

matured sufficiently at 6 months of age to cope with the increased variety of the weaning diet.²³ The main reasons given for early introduction of complementary foods relate to the mother's perception of the adequacy and the quality of her milk.¹⁹

A further threat to the infant's nutritional status is the common practice of early introduction of additional milk feeds by bottle. Offering additional milk feeds reduces intake of breast milk,²⁴ especially if the milk feed is offered before breast feeding. Bottle feeding can also cause "nipple confusion" and reduced stimulation of the breast. Less regular emptying of the breast and suckling can jeopardise sustained breast feeding.¹⁹

Where formula feeding is practised, illiteracy and language barriers are among the reasons why instructions on how to mix formula are not properly understood. Some mothers even deliberately add more water to save formula, thus resulting in feeds with inadequate energy density. For low socio-economic communities with a high unemployment rate, fortified baby foods such as formula, are expensive items.¹⁹

One of the main problems arising from the introduction of complementary foods before 6 months of age is the lack of nutritional balance of complementary foods used. Balanced complementary foods are either unavailable or unaffordable in rural areas. In Zöllner's study, a high percentage of children between 3 and 5 months old were fed on carbohydrates only, over and above whatever amount of breast milk they were receiving, while 19% of children over 2 years were still on carbohydrates only. Only 12% of infants in the 6 to 11 months group received a balanced diet daily. Poverty and lack of knowledge are considered the main reasons for these poor weaning practices.²⁵

2.3.2 Feeding practices involving young children in other parts of the world

Malnutrition is well documented in some countries such as Thailand,¹⁸ Nigeria²⁴ and Ethiopia²⁶ where prolonged breast feeding well beyond the age of 6 months is practiced without complementing it with suitable foods. Complementary foods are often of poor nutritional quality with very little variety and mostly based on local crops.¹⁸ In Ethiopia, approximately 50% of children had their first complementary meals only after 6 months of age and 16% of the children only after 1 year. In 26% of infants breast feeding was prolonged beyond the second year of life and some mothers practiced prolonged breast feeding without providing an adequate supplementary diet. Inevitably this leads to the development of some form of malnutrition.²⁶

Studies of infant feeding practices among minority groups living in the United States of America showed that family influences regarding complementary feeding, especially in multigenerational households, is overwhelming. Furthermore, feeding of seasoned foods to infants at too young an age and the practice of putting them to bed with bottles containing sweetened beverages are of special concern.²⁷

2.4 UNICEF recommendations regarding complementary feeding

Given the global context, the UNICEF recommendations regarding complementary foods and feeding opens with the following paragraph: “As breast feeding continues after 6 months, it is time to introduce complementary foods, i.e. foods that are readily consumed and digested by the young child and that provide additional nutrition to meet all the growing child’s needs. Although exclusive breast feeding provides the best start, after six months and as long as breast feeding is continued, the child needs more vitamins, minerals, proteins and carbohydrates than are generally available from breast milk alone. Any non-breast milk foods or nutritive liquids that are given to young children during this period are defined as complementary foods, and complementary feeding is the process of introducing these foods”.^{28, 29}

The wording of the feeding recommendations of the World Health Assembly in 1992 and 1994 included the statement that complementary feeding should be given “from the age of about six months”. UNICEF adopted this wording for use in its publications. Additionally the American Academy of Paediatrics stated in 1997 that exclusive breastfeeding is ideal nutrition and supports optimal growth and development for “approximately” the first 6 months after birth.²⁸ However, strong evidence shows that complementary feeding before the age of 6 months is associated with increased morbidity in disadvantaged communities.³⁰

2.5 Combating malnutrition in South Africa

In the report of the NFCS, it was emphasised that only long-term socio-economic upliftment, with job creation programs as an important aspect thereof, as well as the empowerment of women through education programmes, will improve the nutritional status of the community at large. A number of recommendations were made with a view to combating malnutrition in South Africa.⁸

2.5.1 Recommendations following the NFCS

The following recommendations made in the NFCS report are highlighted:

- Stunting should be addressed within the framework of the Integrated Nutrition Programme of the DOH
- The child under 3 years of age should be considered the prime target for nutrition intervention, when necessary, while the mother or caregiver should be targeted for nutrition education. Specific weaning foods should be made available to high risk families with young children.
- A comprehensive nutrition education program should be implemented to impart practical knowledge. The messages should be adapted to currently prevailing eating patterns and the desired changes.
- Messages should aim to
 - Improve the nutrient density of children's diets
 - Promote food hygiene and hygienic feeding practices
 - Promote the cultivation of home grown crops whenever feasible
 - Encourage the use of animal foods from domestic production when possible
- The appropriate introduction of complementary feeds together with continued breast feeding should be considered the cornerstone of an infants nutrition
- The importance of regular visits to the clinic should be emphasised to ensure adequate growth and prevent stunting
- Mothers or caregivers should be taught how to choose micronutrient-rich foods and be informed about the contribution that breast milk can make to meet the micronutrient needs of children in the first 2 years.
- The importance of giving small frequent meals to ensure adequate growth should be highlighted
- Dietary guidelines for children younger than 5 years should be developed.⁸

2.5.2 Government strategies to combat malnutrition

Since publication of the NFCS and the SAVACG reports, various strategies have been adopted nationally to promote adequate growth and well-being among South Africa's children. The WHO and UNICEF developed management guidelines for priority childhood conditions in developing countries, known as the **Integrated Management of Childhood Illnesses (IMCI)**. This programme is a holistic focus on the health and well-being of a child, at the same time promoting health and growth. Furthermore it ensures the holistic treatment of major childhood illnesses and it emphasises the

prevention of disease through immunisation and improved nutrition. In most cases children suffer from a combination of infectious disease and malnutrition, hence the term Integrated Management.¹³

At a provincial workshop held in 1996 in the Western Cape, a multi-disciplinary Provincial Reference Group was established to develop Paediatric Case Management Guidelines, based on the IMCI guidelines for the following paediatric conditions identified as priority conditions in this province:

- Diarrhoeal Disease
- Acute Respiratory Infections
- Malnutrition (including guidelines for Growth Monitoring and Vitamin A supplementation)
- Child Abuse
- Tuberculosis

In 2000 the IMCI was incorporated in the national health policy by the South African Government and DOH.

The development of these standardized guidelines, as well as the training of personnel in the different regions, was financed through the **Integrated Nutritional Programme** (INP) of the South African Department of Health.

The INP is another of the key strategic health programmes to combat malnutrition. At-risk communities or individuals are assisted through this programme which mainly focuses on children under 5 years and especially under 2 years, at-risk pregnant and breast feeding women and “people suffering from malnutrition, nutrition-related diseases of lifestyle, communicable and infectious diseases and debilitating conditions”¹²

The seven key areas of focus of the INP program constitute the following:

- 1) **Disease-specific nutrition support, treatment and counselling**
- 2) **Growth monitoring and promotion** through measurement, recording and interpretation of growth, and detection of growth faltering and malnutrition are the main activities. One of the outcomes of the implementation of the IMCI programme is the monitoring of child growth through the **Road to Health Growth Chart** which is issued to the parents or guardians of every child and becomes their property. For the birth to 1 year age group the chart provides space for monthly monitoring at the clinic.¹²

- 3) **Nutrition promotion, education and advocacy** through improvement of nutritional knowledge, awareness of the INP and development of policies
- 4) **Micronutrient malnutrition control** through promotion of dietary diversification and facilitating micronutrient supplementation and food fortification, as well as supporting interventions to improve the availability of micronutrient rich foods. A **National Food Fortification Task Group** was established in 1997 to investigate the feasibility of fortification of often-consumed foods, to evaluate the consumer acceptability of fortified foods, and to set standards and regulations regarding fortification. As an outcome of the above, and on the basis of the data from the NFCS, it became mandatory in October 2003 that maize meal and wheat flour be fortified with Vitamin A, thiamin, riboflavin, niacin, folic acid, pyridoxine, iron and zinc.¹²

Vitamin A supplementation in mega-dose capsules is a strategy to immediately alleviate the deficiency of this nutrient. In the Western Cape Province, the supplementation policy is medically targeted and differs from the national policy of “blanket” supplementation.

Children with the following conditions receive mega-dosages immediately:³¹

- Growth curve below the 3rd percentile, evidence of growth faltering
- Recurrent diarrhoea
- Recurrent lower respiratory tract infections
- Tuberculosis
- Severe malnutrition (clinical kwashiorkor and marasmus)

Children with the following conditions receive mega-dosages immediately and a repeated dose after 24 hours³¹

- HIV/AIDS
- Measles
- Vitamin A deficiency eye conditions (e.g. Xerophthalmia)

Other components of the INP are:

5) Food service management

This area of work pertains to provision of healthy adequate meals in health facilities and institutions including crèches for pre-school children

6) Promotion, protection and support of breast feeding

This activity entails provision of support and information to care-givers and furthermore involves the implementation of the Baby Friendly Hospital Initiative and implementing the Code on the Marketing of Breast Milk Substitutes.

7) Contribution to household food security

This entails nutritional advice to sectors dealing with household security. The Primary School Nutrition Programme has now been taken over by the Department of Education, but still contributes to food security. The food security, Nutrition and Health Campaign was launched countrywide in April 2002, promoting the home-growing of fruit and vegetables for household consumption.¹²

2.5.3 Proposed South African Paediatric Food-based Dietary Guidelines

As a further strategy to alleviate malnutrition, a set of PFBDGs, appropriate for every age group as discussed in the previous chapter, will be implemented as an educational tool to improve the nutritional status of South African children.⁶

2.6 The relationship of FBDGs to current recommendations regarding infant feeding

As this study is focussed on the preliminary FBDGs for infants of 6-12 months of age, it will subsequently be shown how each of these guidelines relates to current recommendations regarding infant feeding.

2.6.1 Guideline 1: Enjoy time with your baby

This guideline aims to put the holistic development of a young child in perspective. Food and feeding are not the only factors crucial to a child's well being. As one researcher states: "The quality of the relationship between mother and child is more important than the feeding method. A baby raised in a loving home, can grow up to be a healthy, psychologically secure individual no matter how he receives his nourishment."³²

Simply being touched, increases the production of nerve growth factor (NGF), a hormone responsible for a number of functions, the most notable of which is development of the nervous system and maintenance of neuronal function.³³ Furthermore, an association between non-organic failure to thrive and elements of sensitivity and aversion to touch was shown in a study done on 9 one-year old infants with non-organic failure to thrive.³⁴

Aspects of emotional, cognitive and physical development are all integrated into the development of a human being and will be strongly influenced by the quality of the mother-child relationship, as will be briefly discussed.³²

2.6.1.1 Bonding and attachment

The second half of the first year is considered by psychologists to be a crucial period for psycho-social development. The human mother-baby bond seems to be formed during this period and attachment to the mother or primary care-giver is a most important step in the development process.³²

An infant experiencing a secure relationship with its mother or primary care-giver will later on be more enthusiastic, independent and confident to try new experiences. While the mother and child relationship is of the utmost importance, the role of the father should not be underestimated. While the mother provides primarily physical and emotional care, a quality father-child relationship provides excitement and an element of playfulness which stimulates the child.³²

Hunger and feeding are not the main motivations behind attachment, but rather softness, warmth and comfort as was demonstrated in the classic experiment by Harlow with Rhesus monkeys. A preference was shown for the cloth covered, wire surrogate mother rather than the bare wire surrogate even if both options provided feeding.³²

It should be remembered that fear of strangers and fear of separation from the mother are two elements characteristic of the 6-12 month period. Psychologists propose that the main reason for fear of strangers is the child's inability to cope with the sudden unfamiliar situation and not knowing what to expect or how to react, especially if the mother is not present. This fear peaks at 12 months and usually subsides after this period. Fear of separation starts at 8-12 months, the most probable explanation being that the infant does not have as yet a sense of "permanence of objects" disappearing from its field of vision.³²

2.6.1.2 Emotional development

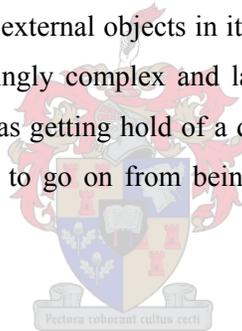
Research has provided evidence that emotional deprivation is strongly associated with adverse effects on development. The infant's life-experience is limited to the small world of its immediate environment and therefore the latter will have a profound effect on the development of the infant. It should also be remembered that personality traits established in early childhood will most likely be permanent.³²

Babies as young as 3 months can already discern emotions in other people and can smile selectively at whom and when they please by the age of 6 months. The positive reaction of grown-ups may reinforce the infant's smiling. At 6 months infants are able to laugh in certain situations such as somebody making a funny face. It has also been observed that interaction between peers can already take place as early as 6 months and this interaction will mainly be smiling at each other or touching.³²

Crying is, however, often the only way of communicating distress. It has been shown that the children of mothers who reacted quickly, soothingly and reassuringly to crying, cried less at 12 months than those of mothers who reacted by scolding or ignoring.³²

2.6.1.3 Sensor-motor development

The world-renowned psychologist Jean Piaget termed the first two years of a baby's life the sensor-motor phase when the child integrates with increasing skill its motor movements such as grasping or crawling with that which is perceived through visual, auditory and tactile perception. In the 6-12 month period, the infant begins to involve external objects in its behaviour, e.g. the reaction to a sound, a toy or a face. Actions become increasingly complex and later in this period, a series of actions can be employed to solve a problem such as getting hold of a desired object. This integration of sensory and motor skills also enables the child to go on from being fed, to self feeding with a spoon or finger feeding.³²



2.6.1.4 Learning of language

The acquisition of language is another fascinating and most meaningful skill which the infant begins to develop at this young age through a creative and complex process. It should be remembered that an infant of 6 months can already react intelligently to language and often "babble", which is the repetition of simple sounds. At 7-8 months the infant can repeat a simple word he has heard, mostly faulty and by chance. At 9-10 months simple words are repeated more intentionally, although without knowing the meaning while, at 12 months of age, simple words such as "cat" are associated with meaning and communication using single words starts. It has been shown that the acquisition of vocabulary and language development is greatly enhanced by parents who communicate with their children. Parents model the language, children imitate and in turn a parent elaborates on what the child says, thus stimulating the acquisition of language.³²

2.6.1.5 Responsive feeding

From the above it is evident that 6-12 months is a period characterised by complex and dynamic interaction between learning strategies, social- and emotional environment, as well as physiologic processes.

The physical care of the infant includes feeding with responsiveness to a child's expressed needs. Encouragement and other psycho-social aspects of care during feeding are important to ensure adequate intake of the child, while a relaxed mealtime environment and positive communication are most important in developing a healthy parent-child feeding partnership.^{28, 32}

Ramsay describes responsive mother-infant mealtime interaction as the infant looking at the mother while interacting by babbling, sharing, showing and exploring. The mother smiles at the infant, gently touching/prodding and praising appropriately while offering food with a good rhythm. Unresponsive feeding would be characterised by the infant refusing food, whining, arching, turning away or throwing a tantrum, while the mother is abrupt, cleaning excessively or treating the child roughly. She may also be uninvolved, gazing away or holding the infant at a distance while being oblivious to the child's attempts to touch or smile.³⁴

The development of good eating habits extends well beyond the provision of adequate and appropriate foods. Positive mealtime interaction and parental mealtime behaviour modelling are extremely important in fostering healthy eating habits and social development.³⁴ Parents should make mealtimes enjoyable and avoid force feeding or coercion. If the parent models enjoyment of a varied, nutritious diet, the infant will more than likely adopt a positive attitude to learning to enjoy new foods.^{30, 36}

2.6.2. Guideline 2: From six months start giving your baby small amounts of solid foods

This guideline pertains to the proper time of introducing complementary foods, the amount of food offered at a meal and the suitability of foods for an infant of this age.

2.6.2.1 The optimum age of introducing complementary foods

For the first six months of an infant's life, human milk will be adequate to sustain growth and development, but beyond this age, complementary foods need to be gradually introduced to provide in the increased need for energy and nutrients enabling the infant to continue to achieve normal growth and development and to learn to accept and enjoy a variety of nutritious food.^{35, 29} Few infants who are fed only breast milk beyond the age of six months remain healthy and grow well and growth faltering

is most evident in infants between six and twelve months if the introduction of complementary foods is delayed for too long.^{36, 37} If the complementary diet is poorly planned, dietary errors and imbalances will become evident in conditions related to nutritional deficiencies or excesses.³⁸

Kramer conducted a review on twenty independent studies with the objective of assessing the effects on child health, growth and development, of exclusive breast feeding for six months versus exclusive breast feeding for three to four months with introduction of complementary foods thereafter, while continuing breast feeding. The reviewer reached the conclusion that none of the studies included in the review suggested that infants who continued to be exclusively breast fed for six months showed any deficits in weight gain or length and neither did any of the results show a significant benefit for growth with the earlier introduction of complementary foods.³⁹

A study by Mehta also revealed that similar gains in length and weight were achieved if introduced to solids as early as 3 months or at 6 months. Interestingly, the data indicated that early introduction of complementary foods displaced energy intake from milk. Infants introduced earlier to complementary food, consumed less of the daily total energy intake from fat-dense formula and more from carbohydrate rich solid foods. This author concludes that complementary feeding before the age of 6 months is unlikely to have any beneficial effect on an infant's health and may even have adverse consequences.⁴⁰

2.6.2.2 Gut permeability as a determining factor

Gut permeability is another important consideration in determining the age of introduction of complementary foods. Gastro-intestinal permeability is associated with immature cells of the gut epithelium and is believed to be the greatest in early infancy and as maturation occurs, the gut epithelium becomes less permeable. Gastro-intestinal infections, malnutrition and conditions associated with immunodeficiency increase gut permeability, probably because of the damaging effect of these conditions.⁴¹ Permeability of the small infant's gut for intact protein molecules is considered an important risk factor for the development of food allergies and introduction of solid foods before the age of 4 months has been associated with a high incidence of atopic dermatitis.⁴²

2.6.2.3 Developmental stages in relation to introduction of solid foods

Dietary variety should be achieved in steps dictated by an infant's individual growth and development. Parents should realise that infants and young children do not develop at the same pace. The ability of children of different ages to chew and swallow food of different physical forms successfully, especially

foods with a thick or solid consistency, is an important consideration regarding the introduction of solid foods. The latter should be offered in small amounts and one at a time. Furthermore, solids should be offered before the milk feed.⁴³

There are clear developmental stages that correlate with a child's ability to physically ingest various forms of food.³⁵

Some of the developmental milestones which make 6 months the ideal age to introduce complementary foods are:

- The development of the mechanism whereby solid foods are transferred from the front of the tongue to the pharynx.
- Tooth eruption, usually starting with mandibular incisors
- The inclination to put objects in the mouth as part of a quest to explore⁴⁴

Infant behaviour displaying feeding skills, signals a child's readiness to progress to new types of food, textures and feeding modes. Pridham describes milestones for oral, hand-to-mouth, fine-motor, body positioning and communication skills in relation to infant feeding. These milestones include taking food from a spoon, handling thicker or lumpier foods and foods that require chewing, self feeding with fingers or from a spoon, and cup drinking.⁴⁵

At 6 months the infant can take pureed, semi-solid food from a spoon and the protruding movement of the tongue when food is placed upon it decreases. Several skills to communicate hunger and satiety are developed, such as sputtering noises or shaking of the head to communicate satiety.⁴⁵

When 7-8 months old, the infant can remove mashed food from a spoon using upper and lower lips and bringing the head forward. The ability to sit without support, gives freedom to reach for and digitally grasp food, to secure and release objects and to transfer objects from hand to hand. These are skills necessary for finger feeding. Furthermore, a munching type of oral-motor activity with up and down movements of the jaw and the ability to sit without support signals readiness for thicker, lumpier food. The increasing ability to move the tongue flexibly, also gives the infant the capacity to manipulate food before swallowing. Some authors claim that it is critical to introduce lumpier food at this stage to ensure future acceptance. However, Daelmans warns against the danger of foods which may cause choking such as raw carrots, nuts and grapes which may obstruct the trachea as a result of their shape

and consistency. At this stage the infant starts to vocalize eagerness when placed in the chair or when seeing food.^{35, 36 45}

When an infant starts to reach for a spoon, it signals a readiness for self-feeding and at this stage may refuse to be spoon fed and insist on finger feeding itself. Appropriate food for finger feeding would be finely cut soft meat or chicken and small pieces of soft fruit or vegetables and grated cheese. If spoon fed, the infant can vocalize impatience when food is presented too slowly, or may turn away from the feeder and may throw food on the floor when satiated.⁴⁵

2.6.2.4 Foods recommended as suitable complementary foods

The nursing period already marks the beginning of the breast fed infant's introduction to dietary variety as human milk carries the flavours of some of the foods in the mother's diet and may expose the infant to the flavours of its culture long before solids are introduced. Familiar flavours may help an infant to readily accept complementary foods and thereby facilitate transition to a varied diet.³⁵

Young infants have immature digestive and excretory systems and are not equipped to handle a large variety of foods. Their need is for energy dense foods which are easily digestible and readily metabolized.³⁵

Carbohydrate rich foods such as fruits, vegetables and grains are usually the first complementary foods to be introduced and become even more important as the child grows older when staple grains very often form the basis of the everyday diet. These foods are sources of complex carbohydrates, sugars, micronutrients and a mixture of dietary fibres. Introducing fruit and vegetables in the infant's diet facilitates dietary balance and diversification in addition to providing micronutrients and energy. Vitamin A and C-rich fruits and vegetables should be given daily to ensure adequate intake of these nutrients. Vitamin A-rich vegetables and fruit being mainly carrots, butternut, pumpkin, peas, peaches, mango and paw-paw, while richest sources of vitamin C are tomato, citrus fruit and guava.^{35, 43}

In addition, an adequate intake of vitamin C rich fruits may enhance the uptake of non-heme iron from foods such as cereals. However, excessive intake of fruit juices has been shown to displace nutrient dense solid foods and milk and could also lead to malabsorption of sugars such as fructose or sorbitol commonly found in fruit juice. The American Academy of Paediatrics Committee on Nutrition therefore cautions that excessive juice intake may lead to gastro-intestinal problems, such as diarrhoea, abdominal pain and bloating. Apart from this, excessive fruit juice consumption has also been linked to

failure to thrive. Furthermore, drinks with a low nutrient value such as tea, coffee and sugary drinks should be avoided as they displace more nutrient-rich foods.^{36, 46}

Furthermore, authors such as Daelmans stress that a vegetarian diet cannot meet nutrient needs at this age unless nutrient supplements or fortified products are used.³⁶

Following the SAVACG study and the NFCS which showed that for South Africa as a whole, children's diets were deficient in iron, selenium, calcium and zinc as well as most vitamins, especially Vitamins A, C, D, E and B2, B3 and B6, the fortification of maize-meal and wheat flour, specifically bread flour, became mandatory since October 2003. Fortification of the product is indicated by a distinctive logo on packaging (Figure 2.1).⁴⁷



Figure 2.1: The logo indicating fortification with vitamins, iron and zinc as it appears in colour or monochrome on packaging of bread flour, bread, and maize-meal

The infant should also be introduced to foods such as the yolk of a soft boiled egg, finely minced home-cooked meat or chicken and boneless fish. At 9 months of age the ideal diet would consist of breast milk and a variety of solid foods including cereal, fruit, vegetables, meat, chicken and fish. Appropriately prepared family meals are quite suitable for the 9 month old infant, but it should be remembered that polyphenols such as tannins in tea, phosphates in cow's milk and phytate in whole grain cereals all inhibit the availability of dietary iron.^{35, 43}

Due to their allergenic properties, egg white and cow's milk should not be introduced before 12 months and peanut products preferably not before 3 years. Especially in the presence of a family history of atopic disease, wheat, fish and soy should also be avoided during the first year of life.^{43, 48, 49}

It was found that the current USA feeding practice of using iron-fortified cereal does not meet the infant's iron requirements if whole cow's milk is used during the 6-12 month period. Infants fed whole

cow's milk had nutritionally significant iron loss from stools and this blood loss occurred in 30% of infants fed whole cow's milk for the first time when they were 6 months old.⁴⁹

Apart from the above concerns, low-fat cow's milk is an even more inappropriate food due to its low fat content. Guidelines developed for healthy adult diets are not necessarily appropriate for infants and small children and restrictions intended to reduce the risk of adult disease, could retard growth and development in infants and very young children. Restricted-fat and high fibre diets are therefore not appropriate for infants and children under the age of two as a diet high in fibre and complex carbohydrates and low in energy does not meet the nutrient needs of rapidly growing infants. Nutrition in this age group should promote growth and development rather than focussing on the prevention of adult degenerative disease.^{35, 49}

Diets with an adequate fat intake should be provided to meet the need for energy, to facilitate the absorption of fat soluble vitamins and to provide essential fatty acids.^{36, 50} Lipids in complementary foods should preferably be plant-based, such as canola or olive oil, or from beef, lamb, chicken or liver. Fish and peanut products are not recommended for children under one year due to their allergenic properties.⁴⁸

A joint working group from the Canadian Paediatric Society and Health Canada affirmed the above by stating that the adequate intake of energy and nutrients to support optimal growth and development remains the most important consideration in paediatric nutrition and that nutritious food choices should not be eliminated or restricted because of fat content.⁵¹

Sodium is an essential mineral responsible for several physiological functions of which the most important are the maintenance of the extra-cellular fluid compartment and normal blood pressure. In later infancy the moderate use of salt in selected foods is appropriate and it is neither safe nor reasonable to try to eliminate salt from the infant diet. A preference for salty foods develops at about 6 months of age and the older infant may start rejecting once-favourite foods because they start to taste bland. However, excess sodium should be avoided as this leads to the expansion of the extra-cellular fluid compartment and to a small but significant elevation in blood pressure.⁵²

One study among West African infants indicated that intakes of complementary foods increased progressively in relation with the level of sweetness of the preparations. This must however be weighed against the possible risks of excessive sugar intake, such as displacement of more nutrient-

rich foods and promotion of dental caries.³⁷ It has been shown that any fermentable carbohydrate, including sugar, which stays in contact with the teeth, can contribute to dental caries. Therefore, proper feeding practices, dental hygiene and fluoride protection should be emphasised to prevent dental caries as will be more fully discussed in a subsequent guideline.³⁵

2.6.2.5 The use of processed complementary foods

Processed foods have become more affordable for low-income families and with the increase in employment of women, the demand for pre-cooked products requiring less time to prepare is growing. One difficulty with processed and enriched foods is the huge range of intake of such foods. Foods formulated for infants could result in excessive intake of nutrients when consumed in larger amounts by older children. Other disadvantages of processed complementary foods would be the cost which is still high relative to home prepared foods, and the fact that introduction of culture specific family foods is delayed. A child introduced to typical family foods later on, may reject it in favour of the processed foods.³⁷

Advantages of processed foods include convenience, the ease of providing an appropriate balance of nutrients, potential time saving and the possibility of reducing microbial contamination. Despite these advantages, processed foods should not be the sole component of a complementary feeding program and it is recommended that food suitable for the infant is drawn from the family pot.³⁷

2.6.3 Guideline 3: Gradually increase your baby's meals to five times a day

This guideline relates to meal frequency. The infant's limited gastric capacity and their simultaneous large requirement for energy and nutrients, especially minerals, creates the need for small, frequent and energy- and nutrient-dense meals to provide in the increasing energy, macro- and micro-nutrient requirements of the growing infant. Caregivers should be sensitive to a child's hunger and satiety cues and feeding the infant until it rejects further food and not force feed is sensible advice. If complementary foods are offered too frequently or in too large quantities, it will most probably negatively affect breast feeding. On the other hand, an inadequate energy and nutrient intake will inhibit growth and lead to malnutrition and nutrient-deficiency states.^{37,40}

2.6.3.1 Energy requirements

The new FAO recommendations for energy intake during infancy are 5 to 13% less than those published in 1998 in a WHO/UNICEF document on complementary feeding. The proposed new

recommendations are described as appropriate estimates of the energy needs of healthy US breastfed infants and are intended to replace the 1998 WHO/UNICEF recommendations.³⁷

Of interest is a comparison of the WHO/UNICEF 1998 recommendations and the proposed FAO recommendations, as well as Dietary Reference Intakes (DRIs)⁵³ for energy needs for the 6-12 months age group (Table 2.2).^{37, 53}

Calculation of the energy required from complementary foods is based on an estimate of the energy derived from the intake of breast milk or a substitute. For infants in developing countries with an assumed average breast milk intake, Daelmans recommends an energy intake of 200 kcal per day for infants 6-8 months of age and 300 kcal per day for infants 9-11 months of age from complementary foods. This concurs with the FAO recommendations given below (Table 2.3).^{36, 37}

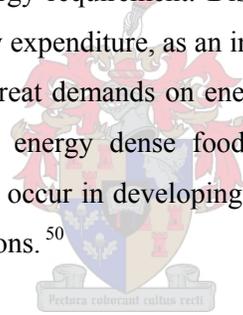
Table 2.2: Comparison of the WHO/UNICEF 1998 recommendations and the FAO 2002 recommendations, based on a US longitudinal study, as well as DRIs for energy needs of the 6-12 months age group³⁷

Age group	Recommended energy intake (kcal/day)			Recommended energy intake (kcal/kg bodyweight/day)		
	WHO/UNICEF 1998	FAO 2002	DRIs	WHO/UNICEF 1998	FAO 2002	DRIs
6-8	682	615	676 girls	83	77	
			743 boys			82 boys
9-11	830	686	As above	89	77.5	As above
	MJ/day			MJ/kg bodyweight/day		
6-8	2.85	2.57	2.84 girls	0.36	0.32	0.32 girls
			3.12 boys			0.34 boys
9-11	3.47	2.87	As above	0.37	0.32	As above

Table 2.3: Energy requirements from complementary foods, based on WHO/UNICEF 1998 recommendations, the proposed FAO recommendations, as well as DRIs for energy needs of the 6-12 months age group, with an assumed daily milk intake of \pm 630 ml per day ³⁷

Age group (months)	Total energy requirements			Energy from milk intake kcal/day	Energy from complementary foods		
	WHO/UNICEF 1998	FAO 2002	DRIs		WHO/UNICEF 1998	FAO 2002	DRIs
6-8	682	615	676 girls 743 boys	413	269	202	263 girls 330 boys
9-11	830	686	As above	379	451	307	As above
				MJ/day			
6-8	2.85	2.57	2.84 girls 3.12 boys	1.73	1.12	0.84	1.11 1.39
9-11	3.47	2.87	As above	1.59	1.88	1.28	As above

In developing countries, the heavy burden of infectious and parasitic disease borne by infants and children accounts for a higher energy requirement. Disease such as diarrhoea has a growth limiting effect, affecting appetite and energy expenditure, as an increase in metabolic rate is the normal reaction to fever. Catch-up growth places great demands on energy needs during recovery periods. Such high intakes can only be achieved by energy dense foods with a high fat content. With concurrent micronutrient deficiencies, as often occur in developing countries, energy is used even less efficiently than under more favourable conditions.⁵⁰



The frequency of feeding complementary foods would depend on the energy density of the food. Theoretical estimates were developed for a minimum acceptable energy density for complementary foods, taking into account that very little information is available on the effect of energy density of complementary foods and frequency of feeding on breast milk intake. Calculations of required energy density of complementary foods for the WHO/UNICEF 1998 document were made by dividing the estimated total energy requirement from complementary foods by the amount of complementary foods given, also taking into account that infants have an assumed gastric capacity of 30g/kg body weight per meal (Table 2.4).³⁷ Although not shown in the literature, the following is proposed as a method of calculating the required energy density of complementary meals. Bearing in mind the infant's small gastric capacity and the assumed breast milk intake of \pm 630 ml per day, the quantity of solid foods taken at one meal is estimated at 150 g. Taking 3 meals per day, the energy requirement of \pm 265 kcal from complementary foods per day is divided by the quantity of solid food which amounts to 450g per day ($265 \text{ kcal} \div 450\text{g} = 0.59 \text{ kcal/g}$) The energy density of the meals is therefore required to be 0.59

kcal/g. Taking only 2 meals of complementary food per day, would require a food energy density of 0.88 kcal/g ($265 \text{ kcal} \div 300\text{g} = 0.88 \text{ kcal/g}$).³⁷

Table 2.4: The minimum energy density of complementary foods required to attain the recommended levels of energy intake in 2 to 5 meals per day served to children with an estimated average daily intake of $\pm 630 \text{ ml}$ breast milk³⁷

Meals/day	Energy density of meals required (kcal/g)			
	6-8 months		9-11 months	
	WHO/UNICEF 1998	FAO	WHO/UNICEF 1998	FAO
2/day	0.88	0.71	1.16	0.84
3/day	0.59	0.48	0.77	0.56
4/day	0.44	0.36	0.58	0.42
5/day	0.35	0.29	0.46	0.43

If most households were able to prepare meals with an energy density of 1.0 kcal/g, children in all age groups should be able to consume enough energy if they received at least three meals per day. Only with a minimum meal energy density of 0.8 kcal/gram children in the 6-11 months age group would be able to attain required energy levels on three meals per day (Table 2.5). The average expected energy intake from complementary foods would be approximately 840 kJ (200 kcal) at 6-8 months and 1890 kJ (450 kcal) at 9-11 months.³⁷

Table 2.5: The minimum daily number of meals with an energy density of 0.6, 0.8 and 1.0 kcal/g for children with low breast milk intake, according to age group³⁷

Energy density of food (kcal/g)	No of meals per day required in specified age group	
	6-8 months	9-11 months
0.6	4	4
0.8	3	3
1.0	2	3

The intake of complementary foods is influenced by a number of independent factors:³⁷

- The child's appetite
- the caregiver's feeding behaviour
- the characteristics of the diets themselves

2.6.3.2 Macro-nutrient requirements

- **Lipids**

The amount of lipids that should be provided by complementary foods depends on the infant's intake of breast milk and can be calculated to provide together with breast milk 30 to 45% of dietary energy as lipids. According to Dewey's calculations a child in the 6-8 months age group with an average to high intake of breast milk (600 to 895g/day) will not need any lipids coming from complementary foods, assuming that the mother is well-nourished with a breast milk lipid concentration of 38g/L. However, with a breast milk intake of only 300g/day, the infant would need 19% of the energy value of complementary foods to be coming from lipids to ensure that 30% of the total energy value of the diet is supplied by lipid.³⁷

- **Protein**

The amount of protein required from complementary foods can be calculated by subtracting the protein coming from breast milk from the total daily protein requirement for each of the age intervals 6-8 and 9-11 months. A total intake of 13.5g/day or 1.52g/kg/day is the current RDA for this age group (Table 2.6).⁵³ Assuming an average breast milk intake of 600 ml per day, with a protein content of 16g/L the amount of protein supplied by breast milk would be 9.6g/day. Protein needed from complementary foods would therefore increase from approximately 2.5g/day at six months to approximately 6g/day at 12 months.³⁷

- **Carbohydrate and fibre**

Breast milk supplies 40% of its energy in the form of lactose²⁷ and together with carbohydrate rich foods such as a variety of fruit, vegetables and suitable grains, infants will get all the carbohydrate and fibre they need. Fibre has a bulking effect which will lead to early satiety, preventing the infant from taking in enough nutrient dense foods. Phytate in bran and wholegrain cereals will impede the absorption of important minerals such as iron from the diet. With this in mind, high fibre grain products or added dietary fibre is not recommended for infants.³⁵

2.6.3.3 Micro-nutrient requirements

According to Dewey, the amount of vitamin A, folate, vitamin B12, vitamin C, iodine and selenium, needed from complementary foods before 12 months, is zero or close to zero, because human milk contains generous amounts of these nutrients if a mother is well-nourished.³³ In contrast to this statement, Vitamin A deficiency was found to affect one third of South African children under the age of 6 years and has been identified as a significant public health problem in this country.⁷

In spite of progress worldwide in improving child health and survival rates, the problem of iron deficiency anaemia persists, affecting the lives of 30 to 40% of children. Furthermore iron deficiency is associated with impaired immune function and developmental rate, as well as abnormal cognitive and social development, delays in body-balance coordination and development of motor skills such as crawling, standing and walking. Evidence exist that these adverse effects of anaemia persist throughout childhood even if the condition is corrected by iron supplementation during infancy.^{35, 43}

Nutrient and energy requirements of infants 6-12 months old are summarised below (Table 2.6)⁵³.

Table 2.6: The nutrient requirements, expressed as DRIs or RDAs, of infants 6-12 months of age⁵³

Nutrient	DRI/ RDA	Assumed intake from 600 ml breast milk or substitute formula	Needed from complementary foods daily
Energy	743 boys 676 girls	400 kcal 400 kcal	343 kcal 276 kcal
Fat (total)	30 g	21.2 g	8.8 g
n6 PUFA	4.6 g	5.3g	-
n3 PUFA	0.5 g	-	0.5 g
Protein (RDA)	13.5 g	9.6 g	3.9 g
Calcium	270 mg	152 mg	118 mg
Phosphorus	275 mg	88 mg	187 mg
Magnesium	75 mg	20 mg	55 mg
Iron (RDA)	11 mg	0.56 mg	10.44 mg
Zinc (RDA)	3 mg	2.24 mg	0.76 mg
Fluoride	0.5 mg	-	-
Iodine	130µg	108 µg	22 µg
Selenium	20µg	-	-
Chromium	5.5 µg	n. a.	-
Vitamin C	50 mg	26.8 mg	23.2 mg
Vitamin A	500µg	86.4 µg / 288 IU	413 µg
Vitamin D	5µg	1.2 µg /48 IU	3.8 µg
Vitamin E	5 mg	2.4 mg	2.6 mg
Vitamin K	2.5 µg	12 µg	-
Thiamine	0.3 mg	0.056 mg	0.244 mg
Riboflavin	0.4 mg	0.164 mg	0.236 mg
Niacin	4 mg	1.2 mg	2.8 mg
Pyridoxin	0.3 mg	0.036 mg	0.264 mg
Folic acid	80 µg	20 µg	60 µg
Vitamin B12	0.5 µg	0.12 µg	0.38 µg
Pantothenic acid	1.8 mg	1.2 mg	0.6 mg
Biotin	6 µg	3.2 µg	2.8 µg

In developing countries where poverty may restrict the intake of meat and other iron-rich foods such as fortified cereals, breast feeding extending well beyond the first year may be the first line of defence against iron deficiency anaemia, although the iron content of human milk is relatively low. In addition the enrichment of staple cereals such as maize may do much to alleviate the problem.³⁹

Relating to immune function and growth, the consequences of zinc deficiency are likely to be extensive but not necessarily easily recognized as such. The amount of zinc in human milk declines with prolonged breast feeding while foods with high natural zinc content such as meat, organ meat and shellfish are not generally fed to children in developing countries. Additionally, phytate in a predominantly staple-cereal-based diet may inhibit the uptake of zinc.³⁵

2.6.4 Guideline 4: Keep breast feeding your baby

Breast milk continues to provide substantial amounts of key nutrients well beyond the first year of life, especially protein, fat and most vitamins. The message to continue breast feeding should be accompanied by instruction on how mothers could maintain an optimal milk supply.³⁶ Furthermore women should be advised through a variety of teaching methods on the uniqueness of breast feeding, the advantages thereof and the breast feeding process even before the birth of the child. They should also be informed about ways to maintain lactation if they need to be separated from their children, for example through employment. Sustained breast feeding for up to two years and beyond, with increasing amounts of complementary foods, should be emphasised.⁵⁴

It is recommended that breast feeding should be offered as often as the infant desires to avoid excessive displacement of breast milk by other foods. After the initial period of exclusive breast feeding, infants should continue to be breast fed for up to two years and beyond, while receiving adequate and safe complementary foods.^{29,30}

With age it is expected that children will be completely weaned from breast milk and the goal of this recommendation is not to sustain the same intake of breast milk indefinitely, but to contribute energy, nutrients and non-nutritive factors from which the infant may benefit while the proportion of breast milk in the infant diet gradually diminishes as the infant consumes a greater variety of family foods as it grows older.³⁷

2.6.4.1 Superior nutritional qualities of breast milk

Breast feeding can be lifesaving in developing countries. Markedly reduced mortality, especially due to infectious disease, is associated with breast feeding even into the second year of life. Overwhelming

evidence exists according to the reviews by Kramer and Lanigan that breast feeding protects against gastro-intestinal and to a lesser extent respiratory infection and that this effect is enhanced by longer duration and exclusivity of breast feeding in first 6 months. Breastfed infants typically exhibit less morbidity and superior cognitive development compared with formula fed infants, implying that infants who continue to be breast fed tend to be those who remain healthy and on an acceptable growth trajectory.^{29, 30, 39}

Breast milk is a relatively more abundant source of lipids than most complementary foods and the easily digested fat in human milk is particularly well suited to the needs of rapidly growing infants.³⁷ Arachidonic Acid (AA) is referred to as the most important n6 long chain poly-unsaturated fatty acid (LCPUFA) and Docosahexanoic acid (DHA) as the most important n3 LCPUFA in breast milk. These fatty acids are important components of cell membranes, especially in the central nervous system and retina. The ratio n6:n3 in breast milk ranges from 5:1 to 10:1 and even to 18:1 in areas where safflower, sunflower and maize oils are consumed. However, the AA:DHA is commonly 1:1 or 2:1 in breast milk. Eicosapentanoic Acid (EPA) is only found in breast milk where fish is consumed in substantial quantities. To some extent humans can synthesise AA and DHA from their precursor fatty acids linoleic acid and α -linolenic acid.^{55, 57}

A study to determine the influence of fat from solid foods on plasma levels of long chain polyunsaturated fatty acids showed that during the second 6 months of life, after the introduction of solid foods, plasma content of AA and DHA is lower in formula fed than in breast fed infants. However, percentages of plasma lipids and plasma cholesteryl esters of AA correlated positively with the amount of fat derived from solid foods, mainly meat and chicken. This would indicate that despite the relatively low content of polyunsaturated fatty acids of complementary foods usually offered, they do raise the plasma levels of arachidonic acid through synthesis from dietary fats, but not to the level achieved by breast fed infants.⁵¹

However, the percentage of DHA decreased markedly in the plasma of formula fed infants, and showed no correlation with the intake of dietary fat derived from solid foods. This would reflect the lack of n3 fatty acids, as it should be remembered that weaning foods as a rule supply very little if any n3 long chain polyunsaturated fatty acids. The use of fish is very rare under the age of 1 year due to its allergenic properties, so it appears that infants under 1 year of age can rely solely on breast milk as a source of the all important DHA.⁵⁶

Profound inadequacy of long chain fatty acids usually develops when children are weaned from the breast, especially in developing countries.⁵⁰

Human milk provides 40% of its energy value from carbohydrates in the form of lactose.²⁷ Sugars such as lactose and fructose are readily metabolized and serve as an efficient energy source for rapidly growing infants. Almost all infants have from the first day of life fully functional digestive enzymes and absorptive pathways to digest, absorb and utilize dietary sugars and oligosaccharides.³⁵

2.6.4.2 Growth of breast fed infants

The US National Centre for Health Statistics (NCHS) developed growth charts in 1977, based upon data collected between 1929 and 1975 as part of the Fels Longitudinal Study. Very few infants in this study were breast fed for more than three months and infants were very homogenous regarding ethnic and racial background. Technical difficulties also limit the usefulness of these reference data. Some technical problems regarding the outdated curve fitting procedures have been rectified by the NCHS, and new growth charts were released in 2000, although still not specifically for breast fed infants. Currently the WHO is developing a new international growth reference based on the growth of healthy infants, breast fed throughout their first year of life.³⁰

When the growth pattern of a breastfed infant is plotted on a 1977 NCHS growth chart the downward trend in percentile ranking after three months is typically observed. A review of 19 studies showed that breast fed infants invariably gain less weight for length than formula fed infants, and they tend to be thinner than the latter although no difference in linear growth was observed. This difference in growth pattern should not be interpreted as growth faltering, but it should be recognised as a more efficient self regulation of energy intake at a lower level by breast fed infants. However, this phenomenon may lead some health care providers to believe that growth faltering is occurring and that the supply of breast milk is inadequate; a situation that may lead to a premature introduction of complementary food or switching to a formula. The growth pattern of the breast fed infant should be considered the biological norm.³⁰

Interestingly, in a study of the effects of infant feeding patterns on the development of the occlusion of the primary teeth, Charchut refers to the positive influence that the strenuous muscle activity associated with breast feeding has on the development of the facial muscles and the thrust and growth of the mandible. This author also refers to studies where it was shown that increased duration of breast

feeding was associated with a decline in the incidence of occlusal anomalies and the need for later orthodontic treatment.⁵⁶

2.6.4.3 Displacement of breast milk by complementary foods

Due to self-regulatory energy intake, infants will tend to reduce their breast milk intake when given a large amount of energy from other foods. Therefore, some complementary feeding programmes may unintentionally compromise breast feeding. The degree of displacement of breast milk by non breast milk foods depends on age. After 6 months, each kcal from non-breast milk sources seems to replace about 0.3 to 0.4 kcal from breast milk. Even with maintenance of the number of breast feedings, there will inevitably be some displacement of breast milk.³⁷

Theoretically the degree of displacement could be affected by

- Frequency of complementary meals
- Energy density of complementary feeds
- Breast feeding before or after complementary feeds
- Mode of feeding the complementary feeds.

Dewey³⁷ describes two studies in Guatemala and Nigeria from which it could be concluded that increasing the frequency of complementary feeds affects breast milk intake more than increasing the energy density of the complementary feeds. The latter more likely affects the quantity of complementary feeds taken. Dewey describes a United Kingdom study conducted by Drewett et al. in which the influence of the order of feeds on intake of breast milk was investigated by measuring time at the breast before and after complementary feeds on alternate days. The results indicated that the milk intake was lower when solids were fed before breast feeding. However, over the total 24 hour period there was no difference in time at the breast irrespective of whether the complementary meals were fed before or after breast feeding. It suggests that infants self-regulate their intake of breast milk by consuming more or less milk during other feeds in the course of the day and night.³⁷

To determine the optimal ratio of energy from breast milk to energy from complementary feeds is no simple task and will depend on the setting. In countries where food is scarce or variety is small, the infant will rely more on breast milk for its nutritional needs. The quality of the complementary food will thus determine the nutritional trade-off between breast milk and complementary foods. In a study in Bangladesh, among infants aged six to twelve months, it was estimated that the displacement rate was 43 kcal of breast milk for every 100 kcal of complementary food. The intake of 100 kcal from

complementary food would therefore, depending on the nutrient content of the complementary food, theoretically result in a net gain of 57 kcal with a 20% increase in protein intake, a net decrease in vitamin A and C intake, and a very small increase in riboflavin, zinc, iron and calcium without taking the bioavailability of these nutrients from complementary foods into account.³⁷

These results indicate that an increase in the intake of the typical complementary foods, that is staple cereals, would not substantially improve the nutrient intake of these infants, but could have adverse effects on the micronutrient status, especially if the foods are contaminated and lead to greater morbidity. If the nutrient quality of the complementary food could be improved, the situation would be very different.³⁷

Displacement of breast feeds by complementary feeding may have other health consequences for both mother and infant, aside from the nutritional trade-offs. For the infant, increased risk of infection may result from a reduced intake of anti-infective components present in breast milk. For the mother the reduced frequency and intensity of suckling may decrease duration of lactation amenorrhea and increase her chances to become pregnant again sooner in the absence of other contraceptive measures. In populations where these outcomes pose a health risk, it is particularly important to promote and sustain breast feeding for as long as possible.³⁷

There is no single prescription for avoiding excessive displacement of breast milk. The most important advice would probably be to breast feed as often as the infant desires. If the mother's employment makes it difficult to breast feed during the day, expressed breast milk should be fed by cup by the infant's caregiver, while the mother breast feeds at night.³⁷

2.6.5 Guideline 5: Offer your baby clean, safe water regularly

The importance of this guideline primarily relates to aspects of oral health as well as the physiological importance of providing adequate fluid, especially at the stage when solid foods are being introduced. In view of the importance of water as a nutrient, an infant over six months should be offered water that is clean and safe regularly in order to maintain an optimum hydration status. (Exclusive breast feeding is recommended for infants younger than six months).⁶

2.6.5.1 Oral health and fluoridation of water

As oral health was mainly the motivation for this guideline, the importance of regular water intake and adequate fluoride intake through drinking water, or supplements, needs to be highlighted.^{5,6}

Children under 3 years are particularly prone to what is referred to in the literature as early childhood caries (ECC), a term referring to dental caries in the primary teeth, and defined as the presence of one or more decayed (non-cavitated or cavitated), missing (because of caries), or filled tooth surface in any primary tooth.⁵⁸ Lucas describes this condition as “baby bottle tooth decay”. Especially where the water supply is not fluoridated, the prevalence of this condition can be as high as 20%. According to this author, caries develop most often on the primary upper front teeth (incisors) and often also on the cheek surface of the primary molars. Children of poor families were found to be at highest risk.⁴⁶ This association between ECC and lower socio-economic status as well as lower level of maternal education was confirmed in a Thailand study of 6-19 month old children. However, the logistic regression model in this study revealed that only the level of *Streptococcus mutans* was a statistically significant predictor of ECC.⁵⁸

Micro-organisms associated with the oral cavity, including *Streptococcus mutans* and *Lactobacillus*, which are both associated with dental caries and periodontal disease, are present in the mouth of an infant as early as 6-10 hours after birth. Before the eruption of primary teeth at about 6 months of age, these organisms are found at low levels, but numbers increase once the teeth starts erupting. Adhesive extra-cellular polymers are produced from fermentable carbohydrates by these organisms, enabling them to cling to the tooth surface. Fermentable carbohydrates stagnate around the cervical margins of the crowns of the teeth and during sleep, when the salivary flow diminishes, the acid produced by these bacteria from the carbohydrate remains un-buffered and can lower the pH in the oral cavity to below 5.5 leading to demineralisation of the tooth enamel. It can therefore be assumed that the cariogenicity of food is related to its carbohydrate content, the fermentability of the carbohydrate, as well as its stickiness or retentiveness on the tooth surface and the frequency of eating it. Fermentable carbohydrates include glucose, sucrose, fructose and lactose.^{46, 59}

It was found in a study of dietary habits and oral health in Kenyan children that severe and rampant dental caries in children as young as nine months old could be associated with nocturnal “at will” breast feeding where the infant sleeps in the same bed as the mother with the nipple in its mouth and sucking as the need arises. Furthermore it could not be shown that the addition of sugar to formula or porridge had any detrimental effect, but it should be remembered that a period of 18 months is sometimes required for a dental lesion to become visible.⁵⁹

Children should be taught and supervised to practice good oral hygiene from an early age as this can play a preventative role by lessening the presence and growth of *Streptococcus Mutans*. Infants’ gums

and teeth should be cleaned with a clean cloth or gauze and in the toddler stage a toothbrush should be introduced. Additionally, if the water supply is not fluoridated, a supplement should be given.^{46,60}

However, contrary to the above regarding fluoridation of water, King found in a study investigating the relationship between oral health habits of 0-4 year old children in China and the prevalence and distribution of caries in this population, that a fluoridated public water supply did not seem to have as large an influence on the prevalence of caries in this age group as had ethnic, social and cultural practices. Only 14% of the children were breast fed beyond 6 months, 96% were using a bottle for milk feeds and more than 50% took the bottle to bed at night. Furthermore 80% of the children had a snacking habit of predominantly sweets, which are often given as a reward to children.⁶⁰ (The role of feeding bottles in the aetiology of ECC, as discussed in the literature, will be described in more detail in a subsequent paragraph on cup feeding).

Interestingly, as all the children in King's study were formula fed, this author also observed that certain infant formulas actively support bacterial growth and have a low buffering capacity. In vitro studies of formulas indicated that those with low iron content and those based on soybean appeared to be more cariogenic.⁶⁰

The American Academy of Pediatrics does not support routine fluoride supplementation for normal healthy children, except in areas where drinking water does not contain an adequate level of fluoride. A fluoride supplementation schedule for children is suggested by Lucas⁴⁶ (Table 2.7). Supplementation quantities are milligrams of fluoride supplement per day.

Table 2.7: Fluoride supplementation schedule for children aged 6 months to 16 years in relation to the fluoride content of the available water supply⁴⁶

Age	Fluoride concentration in water supply (ppm)		
	Less than 0.3	0.3-0.6	greater than 0.6
6 months -3 years	0.25	0.00	0.00
3-6 years	0.50	0.25	0.00
6-16 years	1.0	0.50	0.00

In South Africa mandatory fluoridation of drinking water has been proposed, but the promulgation of such legislature has been postponed indefinitely. Incidentally, the municipality of the Greater Oudtshoorn area, where the present study was done, is one of the municipalities which applied for exemption from mandatory fluoridation. The source of the water supply in the study area is pure, high

quality mountain water with a very low mineral content. The fluoride content of the Raubenheimer Dam plant which supplies the town, is reported to be 0.1 ppm^{61, 62}

2.6.5.2 The physiological importance of water

The US National Research Council recommends a water intake of 1 ml/ kcal energy expenditure for adults and 50% more, that is 1.5 ml/kcal energy expenditure for children. In South Africa this dietary guideline is an important one as the climate is hot and relatively dry.⁶³

As explained by Bourne,⁶³ “water pervades the whole human body and is essential to life for various reasons:

- It plays an active role in biochemical reactions which mostly occur in water.
- It forms the basis of extra- and intracellular fluid compartments, creating an internal environment for optimum functioning of cells.
- Water provides a medium for transport of blood components, nutrients and metabolic products for redistribution or elimination.
- Water is also a major component of the thermoregulatory system of the body.”

Water is required in amounts exceeding the body’s ability to produce it. The normal daily turnover of body water, without taking losses from the lungs and skin into account is in excess of 4% of total body weight for a child. Water turnover for an infant weighing 8 kg would therefore be in excess of 320 ml/day. Loss of water from the lungs and skin accounts for half of the total turnover, which then amounts to a minimum total of 640 ml/day. In hot, dry conditions, losses can be much higher.⁶³

Especially with children it is important that a minimum amount of body water must at all times be available to maintain a tolerable renal solute.⁶³

Water based drinks such as tea and coffee or cordials are not recommended for infants. Tannins in tea impede the absorption of iron from food, while the extra calories from cordials may displace energy from more nutritious foods. Additionally additives such as colorants and preservatives may create sensitivity related problems, while sugary drinks may promote dental caries.^{35, 41, 46, 60}

2.6.5.3 Water safety

It should be remembered that water is a potential source and/or carrier of various pathogens, causing diseases such as gastroenteritis, dysentery and cholera. Shigellosis is another water related disease

associated with inadequate water supply to maintain hygiene. Furthermore, Anopheles mosquitoes, carriers of the malaria pathogen, breeds in unclean standing water. Bourne states that diarrhoeal disease constitutes 95% of water related diseases and in South Africa 20% of deaths in the 1-5 years age range is caused by infectious intestinal diseases and that in developing countries worldwide, diarrhoeal disease is the leading infectious cause of childhood mortality and morbidity, accounting for more than one third of paediatric deaths.⁶³

According to census data, obtained from a study conducted by E Thomas et al., that were referred to by Bourne,⁶³ households having taps inside the home, varied from 18% in the Northern Province to 76% in the Western Cape in 2001, and about 12 million out of a population of 44 million in South Africa did not have access to an adequate water supply. A study of water quality in Port Elizabeth has revealed that water is contaminated at various points in the sequence of usage and that taps are contaminated by dirty hands and animals. Unclean storage containers can be incubation sites for pathogens.⁶³

In view of the danger associated with unclean water, child minders should be educated to handle water in a hygienic way. Personal hygiene, such as the washing of hands after visiting the toilet and before handling food and water is of the utmost importance to prevent contamination of food and water. Furthermore, water from natural sources such as dams, rivers and reservoirs should be treated to render it safe for human consumption. Bourne recommends that in view of the vulnerability of the six to twelve months age group, boiling and hygienic cooling down of drinking water should be routinely recommended and that mothers and care-givers should be educated in the mixing and use of rehydration solution in cases of diarrhoeal disease.⁶³

2.6.6 Guideline 6: Teach your baby to drink from a cup

In the literature available on cup feeding, different aspects of cup versus bottle feeding receives attention from authors, namely oral health in relation to ECC, dental occlusion, breast feeding problems as a result of “nipple confusion” and hygiene.

Lang reports that cup feeding is used in several developing countries by mothers and paediatric- and special care baby units. The main motivation for this is the prevention of bottle feeding which is known to result in increased infant morbidity and mortality, especially where hygiene is a problem. Cups provide a simple, inexpensive and practical method of feeding, even for premature or LBW infants.⁶⁴

The British Committee on Medical Aspects of Food Policy (COMA) recommends that infants should be introduced to drinking from a cup at the age of 6 months. Introduced at the appropriate time, cup feeding will encourage the acquisition of natural developmental skills such as sipping from a cup. In a study on the parental awareness and practices in introducing cup feeding, Avery found that only 18% of the parent sample thought that a cup or beaker should be introduced at 6 months. Barriers to cup feeding were behaviour management (bottles pacify), the mess of spilt drinks from cups, and the parent's desire to nurture and comfort.⁶⁵

2.6.6.1 Dental and oral health

In a study by King mentioned in a previous section, it was shown that those children who were weaned from the nursing bottle after the age of 1 year, had a higher tendency to develop caries on the maxillary anterior primary teeth; especially those who were in the habit of taking a nursing bottle to bed with milk or non-milk drinks.⁶⁰

Prolonged exposure of the teeth to a sweetened liquid such as formula, milk, juice or tea increases the risk for tooth decay substantially. If a child is put to bed with a feeding bottle, the liquid pools in the oral cavity, creating ideal circumstances for this condition. The same happens if a child has unlimited access to a feeding bottle during the day as well.⁴⁶

2.6.6.2 Occlusion of the primary dentition

It is explained in the literature that during bottle feeding the tongue is positioned in a forward thrust in an effort to regulate the fast and continuous flow of milk and that this tongue thrust may have a profound detrimental effect on dental occlusion.⁵⁶

It was shown in a study by Charcut that children who used a pacifier were 2.7 times more likely to develop an overjet ≥ 3 mm and 2.9 times more likely to develop an open bite. (An open bite is defined as no overlap of the primary upper central incisors over corresponding primary lower central incisors and an overjet is defined as the horizontal distance measured between the lingual surface of primary upper central incisors and the labial surface of the corresponding lower central incisors.) Furthermore, pacifier use was strongly associated with predominant bottle feeding, especially in the very young age group.⁵⁶

In the 6-12 months age group, 67% of the 33 children in the study with an overbite of more than 75% (a deep bite) were bottle fed, while 73% of the 72 children without an overbite were also bottle fed,

thus showing no significant association and neither was there an association between bottle feeding and overjet or open bite in this age group. There was however a slightly greater percentage (74%) of bottle fed babies in this age group with a non-mesial step malocclusion than in the group without this occlusal characteristic (68%). Bottle feeding for a prolonged period of up to eighteen months was however significantly associated with an open bite ($p = 0.05$). While there was no strong association found between feeding method and the development of malocclusion in the age group 6-12 months, it should be remembered that detrimental effects of bottle feeding could become evident at a later stage only. Non-nutritive sucking such as pacifier use and thumb-sucking was clearly associated with malocclusion. These habits are known to often outlast the time when the child is weaned from the bottle or breast.⁵⁶

2.6.6.3 Nipple confusion

To breast feed, the infant has to open its mouth widely and protrude the tongue over the lower lip which is curled outwards over the areola, while an infant sucking on an artificial teat, does so with a partially closed mouth. If this latter suckling technique is applied to the breast, it leads to diminishing milk supply, sore and cracked nipples and the cessation of breast feeding. While small infants “lap” milk from a cup by protruding the tongue, older infants develop a sipping action.⁶⁴

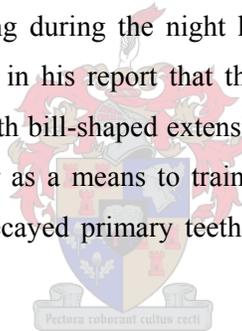
Neifert defines “nipple confusion” as the situation where an infant experiences difficulty in “achieving the correct oral configuration, latching technique and suckling pattern necessary for successful breast feeding after bottle feeding or other exposure to an artificial nipple.” According to this author, the term usually refers to newborn infants who are introduced to feeding bottles before breast feeding is well established, but the term can also apply to older infants who are breast feeding successfully, but who have difficulty with breast feeding after supplementary bottle feeds had been introduced. Often this phenomenon can also be related to a diminishing supply of breast milk as a result of over-supplementation. Infants may lose interest in breast feeding if *ad lib* quantities of milk are supplied by bottle.⁶⁶

The above is confirmed by Newman, who states that a whole range of problems can occur once a feeding bottle is introduced while the baby is still breast fed. The normal suckling at the breast differs from the suckling from a bottle, as explained above and apart from outright rejection of the breast after introduction of a bottle, a more subtle type of breast rejection can also occur if the bottle type of suckling is continued on the breast. Apart from traumatizing the mother’s nipples and inefficient drainage which may lead to mastitis, the baby may have to suckle more frequently and for prolonged

periods in order to be satisfied. Such an infant may also experience weight loss or growth faltering. Newman further states that many mothers quit at this stage for perceiving their milk as not enough or they start to supplement with formula. This author recommends cup feeding as the method of choice whenever an infant needs supplemental feeding, even in pre-maturity. She also reports that feeding bottles are never used in most East African hospitals and that cup feeding is used extensively in Kenya and Tanzania.⁶⁷

2.6.6.4 The nursing bottle syndrome

In a study conducted at the Policlinic of Paediatric Dentistry in Giessen, Germany, an increasing number of patients with caries typical of the “nursing bottle syndrome” were identified. This syndrome refers to a typical pattern of caries observed in children who consume sweetened or acidic drinks from feeding bottles with teats, or cups with a bill-shaped extension. The effect is even more profound if this habit lasts for a considerable length of time, drinking from these vessels mainly between meals, during the night when they awaken, or when going to bed. The use of pacifiers dipped in sugary substances and excessive at will breast feeding during the night have been reported to be associated with the syndrome as well. Behrendt states in his report that the public should be warned about the danger associated with drinking vessels with bill-shaped extensions, especially if these vessels are introduced in the second half of the first year as a means to train the infant to drink from a cup. It should be remembered that an infant with decayed primary teeth has difficulty chewing food and tends to be underweight for age.^{59, 68}



2.6.6.5 The training cup

Cups with valves do not allow sipping. The child has to actively suckle and thereby defeating the purpose of teaching the child to sip from a cup. From a tool to prevent spills, the cup with a valve has evolved to a super pacifier, supplying sugary drinks on demand all day long and placing the child at risk for dental caries. Instead the child should be offered sugar containing drinks, including milk or formula and fruit juice only at mealtimes and offered water in between meals.^{69, 70}

It is recommended that a training cup should be used temporary only, if at all. Preferably such a cup should have a screw-on or snap-on lid with a spout and no valve. A cup with two handles and a self-righting weighted base could be useful.⁷⁰

2.6.6.6 Developmental milestones

At six months, projecting of the tongue before swallowing may still cause milk to leak from the mouth, but as the infant grows older the dribbling decreases. Parents should remember that infants may choke easily when drinking from a cup at this stage and that the cup should be held for them while they are held on the parent's lap. At ten months of age, however, most infants can drink from a cup that is held for them without choking and at one year most infants will be able to hold a cup with both hands and take four or five swallows continuously without choking.⁴⁵

2.6.6.7 Safety in cup feeding

If small infants are put to bed with a feeding bottle unsupervised, there is a very real danger of asphyxiation as there also is when a child crawls or runs around drinking from a feeding bottle. Furthermore, especially in disadvantaged settings where adequate hygiene is not observed, the use of feeding bottles increases the risk for bacterial contamination and subsequent morbidity.⁴⁶

2.6.7 Guideline 7: Take your baby to the clinic every month

There are a number of reasons why a mother with a small child should regularly attend the clinic. The most important being the health-counselling and -education the mother receives, growth monitoring of the child, prevention and treatment of malnutrition through education, supplementation of the child's diet with macro- and micro-nutrients when necessary, de-worming, immunization against communicable diseases, treatment of infectious disease such as gastro-intestinal infections and social upliftment through counselling and referral.^{71, 72, 73}

All services rendered at clinics are linked to the IMCI program, as referred to previously (Paragraph 2.5.2). This programme entails a holistic and multi-disciplinary approach to the prevention and treatment of childhood illnesses and conditions, including malnutrition. Several documents with clear protocols regarding growth monitoring, treatment of growth faltering and malnutrition, nutrition supplementation as well as case management guidelines for children with conditions such as diarrhoea and dehydration have been consulted to compile a brief overview of clinic services.^{71, 72, 73}

Monthly reports and registers are kept at clinics and other health facilities to maintain an ongoing information system on the rate and incidence of conditions treated. Such reports include the Monthly Malnutrition Statistics Report and the Malnutrition register. Both these documents are essential tools in monitoring the Nutrition Supplementation Programme and the incidence of malnutrition in the Province of the Western Cape.⁷²

2.6.7.1 Counselling and education

Education regarding nutrition is an essential function of clinics to prevent malnutrition and growth faltering through caregivers' lack of knowledge. Promotion, support and protection of breast feeding form part of all clinic protocols. In addition, mothers or caregivers are advised about nutritious food choices, healthy ways of food preparation and energy enrichment, especially with regard to complementary foods. Furthermore mothers are also counselled about management and prevention of disease at home as well as hygiene and water safety. Open communication between health workers and mothers or caregivers are encouraged to find practical ways of meeting children's nutritional and other needs in sickness and health.⁷¹

2.6.7.2 Growth monitoring

Satisfactory growth is one of the most important indicators of child health and well-being and hence growth monitoring forms the basis of comprehensive child health care. Through regular monitoring health and nutrition problems can be detected and treated at an early stage. In the age group 6-12 months, growth monitoring should take place monthly and mainly entails the regular measurement of weight. Weight-for-age is then evaluated to determine a growth curve which is plotted on the Road to Health Growth Chart. Through inspection and completion of the growth chart at every clinic visit, growth can be monitored closely. The shape of the growth curve should be parallel to the reference curve or centiles on the growth chart and children who are malnourished, underweight or growth faltering should be evaluated weekly while treated until catch-up growth occurs. Changes or characteristics of the growth curve are diagnostic of nutritional problems as described in Table 2.8⁷¹

Table 2.8 Nutrition-related conditions as identified through characteristics of the growth curve⁷¹

Condition	Characteristic of growth curve
Normal growth	Follows reference curve or centile
Over feeding	Rises faster than reference curve
Catch-up growth	Rises faster than reference curve
Growth faltering	Curve slows down, becomes flat or falls over 2-3 consecutive visits
Underweight	Trajectory between 3 rd centile and 60% of expected weight-for-age
Kwashiorkor	Growth curve between 3 rd centile and 60% of expected weight-for-age. Oedema present: growth curve may be above 3 rd centile as result of oedema.
Marasmus	Under 60% weight-for-age curve
Marasmic kwashiorkor	Under 60% weight-for-age with oedema present

The following prevailing conditions would be reasons for special care when clinic personnel evaluate the growth and health of a child in the 6-12 month age group⁷¹

In the child:

- Being one of a pair of twins (or multiple pregnancy)
- Having a disability
- Suffering of a chronic illness such as HIV or TB
- Weighing less than 3rd centile
- Suffering from Foetal Alcohol Syndrome (FAS)

In the family:

- Poverty
- A household with many children
- A single mother
- The child cared for by a relative
- If other children in the family are malnourished or died
- If the mother is
 - An adolescent
 - Mentally or physically ill
 - Abusing substances, including alcoholism

2.6.7.3 Treatment of growth faltering, malnutrition and underlying disease

Underlying illnesses may very well be the reason for adverse nutrition-related conditions as described above. Illnesses most often encountered in the paediatric population of developing countries are: ^{13, 73}

- Fever as the result of infections such as otitis media or tuberculosis (TB)
- Anaemia (pallor of conjunctiva and palms)
- Diarrhoeal disease
- Acute lower respiratory infection
- HIV (oral thrush, fever, muscle wasting)
- FAS
- Parasitic infestations

A child presenting with one or more danger signs such as convulsions, vomiting, stridor, chest in-drawing, unconsciousness and severe dehydration and shock would always receive emergency treatment at the clinic and be referred for appropriate medical attention and hospitalisation. ⁷¹

Understandably, treatment of underlying disease conditions, if present, is essential before any improvement in nutritional status could be expected. Clinic personnel are trained to administer and interpret simple diagnostic tests such as taking the child's temperature, administering a hemoglobin (Hb) finger prick test (The lower value for the normal range of Hb for a child of 6-12 months is 10.5 g/dl), administering a Tuberculin tests or referring for chest X-rays if TB is suspected, and urine tests for suspected urinary tract infections. ⁷¹

Furthermore the child would be treated or referred for treatment of any underlying disease as described above and micro-nutrients in the form of iron syrup, multi-vitamin syrup or vitamin A capsules would be administered as necessary. Iron is to be supplemented if the child is anaemic, but only if no infection is present. Any existing infection should be treated and cleared up before iron supplementation. Vitamin A would be administered to children at risk of developing Vitamin A deficiency or children in need of high doses of this vitamin, such as malnourished children, or children with recurrent infections as well as children diagnosed with measles, HIV and AIDS, TB and eye signs of vitamin A deficiency. ^{31, 71}

Case management protocols for priority childhood illnesses such as diarrhoeal disease have been developed and distributed to clinics in all regions of the Western Cape. For children with severe malnutrition or illness, the IMCI protocols entail initiation of treatment at the clinic, such as administration of oral dehydration solution (ORS), Ringers Lactate, Saline, 10% dextrose, keeping the child warm and immediate referral for hospital admission as well as notification in terms of the child care act. ⁷³

The child with growth faltering or the underweight child is carefully evaluated to decide whether the appropriate course of treatment would be nutritional counselling of the mother or nutritional counselling as well as entering the child on the Nutrition Supplementation Programme of the Health Facility Based Nutrition Programme (previously known as the PEM scheme). ⁷²

Mothers are advised about the introduction of appropriate solid foods and enrichment of solid foods with oil and margarine. They are also advised on the continuation of breast feeding and the frequency of meals. ⁷¹

2.6.7.4 The Nutrition Supplementation Programme

The Nutrition Supplementation Programme is intended as a short term solution and should be considered a treatment with specialised food supplements.⁷² Children > 6 months and < 36 months are a nutritionally at-risk group at the top of the priority list of this programme. The following measures apply to infants 6-12 months of age:⁷²

- If the infant who suffers from growth faltering or malnutrition is breast fed, both the lactating mother and the infant are supplemented.
- The mother receives counselling to continue breast feeding
- The mother of the breast fed growth faltering infant is supplied with a high energy drink

If the infant is not breast fed:

- Twenty percent of the Nutrition Supplementation Programme budget may be spent on breast milk substitutes.
- Products available to supplement the growth faltering infant with, are:
 - Acidified breast milk substitute e.g. Nan-Pelargon if the child is not breast fed
 - Fortified maize-meal

Exit criteria for both the breast feeding mother and the breast fed/non-breast fed infant from the programme are:

- An adequate weight gain by the infant to attain a growth curve in relation to what its normal growth curve should be and maintaining it for 3 consecutive months.
- Failure to attain such a growth curve in the absence of any other underlying condition such as FAS, will cause the infant to be discharged from the programme
- A history of irregular clinic attendance and failure to attend the clinic for 3 consecutive months would disqualify the mother and infant for further supplementation.⁷²

Children suffering from malnutrition would be closely monitored after initiation of treatment to establish whether catch-up growth is indeed taking place and whether the child is receiving adequate and appropriate food. If no improvement is evident, the possibility of abuse, neglect, disease or inadequate diet could be investigated.⁷²

2.6.7.5 Immunisation

The IMCI programme is not only focussed on the cure of childhood illnesses but also on the prevention thereof. The two most important preventative interventions in child health are improved nutrition and immunisation.⁷²

Immunisations are recorded on the Road to Health Growth Chart and regular clinic attendance would ensure that the infant receives all the immunisations at the appropriate time. Most vaccinations such as BCG-, Polio- Diphtheria- and Hepatitis B Vaccinations are administered in the first 6 months. In the 6-12 months age group only the measles vaccination at 9 months would be relevant, unless the child did for some reason not receive previous vaccinations in which case the vaccinations due earlier would have to be brought up to date.⁷¹

2.6.7.6 De-worming

In the DOH treatment protocols for clinics, de-worming of children >1 year with Mebendazole (Vermox) or Albendazole (Zentel) is recommended.⁷¹

2.6.7.7 Social upliftment

Regular visits to the clinic can be a source of emotional and social support for mothers, especially the mother who has a child with health and nutritional problems. Evaluation of the socio-economic status of families with children enables health professionals and health workers to correctly assess the situation at home to aid in making decisions regarding supplementation, education or assistance by a social worker. Furthermore, cases of child abuse, molestation and lack of adequate care can be appropriately referred if identified.⁷²

Another benefit of regular attendance is the empowerment of mothers and caregivers with knowledge to prevent disease and malnutrition.⁷²

2.7 Concluding remark

Undoubtedly the weaning period is a critical time in an infant's life when it is most at risk for infectious disease and malnutrition, both the cause of morbidity and mortality in this population. The guidelines described above are all aimed at the prevention of these adverse conditions and the promotion of growth, health and well-being.

CHAPTER 3 METHODOLOGY

3.1. Qualitative testing of FBDGs

The FAO/WHO expert panel recommended that FBDGs should be tested among the general public by using focus group discussions of 6-8 individuals as a means of gathering qualitative data and that enough groups should be consulted to yield a fair representation of the population by geographic area, religion and education.¹ Hence, in a linguistically and culturally diverse population as that of South Africa, it was considered appropriate that the preliminary guidelines should be tested qualitatively among groups representative of the different languages, cultures and socio-economic strata in society to best fulfil the aims and objectives of the study as set out in Chapter 1.

Qualitative research is executed through formal research methodologies which allow investigators to get in-depth information on their subjects, generally by talking to them or observing them and qualitative data consist mainly of descriptions of situations or of conversations.¹⁰

Qualitative assessment is appropriate for the type of study in which it is important to assess subjectively what people feel and think and how they respond to a given situation, where there is no preconceived hypothesis, and where unexpected information can be gained. There is space within the research structure to explore new, unexpected information further and non-verbal communication can also be used to gain information.¹⁰

The focus group method involves a number of people meeting in a group where participants talk to one another under the guidance of a facilitator. This situation attempts to recreate the social situation of friends interacting and the objective is to generate relevant ideas around a pre-arranged topic which in the case of this study was the proposed FBDGs for children 6-12 months of age. People are often stimulated by the group interaction and reveal opinions that they may not have otherwise chosen to reveal. To the investigator the focus group discussion would provide insights into the attitudes, perceptions and opinions of the participants.¹⁰

3.2 The geographical area of investigation

The study was conducted in the Little-Karoo region of the Western Cape, which is a broad valley stretching from Uniondale in the east to Montague over Ladismith in the west and hemmed in by the Swartberg mountain range to the north and the Outeniqua mountain range to the south. The area can be

described as an arid semi-desert with an annual rainfall of often less than 150 mm and summer temperatures soaring into the mid-forties while the mountain ranges are often capped with snow during the cold winters.

3.3 The study population

All women from different language groups and different cultural and socio-economic backgrounds with infants of 6-12 months of age in the Little Karoo area of the Western Cape Province comprised the study population.

3.4 Sampling

3.4.1 Sampling method

Formal random sampling with concern for adequate sample size would have been inappropriate as, within qualitative studies, the emphasis is placed on **purposive sampling**.^{1, 74} The sample was therefore entirely made up of volunteers who fulfilled the inclusion criteria of being the mother or caregiver of an infant in the age group 6-12 months and who responded to an open invitation. In order to have all the important sub-groups in the study population represented in the sample, participants were sought out to represent the following groups found in the area:

Language groups:

- Afrikaans
- English (not generally spoken in the area)
- Xhosa
- Culture groups
 - Black
 - Coloured
 - White
- Settlement categories
 - Urban
 - Rural

The study was therefore aimed at the Afrikaans, English and Xhosa-speaking communities of the greater Oudtshoorn area, including Bongulethu, Bridgton and Toekomsrus and its adjacent rural areas of Dysselsdorp, Calitzdorp, Uniondale, Ladismith and Zoar as illustrated in a map of the area (Figure 3.1).

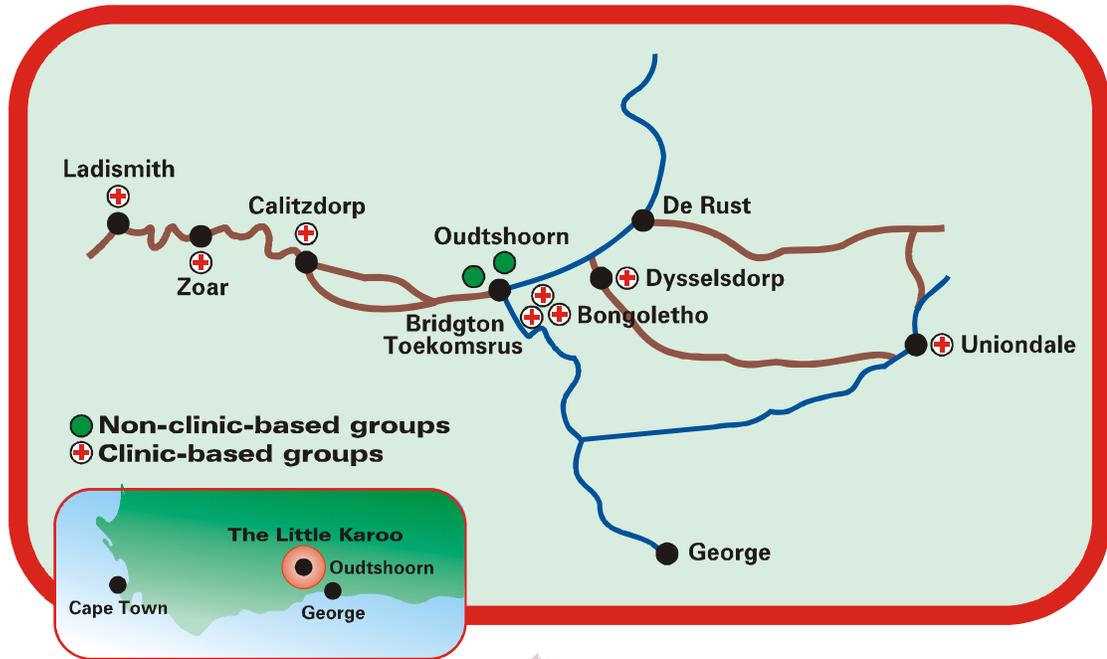


Figure 3.1 Map of the greater Oudtshoorn urban area and adjacent rural areas where discussion groups convened

3.4.2 The population of the area of investigation

According to data from the 1996 census, the population of the greater Oudtshoorn area amounted to 79,225 residents living in 15,723 households. The Coloured community was by far the largest (58,936), followed by the White community (13,888). The Black community had only 4912 members at the time and the balance of the population was made up of small groups of other races.⁷⁴

3.4.3 Sample size

Usually sample size in qualitative studies is determined by the amount of new information gathered from successive focus group discussions. When saturation is achieved, and no new information is gathered from a discussion, no more groups from that specific stratum would be interviewed. In this study, sample size was determined by logistical issues such as available time and funding, especially as a fair amount of travelling was involved due to the vastness of the study area. The number of discussion groups to be held, was determined beforehand as described in a subsequent paragraph (Table 3.1), although it could not be determined beforehand how many participants would attend.

3.4.4 Inclusion criteria

Participants had to be the mothers or care-givers of infants between 6 and 12 months of age and had to reside in the Little Karoo area of the Western Cape Province.

3.4.5 Sample selection

Purposive methods were used to recruit the sample, comprised of a number of focus groups, from the towns and nearby rural villages in the Little-Karoo region. The study was mainly clinic-based, except for the Oudtshoorn urban English and Afrikaans speaking discussion groups (Table 3.1).

Table 3.1: The settlement type, language- and culture groups as represented in each focus group

Town	No of groups	Language	Cultural group	Settlement
Bridgton	1	Afrikaans	Coloured	Urban/formal
Bongolethu	1	Xhosa	Black	Urban/formal
Calitzdorp	1	Afrikaans	Coloured	Rural/formal
Dysselsdorp	1	Afrikaans	Coloured	Rural/formal
Ladismith	1	Afrikaans	Coloured and White	Rural/formal
Oudtshoorn	1	English	White	Urban/formal
	1	Afrikaans	Coloured and White	Urban/formal
Toekomsrus	1	Afrikaans	Coloured	Urban/formal
Uniondale	1	Afrikaans	Coloured	Rural/formal
Zoar	1	Afrikaans	Coloured	Rural/formal
Total	10	1 Xhosa	1 Black	5 Rural/ formal
		1 English	6 Coloured	5 Urban/formal
		8 Afrikaans	3 White/coloured	

Summary of totals:

- 1 Group representing the Black Xhosa-speaking inhabitants of a formal urban settlement (Bongolethu is a formal settlement although some inhabitants live in informal housing)
- 1 Group representing White English-speaking inhabitants of a formal urban settlement (Oudtshoorn)
- 6 Groups representing Coloured Afrikaans-speaking inhabitants of formal urban and rural settlements (Toekomsrus, Bridgton, Dysselsdorp, Calitzdorp, Uniondale, Zoar)
- 2 Groups representing White as well as Coloured Afrikaans-speaking inhabitants of formal urban and rural settlements (Oudtshoorn and Ladismith)

It should be noted that there are hardly any large informal settlements in the area and that within the above groupings, participants with different educational and income levels were represented.

The following procedures were followed to make contact with possible participants:

- Permission was requested and obtained from the Oudtshoorn Municipality to meet with mothers attending municipal (urban) clinics in Bongulethu, Bridgton and Toekomsrus.
- Permission was also obtained from the Eden District Municipality to have discussion group meetings at the rural clinics of Dysselsdorp, Zoar, Calitzdorp, Ladismith and Uniondale.
- After obtaining the necessary permission, nursing sisters in charge of the clinics were co-opted to hand out invitations to prospective participants, to set suitable dates for focus group meetings in liaison with the investigator and to assign suitable venues. Printed invitations were supplied by the investigator.

It was attempted to recruit more participants through:

- newspaper advertisements
- personal contact with mothers who had babies of the relevant age through telephone calls
- co-opting the nursing sister at a local pharmacy to hand out printed invitations

Requests for co-operation to enable the investigator to hold discussion groups at various clinics in the study area were met with a positive enthusiasm from clinic personnel. Some instances are recorded which merit special mentioning:

- The nutrition health worker in the Uniondale area visited all mothers of babies in the relevant age group at home to inform them about the discussion and invite them to attend.
- In Calitzdorp, participants were transported to the venue by clinic personnel.
- The research team was welcomed everywhere and made to feel at home in whatever facilities were available.

Although group discussions were held in areas where participants were often required to walk long distances to venues which were not always very comfortable and in temperatures ranging from 35-45° Celcius at the time, the number of participants attending was frequently more than the expected 6-8.

On the other hand, finding voluntary participants from the non clinic-based, urban Afrikaans- and English speaking communities proved difficult. Churches and crèches were contacted to obtain contact details of mothers of infants in the relevant age group, but most prospective participants mentioned a

lack of time as the reason why they could not participate and some mothers declared themselves willing to fill in the questionnaires, but declined participation in the group discussions. Furthermore, as also indicated in the 1996 census figures, the English language group was very under-represented in the area.⁷⁴ No enquiries were received as a result of the newspaper advertisements.

3.5 The study design

This study was designed to be an observational, descriptive and analytical, cross-sectional study and involved:

- Quantitative research regarding socio-demographic characteristics (Addendum 1) of participants and
- Qualitative and quantitative research through discussion and questionnaire (Addendum 2) to determine consumers' comprehension of and ability to practically apply FBDGs, as well as to gain insight into beliefs, thoughts, attitudes, motives and behaviours of participants.^{1, 10}

3.6 Operational definitions

To attain the specific objectives as set out in Chapter 1, it was necessary to measure certain variables or characteristics of the study population. An operational definition of each of the variables will clarify what exactly was measured although ways of measuring these variables will be discussed extensively in a subsequent paragraph. The variables which were measured are itemised below.

3.6.1 Demographic and social variables

Demographic and social variables are those pertaining to conditions of life in a population or society and mutual relationships among human beings. These variables also include statistics of a geographic and biographic nature. The following are specific demographic and socio-graphic variables which were investigated in the study:

- **Magisterial district**

The name of the magisterial district where the participant resided, e.g. Ladismith

- **Name of town or village**

The name of the town or village where the participant resided, e.g. Dysselsdorp or Zoar

- **Settlement type**

Pertained to whether the participant resided in an urban or rural type of settlement and whether it was a formal or informal type of settlement.

- **Housing**

This variable investigated tenure, indicating whether the participant owned or rented the house she was living in, or whether she was living with relatives or friends. The type of housing was also investigated, e.g. brick, wood, traditional clay hut or informal shack.

- **Presence of extended family**

Of particular importance to this study was the presence of either or both grandmothers and other relatives in the household. Literature demonstrates that older family members, especially grandmothers, can exercise a great influence on the young adult or teenage mother regarding the feeding and especially the weaning of her infant.²⁷

- **Culture**

This variable indicated whether the mother belonged to a black, coloured or white cultural group.

- **Home language**

Home language pertained to the language spoken by the participant and her family at home. In this study participants belonged to any of three language groups, namely Afrikaans, English and Xhosa. All group discussions were held for only one language group at a time and were conducted in the home language of participants.

- **Relationship to the infant**

This variable indicated whether the participant was the mother of the infant or a care-giver such as a family member, friend or professional care-giver, e.g. the manager of a day-care facility.

- **Age**

Indicated the age in full years of the participant whether she was the mother or the caregiver.

- **Education**

This variable indicated the level of education attained by the mother or caregiver of the infant. This variable was stratified or graded into the following levels of education:

- None
- Grades 1 to 6
- Grade 7 to 11 plus incomplete grade 12
- Grade 12 (matric)
- Post matric e.g. college or university

- **Marital status**

Marital status gave an indication whether the mother was a single parent, in a permanent relationship (married) or living together in a common law relationship.

- **Employment**

This variable indicated the employment status of the mother. It was assumed that the mother, and not the caregiver, took care of the financial needs of her infant. Employment status was graded into the following categories:

- Housewife with husband or other household member providing an income
- Unemployed, no household income
- Part-time, seasonal or occasional employment
- Full time employment

- **Occupation**

If the mother was employed on a full-time basis this variable indicated the nature of her work.

- **Water source**

The water source of the household was indicated by this variable under one of the following possibilities:

- River water
- Communal borehole outdoor tap
- Communal outdoor tap/ communal containers provided by municipality
- Outdoor tap on household premise
- Indoor tap

- **Fuel source**

This variable indicated the source of fuel used to prepare family meals. It gave an indication of the difficulty and /or cost involved in preparing cooked meals. Options for sources of fuel were one of the following:

- Firewood
- Paraffin
- Electricity
- Gas

Many of the variables were drawn from a study⁵² in which the preliminary FBDGs for South Africans older than seven years were tested for appropriateness and these variables are also believed to exercise a great influence on infant nutrition.

3.6.2 Qualitative variables

- **Understanding and comprehension of proposed Paediatric FBDGs:**

Understanding and comprehension refers to the general understanding as in attaching meaning to words and sentences and specific interpretations regarding concepts, e.g. “a small amount of solids”, terminology, e.g. “solids” and descriptions, e.g. “clean, safe water”.

- **Ability to practically apply the proposed Paediatric FBDGs:**

This variable implies the command of means, knowledge and skills necessary to implement the proposed guidelines in the practical situation of nurturing the child.

- **Hindrances to implementation of proposed Paediatric FBDGs:**

Hindrances can be defined as barriers preventing the consumer from applying the proposed guidelines in her own individual situation, e.g. lack of money, work situation or absence of piped water.

- **General attitude towards and perceived importance of each individual preliminary guideline:**

Participants were asked to indicate with respect to each individual guideline whether they considered it to be an important guideline or not as pertaining to their own situation.

3.7 Ethical considerations

3.7.1 Ethical review committee

A protocol for the proposed study was submitted to, and subsequently approved by, the Human Research (Ethics) Committee, Faculty of Health Sciences, Stellenbosch University.

3.7.2 Informed consent

Participation in the focus group discussions was totally voluntary and each participant was required to sign a letter of informed consent at the beginning of every discussion. The standard “Informed consent form” used by the Faculty of Health Sciences of the Stellenbosch University was adapted for the purpose of this study (Addendum 3). It was explained to each participant that signing of the form would imply the following:

- Participation was entirely voluntarily.
- The participant consented that information gained from discussions and questionnaires may be used for research purposes.
- Consent was given for the use of a video recorder by a professional videographer during the focus group discussions.

3.7.3 Confidentiality

At each focus group meeting, participants were supplied with a pin-on identification number (for the video recording). This was to be the only form of identification used. No identification information such as names or addresses was required on the questionnaires. Participants were assured by both the consent form and verbally, that any personal information obtained at the group discussion meetings would not be disclosed to any other parties, and that the data collected for this study would be used only for this specified study and not be shared for any other study projects or purposes. Furthermore participants were assured that no personal information or personal views would be linked to any individual in such a way that she could be identified in the writing up of the study results.

3.7.4 Benefits and risks

Through the information gathered during this study, the following parties stood to benefit from the results:

- The participants themselves would have the opportunity to gain valuable knowledge regarding the feeding of their children
- The Paediatric FBDG Working Group would gain information necessary to help in finalising the proposed FBDGs for children 6-12 to months of age
- The community at large would ultimately benefit from guidelines in a generally comprehensible and accepted form
- Health professionals and community health care workers would ultimately be provided with an easy-to-use educational tool
- Regional and national health authorities could find the information gained helpful to prioritize possible information disseminating campaigns

Research methods employed in the study, involved no known serious risk for any participant. It was however time-consuming.

3.7.5 Incentives

No incentives were used to motivate any person to participate. However, refreshments such as tea, coffee, juice and sandwiches were served at all the meetings.

3.8 Methods of data collection

Data was collected through questionnaires, focus group discussions as well as video-recordings of the focus group discussions.

3.8.1 Questionnaires

3.8.1.1 Socio-demographic Questionnaire (Addendum 1)

This questionnaire was designed to record data to use as a basis for compiling a socio-demographic profile of the participants in the study. The questionnaire was completed before discussion of the proposed Paediatric FBDGs and the facilitator guided participants through the questionnaire. This questionnaire was adapted from a similar questionnaire used in a study to test the preliminary FBDGs for the South African population older than 5 years.⁵² The questionnaire was considered to have adequate face validity for collecting the information required.

3.8.1.2 Quantitative Knowledge Questionnaire (Addendum 2)

As there were no existing questionnaires specifically designed to measure the information proposed to be gained from this study, a questionnaire was developed *de novo* in collaboration with the PFBDG Working Group and after reading extensively on the topic of each guideline. Questions thought to be easily understandable and the most appropriate were formulated. There was no standard against which to validate the questionnaire, but with qualitative analysis of the focus group discussions, it was hoped to enhance the validity of this instrument. The first discussion group was scheduled three weeks in advance of the other discussions to allow time for changes if necessary. As no difficulties regarding any of the measuring instruments were experienced during the first session, the questionnaire was used in its original form.

The questionnaire encompassed 3 parts:

Part 1 consisted of 7 questions, each with three possible answers, namely the correct answer, an incorrect answer, and an option to indicate that the respondent didn't know the answer. The chosen option had to be indicated by an x. The purpose of these questions was to aid in assessing the participants' understanding of and ability to practically apply the proposed Paediatric FBDGs. Questions were put very simply in a format that any lay person could understand and were answered after reading the proposed guidelines, but before the discussion, so as not to be influenced by the discussion itself. Participants had all the questions and options read to them.

Part 2 pertained to factors possibly perceived by participants as barriers to the implementation of the proposed Paediatric FBDGs in their own personal situation. Options that the participant considered applicable could be chosen from a list on the questionnaire. Space was provided to add any hindrances not listed. This part of the questionnaire was completed after the discussion.

Part 3 assessed the importance that the participant awarded to each of the individual proposed guidelines. The participant was required to indicate after each proposed guideline printed on the questionnaire whether she considered it important or not important by marking one of two options with an x. This part of the questionnaire was also completed after the discussion.

3.8.2 Focus group discussions

3.8.2.1 Structuring of focus group meetings

- Focus groups were fairly homogeneous regarding language and cultural or ethnic group.
- Meetings were attended by between 3 and 11 participants. The English speaking participant took part individually.
- Meetings lasted from 60 to 90 minutes.
- Meetings took place at rural and urban clinics, and at a conference room in Oudtshoorn, with venues always private and fairly comfortable.
- At each focus group meeting a facilitator was present to conduct the meeting. At meetings of Afrikaans and English speaking groups, the investigator herself acted as facilitator and at the meeting of the Xhosa speaking group, a Xhosa-speaking facilitator, appointed by the Head of Nursing Services of the municipality of Oudtshoorn, conducted the proceedings. (The script for conducting the focus group meetings is provided as Addendum 4). Although the Xhosa-speaking facilitator was a man, it seemed that he was well-known among the participants and that he was well-liked and respected. There was no verbal or non-verbal indication of uneasiness or shyness among participants in response to a male facilitator as opposed to a female facilitator. The standardisation and training of the Xhosa-speaking facilitator is discussed in a subsequent paragraph.
- The focus of every meeting was the proposed FBDGs for children 6-12 months of age. A printed version of the proposed Paediatric FBDGs, in the home language of the participants, was displayed where all participants could see it (Addendum 5)
- Video recordings of every group discussion were made by a professional videographer.

3.8.2.2 Training and standardisation of the Xhosa-speaking facilitator

The investigator provided the facilitator with a copy of the script for the group discussion to be held, one week before the focus group meeting of Xhosa-speaking participants, with the understanding that the facilitator would familiarise himself with the contents. A meeting with the facilitator, who is also a community health worker employed by the Oudtshoorn municipality, was held by the investigator two days before the focus group meeting, to explain the purpose and importance of the focus group meeting

and the way it should be conducted. As the facilitator was fluent in English, Afrikaans and Xhosa it was possible to ensure that he was comfortable with the translation.

3.8.2.3 The progress of focus group discussions

At every focus group meeting it was aimed at to conduct the proceedings in the following standardised way:

- The facilitator introduced herself and welcomed participants. Most participants in the same groups knew each other. The facilitator also did her utmost to set everybody at ease and to establish trust.
- The facilitator explained the nature of the research, outlined the purpose of the meeting and set the ground rules for the discussion. She also re-established consent to have the interview videotaped and explained the role of the videographer.
- The Socio-demographic Questionnaire (Addendum 1) was handed out first and the correct way to fill it in was explained. Questions were read to participants.
- After taking in the socio-demographic questionnaires, the poster with the proposed guidelines was displayed where all participants could see it. Guidelines were read to the participants.
- Part 1 of the Quantitative Knowledge Questionnaire (Addendum 2) was handed out next and the way to answer the questions pertaining to the proposed FBDGs was explained.
- The discussion was started by the facilitator asking the first question on guideline one: “What do you think is the meaning of this guideline?” For the remainder of the session, the script for the focus group discussions (Addendum 4) was followed as closely as possible while trying to maintain a natural flow in the conversations and stay focussed at the same time.
- Conversational techniques such as putting a question, summarizing and reflecting back the answer and probing the respondent to further develop her thoughts, were used.
- It was endeavoured to get balanced participation by encouraging quiet or shy respondents to take part in the discussion.
- After thorough discussion of the guidelines, Part 2 of the Quantitative Knowledge Questionnaire was handed out, explained and completed by participants.
- Participants were again reassured about the confidentiality of all information.
- Participants were thanked for their time and contribution and everybody enjoyed refreshments.

3.8.3 Transcripts of focus group discussions

Transcripts of discussions that took place at focus group meetings were analysed to determine the participants’ comprehension and interpretation of and general attitude towards the proposed Paediatric

FBDGs. The video-recording of the Xhosa-speaking discussion group was analysed by and discussed among the investigator, the facilitator and the nursing sister who is head of the Bongoletu clinic. Consensus was reached about the interpretation of responses from participants.

3.8.4 Video recording of focus group discussions

Through analysis of a video recording of the entire proceedings at every focus group meeting, the group's attitude regarding the preliminary FBDGs as demonstrated by non-verbal communication could be assessed.

3.9 Validity of data collection methods

3.9.1 Internal validity

Questionnaires measuring knowledge and comprehension of, and the ability to apply and general attitude towards FBDGs for infants 6-12 months could not be validated beforehand as there was no other measuring instrument with a greater internal validity, standard or criteria to compare it to. This study can be described as an exploratory study in the field of nutrition and much thought went into the compilation of the questionnaires to ensure as great face validity as possible.

As mentioned in Chapter 1, this study in itself was intended as a pilot study for similar evaluations of the proposed Paediatric FBDGs in other areas of the country and therefore the questionnaires were largely experimental to determine if they would support the oral information obtained during the group discussions. There are techniques, however, which could be employed to improve the validity of or verify results obtained by qualitative research. Two such techniques are the triangulation method and the comparing of results which are discussed below.

3.9.2 The triangulation method

This method implies that the results obtained by three different methods are compared to see if they complement each other and agreement between findings would confirm validity.¹⁰ In this study, data was captured by:

- Transcription of verbal discussions at focus group meetings
- Administering a questionnaire to assess comprehension, ability to apply and general attitude towards FBDGs
- Videotaping to capture data on body language

3.9.3 Comparing results between interviewers

Validity and reliability can be enhanced by comparing results. A number of people can be co-opted to help analyse the same section of the discussion transcriptions and the videotapes. If they agree on the interpretation of this one section of the material, it can be assumed that the interpretation of the rest of the material by the investigator will also be reliable and valid.¹⁰ In this study a video of one of the focus group discussions was also viewed by a colleague who is a registered dietician.⁷⁵ The findings as recorded by the investigator were confirmed by this reviewer. Additionally, a videotape compiled of sections of various group discussions which illustrate the participants' comprehension of and general attitude towards the proposed guidelines particularly well, was shown and peer reviewed at a meeting of the Paediatric FBDG Working Group in Cape Town.

3.9.4 Investigator subjectivity and bias

In addition to the method and consequences of sampling and the measuring and interpretation of the results, the position and the perspectives of the researcher exercise a great influence on the validity of results. By accounting for and sharing the effects of the researcher, bias or hidden skewness of findings are minimized and objectivity is enhanced.⁷⁶ The researcher declares that she entered the study with the following beliefs, knowledge and pre-conceptions:

- A thorough knowledge of the theory underlying the guidelines which were tested in this study, as reflected in the review of related literature, Chapter 2.
- A firm belief in the importance of the public acceptance and understanding of the guidelines to alleviate pressing nutrition-related public health issues
- A pre-conception that the guidelines were easy to understand and apply. This was the “hypothesis” in as far as a qualitative study can be based on a hypothesis.

Knowledge gained contrary to or confirming these pre-conceptions emerged from the analysis of systematically obtained material.

3.10 Data analysis

The qualitative variables described above were analysed as follows:

- Qualitatively as per transcription of focus group discussions and participant observation through videotaping
- Quantitatively as per questionnaire, which will be shown to support and enhance results obtained from the transcription and videotape

3.10.1. Qualitative Analysis

The following aspects of qualitative analysis were considered in the processing of data:

- **Analysis style**

According to Malterud, the style of analysis followed for qualitative analysis can be described as a theory-based or template style where categories or themes were identified in advance from pre-conceptions, combined with an empirical analysis where additional themes crystallized from the data.⁷⁶

- **Categorisation of data**

As shown in Addendum 4, which was the script for the discussions, examples of such pre-conceived categories were the themes for probing questions asked by the facilitator during the discussions. Examples of such template themes are given below, using the proposed guideline “**From six months start giving your baby small amounts of solid foods**” as an example:

- What do you think is meant by this guideline?
- Why do you think a baby should be given solid foods at the age of 6 months?
- Why do you think a baby should not be given solid foods before the age of 6 months?
- How much do you consider being a small amount?
- What would you describe as suitable solid foods?
- Do you think this guideline is important?

These themes were identified in advance from the proposed guidelines, pertaining either to the guideline as a unit or referring to meaningful units within the guidelines.



Using this same guideline as an example, the following additional themes crystallized from the data obtained from the discussion

- Addition of sugar to complementary foods
- Addition of cereal to milk feeds at a very young age, e.g. 3 months.

In order to abstract relevant material from the raw data or text (transcription of discussions), the text was scrutinised a second time for meaningful material which was relevant to the research question and pertained to the identified themes. These meaningful units were de-contextualised, meaning that it was lifted from the data, evaluated, summarised and categorised according to the identified themes. Care was taken throughout that the end result of the categorisation still agreed with the context it was taken from (re-contextualisation).⁷⁶

3.10.2 Quantitative analysis

For categorical variables, such as the socio-demographic variables obtained from the questionnaires, the following techniques of analysis were applied:

- **Summary of the data**

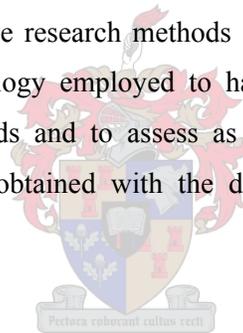
The number and percentage of study subjects classified into each category was summarised and for numerical values such as age of participants, the median value and variability was calculated. The numbers of subjects in each category of the different nominal or binary categorical variables are illustrated by graphs.

- **Statistical analysis**

The Pearson chi square test was applied to investigate the relationships, if any, between socio-demographic variables and categorical variables pertaining to understanding of the guidelines, perceived hindrances to application of the guidelines and perceived importance of the guidelines.

3.11 Conclusion

Despite the proneness of qualitative research methods to subjectivity and bias, much care has been taken in the design and methodology employed to have as clear detailing and standardisation as possible of data collection methods and to assess as best as possible the qualitative variables as specified earlier on. The results obtained with the data collection methods described above, are presented in the following chapter.



CHAPTER 4 RESULTS

4.1 Quantitative results

4.1.1 Representation of study population in sample

The study sample can be considered to be a fair representation of the study population (Table 4.1), according to the 1996 census figures for Oudtshoorn, ⁷⁴ even though the sample was made up entirely of volunteers.

Table 4.1 Representation of the female population of Oudtshoorn in the study sample ⁷⁴

Female population of Oudtshoorn: 1996 census				Study sample	
Language	Culture	Number	Percentage (%)	Number	Percentage of sample
Afrikaans	Coloured	33652	76.4	52	81.3
Afrikaans	White	6183	14.0	4	6.2
English	White	505	1.2	1	1.5
Xhosa	Black	2378	5.4	7	11
Other	Subtotal	42718	3.0	none	0
	Other	1340			
Total		44058	100	64	100

Of seventy subjects interviewed, 6 were excluded because their babies were not in the specified age group. The English-speaking respondent participated individually. While the one English speaking participant was representative of the study population, she was not representative of the language sub-group and therefore saturation could not be achieved within that sub-group. However, no new information was obtained from this participant when results were compared to that of other language groups.

4.1.2 Representation of different settlements in sample

The sample was recruited from the urban settlements of Oudtshoorn, Bridgton, Bongoletu and Toekomsrus and the adjacent rural areas of Dysselsdorp, Zoar, Calitzdorp, Ladismith and Uniondale (Figure 3.1). More participants were from rural (64%) than from urban settlements (36%) (Figure 4.1).

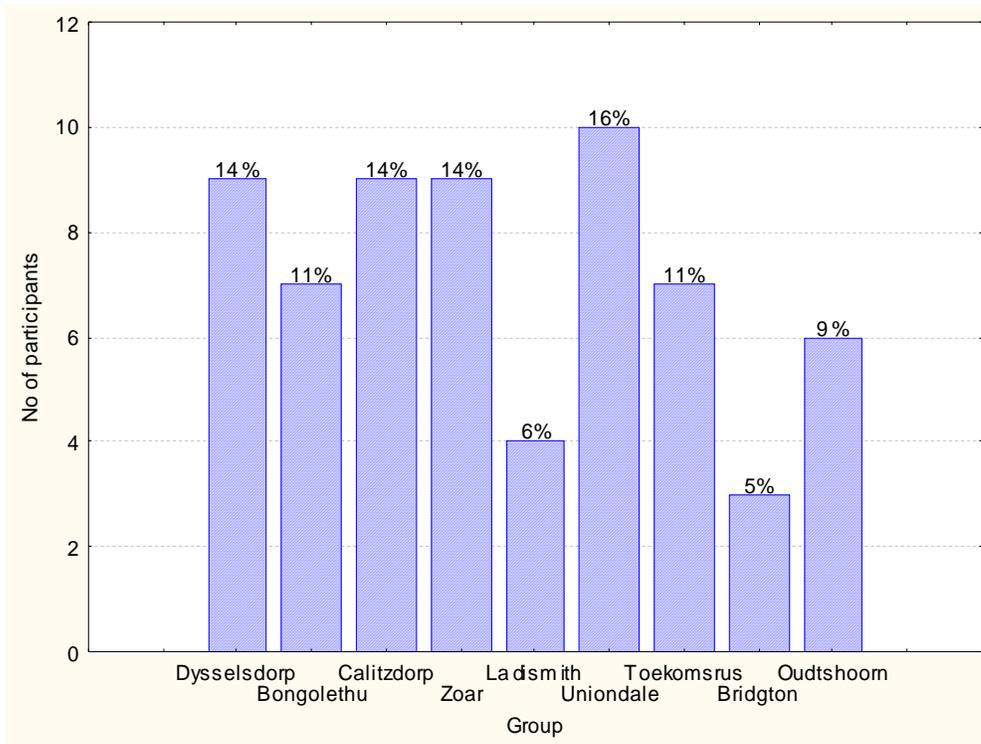


Figure 4.1 Representation of urban and rural settlements in the sample (n = 64)

4.1.3 Socio-demographic profile of participants

4.1.3.1 Age of participants

The youngest participant was 16 years old and the oldest 50 years as the sample not only included mothers, but also grandmothers and other caregivers of babies 6-12 months of age. The median age was 26 years and the majority of participants were in the age group 20-30 years (Figure 4.3). One of the participants did not know her age.

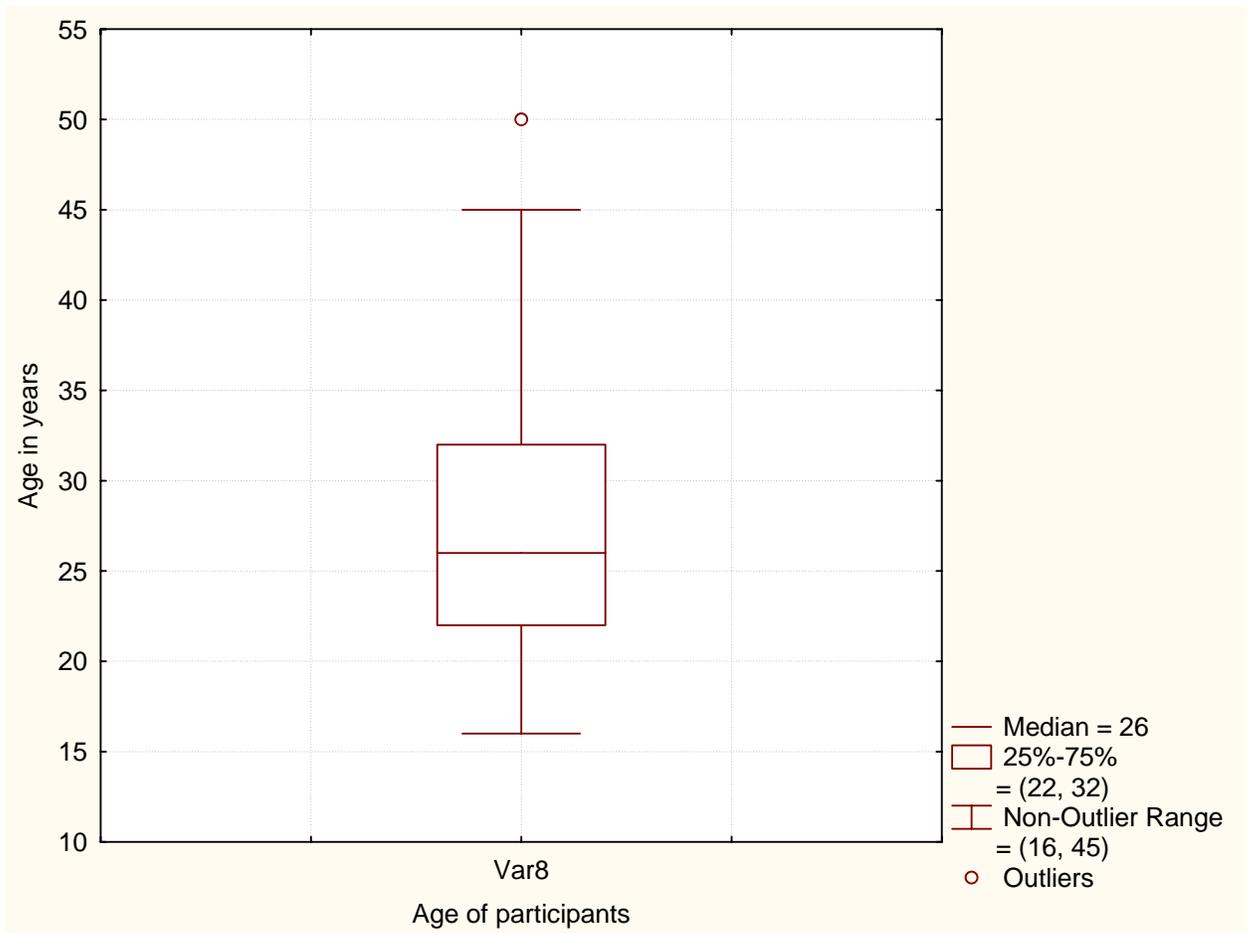


Figure 4.2: Age range and median age of participants (n = 64)

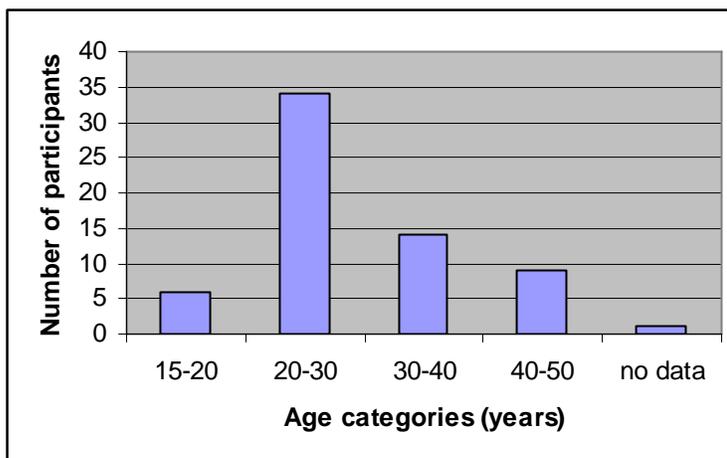


Figure 4.3: Number of participants in each age category (n = 64)

Interestingly, variability in the age of participants related to the level of education attained. Two of the older participants (median age 42 years) who were not mothers but care-givers to infants 6-12 months of age, were those who never had any education. Participants who attained a grade 1-6 level of education had a median age of 33 years and the younger mothers (median age 24 years) had high school education and some finished matric (14% of sample), while mothers who had post-matric education tended to be a little older (median age 28 years).

4.1.3.2 Level of education attained

The general level of education attained by most participants (48%) was grade 7-11, while only 23% completed grade 12. Of the latter a few also attained a post-matric level of education (9%) (Figure 4.5)

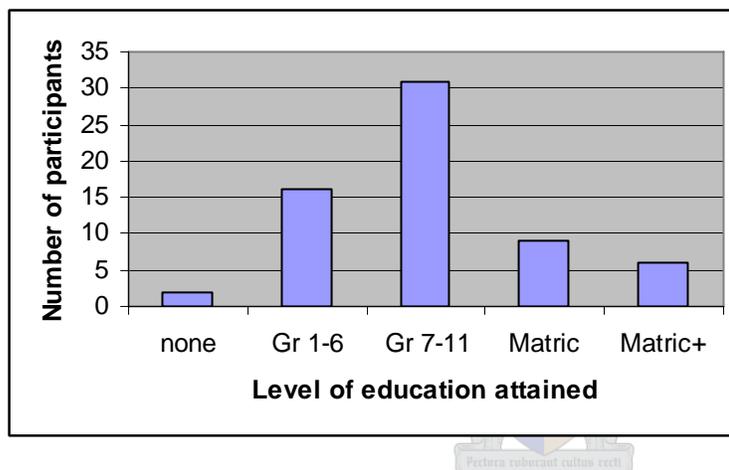


Figure 4.4: Level of education attained by participants (n = 64)

4.1.3.3 Living conditions

Most participants lived in brick houses (89%), 77% had indoor taps (Table 4.2) and 81% used electricity as a fuel source (Table 4.3). Thirty one percent owned their own homes, while 56% lived with family or friends and 12% rented the house they were living in (Table 4.4).

Table 4.2: Number of participants obtaining water from different sources (n = 64)

Water supply	Frequency	Percentage (%)
Communal containers supplied by municipality	3	4.6
Outdoor tap on household premises	12	18.8
Indoor tap	49	76.6

Table 4.3: Number of participants using different fuel sources (n = 64)

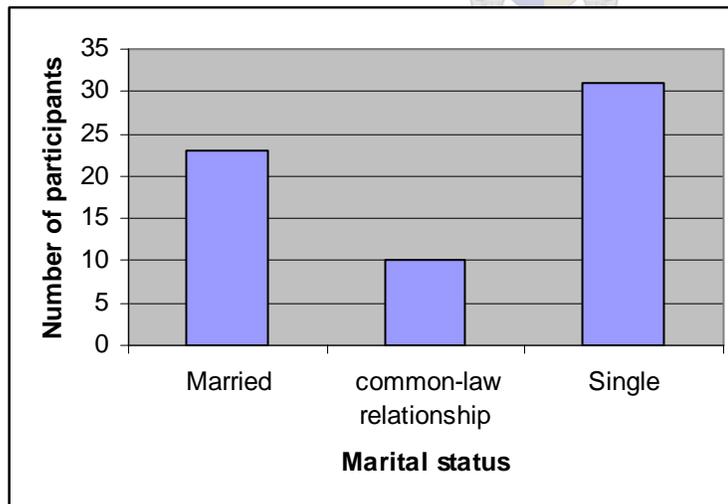
Fuel source	Frequency	Percentage (%)
Firewood	3	4.6
Paraffin	6	9.5
Electricity	52	81.3
Gas	3	4.6

Table 4.4: Number of participants owning their own homes, renting or living with family or friends (n = 64)

Tenure	Frequency	Percentage (%)
Owner of house	20	31.3
Rented house	8	12.5
Living with family or friends	36	56.2

4.1.3.4 Interpersonal relationships

Forty five percent of participants lived with one grandmother in the house and another 3% with both grandmothers. Forty eight percent were also single, while 36% were married (Figure 4.3).

**Figure 4.5: Marital status of participants (n = 64)**

4.1.3.5 Employment status

A large number of participants (39%) were unemployed (Figure 4.4).

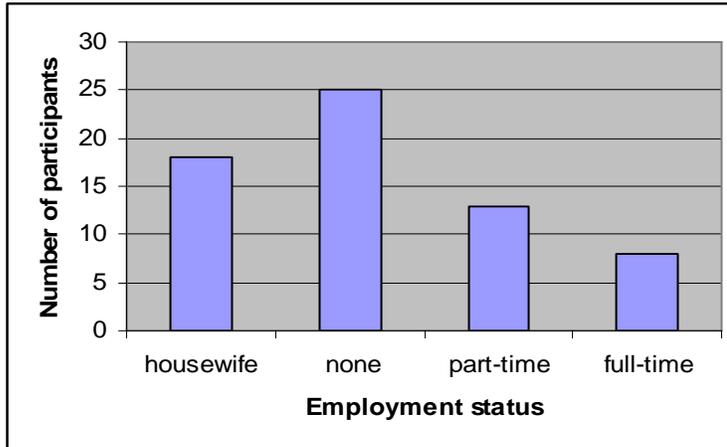


Figure 4.6: Employment status of participants (n=64)

4.1.4 Results from the Quantitative Knowledge Questionnaire

4.1.4.1 Pre-discussion comprehension of proposed guidelines

Results of the pre-discussion assessment of participants' comprehension of the proposed Paediatric Food-Based Dietary Guidelines (PFBDGs), by means of the Qualitative Knowledge Questionnaire, are summarised in Figure 4.7 and Table 4.5.

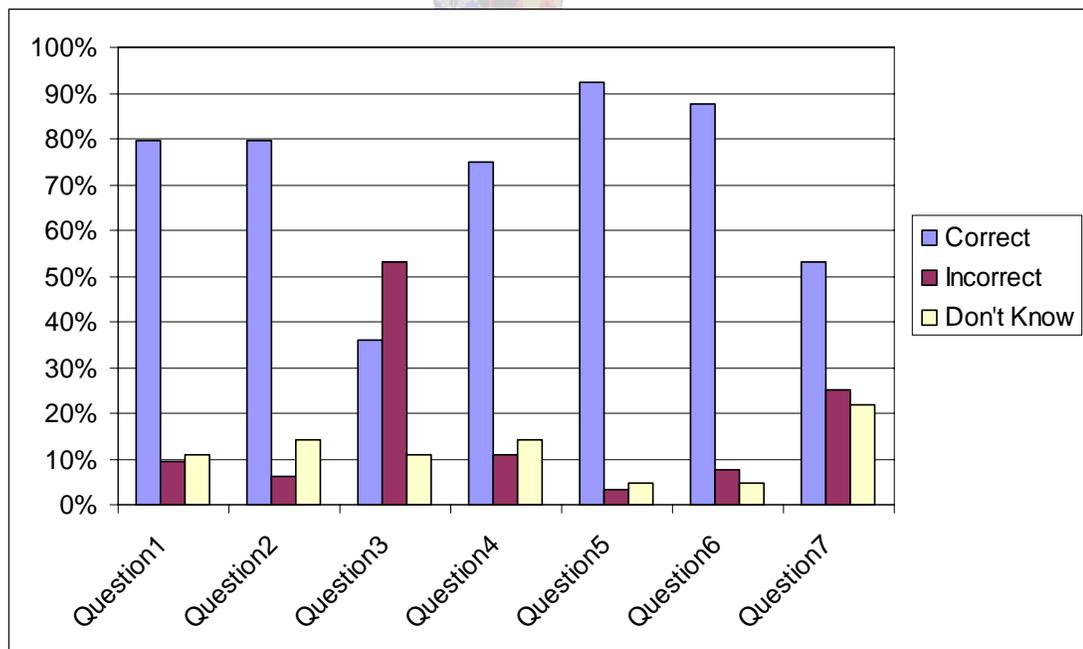


Figure 4.7: Pre-discussion comprehension of questions 1-7

Table 4.5: Number and percentage of participants who answered each of the seven questions correctly, incorrectly or indicating that they did not know (n = 64)

Question	Guideline referred to	Correct answer		Incorrect answer		Do not know	
		No.	%	No.	%	No.	%
1	4 Keep on breast feeding your baby	51	79.7	6	9.4	7	10.9
2	2 From six months start giving your baby small amounts of solid foods	52	81.3	3	4.7	9	14.0
3	3 Gradually increase your baby's meals to five times a day	23	36.0	34	53.1	7	10.9
4	5 Offer your baby clean, safe water regularly	48	75.0	7	10.9	9	14.1
5	1 Enjoy time with your baby	59	92.2	2	3.1	3	4.7
6	7 Take your baby to the clinic every month	56	87.5	5	7.8	3	4.7
7	6 Teach your baby to drink from a cup	34	53.1	16	25.0	14	21.9

Questions 1, 2, 4, 5 and 6 were each answered correctly by more than 75% of participants and all except question 7's "Don't know" responses were below 15%.

Participants experienced the most problems interpreting Question 3: **"Why do you think that meals should be gradually increased to five times a day?"** Fifty three percent of participants chose the wrong option: "A baby should not eat more than three times per day" and 10.9% didn't know which of the two possible answers the correct one was.

The question with which participants had the second most problems was Question 7: **"Why do you think that your baby should be taught to drink from a cup?"** More than 20% of participants didn't know why a child should be taught to drink from a cup and 25% chose the wrong option as an answer, namely that it is a sign of slow development if a child of six months still drinks from a feeding bottle.

Percentages of correct answers to Questions 3 and 7 remain much the same if measured across language and settlement groups (Table 4.6). Although it may seem that participants from the Xhosa language group and the rural settlement groups fared a little worse, application of the *Pearson chi square* statistical test revealed no significant association ($p \leq 0.05$) between the interpretation of question 3 ($p = 0.29$) or question 7 ($p = 0.52$) and the language group to which participants belonged. It should be stressed again, however, that the Xhosa and English language groups were under-represented

in the sample and representation of different language groups was therefore very uneven. Neither was any significant association found between interpretation of questions 3 and 7 and the type of settlement (rural or urban) where participants lived, ($p = 0.19$ and $p = 0.64$ respectively). Across culture groups there was also no significant association with the interpretation of questions 3 ($p = 0.07$) and 7 ($p = 0.5$), although only 29% of participants from the black culture group interpreted question 3 correctly as opposed to 40% from the white culture group and 37% from the coloured culture group.

Table 4.6: A comparison of correct answers to Questions 3 and 7 among the different settlement and language groups in the study sample (n=64)

Q	Xhosa $n_1 = 7$		Afrikaans $n_2 = 56$		English $n_3 = 1$		Urban $n_4 = 26$		Rural $n_5 = 37$		Total $n = 64$	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
3	2	28.5	20	35.7	1	100	10	38.5	13	35.1	23	35.9
7	3	42.0	30	53.6	1	100	15	57.7	19	51.4	34	53.1

Application of the *Pearson chi square* statistical test did however reveal some statistically significant associations ($p \leq 0.05$) between socio-demographic variables and the comprehension and interpretation of other questions (Table 4.7).

Table 4.7: Statistically significant ($p \leq 0.05$) associations between some socio-demographic variables and comprehension of guidelines

Variable	Guideline	Pearson chi square	df	p value
Settlement type	Keep breast feeding your baby	8.49459	2	0.0143
Language	Take your baby to the clinic every month	10.5955	2	0.0050
Culture	Take your baby to the clinic every month	15.1309	4	0.0044
Education	Offer your baby clean, safe water regularly	13.0027	6	0.0430

The majority of mothers from rural areas (88%) had a better understanding of what it means to keep on breast feeding than mothers from urban areas (65%). Fifty seven percent of mothers from the Xhosa language group and the black culture group did not comprehend the reason why they should take their infants to the clinic every month, while 91% of Afrikaans-speaking mothers understood. All mothers with a post matric education were aware that all water is not safe and so were 94% of mothers with a

grade 1-6 level of education. However 61% of mothers with a grade 7-11 education and 67% of mothers with matric were not aware that all water was not necessarily safe for a baby to drink. No significant associations were found between employment status, living with family or marital status and the comprehension and interpretation of guidelines.

4.1.4.2 Practicality and applicability of the proposed guidelines

Part 2 of the Qualitative Knowledge questionnaire consisted of 2 sub-sections. The first section dealt with the practicality and applicability of the proposed guidelines in the life situation of each participant (Table 4.8).

Table 4.8: Frequency and percentage of participants indicating an inability to comply with the proposed guidelines (n = 64)

Guideline	1	2	3	4	5	6	7
Frequency	7	14	15	19	13	8	7
Percentage	10.9%	21.9%	23.4%	29.7%	20.3%	12.5%	10.9%

With every proposed guideline, more than 10% of participants indicated perceived or real hindrances to the application of that specific guideline in their everyday situation. The guideline with which the most problems were anticipated was guideline 4. A number of reasons were offered for inability to comply with this guideline (Table 4.9).

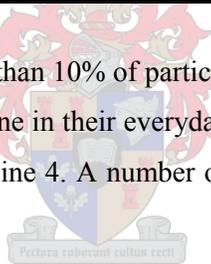


Table 4.9: Reasons offered for inability to comply with Guideline 4: Keep breast feeding your baby (n = 19)

Reason	Frequency	Percentage
Breast milk perceived as inadequate	11	57.8
Being employed while someone else cares for the infant	3	15.8
Instructed by general practitioner not to breast feed	2	10.5
Being too tired	1	5.3
Not having enough time	1	5.3
The infant prefers a bottle	1	5.3
Total number of participants foreseeing problems	19	29.7

Statistically significant ($p \leq 0.05$) associations were established between some socio-demographic variables and perceived hindrances to complying with guideline 4 (Table 4.10).

Table 4.10: Statistically significant ($p \leq 0.05$) associations between some socio-demographic variables and perceived hindrances to compliance with Guideline 4: Keep breast feeding your baby

Variable	Pearson chi square	df	p value
Culture	24.3969	10	0.0066
Language	20.3318	5	0.0011
Employment	30.5473	15	0.0101

Seventy two percent of participants from the black culture group perceived problems with prolonged breast feeding. Milk that is perceived as “too little” or “has dried up” (29%) and prohibition by a medical practitioner (29%) as well as being employed (14%) were the reasons given by this group for not being able to comply. While only 21% of participants from the coloured culture group perceived problems with this guideline, 40% of the white culture group indicated that they foresee problems. Furthermore, 47% of participants who were part-time employees and 75% of full-time employees perceived problems with continued breast feeding. Again milk that is perceived as “being too little” or “has dried up” is cited in both cases as the most important obstacle to compliance followed by being employed while someone else cares for the baby as the second most important reason.

The application of proposed guidelines 2 and 3 posed problems to more than 20% of participants and therefore warrants closer investigation (Tables 4.11-4.12).

Table 4.11: Reasons given for inability to comply with Guideline 2: From 6 months start giving your baby small amounts of solid foods (n = 14)

Reason	Frequency	Percentage
Un-affordability of the foods that mothers would like to give to their babies	8	57
Uncertainty about which foods to give	3	28.6
Un-availability of the foods that mothers thought their babies should have	3	21.4
Total of participants foreseeing problems	14	21.9

Table 4.12: Reasons given for inability to comply with Guideline 3: Gradually increase your baby's meals to 5 times a day (n = 15)

Reason	Frequency	Percentage
Not being at home to make sure that their babies get frequent meals.	7	46.7
Uncertainty about how to increase their babies' meals to 5 times a day.	8	53.3
Total number of participants foreseeing problems	15	23.4

Again the *Pearson chi square* test revealed significant associations between some socio-demographic variables and the perceived inability to comply with guidelines 2 and 3. These associations are summarised below (Table 4.13).

Table 4.13: Statistically significant ($p \leq 0.05$) associations between some socio-demographic variables and perceived hindrances to complying with Guidelines 2: From 6 months start giving your baby small amounts of solid food, and Guideline 3: Gradually increase your baby's meals to 5 times a day

Variable	Guideline 2			Guideline 3		
	Pearson chi square	df	p value	Pearson chi square	df	p value
Settlement type	13.2399	3	0.0041	16.9408	2	0.0002
Culture	-	-	-	17.8601	4	0.0013
Language	8.78906	3	0.0322	16.7444	2	0.0002
Employment	17.1486	9	0.0465	-	-	-
Marital status	11.9366	6	0.0634*	-	-	-

Forty eight percent of urban and 57% of Xhosa-speaking participants perceived un-affordability and unavailability of complementary foods as the most important hindrances to compliance with guideline 2, while a lack of knowledge and absence from home during the day are perceived by 52% of urban mothers and 86% of participants from the black culture group and Xhosa-speaking language group as the main obstacles to compliance with guideline 3. Rural mothers had few problems with guidelines 2 (10%) and 3 (7%). Forty four percent of unemployed mothers perceived un-affordability as the main reason for not being able to comply with guideline 2. *Interestingly and almost significantly ($p = 0.06$), 50% of mothers living with partners in a common-law relationship perceived problems complying with guideline 2, citing un-affordability of foods as the main hindrance.

The only reason offered by 13 participants (20.3%) for not being able to apply guideline 5, was their uncertainty about the safety of water in the area where they lived and the single reason most often mentioned for not being able to comply with guidelines 1, 6 and 7 respectively, were tiredness and lack of leisure time preventing participants from enjoying time with their babies (9%), the perceived messiness of teaching a small child to drink from a cup (8%), and fear of criticism deterring participants from attending the clinic (5%).

Some socio-demographic variables were found to have a significant ($p \leq 0.05$) association with perceived problems regarding applicability of guideline 1 (Table 4.14).

Table 4.14 Statistically significant ($p \leq 0.05$) associations between some socio-demographic variables and perceived hindrances to complying with Guideline 1: Enjoy time with your baby

Variable	Pearson chi square	df	p value
Settlement	11.8021	3	0.0081
Culture	20.9231	6	0.0019
Language	20.2796	3	0.0001
Education	21.1806	9	0.0119

Significant associations ($p \leq 0.05$) were found between the types of settlement, culture, language, the level of education attained; and perceived hindrances to complying with guideline 1. None of the rural mothers had any problem with the applicability of this guideline, while 27% of urban mothers from the black culture and Xhosa-speaking language groups perceived working long hours and having no leisure time as hindrances. Forty three percent of mothers, who completed matric, cited the main reason for non-compliance as “always being tired”. An almost significant association ($p = 0.07$) between non-compliance and employment status was found. Part-time employees/seasonal workers complained the most of always being tired. It should be noted that the field work for this study was done in the fruit picking season. Whether living with family or not had no significant bearing on perceived hindrances to complying with guidelines.

4.1.4.3 The Perceived importance of the proposed PFBDGs

The last section of Part 2 of the Qualitative Knowledge Questionnaire, dealt with the importance of the proposed guidelines as perceived by the participants (Table 4.15).

Table 4.15: The perceived importance of each of the proposed guidelines as indicated by participants (n = 64)

Guideline	Important		Unimportant	
	No.	%	No.	%
1 Enjoy time with your baby	63	98.4	1	1.5
2 From 6 months start giving your baby small amounts of solid foods	61	95.3	3	4.7
3 Gradually increase your baby's meals to 5 times a day	52	81.3	12	18.7
4 Keep breast feeding your baby	58	90.6	6	9.4
5 Offer your baby clean, safe water regularly	60	93.8	4	6.2
6 Teach your baby to drink from a cup	60	93.8	4	6.2
7 Take your baby to the clinic every month	60	93.8	4	6.2

With the *Pearson chi square* statistical test no significant association was found between settlement type or language group and the perceived importance of the guidelines. A significant negative association was however identified between full-time employment status ($p = 0.02$), having attained a post-matric level of education ($p = 0.007$) and living with a grandmother ($p = 0.01$) and the perceived importance of the breast feeding guideline. Participants living in a common-law relationship did not consider the meal frequency guideline very important ($p = 0.008$), while participants from the white culture group did not perceive the cup feeding guideline ($p = 0.002$) or regular clinic attendance ($p = 0.002$) as important. Neither did participants who attained a post-matric level of education indicate that cup feeding ($p = 0.02$) and clinic attendance ($p = 0.02$) was important to them.

4.2 Qualitative results

4.2.1 Content analysis of group discussions

As described in the previous chapter on the methodology of this study, group discussions were recorded on videotape and the content of these discussions were analysed for common themes emerging as each separate guideline was discussed. Non-verbal communication was also noted (using the videotape recordings). A summary of contributions to the discussions in response to certain probing questions follows.

4.2.1.1 Guideline 1: Enjoy time with your baby

In response to the question of what participants understood under this guideline, play and communication emerged as very important aspects in all group discussions. It was mentioned that a child learns while you play and communicate with him.

It was reported that communication should be by normal use of language and not in babyish gibberish as the child learns language through communication; that love should be communicated in words as well as physical tenderness and that laughing and friendliness was considered important in communication with an infant. As one mother put it: “*show your child that you are glad to be there for him*”

Purposefully setting time aside to spend with their children was reported to be important, especially to working mothers. It was also mentioned that a mother should never be too busy to enjoy time with her baby and that she should be available whenever her child needs her.

Various activities such as going for walks, reading stories, and talking to an infant while he/she is dressed or bathed were associated with this guideline and in one of the urban groups, exercises and activities, suggested in baby magazines, were also mentioned.

In all groups more abstract meanings were also offered, such as “*bonding with the child*” and “*shaping the child’s character through communication*” and also that a child should be made to feel welcome in the family and house. Bestowing affection by hugging, cuddling, holding and caressing was considered important as well as making the child feel loved and safe.

Upon being asked whether participants consider this guideline to be important, there was consensus in all groups (Table 4.15) that this is indeed an important guideline for the following reasons:

- Love and attention allows a child to develop mentally and physically.
- Love plays an important role in a child’s life, his health and happiness.
- Spending time with your child gives you the opportunity to assess whether your child is developing and growing as expected.
- Through spending time together, a mother gets to know her child’s personality and get in touch with his feelings.

When asked why participants thought that this guideline was proposed as a dietary guideline, answers included the following:

- A child receiving little attention will develop and learn slower even if his diet is adequate.
- Feeding time offers an opportunity for one-to-one interaction with your child.
- Tension during feeding time, especially if a child is forced to eat, may lead to eating disorders.
- Feeding time offers the ideal opportunity for communication with your child.

Groups were asked whether they considered this proposed guideline to be easily understandable, and although participants had no problem discussing the themes mentioned above, some participants in urban and rural groups felt that the guideline is vague, says too little and that it should be explained in more definite terms.

The following suggestions were received from single participants in some of the rural and urban groups regarding alternative wording for this specific guideline:

- Give adequate time and attention to your child, while caring for him/her affectionately.
- Feeding times offer good opportunities to give your baby love and attention.
- Spend adequate time with your baby to communicate with him/her and to care for him/her in a loving way.
- Set time aside to spend with your baby and use mealtimes especially to communicate.

Non-verbal communication: Most rural and urban participants from the black and coloured culture groups brought their infants along to the group discussions. The infants were sleeping, sitting on their mothers' laps and some were generally giving their mothers a hard time, tearing at the mothers' pinned-on numbers or complaining about the heat. The infants were handled with patience however, being kissed and cuddled in between the discussions.

4.2.1.2 Guideline 2: From six months start giving your baby small amounts of solid foods

Participants suggested the following reasons why a baby of six months should be given solid foods:

- Food improves resistance against disease.
- Food helps a child to grow and gives bodily strength.
- After the age of six months a child needs more than milk only.
- At six months a baby becomes interested in food and makes chewing movements.
- As a baby becomes more active he needs more food for energy.

The question of why participants thought the guideline specifies six months as the age to start giving solid foods, elicited answers demonstrating awareness that a baby needs nothing more than breast milk

before the age of six months. It was evident that health workers at clinics promote exclusive breastfeeding before the age of six months. Some participants mentioned that overweight can become a problem if solid foods are started too early and the problem of “stretching” a baby’s stomach and making him used to large quantities of food was mentioned in three groups. However, cereal added to milk in feeding bottles at an early age was considered by some not to be “real” solid food and some participants admitted to starting with this as early as two to three months. At one of the rural clinics there was uncertainty about older pamphlets still in use advising mothers to start solids at “four to six months”.

Participants were asked what they would consider to be a small amount and responses varied from uncertainty to specifying the amount as one to two teaspoonfuls or two tablespoonfuls. One mother suggested that a child doesn’t know when to stop eating and therefore a mother should ration a child’s food according to its small stomach size. It was also mentioned that a child’s weight should be monitored to prevent obesity. Although a number of participants felt that a small amount should be defined in the guideline, most agreed that a small amount would be that quantity that a child can handle or would eat without being forced.

When asked what foods participants would consider suitable solid foods for their babies of six to twelve months, vegetables such as potatoes, carrots, pumpkin, gem squash and butternut were always mentioned first. After some thought, cereal such as maize meal, porridge, or commercial baby cereals and fruit would also be mentioned. Meat, chicken and egg yolk were rarely mentioned, except in one urban group where participants mentioned yoghurt, chicken liver, soft chicken and mince. In all groups, however, participants agreed that feeding a baby from the family pot (without the spices, onions and cabbage) is the most practical solution. One participant felt that special baby foods are marketed for a good reason and that one should buy it if possible. Upon further probing, mothers agreed that children will not readily accept family foods if they get used to the taste of commercial baby foods and that they cannot afford special baby foods. In one group mothers said that they give thin mealie meal porridge, but if they could afford it, they would have preferred to give commercial baby cereals.

In one of the rural areas it was reported that there is a custom among some people to give “meelbol” to infants. Bread flour is baked in the oven to slightly brown it and is afterwards mixed with water to give as porridge or with more water as an alternative to milk. It was also reported that cases were known where this custom led to serious illness.

One group of participants felt that a “small amount” and suitable “solid foods” should be defined more clearly in the guideline, but didn’t offer any alternative wording to the guideline as it is.

Adding sugar to babies’ food was discussed in two of the urban groups, but although some mothers do add sugar, all agreed that it would be best if the child could experience and get used to the natural taste of the food.

This proposed guideline was perceived as important by the majority of participants (Table 4.15).

Non-verbal communication: In spite of the discussion on pureed and soft foods, it was surprising to see how much some of the infants enjoyed the cheese-and-tomato or cold-meat sandwiches which were provided for their mothers. Naturally these babies considered themselves participants as well!

4.2.1.3 Guideline 3: Gradually increase your baby’s meals to five times a day

As with all the other proposed guidelines, participants were asked what they thought was meant by this guideline and the following responses were noted:

- Increase the quantity of food that your child eats as he/she becomes used to food.
- Start with one or two meals and if the child handles this well, give more meals.
- As the child grows older more meals should be given.
- The child is too small to fit all the food he needs into three meals per day. A child always asks for something in between and rightly so.
- As the child grows older he/she needs more food. As he becomes more active and grows he needs more energy.
- One should increase the quantity of food that a child eats.
- In two of the rural discussion groups participants admitted that they were unsure of the meaning of “gradually”.

Three meals were generally considered to be the norm. Mid-morning and afternoon feeds were not considered by participants to be meals. In one group it was suggested that a baby of six to twelve months should be given three meals and as he becomes older he should be given snacks in between as well. A number of participants mentioned that five meals sounds too much/are too much although most agreed that they would give their child mid-morning or mid-afternoon snacks such as bread or fruit. In general participants considered three main meals very important. It was evident that a substantial

number of participants found this guideline either problematic or not important (Table 4.12 and Table 4.15).

The following alternatives for this guideline were suggested:

- As your baby becomes older, you should offer healthy mid-morning and mid-afternoon snacks in addition to the three main meals of the day.
- Increase your baby's meals from two or three a day at six months to five a day at twelve months.
- Increase the number of meals your child eats daily from three to five as he grows older and needs more food

Non- verbal communication: Sharing their mothers' food silenced a fretful baby in many instances.

4.2.1.4 Guideline 4: Keep breast feeding your baby

During the discussion groups many participants breast fed their babies. However, there were also a number of participants who bottle fed their babies during the sessions and admitted to having stopped breast feeding or supplementing breast feeding with formula feeds. The question why participants thought that this guideline was included among dietary guidelines for infants, elicited a general response which indicated a good knowledge of the advantages of breast feeding as well as willingness to comply with this guideline.



The following important points were noted among the answers:

- Breast feeding is practical.
- Breast milk is always available and it costs nothing even if there is no other food in the house and no money to buy milk.
- If your child is ill, breast feeding is the best way to make sure he gets nourishment which will do him no harm.
- Breast milk is clean. There is no need to be concerned about hygiene, germs and gastro.
- Breast fed babies are healthier.
- Breast milk is always at the right temperature.
- Breast feeding has a calming effect and psychological advantages as well.
- With breast feeding there are no instructions regarding quantities and dilution to follow.

None of the breast feeding mothers kept to fixed times to feed their infants and all claimed to breast feed as often and whenever their babies wanted to feed. All participants interpreted the meaning of this guideline as not to stop breast feeding when their babies turn six months old.

The question of how long breast feeding mothers intend to keep breast feeding their children, elicited the following opinions:

- It should be the mother's choice for how long she wants to keep on breast feeding.
- Some participants indicated that they intend to breast feed until the baby "weans itself" or until he/she does not want to drink from the breast anymore.
- A number of participants indicated long periods of time, e.g. until the child goes to school and in many instances referred to older siblings who were breast fed up to 4 or 5 years of age.

To most groups breast feeding up to two years of age was acceptable, although participants from one urban group considered two years a very long period to breast feed. Incidentally none of the five participants from this group were breastfeeding at the time of the study and one mother was quite outspoken about the inconvenience of breast feeding.

Participants were questioned about what they perceive as hindrances to keeping on breast feeding their babies and the most general answer was that they considered their milk to be too little (Table 4.9). Interestingly, it was found that in some rural areas myths exist about "salty milk" and "weak milk" and that mothers are encouraged by older women, especially grandmothers, to supplement breast milk with formula.

Alcoholism and substance abuse while breast feeding, were mentioned as important issues in some communities.

None of the participants had problems understanding this guideline, although in one group it was proposed that the guideline should read: "Keep on breast feeding your baby up to two years of age". Although these guidelines are for mothers of babies 6-12 months of age, mothers in this group felt that they would like to know in advance for how long they should breast feed.

In spite of the fact that many participants reported perceived hindrances, more than 90% of participants considered this guideline to be important (Table 4.15).

Non-verbal communication: During the discussions many mothers breast fed their babies without being deterred in any way by the presence of the videographer. However, a number of babies were also bottle fed during the sessions.

4.2.1.5 Guideline 5: Offer your baby clean, safe water regularly

Participants were asked how often they would give their infants clean, safe water in view of this guideline and it was evident in some groups that participants were uncertain what “regularly” means. Some participants who ventured to answer offered the following possibilities:

- A baby should be given water between meals when the baby has had his food and milk and still seems thirsty
- A few times per day
- When the baby is ill and feverish

When asked why participants thought that a baby should be given water, the following reasons were mentioned:

- To improve digestion
- It cleanses the body
- Water is very healthy
- To prevent constipation
- To quench the baby’s thirst
- It cools the baby when the weather is hot
- A child loses water through sweating
- A baby can also get thirsty



Most participants thought that only boiled, cooled water is to be considered safe for a baby, while a few thought that water from a tap is safe. Participants from some rural areas felt that their town’s water supply is definitely not safe and that they will always boil it even if it looks clean. If there are no facilities to boil the water, they would rather offer breast milk.

Almost all participants knew that water can be made safe by boiling it and had heard of oral rehydration solution. Although most mothers knew that it should be made from one litre of boiled, cooled water and eight teaspoonfuls of sugar, there was some uncertainty about the amount of salt to be added. Suggestions offered were from a half to five teaspoonfuls. In one of the urban groups it was mentioned that oral rehydration solution could be bought from the chemist.

“*Fluoride*” was a concept found to be almost unknown among participants. In one urban group, however, a participant mentioned that it was “something you find in water and it influences your teeth”.

Participants in the Xhosa-speaking discussion group mentioned that it was not inherent in the Xhosa culture to give water to babies and that this was new to them.

In general, participants felt that this guideline was clear and understandable. Participants in a rural group thought that the word “offer” is too sophisticated and should be replaced by “give”. Some suggested that the term “regularly” is vague and that the guideline should specify how many times per day water should be given. In two of the groups it was suggested that the guideline could be made more understandable by changing the wording to “Give your baby clean, boiled and cooled drinking water several times a day”.

Non-verbal communication: Very high temperatures were experienced on some discussion dates and notably infants were especially fretful when it was so hot.

4.2.1.6 Guideline 6: Teach your baby to drink from a cup

Participants offered the following reasons why they thought that a baby should be taught to drink from a cup:

- Bottles are most of the time not very clean and therefore unsafe.
- Bottles have germs.
- Bottles lie about everywhere and collect germs.
- Bacteria grow in feeding bottles.
- Bottles cause mouth infections and gastro.
- Bottles are unhygienic.
- A cup is free of germs because it is easy to clean.
- A cup which the child can hold saves time.
- A child must anyhow at some stage learn to drink from a cup.
- A cup or glass is available almost everywhere if you want to give your child something to drink.
- With a cup, chances are less that your baby will get diarrhoea.

In one group the shape of modern artificial nipples was mentioned in relation to dental occlusion. The participant remarked that modern artificial nipples were shaped to fit the oral cavity and that malformation of the teeth or jaws was not a problem any more as with older style nipples.

Participants understood the message of this guideline to be that a child should drink either from the breast or from a cup. Although all participants agreed that they understood this guideline, some mothers expressed their preference for a feeding cup with a lid and nozzle.

Non-verbal communication: No infants were seen at the discussions being offered anything to drink from a cup.

4.2.1.7 Guideline 7: Take your baby to the clinic every month

The reasons that participants offered for attending clinics regularly, reflected knowledge of the important function that a baby clinic fulfils with regard to children's growth and health:

- At the clinic the health worker or sister will be able to tell whether your baby is growing as it should or whether he/she is gaining too little or too much weight (growing satisfactorily).
- Having the "Road to Health" Growth Chart completed is important.
- Your baby's health can be checked every month and the health worker at the clinic can be consulted if there is a problem with your baby's health.
- It is important for your child's health to be weighed, de-wormed and vaccinated.
- If you attend the clinic every month you will find out in time when something is wrong.
- If your baby is ill, help will be available at the clinic.
- Vaccinations administered at the clinics are important to protect your baby.

In one of the urban clinic-based groups, participants explained in good humour how strict the clinic personnel are regarding attendance and that anyone who dares to be absent from a monthly visit will find the sister on their doorstep. On the contrary, it was found that participants in non-clinic-based discussion groups did not consider attending a clinic to be important.

CHAPTER 5

DISCUSSION AND CONCLUSION

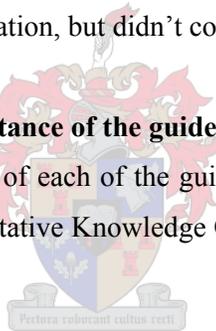
5.1 The average participant

Although the composition of the sample of 64 volunteers was representative of the population of the area (Table 4.1), saturation was not reached within the English and Xhosa speaking language groups and the black and white culture groups. Nevertheless, no new insights or information was gathered from the small number of participants who represented the afore-mentioned groups.

A profile and description of the life-situation of the average participant in the study emerged from an analysis of the results of the Socio-demographic Questionnaire. The average participant could be described as an Afrikaans-speaking woman from the coloured culture group who is about 26 years old and the mother of a baby of 6-12 months old. She may or may not have other children and lives with her mother or other relatives in a brick house, probably owned by the family, with electricity and indoor taps. She has high-school education, but didn't complete grade 12, is unemployed and single.

5.2 Consumer perception and acceptance of the guidelines

Consumer perception and acceptance of each of the guidelines as it crystallised from the focus group discussions and the supporting Quantitative Knowledge Questionnaire can best be discussed separately for each individual guideline.



5.2.1 Guideline 1: Enjoy time with your baby

The most important themes emerging from the discussions, namely communication and the learning of language, educational playing, laughing, friendliness and physical tenderness, concur with perceptions and recommendations as described in the literature.³²

Most participants in this study grasped the message that this guideline intends to impart, namely that psychological well-being is of profound importance in the life of a child, especially at the 6-12 month period, and that good nutrition is only one important aspect of optimum growth and development. This view was further illustrated by the mentioning in the discussion groups of more abstract concepts such as bonding, character shaping and sense of security which was similar to those mentioned in the literature.³² The more obvious aspects, such as physical nurturing, were also mentioned as being very important (Paragraph 4.3.2).

Some participants, however, tended to relate this guideline to mealtimes only, probably because the guideline forms part of a set of dietary guidelines. This was also reflected in some of the suggestions received for alternative wording of this guideline. A possible explanation for this view may be the fact that many working mothers see their children mostly at mealtimes (Paragraph 4.3.2).

Although well-understood and perceived to be an important guideline by all participants with exception of just a few (Table 4.5 and Table 4.15), applicability of this guideline was perceived as problematic by a significant proportion of urban mothers ($p = 0.008$) and more specific urban mothers from the Xhosa-speaking ($p = 0.0001$) black culture group ($p = 0.002$) as reflected in the correlations found with application of the *Pearson chi square* test (Paragraph 4.2.2.1).

Correlation between full-time and part-time employment status and perceived hindrances was almost significant ($p = 0.07$), while, having completed matric, was a significant ($p = 0.01$) contributing factor to not being able to comply. A possible interpretation of this finding could be that mothers with a higher education have a better chance of being full-time or part-time employed, therefore working for long hours and having little leisure time (Paragraph 4.2.2.1).

Especially part-time or seasonal workers are employed in tasks demanding hard physical labour such as fruit picking. This situation would probably contribute to the chronic tiredness that was mentioned by many as a perceived obstacle, although possible underlying organic factors, such as iron deficiency anaemia and insufficient energy intake should not be overlooked, especially in the face of prevailing poverty and food insecurity in many households in the Little Karoo region.¹⁷

The participants' body language and verbal as well as non-verbal communication, also with their infants, confirmed the results obtained from the questionnaires, showing that this guideline was no new concept and that most mothers comply intuitively. Only a lack of time and energy were perceived as the main constraints.

5.2.2 Guideline 2: From six months start giving your baby small amounts of solid foods

The majority of participants in the discussion groups understood the meaning of this guideline and could interpret it correctly (Table 4.5).

Participants' perceptions of why a child needs complementary solid foods at six months concur with the UNICEF recommendation, namely that the child of 6 months requires additional nutrition to meet its increasing needs for energy and nutrients (Paragraph 4.3.3).²⁸

The fact that the current UNICEF recommendations regarding infant feeding are relatively new^{28, 29} offers an explanation for the uncertainty among some groups regarding the correct age to introduce complementary food as older educational material stating that the proper age of introducing complementary foods is 4-6 months, is still in use in some of the rural clinics.

Participants also mentioned some of the developmental milestones which indicate a readiness for the introduction of solid foods, such as showing an interest in food and making chewing movements (Paragraph 4.3.3).^{43, 44, 45}

Although there was some uncertainty about what a small amount was, mothers generally understood the concept of feeding the infant until it wants no more and not to force feed. The majority of mothers agreed that a child should not be forced to eat. This concurs with recommendations in current literature regarding responsive feeding.^{37, 40}

The admitted practice of adding cereal to bottles of milk feed at an age as early as 2 or 3 months is a matter of great concern. This practice is mentioned in the literature as a risk factor for malnutrition, as a proportion of the more nutritious milk feeds are displaced by cereal.¹⁴ Perceiving their breast milk as inadequate, as reported by many mothers in this study, could be a possible explanation for this undesirable practice (Table 4.9) and is similar to observations made in other studies.¹⁹ Gut permeability as well as the young infant's immature digestive and excretory systems are important considerations in determining the age of introducing solids and too early introduction renders the infant vulnerable to adverse conditions such as damage to the gut epithelium, infections and development of food sensitivities, manifesting as cramps, bloatedness, crying and general discomfort.^{41, 42}

Solid foods, perceived by discussion groups as suitable for infants of 6-12 months old, were usually cereals, fruit and vegetables. While these foods are recommended as suitable first foods and while these foods can be good sources of energy, essential fatty acids and vitamin A, especially if enriched with oil or margarine,^{35, 43, 71} it is a cause for concern that complementary foods rich in protein, iron and zinc were seldom mentioned in the discussion groups. Although egg yolk, chicken and meat should be introduced from the age of 7-8 months,^{35, 43} a lack of nutritional balance, variety, quantity

and quality of complementary foods, especially in poor rural communities, were observed in other studies.^{18, 25} It should be remembered that a vegetarian or predominantly cereal-based diet does not meet the nutrient needs of the 6-12 month old infant and could lead to malnutrition.³⁶ The practice of feeding infant baked bread flour mixed with water (“meelbol”) is one example of what mothers do in situations of desperate poverty, where the child receives a carbohydrate diet only (Paragraph 4.3.3).

Although some mothers voiced the perception that commercial baby foods were superior although unaffordable, feeding an infant from the family pot was seen by most participants as the best and most affordable solution. This view concurs with current recommendations.³⁷

Addition of sugar to complementary foods was discussed in some groups and although it could be argued that sugar is a source of additional energy³⁵ this practice should be discouraged in favour of enriching complementary foods with oil or margarine which adds the benefit of essential fatty acids, enhancing vitamin A absorption as well as increasing the energy intake.^{55, 57} While sugar could improve the taste of a monotonous, bland diet and encourage food intake,³⁷ restriction of sugar is important with regard to oral health, especially as the water of the Little Karoo contains very little fluoride.^{58, 62}

Although a vast majority of participants considered this guideline to be important (95%), unaffordability of complementary foods, and to a lesser extent also un-availability and lack of knowledge, was reported to be the greatest hindrances to application of this guideline by more than 20% of participants (Table 4.11).

While only 10% of rural mothers perceived hindrances to complying with this guideline, it was found in this study that almost 50% of urban mothers and almost 60% of Xhosa-speaking urban mothers perceived un-affordability as the main hindrance to compliance. Understandably, a large proportion of unemployed mothers and interestingly, those who find themselves living with a partner in a common-law relationship, perceived problems affording complementary foods for their babies (Table 4.13).

Currently only infants with growth faltering (Table 2.8) are allowed on the Nutrition Supplementation program of the Health Facility Based Nutrition Programme of the DOH. As this condition is established over 2 or 3 consecutive monthly visits, it implies that under-nutrition prevailed for some time before aid is offered.^{71, 72}

5.2.3 Guideline 3: Gradually increase your baby's meals to five times a day

This guideline was the least well-understood of all the proposed PFBDGs. Participants were generally confused by the pre-discussion question on this guideline which was answered correctly by only 36% of participants (Table 4.5). Participants in the discussion groups reacted spontaneously by protesting that five meals per day was too much food for a baby. Generally, 3 meals were considered the norm, but participants had no problem with giving their children snacks in between the main meals. Therefore the problem seems to be more related to the terminology used, than to the concept of eating five times per day. Evidently, participants did not understand that the snacks offered between the main meals are meals as well. This is also reflected in the suggestions for alternative wording of this guideline received from the groups, (Paragraph 4.3.4), namely:

- As your baby becomes older, you should offer healthy mid-morning and mid-afternoon snacks in addition to the three main meals of the day.
- Increase your baby's meals from two or three a day at six months to five a day at twelve months.
- Increase the number of meals your child eats daily from three to five as he grows older and needs more food

The question may well be asked whether there would be any difference in the quantity of food offered at different times of the day for infants of this age and if the term "snack" would really apply. As recommended in the literature, the quantities and consistency of meals would remain very much the same throughout the day although the kind of food may vary (Paragraph 2.6.2).

During the discussions, the meaning and rationale underlying this guideline usually became clear and participants came to understand that due to the infant's small gastric capacity combined with a high energy need, the meal frequency should be increased (Paragraph 4.3.4).

However, after the group discussions, when participants had to indicate whether they perceived this guideline as important and applicable in their life-situation, almost 20% still considered it to be unimportant and 23% indicated an inability to comply (Table 4.12 and Table 4.15).

Not being at home to make sure that the infant gets its frequent meals, as well as a lack of knowledge of how to increase the meals, were reported to be the most important hindrances by mainly the participants from urban settlements ($p = 0.0002$) and specifically the Xhosa-speaking ($p = 0.001$)

participants. Mothers living with a partner in a common-law relationship did not consider this guideline to be important ($p = 0.008$).

The similarities observed in this study between the socio-demographic associations with perceived hindrances to complying with guidelines 2 and 3, could lead to the assumption that non-compliance with these two guidelines would mainly be owing to un-affordability of suitable foods.

5.2.4 Guideline 4: Keep breast feeding your baby

It was evident that breast feeding was considered a very natural activity as many infants were breast fed during the group sessions. Mothers also reported that they breast fed whenever their babies wanted to feed concurring with current recommendations that babies should be breast fed on demand.^{29, 30}

Participants were able to discuss the benefits of breast feeding at length and demonstrated a good understanding of the importance of this guideline. This was confirmed by the 80% correct answers in the pre-discussion questionnaire (Table 4.5) and the 91% of participants indicating that they perceived this guideline as important (Table 4.15). Statistically it was shown in this study that participants from rural areas had a better comprehension of what it means to keep on breast feeding their babies ($p = 0.01$).

Surprisingly, in the second part of the Quantitative Knowledge Questionnaire, almost 30% of participants reported hindrances to application of this guideline (Table 4.8) and this was also the guideline for which the most hindrances were perceived (Table 4.9). This may explain why a number of mothers in the discussion groups were bottle feeding their babies and why some mothers reported supplementing their breast milk with formula feeds.

In the questionnaires, breast milk that is too little or has dried up was reported to be the main reason for not complying with this guideline (Table 4.9). Supplementing breast milk with formula feeds may lead to a diminishing supply of breast milk³⁷ but the notion of having too little milk, or milk of a lesser quality, may be just a perception as it was reported in some discussion groups that beliefs regarding “weak” milk or “salty” milk do exist in some communities (Paragraph 4.3.5). There is no way of measuring the amount of breast milk that an infant takes in and therefore difficult for a mother to estimate whether it is enough.³⁷

Incorrect breast feeding technique might be another possible explanation for the perception of too little milk. If the infant does not “latch on” correctly, its sucking would be ineffective and the consequent frequent demands for feeding may create the impression that the mother’s milk is too little.⁶⁴

Interestingly, it was reported that grandmothers and older female relatives often encourage mothers to give complementary bottle feeds. This corresponds with the findings in another study that family influences in multi-generational households can be overwhelming.²⁷ With the statistical analysis of the data in this study, no significant relationships could however be established between living in a multi-generational home and perceived hindrances to application of this guideline. Living with a grandmother did however have a significant influence ($p = 0.01$) on the perceived importance of the breast feeding guideline (Paragraph 4.2.2.4).

Most breast feeding mothers in the discussion groups indicated that they would keep on breast feeding until the child weans itself. This is supported by recommendations in current literature that breast feeding should be promoted and sustained for as long as possible especially in communities where children are particularly at risk for malnutrition.³⁷

Statistical analysis of the data obtained from the questionnaires showed that culture was significantly ($p = 0.007$) associated with breast feeding. Seventy two percent of participants from the black culture group perceived problems with prolonged breast feeding. Again, milk that is too little or has dried up is reported to be the most important hindrance, followed by prohibition by a medical practitioner to breast feed (Paragraph 4.2.2.1). Being employed was reported as a minor reason. Participants from the coloured culture group perceived the least hindrances to complying with this guideline, while 40% of participants from the white culture group perceived problems with prolonged breast feeding (Paragraph 4.2.2.1).

In some communities the social problems of alcoholism and substance abuse may have a detrimental effect on breast feeding, although prevalence of these conditions among breast feeding mothers and the extent of their effect has not been established. Reporting of these conditions were anecdotal and not substantiated by data (Paragraph 4.2.1.4).

A post-matric level of education ($p = 0.007$) and full-time employment ($p = 0.02$) are two more factors negatively associated with the perceived importance of the breast feeding guideline. A possible

explanation for this may be the perceived convenience of formula feeding by bottle, especially if the baby is cared for by someone else.

5.2.5 Guideline 5: Offer your baby clean, safe water regularly

In general participants felt that this guideline was clear and understandable, although some had trouble interpreting the term “regularly”. It was suggested that this guideline should specify how many times per day water should be given to an infant and it was proposed that the guideline should read “Give your baby clean, boiled and cooled water several times a day.”

Interestingly it was reported in the Xhosa-speaking group that giving water to a child was not customary in their culture and that this guideline was new to them.

Reasons that participants named for giving water to a child, showed that the physiological needs underlying this guideline were well understood. The necessity of rehydration in cases of diarrhoeal disease was also well understood although some participants had trouble remembering the correct quantities of ingredients for an oral rehydration solution.

None of the participants, however, indicated that they linked this guideline with oral health in any way and very few participants were familiar with the term *fluoride*. In view of the fact that compulsory fluoridation of municipal drinking water has been postponed indefinitely and that water in the study area contains very little fluoride, special attention to this matter is warranted and will be further expanded upon in the recommendations following this study.

The only reason offered for an inability to comply with this guideline by 20% of participants was their uncertainty about the safety of water in the areas where they lived. A possible explanation for this could be the fact that tap water in some areas was often coloured by plant material such as algae.⁶¹

Many participants stated that they perceived only boiled water as safe for their infants and most demonstrated a good knowledge of how to make water safe for human consumption. A statistically significant association ($p = 0.04$) was found between the participant’s level of education and their perception of the term “safe water”. While all participants with a post-matric education and most mothers who attained a grade 1-6 level of education, were aware of the fact that not all water was necessarily safe for a baby to drink, more than 60% of participants with high school education thought that all water was safe to give to a baby. This interesting phenomenon could possibly be explained by

the fact that participants who only attained a grade 1-6 level of education were the older, and therefore possibly the more experienced mothers, while the younger more inexperienced mothers were the ones who attained a grade 7-12 level of education (Paragraph 4.1.3.1).

Ninety four percent of participants indicated that they consider this an important guideline (Table 4.15).

5.2.6 Guideline 6: Teach your baby to drink from a cup

Generally participants felt that the wording of this guideline as it stands was easy to comprehend, although the rationale behind this guideline was not so clear. This was demonstrated by the results of the pre-discussion questionnaire showing that only 53% of participants understood the reason for this guideline to be improved hygiene, while 25% of the participants thought that the developmental ability of the child to drink from a cup was the desired outcome of this guideline. This interpretation did not differ significantly across culture, language or urban and rural groups (Paragraph 4.2.1, Table 4.6)

A small percentage (12%) of participants reported the perceived messiness of teaching a small child to drink from a cup and a lack of time as the main hindrances to complying with this guideline. Interestingly, significant associations were found between culture ($p = 0.002$) and education ($p = 0.02$) and the perceived importance of this guideline. Participants from the white culture group and participants who had attained a post-matric level of education did not consider this guideline to be important (Paragraph 4.2.2.4).

These results correspond with the findings in another study where it was shown that only 18% of a parent sample thought that a cup should be introduced at 6 months.⁶⁵

In the present study, participants did however demonstrate a good comprehension of the hygienic aspect of cup feeding and this corresponds to findings in the literature that feeding bottles carry a risk for bacterial contamination and subsequent morbidity, especially in disadvantaged settings.⁴⁶

None of the participants, however, related this guideline to dental and oral health. Dental caries was not considered to be the result of drinking from a feeding bottle, although this is in contrast with findings in other studies where a direct relationship between the use of feeding bottles and childhood dental caries has been demonstrated.^{59,68}

Occlusion of the primary dentition has also been shown in another study⁵⁶ to be influenced by the use of a feeding bottle. Prolonged bottle feeding was shown to be significantly related to development of an open bite and non-mesial step malocclusion. However, in the present study it was mentioned in a discussion group that modern artificial nipples are structured so as to fit the oral cavity and would therefore not influence the occlusion of the primary teeth. No literature supporting this view could be located, however (Paragraph 4.3.7).

Some participants expressed their preference for a feeding cup with a nozzle to minimise the messiness perceived to be associated with cup feeding. However, literature warns against the prolonged use of bill shaped vessels such as feeding cups with nozzles in relation to oral health and recommends that training cups should be used only temporarily if at all.^{69, 70}

5.2.7 Guideline 7: Take your baby to the clinic every month

In the pre-discussion questionnaires, 87% of participants interpreted the reason for attending the clinic correctly. Existence of statistically significant ($p = 0.05$) associations were established between the correct interpretation of this guideline and the language ($p = 0.005$) and culture ($p = 0.004$) groups to which participants belonged. While 57% of Xhosa-speaking mothers did not comprehend the reason for attending a clinic regularly, 91% of Afrikaans-speaking participants did so (Paragraph 4.2.1, Table 4.7).

Eleven percent of participants reported perceived hindrances to attending the clinic. Fear of criticism deterred 5% of participants from attending the clinic while 6% had no time. Participants from the white culture group ($p = 0.002$) did not consider clinic attendance to be important and neither did participants who attained a post-matric level of education ($p = 0.04$).

Discussion of this guideline in the focus groups did however show that participants had a good knowledge of the benefits they stood to gain from regular clinic attendance (Paragraph 4.3.8). The perceived benefits, listed below, were confirmed in the literature on clinic services, reviewed in a previous section (Paragraph 2.6.7).^{71, 72, 73}

- Counselling and education
- Growth monitoring
- Treatment of growth faltering, malnutrition and underlying illness
- Simple diagnostic tests for suspected adverse conditions such as anaemia or infection
- Referral for medical attention or hospitalisation

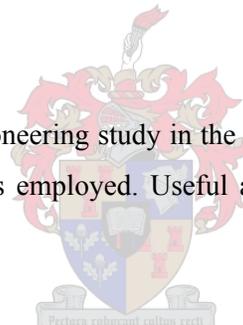
- Micronutrient supplementation
- Nutrition supplementation
- Immunisation

5.3 Limitations of the study

Although the sample was representative of the population in the greater Oudtshoorn area, saturation was not reached within the Xhosa- and English-speaking sub-groups. As the sample consisted of volunteers, it happened that one language group was well-represented while the formerly mentioned language groups were under-represented, despite concerted efforts to recruit more participants. Furthermore, qualitative studies have an inherent subjective nature which, in the absence of scientific standards, or criteria to compare results with, renders validation of results difficult. It was however endeavoured to overcome this problem by administering qualitative questionnaires, which proved to support the qualitative findings of the focus group discussions, and to have part of the qualitative material peer-reviewed .

5.4 Conclusion

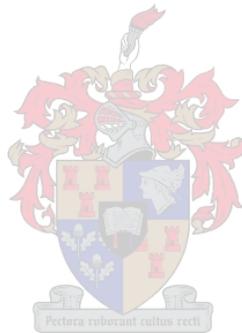
This study is considered to be a pioneering study in the field of paediatric nutrition, especially in view of the novelty in research methods employed. Useful and enlightening information was obtained to meet the research objectives.



Summarily it could be said that participating mothers in general were very receptive towards the idea of PFBDGs which would make nutrition knowledge more accessible to the lay public. In South Africa with its high rate of unemployment, poverty, infectious diseases and malnutrition, especially among young children, it is of the utmost importance that nutritional information should be understandable, applicable and sustainable in the prevailing circumstances. It has been established in this study that, with adequate complementary educational material, the general public would have no difficulty understanding the proposed guidelines, while perceived hindrances can in many cases also be overcome with improved knowledge.

To conclude, the author concurs with the findings of the NFCS ⁸ that social upliftment and creation of employment opportunities are prerequisites for the improvement of the nutritional status of South Africans, especially the children. Successful implementation of the PFBDGs will not only depend on good education and efficient dissemination of educational material, but first and foremost the ability of mothers to comply with the guidelines will depend on the means at their disposal. Although some

mothers will experience very real and practical difficulties to comply with certain guidelines, it is believed that the Paediatric Food-Based Dietary Guidelines will provide direction to mothers of infants, enabling them to do the best they possibly can for their children within the means at their disposal.



CHAPTER 6

RECOMMENDATIONS

6.1 General recommendations

With the current recommendations regarding infant feeding, as described in the literature (Paragraph 2.6.2) together with the data on malnutrition in South Africa (Paragraph 2.2.1, 2.2.4 and 2.3) in mind, it is recommended that bodies disseminating information on the guidelines and using them as educational tools, should not do so without complementary and extensive additional educational material covering all the important aspects relating to each individual guideline.

As discussed previously, the difficulty that participants experienced with the interpretation of certain guidelines was not related to any perceived complexity of the guideline, but it was more related to words to which participants attached a different meaning (Guideline 3) and a lack of knowledge of the rationale underlying a guideline (Guideline 6). When these guidelines were discussed in the focus groups, participants showed a far better understanding.

Educational material should carry standardised messages and policies. It is therefore recommended that such material should be carefully formulated, clearly explaining the rationale underlying each guideline and conveying the importance of each guideline. Simple and easily understandable instructions on how to practically implement PFBDGs should be supplied and practical solutions to perceived hindrances should be offered for each guideline individually. It is further recommended that this educational material should be disseminated to the public in an easy to handle format, such as pamphlets for individual guidelines while stickers, fridge magnets and laminated cards could be used for short messages.

The needs within communities should be assessed with regard to possible information campaigns and especially mothers who are not attending clinics on a regular basis should be targeted through the media. The finalised Paediatric FBDGs should also be disseminated to other health professionals involved in the well-being of children and day care centres and nursery schools should be targeted with suitable educational programmes as well.

6.2 Specific recommendations regarding individual guidelines

Specific recommendations regarding individual guidelines are listed below:

6.2.1 Guideline 1: Enjoy time with your baby

- Concise information regarding the important aspects of this guideline as described in the literature should be supplied, e.g. cognitive and emotional development, communication and the learning of language, play, bonding and a sense of security as well as physical nurturing. Nutrition should be put in perspective as being one important aspect of the holistic development of the infant as an individual, with the message that quality interaction should not be limited to mealtimes only.
- Especially part-time and full-time employed mothers should be targeted with information regarding time management and prioritising.
- Possible underlying organic reasons for chronic tiredness should receive attention

6.2.2 Guideline 2: From six months start giving your baby small amounts of solid foods

Consumers should be educated regarding current recommendations with special reference to

- A standardised message regarding the introduction of complementary food at 6 months and not at 4-6 months as stated in previous literature
- The adverse effects of introducing solid foods at too early an age, especially with regard to cereals being added to bottle feeds
- The suitability of cereals, pureed vegetables and fruit as first foods, to be introduced in small amounts and one at a time when the infant becomes 6 months old
- The importance of adding foods rich in protein, iron and zinc such as egg yolk, finely ground or pureed chicken, meat or boneless fish at the age of 7-8 months when the infant signals a readiness for more dietary variety with the achievement of physical and psychological developmental milestones (Paragraph 2.6.2.3)
- When to offer solid foods in relation to milk feeds

Consumers should further be educated about

- foods which can cause food allergies if introduced before 1 year of age such as egg white, cow's milk and peanut products
- availability and identification of nationally fortified maize-meal and bread
- the importance of fat in the infant's diet and enrichment of complementary food with oil or margarine
- the (un)desirability of adding sugar to complementary foods

As many mothers in this study perceived un-affordability of complementary foods as the main hindrance application of this guideline, consumers should be educated about how they can prepare nutritious, affordable complementary foods and how they could feed their infants from the family pot.

As an association was seen in this study between perceived un-affordability of foods and the unemployed mother living in a common-law relationship, it is recommended that social services and health workers pay special attention to the interests of the child in such a household.

6.2.3 Guideline 3: Gradually increase your baby's meals to five times a day

Regarding this guideline it is recommended that complementary educational material should explain the need for

- Frequent small meals in the light of an infant's increased nutritional needs (Paragraph 2.6.3) and its small functional stomach size.
- supplying an adequate energy intake should be stressed

The following should also be explained:

- energy value of different types of food
- methods to enhance the energy value of complementary foods
- the importance of a varied diet
- The terminology used in this guideline, describing any complementary food as a meal.

Working mothers should be informed on how to hygienically pre-pack small meals for their children, as the greatest hindrance to application of guideline 3 was perceived as the mother's absence during the day.

Less expensive choices should receive attention with this guideline as well

6.2.4 Guideline 4: Keep breast feeding your baby

Educational material should concentrate on ways and methods to overcome those practical problems perceived as hindrances to prolonged breast feeding. Such material should therefore be aimed at:

- Refuting the myths existing about breast feeding and breast milk, such as milk being “too little”, “too salty” or “weak”
- Counselling especially the young inexperienced mothers in ways to deal with contrary advice offered by relatives and friends

- Teaching mothers who are separated from their children during the day techniques of expressing breast milk and storing it safely so that their infants can be cup fed with breast milk during the day
- Informing mothers about the adverse effect of supplementary formula feeds on their milk supply
- Informing mothers about the adverse effects that alcoholism and substance abuse during breast feeding may have on their babies
- Teaching mothers how to care for their breasts properly to avoid conditions such as mastitis and abscesses which may jeopardise continued breast feeding
- Intensive counselling regarding prolonged breast feeding and HIV/AIDS is deemed necessary if a mother is HIV positive.

The section of the community who does not regularly attend clinics should be targeted with information campaigns through the media regarding this important guideline.

6.2.5 Guideline 5: Offer your baby clean, safe water regularly

Educational material should include information on

- The development of early childhood dental caries
- How the intake of water relates to oral health
- Fluoride (what it is and why it is important)
- Fluoride supplementation in areas where the available water source contains little or no fluoride
- The physiological importance of optimal hydration
- The necessity of rehydration in cases of diarrhoeal disease
- The preparation of oral rehydration solution
- The technique of rendering water safe by boiling, cooling and storing it hygienically
- Information on the safety of different sources of water.

6.2.6 Guideline 6: Teach your baby to drink from a cup

Information on the following aspects of this guideline will need clarification, especially as this was one of the guidelines mothers had trouble comprehending, presumably as the result of a lack of knowledge.

- The rationale for teaching a child of six months (or younger) to drink from a cup should be very well-explained, including the aspects with which participants in the present study seemed unfamiliar:
 - The superior hygiene of using a cup instead of a feeding bottle
 - The role of feeding bottles in the development of dental caries
 - The role of feeding bottles in the malocclusion of the primary teeth
 - The developmental issues around cup feeding e.g. learning to sip from a cup as opposed to sucking from a bottle
 - Advice regarding the use of a training cup, with special reference to training cups with valves (Paragraph 2.6.6.5)
 - The danger of asphyxiation associated with eating or drinking when unsupervised, referring to infants being put to bed with a feeding bottle

6.2.7 Guideline 7: Take your baby to the clinic every month

A widespread consumer information campaign in the media is recommended to bring the following services, available at clinics, to the public's attention (Paragraph 2.6.7):

- Counselling and education
- Growth monitoring
- Treatment of growth faltering, malnutrition and possible underlying disease
- The Nutrition Supplementation Programme
- Immunisation
- De-worming
- Referral if necessary for hospitalisation, medical care or social services
- Social and emotional support

6.3 Supportive documentation

In the interest of conveying standardised messages to the public, implementation of the PFBDGs and disseminating information to the public should be effected in accordance with current policies of the DOH as discussed previously (Paragraphs 2.5.2 and 2.6.7).

PFBDGs should be interpreted in conjunction with the following documents:

- Integrated Nutrition Programme (3): A foundation for life. Department of Health, South Africa Containing information on the Food Security Nutrition and Health Campaign launched in 2002 by the DOH, as well as information on other government strategies to combat malnutrition.

- Policy guidelines for the Nutrition Supplementation Programme of the Health Facility based Nutrition Programme (HFBNP). PAWC- DOH 15-09-2003
- Integrated Case Management Guidelines for Malnutrition. PAWC (MCWH, Nutrition: Provincial Reference Group) 15-11-1999
- Paediatric Case Management Guidelines: Growth Monitoring, Malnutrition, Vitamin A Supplementation. PAWC-DOH 30-11-2000
- Vitamin A Supplementation Policy. PAWC-DOH, Circular no. H42/2002
- Integrated Management of Childhood Illness. DOH, South Africa. January 2003.

6.4 Suggestions for alternative wording of specific PFBDGs

The following suggestions for alternative wording of some of the guidelines, offered by participants in this study, need to be considered by the PFBDGs Working Group:

Guideline 1:

- Give adequate time and attention to your child, while caring for him/her affectionately.
- Feeding times offer good opportunities to give your baby love and attention.
- Spend adequate time with your baby to communicate with him/her and to care for him/her in a loving way.
- Set time aside to spend with your baby and use mealtimes especially to communicate.

Guideline 3:

- As your baby becomes older, you should offer healthy mid-morning and mid-afternoon snacks in addition to the three main meals of the day.
- Increase your baby's meals from two or three a day at six months to five a day at twelve months.
- Increase the number of meals your child eats daily from three to five as he grows older and needs more food

Guideline 4:

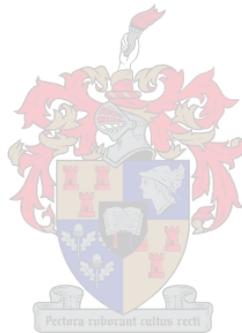
- Keep on breast feeding your baby up to two years of age

Guideline 5:

- Give your baby, clean safe water several times a day
- Give your baby boiled and cooled water several times a day

6.5 Recommendations for further studies

As saturation was not reached within all the language groups represented in the present study, it is recommended that further consumer testing of the proposed PFBDGs is done in areas where these language groups are better represented. Also, in view of the fact that South Africa is a multi-lingual and multi-cultural country, it is recommended that further consumer testing of PFBDGs in other and different areas of the country, among other language and culture groups, is necessary to obtain a fuller, more complete understanding of the situation as well as to validate the results obtained in the present study.



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ISONGEZELELO 1: IPHEPHA LEMIBUZO NGENTLALO YENDAWO
(Imibuzo 1-3 mawuphendulwe ngumphandi)

1. Ummandla:.....2. Igama ledolophu okanye ilali
3. Uhlobo lwendawo: idolophu/idolophu enkulu ngamaphandle
4. Indlu:(umnini-ndlu) yindlu yakho uyiqeshile uhlala nosapho/nezihlobo
 (uhlobo) yeyezitena ngungquphantsi lityotyombe
 (yeyodaka)
 yeyamaplanga ilolunye uhlobo (cacisa).....
5. Izizalwana ezisendlini:
 (udabawo/umakazi/umakhulu)
 umakhulu omnye oomakhulu bobabini esinye izizalwana
 awuhlali nasizalwana (cacisa).....
6. Igqiza lenkqubo yesizwe : ungumntu omnyama ulikhaladi ungumLungu
7. Ulwimi lwakho: isiNgesi isiBhulu isiXhosa lolunye
8. Ulwalamano lwakho nomntwana
 ungumama ungumakhulu esinye izizalwana
 (cacisa).....
9. Iminyaka yakho:
10. Imfundo yakho: awufundanga umgangatho 1-6 umgangatho 7-11
 unematriki ngapha kwematriki
11. Imo yomtshato: utshatile uyahlalisana awutshatanga
12. Wenza ntoni umama womntwana: ujonge ikhaya akaphangeli unesingxungxo/
 (ikhona imali ayifumanayo) (akukho mali uyajopa
 ayifumanayo)
 unomsebenzi osisigxina Ngumsebenzi onjani
13. Amanzi afumaneka njani: emlanjeni umngxuma wesitsalamanzi izikhongozeli zamanzi
 (impompo yangaphandle) (zikamasipala)
 etepini phandle etepini endlini
14. Umlilo wokupheka: upheka eziko ngeparafini ngombane ngegesi

ADDENDUM 2: QUANTITATIVE KNOWLEDGE QUESTIONNAIRE

Part 1: Read the seven preliminary food-based dietary guidelines for babies 6-12 months old. After each of the following questions pertaining to the guidelines, two possible answers to every question are offered. Choose the one option that you consider the correct answer to that particular question and mark with an x in the . If you do not know the answer, please indicate that by marking the preceding the words “I do not know”.

1.1 If your health worker tells you that you should keep on breast feeding your baby of six months, what do you think that would mean?

- If a child of 6 months is breast fed, he/she will need nothing more
- Your baby of 6 months should be breast fed as often as he/she wants to and should be given other foods as well
- I don't know

1.2 What is a small amount of solid food?

- A small cup full of the food
- As much as your baby wants to eat without being forced
- I don't know

1.3 Why do you think that meals should be gradually increased to 5 times a day?

- Meals should be given more times a day instead of making the meals bigger
- A baby should not eat more than three times a day
- I don't know

1.4 Is all water clean and safe for your baby to drink?

- all water is not clean and safe and if you are not sure, you should treat the water to make it safe
- all running water, including river water, is safe and you should not worry too much
- I don't know

1.5 What do you think is meant by the guideline recommending that you should enjoy time with your baby?

- you should have a cup of tea with the neighbour and really enjoy your time while just making sure every now and then that your baby is alright.
- you should talk to your baby in a friendly manner, smile at him/her and be relaxed, especially at mealtimes.
- I don't know

1.6 Why do you think that your baby should be taken to the clinic every month?

- It gives you the opportunity to compare your baby's development with other babies and to chat to other mothers about your problems
- It is an opportunity to have your child weighed, to see if he/she is growing satisfactorily and to discuss problems with your health worker.
- I don't know

1.7 Why do you think that your baby should be taught to drink from a cup?

- Feeding bottles can be the breeding ground of germs and can be the cause of infections such as gastro
- It is a sign of slow development if a child of six months still drinks from a feeding bottle
- I don't know

Part 2: Mark the reasons, if any, why you think that you will not be able to apply the food-based dietary guidelines in your situation

1. Enjoy time with your baby

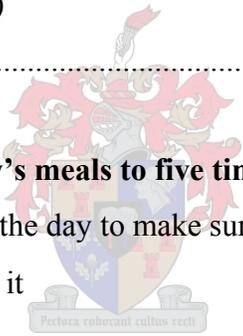
- I am too busy/no leisure time
 - I work long hours
 - I'm always tired
 - Other reasons (specify)
-

2. From six months start giving your baby small amounts of solid foods

- I'm not sure which foods to give
 - I cannot afford the foods I would like to give to my baby
 - The foods that I think my baby should have are not available where I live
 - Other reasons (specify)
-

3. Gradually increase your baby's meals to five times a day

- I'm not at home during the day to make sure that my child gets frequent meals
 - I'm not sure how to do it
 - Other reasons (specify)
-



4. Keep breast feeding your baby

- I have too little milk/ my milk has dried up
 - I have no time
 - I am too tired
 - I work and someone else looks after my baby
 - Other reasons (specify)
-

5. Offer your baby clean, safe water regularly

- I'm not sure that the water where I live is clean and safe
- Other reasons (specify)

6. Teach your baby to drink from a cup

- It is messy
 - I don't have the time
 - Other reasons (specify)
-

7. Take your baby to the clinic every month

- I can't get time off from work
 - I do not have transport to the clinic
 - I am afraid that I will be criticised for the way that I look after my child
 - Other reasons (specify)
-

Part 3: Indicate whether you think that each individual guideline is important or not

- ✓ If you think that a guideline is important and
- X If you think that a guideline is not important

- Enjoy time with your baby
- From six months start giving your baby small amounts of solid foods
- Gradually increase your baby's meals to five times a day
- Keep breast feeding your baby
- Offer your baby clean, safe water regularly
- Teach your baby to drink from a cup
- Take your baby to the clinic every month

ADDENDUM 2: KWANTITATIEWE KENNIS VRAELYS

Deel 1: Lees die sewe voorlopige voedselgebaseerde dieetriglyne vir babas van 6-12 maande. Na elk van die volgende vrae wat betrekking het op die riglyne, volg twee moontlike antwoorde. Kies die een opsie wat na jou mening die korrekte antwoord op daardie spesifieke vraag is en merk met 'n x in die . Indien jy nie weet wat die antwoord is nie, dui dit aan deur die te merk voor die woorde “Ek weet nie”

1.1 As jou gesondheidswerker aanbeveel dat jy moet aanhou om jou baba van 6 maande te borsvoed, wat sou jy dink word daarmee bedoel?

- Indien 'n baba van 6 maande geborsvoed word het hy/sy niks meer as dit nodig nie
- Jou baba van 6 maande moet geborsvoed word so dikwels as hy/sy behoefte het daaraan en moet ook van ander kossoorte voorsien word
- Ek weet nie

1.2 Wat is 'n klein hoeveelheid vaste kos?

- 'n Klein koppievol van die kos
- Soveel as wat jou baba daarvan wil eet sonder om gedwing te word
- Ek weet nie

1.3 Waarom dink jy dat maaltye geleidelik vermeerder moet word tot vyf keer per dag?

- Maaltye moet meer keer per dag gegee word in plaas daarvan om die maaltye groter te maak
- 'n Baba behoort nie meer as drie keer per dag te eet nie
- Ek weet nie

1.4 Is alle water skoon en veilig vir jou baba om te drink?

- alle water is nie skoon en veilig nie en indien jy nie seker is nie, behoort jy die water te behandel om dit veilig te maak
- Alle lopende water, insluitende rivierwater, is veilig en jy moet nie onnodig bekommerd wees nie
- Ek weet nie

1.5 Wat dink jy word bedoel met die riglyn om tyd saam met jou baba te geniet?

- Jy behoort 'n koppie tee saam met 'n buurvrou te drink en die tydjie regtig te geniet terwyl jy nou en dan seker maak dat jou baba nog in orde is
- Jy moet vriendelik met jou baba gesels, vir hom/haar glimlag en ontspanne wees, veral tydens maaltye
- Ek weet nie

1.6 Waarom dink jy dat jou baba elke maand na die kliniek geneem moet word?

- Dit gee jou die geleentheid om jou baba se ontwikkeling met die van ander babas te vergelyk en om met ander moeders oor jou probleme te gesels
- Dit is 'n geleentheid waar jou baba geweeg kan word om te sien of hy/sy na wense groei en om probleme met jou gesondheidswerker te bespreek
- Ek weet nie

1.7 Waarom dink jy moet jou baba geleer word om uit 'n koppie te drink?

- Voedingsbottels kan 'n broeiplek vir kieme wees en kan infeksies soos gastro veroorsaak
- Dit is 'n teken van stadige ontwikkeling as 'n kind van ses maande nog bottel drink
- Ek weet nie

Deel 2: Merk die redes, indien enige, waarom jy dink dat jy nie in staat sal wees om die voedsel gebaseerde riglyne in jou situasie toe te pas nie.

1. Geniet tyd saam met jou baba

- ek is te besig/ geen vrye tyd
- ek werk lang ure
- ek is altyd moeg
- ander redes (spesifiseer)

2. Begin vanaf ses maande om jou baba klein hoeveelhede vaste kos te gee

- ek is nie seker watter soort kos ek moet gee nie
- ek kan nie die kossoorte bekostig wat ek graag vir my baba wil gee nie
- die kossoorte wat ek dink my baba behoort te kry, is nie beskikbaar waar ek woon nie
- ander redes (spesifiseer)

3. Vermeerder jou baba se maaltye geleidelik na vyf keer per dag

- ek is nie bedags tuis om seker te maak dat my baba dikwels genoeg eet nie
- ek is nie seker hoe om te werk te gaan nie
- ander redes (spesifiseer)

4. Hou aan om jou baba te borsvoed

- ek het te min melk/ my melk het opgedroog
- ek het nie tyd nie
- ek is te moeg
- ek werk en iemand ander pas my baba op
- ander redes (spesifiseer)

5. Bied gereeld vir jou baba skoon, veilige drinkwater aan

- ek is nie seker of die water waar ek woon skoon en veilig is nie
- ander redes (spesifiseer)
-

6. Leer jou baba om uit 'n koppie te drink

- dit mors te veel
- ek het nie tyd nie
- ander redes (spesifiseer)
-

7. Neem jou baba elke maand kliniek toe

- ek kan nie tyd af neem by die werk nie
- ek het nie vervoer na die kliniek toe nie
- ek is bang dat ek gekritiseer sal word vir die manier waarop ek my baba versorg
- ander redes (spesifiseer)
-

**Deel 3: Dui aan of jy dink dat elke individuele riglyn belangrik is of nie**

- Indien jy dink dat 'n riglyn belangrik is
- Indien jy dink dat 'n riglyn onbelangrik is

- Geniet tyd saam met jou baba
- Begin vanaf ses maande om jou baba klein hoeveelhede vaste kos te gee
- Vermeerder jou baba se maaltye geleidelik na vyf keer per dag
- Hou aan om jou baba te borsvoed
- Bied gereeld vir jou baba skoon, veilige drinkwater aan
- Leer jou baba om uit 'n koppie te drink
- Neem jou baba elke maand kliniek toe

ISONGEZELELO 2: IPHEPHA LEMIBUZO NGOHLOBO LOLWAZI

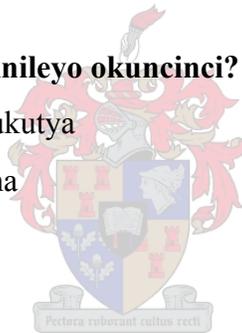
Icandelo 1: Funda lemibuzo isixhenxe engemigaqo yokutyisa umntwana ophakathi kweenyanga ezi-6 ukuya kwezi-12 ubudala. Emva kombuzo ngamnye, kukho iimpendulo ezimbini onokukhetha kuzo. Khetha impendulo ibenye ocinga ukuba ilungile uyimakishe ngo x kwi . Ukuba impendulo akuyazi makisha kwi ephambi kwamagama athi “andiyazi”.

1.1 Ukuba unompilo uthi mncancise umntwana ade abe neenyanga ezintandathu, ucinga ukuba oku kuthetha ukuthini?

- Ukuba umntwana ooneenyanga ezintandathu uyancanca, akazukuphinda afune kutya kumbi
- Umntwana wakho ooneenyanga ezintandathu, mncancise kangangoko efuna kwaye umnike nokunye ukutya
- Andiyazi

1.2 Kungakanani ukutya okuqinileyo okuncinci?

- Yikomityi encinci egcwele ukutya
- Kangangoko umntwana efuna
- Andiyazi



1.3 Kutheni ucinga ukuba ngokuthe ngcembe umntwana makaye etyiswa kangangezihlandlo ezihlanu ngemini?

- Umntwana umele atyiswe kaninzi kunokuba atyiswe kakhulu ngexesha
- Umntwana akamele atye ngaphezu kwezihlandlo ezithathu ngemini
- Andiyazi

1.4 Ingaba onke amanzi akhuselekile ungawanika usana?

- Onke amanzi awacocekanga, kwaye awakhuselekanga kumele uwanyange ukuze akhuseleke
- Onke amanzi abalekayo, kuquka awomlambo, awakhuselekanga kwaye awumele uzikhathaze kakhulu
- Andiyazi

1.5 Ucinga kuba umgaqo othi lonwabele ixesha nomntwana wakho uthetha ukuthini?

- Umele uphunge nommelwane wakho nizonwabise ngoxa umane ukhangela ukuba umntwana uhleli kakuhle.
- Umele umteketise umntwana, umncumele yaye ukhululeke ngakumbi ngamaxesha okudla.
- Andiyazi

1.6 Kutheni ucinga ukuba umntwana umele asiwe ekliniki zonke iinyanga?

- Ikunika ithuba lokuba uthelekise ukukhula komntwana wakho nabanye abantwana nokuncokola nabanye oomama ngeengxaki zakho
- Lithuba lokuba umntwana aweyishwe ukuze kubonwe ukuba ukhula kakuhle kusini na, nokuxoxa ngeengxaki zakho nomongikazi
- Andiyazi

1.7 Kutheni ucinga ukuba umntwana umele afundiswe ukusela ngekomityi?

- Iibhotile zabantwana zingangunozala weentsholongwane kwaye zingangunobangela wezifo ezifana ne-gastro
- Luphawu lokungakhuli kakuhle xa umntwana oneenyanga ezintandathu esela ngebhotile
- Andiyazi



Icandelo 2: Phawula izizathu, ukuba zikho, zokuba kutheni ucinga ukuba awuzokukwazi ukusebenzisa lemigaqo ingokutya kwimeko yakho.

1. Lonwabele ixesha nomntwana wakho

- Ndixakeke gqitha/andinalo ixesha lokuphola
 - Ndisebenza iiyure ezinde
 - Soloko ndidiniwe
 - Ezinye izizathu (cacisa)
-

2. Ukususela kwiinyanga ezintandathu, qalisa ukunika umntwana ukudla okuqinileyo

- Andiqinisekanga ukuba mandimnike okuphi ukutya
 - Andinamali yokuthenga ukutya endinqwenela ukumnika kona
 - Ukutya endicinga ukuba ndimelwe ndikunike umntwana wam akufumaneki apho ndihlala khona
 - Ezinye izizathu (cacisa)
-

3. Ngokuthe ngcembe, yiya umtyisa umntwana izihlandlo ezihlanu ngemini

- Andikho sekhaya ebudeni bemini ukuqinisekisa ukuba umntwana udla rhoqo
 - Andiqinisekanga ukuba mandenze njani
 - Ezinye izizathu (cacisa)
-

4. Qhubekela umncancisa ibele umntwana wakho

- Ndinobisi oluncinci/ndomile
 - Andinalo ixesha
 - Ndidinwe gqitha
 - Ndiyaphangela, kukho umntu ondiginela umntwana
 - Ezinye izizathu (cacisa)
-

5. Nika umntwana amanzi acocekileyo nakhuselekileyo rhoqo

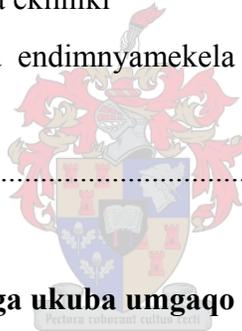
- Andiqinisekanga ukuba amanzi alapho ndihlala khona acocekile kwaye akhuselekile
 - Ezinye izizathu (cacisa)
-

6. Fundisa umntwana ukusela ngekomityi

- Kuyangcolisa
 - Andinalo ixesha
 - Ezinye izizathu (cacisa)
-

7. Yisa umntwana ekliniki nyanga zonke

- Andikwazi kufumana xesha emsebenzini
 - Andinanto yokukhwela yokuya ekliniki
 - Ndoyika ukugxekwa ngendlela endimnyamekela ngayo umntwana
 - Ezinye izizathu (cacisa)
-

**Icandelo 3: Bonisa ukuba ucinga ukuba umgaqo ngamnye ubalulekile kusini na**

- Ukuba ucinga ukuba umgaqo ubalulekile
- Ukuba ucinga ukuba umgaqo awubalulekanga

- Lonwabele ixesha nomntwana wakho
- Ukususela kwiinyanga ezintandathu, qalisa ukunika umntwana ukudla okuqinileyo
- Ngokuthe ngcembe, yiya umtyisa umntwana izihlandlo ezihlanu ngemini
- Qhubekeka umncancisa ibele umntwana wakho
- Nika umntwana amanzi acocekileyo nakhuselekileyo rhoqo
- Fundisa umntwana ukusela ngekomityi
- Yisa umntwana ekliniki nyanga zonke

ADDENDUM 3: INFORMATION AND INFORMED CONSENT DOCUMENT

TITLE OF THE RESEARCH PROJECT:

A qualitative assessment of the preliminary Food-Based Dietary Guidelines for infants 6-12 months of age in the greater Oudtshoorn area.

REFERENCE NUMBER:.....

PRINCIPAL INVESTIGATOR:

ADDRESS:
.....
.....

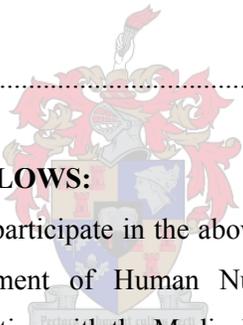
DECLARATION BY PARTICIPANT:

I the undersigned,.....(name)

(ID No.....)

participant in this study

of.....(address)



A. HEREBY CONFIRM AS FOLLOWS:

1. I, the participant, was invited to participate in the above-mentioned research project, which is being undertaken by the Department of Human Nutrition, Faculty of Health Sciences, Stellenbosch University in collaboration with the Medical Research Council.

2. The following aspects have been explained to me, the participant:

2.1. **Aim of the research project:** to test the understandability and practical applicability of the provisional Food-based dietary guidelines for infants 6-12 months of age by means of focus group discussion with mothers of infants in this age group.

2.2. **Procedures:** research will be conducted in group discussions of 6 to 8 persons. An expected number of 80 persons in total will participate in this project. Every participant will be required to attend a discussion group only once. Each discussion will last from 60 to 90 minutes.

2.3. **Benefits:** participants may gain valuable information regarding the feeding of their babies. Participants will be the first to be informed of the newly proposed food-based dietary guidelines for babies 6-12 months of age.

2.4. **Risks:** there are no known risks involved in the study.

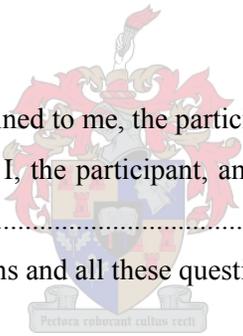
2.5. **Confidentiality:** In no way will any answer sheets contain personal information of a participant, by which a participant may be identified. Information gained will be:

- used to finalise the paediatric food-based dietary guidelines
- included in a thesis
- published in a professional journal without ever disclosing the identity of participants.

2.6. **Access to findings:** The findings will be of a general and not a personal nature. Information regarding the finalised guidelines will be disseminated to the public in general.

2.7. **Voluntary participation:** A participant in this project does so out of her own free will. A participant may refuse to participate or withdraw from participation if she wishes to do so. The study leader may also refuse to let a person participate if it is in the interest of the group to do so.

3. The information above was explained to me, the participant, by(name of the relevant person) in English and I, the participant, am in command of this language / it was satisfactorily explained to me by.....I, the participant, was given the opportunity to ask questions and all these questions were answered satisfactorily.



4. No pressure was exerted on me, the participant, to consent to participate and I, the participant, understand that I, the participant, may withdraw at any stage without penalization.

5. Participation in this research will not result in any additional costs to myself, the participant.

B. HEREBY CONSENT VOLUNTARILY TO PARTICIPATE IN THE ABOVE-MENTIONED PROJECT

Signed/ confirmed at.....on.....20....

(place)

(date)

.....

.....

Signature or right thumb print of participant

Signature of witness

STATEMENT BY OR ON BEHALF OF INVESTIGATORS:

I,.....,declare
that

- I explained the information given in this document to.....
(name of the participant)
- She was encouraged and given ample time to ask me any questions
- This conversation was conducted in English/ *Afrikaans/ *Xhosa
and no translator was used/ *this conversation was translated into.....(language)
by.....(name of translator)
- That the research is to the best of my knowledge conducted according to the Declaration
of Helsinki and the MRC and ICH guidelines

Signed/ confirmed at.....on.....2004
(place) (date)

.....
.....
Signature of investigator/ *investigator's representative

Signature of witness

* Delete which is not applicable



ADDENDUM 3: INFORMASIE EN INGELIGTE TOESTEMMINGS DOKUMENT

TITEL VAN DIE NAVORSINGSPROJEK:

‘n Kwalitatiewe evaluering van die voorlopige Voedselgebaseerde Dieetriglyne vir babas van 6-12 maande in die groter Oudtshoorn area

VERWYSINGSNOMMER:.....

HOOF NAVORSER:

ADRES:

.....

.....

.....

VERKLARING DEUR DEELNEMER:

Ek, die ondergetekende,(naam)

(ID No.....)

deelnemer aan hierdie studie

van.....(adres)

A. BEVESTIG HIERMEE SOOS VOLG:

1. Ek, die deelnemer, is uitgenooi om deel te neem aan die bogenoemde navorsingsprojek wat onderneem word deur die Department Menslike Voeding, Fakulteit Gesondheidswetenskappe van die Universiteit van Stellenbosch in samewerking met die Mediese Navorsingsraad.

2. Die volgende aspekte is aan my, die deelnemer, verduidelik:

2.1. **Doel van die navorsingsprojek:** om die verstaanbaarheid en praktiese toepaslikheid van die voorgestelde Voedselgebaseerde Dieetriglyne vir babas 6-12 maande oud te bepaal deur gesprekvoering met moeders van babas van hierdie ouderdomsgroep.

2.2. **Prosedures:** navorsing sal uitgevoer word tydens groepbesprekings van 6-8 persone. ‘n Verwagte totaal van 80 persone sal aan die projek deelneem. Van elke deelnemer sal verwag word om slegs een maal ‘n besprekingsgroep by te woon. Elke bespreking sal ongeveer 60 tot 90 minute duur.

2.3. **Voordele:** deelnemers mag waardevolle inligting ontvang oor die voeding van hul babas. Deelnemers sal die eerstes wees om ingelig te word aangaande die nuut-voorgestelde voedselgebaseerde dieetriglyne vir babas van 6-12 maande.

2.4. **Risiko's:** daar is geen bewustelike risiko's verbonde aan die studie nie.

2.5. **Vertroulikheid:** Beantwoorde vraelyste sal geensins enige persoonlike inligting bevat waardeur 'n deelnemer geïdentifiseer kan word nie. Inligting wat verkry word sal:

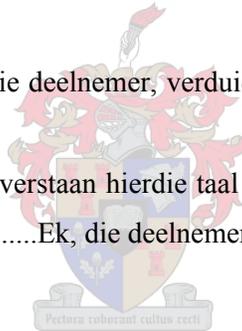
- gebruik word vir finalisering van die pediatriese voedselgebaseerde dieetriglyne
 - ingesluit word in 'n tesis
 - gepubliseer word in a professionele tydskrif
- sonder om ooit die identiteit van enige deelnemer bekend te maak.

2.6. **Toegang tot bevindings:** Die bevindings sal van 'n algemene en nie 'n persoonlike aard wees nie. Informasie aangaande die gefinaliseerde voedselgebaseerde dieetriglyne vir babas van 6-12 maande oud sal versprei word aan die algemene publiek.

2.7. **Vrywillige deelname:** 'n Deelnemer aan hierdie projek doen so uit eie vrye wil. 'n Deelnemer mag weier om deel te neem of mag onttrek van deelname as sy sou wou. Die studieleier mag ook weier om 'n persoon toe te laat om deel te neem indien dit in die groep se belang is om so op te tree.

3. Die inligting hierbo is aan my, die deelnemer, verduidelik deur Julanda van der Merwe (naam van die relevante persoon)

in Afrikaans en ek, die deelnemer, verstaan hierdie taal / dit is bevredigend aan my verduidelik deurEk, die deelnemer, is geleentheid gegee om vrae te stel en al my vrae is bevredigend beantwoord.



4. Geen druk is op my, die deelnemer, uitgeoefen om toe te stem om deel te neem nie en ek, die deelnemer, verstaan dat ek, die deelnemer, op enige stadium mag onttrek sonder enige benadeling.

5. Deelname aan hierdie navorsing sal nie enige ekstra koste vir myself, die deelnemer, meebring nie.

B. STEM HIERMEE VRYWILLIG TOE OM DEEL TE NEEM AAN DIE BOGENOEMDE PROJEK.

Geteken/bevestig.....op.....20....
(plek) (datum)

.....
Handtekening of regter duimafdruk
van deelnemer

.....
Handtekening van getuie

VERKLARING DEUR DIE NAVORSER:

Ek,....., verklaar dat

- Ek die inligting vervat in hierdie dokument verduidelik het aan.....(naam van deelnemer)
- Sy aangemoedig was en genoeg tyd gegun was om vrae aan my te stel
- Hierdie gesprek gevoer was in Afrikaans/ *Engels/ *Xhosa en dat geen vertaler gebruik is nie/ *die gesprek vertaal is in(taal) deur.....(naam van vertaler)
- Die navorsing na die beste van my wete gedoen word volgens die Verklaring van Helsinki en volgens MNR en ICH riglyne

Geteken/ bevestig te.....op.....2004

(plek)

(datum)

.....
Handtekening van navorser/ *navorser se verteenwoordiger

.....
Handtekening van getuie

* Skrap wat nie van toepassing is nie



ISONGEZELELO 3: INKCAZELO NESIVUMELWANO

ISIHLOKO SEPROJEKI YOPHANDO:

Uvavanyo lwemigaqo ecetywayo engokutya yeentsana ezinyanga zi-6 ukuya kwezi-12 ubudala zaseOudtshoorn neziphaluka

INOMBOLO YEREFERENSI:.....

UMPHANDI OYINTLOKO:

IDILESI:

.....

.....

.....

ISIVUMELWANO NOMTHATHI-NXAXHEBA:

Mna,

.....(igama)

(Inombolo yesazisi.....)

ndithatha inxaxheba kwesi sifundo

sase.....(dilesi)

A. NDIQINISEKISA OKU KULANDELAYO:

1. Mna, mthathi nxaxheba, bendimenyelwe ukuthatha inxaxheba kule projekhi ibhalwe ngasentla, eyenziwa yiDepartment of Human Nutrition, Faculty of Health Sciences, Stellenbosch University kwakunye neMedical Research Council.

2. Okukulandelayo kucacisiwe kum, mthathi nxaxheba:

2.1. **Injongo yoluphando** : kukuvavanya ukuba lemigaqo ingokutya kweentsana ezinyanga zi-6 ukuya kwezi-12 ubudala iyaqondakala kwaye iyasebenziseka.

2.2. **Inkqubo**: oluphando luzakwenziwa ngamaqela anabantu aba-6 ukuya kwaba-8. Abantu abamalunga nama-80 bazakuthabatha inxaxheba koluphando. Umthathi nxaxheba ngamnye kuza kufuneka abekho kwingxoxo kanye.

2.3. **Iingenelo**: abathabathi nxaxheba baza kufumana ulwazi olubalulekileyo olungokutyisa abantwana. Bazakuba ngabokuqala ukuxelelwa ngalemigaqo icetyiweyo yabantwana abanyanga zi-6 ukuya kwezi-12 ubudala.

2.4. **Iingozi:** akukho ngozi zaziwayo ngokunxulumene noluphando.

2.5. **Isithembiso:** akuzukufunwa amagama abathathi nxaxheba.

Ulwazi olufunyenweyo luzaku:

- setyenziswa ukugqibezala imigaqo engokutyisa abantwana
- ifakwe kwi-thesis
- ipapashwe kwi-journal

ngaphandle kokuveza umthathi nxaxheba

2.6. **Ukufikelela kwiziphumo zophando:** Iziphumo zophando zizakuba zezikawonkewonke.

Ulwazi mayelana nemigaqo ephunyeziweyo izakusasazwa kuluntu jikelele.

2.7. **Ukuthabath'i nxaxheba kokuzithandela:** Umthathi-nxaxheba kolu phando wenza ngokuzithandela. Umntu usengarhoxa xa efuna njalo. Inkokheli ingamalela umntu ukuthabatha inxaxheba ukuba iqela linqwenela njalo.

3. Le nkcazelo ingentla icacisiwe kum, mthathi-nxaxheba, ngu.....
(igama lomntu okucaciseleyo) ngesiXhosa kwaye mna, mthathi nxaxheba, ndiyalwazi olulwimi/ndicaciselwe kakuhle ngu.....Mna, mthathi nxaxheba, ndiliniqiwe ithuba lokubuza imibuzo kwaye imibuzo ndiyiphendulwe ndaneliseka.

4. Khange ndingxanyelwe, ukuba ndithathe inxaxheba kwaye mna, mthathi-nxaxheba, ndiyavumelana ukuba ndingabuya umva naninina ngaphandle kwesohlwayo.

5. Ukuthabatha inxaxheba kolu phando alusayi kuphumelela ekubeni ndibhatale, mna mthathi-nxaxheba.

B. NDIVUMELANA NGOKUZITHANDELA UKUTHABATHA INXAXHEBA KULO MSEBENZI UNGENTLA

Isayinwe e..... ngomhla we.....20....

(indawo)

(umhla)

.....
Sayina okanye beka ubhontsi wasekunene

.....
Sayina (ingqina)

(umthathi – nxaxheba)

ISAZISO NGOMPHENGULULI OKANYE EGAMENI LABAPHENGULULI:

Mna....., ndiqinisekisa ukuba

- Ndiyicacisile ingxelo enikwe kulomqulu ku.....(igama lomthathi-nxaxheba)
- Ukhuthaziwe wanikwa nexesha elaneleyo lokundibuza imibuzo
- Lengxoxo yenziwe ngesiNgesi/*ngesiBhulu/*ngesiXhosa kwaye khangwe kusetyenziwe toliki/ *le ngxoxo itolikelwe esi (ulwimi) ngu..... (igama letoliki)
- Ukuba uphando ngolwazi lwam olupheleleyo lwenziwe ngokomgaqo wesiBhengezo se Helsinki ne MRC neICH

Isayinwe e.....ngomhla we2004

(indawo)

(umhla)

.....
Isandla somphengululi/ *omele umphengululi

.....
Isandla sengqina

* Cima engafanelekanga



ADDENDUM 4: SCRIPT FOR FOCUS GROUP DISCUSSIONS:**Beforehand:**

As every participant arrives, she is introduced to those already present.

Welcome and vote of thanks:

“A hearty welcome to you, ladies! I really appreciate your willingness to spend time to help with a very important research project.

A special word of thanks to sister.....who helped by handing out the invitations. Without her help this pleasant gathering would not have been possible.”

Introduction:

“I am Julanda van der Merwe and I am doing research by talking to groups of participants, such as you, to gather information.

With us this afternoon is Mr. Piet Cronjé who is going to make a video recording of our meeting. As I definitely will not be able to remember everything that we are going to discuss, and because it would not be very practical to write down everything being said, the video recording will be analysed later on to supply me with the information that I need. Please just relax and try to forget about the camera.”

Confidentiality:

“I want to assure you that only the researchers will have access to the video recording and the questionnaires. Personal opinions that will be shared during the discussion and personal information gained will not be made known to any other parties.

Every person has a pinned-on number and that will be the only way whereby you will be identified.”

Explanation:

“In South Africa there are presently a great number of babies and young children who become ill of recurrent infections such as gastro, for instance, or who are not growing as expected. In a survey during 2002 in the Little Karoo region, it became known that for every 100 children under 5 years of age who are visiting clinics for the first time, approximately 5 are underweight, 7 are not growing as expected and 1 suffers from serious malnutrition.

It is of the utmost importance that children should be fed correctly to enable them to reach their full potential and to enjoy good health. The World Health Organisation recommended that every country should compile and implement a set of guidelines to promote healthy eating habits. The guidelines

should be easily understandable by the general public and should be easy to implement in general daily living. Guidelines that are difficult to understand or impractical to implement, will have no effect on the health of the general population of a country.

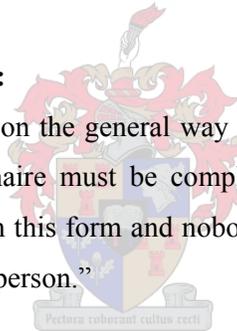
Your babies are all from 6 to 12 months of age. This is a very important stage in your baby's life for many different reasons, including nutrition. This is the age when babies start to eat solid foods and the whole process of this dietary change will have a big influence on his/her future life.

A set of 7 preliminary guidelines has been compiled specifically for this age group, but before it can be made available to the general public, we must determine whether these guidelines are well received by the consumer, if they are easily understandable and practical enough to be implemented.

This is what you are going to help me with today and I do appreciate it very much. Your input will have a great influence on the final form of the guidelines, which will eventually be passed on to the general public.”

Socio-demographic questionnaire:

“We need background information on the general way of living of persons who are helping with this project and therefore this questionnaire must be completed. I repeat once again that your personal information will appear nowhere on this form and nobody will be able to relate the information given in the questionnaire to any specific person.”



Facilitate answering each question on socio-demographic questionnaire

The preliminary dietary guidelines for babies 6-12 months of age:

The preliminary guidelines, printed in large lettering, laminated and in the language of the discussion group, is put up where all participants can clearly see it.

Facilitator reads preliminary guidelines out loud to the group while everybody follows on the poster.

“No explanation of the guidelines can be given at this stage, because the purpose of this meeting is to determine how understandable the guidelines are.”

The qualitative knowledge questionnaire:

Part one of the qualitative knowledge questionnaire is completed at this stage, consisting of one question on each of the preliminary guidelines. For every question, three possible answers are given of

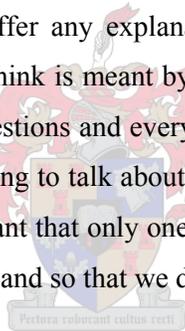
which only one relates to the intended meaning of the guideline. Participants have to indicate their choice of only one of the possible answers.

“Please answer the 7 questions in part one of the questionnaire by indicating the answer you have chosen with an X in the space provided.”

(The reason for completing this part of the questionnaire before the discussion, is to determine the understandability of the guidelines as they stand, prior to any discussion. Participants may “learn” from the discussion and answers given afterwards will not be a true measure of the understandability of the guidelines.)

The discussion:

“With all the necessary paperwork out of the way for the time being, we have now reached the most important aspect of today’s discussion. Most of all I would like to know what you think about the guidelines. Unfortunately I cannot offer any explanations at this stage because the purpose of our discussion is to determine what you think is meant by each and every guideline. Therefore there are no “right” or “wrong” answers to the questions and everybody’s opinion is very important. Let us discuss the guidelines one by one. We are going to talk about it freely and I also want you to discuss it among yourselves. It is however very important that only one person will speak at any given time to enable us to record everything that is being said and so that we do not miss any comment.”



With the discussion of each individual guideline, participants will be encouraged to answer the following questions:

- Is this guideline easily understandable?
- What do you think is the meaning of the guideline?
- If it is not easily understandable, how would you have worded the guideline?
- Do you think that this guideline can be easily implemented in everyday life?
- If you think that this guideline can be implemented easily, would you know how to go about it?
- If you feel that this guideline would be difficult to implement, what is the reason for that?
- Do you think that this guideline is important to ensure your baby’s growth and good health?

Questions to receive special attention while discussing each individual guideline:

Enjoy time with your baby

Why do you think that this guideline is included among dietary guidelines?

From six months start giving your baby small amounts of solid foods

What do you think is meant by “a small amount”?

How much food do you think that your baby can handle and how would you know when he/she has had enough?

What type of food do you think is meant by solid foods?

Why do you think that it is important to start giving solid foods at 6 months?

Gradually increase meals to five times a day

What do you think is meant by the term “gradually”?

How would you space meals during the day if you were to feed your child five times a day?

Why do you think a baby of 6 months needs only 1 or 2 meals per day while a 9 months old baby needs 5 meals per day?

BREAK FOR TEA/COFFEE AND SANDWICHES (15 minutes)

Keep breastfeeding your baby

What do you think is meant by keeping on with breast feeding your baby?

For how long do you think you should keep on breast feeding your baby?

How often do you think that you should breast feed your baby when he/she is 6-12 months of age?

For how long are you planning to breast feed your babies?

Do you think that it is possible to start breast feeding again once you have stopped for a while?

Do you think that this is an important guideline and why do you think so?

Offer your baby clean, safe water regularly

What do you think is meant by “regularly”?

Why do you think that it is important to offer a baby drinking water?

What do you think is meant by “clean and safe” drinking water?

If you are not sure that the available water is clean and safe, do you know how to treat it to make it safe?

If your baby should have diarrhoea, do you know how to prevent your baby from losing too much fluid and become dehydrated?

Do you know the word “fluoride”?

What does “fluoride” do?

Teach your baby to drink from a cup

Do you think that it is a good thing to teach your baby to drink from a cup?

Why is it a good practice?

Is it a good thing to offer your baby milk or water in a feeding bottle?

Why is it a good thing/ not a good thing?

Take your baby to the clinic every month

Why do you think it is important to take your baby to the clinic every month?

Why do you think that this is one of the dietary guidelines?

Is it important that your baby should be weighed and measured regularly and if so, why?

Is the “Road to Health” chart important to you?

“ We have really enjoyed discussing all the guidelines, but before we end the meeting I would like you to fill in parts 2 and 3 on the second questionnaire.”

Qualitative knowledge questionnaire:**Part 2:**

A list is given with possible reasons why the guidelines could be difficult to implement in your situation and it might be reasons that you did not want to mention during the discussion. Please indicate with a X the reasons that you consider to be obstacles. If you want to add a reason to the list, please write it down in the space provided.

Part 3:

Indicate whether you consider each guideline important or not important, by ticking if you consider it important or crossing if you consider it unimportant, e.g.:

✓ Offer your baby clean, safe water regularly

Or

X Offer your baby clean, safe water regularly

“Once again I would like to thank you all for your time and for your participation to make this discussion possible. As soon as the preliminary guidelines are finalised with your valuable input, it will be disseminated to all the clinics and it will be made known through the media as well.

ADDENDUM 4: TEKS VIR FOKUSGROEP BYEENKOMS:**Vooraf:**

Soos elke deelnemer aankom, word sy voorgestel aan die wat alreeds daar is.

Verwelkoming en bedanking:

“Baie hartlik welkom dames! Ek waardeer dit regtig baie dat julle bereid is om tyd af te staan om te help met ‘n baie belangrike navorsingsprojek.

Baie dankie aan suster.....wat gehelp het deur die uitnodigings uit te deel. Sonder haar hulp sou hierdie gesellige byeenkoms nie moontlik gewees het nie.”

Bekendstelling:

“Ek is Julanda van der Merwe en ek doen navorsing deur met groepe deelnemers, soos u, te gesels om inligting in te samel.

Saam met ons vanmiddag is Mnr. Piet Cronjé wat ‘n video-opname gaan maak van ons vergadering. Omdat ek definitief nie alles sal kan onthou wat ons gaan bespreek nie en omdat dit nie baie prakties gaan wees om alles wat gesê word neer te skryf nie, gaan die video-opname later geanaliseer word om vir my die inligting te gee wat ek nodig het. Ontspan asseblief net en probeer vergeet van die kamera.”

Vertroulikheid:

“Ek wil julle verseker dat slegs die navorsers toegang sal hê tot die videopname en die vraelyste. Persoonlike menings wat tydens die bespreking meegedeel word en persoonlike besonderhede wat verkry word, sal nie aan enigiemand anders bekend gemaak word nie.

Elke persoon het ‘n nommer wat vasgespeld is en dit is die enigste manier waarop jy geïdentifiseer kan word.”

Verduideliking:

“In Suid-Afrika is daar tans talle babas en jong kinders wat siek word van gereelde infeksies soos gastro, byvoorbeeld, of wat nie na verwagting groei nie. Met ‘n opname gedurende 2002 in die Klein Karoo streek, is vasgestel dat uit elke 100 kinders onder 5 jaar wat vir die eerste maal die kliniek bywoon, ongeveer 5 ondergewig is, ongeveer 7 nie na wense groei nie en 1 aan ernstige wanvoeding ly.

Dit is ontsettend belangrik dat kinders reg gevoed sal word, sodat hulle hulle volle potensiaal kan bereik en ook goeie gesondheid kan geniet. Die Wêreld Gesondheids Organisasie het aanbeveel dat

elke land ‘n stel riglyne moet opstel en implementeer om gesonde eetgewoontes te bevorder. Die riglyne moet vir die algemene publiek maklik verstaanbaar wees en dit moet ook maklik toegepas kan word in die algemene daaglikse lewe. Riglyne wat moeilik verstaanbaar is, of onprakties om toe te pas, sal geen effek hê op die gesondheid van ‘n land se algemene bevolking nie.

Julle babas is almal van 6 tot 12 maande oud. Dit is ‘n baie belangrike stadium in jou baba se lewe om verskillende redes wat ook voeding insluit. Dit is die ouderdom waarop babas begin om vaste kos te eet en die hele proses van hierdie dieetverandering sal ‘n groot invloed hê op sy/haar lewe verderaan. ‘n Stel van 7 voorlopige riglyne is spesifiek vir hierdie ouderdomsgroep opgestel, maar voordat dit aan die algemene publiek beskikbaar gestel word, moet ons vasstel of hierdie riglyne byval vind by die verbruiker, of dit maklik verstaanbaar is en prakties genoeg om toe te pas.

Dit is hiermee wat julle my gaan help vandag en ek het groot waardering daarvoor. Julle inset gaan ‘n groot invloed hê op die finale vorm van die riglyne wat uiteindelik aan die publiek deurgegee gaan word.”

Sosio- demografiese vraelys:

“Ons het agtergrond inligting nodig oor die algemene leefwyse van die persone wat met die projek help en daarom moet hierdie vraelys voltooi word. Ek herhaal weer dat jou persoonlike besonderhede nêrens op die vorm voorkom nie en niemand sal die inligting wat op die vraelys verstrekkend is, met enige persoon in verband kan bring nie.”



Fasiliteer beantwoording van elke vraag op sosio-demografiese vraelys

Die voorlopige voedingsriglyne vir babas 6-12 maande:

Die voorlopige voedingsriglyne, in groot druk, gelamineer en in die taal van die besprekingsgroep, word aangebring waar al die deelnemers dit duidelik kan sien.

Fasiliteerder lees vir die groep die voorlopige riglyne hardop deur terwyl almal dit volg op die plakkaat.

“Geen verduideliking van die riglyne kan op die stadium gegee word nie, want die doel van die bespreking is juis om te bepaal hoe verstaanbaar die riglyne is.”

Die kwalitatiewe kennis vraelys:

Deel een van die kwalitatiewe kennis vraelys, wat bestaan uit een vraag oor elk van die voorlopige riglyne, word op die stadium ingevul. Vir elke vraag word drie moontlike antwoorde gegee waarvan slegs een betrekking het op die bedoelde inhoud van die riglyn. Deelnemers moet hulle keuse aandui van slegs een van die moontlike antwoorde.

“Beantwoord asseblief die 7 vrae in deel een van die vraelys deur die antwoord wat jy gekies het aan te dui met ‘n X in die spatie wat daarvoor voorsien word.”

(Die rede waarom dié deel van die vraelys vóór die bespreking ingevul word, is om te bepaal hoe verstaanbaar die riglyne is soos hulle verskyn, voor enige verduideliking. Deelnemers mag van die bespreking “leer” en antwoorde wat later gegee word sal nie ‘n ware meting van die verstaanbaarheid van die riglyne wees nie)

Die bespreking:

“ Met al die noodsaaklike papierwerk vir eers uit die pad, kom ons nou by die belangrikste deel van vandag se gesprek. Ek wil baie graag weet wat julle van die riglyne dink. Ongelukkig kan ek op hierdie stadium geen verduidelikings gee nie, want die bedoeling is juis om uit te vind wat jy dink bedoel word met elkeen van die riglyne. Daarom is daar geen “regte” of “verkeerde” antwoorde op die vrae nie en elkeen se mening is baie belangrik. Kom ons bespreek die riglyne een vir een. Ons gaan lekker daarvoor gesels en ek wil ook hê dat julle met mekaar daarvoor gesels. Dit is egter belangrik dat slegs een persoon op enige gegewe tydstip sal praat sodat ons alles kan opneem wat gesê word en sodat ons geen opmerking sal mis nie.”

By die bespreking van elke individuele riglyn sal die deelnemers aangemoedig word om die volgende vrae te beantwoord:

- Is hierdie riglyn maklik verstaanbaar?
- Wat dink jy is die betekenis van die riglyn?
- As dit nie maklik verstaanbaar is nie, hoe sou jy dit gestel het?
- Dink jy dat hierdie riglyn maklik uitvoerbaar is in die daaglikse lewe?
- As jy dink dat hierdie riglyn maklik toegepas kan word, sal jy weet hoe om dit te doen?
- As jy voel dat hierdie riglyn moeilik sal wees om te implementeer, wat is die rede daarvoor?
- Dink jy dat hierdie riglyn belangrik is om jou baba se groei en goeie gesondheid te verseker?

Vrae wat spesiale aandag verdien by die bespreking van elke individuele riglyn:

Geniet tyd saam met jou baba

Waarom dink jy dat hierdie riglyn by voedingsriglyne ingesluit word?

Begin vanaf ses maande om jou baba klein hoeveelhede vaste kos te gee

Wat dink jy word bedoel met ‘n “klein hoeveelheid”?

Watter hoeveelheid kos dink jy kan jou baba hanteer en hoe sal jy weet wanneer hy/sy genoeg gehad het?

Watter tipe kos dink jy word bedoel met vaste kos?

Waarom dink jy is dit belangrik om op 6 maande met vaste kos te begin?

Vermeerder jou baba se maaltye geleidelik na vyf keer per dag

Wat dink jy word bedoel met die term “geleidelik”?

Hoe sou jy maaltye deur die dag versprei as jy jou baba vyf keer per dag sou kosgee?

Waarom dink jy het ‘n baba van 6 maande vir eers net 1 of 2 maaltye per dag nodig en ‘n baba van 9 maande 5 maaltye per dag?

POUSE VIR TEE/ KOFFIE EN TOEBROODJIES (15 minute)

Hou aan om jou baba te borsvoed

Wat dink julle beteken dit om aan te hou om jou baba te borsvoed?

Hoe lank dink julle moet mens aanhou om jou baba te borsvoed?

Hoe dikwels dink julle moet ‘n mens jou baba borsvoed as hy/sy 6-12 maande oud is?

Vir hoe lank is julle van plan om julle babas te borsvoed?

Dink julle dat dit moontlik is om weer te begin borsvoed nadat jy ‘n ruk lank opgehou het daarmee?

Dink julle dat hierdie ‘n belangrike riglyn is en waarom dink julle so?

Bied gereeld vir jou baba skoon, veilige drinkwater aan

Wat dink jy word bedoel met die term gereeld?

Waarom dink jy dat dit belangrik is om ‘n baba drinkwater te gee?

Wat dink jy word bedoel met skoon, veilige drinkwater?

As jy nie seker is of die water wat beskikbaar skoon en veilig is nie, weet jy hoe om dit te behandel om dit veilig te maak?

As jou baba diaree sou hê, weet jy hoe om te verhoed dat jou baba te veel vog verloor en gedehidreer raak?

Ken julle die woord “fluoried”?

Wat doen “fluoried”?

Leer jou baba om uit ‘n koppie te drink

Dink julle dit is ‘n goeie ding om jou baba uit ‘n koppie te leer drink?

Waarom is dit goed?

Is dit goed om ‘n baba melk of water met ‘n bottel te gee?

Waarom is dit goed/ nie goed nie?

Neem jou baba elke maand kliniek toe

Waarom dink jy is dit belangrik om jou baba elke maand kliniek toe te neem?

Waarom dink jy is dit een van die voedingsriglyne?

Is dit belangrik dat jou baba gereeld geweeg en gemeet word en indien wel, waarom?

Is die “Pad na Gesondheid” kaart vir jou belangrik?

“Ons het nou baie lekker gesels oor al die riglyne, maar voordat ons uiteengaan, wil ek hê dat julle deel 2 en 3 op die tweede vraelys invul”



Kwalitatiewe kennis vraelys:

Deel 2:

‘n Lys word gegee met moontlike redes waarom die riglyne moeilik kan wees om in jou situasie te implementeer en dit mag dalk redes wees wat jy nie gedurende die bespreking wou noem nie. Merk asb. met ‘n kruisie die redes wat na jou mening struikelblokke is. As jy ‘n rede wil byvoeg by die op die lys, skryf dit neer in die spasie wat daarvoor voorsien word.

Deel 3:

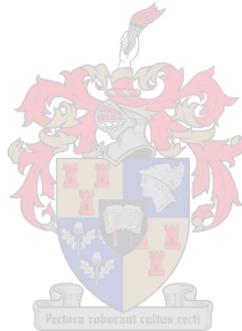
Dui aan of jy elkeen van die riglyne as belangrik of onbelangrik beskou, met ‘n regmerk as jy dit as belangrik beskou en ‘n kruisie as jy dit as onbelangrik beskou, bv.

✓ Bied gereeld vir jou baba skoon, veilige drinkwater aan

Of

X Bied gereeld vir jou baba skoon, veilige drinkwater aan

“Nogeens wil ek graag julle almal bedank vir julle tyd en julle deelname om hierdie bespreking moontlik te maak. Sodra die voorlopige riglyne met julle waardevolle inset gefinaliseer is, sal dit na die klinieke deurgegee word en ook in die media bekend gestel word.



ISONGEZELELO 4: UMBHALO EKUZAKUGXININISWA KUWO ZINGXOXO ZAMAQELA:

Ekuqaleni:

Njengoko abathathi nxaxheba besiya befika, bazise kwabo sele befikile.

Ulwamkelo nombulelo:

“Namkelekile manenekazi! Ndiyakuxabisa ngokwenene ukuba nibe nomdla wokuchitha ixesha lenu ukuze nincede koluphando lubaluleke kangakanana. Umbulelo okhethekileyo kusista oye wanceda ngokuhambisa izimemo. Ngaphandle koncendo lwakhe lendibano intle kangaka ngeyingabangakho.”

Intshayelelo:

“Ndingu Julanda van der Merwe, ndenza uphando ngokuthetha namaqela afana nani ukuze ndifumane ulwazi.

Kunye nathi ngalemva kwemini, sino Mnumzana Piet Cronje oza kurekodisha kwivideo lentlanganiso, njengoko ndingazokukwazi ukukhumbula yonke into, kwaye ndingena kukwazi ukubhala yonke into ethethwayo. Ivideo iza kudlalwa ngelinye ixesha ukuza ndikwazi ukufumane ulwazi endilufunayo. Ncedani nikhululeke nilibale ngekhamera.”

Isithembiso ngemfihlelo:

“Ndifuna ukuninqinisekisa ukuba ngabaphandi kuphela abazakuyibukela levideo nabaza kuzibona iimpendulo zenu. Ingulowo umntu unenombolo esifubeni kwaye kuphela kwendlela aza kwaziwa ngayo.”

Ingcaciso:

“EMzantsi Afrika maninzi amasana okanye abantwana abancinci abaguliswa zizifo ezosulelayo ezifana negastro, okanye abangakhuli kakuhle. Kuhlolisiso olwalwenziwe ngo-2002 kummandla we Little Karoo, kwenziwa kwacaca ukuba kubantwana abali-100 abangaphantsi kweminyaka emihlanu abaqalayo ukuya ekliniki, abamalunga nesi-5 babhitye kakhulu, abasi-7 abakhuli kakuhle, kwaye omnye unengxaki yokungondleki.

Kubalulekile kakhulu ukuba abantwana batyiswe kakuhle ukuze bakwazi ukufikelela emandleni abo kwaye bavuyele nempilo entle. I World Health Organisation ycebisa ukuba kubalulekile ukuba ilizwe ngalinye libe nemigaqo ephakamisa ukudla ngokufanelekileyo (okusempilweni). Le migaqo imele

ikwazi ukuqondwa nguwonkewonke, kwaye kube lula ukuyisebenzisa kubomi bethu bemihla ngemihla. Imigaqo ekunzima ukuyiqonda nengasebenzisekiyo ayiyi kuba nagalelo kubemi belizwe.

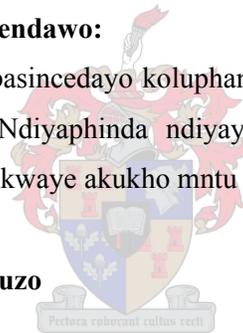
Abantwana benu baphakathi kweenyanga ezi-6 ukuya kwezi-12. Lixesha elibaluleke kakhulu kubomi babantwana benu ngenxa yezizathu ezahlukehlukeneyo, kuquka nesondlo. Eli lixesha xa umntwana aqala ukutya ukudla okuqinileyo kwaye olutshintsho kwindlela batya ngayo luya kuba negalelo elikhulu kwikamva lakhe. Iseti yemigaqo esi-7 yenzelwe ngokukhethekileyo abantwana abakulentanga, kodwa phambi kokuba ibe inokukhutshwa kuwonkewonke kumele kuqinisekise ukuba lemigaqo iyakwamkelwa ngumthengi, ilula ukuqondakala kwaye iyasebenziseka.

Kulapho nizakundinceda khona namhlanje kwaye ndiyakuxabisa kakhulu oko. Igalelo lenu liya kuba nempembelelo enkulu ekubeni lemigaqo ibenokwenziwa, ezakuthi ekugqibeleni igqithiselwe kuluntu ngokubanzi.

Iphepha lemibuzo ngentlalontle yendawo:

“Sifuna ulwazi ngendlela abantu abasancedayo koluphando abaphila ngayo, ngoko kubalulekile ukuba iphepha lemibuzo iphendulwe. Ndiyaphinda ndiyayigxininisa kwakhona ukuba inkcazelo yenu yobuqu ayizokubonakala kulefomu kwaye akukho mntu uzakukwazi ukungqamanisa umntu nefomu.”

Ncedisa ekuphendulweni kwemibuzo



Imigaqo engokutyisa abantwana abanyanga zi-6 ukuya kwezi-12:

Lemigaqo ibhalwe ngamagama amkhulu, ngolwimi lweqela, ibekwe kwindawo ebonwa ngumntu wonke.

Umncedisi uyayifunda lemigaqo ngokuvakalayo ngoxa iqela liyijongile kwisibhengezo.

“Akukho ngcaciso izakunikwa ngoku njengoko injongo yalentsanganiso ikukuqinisekisa ukuba lemigaqo iyaqondwa.”

Iphepha lemibuzo yohlobo:

Icandelo lokuqala lemibuzo liyaphendulwa ngelixesha, linombuzo omnye kumgaqo ngamnye. Kumbuzo ngamnye, iimpindulo zimbini kwaye inye ebhekiselele kumgaqo. Bamele banikezele impindulo enye.

“Nceda uphendule lemibuzo isi-7 kwicandelo lokuqala ngokuphendula ngo-x kwi-□.”

(Isizathu sokuphendulwa kwalemibuzo phambi kwentlanganiso kukubona ukuba abantu bayiqonda kangakanani na lemigaqo. “Basenokufunda” ebudeni bengxoxo, kwaye iimpendulo zasemva kwengxoxo azizukuba ngumlinganiselo onyanisekileyo wokuqondakala kwalemigaqo.)

Ingxoxo:

“Ngoku sifikelele kwelona xesha libalulekileyo lengxoxo yanamhlanje, njengoko namaphepha sisawabeke ecaleni. Okona kubalulekileyo ndifuna ukuqonda ukuba nicinga ntonina ngalemigaqo Ngelishwa andinakucacisa nto okwangoku njengoko eyona njongo yalengxoxo ikukuqonda ukuba nicinga ntoni na ngomgaqo ngamnye. Ngoko akukho zimpendulo “zichanileyo” “nezingachananga” kule mibuzo, kwaye indlela umntu acinga ngayo ibaluleke kakhulu. Masixoxe ngalemigaqo ngamnye ngamnye. Siza kuthetha ngokukhululekileyo kwaye ndifuna nizixoxele nani. Kubalulekile ukuba kuthethe umntu omnye ngexesha ukuze sikwazi ukurekhoda yonke into, singashiyelel’into.”

Abantu mabakhuthazwe ukuba baphendule le mibuzo ilandelayo ngomgaqo ngamnye:

- Ingaba lomgaqo uqondakala lula?
- Ucinga ukuba uthetha ukuthini lomgaqo?
- Ukuba awuqondakali lula, ubungawubeka njani?
- Ucinga ukuba lomgaqo unokusebenziseka kubomi bemihla ngemihla?
- Ukuba ucinga ukuba lomgaqo uyasebenziseka, ubungakwazi ukuwulandela?
- Ukuba ucinga ukuba lomgaqo kunganzima ukuwusebenzisa, singayintoni isizathu soko?
- Ucinga ukuba lomgaqo ubalulekile ukuqinisekisa ukuba umntwana ukhula kakuhle okanye usempilweni entle?

Imibuzo emele ukunikwa ingqalelo ekhethekileyo ngoxa nixoxa umgaqo ngamnye:

Lonwabele ixesha nomntwana wakho

Kutheni ucinga ukuba lomgaqo uqukiwe kwimigaqo engokutya?

Ukususela kwiinyanga ezintandathu, qalisa ukunika umntwana ukudla okuqinileyo okuncinici

Ucinga ukuba kuthethwa ukuthini ukuthi “okuncinici”?

Ucinga ukuba umntwana wakho angatya ukutya okungakanani?

Ucinga ukuba kukutya okunjani ukutya okuqinileyo?

Kutheni ucinga ukuba kubalulekile ukuqalisa ukunika umntwana ukutya okuqinileyo ukususela kwiinyanga ezintandathu?

Ngokuthe ngcembe, yiya umtyisa umntwana izihlandlo ezihlanu ngemini

Ucinga ukuba kuthiwani xa kusithiwa “ngokuthe ngcembe”?

Ungamtyisa emva kwexesha elingakanani umntwana xa ufuna ukumtyisa kahlanu ngemini?

Kutheni ucinga ukuba usana olunyanga zi-6 lufuna ukudla kanye okanye kabini ngemini ngoxa olunyanga zisithoba lufuna ukudla kahlanu ngemini?

IKHEFU LOKUPHUNGA (imizuzu emi-15)**Qhubekeka umncancisa umntwana wakho**

Ucinga ukuba kuthetha ukuthiwani xa kusithiwa qhubekeka umncancisa umntwana wakho?

Ucinga ukuba kufuneka uqhubekeke umncancisa ixesha elingakanani umntwana wakho?

Ucinga ukuba umele umncancise kangaphi umntwana wakho xa eneenyanga ezi-6 ukuya kwezi-12?

Uzimisele ukumncancisa ade abemngakanani umntwana wakho?

Ucinga ukuba usenokukwazi ukuphinda umncancise umntwana wakho emva kokuba ubukhe wayeka?

Ucinga ukuba lomgaqo wokuncancisa ubalulekile, kwaye ngoba?

Nika umntwana wakho amanzi acocekileyo nakhuselekileyo rhoqo

Ucinga ukuba kuthetha ukuthiwani xa kusithiwa ‘rhoqo’

Kutheni ucinga ukuba kubalulekile ukunika umntwana amanzi aselwayo?

Ucinga ukuba kuthetha ukuthiwani xa kusithiwa amanzi ‘acocekileyo nakhuselekileyo’?

Ukuba akuqinisekanga ukuba amanzi acocekile yaye akhuselekile, uyakwazi na ukuwanyanga ukuqinisekisa ukuba akhuselekile?

Ukuba umntwana wakho unokuba norhudo, uyakwazi ukuba unokuqinisekisa njani ukuba umntwana akaphelelwa ngamanzi aze ome.

Uyalazi igama elithi ‘fluoride’?

Yenza ntoni i’fluoride’?

Fundisa umntwana ukusela ngekomityi

Ucinga ukuba kuyinto elungileyo ukufundisa umntwana ukusela ngekomityi?

Kutheni kuyinto elungileyo

Kuyinto elungileyo ukunika usana ubisi okanye amanzi ngebhotile?

Kutheni kuyinto elungileyo/engalunganga

Yisa umntwana ekliniki nyanga zonke

Kutheni ucinga ukuba kubalulekile ukusa umntwana ekliniki nyanga zonke?

Kutheni ucinga ukuba lo ngomnye womgaqo ongokudla?

Ingaba kubalulekile ukuba umntwana aweyishwe, yaye alinganiswe rhoqho, ukuba kunjalo ngoba?

Itshati ka “Road to Health” ibalulekile kuwe?

“ Sikonwabele ngokwenene ukuxoxa ngale migaqo, kodwa phambi kokuba siyivale lentlanganiso, ndicela niphendule icandelo 2 no 3.”

Iphepha lemibuzo yohlobo:**Icandelo 2:**

Uluhlu lwezizathu lunikezelwe lokuba kutheni le migaqo kunganzima ukuyisebenzisa kwimeko yakho, ezi zizathu kungenzeka khange ufune ukuzichaza ngelithuba besixoxa ngazo. Zimakishe ngo-X ezi zizathu ucinga ukuba zingakuthintela. Ukuba ufuna ukongeza isizathu kolu luhlu, nceda usibhale phantsi kwesi sithuba sinikezelweyo.

Icandelo 3:

Bonakalisa enokuba ucinga ukuba umgaqo ngamnye ubalulekile okanye awubalulekanga, xa ubalulekile bonisa ngokutikisha, xa ungabalulekanga bhala u-X, ngokomzekelo:

- ✓ Nika umntwana wakho amanzi acocekileyo nakhuselekileyo rhoqo

Okanye

- X Nika umntwana wakho amanzi acocekileyo nakhuselekileyo rhoqo

“Ndingathanda ukunibulela kwakhona ngexesha lenu ngokuthabatha inxaxheba nangokwenza ezi ngxoxo zibe yimpumelelo. Xa lemigaqo igqityiwe, iyakusasazwa kwikliniki iyakwaziswa nakwizinto zokusasaza iindaba.”

ADDENDUM 5 : THE PROPOSED FOOD-BASED DIETARY GUIDELINES FOR CHILDREN 6-12 MONTHS OF AGE

- 1 . Enjoy time with your baby**
- 2. From six months start giving your baby small amounts of solid foods**
- 3. Gradually increase your baby's meals to five times a day**
- 4. Keep breast feeding your baby**
- 5. Offer your baby clean, safe water regularly**
- 6. Teach your baby to drink from a cup**
- 7. Take your baby to the clinic every month**



**ADDENDUM 5: DIE VOORGESTELDE VOEDSEL-GEBASEERDE
DIEETRIGLYNE VIR KINDERS 6-12 MAANDE OUD**

- 1. Geniet tyd saam met jou baba**
- 2. Begin vanaf ses maande om jou baba klein hoeveelhede vaste kos te gee**
- 3. Vermeerder jou baba se maaltye geleidelik na vyf keer per dag**
- 4. Hou aan om jou baba te borsvoed**
- 5. Bied gereeld vir jou baba skoon, veilige drinkwater aan**
- 6. Leer jou baba om uit 'n koppie te drink**
- 7. Neem jou baba elke maand kliniek toe**

**ISONGEZELELO 5 : IMIGAQO ECETIWEYO ENGOKUTYISA IINTSANA
EZINYANGA EZI-6 UKUYA KWEZI-12 UBUDALA**

- 1. Yonwabela ixesha elaneleyo nosana lwakho.**
- 2. Ukususela kwiinyanga ezintandathu, qalisa ukulupha ukudla okuqinileyo usana.**
- 3. Ngokungangxamanga, wongeze amathuba okutyisa usana aye kwisihlanu ngemini.**
- 4. Qhubekeka uluncancisa ibele usana lwakho**
- 5. Nika usana amanzi acocekileyo nakhuselekileyo rhoqo**
- 6. Fundisa usana ukusela ngekomityi**
- 7. Yisa usana nyanga zonke ekliniki.**



ADDENDUM 6: ALL MOMS WITH BABIES OF 6 TO 12 MONTHS!!

The Department of Human Nutrition of the University of Stellenbosch cordially invites you to take part in a research project regarding dietary guidelines for babies 6-12 months of age and to obtain valuable information at the same time with regard to the feeding of your baby.

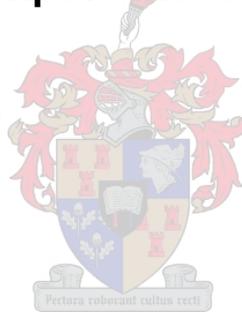
HOW?

- Attend an informal sociable group discussion with other mothers with babies of the same age.
- Come and tell us what you think of dietary guidelines for babies of 6-12 months of age.

Your input is **VERY** important to finalise the preliminary guidelines!

WHEN AND WHERE?

DATE: **TIME:**
PLACE:



Grandmothers and day care mothers looking after babies of this age, are most welcome as well.

- The meeting will last more or less 60-90 minutes (ask someone that you can trust to take care of your baby for the duration of the meeting)
- The proceedings will be filmed on videotape
- All information gained will be treated as strictly confidential

For more information and to book your seat, contact

ADDENDUM 6: ALLE MAMMAS MET BABAS VAN 6 TOT 12 MAANDE!!

Die Departement Menslike Voeding van die Universiteit van Stellenbosch nooi u hartlik uit om deel te neem aan 'n navorsingsprojek oor voedingsriglyne vir babas van 6-12 maande en om terselfdertyd ook waardevolle inligting oor die voeding van u baba te kry.

HOE?

- **Woon 'n gesellige informele groepbespreking by saam met ander moeders met babas van dieselfde ouderdom.**
- **Kom sê wat u dink van voedingsriglyne vir babas van 6-12 maande.**

U inset is BAIE belangrik om voorlopige riglyne te finaliseer!

WANNEER EN WAAR?

DATUM:

TYD:

PLEK:



Oumas en dagsorgmoeders van babas van hierdie ouderdom is ook baie welkom.

- **Die vergadering sal ongeveer 60 minute duur (vra iemand wat u kan vertrou om vir hierdie tydjie na u baba om te sien)**
- **Die verrigtinge sal op videoband verfilm word**
- **Alle inligting sal streng vertroulik behandel word**

Vir meer inligting en om u sitplek te verseker, kontak

ISONGEZELELO 6: BONKE OOMAMA ABANABANTWANA ABANYANGA ZI-6 UKUYA KWEZI-12 UBUDALA!!

Niyamenywa ukuba nithabathe inxaxeba kuphando olunikumdlala, nokuba nifumane inkcazelo ebalulekileyo ngaxeshanye engendlela yokutyisa umntwana.

NJANI?

- Yiza kwingxoxo nabanye oomama abanabantwana abantanganye nowakho.
- Yiza uzokusixelela ukuba ucinga ntoni na ngalemigaqo yokutyisa abantwana abanyanga zi-6 ukuya kwezi-12 ubudala.

Igalelo lakho libaluleke GQITHA ukuze lemigaqo ibenokuphunyezwa!

PHI, NINI?

UMHLA: IXESHA:.....
INDAWO:



Oomakhulu nabantu abanyamekela abantwana abakwezinyanga nabo bamkelekile.

- Intlanganiso izakubayimizuzu engama-60 ukuya kwengama-90
(cela umntu onokumthemba ukuba anyamekele umntwana ngoxa ulapha)
- Intlanganiso izakurekhodwa kwivideo
- Lonke ulwazi olufunyenweyo apha luzakuba yimfihlelo

Ukuba ufuna inkcazelo engakumbi, nditsalele umnxeba