✦ Who decided that the baby should get bottle feeding?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Micro environment	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 4.0%
Meso environment	2	2	2	3	2	2	1	2	3	1	1	2	11	12	23 92.0%
Question skipped	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 4.0%
TOTAL	2	2	2	3	2	2	1	2	4	2	1	2	12	13	25

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

All the focus groups, except two, who answered this question (n=25), said that the people in the meso environment (n=23, 92.0%) made the decision. The meso environment in this instance was either the doctor or the nursing sister at the clinic. The one mother / caregiver with a micro environment-response, decided by herself to give bottle feeding. The responses from both the clinics and all the focus groups were similar.

✦ Why do you think that a baby should not be given bottle feeding?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Physiological reasons	0	0	1	0	1	0	0	1	2	1	0	0	4	2	6 42.9%
Nutritional reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Health reasons	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 7.1%
Convenience reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Psychological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Immunological advantages	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Financial reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Hygienic reasons	1	0	0	0	0	0	1	1	0	0	1	1	3	2	5 35.7%
No answer given	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1 7.1%
Rather give breastfeeding	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1 7.1%
TOTAL	1	1	2	0	1	0	1	2	2	2	1	1	8	6	14

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Relatively few responses were received in this regard. Most responses fitted into the category of bottle feeding being physiologically unsuitable (n=6, 42.9%). These responses referred to constipation, poor strength of muscles / jaws for sucking and teats too hard for the baby. Hygienic reasons were also mentioned to a large extent (n=5, 35.7%). Responses given were about bottle-care and incorrect mixing procedures. The other reasons given were such that confirmed breast feeding was preferred as the ideal feed for a baby.

- Why do you think that a newborn baby should be given bottle feeding?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Mother has illness	1	0	1	0	2	0	1	0	1	0	0	0	3	0	6 15.4%
Mother is using drugs/medication	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Baby has illness	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Breast discomfort	1	0	2	1	0	1	0	0	0	1	2	1	5	4	9 23.1%
Free choice	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 2.5%
Low milk production	0	3	0	2	0	2	0	1	0	1	1	1	1	10	11 28.2%
Failure to thrive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Perceived lack of milk	1	0	0	0	1	2	1	1	1	0	1	0	5	3	8 20.5%
Physiological reasons	0	1	0	1	0	1	0	0	0	1	0	0	0	4	4 10.3%
TOTAL	3	4	3	4	3	6	2	2	3	3	4	2	18	21	39

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The results identified three main categories as the reasons for bottle feeding. Low milk production (n=11, 28.2%) was mentioned most often which meant the mother had an insufficient volume of milk; the child always cried for more milk with none coming from the breast (7). Secondly, breast discomfort (n=9, 23.1%), which meant having some kind of breast illness like thrush, abscesses, mastitis or sores was also mentioned often and thirdly was the perceived lack of milk (n=8, 20.5%). The latter could be ascribed to breast milk that was not yet flowing and thus left the child unsatisfied from breast milk alone. The colostrum or early breast milk is believed to be watery in contrast to stabilized breast milk, and is thus regarded to be unsatisfying or is not given to the child. Illness of the mother also drew a few responses, as well as using the bottle to give water to a baby.

8.2.3.2 Type of bottle feed

✦ What was in the bottle (type of milk)?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Milk	3	3	2	2	2	2	2	1	2	2	1	4	12	14	26 89.7%
Water	0	0	0	0	0	0	0	0	0	1	1	0	1	1	2 6.9%
Juice	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 3.4%
TOTAL	3	3	2	2	2	2	2	1	2	4	2	4	13	16	29

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Babies who drank from a bottle mostly consumed formula milk (n=26, 89.7%). The groups responded similarly in this regard. Babies also got water or artificial juice from a bottle, but not as much as reported previously (see 8.2.2.2 in Sampling Unit: Breast feeding).

✦ What different brands of formula are used?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nan	3	3	1	2	4	1	1	1	2	1	1	2	12	10	22 34.4%
Lactogen	2	2	0	2	0	2	0	0	0	1	0	2	2	9	11 17.2%
S26	1	1	6	2	2	0	0	0	2	1	1	0	12	4	16 25.0%
SMA	1	0	4	1	0	0	0	0	0	0	0	0	5	1	6 9.3%
Nespray	0	2	0	0	0	1	1	0	1	1	0	1	2	5	7 10.9%
Klim	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1 1.6%
Other: It depends on the age of the baby	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1 1.6%
TOTAL	8	8	11	8	6	4	2	1	5	4	2	5	34	30	64

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

From the results it seemed that four brands of formula were commonly used in these two areas. The two most popular brands were that of Nan (n=22, 34.4%) and S_{26} (n=16, 25.0%). Nan was very popular in nearly all the focus groups (19 of the 26). S_{26} was less popular, and mainly used by the younger and older age groups. Lactogen (n=11, 17.2%) and SMA (n=6, 9.3%) were the other two brands mentioned. Lactogen was used by all the age categories and SMA only up to the age of six months. Other milk used was Nespray full cream powder (n=7, 10.9%) and Klim (n=1, 1.6%). Most of the formula milk usage

occurred within the first three age categories; up to the age of nine months.

In this Sampling Unit one of the aims was to determine which type of milk was used for bottle feeding. Distinctions were made between the different brands of formula milk and full cream milk powders used. To clarify their choice of the different brands of formula or other milk, mothers / caregivers were asked why they used the particular type and brand of milk, as mentioned. Six different types of milk were mentioned and the results will be discussed accordingly. All the reasons were categorized according to nutritional, health and physiological reasons.

Nan: Most of the reasons mentioned fit into the nutrition category. Some of the answers were:

- "Nan is good for the baby"
- "Nan is healthy and has a lot of vitamins"
- "Nan is best because it has vitamins, iron and body building stuff"
- "Nan has all the proteins"
- "Nan is marked 0-6 months"

Only one reason was given for the health category:

- "Nan is healthy - like breast feeding"

The physiologically based responses included:

- "Nan is like breast feeding, even the taste"
- "Lactogen was given first, but the child vomited, so I changed to Nan"

One of the responses given was very unspecific so that it could be categorized in each of the three categories:

- "Nan is like breast feeding"

Lactogen: Most of the responses given for this brand also fell under nutritional reasons:

- "Lactogen is not so rich, it is just like mother's milk"
- "Lactogen is the same as other formulae"
- "Lactogen is best for babies"

The other reasons were physiological reasons:

- "Tried other formulae, baby refused them but accepted Lactogen Number 1"
- "Lactogen was given first, but the child vomited, so I changed to Nan"

Again, one of the responses given was so unspecific that it could be categorized in each of the three categories:

- "Lactogen is not so rich, it is just like mother's milk"

S_{25}: Most reasons could be interpreted from a nutritional point of view:

- "Give S_{26} because it is a small child / baby"

- " S_{26} has iron"
- " S_{26} has all the vitamins that is needed by the child"

One reason only was given for physiological reason category:

- " S_{26} is like breast feeding, even the taste"

Again one of the reasons could be interpreted in all three categories:

- " S_{26} is like breast feeding"

SMA: This brand of milk received one reason only, which could also be interpreted in all three categories:

- "SMA is like breast feeding"

Nespray: Although not a formulae milk, Nespray was also used for bottle feeding purposes. The reason mentioned by the mothers / caregivers fell under the nutritional reasons:

- "Nespray is suitable for ten month old babies"

The second reason was a very general reason, and did not fit into any of the categories:

- "Nespray was used by their parents, everybody always used it - they didn't know any others"

Klim: Although Klim was mentioned as being used, no specific reason was given to explain the usage

The mothers / caregivers mostly used formula milk (like Nan or Lactogen) for the young babies, but rather used the full cream milk powders (like Nespray) available on the market for the older children. Apparently, all the types of milk were considered just the same as breast feeding, and therefore used. An aspect that would be interesting to investigate further would be to identify what the mothers / caregivers considered as "being the same as breast feeding". The reasons given was very general and resembled the marketing strategy of the formulae: breast milk substitute or the same as breast milk.

✦ Do you ever use fresh cow's milk to give to your baby in a bottle?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	0	0	0	1	0	0	0	1	2	2	1	2	3	6	9 20.4%
No	3	3	2	5	2	2	2	1	4	10	1	0	14	21	35 79.6%
TOTAL	3	3	2	6	2	2	2	2	6	12	2	2	17	27	44

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Very few mothers / caregivers used cow's milk in bottle feeding (n=9, 20.4%). Of these, only one mother / caregiver had a baby in the 4-6/12 and one in the 10-12/12 age category. The other children were older

than one year. More mothers / caregivers of the Makapanstad area indicated the use of cow's milk. The rest of the focus groups gave a negative response to cow's milk usage (n=35, 79.6%).

✦ What are the positive reasons for using cow's milk?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 50.0%
Health reasons	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 50.0%
TOTAL	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Although a number of focus groups responded positively to using cow's milk, only one group gave reasons for it. The reasons mentioned were either nutritional (due to vitamin content) or health (it is like breast feeding) in nature.

✦ What are the negative reasons for using cow's milk? (Not to use cow's milk)

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	2	0	2	0	0	0	0	0	1	0	1	0	6	0	6 66.7%
Health reasons	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1 11.1%
Hygiene reasons	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1 11.1%
No - we don't have any cows	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1 11.1%
TOTAL	2	0	4	1	0	0	0	0	1	0	1	0	8	1	9

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Most of the reasons for not using cow's milk were nutritional in nature (n=6, 66.7%). Statements included: "too much fat and iron"; "too rich and creamy"; "it does not have the same vitamins like formula and breast milk"; "it is simply not right for the baby" and that "it is not pasteurized".

✦ Is anything added to cow's milk when a bottle feed for a baby is made (prepared)?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No	1	0	0	1	0	0	0	1	2	2	1	2	4	6	10 90.9%
No answer given	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 9.1%
TOTAL	1	0	0	1	0	0	0	1	2	3	1	2	4	7	11

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

This question was included in the interview schedule in order to determine if the mothers added anything, like water, to make the milk less concentrated, or like sugar to add energy or to improve taste. No positive responses were received.

8.2.3.3 Preparation of bottle feeds

✦ How do you know how to make a bottle of milk for the baby? (Who taught you?)

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Micro environment	3	4	2	4	2	2	2	3	2	3	2	1	13	17	30 75.0%
Meso environment	0	2	0	2	0	1	0	2	0	1	0	2	0	10	10 25.0%
TOTAL	3	6	2	6	2	3	2	5	2	4	2	3	13	27	40

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The micro environment responses (n=30, 75.0%) were dominant to the meso environment responses (n=10, 25.0%). The micro environment category consisted mostly of one response: reading the instructions on the tin, and therefore knowing how to make the bottle feed. The parents of the mother were another source of information and some mothers decided on their own how to make up the feed. Meso environment responses included one response only referring to the clinic staff teaching the mothers the correct procedure. Mothers / caregivers from the Mathibestad area referred to the micro environment only as their source of knowledge. The mothers / caregivers in the Makapanstad area also mentioned the meso environment as another source of knowledge. This differed from previous findings that showed that the people in the Mathibestad area made more use of their community clinic.

The preparation of bottle feeds was further investigated. The source of information for obtaining the correct procedure for mixing bottle feeds seemed correct and adequate (reading instructions from the tin), but the actual methodology practiced was questionable. The following questions thus arose: were the instructions read correctly, or did it just seem the correct answer to be given? Would the parents (mothers) of these mothers really have had the knowledge of formula feeding to teach their children? The mothers / caregivers

who made use of their meso environment to obtain information used the clinic staff. This could be regarded as a more reliable source that would be more likely to result in bottles being prepared correctly. Unfortunately, even the mothers / caregivers that consulted the clinic staff, did not always mix the formula correctly, as will be discussed.

The mothers / caregivers of each focus group were asked to make up one bottle feed. A genuine baby bottle filled with water was given to any one mother / caregiver in the focus group and she would then add the number of scoops of powdered formula as she thought was correct. The other focus groups members had to help if necessary until everybody was happy with the recipe - and this recipe was documented as the group's response. Only 55.6% (n=15) of the recipes given displayed the correct / ideal measurement (one scoop of formula per 25mL water). Of the remaining recipes given, 29.6% (n=8) were too weak a mixture of milk. Some mixtures were:

- 125mL water with four scoops milk (instead of five scoops)
- 200mL water with two scoops milk (instead of eight scoops)
- 175mL water with six scoops milk (instead of seven scoops).

It seemed that the most common mistake was to use one scoop less than required. The result would be a slightly weak mixture which could be of disadvantage to the nutritional health of the baby (6, 49, 50, 52, 54, 57).

The remaining number of recipes (n=4, 14.8%) given by the focus groups, were for mixtures made up too strong. Some mixtures were:

- 125mL water with 10 scoops milk (instead of five scoops)
- 200mL water with 10 scoops milk (instead of eight scoops)
- 100mL water with five scoops milk (instead of four scoops)
- 125mL water with six scoops milk (instead of five scoops).

In this regard it seemed that one or two scoops were added additionally to the feed. This led to over-concentration of the feed, which might lead to dehydration and other problems (6, 49, 50, 52, 54, 57).

These findings revealed a problem concerning the mixing procedures for bottle feeding, as only about half of the responses were correct. Most of the mothers / caregivers indicated that they read the instructions on the tins, but in practice it appeared not to have any positive effect on the mixing procedure applied. The strength of the milk was altered (diluted or over-concentrated) which in turn compromised the quality of the feed. In both instances, the mothers were unaware of the consequences of their decisions to the child. Therefore, education regarding the correct mixing procedures for bottles is imperative. However, knowing the correct mixing procedure would not necessarily lead to it being practiced. Further investigation into the reasons for making feeds either too weak or too strong, is thus indicated. Information on the implementation of over- or underdilution of feeds, should therefore also be shared with these communities.

8.2.3.4 Hygiene practiced with bottle feeding

✦ What type of water do you use to make a bottle for your baby?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Boiled cooled water	3	2	0	2	1	1	0	2	1	1	2	1	7	9	16 61.5%
Boiling water	0	0	2	0	1	1	2	0	1	0	0	0	6	1	7 27.0%
Unboiled water	0	1	0	0	0	0	0	0	0	1	0	1	0	3	3 11.5%
TOTAL	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT , MAKAPANSTAD = MP

Most of the water used in these communities was from boreholes (75%); however not purified. Mothers were asked if they ever tried to amend this situation by applying suitable techniques. Mothers tried to purify their own water by means of boiling. Boiled, cooled water (n=16, 61.5%) was mainly used in both clinics. Boiling water (n=7, 27.0%) was also used. These responses came mainly from the Mathibestad area. Unboiled water (n=3, 11.5%) was used in the Makapanstad area only.

✦ What are the reasons for the type of water chosen to make a bottle for your baby?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Hygiene	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26 100%
TOTAL	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The only reason mentioned for using previously boiled and then cooled water to make bottle feeds was for hygiene purposes. All the groups responded positively in this regard (100%). This verified the fact that mothers were aware of the importance of hygiene, especially concerning the type of water to use for food / bottle preparation.

✦ Is cow's milk boiled when it is used for baby feeds?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	0	0	0	1	0	0	0	1	1	1	1	2	2	5	7 77.8%
No	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 11.1%
No answer given	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 11.1%
TOTAL	0	0	0	1	0	0	0	1	2	2	1	2	3	6	9

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The few people that used cow's milk, mostly boiled the milk (n=7, 77.8%) before using it. Most of the answers were from mothers / caregivers in the Makapanstad area.

✦ What are the reasons given for boiling cow's milk?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Hygiene reasons	0	0	0	0	0	0	0	1	1	1	1	2	2	4	6 85.7%
Physiological reasons	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1 14.3%
TOTAL	0	0	0	1	0	0	0	1	1	1	1	2	2	5	7

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Reasons provided for boiling the milk was mainly hygienic in nature (n=6, 85.7%), namely to boil the milk to kill all the germs. This may be connected to the issue of using milk from cows on the premises, and need to be further looked into. The only other response was physiological in nature, namely that a baby should have warm milk to drink. One group only responded negatively to boiling milk without giving any reasoning.

✦ Do you prepare food or milk feeds in advance for a day's meal?

Questions were answered separately for solid food and milk feeds in bottles.

RESPONSES ON FOOD PREPARATION ONLY

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1 4.8%
No	2	3	2	1	2	2	2	2	1	2	0	0	9	10	19 90.4%
Left out question	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1 4.8%
TOTAL	3	3	2	1	2	2	2	2	1	2	0	1	10	11	21

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

One group responded positively to this question (n=1, 4.8%), and the rest negatively (n=19, 90.4%). The positive response was made by a 25-36/12 group from the Makapanstad area. Focus groups from both areas responded mostly to the negative. What was interesting though, was that none of the 25-36/12 group gave a negative answer. This might have suggested that the older children started to use the family foods.

✦ What are the reasons mentioned (if any) for preparing food in advance?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Availability	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2 100%
TOTAL	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD =MP

The few mothers / caregivers who responded positively to preparing food in advance were asked their reasons for doing so. These reasons (n=2) all had to do with availability. The child should be able to eat food anytime when he was hungry, or food should be available even when the electricity was cut off. This was only mentioned by the one group from the Makapanstad area.

✦ Give an explanation of where the food is kept if prepared in advance?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Cold storage	0	0	0	0	0	0	0	0	1	0	0	1	1	1	2 40.0%
Other	0	0	0	0	0	0	0	0	2	0	0	1	2	1	3 60.0%
TOTAL	0	0	0	0	0	0	0	0	3	0	0	2	3	2	5

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Refrigeration (cold storage) (n=2, 40%) was only mentioned once by each clinic as a means of food

storage. Other responses included areas like the floor, stove or the shade (n=3, 60.0%). Only the 13-24/12 and 25-36/12 age groups from both clinics gave responses.

RESPONSES ON BOTTLE PREPARATION (MILK FEEDS) ONLY

✦ Do you prepare bottles of milk in advance for a day's meal?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1 4.2%
No	2	3	2	2	2	2	2	2	1	1	2	1	11	11	22 91.6%
Left out question	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1 4.2%
TOTAL	3	3	2	2	3	2	2	2	1	1	2	1	13	11	24

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The same line of questioning was followed for the preparation of bottle feeds as for food preparation in advance. The overwhelming response was negative (n=22, 91.6%). This time the clinics and the age groups responded in a similar fashion. Only one focus group responded positively.

✦ What are the reasons mentioned for preparing bottles of milk in advance? (positive reasons)

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Availability	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Milk leftovers kept to use later	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1 100%
TOTAL	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The only positive reason mentioned by one group was to keep the feed leftover for later use; nothing should be wasted.

✦ What are the reasons mentioned for preparing bottles of milk in advance? (negative reasons)

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Hygiene reasons	1	0	0	1	0	0	1	0	0	0	2	0	4	1	5 83.3%
	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 16.7%
TOTAL	1	0	0	1	0	0	1	0	1	0	2	0	5	1	6

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Negative reasons were hygienic in nature (n=5, 83.3%). Mothers / caregivers knew that flies could easily contaminate a bottle feed or that the heat from the sun could cause the milk to go sour. Therefore the preparation of bottle feeds in advance was not advisable.

✦ Give an explanation of where the bottles are kept if prepared in advance?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Cold storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
Other storage	1	0	1	0	1	0	0	0	1	0	0	0	4	0	4 100%
TOTAL	1	0	1	0	1	0	0	0	1	0	0	0	4	0	4

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

When asked about bottle preparation in advance, all but one of the groups responded negatively. However when they were asked where the prepared milk feeds were kept, more than one group gave answers. This may be explained in terms of the fact that they did not consider milk left over in a bottle as being prepared in advance, and that milk left in a bottle was always re-used. No cold storage was used for milk left over in bottles, and it was mostly kept on the floor or in the shade (n=4, 100%). This matter may need more investigation to clarify the practices in an exact way, but milk made in advance seemed to be kept unrefrigerated until consumption.

Hygiene and bottle feeding are very important issues in poor communities. The concept of hygiene includes the water used, as well as the storage procedures practised. The water source in both these communities mainly was unpurified borehole water. However, 61.5% of the mothers / caregivers indicated that the water for bottle feeding was boiled first, and then cooled down before use. They were all aware of the importance of hygiene in health (see 8.2.3.4). Water was boiled to kill germs. Even the mothers who used cow's milk for bottle feeding, boiled the milk first for hygiene purposes. Bottles were apparently not made in advance, but if a bottle feed was not finished by a child during one feeding session, the mother would keep the rest of the bottle contents until the next feed, so as not to waste any of this expensive product. Mothers kept these feeds mostly unrefrigerated, and in the open. Some was kept on the stove where it would probably have stayed longer at a lukewarm temperature. Some was kept in the shade, where it was more exposed to flies and environmental heat. These were prime circumstances for contamination (6, 49, 50, 54, 52, 57).

In summary: it was evident that nutrition education regarding these issues is imperative. Education regarding the ideal type of bottle feeding in the situations indicated for its use, is very important.

8.2.4 SAMPLING UNIT: WEANING

The theme on weaning was explored by asking questions and probing on first weaning (complementary) foods, meals / food intakes, food preparation and milk drinking practices. The four mentioned topics delineated the context within which the data reduction was done and the results will be presented.

8.2.4.1 First weaning foods (complementary foods)

✦ What is the first type of solid food that a baby normally gets to eat?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Cereals - maize meal porridge	2	3	2	2	2	5	2	6	2	3	2	3	12	22	34 53.1%
Cereals - com-mercial products	3	2	1	2	1	3	4	3	0	1	1	2	10	13	23 35.9%
Fruits - fresh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fruits - com-mercial products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetables - fresh	0	0	0	0	0	0	0	1	0	1	0	2	0	4	4 6.3%
Vegetables - com-mercial products	0	0	0	0	1	0	0	0	0	0	1	1	2	1	3 4.7%
Meats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eggs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other milk products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soup (commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	5	3	4	4	8	6	10	2	5	4	8	24	40	64

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The mothers / caregivers were probed about the first item of food that a child was given to eat other than milk. The responses were classified according to the main categories of foods according to types, namely cereals, fruits, vegetables, meats, eggs and commercial baby foods. An overwhelming response was received for cereals as a group (n=57, 89%); maize meal (n=34, 53.1%) and commercial cereal products (n=23, 35.9%). Of these 60% were soft porridge (n=34), 28% Nestum (n=16) and 12% Cerelac (n=7) (not indicated in table). The only other two food categories mentioned, were equally responded to, namely for fresh vegetables (n=4, 6.3%) and commercial baby foods, like Purity (n=3, 4.7%). These last two items were mostly mentioned by the older age groups, 10-12/12 and older. Only two of these age groups mentioned the commercial product. There was no real difference between the different age categories with reference to the rest of the responses. However, it was only groups from the Makapanstad area that mentioned vegetables, but both areas mentioned the commercial product. It can be concluded that soft porridge as prepared specifically for babies (see discussion on food preparation), was used most often by all groups in both areas.

✦ Why specifically is this type of solid food given first to the baby?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	1	1	0	1	1	0	0	2	0	0	0	0	2	4	6 12.5%
Health reasons	1	2	0	2	0	3	0	1	0	2	1	0	2	10	12 25.0%
Physiological reasons	2	3	2	2	0	0	2	2	0	5	1	3	7	15	22 45.8%
Availability	0	0	1	0	1	0	1	0	2	0	0	0	5	0	5 10.4%
Financial reasons	0	0	0	0	0	0	1	0	1	0	0	0	2	0	2 4.2%
Don't know why it is necessary	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1 2.1%
TOTAL	4	7	3	5	2	3	4	5	3	7	2	3	18	30	48

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The responses received from this probe were categorized according to nutritional, health, physiological, availability and financial reasons. The physiological reasons (n=22, 45.8%) received the most responses. Every age group responded in this category except the 7-9/12 group in both areas, and the Mathibestad area 13-24/12 age group. The physiological reasons mentioned, included ease of swallowing; small and immature stomachs / ease of digestion; keeping the child satisfied for a longer period; teething; size of the child; ease of eating; and it being good for a baby, which were all valid reasons (12, 14). The general health reasons (n=12, 25.0%) primarily came from the Makapanstad area groups. In the Mathibestad area only the youngest and oldest age groups responded in this category. Responses included general statements like making the child strong; for the baby to put on some weight (look fat); for growing; and it being good and healthy for the baby. The next two categories received a fairly similar number of responses, namely nutritional reasons (n=6, 12.5%) and availability (n=5, 10.4%). Nutritional reasons were mostly mentioned by the age groups younger than 10-12/12 and also mainly by the groups from the Makapanstad area, while the matter of availability were mentioned in the middle age groups and only by mothers / caregivers in the Mathibestad area. Nutritional reasons included an item being good for the baby; suitability; containing healthy substances in general; also specifically vitamins, calcium and iron; and the fact that the foods aids in bone growth. Availability primarily stated the fact that maize meal was used on a day to day basis in the home and was therefore the most convenient product to give to babies. Financial reasons (n=2, 4.2%) indicated that maize meal was not expensive and could therefore be used, especially if not enough money was available for buying Nestum. The financial reasons were only mentioned by the focus groups from the Mathibestad area and only by two of the groups. It can thus be concluded that soft porridge were mostly given to babies due to its soft texture, its satiety value, its perceived nutritional value (which in some instances were totally incorrect), and its availability. The focus groups in the Makapanstad area focused more on physiological, health and nutritional aspects, while the mothers / caregivers from the Mathibestad area focused more on physiological, financial and availability aspects.

✦ What is the next two weaning items (complementary foods) mentioned?

Mothers / caregivers were asked which next two items were given to a baby after he/she has eaten food for the first time. In the focus groups the mothers / caregivers were specifically asked to list the foods as second and third foods. These foods will be presented separately. The same food categories were used as with the initial food product introduced.

✦✦ The second weaning food introduced

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Cereals - maize meal porridge	0	1	1	0	0	0	0	0	0	0	0	0	1	1	2 6.5%
Cereals - commercial products	1	0	1	1	0	1	0	0	1	0	0	0	3	2	5 16.1%
Fruits - fresh	1	0	0	0	0	2	0	0	1	0	0	1	2	3	5 16.1%
Fruits - commercial products	1	2	0	1	1	0	0	2	0	0	0	1	2	6	8 25.8%
Vegetables - fresh	1	0	0	0	1	0	3	0	0	1	2	0	7	1	8 25.8%
Vegetables - commercial products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eggs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other milk products	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2 6.5%
Soup (commercial)	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1 3.2%
TOTAL	4	3	2	2	2	3	3	3	2	2	2	3	15	16	31

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The second food item included in a baby's diet covered a variety of items. Commercial fruit products and fresh vegetables (n=8, 25.8% each) were mentioned most frequently in this regard. However, the mothers / caregivers from the Makapanstad area were more in favour of the commercial fruits while the mothers / caregivers from the Mathibestad area favoured fresh vegetables (like pumpkin, potato). Fresh fruits (like banana or squeezed orange) were also mentioned, as was commercial cereals (like Nestum) (n=5, 16.1% each). None of these items could be specifically linked to any one age group as a variety of responses came from each group.

✦✦ The third weaning food introduced

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Cereals - porridge	2	0	0	1	1	0	0	0	0	0	1	0	4	1	5 12.8%
Cereals - commercial	0	4	0	0	1	0	0	0	0	2	1	0	2	6	8 20.5%
Fruits - fresh & fresh juice	0	0	0	2	1	0	3	3	0	0	0	1	4	6	10 25.6%
Fruits - commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetables - fresh	0	0	1	0	0	0	0	0	1	1	0	0	2	1	3 7.7%
Vegetables - commercial	1	0	1	0	0	2	0	0	0	1	1	1	3	4	7 18.0%
Meat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eggs	0	0	0	1	0	0	0	0	1	1	0	0	1	2	3 7.7%
Commercial fruit juice	1	0	0	0	0	0	0	0	0	0	0	1	1	1	2 5.1%
Cold drinks - other	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1 2.6%
TOTAL	4	4	2	4	3	2	3	3	2	5	3	4	17	22	39

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The third food item included in a baby's diet was similar to the previous ones mentioned, although a few new items were included. The category mentioned most often by both areas was that of fresh fruits (n=10, 25.6%), including items like apple, pear, banana and orange. The second highest category of responses was that for commercial cereals, like Nestum or Cerelac (n=8, 20.5%), and commercial vegetable products (Purity) (n=7, 18.0%). The cereals were mentioned more often by the Makapanstad area and the vegetables were mentioned by both. Other items that were also mentioned included porridge, fresh vegetables like merogo (green leaves like spinach, etc.) or potatoes, eggs and a few even mentioned commercial fruit juices or cold drinks. No clear distinction could be made between the two clinics or the various age groups.

It could be concluded that the mothers / caregivers followed a similar regime to the one suggested by health professionals (see Chapter 3). Cereals, like soft maize meal porridge, Nestum or Cerelac were usually given as a starter food. If maize meal porridge was given first, Nestum or Cerelac was usually the second item included and vice versa. Fruits were also a popular choice, but usually only after the cereals. Commercial fruit products were followed by the fresh product. Fresh vegetables were given as an introduction to vegetables, followed by the commercial products. Although most mothers / caregivers gave soft maize meal porridge alone as an introductory food, some also added sugar or the watery gravy from boiled meat to the porridge. The use of commercial cold drinks or fruit drinks was also popular; even with younger children.

- Why specifically these next two types of weaning items?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	1	2	1	2	0	1	3	1	0	0	5	6	11 24.4%
Health reasons	3	1	2	1	4	1	2	4	1	2	2	2	14	11	15 55.6%
Physiological reasons	1	2	0	0	0	0	0	0	0	0	1	0	2	2	4 8.9%
Acceptability	0	1	0	0	0	0	0	0	0	2	0	0	0	3	3 6.7%
Availability	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1 2.2%
To give fresh food to the baby	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1 2.2%
TOTAL	5	4	3	3	5	4	2	5	4	5	3	2	22	23	45

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Mothers / caregivers were probed for their reasons for including these specific second and third foods (see 8.2.4.1) in the specific order that they mentioned. In contrast to the reasons mentioned for the introduction of the first food (see previous probe), the physiological reasons were not the choice reason category, but rather the health reasons (n=25, 55.6%). Responses included the general statement that the foods would aid in the child being healthy and strong; that it would aid in weight gain; that soft porridge contained starch which was needed by the body; that it built the body (the whole spectrum of foods); and that fruits and vegetables made strong bones. Some of these responses clearly were misconceptions. Nutritional reasons (n=11, 24.4%) were also mentioned frequently. None of the youngest (0-3/12) and oldest (25-36/12) age groups gave responses in this category. Responses included statements like: these foods (wide spectrum) contained lots of vitamins; these foods (mashed potato, eggs, merogo) were good for the baby ("dikotla") and contained protein; eggs had protein and vitamins; soft porridge had starch which was needed by the body; and these foods (yoghurt, Purity, banana, orange) had vitamins, protein and carbohydrates. Some of these responses indicated that the mothers / caregivers knew about the correct terminology concerning nutritional aspects of foods, but that they could not link the terminology to the correct foods and often not for the right reasons. The other categories received only a few responses. Physiological reasons (n=4, 8.9%) concerned only the soft, suitable texture of the food given (Purity, Nestum, potato) and that these foods (Purity and Nestum) would not cause constipation. Acceptability (n=3, 6.7%) was only mentioned by the Makapanstad area and indicated that certain foods (Nestum, Purity, Maggi soup) were added for taste or for a change / variety. Availability (n=1, 2.2%) was only mentioned once by the mothers / caregivers from the Mathibestad area and referred to the maize meal being available in the home. The main response categories received nearly an equal number of responses from both clinics and from most groups. It can be concluded that mothers / caregivers did not really know the true nutritional or other reasons for following a specific order of introducing solid foods into the diet of the baby. A number of the reasons given could be interpreted as being correct, but they were vague; quite a number of misconceptions existed regarding the necessity of including certain foods into the weaning diet.

8.2.4.2 Meals / food intakes

✦ How many times does a child get solid food on the same day?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Two times	2	1	0	0	0	1	0	0	0	0	0	0	2	2	4 9.0%
Three times	2	3	5	2	2	2	2	2	5	1	2	5	18	15	33 73.3%
Four- six times	1	0	1	0	0	0	0	1	2	1	0	2	4	4	8 17.7%
TOTAL	5	4	6	2	2	3	2	3	7	2	2	7	24	21	45

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The most common meal pattern for children who had been weaned (n=33, 73.3%) was that of three meals a day. All the focus groups from both areas and from all the age categories responded very consistently with the same answer. Some mothers / caregivers (n=8, 17.7%) used a four-to-six meal pattern. This pattern was equally used in both areas by a variety of age groups. Only the 7-9/12 age group never indicated this pattern at all. A few of the focus groups also said that they only gave their children solid food twice a day (n=4, 9.0%). This was mainly for the younger children in the 0-3/12 and 7-9/12 age groups from both areas. It was thus clear that the three meal pattern was established very early on in the life of a child.

✦ Why does a child get solid food for the specified number of times on the same day?

Three response categories (two times, three times, four - six times) were formed when the question on the number of feeding times per day was asked in the focus groups (see previous probe). The mothers / caregivers were then also probed with regard to their reasons for choosing a specific regime for giving solid food to their children in the weaning stage. Each of the regime choices was considered separately in order to consolidate the responses. All the reasons given for using a specific regime were categorized according to nutritional, health, physiological, immunological and household practices reasons.

FEEDING REGIME: 3x / DAY

DATA CATEGORIES (3x/day)	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	1	0	1	0	0	0	2	0	0	0	1	0	5	0	5 20.0%
Health reasons	0	0	1	0	0	0	0	0	0	1	0	1	1	2	3 12.0%
Physiological reasons	1	3	0	2	2	2	0	3	0	1	0	1	3	12	15 60.0%
Immunological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Household practices (habit)	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2 8.0%
TOTAL	2	3	2	2	2	2	2	3	1	2	2	2	11	14	25

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The three meal a day regime was most popular as stated previously (see 8.3.4.2) and also received the most reasons (n=25, 69.44% from a total of 36 reasons given) from the mothers / caregivers when probed about it. The physiological reasons were most popular (n=15, 60.0%), especially in the Makapanstad area. Physiological responses referred to satisfying hunger; preventing crying due to hunger; and spreading the food throughout the day to prevent hunger. The other categories had few responses allocated to them. These included nutritional reasons (n=5, 20.0%), referring to balancing the diet and preventing overweight; health reasons (n=3, 12.0%), referring to the baby being strong and healthy and to grow up well; and household practices (n=2, 8.0%), referring to the usual method and following the practice of adults. The age groups contributed equally towards these responses.

FEEDING REGIME: 2x / DAY

DATA CATEGORIES (2x/day)	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1 25.0%
Health reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Physiological reasons	1	1	0	0	0	1	0	0	0	0	0	0	1	2	3 75.0%
Immunological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Household practices (habit)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	1	0	0	0	1	0	0	0	0	0	0	2	2	4

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The two meal a day regime was not very common and only a few reasons were given (n=4, 11.1% from

a total of 36 reasons given). The physiological reason category, which mostly concerned satisfying hunger, received the most responses (n=3, 75.0%). Only one nutritional reason was given and this stated that two meals a day was a balanced diet for a baby. These responses were given mostly by the youngest age group.

FEEDING REGIME: 4x / DAY

DATA CATEGORIES (4x/day)	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health reasons	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1 14.3%
Physiological reasons	1	0	1	0	0	0	0	1	2	1	0	0	4	2	6 85.7%
Immunological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Household practices (habit)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	1	0	0	0	0	1	2	1	0	1	4	3	7

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The four-six meal a day regime was a little more popular (n=7, 19.4% from a total of 36 reasons given). These reasons given were also mostly physiological of origin (n=6, 85.7%), consisting of statements concerning the prevention of hunger and thus crying babies; that small children should eat more than others; and that they are hungry more often. The one health reason (n=1, 14.3%) given was the general statement that the baby should get enough energy in order to be strong.

In summary: in the Sampling Unit on Breast feeding (see 8.2.2.4) the mothers / caregivers were asked how many times the breast fed child received something to eat or drink together with breast feeding. A three-meal-a-day frequency of feeding additional food / drinks to breast feeding was established by most mothers / caregivers (50.0%). Two and four meals (11.9% each) per day were also implemented. In this Sampling Unit (8.2.4.2) mothers / caregivers were asked how many times a child received only solid food during the day. It could be concluded that the meal patterns of the child during the weaning phase followed a similar trend than with the introduction of weaning / complementary foods. The three-meals-a-day meal pattern was most common (73.3%), followed by four-six meals (17.7%) and two meals(9.0%). These figures included children from the older age groups who were not being breast fed anymore. It could therefore be concluded that many of the mothers / caregivers who started off with a two or four meal-a-day pattern when introducing the first complementary food item, switched over to a three meal-a-day pattern during the final weaning-from-the-breast phase. In the Sampling Unit: Nutrition knowledge (8.2.5) mothers / caregivers were also asked what the ideal eating pattern for a child would be. Again a large number of mothers / caregivers chose the three meals-a-day pattern (65%). Some mothers / caregivers however stuck to their four-to-six (17.7%) or two (9.0%) meals-a-day pattern in the final weaning phase. This was probably not

continued into late childhood as very few mothers / caregivers indicated in the nutrition knowledge section that they only gave two meals. A three-meal pattern was thus established very early in the life of a child.

The quantities of food consumed by the children were examined. However, the way in which the data were reported made an evaluation quite difficult. In order to describe the current situation, the mixing procedure of commercial baby foods, the volumes of food intake as reported by the mothers / caregivers, as well as their reasons for using these quantities will be presented. Due to a huge variety of answers given in this regard, no conclusions on an average volume of intake could be drawn.

MIXING PROCEDURES FOR COMMERCIAL CEREAL PRODUCTS

The following recipes were acquired during the focus group interviews:

AGE CATEGORY	RECIPE REPORTED
0-3/12	4 Teaspoons of Nestum, heaped (28mL) + 50mL water
4-6/12	6 Tablespoons of Nestum (120mL) + 50mL water
4-6/12	5 Tablespoons of Nestum (100mL) + 75mL water
0-3/12 and 7-9/12	4 Tablespoons of Nestum (80mL) + 50mL water
10-12/12	10 Tablespoons of Nestum (200mL) + 125mL water
13-24/12	5 Tablespoons of Nestum (100mL) + 50mL water

AGE CATEGORY	VOLUME CONSUMED PER MEAL (CEREAL)
0-3/12	35mL, 125mL, 175mL, 250mL, 300mL, 600mL
4-6/12	75mL, 150mL, 250mL
7-9/12	180mL, 250mL, 400mL, 600mL
10-12/12	175mL, 250mL, 400mL, 600mL,
13-24/12	125mL, 250mL, 400mL, 600mL
25-36/12	250mL, 300mL, 600mL

The volumes reported seemed to be unrealistic and should be reported with caution. These volumes were checked numerously in the focus group situation, but the same reply was always given. One explanation for these huge quantities could be drawn from an observation by the researcher. It was observed that mothers / caregivers put the mentioned amount of porridge into a bowl as they started to feed the baby. Often they did not finish this quantity at that specific feeding time. Thus the food might be kept over for later use, as was previously reported (see 8.2.3.4), or be given to other children. The volumes reported with the Nestum-mixing procedures seemed to be more realistic in terms of volumes per age category.

✦ What are the reasons for giving the specified amount of food each time the child eats?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health reasons	0	0	0	0	0	0	0	0	1	0	0	2	1	2	3 10.0%
Physiological reasons	4	4	2	2	2	2	2	2	2	1	2	1	14	12	26 86.7%
Immunological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial reasons	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1 3.3%
TOTAL	4	4	2	2	3	2	2	2	3	1	2	3	16	14	30

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The reasons for giving the specified volumes of food were categorized according to nutritional, health, physiological, immunological and financial reasons. Nearly all of the responses given by these mothers / caregivers were categorized under physiological reasons (n=26, 86.7%): mostly to prevent hunger and crying; to keep the baby satisfied until the next feed; and to give food according to body size. Only a few health reasons (n=3, 10.0%), concerning being strong and healthy, and to eat enough to grow well (given by the 25-36/12 age groups) were given. Only one financial reason (3.3%), which concerned the cost of living that prevented mothers / caregivers to give more food, were given by the 7-9/12 group.

Physiological reasons given by the various age groups for the different volumes given were as follows:

0-3/12 - "because the baby would not cry when he has eaten so much"
- "for her to be satisfied"
- "because the baby is growing up so they must get enough food"
- "for her not to get hungry quicker"
- "because the child is still young"
- "the child must not eat too much because he will vomit"

4-6/12 - "because the baby would not cry when he has eaten so much"

7-9/12 - "the amount is right for the baby - finishes it all"
- "enough food so that the baby will not get hungry"

10-12/12- "they have an appetite"
- "for the baby to eat enough for the whole day"
- "because the stomach is not big enough to eat so much"

13-24/12- "he gets 125mL because he must get fruit as well"

25-36/12- "this amount of food stays in the stomach for a long time before the baby will get hungry again"

- "that is her timetable - according to the age of the child, the size of the plate increases"

These responses indicated that mothers / caregivers mostly decided on the volume of food given to the baby according to the behaviour of the child. If the child cried "too much", hunger was assumed and more solid food was given.

8.2.4.3 Food preparation

✦ Is the child's food prepared separately from that of the family?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	3	3	1	2	2	2	1	2	1	2	2	0	10	11	21 80.8%
No	0	0	1	0	0	0	1	0	1	0	0	2	3	2	5 19.2%
TOTAL	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Most of the mothers / caregivers in both areas (n=21, 80.8%) confirmed that the children's food was prepared separately from that of the rest of the family (12). Only the focus groups from the 25-36/12 age groups from the Makapanstad area did not respond positively to this probe. There was a similar number of positive and negative responses between the two clinics.

✦ Why is the child's food prepared separately from that of the family ?

Positive reasons

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Physiological reasons	0	1	1	0	0	0	0	3	1	0	0	0	2	4	6 22.2%
Acceptability	3	2	1	1	2	2	1	2	1	2	1	0	9	9	18 66.7%
Availability	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1 3.7%
Tradition	0	0	0	1	0	0	0	0	0	0	1	0	1	1	2 7.4%
TOTAL	3	3	2	2	2	3	1	5	2	2	2	0	12	15	27

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The mothers / caregivers were probed about their reasons for preparing food separately for the child. Most of the positive responses were categorized in terms of acceptability for the child (n=18, 66.7%). The reasons were about salt, oil and spices in adult's food which were unacceptable for babies / young children, and adults eating different kinds of food than children. These responses came in equal numbers from the two areas, with the least responses from the oldest age groups. A number of physiological reasons were also given (n=6, 22.2%) by the two youngest and the 10-12/12 age groups. These were about the different textures of the food; cooking the food longer; and washing the maize meal before preparing the porridge. Two of the groups (7.4%) mentioned their traditions as reasons. Firstly, that the children's food had to be prepared in their own pot separately, and secondly that when the mother was pregnant, the child would get sick if eating from the same pot. It was also reported that children ate at different times, therefore food had to be made separately for them in order to be available when they should eat / be fed (n=1, 3.7%).

✦ Why is the child's food prepared separately from that of the family?

Negative reasons

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Physiological reasons	0	0	0	0	0	0	1	0	1	0	0	2	2	2	4 80.0%
Acceptability	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 20.0%
Availability	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tradition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	1	0	2	0	0	2	3	2	5

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The negative reasons or reasons for not preparing children's food separate to that of adults, were categorized similarly to the positive reasons. Fewer reasons were mentioned, as this was not the usual practice. Most of the responses (n=4, 80.0%) were physiological of origin, and they were all about the baby being grown up and able to eat anything the family eats. These responses were made by the age groups of 10-12/12 and older from both areas. The only other response was about acceptability and stated that the child could not eat tasteless food.

✦ What additions are made to the food of the child?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Fats	2	3	2	2	1	2	1	2	1	1	1	1	8	11	19 34.5%
Milk or milk products	2	1	1	0	0	1	2	1	1	2	2	1	8	6	14 25.5%
Protein foods	0	0	0	0	0	1	0	2	0	1	0	0	0	4	4 7.3%
Sugar	1	1	1	1	1	0	1	1	0	1	0	0	4	4	8 14.6%
Spices	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1 %1,8
Salt	0	1	0	1	0	0	0	1	0	3	0	1	0	7	7 12.7%
Nothing	0	0	0	2	0	0	0	0	0	0	0	0	0	2	2 3.6%
TOTAL	5	6	4	6	2	4	4	7	2	8	3	4	20	35	55

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

During the individual interviews where usual intake was recorded, hardly any additions to foods were mentioned at all, even with various probes on the issue. The only practice mentioned was the addition of scoops of formula powder to the "pap" of babies and young children. Sugar and margarine were hardly ever mentioned, even when questioned about it. Therefore this probe was included in the focus group interviews to verify the practices. From this data it became clear that mothers / caregivers added some extras to children's food. The additions were classified according to logical food groupings. The fat category received the most responses (n=19, 34.5%). This consisted of margarine only (all margarine in this community is called Rama). The category mentioned second most often was that for milk or milk products (n=14, 25.5%), which referred to milk or formula powder usually added to pap or sometimes to potato. Sugar (n=8, 14.6%) and salt (n=7, 12.7%) were also mentioned, followed by protein foods (peanut butter) (n=4, 7.3%). The peanut butter and salt were only mentioned by groups from the Makapanstad area, although all the other foods were mentioned by both areas.

✦ Why are some items added to the food of the child?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	1	0	0	0	0	1	1	0	2	1	4	2	6 18.7%
Acceptability	3	4	2	2	2	2	2	2	1	2	2	2	12	14	26 81.3%
TOTAL	3	4	3	2	2	2	2	3	2	2	4	3	16	16	32

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The reasons mentioned were mostly to increase acceptability (n=26, 81.3%), e.g. making the food tasty; for the child to enjoy her food; and that the baby wanted fatty foods. Acceptability seemed to be an issue favoured by all the focus groups in both areas to a similar extent. Two of the reasons were categorized as being nutritional (n=6, 18.7%): to give the baby energy and strength; and for the necessary vitamins for good health.

Preparation of food The mixing procedures of baby foods were examined. In various focus group discussions the mothers / caregivers mentioned washing the maize meal before cooking it, and also serving a separately prepared soft porridge for the babies than that prepared for adults. To determine if these different techniques had any influence on the nutritional content of the porridge, it was decided to have these products analyzed. Three mothers / caregivers were asked to prepare the porridge as they normally would. Two mothers prepared soft porridge as used for babies and one mother prepared soft porridge as eaten by adults (control). The preparation methods used are summarized in Table 68.

TABLE 68: PREPARATION TECHNIQUES FOR SOFT MAIZE MEAL PORRIDGE

PREPARATION	MOTHER - A BABY	MOTHER - B BABY	MOTHER - C CONTROL - ADULT
Water	700mL water	750mL	850mL
Maize meal	250mL	250mL	250mL + 180mL
Method	1. Boil water 2. 250mL maize meal mixed with 200mL cold water 3. Mix with fork 4. Pour off water 5. Add maize meal to boiling water 6. Stir and boil till cooked	1. Boil water 2. 250mL maize meal mixed with 150mL cold water 3. Mix with fork 4. Add maize meal to boiling water 6. Stir and boil till cooked	1. Boil water 2. Add 250mL maize meal 3. Mix with fork 4. Boil for ± five minutes 5. Add 180mL more maize meal while stirring 6. Stir and boil till cooked
Serving	250mL cooked porridge thinned with 50mL water	250mL cooked porridge thinned with 50mL water	-

The samples of the maize meal porridge were analyzed by the Animal Nutrition and Animal Products Institute of the Agricultural Research Council (ARC) in Irene, Pretoria. The results are summarized in Table 69.

TABLE 69: NUTRIENT ANALYSIS OF MAIZE MEAL PORRIDGE

SAMPLES ANALYZED	NUTRIENT ANALYSIS (per 100g)				
	DM %	PROTEIN %	FAT %	TOTAL NON-STRUCTURAL CARBOHYDRATES %	ENERGY kJ/kg
Mother - A Baby	10.78	0.95	0.05	12.22	199
Mother - B Baby	11.76	0.90	0.07	11.76	211
Mother - C Control -adult	12.61	1.10	0.10	16.95	244
Maize meal* cooked soft porridge (/100g)	-	1.2	0.3	11.4	217

*Analysis from the NRIND Food Composition Tables (105); DM = dry material

The results indicated that there was not much difference between the analyzed samples and the standard analysis from the NRIND analysis tables. The different preparation technique seemed not to have an impact on the nutrient intake of the children. It was however observed that this specific technique (washing the meal beforehand) leads to an end product with a very smooth creamy texture which was highly suitable as a first weaning food. The amount of water added to the final product before serving it to the child, might vary, and this might lead to further differences in nutrient intakes.

The mothers / caregivers were also probed extensively on their weaning practices. Mothers / caregivers indicated that the food of the children was prepared separately to that of the rest of the family (see discussion of results, 8.2.4.3). The mothers / caregivers also gave reasons for this practice. Explanations were given on the actual preparation techniques followed by the mothers / caregivers in order to explain why the food had to be prepared separately. These explanations will be presented as they were given. Some of the methods concerned the issue of preparation technique:

- "boil the meat for a long period so that it should be soft, and all other foods are boiled and mashed"
- "just boiled"
- "boiled and mashed"
- "boiling the food in the traditional way - like the rest of the family's food"
- "boiled and mashed and then something is added"

Some of the preparation techniques were about the texture of the food:

- "the child's food must be soft. Even the porridge are boiled until it is fine like Nestum"
- "boil food until they are soft"

Some of the mothers / caregivers explained about additions to the food:

- "don't add spices"
- "no salt is added to the porridge"

An interesting technique on the preparation of maize meal porridge for babies were mentioned:

- "the maize meal is washed thoroughly, drained and then cooked in new water (to try and wash away the extra starch), until soft"
- "a mug is filled ½ with maize meal and then filled up with water, mixed, then scoop the rest of the water off, and then boiled"
- "boil water, maize meal mixed with water, pour off, mix again with water and boil"
- "the child's porridge must be boiled for a long time"

From these explanations, it seemed that the food for children was generally overcooked, usually with a lot of water. Education regarding preparation techniques will be of value in these communities.

8.2.4.4 Milk drinking practices

✦ When a child starts to eat solid food as a meal, does he/she still get milk to drink as well?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Yes	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26 %
No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 %
TOTAL	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

All the mothers / caregivers indicated positively (n=26,100%) that children should still receive milk to drink even when they started to eat solid food as a meal (when breast feeding was stopped).

✦ What are the reasons given for stopping milk feeds when a child starts to eat solid food as a meal?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Nutritional reasons	0	0	0	0	0	0	3	0	0	0	2	2	5	2	7 87.5%
Physiological reasons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mother's own choice (not interested)	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1 12.5%
TOTAL	0	0	0	0	0	0	3	0	1	0	2	2	6	2	8

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

The reasons given by the various focus groups who responded to this probe had to do with the children being old enough to be weaned completely from breast feeding. Only the few groups who responded to the question on the age of stopping milk feeds (next probe) responded in this regard as well (only focus groups with children aged > 10-12/12). The responses were mainly categorized as nutritional reasons (n=7, 87.5%): the child was now eating enough food to sustain his needs and thus the child relied less on breast feeding and therefore it could be discontinued. One focus group stated that when the child drank one cup of milk additionally, it was time to stop breast feeding. The only other response category indicated was that of the mother's own choice (n=1, 12.5%): at that stage the mother was not interested in breast feeding anymore.

✦ If he/she does not get milk as well, what was the time (age) for stopping the milk feeds?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Eighteen months	0	0	0	0	0	0	1	0	0	0	2	1	3	1	4 57.1%
Two years	0	0	0	0	0	0	1	0	1	0	0	1	2	1	3 42.9%
TOTAL	0	0	0	0	0	0	2	0	1	0	2	2	5	2	7

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Although all the mothers / caregivers indicated that their children received milk while they were being weaned, some of the mothers / caregivers indicated an age for stopping milk feeds. It was only the mothers / caregivers from the older age categories (>10-12/12) that responded due to the fact that they might probably already had weaned their children or an older child. Two ages were given as ideal for stopping milk feeds: 18 months (n=4, 57.1%) and 24 months (n=3, 42.9%). This confirmed previous results which also indicated that milk feeds were stopped completely between the ages of 18 to 24 months. (See similar data in 8.2.1.2 Sampling Unit: General knowledge on infant feeding and health and 8.2.2.2 Sampling Unit: Breast feeding.)

✦ If he/she does get milk to drink as well, what is the type of milk given to the child?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Breast feeding	2	0	0	0	1	0	0	0	0	0	0	0	3	0	3 7.1%
Formula milk	2	1	2	0	1	0	1	1	6	2	1	0	13	4	17 40.5%
Other powder milks	0	2	0	2	0	2	2	2	0	2	1	2	3	12	15 35.7%
Cow's milk	0	0	0	0	0	0	0	2	1	1	1	1	2	4	6 14.3%
No answer given	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1 2.4%
TOTAL	4	4	2	2	2	2	3	5	7	5	3	3	21	21	42

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

As all of the focus groups responded positively towards giving a child milk during weaning, the mothers/caregivers were probed on the type of milk used. As expected, breast feeding was the least popular choice of milk at this stage (n=3, 7.1%). Only three of the focus groups from the Mathibestad area mentioned breast feeding as still being the choice of milk with a fully weaned child. The most popular choice of milk was formula milk (n=17, 40.5%), like Nan or Lactogen, while other powdered milks (n=15, 35.7%), like Nespray, was also mentioned. However, there was an interesting difference in the responses between the two clinics. It was mostly mothers / caregivers from the Mathibestad area that indicated formula milk as their choice of milk (13 versus 4), and it was mainly mothers / caregivers from the

Makapanstad area that indicated other powder milks as their choice of milk (12 versus 3). Only a few of the mothers / caregivers (n=6, 14.3%) indicated the use of cow's milk as a choice of milk for their children; from the older age groups (>10-12/12) only.

To clarify their practices for using the different types of milk, mothers / caregivers were asked why they used the particular type of milk as mentioned. Four different categories on milk types were created (breast feeding, formula milk, other powder milks and cow's milk) and the ethnography will be presented accordingly. The reasons were categorized according to general health, nutritional, physiological, financial and own personal reasons.

Breast feeding: Most of the reasons mentioned fit into the general health category. Some of the answers were:

- "for the baby to be strong and healthy"
- "it's healthy for the baby"

One reason was given for the financial category:

- "you don't spend money for breast feeding"

Only one reason was given for own personal reasons:

- "give breast before a meal"

Formula milk: Most of the reasons mentioned for this choice of milk fitted into the general health category:

- "for the baby to be strong and healthy"
- "so that the baby does not lose weight"
- "to give the baby strength ("dikotla")"
- "Nan is like breast feeding "
- "Formula is suitable for the baby"
- "Formula is good for the baby"
- "It keep the baby healthy"

Two nutritional reasons were also given for using formula milk:

- "it has all the proteins"
- "it has all the vitamins that is needed by the body of the child"

Three of the reasons mentioned were classified as physiological:

- "to replace breast feeding"
- "they have grown up and can't drink formula anymore"
- "Nan will no longer be suitable for a two year old child - it's for small children"

Other powder milks: Nearly all the reasons mentioned for this choice of milk were categorized as general health reasons:

- "Nespray is good for the growing baby"
- "Nespray gives the baby energy"
- "for the baby to be strong and healthy"
- "so that the baby does not lose weight"
- "to give the baby strength ("dikotla")"
- "Nespray is like cow's milk, it has substances that is good for the body ("dikotla")"
- "Nespray is healthy"
- "Nespray build up the bones "
- "It keep the baby healthy"

Only one nutritional reason was mentioned:

- "it has all the proteins"

Two of the reasons mentioned were classified as physiological:

- "Nespray is good for big babies"
- "Nespray is given to older babies"

Cow's milk: Two of the reasons mentioned for this choice of milk were in the general health category:

- "for the baby to be strong and healthy"
- "Fresh milk has a lot of fat/cream and therefore you can't use it"

Only one nutritional reason was given for using cow's milk:

- "it has all the proteins"

From these results it was evident that mothers / caregivers did not really know why they chose a specific milk. If the baby grew and appeared to be healthy, the choice of milk was considered to be good. Nutrition education regarding the different types of milk available for a weaned child should be an important aspect to be covered in an education program.

✦ In what utensil does the child get the milk that he/she drinks additionally to his/her food?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Bottle	2	1	1	0	2	1	1	1	0	1	0	1	6	5	11 25.6%
Mug/cup	1	5	2	2	0	3	2	2	2	4	2	7	9	23	32 74.4%
TOTAL	3	6	3	2	2	4	3	3	2	5	2	8	15	28	43

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Most of the mothers / caregivers indicated that a weaned child drank his / her milk from a mug or a cup

(n=32, 74.4%). All the focus groups, except the 7-9/12 group from the Mathibestad area, mentioned a mug / cup with most of the responses coming from the Makapanstad area. Only a few groups responded with bottle feeding (n=11, 25.6%). It could be concluded that mothers / caregivers encouraged cup / mug drinking when the babies were weaned onto a family diet.

✦ How is the milk mixed if it is not cow's milk?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Correct measurement	0	1	3	0	1	0	1	1	1	1	1	1	7	4	11 42.3%
Too weak	2	2	0	2	0	2	1	1	0	0	1	1	4	8	12 46.2%
Too strong	0	0	0	0	0	0	0	1	1	1	0	0	1	2	3 11.5%
TOTAL	2	3	3	2	1	2	2	3	2	2	2	2	12	14	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

With each of the focus groups interviews, the mothers / caregivers were given water measured in a bottle to show the volume clearly to the group (different quantity each time; prepared by the researcher and not the moderator), a mug and spoon, a tin with formula powder and the applicable scoop. Any one person was asked to mix in the correct quantity of formula milk for the amount of water given, while instructed by the rest of the group. It was agreed beforehand that no focus group would continue unless the whole group agreed on the method. Each group thus provided a recipe, although for different quantities of water. The correctness of the mixing method was verified by categorizing the recipes according to the correctness of the measurement (in terms of 1 scoop per 25 mL), as was done when the bottle feeding mixing method was checked.

Most of the methods given by mothers / caregivers could be categorized as incorrect (n=15, 57.7%), either being too weak or too strong. The largest number of groups mixed the milk too weak (less scoops, more water)(n=12, 46.2%). Of these responses, 67% were made by groups from the Makapanstad area and 33% from the Mathibestad area. A number of the focus groups (n=11, 42.3%) however used the correct measuring techniques. Most of these groups (63.6%) were from the Mathibestad area (n=7), and only four (36.4%) from the Makapanstad area. A few groups only (n=3, 11.5%) indicated a mixture of milk and water which was too strong (more scoops, less water); two from the Makapanstad area and one from the Mathibestad area.

It was alarming to observe that a large number of the focus groups in the 0-3/12 age category (80%) and 4-6/12 age category (40%) mixed the milk too weak. These children would probably get weak milk from early babyhood until they were weaned completely. This might indicate that these children might not get all the critical nutrients necessary, especially during the first six months of growth when no solid foods were added to the diet and during which time the infant should double his / her birth weight (14). In the other age groups, the mixing procedures varied.

Some of the mothers / caregivers mixed the milk similar to the findings of bottle mixing, where only one or two scoops less than the required number were used. Recipes included:

- 125mL water + 4 scoops milk powder
- 210mL water + 6 scoops milk powder
- 100mL water + 3 scoops milk powder

These milk mixtures were approximately ¾ strength.

Some of the other recipes given produced milk of ⅔ strength:

- 150mL water + 4 scoops milk powder
- 200mL water + 5 scoops milk powder

Some of the milk mixtures ended up being ½ or ⅓ of the strength it should be:

- 105mL water + 2 scoops milk powder
- 200mL water + 3 scoops milk powder

or even worse:

- 125mL water + 1 scoop milk powder

Only 11.5% of the mothers / caregivers indicated that they made the milk mixtures too strong, and from the recipes given it was clear that only one additional scoop was added:

- 100mL water + 5 scoops milk powder
- 125mL water + 6 scoops milk powder.

Because the mothers / caregivers mainly used formula milk or other powder milk for their children when they started to eat solid food, the milk mixing procedure should have been exactly the same as for a bottle feed (1 scoop formula per 25 mL water). The bottle feed mixing procedure was thus compared with the mug mixing procedure to determine any similarities or differences. Nine of the focus groups gave a different recipe for mixing milk for mug drinking in this Sampling unit (Weaning) than the recipe that they gave for mixing milk for bottle feeding in the Sampling unit: Bottle feeding. The other focus groups' recipes' were classified similarly for mug mixing and bottle feed mixing (correct / weak / strong). In six of the nine focus groups the bottle feed mixing procedure was correct, in two it was too weak and in one it was too strong. In nine out of nine focus groups however the mug mixing procedure they followed during weaning was incorrect and the milk was always mixed weaker compared to that for bottle feeding. This data might indicate that mothers / caregivers did not consider the quality of the milk for an older child (who drinks from a mug instead of a bottle and eats the family foods) as important as for a baby who totally relied on the milk as a source of food. They might have felt that less formula or powder might be given without any harmful effects.

It could be concluded that the mixing procedures for milk given to weaned children were much poorer than that for bottle-fed babies. The implication of this finding is even worse if it is taken into consideration that these children were also not receiving the required quantities of milk as recommended for their age

categories. Additionally, the milk given to a large number of children was too weak and would thus not fulfill the nutritional requirements and growth needs of these children. Mothers / caregivers need education regarding the use of powdered milks for their children.

✦ What is the type of water used for mixing artificial milk feeds?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Boiled, cooled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boiled	3	0	2	0	1	0	2	0	3	0	1	0	12	0	12 40.0%
Unboiled	0	3	0	2	1	4	0	2	0	2	1	3	2	16	18 60.0%
TOTAL	3	3	2	2	2	4	2	2	3	2	2	3	14	16	30

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

Mothers / caregivers were asked to specify the type of water used when they mixed milk feeds. Only type was asked in order to have a cross control on the temperature of the water (see the following probe). From these responses, only two categories of responses could be identified, namely boiled and unboiled water. None of the interpreters categorized any of the answers under boiled and cooled water. Most mothers / caregivers (n=18, 60.0%) used the water directly, i.e. unboiled. Some mothers / caregivers (n=12, 40.0%) also indicated boiling the water. It was interesting to note that nearly all the responses for using unboiled water came from the mothers / caregivers in the Makapanstad area, while all the responses for using boiling water came from the Mathibestad area. In each area all the focus groups responded in a similar manner and no distinction could be made between age categories.

✦ What is the temperature of the water used to make these milk feeds?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
Warm/lukewarm (boiled, cooled)	3	3	2	2	2	2	2	2	2	2	1	2	12	13	25 96.2%
Boiling water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cold water (as such)	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1 3.8%
TOTAL	3	3	2	2	2	2	2	2	2	2	2	2	13	13	26

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

In order to verify the afore-mentioned data, this question about the temperature of the water used was more direct . The mothers / caregivers (n=25, 96.2%) all indicated the practice of boiling and cooling water before use, with only one focus group (n=1, 3.8%) indicating not to boil the water. More research concerning these practices is needed to verify this data.

These two probes were put to the mothers / caregivers as to have a cross control on the temperature of the water. Different responses were received from the two probes although technically they were the same. With the first probe mothers / caregivers indicated that they either used boiled (40%) or unboiled (60%) water, while boiled and cooled water never were mentioned. This was in contrast with previous results (see 8.2.3. Sampling Unit: Bottle feeding) indicating that 11.5% of the mothers / caregivers used unboiled water when mixing bottle feeds, and 61.5% used boiled, cooled water. Nearly all the responses for using unboiled water came from the mothers / caregivers in the Makapanstad area and for using boiling water came from the Mathibestad area which was also similar to the previous results (see 8.2.3 Sampling Unit: Bottle feeding). These results might also be an indication of the higher level of clinic involvement in the Mathibestad area which was also noted in previous results (see 8.2.1.1 and 8.2.1.4, Sampling Unit: General knowledge on infant feeding and health). These responses on the second probe seemed to be the "correct" ones rather than the "practiced" ones. The actual practice need to be investigated or rather observed instead of accepting only the mother's account of what she does. Previous research has shown that even if people do have adequate nutrition knowledge, it does not automatically follow that they will practice their knowledge (38, 39, 106).

These answers (similar to that of the mixing techniques) were all too different between clinics to be accepted without question. It appeared that the mothers / caregivers in the Mathibestad area seemed to know all the correct answers, probably due to sufficient clinic involvement. But the results on the practices were too erratic between the different Sampling Units. The practices need to be investigated more closely in future research in order ot plan a meaningful intervention.

✦ How much milk does a weaned child get to drink on one day?

DATA CATEGORIES	RESPONSES PER AGE CATEGORY (months)														
	0-3 n=6		4-6 n=4		7-9 n=4		10-12 n=4		13-24 n=4		25-36 n=4		CLINICS - TOTAL RESPONSES		
	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	MT	MP	TOT
≤250mL	2	4	1	1	1	1	1	1	1	0	2	4	8	11	19 42.2%
251-500mL	0	0	1	3	1	1	0	2	5	4	0	2	7	12	19 42.2%
501-750mL	0	1	0	0	0	1	1	0	0	1	0	2	1	5	6 13.3%
751-1000mL	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1 2.2%
≥1000mL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	5	2	4	2	3	2	4	6	5	2	8	16	29	45

DIFFERENTIATED BY CLINIC: MATHIBESTAD = MT ; MAKAPANSTAD = MP

All the mothers / caregivers in the various focus groups had to respond to this probe with an actual quantity of milk that should be or was given to a weaned child. This was done in order to determine the average intake of milk by children who were not breast fed anymore, but were eating solid food as the rest of the family and got their milk from another source. The quantities given by the mothers / caregivers were purely guesstimates of the actual volumes consumed. The two categories mentioned most often were ≤ 250mL

were that the child was eating solid food and therefore did not rely on breast milk as his food anymore; if a child drank one cup of milk it was time to stop breast feeding; mothers lost interest. This was in contrast to the recommendation that breast feeding should be continued for at least two years; even longer if