

FINAL REPORT

Malawi



Newborn Health Program
Knowledge, Practice and Coverage Survey
for Mothers of Children 0-23 Months in Mzimba District, Malawi

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March 2007



This study and report are made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Save the Children and do not necessarily reflect the views of USAID or the United States Government.

Acknowledgements

Many individuals within the Save the Children and district health staff contributed time, technical knowledge and administrative assistance to this report. In particular, we extend special thanks to the group of individuals who helped manage and coordinate this assignment, including Evelyn Zimba, Program Manager for Newborn Health; Worku Tesfera Gudeta, Health Project Coordinator (Save the Children Ethiopia); and Karen Z. Waltensperger, Regional Health Advisor (Africa) for their enormous efforts in selecting relevant issues and indicators from the KPC 2000+ modules and assembling the survey instruments. Without their directions, this task would have been hugely difficult in searching for, finding and designing acceptable survey instruments and necessary other materials. Members of the KPC Coordination Team from the district, both government and non-government whose organizations implement health and nutrition development programs, actively participated in training the team leaders and enumerators and/or reviewed this report. These individuals included Dr Frank Sinyiza, the Mzimba District Medical Officer, and Mr Kiston Mhango, the Healthcare Advisor for Ekwendeni Mission Hospital. Getting the selected priority child health indicators right owes much to the insight, advice and critical reviews provided by La Rue K. Seims, Senior Advisor for Research and Evaluation, and George Chiundu from Save the Children M&E Lilongwe, Malawi. The willingness of the latter two individuals to share information and offer suggestions for improving the draft indicators not only added a valuable dimension to this report, but also saved time which would have otherwise been lost in correcting inaccuracies in the report. We would also like to thank all the research assistants (enumerators) for their tireless work effort and commitment to duty even working through long hours into the night. List of all the above persons and their roles is attached at Annex 6.

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March 2007

List of Abbreviations and Acronyms

AMSTL	Active Management of Third Stage of Labour
ARI	Acute Respiratory Infections
CATCH	Core Assessment Tool on Child Health
CHAM	Christian Health Association of Malawi
CI	Confidence Interval
DA	District Assembly
DEFF	Design Effect
DHO	District Health Office
DHS	Demographic Health Survey
DMO	District Medical Officer
EA	Enumeration Area
HSA	Health Surveillance Assistant
IEC	Information Education Communication
IMCI	Integrated Management of Childhood Illness
ITN	Insecticide Treated Net
KPC	Knowledge, Practices and Coverage
KPCCT	KPC Coordination Team
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
ORS	Oral Rehydration Solution
RA	Research Assistant
TA	Traditional Authority
TBA	Traditional Birth Attendants
TTV	Tetanus Toxoid Vaccination
USAID	United States Agency for International Development
VA	Vitamin A
WHO	World Health Organization

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Executive Summary

Background

The Demographic and Health Survey (DHS, 2004) shows that Malawi has made significant progress in a number of health indicators during the last 15 years preceding the survey, including some with direct bearing on maternal and child health. Yet women and children are still an at-risk and largely-neglected population in the country. Maternal and child mortality rates remain high. Infant mortality is 76/1000 live births while child mortality is 62/1000 giving an overall under-five mortality rate of 133 per 1,000. The risk of neonatal deaths (27/1000 live births) is almost twice (1.8 times) higher than the risk of post-neonatal deaths (49/1000 live births). These estimates, are however, between 27-36 percent lower than in the 15 year period prior to DHS 2004.

Objectives of the KPC

Specifically, the objectives of this KPC were to:

- Estimate Knowledge, Practice and Coverage for selected priority child health indicators for potential project indicators
- Assisting the project to identify and prioritize problems that exist within the project area and assist the project team to write and finalize their project proposal
- Developing local capacity to collect, analyze, and use information for decision-making
- Helping build consensus between the project and relevant local partners – Mzimba District Health Office (DHO) and Ekwendeni Mission Hospital.

Methods

Survey tools were adapted by Save the Children in consultation with the Africa Regional Health Advisor and a Health Project Coordinator from Save the Children Ethiopia who was on temporary duty assignment to the Malawi country office. The law in Malawi requires that any interviews with more than five people on an issue be approved by the National Statistical Office (NSO). Prior to the survey, this consent was obtained in addition to that from the District Commissioner.

The household survey primarily used indicators and questions drawn from the KPC 2000 + modules, Revised Rapid CATCH, and Minimum Activities for Mothers and Newborns (MAMAN). The instrument was translated in Tumbuka and pre-tested before taking it to the field. Six local men and women with a health background were hired as enumerators in addition to seven others with experience in surveys. To begin with, training was organized for the enumerators and survey supervisors on survey methodology and tools. They were oriented on the purpose, method and tools of the KPC survey. Training was conducted from 29 January to 1st February 2007. Even with the rainy season being at its peak, data collection was completed successfully during 2-7 February 2007, with few difficulties.

Thirty cluster sampling methodology was used. Probability proportionate to size (PPS) of census enumeration areas was used to select the clusters. In each cluster, 10 households were selected by using a spinning bottle method to collect information from women having children

less than 24 months of age. In cases where there was more than one child under the age of two in the household the youngest child was used as the index child.

After completion of fieldwork, questionnaires were collected and double-entered and verified in the database created in EPI Info (Version 6) and analyzed by using STATA statistical software. Key indicators were crosschecked for consistency and reliability.

Findings

A set of forty-one (41) indicators were selected from the Rapid CATCH to be relevant for the Mzimba KPC. Below are the results for the specific indicators by potential area of intervention.

Maternal and Newborn Health

The following are results for key indicators under maternal and newborn health activities:

Antenatal Care

Percentage of mothers with children age 0-23 months who got ante-natal care by a skilled health worker prior to the birth of her youngest child **(96%)**

Percentage of children age 0-23 months who were seen by a skilled health attendant at least 4 times or more during the pregnancy of her youngest child **(68%)**

Antenatal Counseling

Percentage of mothers who received ante-natal care who were counseled on delivery preparations **(97%)**

Percentage of mothers who received ante-natal care who were counseled on breast feeding **(94%)**

Percentage of mothers who received ante-natal care who were counseled on child spacing **(94%)**

Percentage of mothers who received ante-natal care who were counseled on immunization **(96%)**

Percentage of mothers who received ante-natal care who were counseled on danger signs during pregnancy **(89%)**

Tetanus Toxoid

Percentage of mothers with children age 0-23 months who received at least two doses of tetanus toxoid before the birth of the youngest child **(100%)**

Percentage of mothers with children age 0-23 months who received at least two doses of tetanus toxoid WHILE pregnant with their youngest child **(75%)**

Percentage of mothers with children age 0-23 months who received at least two doses of tetanus toxoid before the pregnancy of their youngest child **(87%)**

Maternal health card possession

Percentage of mothers with children age 0-23 months with a maternal card (interviewer checked) **(63%)**

Accessibility to health facility

Percentage of mothers with children age 0-23 months who reside within 5 kilometers from a health facility OR are able to get to a health facility within 1 hour **(86%)**

Knowledge of maternal danger signs during pregnancy

Percentage of mothers with children age 0-23 months who know at least two danger signs during pregnancy **(36%)**

Percentage of mothers with children age 0-23 months who first seek care from a health facility when they have danger signs during pregnancy **(97%)**

Iron Supplementation

Percentage of mothers with children age 0-23 months who received or bought iron supplements while pregnant with their youngest child **(96%)**

Place of Delivery

Percentage of mothers with children age 0-23 months who gave birth to their youngest child at a health facility **(79%)**

Percentage of mothers with children age 0-23 months who gave birth to their youngest child outside a health care facility (21%)

Skilled delivery assistance

Percentage of children age 0-23 months whose births were attended by skilled health personnel **(79%)**

Clean Cord Care

Percentage of children age 0-23 months whose delivery involved use of clean birth kit or whose cord were cut by a new razor blade **(93%)**

Active Management of Third Stage of Labor (AMSTL)

Percentage of children age 0-23 months whose births involved AMSTL by skilled birth attendant **(58%)**

Drying and Wrapping

Percentage of newborns who were dried and wrapped with warm cloth or blanket immediately after birth (before placenta was delivered) **(57%)**

Placement at birth

Percentage of children age 0-23 months that were placed with the mother immediately after birth **(40%)**

First bath

Percentage of children age 0-23 months whose first bath was delayed at least 24 hours after birth **(48%)**

Post-partum visit

Percentage of mothers of children age 0-23 months who received a post-partum visit from an appropriately trained health worker within three days after the birth of the youngest child – health facility delivery **(41%)**

Percentage of mothers of children age 0-23 months who received a post-partum visit from an appropriately trained health worker within three days after the birth of the youngest child – home delivery **(13%)**

Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within three days after birth **(44%)**

Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within three days after birth – home delivery **(8%)**

Knowledge of neonatal danger signs

Percentage of mothers of children age 0-23 months who are able to report at least two known neonatal danger signs **(29%)**

Child Spacing

Percentage of children age 0-23 months that were born at least 24 months after the previous surviving child **(91%)**

Breastfeeding

Percentage of newborns that were put to the breast within one hour of delivery and did not receive pre-lacteal feeds **(48%)**

Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours **(37%)**

Vitamin A Supplementation

Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months **(76%)**

Child Immunization

Percentage of children age 12-23 months who received a measles vaccination **(85%)**

Percentage of children age 12-23 months who received a DPT 1 vaccination before they reached 12 months **(82%)**

Percentage of children age 12-23 months who received a DPT 3 vaccination before they reached 12 months **(79%)**

Malaria

Percentage of mothers of children age 0-23 months who took an effective anti-malarial drug during pregnancy of their youngest child **(88%)**

Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after the fever began **(2%)**

Percentage of children age 0-23 months who slept under an insecticide-treated bed net the previous night (Q68=12) Malawi protocol **(64%)**

Control of Diarrhea

Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids (**12%**)

Percentage of children age 0-23 months with diarrhea in the last two weeks who were treated with zinc supplements (**0%**)

Acute Respiratory Infections

Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider (**52%**)

Water and Sanitation

Percentage of households of children age 0-23 months that treat water effectively (**21%**)

Percentage of mothers of children age 0-23 months who live in a household with soap at the place for hand washing and who washed their hands with soap at least 2 of the appropriate times during the last 24 hours (**2%**)

Anthropometrics

Percentage of children age 0-23 months who are underweight ($-2SD$ for the median weight for age, according to WHO/HCHS reference population) (**28%**)

Background

Child Survival Project

The Save the Children is implementing a national-level Expanded Impact project entitled “Expanded Impact Child Survival Project Advancing Malawi’s Road Map to Reduce Newborn Mortality” funded by USAID Child Survival and Health Grants Program. The project is known as Save the Children’s Malawi Newborn Health Program. According to the Terms of Reference, the project is part of a country-wide effort to achieve the Millennium Development Goals (MDG) 4 and 5 of reducing child and maternal mortality, integrated into a national MOH program. The project incorporates community elements that demonstrate affordable evidence-based approaches and interventions to improve newborn health.

Save the Children sent out invitations to selected individuals and/or firms to submit proposals to undertake a newborn health **Knowledge, Practices and Coverage (KPC) Survey** targeting mothers with children aged 0-23 months in Mzimba district. A KPC implies that Save the Children had wished to understand the attitude, knowledge and practices of its intended clients (mothers) in order to make their project interventions more responsive to the needs of the target group. The KPC required that the consultant employ appropriate participatory methodologies in the conduct of the study and in line with the *KPC 2000+ tool*. Indeed, it is widely accepted that participatory processes build local ownership of projects as well as improve the effectiveness of interventions and policies.

Purpose of the Mzimba KPC Survey

The primary purpose of the proposed study is to *obtain baseline data on selected indicators in order to inform project activities* of the Newborn Health Project. The aim of the Mzimba district KPC is to generate a set of 30-40 indicators to monitor and estimate the results of newborn health activities in the district.

Specifically, the objectives of this KPC were to:

- Estimate Knowledge, Practice and Coverage for selected priority child health indicators for potential project indicators
- Assisting the project to identify and prioritize problems that exist within the project area and assist the project team to write and finalize their project proposal
- Developing local capacity to collect, analyze, and use information for decision-making
- Helping build consensus between the project and relevant local partners – Mzimba District Health Office (DHO) and Ekwendeni Mission Hospital.

Process and Partnership Building

During the design of assignment, five members were identified as a focal team for the purposes of implementing the study. These members included the Regional Health Advisor (Africa), the Newborn Health Program Manager, the Monitoring and Evaluation Officer (Save the Children (Malawi)), and Health Project Coordinator (Save the Children Ethiopia). External members included a Healthcare Advisor from a Christian Health Association of Malawi (CHAM) facility within the district and a District Medical Officer from the main government district hospital. It had also been intended to have the Monitoring and Evaluation Officer from the District Assembly in the team, but due to other commitments and the short time nature of the exercise, it was not possible for the assembly to participate. This group was known as the KPC Coordination Team (KPCCT).

Collectively, the team had the following roles and key responsibilities:

- Assisted in the selection of enumerators to participate in data collection
- Developed draft survey instruments (questionnaire, interviewer instructions and Indicators and Tabulation Plan)
- Reviewing the outputs of the consultant throughout the process of the assignment
- Participated in the effective translation of the questionnaire
- Monitoring and supervision of the KPC during fieldwork
- Providing frequent feedback to the team on any desired data needs as preliminary results are fed to the management team
- In the long run, follow up on actions recommended in the KPC

In addition to this team, six (6) of thirteen (13) enumerators were provided from the district's health facilities of Ekwendeni Mission Hospital and Mzimba District Hospital. The enumerators were responsible for participating in the training, including translation of the questionnaire and pre-testing it. Furthermore, they were charged with selecting respondents and conducting

interviews with mothers of children age 0-23. More importantly, each field team was led by a district health person.

Characteristics of the potential beneficiary population

A total 300 mothers in Mzimba District whose children were aged 0-23 months old were interviewed. Sixty-three percent (184) of the mothers were aged 20-29 years. Of the 300 women interviewed, 208 (69%) and 75 (25%) had attended primary and secondary school education respectively. A similar pattern is also reflected in number of years spent in school where 213 (71%) spent at most 8 years in school. The majority of women speaks Tumbuka [284 (95%)] and is most comfortable communicating in Tumbuka [262 (87%)] than in Chichewa and Ngoni. Seventy-eight percent (233) of the households were headed by husbands/partners of the mothers interviewed and followed by 14% (43) of households that were headed by the mothers themselves. Expectedly, 78% (233) of the mothers reported living in the same household with the biological father of their youngest child – showing that as long as the husband/partner is present in the household, he culturally assumes the role of head of household. Sixty-four percent (193) of the mothers reported that they do not work outside their home to earn money. Relative to other income earners, harvesting was frequently mentioned among those women who reported working outside the home. In the event that the woman is away from home, 42% (121) of the women reported that they take the baby with them and 31% (88) reported that the child's grandmother takes care of the child.

Table 1: Background Characteristics of Mothers of Children aged 0-23 months

Characteristic	N=300	%
Age of Mother (in years)*		
< 20 years	31	10.7
20-29	184	63.2
>=30 years	76	26.1
Missing age	9	
Level of Education		
None	17	5.7
Primary	208	69.3
Secondary	75	25.0
University	-	-
Tertiary	-	-
Years in School		
0	13	4.3
<= 8 years	213	71.0
>8 years	74	24.7
Languages		
Chichewa	103	34.3
Tumbuka	284	95.0
Ngoni	11	3.7
Head of Household		
Mother (Respondent)	43	14.3

	Husband/Partner	233	77.7
	Female Relative	10	3.3
	Male Relative	10	3.3
	Other relations	4	1.3
Biological father resident in household			
	Yes	233	77.7
Means of earning money			
	No outside work	193	64.3
	Handicrafts	4	1.3
	Harvesting	49	16.3
	Business	28	9.3
	Servant/Household work	3	1.0
	Salaried work	11	3.7
	Piece Work	12	4.0

*There were 9 women who could not provide their age.

Information on the youngest child, aged between 0-23 months, of the 300 mothers interviewed was collected. Table 2 below shows the age and sex distribution. Of the 300 children, 149 (48.7%) were boys and 151 (50.3%) were girls. Thirty-seven percent (112) of the children were less than 6 months old and cumulatively, sixty-three percent of the children (188) were less than 12 months of age.

Table 2: Age and Sex Distribution of Children aged 0-23 months

Characteristic		N=300	%
Sex of Child	Boy	149	49.67
	Girl	151	50.33
Age of child (in months)	< 6	112	37.33
	6-12	76	25.33
	12-23	112	37.33

Table 3 shows sex ratios distribution by age of children and age of mother. As observed, the overall sex ratio of 0.99 is typical of a Malawi population. The table shows a normal sex ratio distribution between boys and girls except for those born to mothers aged less than 20 years but can be attributed to the small numbers in that age group.

Table 3: Sex Ratio Distribution by Age of Children and Age of Mothers

Age of child (months)	Boy N	Row %	Girl N	Row %	Total	Sex Ratio (M/F)
< 6	56	50	56	50	112	1.00
6-12	35	46.05	41	53.95	76	0.85
12-23	58	51.79	54	48.21	112	1.07
Total	149	49.67	151	50.33	300	0.99

Age of Mother (years)						
< 20 years	19	61.29	12	38.71	31	1.58
20-29	87	47.28	97	52.72	184	0.90
>=30 years	40	52.63	36	47.37	76	1.11
Total	146	50.17	145	49.83	291	1.01

Methods

Authorizations

The Malawi law requires that studies of the type of the Mzimba KPC be approved by the National Statistical Office (NSO). The approval process involves the examination of the survey questionnaire, the sampling design and overall methodology of the study. Save the Children submitted all the required documentation and consent was obtained from the NSO. In addition to the NSO consent, the District Commissioner for Mzimba also provided written authorization for the study.

Questionnaire development and administration

The survey questionnaire which targeted both the mother and the youngest child was adapted by Save the Children from questions in the KPC 2000+ modules, the Revised Rapid CATCH, and the Minimum Activities for Mothers and Newborns (MAMAN). Along with the questionnaire, an indicators and tabulation plan as well as interviewer instructions were also prepared. The instruments were then reviewed by both Save the Children and the consultant for appropriateness in meeting the stated objectives and indicators. The questionnaire was divided into 11 topical areas as follows: (i) Respondent background information, (ii) child spacing, (iii) maternal and newborn care, (iv) breast feeding and infant and young child feeding., (v) vitamin A Supplementation, (vi) child immunizations, (vii) malaria- treatment of fever of mother and child, (viii) control of diarrhea, (ix) acute respiratory infections/pneumonia, (x) water and sanitation, and; (xi) anthropometrics.

One type of questionnaire covering all topic areas was administered to all households with eligible children. The questionnaire covered issues related to the mother of the youngest child in the household as well as issues related to the child itself. To standardise the questionnaire administration, it was translated into Tumbuka, the main language in Mzimba district. All respondents were interviewed in private in order to ensure confidentiality and frank discussions. The content of the questionnaire was acceptable as there were no refusals encountered and all questions were effectively answered.

Selection, Recruitment and Training of Research Field Data Collectors

Personnel trained in quantitative and qualitative data collection methods were recruited to conduct the KPC survey. Half of the enumerators were recruited from a pool of experienced enumerators maintained at MCG while the other half, were selected from among health workers

from the survey district. The KPC team was recruited with special consideration to gender balance and mix of disciplines and qualifications. Selection of some of the interviewers from the survey district was aimed at building capacity within the district for future small scale surveys. Secondly, these individuals were better placed to know the district and its cultural issues. In total, there were 13 research assistants, including three (3) team leaders. Of the team leaders, two were women with a nursing background while the male was a clinical officer. In all, there were five (5) females of whom three (3) were practicing nurses/midwives. Of the eight (8) males, three (3) were practicing health workers. The rest of team was picked for their experience in research work.

The research assistants and supervisors involved in the survey were trained for a period of one week (including pre-testing of the questionnaires). The training covered survey objectives, sampling methodology, data collection and interviewing techniques to maintain quality data, research ethics, a review of study instrument and measurement techniques. Survey pre-testing was conducted in EAs (within Mzimba) which were not selected into the baseline survey. In addition to the survey team, stakeholders from the district and Save the Children participated in the training workshop. This mix of expertise enabled issues related survey questions to be decided upon.

Sampling design and sample size calculation

Sample size determination for the baseline survey was based on the recommended sample size used in Knowledge, Practices, and Coverage survey which is normally set at 300 (refer to KPC 2000+ manual). This is obtained in 30 clusters of 10 respondents each. This sample size is adequate for estimation of most coverage indicators in KPC survey. This survey used the same recommended sample size of 300 obtained in 30 clusters of 10 respondents each. Therefore, households with eligible children (children aged between 0 and 23 months) were targeted for the survey.

Selection of Respondents

In the Cluster Sampling Methodology, a two-stage random cluster sampling technique was used. The first level of sampling was random selection of 30 clusters (enumeration areas) using probability proportional to sample size (PPS) of the EAs. This technique involved listing all EAs with their population sizes then identifying sampling interval by dividing cumulated population by the required number of EAs (30). First EA was randomly selected within this interval and subsequent EAs were selected after adding this sampling interval to the cumulative population size of the previous selected EA until all EAs were selected. The names, codes, and other identifying factors of the clusters of the survey were obtained from the National Statistics Office, which compiled them during the 1998 population census. As an EA consists of a number of villages, the village located at the centre of the EA was selected. This village was normally a community made up with several smaller groups of households. The enumerators covered first the centre village and then moved outwards as long as they were in the same EA. Maps from NSO aided in identification of the enumeration areas and villages.

The second level of sampling was the selection of 10 households (sampling units) from each cluster. The first household for the interviews was selected by first going to the centre of the village. A bottle was then spun to determine a direction. Households in the selected direction were counted and one household randomly selected as the first household for the survey. Subsequent households were selected by going to the third nearest household on the right hand side of the main entrance of the previous household until the required sample size in that cluster was reached. In case no eligible child was found in the selected household the next nearest household with eligible child was selected. The selection of third household in this survey was meant to reduce the effect homogeneity thereby design effect (DEFF) within selected clusters. This normally helps to increase the precision of the estimates.

Each team of enumerators had a team leader who was responsible for sampling households. In each selected household with an eligible child, the mother of the youngest child in that household meeting the entry criteria was interviewed and the child was weighed. The household was eligible for inclusion if the youngest child was aged between 0 to 23 months. Depending on the age of the child, hanging scale or baby scale was used to weigh the child. All children were weighed without their clothes on. A household in the survey was defined as people living together and sharing the same cooking pot.

Measurement of Children

In order to assess the prevalence of underweight in surveyed children, the age of the youngest child was collected in months; the exact date of birth was recorded as indicated in the health passport. Where the health passport was missing, the mother was asked to recall with the help of a local calendar of events. In addition to child's age, the children were weighed and recorded in kg. Children were weighed using a 25kg hanging scale or baby scale to the nearest 100g. The accuracy of the scale was checked each day and was adjusted to zero ("0") before taking new measurements.

Data Collection and Quality Control

Three teams of four research assistants and one supervisor were formulated for data collection. Each team covered 2 clusters per day and therefore each enumerator covered a minimum of four questionnaires in a day. Time taken for completing a questionnaire ranged from 30 to 50 minutes and improved with time. The data collection took 5 days. Cluster allocation to teams was done in advance. However, some changes to cluster allocations were made due to logistical constraints. To ensure adherence to survey methodology and collection of quality data, each team was led by a supervisor who supervised the performance of the team and completion of assigned tasks.

All members of the team were responsible for ensuring that the data collected at each household was as accurate and comprehensive as possible. Interviewers checked the completed questionnaires to see if they were clearly filled out before going to the next household, ensuring that all answers were clear and reasonable, and that their handwriting is legible. At the end of the day all interviewers checked all filled questionnaires to ensure that all items are completed and skip patterns were followed before handing them over to the team supervisor. The team supervisor cross checked the filled questionnaires and any discrepancies were referred to the

enumerator for correction. Each day all team members met to review the problems encountered and areas requiring improvement.

In addition, the Health Project Coordinator and the M&E officer were part of the field team and participated in the supervision of data collection.

Data Entry, Cleaning and Analysis

Filled questionnaires were submitted to MCG data processing section. All questionnaires were checked for accuracy and consistency before being entered into computers. Before data entry, clerks were trained for two days on questionnaire content, skip patterns, and how to enter the data using the pre-designed templates. The data was double entered in Epi Info version 3.2 and took about 10 days to complete all questionnaires. For purposes of verification of the data accuracy, a program to check for consistency and range checks for errors during data entry and analysis was created. Data analysis was done using statistical software known as STATA to generate the required indicators.

Results and Discussion

Child Spacing

Indicator: Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child: 91%

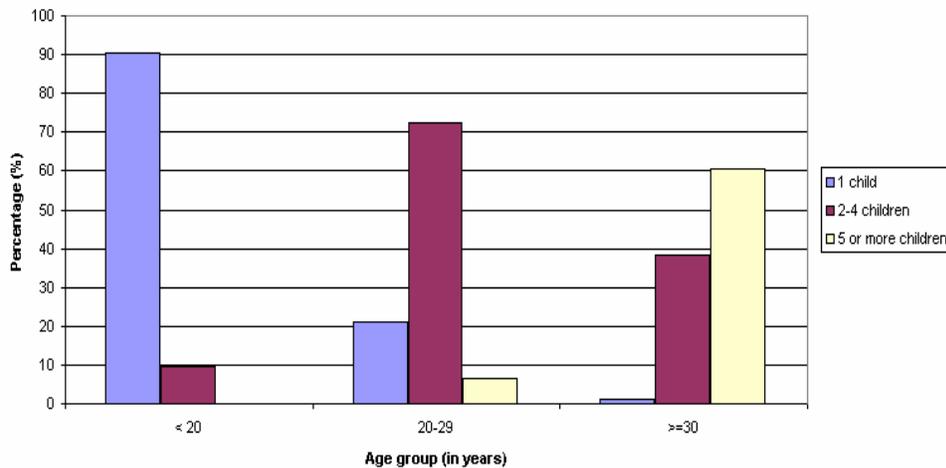
The survey sought to assess child spacing practices within Mzimba district. To obtain this information, the mothers were asked how many children had ever been born to them and the dates of birth between the youngest child and the previous surviving child. The KPC shows very high levels of practicing child spacing with 91% of children aged 0-23 being born at least 24 months apart between the previous surviving child and the youngest child.

Figure 1 below shows the distribution of number of children ever born by age of mother. The mean number of children ever born to mothers interviewed is 3.05 (SD: 1.77). As expected, the total number of children a woman has ever given birth to increases with age, with none of mothers aged less than 20 years, about 7% of those aged between 20-29 years and about 60% of those aged 30 and above having 5 or more children.

Similarly, the mean number of children ever born decreases with increasing number of years spent in school or equivalently level of education. Respectively, the mean number was 4.7, 3.2 and 2.2 for mothers who never attended school, attended primary and secondary school

The percentage of children aged 0-23 months who were born at least 24 months after the previous surviving child has been estimated at 91% (148/163). The percentage increases by age from 87% to 95% in mothers aged 20-29 and over 30 years. However, we note a decrease in the percentage with increase in years spent in school from 100% (12/12), 91% and 83% in those who have never been to school, those who have spent 8 years in school and those who spent more than 8 years respectively.

Figure 1: Distribution of number of children ever born by age of mother



Maternal and Newborn Care

As the project will promote the concept that the mother and child are a dyad and that a healthy mother is necessary for a healthy baby, interventions include the maternal continuum including antenatal care, delivery, and postnatal care. At least one antenatal care visit was universal in Mzimba District. Nearly all mothers had had at least one antenatal care visit by a skilled attendant (96%) prior to the birth of her youngest child. Only two-thirds (68%), however had received the government-recommended four visits. A program emphasis will be to increase the proportion of women who complete the recommended four visits.

The quality of the antenatal care visits appears high with the large majority of those counseled receiving counseling messages. Most received counseling on delivery preparations (97%), immunization (96%), breast feeding (94%), and child spacing (94%) and the large majority (89%) received counseling on danger signs during pregnancy. Surprisingly, although counseling on danger signs was relatively high, only 36% could recall two or more danger signs during pregnancy. Similarly, only 29% could report at least two neonatal danger signs. The quality of counseling may need to be improved. Most received or bought iron supplements while pregnant (96%). All had received at least two tetanus toxoid (TT) shots at some point in their lives, and 75% had received TT2 or more while pregnant with their youngest child. Most (87%) took antimalarials.

Essential newborn care, to be emphasized in this program, clearly has room for improvement. More than half of the mothers (52%) bathed their baby within 24 hours. Only 57% dried and wrapped their baby immediately after birth. Most newborns (60%) were not placed with their mother immediately after birth. Most importantly, very few mothers delivering at home and their babies received a checkup within 3 days after delivery. Of the 39 mothers who delivered at home, only five (13%) received a checkup within three days and only three of their newborns received a checkup during the crucial three-day period when most newborn deaths occur. Only

half (48%) breastfed their babies within one hour, and only 36% were exclusively breastfeeding in the 24 hours preceding the survey.

The following sections present the results of each of the 26 priority indicators for Mzimba KPC under maternal and newborn care intervention area.

Antenatal Care During Pregnancy

Antenatal care visits of at least 4 times to health facilities with skilled personnel are recommended to all pregnant mothers. Although most of the mothers reported that they got antenatal care by a skilled health worker, most of them had less optimal number of visits to the health facilities as shown in Table 1 below.

Table 1: Antenatal Care Indicators

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who got antenatal care by a skilled health attendant prior to the birth of her youngest child	300	289	96%
percentage of mothers with children age 0-23 months who were seen by a skilled health attendant at least 4 or more times during the pregnancy of her youngest child	300	203	68%

Antenatal Counseling Indicators

Health education and counseling are normally given during antenatal visits, counseling might cover areas on delivery preparations, breastfeeding, child spacing, immunizations, and danger signs that occur during pregnancy. In the district, most of respondents reported having counseled in these areas as shown in Table 2 below.

Table 2: Areas Mothers are Counseled on during Antenatal Visits

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months receiving antenatal care who were counseled on delivery preparations	289	281	97%
percentage of mothers with children age 0-23 months receiving antenatal care who were counseled on breast feeding	289	272	94%
percentage of mothers with children age 0-23 months receiving antenatal care who were counseled on child spacing	289	273	94%
percentage of mothers with children age 0-23 months receiving antenatal care who were counseled on immunization	289	276	96%
percentage of mothers with children age 0-23 months receiving antenatal care who were counseled on danger signs during pregnancy	289	258	89%

Tetanus Toxoid Indicator

Tetanus toxoid vaccination (TTV) is recommended to all childbearing or pregnant mothers. All the surveyed mothers had received at least two TTV before the birth of the youngest child. 75% of them received the TTV during the pregnancy of the child and 87% received before the pregnancy of their youngest child as shown in Table 3.

Table 3: Tetanus Toxoid Vaccination to Mothers of Youngest Child

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who received at least 2 tetanus toxoid vaccinations before the birth of their youngest child	300	300	100%
percentage of mothers with children age 0-23 months who received at least 2 tetanus toxoid vaccinations WHILE pregnant with their youngest child	300	225	75%
percentage of mothers with children age 0-23 months who received at least 2 tetanus toxoid vaccinations BEFORE the pregnancy of their youngest child	300	260	87%

Maternal Health Card Possession Indicator

Possession of maternal cards in the surveyed community was reported at 63% as shown below. The cards are necessary for documenting all maternal care rendered to the mother including vaccinations. Hence mothers without documented vaccinations for instance TT vaccine would be given again despite being given before. This increases wastage and work load.

Table 4: Maternal Possession of Health Cards

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months with a maternal card (interviewer confirmed)	300	190	63%

Accessibility of the Health Facility

Good access to health facilities has shown to be positively correlated to disease notifications at the health facilities (Bello et al 2005). Mothers are more likely to go to health facilities if they require medical treatment. Access to a health care facility was high, with 86% residing within 5 km. or one hour of a facility. Most (93%) had a clean cord cut, not surprising with such a high facility birthrate.

Table 5: Accessibility to Health Facilities by Mothers of Children Below 24 Months

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who reside within 5 kms from a health facility OR are able to get to a health facility within 1 hour	300	257	86%

Maternal Knowledge of Maternal Danger Signs during Pregnancy

Maternal knowledge of possible dangers during pregnancy and seeking care from a health facility prevents further complications during pregnancy. In this survey, only 36% of the mothers knew at least two danger signs during pregnancy. However, most the mothers reported that would first seek care from a health facility if they had the danger signs as shown in Table 6 below.

Table 6: Maternal Knowledge of Maternal Danger Signs during Pregnancy

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who know at least two danger signs during pregnancy	300	108	36%
percentage of mothers with children age 0-23 months who first seek care from a health facility when they have danger signs during pregnancy	300	292	97%

Iron Supplementation

Iron supplementation during pregnancy is recommended for all pregnant mothers for prevention of maternal anemia. In the present survey, 96% of the mothers reported having received iron tablets during their pregnancy.

Table 7: Iron Supplementation of Mothers

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who received or bought iron supplements while pregnant with the youngest child	300	287	96%

Indicator for Place of Delivery

In the survey, number of the children delivered at the health facility (hospital, private clinic or health centre) and those delivered at home (mother's home, other home, traditional birth attendant or on the way to the hospital) were assessed. Home deliveries are prone to maternal death due to delivery complications that might not promptly be attended to by a skilled provider. The majority (79%) (238) gave birth at a health facility with a skilled attendant, much higher than the Malawi average of 57% (DHS, 2004).

Table 8: Place of Delivery

Indicator	Denominator	Numerator	%age
percentage of mothers with children age 0-23 months who gave birth in a health facility	300	238	80%
percentage of mothers with children age 0-23 months who gave birth outside a health care facility	300	62	21%

Indicator for Skilled Delivery Assistance and Clean Cord Cutting

Of the children born at a health facility all of them were attended by a skilled health worker (medical doctor, nurse/midwife or clinical officer/medical assistant). Use of clean birth cut in the district was high as shown in

Table 9 below probably due to good awareness of infection prevention messages or just a reflection of maternal knowledge of infection prevention and not necessarily what was actually done.

Table 9: Skilled Birth Attendant and Clean Cord Cutting in Newborns

Indicator	Denominator	Numerator	%age
percentage of children age 0-23 months whose births were attended by skilled personnel	300	238	79%
percentage of children age 0-23 months whose delivery involved use of a clean birth kit or whose cord was cut with a new razor blade	300	280	93%

Active Management of Third Stage of Labor (AMSTL)

Active management of third stage of labor (AMSTL), which involves the mother being given an injection that prevents heavy bleeding, skilled birth attendant using controlled traction on the placenta and massaging the uterus after placenta delivery to prevent heavy bleeding, was only reported in 58% of mothers who delivered at health facility. Use of this technique in health facilities during deliveries helps to reduce maternal death due to severe blood loss (haemorrhage) which is one of the contributing factors of maternal mortality in mothers giving birth especially at home.

Table 10: Active Management of Third Stage of Labor

Indicator	Denominator	Numerator	%age
percentage of children age 0-23 months whose birth involved AMSTL by skilled birth attendant	238	138	58%

Wrapping, Placement and First Birthing of Newborns

Of the children surveyed 57% were wiped and wrapped with warm cloth immediately after birth and that 40% of the surveyed children were placed with the mother. First bath of them was delayed for at least 24 hours after delivery in 48% of the children as recalled by the mother (Table 11). It is recommended that all newborns need to be placed with their mothers and first bathing of the newborn be done at least after 24 hours.

Table 11: Newborn Drying, Placement and First Bathing

Indicator	Denominator	Numerator	%age
percentage of newborns who were dried and wrapped with warm cloth or blanket immediately after birth (before placenta was delivered)	300	171	57%
percentage of children age 0-23 months who were placed with the mother immediately after birth	300	121	40%
percentage of children age 0-23 months whose first birth was delayed at least 24 hours after birth	300	145	48%

Indicator for Post-Partum; Natal Visit

Regardless place of delivery, mothers and their newborn are supposed to be checked up by skilled health worker within three days for better care in case of any complications. In the present survey, overall only 41% for mothers and 44% children received a postnatal check up within three days of delivery by a trained health worker. When the two were disaggregated by either the children born delivered at health facility or at home, the proportions were as shown in Table 12: Postpartum Check-Ups for Mothers and Newborns below.

Table 12: Postpartum Check-Ups for Mothers and Newborns

Indicator	Denominator	Numerator	%age
percentage of mothers of children age 0-23 months who received a post-partum check up by an appropriate trained health worker within three days after the birth of the youngest child	300	123	41%
percentage of mothers of children age 0-23 months who received a post-partum check up by an appropriate trained health worker within three days after the birth of the youngest child – HOME DELIVERY	39	5	13%
percentage of children age 0-23 months who received a post-natal check up by an appropriate trained health worker within three days after birth	300	131	44%
percentage of children age 0-23 months who received a post-natal check up by an appropriate trained health worker within three days after birth - HOME DELIVERY	39	3	8%

Knowledge of Neonatal Danger Signs

Knowledge of danger signs for newborn by mothers or caretakers is essential for prompt health seeking thereby averting early childhood death. In the survey district (Table 16 below), only 29% of the mothers of surveyed children were able to report at least two danger signs that would indicate the child was ill. There is need to increase education awareness of this knowledge through programmatic interventions in the district.

Table 13: Indicator for Knowledge of Neonatal Danger Signs

Indicator	Denominator	Numerator	%age
percentage of mothers of children age 0-23 months who are able to report at least two known neonatal danger signs	300	88	29%

Breastfeeding/Infant and Child Feeding

While breastfeeding is almost universally practiced in the district where 298 children out of the 300 (99.3%) children surveyed were ever breastfed, necessary breast feeding practices are poor in the district. As shown in

Table 14 below, only 48% of the children age 0 – 23 months were breast fed within the first one hour of life and that they were not given prelacteal feeds. Exclusive breastfeeding in children below 6 months was only practiced in 37% of the surveyed children aged below 6 months.

Table 14: Breastfeeding/Infant and Child Feeding

Indicator	Denominator	Numerator	%age
percentage of children age 0-23 months who were put to the breast within one hour of delivery and did not receive prelacteal feeds	300	145	48%
percentage of infants age 0-5 months who were exclusively breast fed in the last 24 hours	112	41	37%

Vitamin A Supplementation

Indicator: Percentage of children age 6-23 months who received a Vitamin A dose within the last 6 months: 76%

The data show that overall, almost 4 children in 5 of age 6-23 months have received a dose of vitamin A supplementation. Table 15 shows vitamin A Supplementation among 6-23 months children within the last 6 months by sex. The results show that 76% of children had received a dose of vitamin A, the percentage for male children was 78% while for females children were 74%.

Table 15: Vitamin A Supplementation among children 6-23 months within the last 6 months by sex

Sex	% Children who received Vitamin A supplementation dose	Total Number of Children who received Vitamin A supplementation	Total Number of Children
Male	74	69	93
Female	78	74	95
Total	76	143	188

Child Immunization

This section presents data on vaccinations coverage for measles, DPT1 and DPT3 among children 12-23 months, the age range by which children should be fully vaccinated. The information on vaccination coverage was collected from vaccination cards shown to interviewers by the mothers/caregivers of the children and from the verbal reports of the mothers/caregivers. The results of the surveys indicate that 90% of the child vaccination cards or child health booklets were seen by the interviewers.

Indicator: percentage of children age 12-23 months who received a measles vaccination: 95%
Table 16 below presents information on percentage of children age 12-23 who received a measles vaccination according to the source of information by sex. Based on the information from the vaccination health cards, it is estimated that 40 % of these children had received the measles vaccination while based on information from mothers 44 % had received the measles vaccination. Variation by sex.

Table 16: Measles Vaccinations by Sex of Child

Sex	Information based on vaccination cards/ health booklet	Information based on mother's report
Male	39.6 % (59/149)	56% (57/102)
Female	40.4% (61/151)	56% (55/98)
Total	40.0 (120/300)	56% (112/200)

Indicator: percentage of children age 12-23 months who received DPT1 vaccination before they reached 12 months: 82%

Indicator: percentage of children age 12-23 months who received DPT3 vaccination before they reached 12 months: 79%

Table 17 below shows numbers and percentage of children 12-23 months who had received DPT1 and DPT3 vaccines at any time before the survey and percentage vaccinated by 12 months of age. Overall, 79% of all children 12-23 months had received DPT1 at any time before the interviews while slightly over two-thirds had received DPT3 based on the information from health booklets/ vaccination cards. Out of the children age 12-23 months who had received DPT1 and DPT3 at any time before the interviews, 82% and 79% had received DPT1 and DPT3 respectively before their first birthday (that is before 12 months of age).

Table 17: Number and Percentage of Children 12-23 Months who Received DPT 1 and DPT3 before their First Birthday

Indicator	Vaccine		
	DPT1	DPT3	
Percentage Vaccinated by 12 months of age	79%	65%	
Number Vaccinated by 12 months of age	92	88	

Malaria – Treatment of a Child with Fever

Indicator: Percentage of mothers with children age 0-23 months who took an effective anti-malarial drug during the pregnancy with the youngest child: 88%

In the survey, mothers who received antenatal care in the last 2 years before the surveys were asked whether they took any effective anti-malarial drug while pregnant with the youngest child. The survey results show that over 8 women in every 10 did take an effective anti-malarial drug during the pregnancy with the youngest child. The results further indicate that there is slight variation among the percentage of mothers who took the anti-malarial drug during the pregnancy with the youngest child by their level of education as shown in Table 18.

Table 18: Mothers Taking Effective Anti-Malarial Drugs during Pregnancy by Level of Education

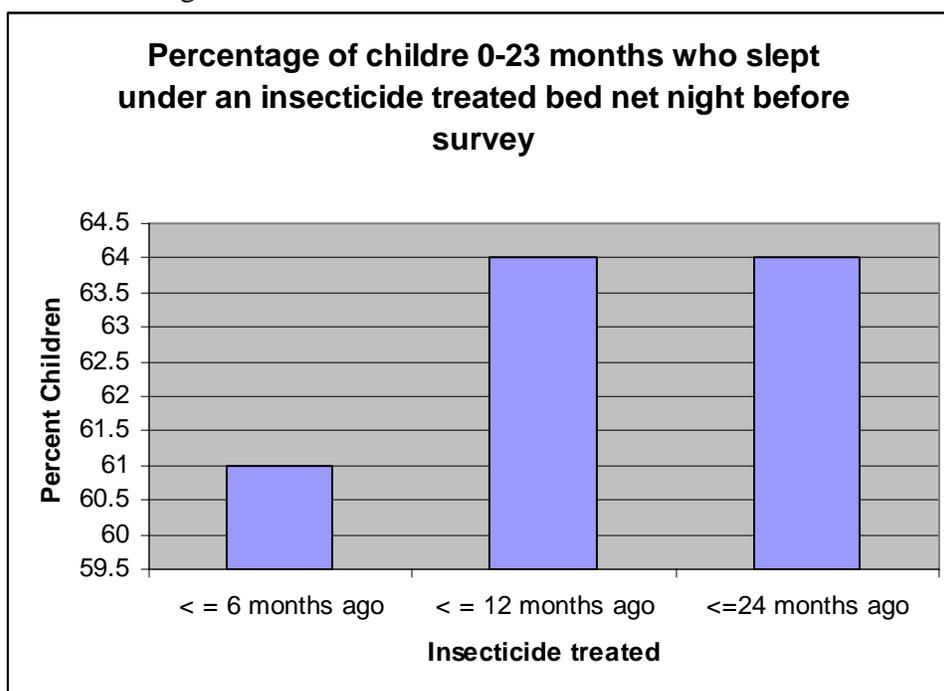
Level of Mothers' Education	Percentage who took effective anti-malarial drug
Education level of mother	
None	
Primary	94%
Secondary	92%
	93%
Total	88%

Indicator: Percentage of children age 0-23 with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after fever began: 2%

In the survey the mothers were asked whether their children had been ill with fever at any time in the last 2 weeks preceding the survey. The data show that less than half (44%) of the children age 0-23 months were reported to have had a fever in the two weeks preceding the survey. Among the children with symptoms of fever, 84% sought treatment for the fever and almost all of them (99%) took some drug for the fever but it was only 2% of these children who were treated with an effective anti-malarial drug with 24 hours.

Indicator: Percentage of children age 0-23 who slept under an insecticide treated bed net on night before the survey. The survey also gathered information on the ownership of mosquito nets that could be used while sleeping in the households. For those households that reported that they have a mosquito net the respondents were also asked whether anyone slept under the mosquito on the night before the survey. The data show that almost 79 percent of the households interviewed have at least a mosquito net while 21 percent do not have. About 97 percent of the children age 0-23 slept under a mosquito net the night before the survey, among them 89 percent were reported by their mothers as having slept under an ever soaked or dipped in a liquid treated to repel mosquitoes or bugs. About two-thirds of the mosquito nets were last soaked 12 months and 24 months ago as seen in Figure 2 below.

Figure 2: Percentage of children sleeping under treated bed net the previous night by period of soaking



Water and Sanitation

The study sought to find out assess whether the household uses an improved supply point for drinking water. A protected water source means that measures are in place to prevent water from becoming contaminated, especially through runoff. Protected wells, boreholes and piped water are considered improved water sources. On the other hand, unprotected water sources include rivers, unprotected wells, dams and ponds. On sanitation, this survey only targeted hygiene practices of the mothers of children age 0-23 as it relates to occasions when they have to wash their hands and whether they use soap at all. The indicators of key interest in this survey are shown in the table below.

Table 19: Child Health Indicators for Water and Sanitation

Description of Indicator	Denominator	Numerator	(%)
Percentage of households of children age 0-23 months that treat drinking water effectively	33	7	21
Percentage of mothers of children age 0-23 months who live in a household with soap at the place for hand washing and who washed their hands with soap at least 2 of the appropriate times during the last 24 hours	300	5	2

Safe Drinking Water

Water plays an important role in determining the health status of newborn children. Use of unprotected sources of water, such as rivers and unprotected wells increases the risk of spread of

water-borne diseases such as Diarrhoea and intestinal parasites. These infections may in turn affect the nutritional status of the child and household. The results also show that a small proportion of households obtained water from unprotected sources in Mzimba (11.0%) while approximately 33% and 56% had access to clean water from taps and boreholes, respectively. Thus, nearly 90% of households have access to clean and improved water sources as compared to a national average of 64% (DHS, 2004). Households that use unprotected sources of water should be taught ways of treating the water to make it safe for drinking. Only about 3.3% compared to a national average of 8.0% depend on rivers for their major source of drinking water.

Table 20 : Household Sources of Drinking Water shows the breakdown for access to drinking water.

Table 20 : Household Sources of Drinking Water

Water source	Total	Percent (District)	DHS (National)
Tap	98	33	20
Borehole	169	56	44
Unprotected well	23	8	25
River	10	3	8

Source: KPC and DHS (2004)

Drinking Water Treatment Methods

Beside using an improved water supply and storing drinking water safely, treating this water through physical or chemical means can further reduce the risk of contamination. Households may use one type of treatment or a combination depending on the method. All methods used were recorded without attempting to know how regularly and effectively they treat their drinking water. Table 3 shows that only 11.56% of the households treat their drinking water and that for these, boiling is the most commonly used method (54.84%) followed by adding chemicals (46.67%) and straining water through cloth (10.34%). Methods which are not used include sedimentation, water filter (whether ceramic, sand or composite) and solar disinfection

Hand washing Places and Maternal Practices

Hand washing is one behavior that can substantially reduce the risk of disease transmission. Mothers were asked whether their households had a special place for hand washing. However, the existence of a hand-washing facility will not reduce the risk of disease if individuals do not practice appropriate hand-washing behavior. The table below shows that households rarely have dedicated places for hand washing. More than half of the households (52%) do not have a specific place where they usually wash their hands. Of those that had specific places, in about one-third (31%) the place is within their yard, 10% have them outside the yard, 6.3% are near a cooking place and only one percent are inside or near a toilet.

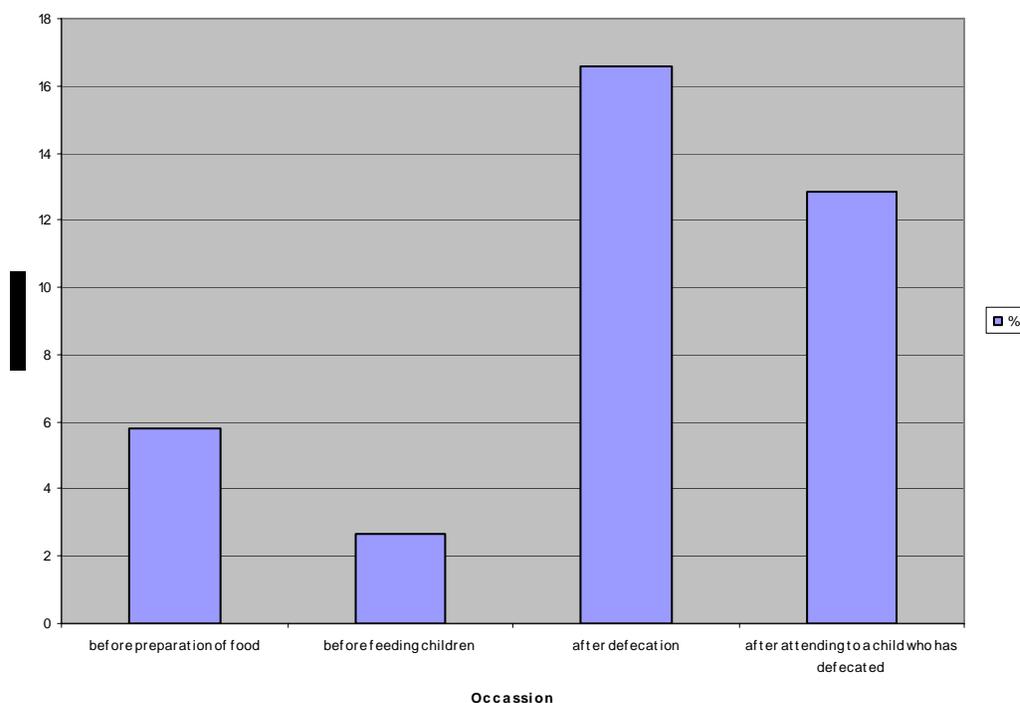
Table 21: Position of Hand washing Places

Position of Hand washing place	Total	Percentage (%)
No specific place	155	52%
Elsewhere in yard	93	31%
Outside yard	30	10%
Inside/near kitchen/cooking place	19	6%
Inside/near toilet facility	3	1%
Total	300	100%

The mothers were asked for their permission for the interviewer to see and observe the hand washing place. The purpose of the observation was to establish whether there was in place soap or any other locally used cleansing agent when washing hands. The possible responses were soap, detergent, mud/sand, ash and none. In the absence of the cleansing agent, the mothers were asked to bring it within one minute; otherwise it was considered that the household do not usually use the item at the hand washing place. The essence of this is that if they cannot bring it within the shortest possible time, the likelihood that they use it for hand washing is low. In total, 148 households allowed the inspection of their usual hand washing places. In the majority of the cases {(90) (approximately 61%)}, households did not have in place any hand cleansing agent. Substantially, however, about 38% had soap in place.

Hand washing with soap is one behavior that can substantially reduce the risk of disease transmission. In order to assess whether the mother had used soap to wash her or her child's hands during the last 24 hours, they were asked under what occasions. Approximately 88% (190) of the respondents had used soap in the last 24 hours before the interview. Only when the mother mentions that they used soap for washing their hands or that of their children did the survey proceed to assess the occasion among the following four cases (i) before food preparation, (ii) before feeding children, (iii) after defecation and; (iv) after attending to a child who had defecated. Figure 3: Occasions for mothers wash hands with soap shows that in the majority of cases when mothers used soap, they or their child had defecated (29%). It further shows that it is rare to wash hands with soap when one wants to prepare food (6%) or to feed children (3%).

Figure 3: Occasions for mothers wash hands with soap



Control of Diarrhoea

Diarrhoea is one of the leading causes of death among children of age 0-23 months in Malawi. In addition to improving the mother's knowledge in appropriate breastfeeding practices, measles immunization, improved water and sanitation utilization, diarrhoea is commonly managed through use of oral rehydration therapy. The common supplies are commercially available oral rehydration solution (ORS) or home made fluids. In addition to this, diarrhoea may be treated with zinc supplements, but this has not been accepted by the MOH in Malawi. Other medications used (most often inappropriately) for diarrhea include antimotility, injection, intravenous fluid and home-made remedy/herbal medicines; as well as antibiotics such as flagyl, bactrim, amoxicilin or tetracycline.

Use of ORS, Home Fluids and Syrups

Indicator: Percentage of children age 0-23 months with diarrhoea in the last two weeks who received Oral Rehydration solution and/or home made fluids: 12%

The survey shows that about 37% (110) of the children age 0-23 had had diarrhoea in the last two weeks. In 48% of cases of diarrhoea, an ORS liquid and/or home-made fluid was given to the child. Nevertheless, this shows a very poor level of knowledge and practice by mothers on what nutrition action to take when their child is sick. The table shows that out of a total of 110 mothers of ill children in the survey, 97 (88%) mothers used a fluid to treat their children of whom 51 mothers (53%) at least used ORS to treat the illness, while 46 (47%) never used it. Similarly, of 85 mothers who responded to whether they had used a home-made fluid, 35 (41%) had used it while 50 (59%) had never. Furthermore, 28 mothers also treated their children with

an antibiotic. The use of antibiotics appears to move with age as the practice becomes more prevalent the older the age group as can be seen for less than 20 years (0%), 20-29 years (64%) and 71% for those 30 years and older.

Zinc Supplementation

Indicator: Percentage of children age 0-23 months with diarrhea in the last two weeks who were treated with zinc supplements (0.00%)

Zinc is an essential micronutrient in human growth, maintenance of the immune system and child development. Zinc supplements are said to be very effective in treating acute cases of diarrhoea. There was virtually no one who used zinc supplementation for control of diarrhoea. The MOH of Malawi has not authorized treatment of diarrhoea with zinc supplements.

Use of Other Medication

Antibiotics such as flagyl, bactrim and amoxicilin were also a popular, though inappropriate, remedy in treating diarrhoea. Twenty-seven mothers, (25%) who treated their babies with ORS or homemade fluids, also provided them with an antibiotic, 4 (3.6%) also treated their babies with traditional herbal medicine while another combined 3.6% used injection, intravenous fluid (drip) and antimotility medication.

ARI/Pneumonia

Indicator: Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider (52%)

Acute respiratory infections (ARI)/pneumonia is one of the killer diseases of under two years of age children. The survey assessed the knowledge of mothers whether they know the danger signs that seek immediate treatment. The danger signs included trouble in breathing, breathing faster than usual with short fast breaths. Mothers were also asked for their treatment seeking behaviour during the illness of their child.

Prevalence of Coughs and Seeking Medical Care

Prevalence of cough in the last two weeks prior to the interview was at 55% (164/300) of children age 0-23. Of these, 81 (49%) had trouble in breathing or would breath faster than usual with short, fast breaths. When a child had a cough, 38% (62/164) sought advice for the cough or fast breathing with the majority seeking advice from a nurse (31%), a doctor (24%), clinical officer/medical assistant (18%). Virtually none of the mothers ever sought advice or treatment from a Health Surveillance Assistant (HSA).

Anthropometrics

Indicator: Percentage of children age 0-23 months who are underweight (-2SD for the median weight for age, according to WHO/HCHS reference population) (28%). At the end of the interview, the mother was asked for permission to weigh their child. All 300 mothers gave permission and their children were weighed. Prevalence of underweight was calculated in 271 of CS-22, Malawi, Detailed Implementation Plan, April 2007 (Revised August 2007)

the 300 children. The 29 children were excluded because they were flagged. Underweight was estimated at 27.7 (95% CI; 22.5 – 33.5%) in the district among children 0 – 23 months.

Table 22: Percentage of Children 0-23 Months Old Who are Underweight

Indicator	Denominator	Numerator	%age
percentage of children age 0-23 months who are under weight (-2 standard deviations for median weight for age according to WHO/HCHS reference population)	271	71	28% (95% CI; 22.5 – 33.5%)