



Republic of Kenya



Rapid CHILD SURVIVAL INDICATOR SURVEY in Nyanza and Western Provinces

Using the Lot Quality Assurance Sampling (LQAS)
Methodology

National Coordinating Agency for Population and Development
Ministry of Public Health and Sanitation
Ministry of Medical Services

June 2009



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LIST OF ABBREVIATIONS

AL	Artemether lumefantrine
ANC	Antenatal care/clinic
APHIA	Aid Population Health Integrated Assistance
ARI	Acute respiratory infection
DRH	Division of Reproductive Health
DVI	Division of Vaccines and Immunizations
HQ	Headquarters
ICC	Interagency Coordinating Committee
ITN	Insecticide treated (bed) net
KDHS	Kenya Demographic and Health Survey
KSPA	Kenya Service Provision Assessment
LQAS	Lot quality assurance sampling
MDGs	Millennium Development Goals
MOPHS	Ministry of Public Health and Sanitation
N/A	Not available
NCAPD	National Coordinating Agency for Population and Development
ORS	Oral rehydration salts
RPC	Regional Population Coordinator
SA	Supervision area
SPSS	Statistical Package for Social Scientists
TOT	Training of trainers
TT	Tetanus toxoid
USAID	United States Agency for International Development
VIP	Ventilated improved pit (toilet)
WHO	World Health Organization

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Dr. Boniface K'Oyugi

Chief Executive Officer

National Coordinating Agency for Population and Development

EXECUTIVE SUMMARY

Child survival, which refers to survival of children aged 0–5 years, is a major public health concern in most African countries. It is estimated that more than 26,000 children under the age of five die around the world on a daily basis mostly from preventable causes such as acute respiratory infections, diarrhoea, measles, malnutrition and neonatal conditions. Over a third of these children die during the first month of life, usually at home and without access to essential health services.

Kenya has one of the highest numbers of newborn deaths in the African region. The neonatal mortality rate is 33 per 1,000 live births with approximately 43,600 deaths occurring annually. There are wide disparities in mortality rates existing across the country, and an alarming 1 in every 14 babies born in Kenya will die before their first birthday and 1 in 9 before their fifth birthday.

There is evidence suggesting that cost effective child survival interventions needed to reduce child mortality by two-thirds, as stated in the Millennium Development Goals, are available but are not reaching the mothers and children who need them. Such interventions include breastfeeding, the use of insecticide treated bed nets (ITNs), complementary feeding, oral rehydration therapy and proper use of essential medication. The Child Survival and Development Strategy (2008–2015) developed by the Ministry of Public Health and Sanitation together with partners therefore recognizes the need to increase coverage of such interventions.

Using the lot quality assurance sampling (LQAS) methodology, this survey aimed at collecting baseline data on child survival indicators in a representative household random sample of Western and Nyanza Programme areas. The indicators were surveyed in reference to the following services; water and sanitation, skilled care during antenatal care, childbirth, postnatal care and breastfeeding practices. The survey also examined mothers and children access to child health services such as acute respiratory infections (ARI), fever, malaria, diarrhoea, immunization and the use of ITNs.

The survey findings reveal that the average coverage of child survival indicators assessed was generally low in the two programme areas. Skilled attendance average coverage is seen to be less than 50 per cent for both provinces. Access to skilled care, postnatal care, complete immunization and especially hand washing are the indicators with the lowest average coverage in both programme areas. Ndhiwa, Budalangi and Teso North supervision areas stand out as those with the lowest indicators in general.

Concerted action is required to address the very low child survival indicators in the two provinces. Cost-effective interventions for reducing child mortality are well documented. Urgent resources and initiatives therefore need to be put in place to implement these interventions. Measures also have to be put in place to ensure that these interventions reach the women, newborns and children who need them and are currently excluded from these essential interventions.

1. BACKGROUND

With technical and financial assistance from MEASURE Evaluation, The Ministry of Public Health and Sanitation through the Division of Child and Adolescent Health conducted a baseline survey on Child Survival in areas of Western and Nyanza provinces supported by the Aid Population Health Integrated Assistance (APHIA) II project. The main aim was to get a baseline on child survival indicators before the start of implementation of programmes targeting three areas. These areas are promotion of breastfeeding, prevention and management of diarrhoea and immunization. The survey applied the lot quality assurance sampling (LQAS) methodology in collecting the data. The LQAS methodology was developed in the 1920s to control quality of output in industrial production processes. It involves assessment for quality of a small sample of items from a manufactured batch (which is referred to as a “lot”). If the defective items in the sample exceed a predetermined number (decision rule), then the lot is rejected. The sample size and its corresponding decision rule are statistically determined on the basis of the desired production standards. The sample size chosen is usually that which gives the production manager high probability of accepting lots that meet the quality standards and of rejecting substandard lots.

The LQAS was adapted for use in the public health arena in the mid 1980s. In Kenya, it has been applied on different studies in Kilifi and Nakuru districts. The analysis is relatively simple and can assist in providing a decisive judgement about whether targets have been met and to locate poorly performing areas for informed decisions. The methodology uses a small sample of 19 interviews per supervision area.

1.1 Survey Organization

The Aid Population Health Integrated Assistance (APHIA) is the umbrella term for projects supported by the United States Agency for International Development (USAID) in the provinces. This study covered the Western and Nyanza APHIA project regions. Each region was considered as a programme area, while the districts covered by each region were considered as supervision areas. In the Western region, the supervision areas were Budalangi, Teso North, Teso South, Busia and Samia. The Nyanza region was constituted by the supervision areas of Gucha, Homa Bay, Ndhiwa, Rachuonyo and Rongo.

The Rapid Child Survival Indicator Survey, using LQAS, was among the first of its kind to be conducted in the two provinces where the APHIA programmes are operating. The survey was carried out by the National Coordinating Agency for Population and Development (NCAPD) in collaboration with the Ministry of Public Health and Sanitation (MOPHS). Financial and technical assistance for the survey was provided by USAID through MEASURE Evaluation (University of North Carolina). Survey preparations involved extensive consultations on the design to get input from MOPHS and APHIA on the ground.

1.2 Survey Objectives

The main survey objective was to collect baseline information on child survival indicators in sampled areas of Western and Nyanza provinces using the LQAS methodology to guide programme managers and policy managers in making informed decisions. Specifically, the

survey assessed different age cohorts of children under five years for antenatal and postnatal care, nutrition, immunizations, and common childhood illnesses (fever, malaria, cough, diarrhoea, eye discharge).

1.3 Methodology

LQAS is a statistical sampling methodology that involves assessment of a small sample of a population to provide an accurate measure of coverage or health system quality at the programme area level and to identify supervision areas not meeting programme benchmarks. The sample size and the corresponding decision rule are statistically determined on the basis of desired programme benchmarks that optimize the programme manager's probability of identifying the supervision areas that do not meet the programme target.

This methodology is used to estimate individual-level results. It assists programme managers to quickly identify and prioritize issues that need attention, helping to delineate under-performing supervision areas (SAs) from those that meet the programme benchmarks. The methodology makes it possible to gauge whether the targets have been met and if not, to see which areas need more focus. It also provides accurate an measure of coverage for the whole programme area.

Other definitions that contribute to an understanding of the survey methodology include:

- **Supervision area (SA):** Catchment area or programme unit to be assessed or monitored.
- **Coverage:** Proportion with desired outcome in an indicator in a SA.
- **Coverage benchmark:** A preset minimum acceptable coverage level.
- **Average coverage:** Proportion showing desired outcome in the whole programme area (across all SAs).
- **Decision rule:** The number in a given LQAS sample size that corresponds to a specific coverage level.

1.4 Survey Instruments

Questionnaires used in the survey were adapted from tools developed by the World Health Organization (WHO), the MACRO ICF, the Kenya Child Survival and Development Strategy and others used in surveys on child survival. Input was sought from a wide range of people who work in the specific programme areas and deal with the specific indicators.

The *sampled point household response record* was used to track the number of households that the interviewer visited before completing all the survey tools for the respective sampled point. The interviewers recorded the number of the household where they started and after asking whether there were any children under five years, recorded them as per the classification. After the numbers of all eligible children who live in the household were listed for each category, consent was sought to interview the mother of the eligible children. Following the interviews, the interviewers then recorded the categories interviewed.

Nine questionnaires were used:

1. LQAS base tool for mothers of children under 2 years
2. LQAS subsample 1 (mothers of children aged 0–5 months)
3. Subsample 2 (mothers of children aged 6–23 months)
4. Subsample 3 (mothers of children aged 12–23 months)
5. Subsample 4 (mothers of children aged 0–23 months with cough)
6. Subsample 5 (mothers of children aged 0–23 months with fever)
7. Subsample 6 (mothers of children aged 0–23 months with diarrhoea)

8. Subsample 7 (mothers of children aged 24–59 months)
9. Subsample 8 (mothers of children aged 0–59 months with eye discharge)

1.5 Overview of the Trainings

A training of trainers (TOT) workshop was held from 11 – 14 March 2009 to equip the training team with knowledge and skills that would enable them to understand the sampling techniques of LQAS and the survey indicators and instruments; and to systematically organize the training of the data collection team. The TOT team was drawn from NCAPD, MOPHS and experienced interviewers who had participated in previous national surveys. Some interviewers who were to conduct the pretest also participated in the TOT. MEASURE Evaluation hired a facilitator with experience in LQAS methodology for the TOT.

Following the TOT workshop, those trained conducted the field pretest in Nyanza. They formed three teams each, with each team consisting of one Regional Population Coordinator (RPC), an interviewer and an NCAPD headquarters (HQ) officer. The reason for combining the TOT and the pre-test was because this is a new methodology to most people and there was need for everybody to understand the process before the main training. The main objectives of the pre-test were to: Take the pre-test team through the sampling process; use the instruments to ensure uniform understanding of the groupings of the indicators; enable the teams to conduct the process and interview in a uniform manner; ensure proper flow and order of the questions; synergize the interview process; and build capacity of the TOTs.

The team agreed to have the pre-test in a central place and this happened to be Nyanza. The RPC for Nyanza North organized the pre-test of the survey in Kisumu East District. This district has two divisions, Kombewa and Maseno. The RPC and the District Officer randomly settled on Maseno Division as the site of the pretest. The division has four locations, Otwenya, East Seme, West Seme and North West Kisumu locations. They then randomly selected Otwenya location for the pre-test, and since Otwenya location has three sub-locations – West Kolunje, East Kolunje and South Ratta – they randomly selected Kolunje sub-location for the pretest.

Kolunje location has four villages: Lung'a with 110 homesteads; Ombo with 70 homesteads; Mbeka with 137 homesteads; and Riwa with 65 homesteads. Four number slots were prepared for the four villages and each Research Assistant was asked to randomly pick a piece to determine where to work. The Luo team picked Lung'a, the Luyha team picked Mbeka and the Kisii team picked Riwa village. For the purposes of making the exercise manageable, each team was asked to subdivide their villages into sizeable zones and randomly pick one zone to start with. In the zone, they were further asked to group the homesteads into small working groups and randomly decide which one to start with. In cases where the set of interviews was not completed in a household, the rule was to always turn left when moving to the nearest household. The same rule also applied for the homesteads.

1.6 Recruitment and Training of the Interviewers

Before the training exercise, the interviewers were drawn from the NCAPD database of those who had participated in the 2008/2009 Kenya Demographic and Health Survey (KDHS) field work, the Kenya Service Provision Assessment (KSPA; NCAPD and Macro International, 2005) and the disability survey (NCAPD and KNBS, 2008). The Research Assistants were drawn from the two regions of Western and Nyanza to facilitate communication during the data collection. The recruitment was done by a panel of three

officers from NCAPD who trained and supervised the KDHS teams in Western and Nyanza. Two other people who were to develop the data entry screen participated in the training. The following qualities were looked for during the selection exercise: educational level, professional experience, language, sex, personality and general presentation.

1.6.1 Training of the Interviewers

The training for the LQAS survey interviewers was held from 23 to 26 March 2009 at Lenana Guest House in Nairobi. The overall goal of the training was to equip the field teams with knowledge and skills that would enable them to systematically apply the LQAS methodology to collect accurate data for the child survival components of APHIA II catchment areas of Western and Nyanza provinces. Specifically, the training took the interviewers through the purpose and the objectives of the survey, the LQAS survey process (identifying interview locations and eligible respondents, plus parallel sampling), and the relationship of the survey to the APHIA II project in Western and Nyanza. The training also covered the use of the survey questionnaires, including the order and the skip patterns, and how to collect data using LQAS methodology. The training was conducted by those who had undergone the TOT with technical assistance from the MEASURE Evaluation. The training was opened by the NCAPD Chief Executive Officer and a representative from MOPHS.

1.6.2 Training Methodologies

Different teaching methodologies were applied during the training. Participants were first given lectures on the concepts of the LQAS, the use of LQAS and where it had been applied before. The facilitator also took the team through the random sampling process when identifying locations and communities before selecting the sample points and respondents for the study. The team learned the different LQAS terminologies, e.g., supervision areas (SA), sampled points; communities; decision rules, etc. Team members had all participated in KDHS field work and some were nurses who had participated in the service provision assessment surveys, they therefore already knew most of the interview techniques, but were briefly taken through the process to refresh their understanding. Demonstrations on the LQA sampling process was also done including the use of random numbers. The team was also taken through the process for identification of eligible respondents for the different questionnaires and each tool question by question.

1.7 Main Field Work

Nyanza and Western province APHIA regions were each considered as a programme area. In each of the programme areas the five districts that form the catchment for APHIA were considered as the supervision areas. Thus each district had 19 randomly selected interview locations (sample points). The set of 9 questionnaires was administered at each of these 19 sample points in each district (supervision area).

1.7.1 Identification of the 19 Sample Points in Each District

Each district provided a list of all the administrative locations and their populations, from which the cumulative totals of the populations were worked out. To distribute the 19 sample points amongst the available locations, the total cumulative population was divided by 19 to give the sampling interval. The first sample point was then selected by choosing a random number less than the calculated sampling interval. The administrative location to house this first sample point was identified by matching this randomly selected number against the cumulative population. Subsequent sample points were determined by repeatedly adding

the sampling interval to the preceding sampled point and matching the resulting number against the cumulative population until all 19 sample points had been distributed to the locations. This was done in Nairobi, but could not be done at sub-location and village levels because of lack of population figures for these levels

The field teams then used the distribution of sample points for the location to identify sub-locations and then villages to conduct the interviews. For instance, when the team arrived at a location with two sampled points, they would obtain a list of sub-locations from which they randomly selected two sub-locations. At the sub-location level, the team obtained a list of villages from which they randomly selected one.

1.7.2 *Selecting the Households*

If the team found that a village was too large, it was divided into manageable zones. The team then sampled one zone from which they randomly selected the first household to start the interviews through the following process:

- First: The teams prepared sketch maps. When the teams got to the centre of the village (for small manageable villages) or the selected zone (for large villages), they prepared sketch maps using landmarks to indicate the boundaries. This showed all the features within the village/zone, which assisted them in locating the households.
- Second: Homesteads were then assigned numbers and the first homestead was selected randomly by picking from small pieces of paper.
- Third: Where the homestead had only one household, that became the first household for interview. Where the homestead had more households, these were assigned numbers and the first one for interview was selected randomly. The next household for interview was identified as that nearest to the current household (distance estimated from the main door to the main house of the current household). Household sampling was repeated in this manner at each sampled point until all the questionnaires had been satisfactorily completed.

1.7.3 *Who Was Interviewed?*

After the starting homestead was identified, the team moved to the sight to determine who should be interviewed. For the purpose of this survey there were specific categories of children below five years of age whose mothers were to be interviewed. At each selected household, the interviewer asked if there were any eligible children as per the classification on the sampled point household response record. If there were, these were recorded appropriately on the sampled point household response record. The interviewer then obtained consent to interview the mother and if granted, proceeded to conduct the interview beginning with the base-tool if there were any children of two years and below.

1.7.4 *Data Collection*

The field work for the LQAS was conducted by ten research assistants between 8 and 19 April 2009. The research assistants were in five teams of twos: three teams went to Nyanza Province (one to the Kisii-speaking zone and two to the Luo-speaking zone) and two teams went to Western Province.

While in the field, each team was supervised by an RPC and each team had a driver. Given the nature of the exercise, the RPCs were with the teams all through making the appointments and making sure the sampling was done as required. Each team was assigned a core member of the TOT for technical assistance. The core members visited their assigned teams at the beginning of the field work to make sure that they followed the sampling procedure as required and were conducting the interviews well.

1.7.5 Data Processing and Analysis

In many previous surveys, processing of LQAS data has been done manually through hand tabulation and analysis. This makes the method amenable to use by even community volunteers who can undertake collection of simple data, then tabulate, analyse and use the results to inform decision making. With increased access to computers/information technology (IT) there is an increasing tendency towards using electronic data entry and analysis.

NCAPD chose to conduct the analysis electronically and identified two IT programmers who attended the TOT. The data processing commenced at the end of the data collection exercise. The IT team designed data entry screens in CS-Pro after which data entry was done by a team of four data entry clerks and a supervisor. The data entry team underwent one-day training before being deployed. On receiving the completed questionnaires, the data entry team verified that there were 19 for each of the SAs, did office editing and coding for indicators that had more than one question, then entered the data. Data entry was verified by double entry of all the questionnaires. After data capture these were exported to SPSS for analysis. The estimates presented are weighted using the district population sizes.

2. SURVEY INDICATORS

For each supervision area, a total of 19 sets of questionnaires was completed, bringing a total of 95 completed questionnaires for each of the Nyanza and Western APHIA programme areas.

A total of 22 indicators for child survival examined issues related to water and sanitation, access of mothers to maternal health services and services related to childhood illness such as malaria, acute respiratory infections and diarrhoea diseases. Age of the child in months was used as a reference point in categorizing these indicators. The indicators were in six categories as detailed below.

2.1 Category 1: Indicators for Children Aged 0–23 Months

1. Percentage of households with children aged 0–23 months using a flush, pit or ventilated improved pit (VIP) toilet
2. Percentage of mothers of children aged 0–23 months who boil or chlorinate their drinking water to make it safe
3. Percentage of mothers of children aged 0–23 months who delivered their child with a skilled attendant
4. Percentage of mothers of children aged 0–23 months who got postnatal care within a week after delivery
5. Percentage of mothers of children aged 0–23 months who saw a health worker for postnatal care within one week of delivery.
6. Percentage of mothers of children aged 0–23 months who received more than one TT injection before their last delivery
7. Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care
8. Percentage of mothers of children aged 0–23 months who usually wash hands at least four appropriate times during the day
9. Percentage of children aged 0–23 months who were given co-trimoxazole (Septrin) or amoxicillin for ARI
10. Percentage of mothers of children aged 0–23 months who sought treatment for child's cough at a health facility
11. Percentage of children aged 0–23 months who were given Coartem (AL) for fever
12. Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility
13. Percentage of children aged 0–23 months who got appropriate treatment for diarrhoea
14. Percentage of mothers of children aged 0–23 months who first sought treatment for child's diarrhoea at a health facility

2.2 Category 2: Indicators for Children Aged 0–5 Months

15. Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth
16. Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours

2.3 Category 3: Indicators for Children Aged 6–23 Months

17. Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth

2.4 Category 4: Indicators for Children Aged 12–23 Months (Immunization)

18. Percentage of children aged 12–23 months who fully immunized

2.5 Category 5: Indicators for Children Aged 24–59 Months (ITNs)

19. Percentage of children aged 24–59 months who slept under a bed net last night
20. Percentage of children aged 24–59 months who slept under a treated bed net last night

2.6 Category 6: Indicators for Children Aged 0–59 Months (Eye Discharge)

21. Percentage of mothers of children aged 0–59 months who sought eye treatment at a health facility
22. Percentage of mothers of children aged 0–59 months who were given tetracycline for the eye discharge

3. INDICATOR-SPECIFIC SURVEY FINDINGS

Results of the survey are presented here according to the indicator categories listed above. Findings reveal a few success stories, but for most indicators the programme needs to take concerted action to improve the status of children’s health in the two provinces.

3.1 Category 1: Indicators for Children Aged 0–23 Months

3.1.1 Percentage of households with children aged 0–23 months using a flush, pit or VIP toilet

About 2.6 billion people, mainly from the developing world, lack even a simple “improved” latrine and 1.1 billion have no access to any type of improved drinking source of water. Because of the lack of access to safe drinking water and basic sanitation facilities, 1.6 million people die every year from diarrhoeal diseases. Over 90 per cent of these are children under five, mostly in developing countries (WHO, 2009).

The survey found that within Nyanza Province almost 74 per cent of households with children aged 0–23 months use a flush, pit or VIP toilet, while in Western Province the proportion is 89 per cent (see Table 3.1). In Ndhiwa District, however, the percentage falls below the average coverage of the programme area. Efforts need to be directed to Ndhiwa District in order to improve the sanitation facilities of the district. On the other hand, sanitation facilities of Gucha District are adequately in place and hence the district can provide insights on how this has been achieved.

Table 3.1: Coverage of households with children aged 0–23 months using a flush, pit or VIP toilet

<i>Indicator:</i> Percentage of households with children aged 0–23 months using a flush, pit or VIP toilet			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 73.6 Decision rule: 12	(65.5–81.7) Meets decision rule?
Gucha	19	19	Yes
Homa Bay	19	13	Yes
Ndhiwa	19	6	No
Rachuonyo	19	15	Yes
Rongo	19	13	Yes
Total	95	66	
Western		Coverage: 89.1 Decision rule: 15	(81.9–96.3) Meets decision rule?
Budalangi	19	16	Yes
Teso North	19	16	Yes
Teso south	19	18	Yes
Busia	19	17	Yes
Samia	19	17	Yes
Total	95	84	

3.1.2 Percentage of mothers of children aged 0–23 months who boil or chlorinate their drinking water to make it safe

Access to safe drinking water is a precondition for success in attaining the Millennium Development Goals (MDGs). Of the various ways of disinfecting household drinking water, the commonest are boiling and chlorination (WHO, 1997). The survey examined how

households treated or made drinking water safe by either boiling or using chemical disinfection (chlorine). For Nyanza Province, the average coverage of mothers of children aged 0–23 who either boiled or chlorinated their drinking water was 66 per cent, while those of Western province was almost 45 per cent (Table 3.2). The coverage of households that treat water in Gucha district is well below the programme area coverage, hence this district has to be prioritized in addressing issues of safe drinking water.

The average coverage of access to safe drinking water in Western Province is generally low. The situation is worse in Teso South District where very few families are able to treat drinking water at the household level. Efforts have to be put in place to educate the community in Western Province and particularly Teso South on the positive health aspects of ensuring that drinking water is clean and safe.

Table 3.2: Coverage of households of children aged 0–23 months who boil or chlorinate their drinking water to make it safe.

<i>Indicator:</i> Percentage of mothers of children aged 0–23 months who boil or chlorinate their drinking water to make it safe			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 66.3	(56.6–76.0)
		Decision rule: 11	Meets decision rule?
Gucha	19	9	No
Homa Bay	19	14	Yes
Ndhiwa	19	16	Yes
Rachuonyo	19	13	Yes
Rongo	19	13	Yes
Total	95	65	
Western		Coverage: 44.8	(33.2–56.4)
		Decision rule: 6	Meets decision rule?
Budalangi	19	10	Yes
Teso North	19	9	Yes
Teso south	19	4	No
Busia	19	10	Yes
Samia	19	8	Yes
Total	95	41	

3.1.3 Percentage of mothers of children aged 0–23 months who delivered their child with a skilled attendant

Maternal and neonatal morbidity and mortality levels in Kenya remain unacceptably high at 414 per 100,000 live births, while neonatal mortality rate is estimated at 33 per 1,000 live births. Skilled attendance for every woman during childbirth has been documented to be a significant influence on the reduction of maternal mortality. While most pregnant Kenyan women (88 per cent) attend antenatal care at least once from a health care provider, only 42 per cent of all deliveries are attended by a skilled health care provider. According to the 2003 KDHS, rural children are twice as likely to be born at home than urban children (CBS et al., 2004). Immediate and effective professional care during and after labour and delivery can make the difference between life and death for both women and their newborns, as complications are largely unpredictable and may rapidly become life threatening (WHO, 2005).

The survey assessed whether mothers who had children aged 0–23 months had been delivered with the assistance of a qualified health care provider. As shown in Table 3.3, the average coverage of skilled attendance in Nyanza Province was 49 per cent, while that of Western Province was 33 per cent. Coverage in Ndhiwa District falls below the programme area average. Considering that the 2010 target for skilled attendance during childbirth set in the National Health Sector Strategic Plan II 2005–2010 is 90 per cent (MOH, 2005), coverage

for skilled attendance in these two programme areas is well below the national target with 95 per cent confidence limits of 39–60 per cent for Nyanza Province and 22–44 per cent for Western Province – the coverage of Western Province being much lower. Efforts to increase skilled attendance during childbirth need to be prioritized in both programme areas.

Table 3.3: Coverage of households of children aged 0–23 months who delivered their child with a skilled attendant

<i>Indicator:</i> Percentage of mothers of children aged 0–23 months who delivered their child with a skilled attendant			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 49.4 Decision rule: 7	(39.1–59.7) Meets decision rule?
Gucha	19	11	Yes
Homa Bay	19	9	Yes
Ndhiwa	19	6	No
Rachuonyo	19	8	Yes
Rongo	19	11	Yes
Total	95	45	
Western		Coverage: 33.1 Decision rule: 4	(22.4–43.8) Meets decision rule?
Budalangi	19	10	Yes
Teso North	19	9	Yes
Teso south	19	7	Yes
Busia	19	5	Yes
Samia	19	4	Yes
Total	95	35	

3.1.4 Percentage of mothers of children aged 0–23 months who got postnatal care within a week after delivery

Among women who deliver outside the health facility, a vast majority (8 out of 10) do not receive postnatal care. Only 10 per cent attend postnatal care within two days of delivery, and just 2 per cent get care three to six days after delivery (KDHS 2003). Although postnatal care is essential for the reduction of both maternal and neonatal deaths, it is widely neglected. Even in settings where most births happen in a facility, most mothers and babies go home within a few hours and are unlikely to return in the first few days because of transport costs and cultural constraints. Implementation guidelines for postnatal care are also scarce. The postnatal package for mothers and babies promotes routine visits in the first days after birth, when risk is high, encourages healthy behaviours, identifies complications and facilitates immediate referral. Some mothers or babies need extra support, especially preterm babies and HIV-positive mothers. Targeted postnatal care approaches currently promoted by the MOPHS together with the Ministry of Medical Services (MOMS) are time and context-specific (within 48 hours, 1–2 weeks and 6 weeks).

The postnatal package for mothers and babies promotes routine visits in the first days after birth, when risk is high, encourages healthy behaviours, identifies complications and facilitates immediate referral.

As indicated in tables 3.4 and 3.5, the average coverage of mothers receiving postnatal care within one week after delivery is very low in both Nyanza (19 per cent) and Western provinces (23 per cent). Specifically in Teso North District, the situation is much worse; here the coverage is below the programme area average. Postnatal care service for mothers who have delivered is therefore a high priority issue for both Nyanza and Western provinces.

Table 3.4: Percentage of mothers of children aged 0–23 months who got postnatal care within a week after delivery

Indicator: Percentage of mothers of children aged 0–23 months who got postnatal care within a week after delivery			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 18.5	(10.8–26.2)
		Decision rule: 1	Meets decision rule?
Gucha	19	2	Yes
Homa Bay	19	5	Yes
Ndhiwa	19	5	Yes
Rachuonyo	19	5	Yes
Rongo	19	2	Yes
Total	95	19	
Western		Coverage: 22.5	(12.2–32.8)
		Decision rule: 2	Meets decision rule?
Budalangi	19	4	Yes
Teso North	19	1	No
Teso south	19	3	Yes
Busia	19	6	Yes
Samia	19	4	Yes
Total	95	18	

Table 3.5: Percentage of mothers of children aged 0–23 months who saw a health worker for postnatal care within 1 week of delivery

Indicator: Percentage of mothers of children aged 0–23 months who saw a health worker for postnatal care within 1 week of delivery			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 18.5	(10.8–26.2)
		Decision rule: 1	Meets decision rule?
Gucha	19	2	Yes
Homa Bay	19	5	Yes
Ndhiwa	19	5	Yes
Rachuonyo	19	5	Yes
Rongo	19	2	Yes
Total	95	19	
Western		Coverage: 22.5	(12.2–32.8)
		Decision rule: 2	Meets decision rule?
Budalangi	19	4	Yes
Teso North	19	1	No
Teso south	19	3	Yes
Busia	19	6	Yes
Samia	19	4	Yes
Total	95	18	

3.1.5 Percentage of mothers of children aged 0–23 months who received more than 1 tetanus toxoid injection before their last delivery

Infections are the biggest cause of death among newborns and the most feasible to prevent and treat. While infections cause 29 per cent of all neonatal deaths worldwide, tetanus alone is responsible for at least 6 per cent of all newborn deaths worldwide. Although neonatal tetanus is one of the most cost-effective conditions to prevent through immunization of the mothers at least once during pregnancy, it still kills tens of thousands of African babies each year (WHO, 2007). Immunization of the mother against tetanus during pregnancy has been shown to be strongly associated with improvements in birth weight (Mwabu, 2009).

The survey assessed whether mothers of children aged 0–23 months received one dose of tetanus toxoid (TT) injection before their last delivery. Almost 7 out of 10 mothers in Nyanza Province and 9 out of 10 mothers Western Province received at least one dose of TT before

delivery (Table 3.6). The percentage of mothers in Gucha and Teso North districts falls below the average coverage of the programme areas of Nyanza and Western provinces, respectively. Efforts should be directed towards prioritizing TT coverage for these two districts.

Table 3.6: Coverage of households of children aged 0–23 months who received more than 1 TT injection before their last delivery

Indicator: Percentage of mothers of children aged 0–23 months who received more than 1 TT injection before their last delivery			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 68.9	(59.4–78.4)
		Decision rule: 11	Meets decision rule?
Gucha	19	10	No
Homa Bay	19	14	Yes
Ndhiwa	19	14	Yes
Rachuonyo	19	14	Yes
Rongo	19	14	Yes
Total	95	66	
Western		Coverage: 86.3	(79.6–93.0)
		Decision rule: 15	Meets decision rule?
Budalangi	19	15	Yes
Teso North	19	13	No
Teso south	19	17	Yes
Busia	19	18	Yes
Samia	19	15	Yes
Total	95	78	

3.1.6 Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care

Approximately 9 out of 10 (88 per cent) of all Kenyan women attend antenatal care at least once from a health care provider and 52 per cent make four or more antenatal visits (KDHS 2003). WHO (2007) recommends that antenatal care can only be effective if all pregnant women make a minimum of four visits, at specific times and with evidence-based content. Care for women during pregnancy improves health by preventive measures, as well as by prompt detection and management of complications.

Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care is above average in all supervision areas in Nyanza and Western provinces, as seen in Table 3.7. This in particular is good in Western Province, where in all its supervision areas, 98 per cent of mothers of children aged 0–23 months saw a health worker for antenatal care. This is a very good indication of interventions in place and should be taken up in other areas.

Table 3.7: Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care

Indicator: Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 91.3	(85.2–97.4)
		Decision rule: 16	Meets decision rule?
Gucha	19	18	Yes
Homa Bay	19	18	Yes
Ndhiwa	19	19	Yes
Rachuonyo	19	17	Yes
Rongo	19	16	Yes
Total	95	88	
Western		Coverage: 98.1	(95.7–100)

Indicator: Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care			
Sample areas	Sample size	Correct responses	Confidence limits
		Decision rule: #N/A	Meets decision rule?
Budalangi	19	19	#N/A
Teso North	19	19	#N/A
Teso south	19	17	#N/A
Busia	19	19	#N/A
Samia	19	19	#N/A
Total	95	93	

3.1.7 Percentage of mothers of children aged 0–23 months who usually wash hands at least four appropriate times during the day

Consistent hand washing is a good practice that prevents contamination and infection among individuals and for the purpose of this survey from mother to child. Among mothers of children aged 0–23 months who were assessed, the proportion of those who wash their hands at least four times during the day is negligible (Table 3.8). Hand washing is clearly not a routine practice in the two programme areas of Nyanza and Western provinces. Personal hygiene is therefore an area that needs to be prioritized in the two programme areas.

Table 3.8: Percentage of mothers of children aged 0–23 months who usually wash hands at least four appropriate times during the day

Indicator: Percentage of mothers of children aged 0–23 months who usually wash hands at least 4 appropriate times during the day				
	Correct responses	Total sets of completed responses	Percentage	Confidence limits
Nyanza				0.1– 9.1
				Meets decision rule - #N/A
Gucha	1	19	5.3	#N/A
Homa Bay	1	19	5.3	#N/A
Ndhiwa	0	19	0	#N/A
Rachuonyo	1	19	5.3	#N/A
Rongo	1	19	5.3	#N/A
Total	4	95	4.2	
Western				0– 3.7
				Meets decision rule - #N/A
Budalangi	2	19	10.5	#N/A
Teso North	0	19	0	#N/A
Teso south	0	19	0	#N/A
Busia	0	19	0	#N/A
Samia	1	19	5.3	#N/A
Total	3	95	3.2	

3.1.8 Percentage of children aged 0–23 months who were given co-trimoxazole for ARI

Acute respiratory infection (ARI) has been documented as the second highest contributor to the burden of disease in Kenya, and the leading cause of childhood morbidity in areas with a low prevalence of malaria. The highest prevalence of ARI occurs in children aged 6–11 months. The prevalence of ARI is slightly higher (19 per cent) in rural areas compared with in urban areas (16 per cent). Provincial variations exist, with Western Province having the highest levels (30 per cent), and Nyanza Province (20 per cent) and North Eastern Province (NEP) the lowest (10 per cent) (2003 KDHS). The situation is compounded by the poor health-seeking behaviour of mothers of the affected children (MOPHS, 2009).

Co-trimoxazole (Septrin) has been recommended as one of the first line medications for the prevention and management of ARIs. The survey reviewed whether children aged 0–23 months were given Septrin or Amoxil at the health facility when their mothers sought treatment. Results show that on average, coverage was 48 per cent in Nyanza Province and

47 per cent in Western Province (Table 3.9). More specifically, the percentage of children given Septrin is much lower in Budalangi and Rongo supervision areas. The results indicate that generally the proportion of children with ARI who access health services and get appropriate treatment is low in both programme areas and therefore action needs to be taken to train health workers on the provision of appropriate treatment.

Table 3.9: Percentage of children aged 0–23 months who were given co-trimoxazole (Septrin) for ARI

Indicator: Percentage of children aged 0–23 months who were given co-trimoxazole (Septrin) for ARI			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 47.8	(38.1 - 57.5)
		Decision rule: 7	Meets decision rule?
Gucha	19	11	Yes
Homa Bay	19	9	Yes
Ndhiwa	19	13	Yes
Rachuonyo	19	11	Yes
Rongo	19	4	No
Total	95	48	
Western		Coverage: 46.5	(34.7 - 58.3)
		Decision rule: 7	Meets decision rule?
Budalangi	19	6	No
Teso North	19	9	Yes
Teso south	19	8	Yes
Busia	19	10	Yes
Samia	19	8	Yes
Total	95	41	

3.1.9 Percentage of mothers of children aged 0–23 months who sought treatment for child's cough at a health facility

Health seeking behaviour patterns are good in both Nyanza and Western provinces. The LQAS found that the percentage of mothers of children aged 0–23 months who sought treatment for their child's cough at a health facility is above average in all supervision areas: about 80 per cent in Nyanza and 73 per cent in Western (see Table 3.10). This is a good indication of interventions in place and should be taken up in other areas.

Table 3.10: Coverage of households of children aged 0–23 months who sought treatment for child's cough at a health facility

Indicator: Percentage of mothers of children aged 0–23 months who sought treatment for child's cough at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 79.3	(70.9–87.7)
		Decision rule: 13	Meets decision rule?
Gucha	19	14	Yes
Homa Bay	19	14	Yes
Ndhiwa	19	17	Yes
Rachuonyo	19	17	Yes
Rongo	19	14	Yes
Total	95	76	
Western		Coverage: 73.4	(62.8–84.0)
		Decision rule: 12	Meets decision rule?
Budalangi	19	13	Yes
Teso North	19	14	Yes
Teso south	19	16	Yes
Busia	19	13	Yes
Samia	19	15	Yes
Total	95	71	

3.1.10 Percentage of children aged 0–23 months who were given Coartem (AL) for fever

Malaria is a major cause of morbidity and mortality in under-fives and is responsible for 34,000 deaths per year – 14 per cent of all deaths of children below five years of age. The National Guidelines for the treatment of malaria recommends the use of Coartem as the first line of treatment for malaria.

The average coverage of children aged 0–23 months who were given Coartem for fever when they sought health care was almost 18 per cent in Nyanza Province and 32 per cent in Western Province (Table 3.11). The proportion of children receiving Coartem is very low.

Table 3.11: Percentage of mothers of children aged 0–23 months who were given Coartem (AL) for fever

Indicator: Percentage of mothers of children aged 0–23 months who were given Coartem (AL) for fever			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 17.8	(10.1–25.5)
		Decision rule: 1	Meets decision rule?
Gucha	19	3	Yes
Homa Bay	19	1	Yes
Ndhiwa	19	3	Yes
Rachuonyo	19	7	Yes
Rongo	19	2	Yes
Total	95	16	
Western		Coverage: 32.0	(20.8–43.2)
		Decision rule: 4	Meets decision rule?
Budalangi	19	7	Yes
Teso North	19	5	Yes
Teso south	19	5	Yes
Busia	19	7	Yes
Samia	19	5	Yes
Total	95	29	

Among children who had fever the percentage who sought treatment from a health facility was 82 per cent for both Nyanza and Western province, as shown in Table 3.12. Despite malaria causing deaths of many children, especially those below five years of age, a considerable proportion of mothers are not seeking child health services at the health facility.

Sensitization of health care providers on the proper management of malaria in both programme areas needs to be intensified so that children receive appropriate medication when they seek health care from the facility. Furthermore, intensified action is needed to raise awareness of the dangers of malaria in young children so as to improve health-seeking behaviours.

Table 3.12: Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility

Indicator: Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 81.6	(73.7–89.5)
		Decision rule: 14	Meets decision rule?
Gucha	19	16	Yes
Homa Bay	19	15	Yes
Ndhiwa	19	18	Yes
Rachuonyo	19	18	Yes
Rongo	19	12	No
Total	95	79	

Indicator: Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Western		Coverage: 81.5 Decision rule: 14	(73.4–89.6) Meets decision rule - 14
Budalangi	19	12	No
Teso North	19	14	Yes
Teso south	19	16	Yes
Busia	19	17	Yes
Samia	19	14	Yes
Total	95	73	

3.1.11 Percentage of children aged 0–23 months who got appropriate treatment for diarrhoea

Diarrhoea contributes to almost 20 per cent of the under-five mortality in Kenya. The main causes are poor hygiene and waste disposal practices. Children suffering from frequent diarrhoea episodes are more likely to be undernourished and more often end up suffering from opportunistic infections such as ARI. Key interventions aimed at combating diarrhoeal disease have focused on case management and strengthening water and environmental sanitation interventions. The addition of oral rehydration salts (ORS) and zinc supplements to the essential drug kits will help prevent 88 per cent of diarrhoea deaths (Jones et al., 2003).

The survey examined whether mothers of children aged 0–23 months who had episodes of diarrhoea sought treatment from a health facility or received appropriate treatment, which included fluids from ORS packet, recommended homemade fluids and zinc.

The average coverage for the two programme areas of children who were treated appropriately 49 per cent for Nyanza Province and 67 per cent for Western Province (Table 3.13). Coverage in Homa Bay, Budalangi and Samia districts is much lower than their respective programme coverage. Access to appropriate treatment of diarrhoea is limited in the two programme areas and needs to be prioritized. On the other hand, the percentage of mothers with children who have diarrhoea who seek treatment from a health facility is high, at 87 per cent in Nyanza and 77 per cent in Western as seen in Table 3.14.

Table 3.13: Percentage of children aged 0–23 months who got appropriate treatment for diarrhoea

Indicator: Percentage of children aged 0–23 months who got appropriate treatment for diarrhoea			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 49.3 Decision rule: 7	(39.1 - 59.5) Meets decision rule?
Gucha	19	12	Yes
Homa Bay	19	5	No
Ndhiwa	19	7	Yes
Rachuonyo	19	10	Yes
Rongo	19	10	Yes
Total	95	44	
Western		Coverage: 66.5 Decision rule: 11	(55.8 - 77.2) Meets decision rule?
Budalangi	19	9	No
Teso North	19	13	Yes
Teso south	19	13	Yes
Busia	19	14	Yes
Samia	19	10	No
Total	95	59	

Table 3.14: Percentage of mothers of children aged 0–23 months who first sought treatment for child’s diarrhoea at a health facility

Indicator: Percentage of mothers of children aged 0–23 months who first sought treatment for child’s diarrhoea at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 87.3	(80.3–94.3)
		Decision rule: 15	Meets decision rule?
Gucha	19	17	Yes
Homa Bay	19	16	Yes
Ndhiwa	19	17	Yes
Rachuonyo	19	17	Yes
Rongo	19	16	Yes
Total	95	83	
Western		Coverage: 77.2	(67.0–87.4)
		Decision rule: 13	Meets decision rule?
Budalangi	19	16	Yes
Teso North	19	16	Yes
Teso south	19	15	Yes
Busia	19	14	Yes
Samia	19	14	Yes
Total	95	75	

3.2 Category 2: Indicators for Children Aged 0–5 Months

3.2.1 Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth

Breastfeeding of infants up to 6–11 months of age has been documented as the only intervention on child survival that is able to reach nearly all children. If well implemented, breastfeeding would prevent an estimated 13 per cent of all deaths of children below five years of age (Jones et al., 2003). Breastfeeding therefore saves lives and exclusive breastfeeding protects the child against common childhood diseases such as diarrhoea and ARIs. It is recommended that breastfeeding of infants be initiated immediately after birth.

The average coverage of mothers of children aged 0–5 months who initiated breastfeeding immediately after delivery was only 52 per cent in Nyanza Province and 33 per cent in Western Province (Table 3.15). At the SA level, coverage in Ndhiwa was much lower than its programme area coverage.

Moreover, the percentage of mothers who exclusively breastfed their children within the last 24 hours was less than 40 per cent in the two programme areas, as shown in Table 3.16. Efforts need to be put in place to educate both health care providers and mothers about the importance of ensuring that mothers initiate breastfeeding immediately and that they exclusively breastfeed their children.

Table 3.15: Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth

Indicator: Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 51.6	(41.5 - 61.7)
		Decision rule: 8	Meets decision rule?
Gucha	19	10	Yes
Homa Bay	19	9	Yes
Ndhiwa	19	5	No
Rachuonyo	19	9	Yes
Rongo	19	13	Yes
Total	95	46	
Western		Coverage: 32.6	(22.0 - 43.2)

Indicator: Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
		Decision rule: 4	Meets decision rule?
Budalangi	19	7	Yes
Teso North	19	11	Yes
Teso south	19	5	Yes
Busia	19	5	Yes
Samia	19	6	Yes
Total	95	34	

Table 3.16: Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours

Indicator: Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 34.8	(25.1 - 44.5)
		Decision rule: 4	Meets decision rule?
Gucha	19	5	Yes
Homa Bay	19	6	Yes
Ndhiwa	19	11	Yes
Rachuonyo	19	7	Yes
Rongo	19	6	Yes
Total	95	35	
Western		Coverage: 34.4	(24.3 - 44.5)
		Decision rule: 4	Meets decision rule?
Budalangi	19	5	Yes
Teso North	19	11	Yes
Teso south	19	12	Yes
Busia	19	4	Yes
Samia	19	4	Yes
Total	95	36	

3.3 Category 3: Indicators for Children Aged 6–23 Months

3.3.1 Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth

The survey found that the average coverage of mothers with children aged 6–23 months who initiated breastfeeding immediately after delivery was only 56 per cent in Nyanza Province and 32 per cent in Western Province (Table 3.17). Ndhiwa, Rachuonyo and Samia supervision areas had a coverage that was much lower than their programme area coverage.

Efforts need to be put in place to educate mothers on the importance of ensuring that they initiate breastfeeding immediately after delivery.

Table 3.17: Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth

Indicator: Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 56.1	(46.0–66.2)
		Decision rule: 9	Meets decision rule?
Gucha	19	13	Yes
Homa Bay	19	11	Yes
Ndhiwa	19	8	No
Rachuonyo	19	8	No
Rongo	19	12	Yes
Total	95	52	

Indicator: Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
Western		Coverage: 32.3	(21.4–43.2)
		Decision rule: 4	Meets decision rule?
Budalangi	19	6	Yes
Teso North	19	11	Yes
Teso south	19	5	Yes
Busia	19	6	Yes
Samia	19	3	No
Total	95	31	

3.4 Category 4: Indicators for Children Aged 12–23 Months

3.4.1 Percentage of children aged 12–23 months completely immunized

Nationally, full immunization coverage for children aged 12–23 months stands at 57 per cent with marked regional variations. For Nyanza Province, full immunization coverage is 38 per cent while for Western Province it is 50 per cent (KDHS 2003). Among the factors that have contributed to low immunization coverage are poor health-seeking behaviour and poor access to health services, missed opportunities because of vaccine shortages, failing to integrate sick child consultations with immunization sessions, and having situations where immunization is not offered on a daily basis. The survey examined the full immunization status of children aged 12–23 in the two programme areas.

Survey results show that the average coverage of children aged 12–23 months who were completely immunized was 30 per cent in Nyanza Province and 38 per cent in Western Province (Table 3.18). The proportion of children fully immunized in the two programme areas is thus pretty low, and this child survival indicator needs to be given priority during programme implementation.

Table 3.18: Percentage of children aged 12–23 months completely immunized

Indicator: Percentage of children aged 12–23 months completely immunized			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 30.1	(20.7–39.5)
		Decision rule: 4	Meets decision rule?
Gucha	19	8	Yes
Homa Bay	19	6	Yes
Ndhiwa	19	6	Yes
Rachuonyo	19	4	Yes
Rongo	19	5	Yes
Total	95	29	
Western		Coverage: 38.0	(26.5–49.5)
		Decision rule: 5	Meets decision rule?
Budalangi	19	9	Yes
Teso North	19	6	Yes
Teso south	19	7	Yes
Busia	19	8	Yes
Samia	19	5	Yes
Total	95	35	

3.5 Category 5: Indicators for Children Aged 24–59 Months

3.5.1 Percentage of children aged 24–59 months who slept under a bed net last night

Preventing and treating malaria requires several basic interventions, including sleeping under a mosquito net, preferably an insecticide treated net (ITN). The use of ITNs is known to reduce child deaths from malaria by about 17 per cent (WHO/UNICEF, 2005), but the use

of ITNs by under-fives in Kenya remains low at about 39 per cent, whereas 51 per cent slept under any net (DOMC et al., 2009). According to the National Malaria Strategy (MOH, 2001) the national target is to have at least 60 per cent of at-risk population sleeping under nets, and at least 50 per cent of these nets to be regularly treated with insecticides.

The results of this study show that the average coverage of children aged 24–59 months who slept under a bed net the night before the survey was 53 per cent in Nyanza and 78 per cent in Western provinces (Table 3.19). Busia and Samia districts are case examples other districts can learn from in trying to attain high levels of bed nets coverage. Budalangi, Teso North and Teso South districts are supervision areas that need to be prioritized in increasing coverage of bed nets use.

On the other hand, the average coverage of children aged 24–59 months who slept under a treated bed net the previous night was 31 per cent in Nyanza Province and 70 per cent in Western Province, as shown in Table 3.20. Access to treated bed nets is very low in Nyanza Province and need to be made a priority. In Western Province, access to treated bed nets should be improved for Budalangi, Teso North and Teso South supervision areas.

Table 3.19: Percentage of children aged 24–59 months who slept under a bed net last night

<i>Indicator:</i> Percentage of children aged 24-59 months who slept under a bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 53.2	(42.9 - 63.5)
		Decision rule: 8	Meets decision rule?
Gucha	19	12	Yes
Homa Bay	19	11	Yes
Ndhiwa	19	10	Yes
Rachuonyo	19	9	Yes
Rongo	19	9	Yes
Total	95	51	
Western		Coverage: 77.7	(69.2 - 86.2)
		Decision rule: 13	Meets decision rule?
Budalangi	19	12	No
Teso North	19	12	No
Teso south	19	12	No
Busia	19	17	Yes
Samia	19	16	Yes
Total	95	69	

Table 3.20: Percentage of children aged 24–59 months who slept under a treated bed net last night

<i>Indicator:</i> Percentage of children aged 24–59 months who slept under a treated bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 30.9	(21.5 - 40.3)
		Decision rule: 4	Meets decision rule?
Gucha	19	6	Yes
Homa Bay	19	5	Yes
Ndhiwa	19	10	Yes
Rachuonyo	19	4	Yes
Rongo	19	6	Yes
Total	95	31	
Western		Coverage: 70.1	(61.3 - 78.9)
		Decision rule: 12	Meets decision rule?
Budalangi	19	8	No
Teso North	19	11	No
Teso south	19	10	No
Busia	19	17	Yes
Samia	19	12	Yes
Total	95	58	

3.6 Category 6: Indicators for Children Aged 0–59 Months

3.6.1 Percentage of mothers of children aged 0–59 months who were given tetracycline for the eye discharge

The survey examined the eye discharge status of children aged 0–59 months in the two programme areas. It was found that the average coverage of children aged 0–59 months who were given tetracycline for eye discharge was 45 per cent in Nyanza Province and 35 per cent in Western Province (Table 3.21). The proportion of children who received treatment in the two programme areas is pretty low and hence this child survival indicator needs to be given priority during future programme implementation.

As for those who sought eye treatment at a health facility, the average coverage for Nyanza province was 34 per cent and 45 per cent in Western Province as shown in Table 3.22. Efforts need to be put in place to educate mothers about the importance of seeking treatment at a health facility when their children have an eye discharge.

Table 3.21: Percentage of mothers of children aged 0–59 months who were given tetracycline for the eye discharge

<i>Indicator:</i> Percentage of children aged 0–59 months who received tetracycline for eye discharge			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 44.8	(34.6–55.0)
		Decision rule: 5	Meets decision rule?
Gucha	16	8	Yes
Homa Bay	19	6	Yes
Ndhiwa	19	10	Yes
Rachuonyo	19	12	Yes
Rongo	18	5	Yes
Total	91	41	
Western		Coverage: 34.5	(17.2–51.8)
		Decision rule: #N/A	Meets decision rule - #N/A
Budalangi	11	5	#N/A
Teso North	19	8	#N/A
Teso south	3	0	#N/A
Busia	7	3	#N/A
Samia	11	4	#N/A
Total	51	20	

Table 3.22: Percentage of mothers of children aged 0–59 months who sought eye treatment at a health facility

<i>Indicator:</i> Percentage of mothers of children aged 0–59 months who sought treatment for eye discharge at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Nyanza		Coverage: 33.9	(24.8–43.0)
		Decision rule: 3	Meets decision rule?
Gucha	16	6	Yes
Homa Bay	19	9	Yes
Ndhiwa	19	9	Yes
Rachuonyo	19	9	Yes
Rongo	18	1	No
Total	91	34	
Western		Coverage: 44.5	(24.9–64.1)
		Decision rule: #N/A	Meets decision rule - # N/A
Budalangi	11	5	#N/A
Teso North	19	5	#N/A

Indicator: Percentage of mothers of children aged 0–59 months who sought treatment for eye discharge at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Teso south	3	1	#N/A
Busia	7	4	#N/A
Samia	11	4	#N/A
Total	51	19	

4. RECOMMENDATIONS

A number of key points arise from the findings of this survey. In only a few instances can the status of child survival indicators be considered. For the most part, considerable effort is needed to enhance the status of children's health in Nyanza and Western provinces.

First the good news. The following experiences indicate that effective interventions are in place and should be taken up in other areas:

- *Sanitation facilities* are adequately in place in Gucha District and hence this district can provide insights on how this has been achieved.
- *Antenatal care* is above average in all supervision areas in Nyanza and Western provinces, a very good indication that effective interventions are in place and should be taken up in other areas.
- *Treatment for a child's cough* at a health facility is above average in all supervision areas in Nyanza and Western provinces, another good indication of effective interventions being in place
- *Bed net coverage* in Busia and Samia districts is relatively high, making these two districts case examples other districts can learn from.

Unfortunately, however, most child survival indicators in most of the surveyed areas have less impressive results. Considerable action is needed in the following areas:

- *Use of a flush, pit or VIP toilet:* Efforts need to be directed to Ndhiwa District in order to improve the sanitation facilities of the district.
- *Safe drinking water:* The average coverage of access to safe drinking water in Western Province is generally low, and even lower in Teso South district. Efforts are needed to educate the community in Western Province, particularly Teso South, on the importance of clean and safe drinking water.
- *Skilled birth attendance:* Because this indicator is well below the national target, efforts to increase skilled attendance during childbirth need to be prioritized in both programme areas.
- *Postnatal care:* Care-seeking in the week after delivery is very low in both programme areas, and much worse in Teso North District. Postnatal care service for mothers who have recently delivered should be given a high priority area for both Nyanza and Western provinces. Retired midwives should be empowered and facilitated to make postnatal home follow up visits, especially for mothers who deliver at home either through personal preference or unavoidable circumstances.
- *TT treatment:* The percentage of mothers in Gucha and Teso North districts falls below the average coverage of the programme areas of the respective provinces. Prioritizing TT coverage for these two districts is needed.
- *Hand washing:* As an indicator of personal hygiene, reported hand washing is negligible in both programme areas, pointing to the fact that it is not a routine practice in either

areas of Nyanza and Western provinces. Beefed up community awareness building is needed to improve personal hygiene practices.

- **Treatment of ARIs:** The proportion of children with ARI who access health services *and* get appropriate treatment is low in both programme areas. Interventions therefore need to be put in place to raise mothers' awareness and train health workers on the provision of appropriate treatment.
- **Malaria treatment:** Even though malaria is the leading cause of death among children below five years of age, a considerable proportion of mothers do not seek health services when their child has a fever. Moreover, at the health facility service providers do not routinely manage such children well. Further interventions are needed on several levels: to raise awareness of the dangers of malaria in young children so as to improve health-seeking behaviours; to sensitize health care providers on the proper management of malaria so that children receive appropriate medication when they seek health care from the facility; and to improve the medicine supply chain for essential medicines like artemether lumefantrine as well as access to treatment in order to combat malaria more effectively.
- **Treatment of diarrhoea:** The percentage of mothers with children who have diarrhoea who seek treatment from a health facility is high in both Nyanza and Western provinces, but the average coverage for the number of children who actually got appropriate treatment for diarrhoea was much lower. Coverage in Homa Bay, Budalangi and Samia districts was lower still. Access to appropriate treatment of diarrhoea is clearly limited in the two programme areas and needs to be prioritized.
- **Breastfeeding:** Given the low levels of mothers who began breastfeeding immediately after giving birth and of those who exclusively breastfed their babies during the past 24 hours, efforts need to be put in place to educate both health care providers and mothers on the importance of ensuring that mothers initiate breastfeeding immediately and that they exclusively breastfeed their children.
- **Immunizations:** The survey found that the average coverage of children aged 12–23 months completely immunized was 30 per cent in Nyanza Province and 38 per cent in Western Province. The proportion of children fully immunized in the two programme areas is pretty low and hence this child survival indicator needs to be given priority during programme implementation.
- **Use of bed nets:** Priority in ensuring access to treated bed nets is very low in Nyanza province and this needs to be made a priority. In Western Province, access to treated bed nets should be improved for Budalangi, Teso North and Teso South supervision areas.
- **Treatment for eye discharge:** The proportion of children who received appropriate treatment in the two programme areas is low, and this child survival indicator needs to be given priority during programme implementation.

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