



REPUBLIC OF KENYA

CHILD HEALTH INDICATOR SURVEY REPORT

JUNE 2012

Lots Quality Assurance Sampling (LQAS)

**National Council for Population and Development
Ministry of Public Health and Sanitation**



USAID
FROM THE AMERICAN PEOPLE



The Rapid Child Survival Indicator Survey and this report were made possible with the technical and financial support of the United States Agency for International Development (USAID), through MEASURE Evaluation. The opinions expressed in the report are those of the authors and may not necessarily be the views of the donor organizations.

Any part of this document may be freely reviewed, quoted, reproduced or translated in full or in part, provided the source is acknowledged. It may not be sold or used in conjunction with commercial purposes or for profit.

Rapid Child Survival Indicator Survey in Western and Eastern Provinces Using the Lot Quality Assurance (LQAS) Methodology

Published by: National Council for Population and Development

PO Box 48994 – GPO, Nairobi 00100, Kenya

Tel: 254-20-271-1600/01

Fax: 254-20-271-6508

www.ncpd-ke.org

Contents

Contents	3
List of Tables	7
List of Abbreviations	11
Acknowledgements	12
Executive summary	13
1. Background	16
1.1 Survey Organization	16
1.2 Survey Objectives and Design	16
1.2.1 Target Population	17
1.2.2 Sampling Frame and Design	17
1.2.3 Survey Coverage	17
1.3 Data Collection Tools	18
1.4 Recruitment of the Field Staff	19
1.5 Overview of the Training	19
1.5.1 Training Methodologies	19
1.6 Main Field Work	19
1.6.1 Identification of the 19 Sample Points in Each District	20
1.6.2 Selecting the Households	20
1.6.3 Who Was Interviewed?	21
1.6.4 Data Collection	21
1.6.5 Data Processing and Analysis	21
2. Survey Indicators	23
2.1 Category 1: Indicators for Children Aged 0–23 Months	23
2.2 Category 2: Indicators for Children Aged 0–5 Months	23
2.3 Category 3: Indicators for Children Aged 6–23 Months	24
2.4 Category 4: Indicators for Children Aged 12–23 Months	24
2.5 Category 5: Indicators for Children Aged 24–59 Months	24
2.6 Category 6: Additional Indicators on Emphasis on Health Programmes	24
3. Indicator-Specific Survey Findings	26
3.1 Category 1: Indicators for Children Aged 0–23 Months	26
3.1.1 Percentage of households with children aged 0–23 months using a flush, pit or VIP toilet	26
3.1.2 Percentage of mothers of children aged 0–23 months who boil or chlorinate their drinking water to make it safe for drinking	28
3.1.3 Percentage of mothers of children aged 0–23 months who delivered their child with a skilled attendant	30
3.1.4 Percentage of mothers of children aged 0–23 months who got postpartum care within a week after delivery	32

3.1.5	Percentage of mothers of children aged 0–23 months who received more than one tetanus toxoid injection before their last delivery	34
3.1.6	Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care	36
3.1.7	Percentage of mothers with children aged 0–23 months who usually wash their hands at least four appropriate times during the day	38
3.1.8	Percentage of children aged 0–23 months who were given co-trimoxazole (Septrin) for ARI	39
3.1.9	Percentage of mothers of children aged 0–23 months who sought treatment for child’s cough at a health facility	41
3.1.10	Percentage of children aged 0–23 months who were given Coartem (AL) for fever	43
3.1.11	Percentage of mothers of children aged 0–23 months who sought treatment for child’s fever at health facility.	45
3.1.12	Percentage of children aged 0–23 months who got appropriate treatment for diarrhea	47
3.1.13	Percentage of mothers of children aged 0–23 months who first sought treatment for child’s diarrhea at a health facility.	49
3.2	Category 2: Indicators for Children Aged 0–5 Months	51
3.2.1	Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth	51
3.2.2	Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours	53
3.3	Category 3: Indicators for Children Aged 6–23 Months	55
3.3.1	Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth	55
3.4	Category 4: Indicators for Children Aged 12–23 Months	57
3.4.1	Percentage of children aged 12–23 months completely immunized	57
3.5	Category 5: Indicators for Children Aged 24–59 Months	58
3.5.1	Percentage of children aged 24–59 months who slept under a bed net last night	58
3.5.2	Percentage of children aged 24-59 months who slept under a treated bed net last night.	60
3.6	Additional Indicators on emphasis on Health Programmes	62
3.6.1	Percentage of mothers of children aged 0-23 months who felt that health programmes increased emphasis on contraceptive use	62
3.6.2	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on malaria prevention	62
3.6.3	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on postpartum care	63

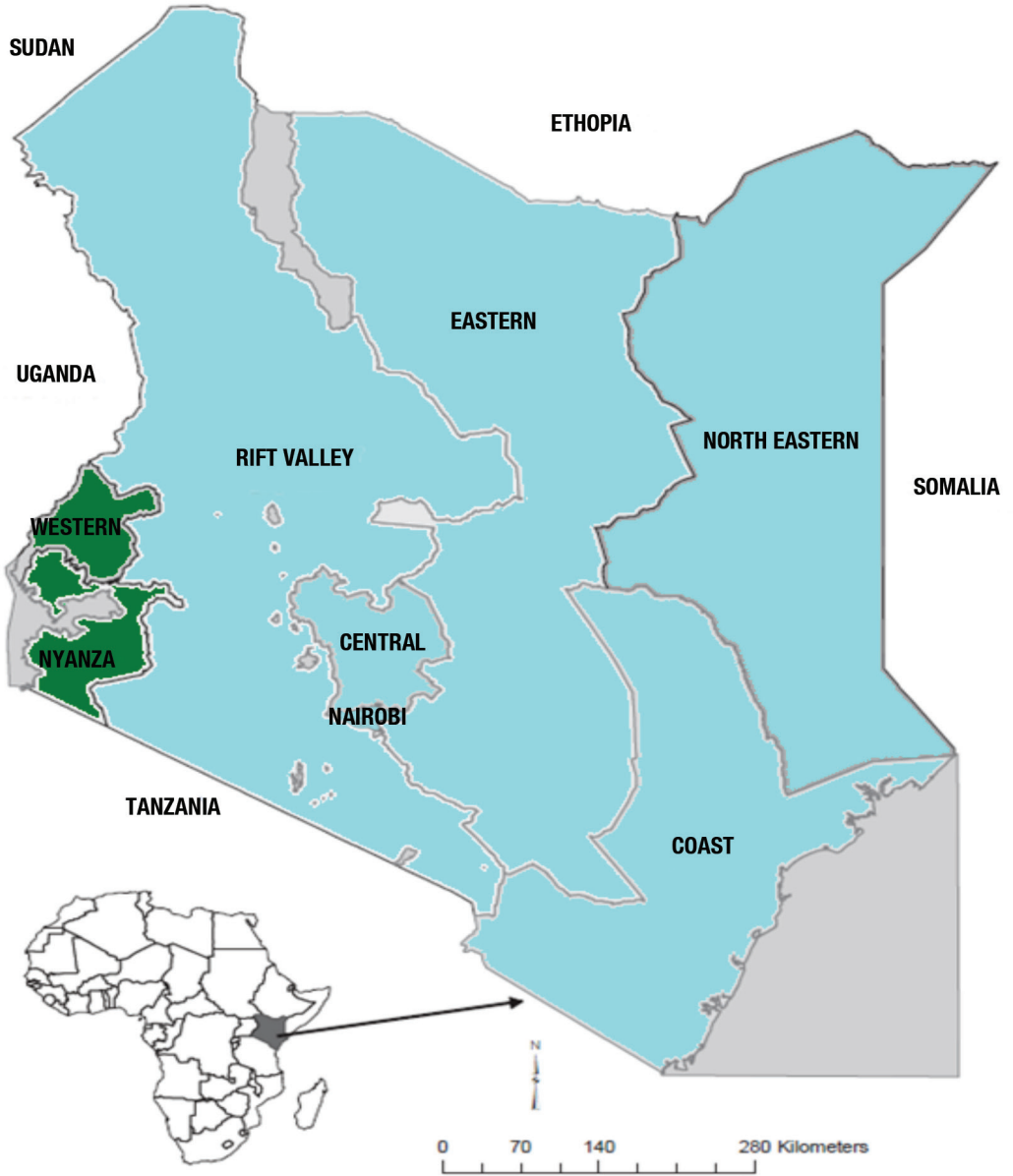
3.6.4	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on water and sanitation	64
3.6.5	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of fever cases	65
3.6.6	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of diarrhea cases	66
3.6.7	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of ARI's	67
3.6.8	Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on place of delivery and skilled attendance	67
3.6.9	Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on child spacing	68
3.6.10	Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on breast feeding and child nutrition	69
3.6.11	Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on management of childhood illnesses	70
3.6.12	Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on child spacing	71
3.6.13	Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on breastfeeding and child nutrition	71
3.6.14	Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on management of childhood illnesses	72
3.6.15	Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on immunization of children	73
3.6.16	Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on management of childhood illnesses	74
3.6.17	Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on polio	75
3.6.18	Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on immunization	76
3.6.19	Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on malaria prevention	77
3.6.20	Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child spacing	77
3.6.21	Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child nutrition	78
3.6.22	Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on management of childhood illnesses	79
4.	Recommendations	80
5.	References	82

List of Tables

Table 3.1:	Coverage of households with children aged 0–23 months using a flush, pit or VIP toilet	27
Table 3.2:	Coverage of households with children aged 0–23 months that boil or chlorinate their drinking water to make it safe	29
Table 3.3:	Coverage of mothers of children aged 0–23 months who delivered their child with a skilled attendant	31
Table 3.4:	Percentage of mothers of children aged 0–23 months who got postpartum care within a week after delivery	32
Table 3.5:	Coverage of households of children aged 0–23 months who received more than 1 TT injection before their last delivery	35
Table 3.6:	Percentage of mothers of children aged 0–23 months that saw a health worker for antenatal care	36
Table 3.7:	Percentage of mothers of children aged 0–23 months that usually wash their hands at least 4 appropriate times during the day	38
Table 3.8:	Percentage of children aged 0–23 months that were given Co-trimoxazole (Septrin) for ARI	40
Table 3.9:	Coverage of households with children aged 0–23 months that sought treatment for child's cough at a health facility	42
Table 3.10:	Percentage of children aged 0–23 months who were given Coartem (AL) for fever	44
Table 3.11:	Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility	46
Table 3.12:	Percentage of children aged 0–23 months who got appropriate treatment for diarrhea	48
Table 3.13:	Percentage of children aged 0–23 months who first sought treatment for diarrhea at a health facility	50
Table 3.14:	Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth	52
Table 3.15:	Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours	53
Table 3.16:	Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth	55
Table 3.17:	Percentage of children aged 12–23 months completely immunized	57
Table 3.18:	Percentage of children aged 24–59 months who slept under a bed net last night	59
Table 3.19:	Percentage of children aged 24–59 months who slept under a treated bed net last night	60
Table 3.20:	Percentage of mothers of children aged 0–23 months who felt that health programs increased emphasis on contraceptive use	62

Table 3.21: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on malaria prevention	63
Table 3.22: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on postpartum care	63
Table 3.23: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on water and sanitation	64
Table 3.24: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of fever cases	65
Table 3.26: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of ARI's	67
Table 3.27: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on place of delivery and skilled attendance	68
Table 3.28: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on child spacing	68
Table 3.29: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on breast feeding and child nutrition	69
Table 3.30: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on management of childhood illnesses	70
Table 3.31: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on child spacing	71
Table 3.32: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on breastfeeding and child nutrition	72
Table 3.33: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on management of childhood illnesses	73
Table 3.34: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on immunization of children	73
Table 3.35: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on management of childhood illnesses	74
Table 3.36: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on polio	75
Table 3.37: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on immunization	76
Table 3.38: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on malaria prevention	77
Table 3.39: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child spacing	78
Table 3.40: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child nutrition	78
Table 3.41: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on management of childhood illnesses	79

MAP OF KENYA BY LQAS PROVINCES



Source: 1999 Kenya Population Census

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
NCPD	National Council 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

Acknowledgements

The Lot Quality Assurance Sampling (LQAS) child health indicator survey collected follow up data on child health in Western and Eastern provinces. LQAS methodology is a good project management tool that can be used for short-term evaluation of community based projects. LQAS for the two programme areas focused on poorly performing supervision areas or districts with regards to maternal and child survival indicators. This is the second time this survey was being conducted in these regions. The first surveys were conducted in Western and Eastern regions in the years 2009 and 2010 respectively.

This survey has benefited from wide consultations with individuals, institutions and organizations with a special interest in child and maternal health. Their assistance, comments, suggestions and cooperation in providing information to the process proved invaluable.

The Ministry of State for National Development and Vision 2030, through the National Council for Population and Development (NCPD), wishes to acknowledge the dedicated efforts and contribution of Dr Sharif, Director Public Health and Sanitation and Dr Annah Wamae, Head, Department of Family Health for providing technical support and guidance through the whole process. We would also like to acknowledge Dr P.S Migiro for her dedication and technical guidance through the process. We would also like to acknowledge the following officers for their input and participation in the process: Dr Bashir Isaak (DRH), Dr. Tatu Kamau (DVI), Terrie Wefwafwa, (Nutrition) and Anne Njeru (DRH). Recognition also goes to Dr. Assumpta Muriithi (WHO), Sheila Macharia (USAID), Dr. Ambrose Misore (APHIA Plus Western). We also thank the Child Health-ICC for guiding us. We also appreciate the field coordination work done by the following officers Sam Ogola, Oduor Onyango (RPC), M.Oruru (RPC) and A.Juma (RPC).

A special thank goes to Dr Paul Kizito, Vane Lumumba, Francis Kundu and Dr Pamela Godia for their technical input during the survey process, report writing and the initial dissemination. We are grateful to the respondents of all the sampled points for willingly giving the information whose input successfully facilitated the survey process. Outstanding facilitation at regional levels by the regional coordinating officers and the local chiefs, assistant chiefs and village elders is acknowledged with thanks.

We sincerely appreciate the financial and technical support provided by the United States Agency for International Development (USAID) through MEASURE Evaluation, North Carolina University.

Dr. Boniface K'Oyugi

Chief Executive Officer

National Coordinating Agency for Population and Development

Executive summary

One in every 19 children born in Kenya dies before their first birthday, while one in every 14 children do not survive up to age five. Majority (60 percent) of these infant deaths occur during the first month of life (KDHS 2008-09). The under-5 mortality rate in Kenya is estimated at 72 deaths per 1,000 live births while the infant mortality rate is 52 deaths per 1,000 live births. The Kenya Child Survival and Development Strategy 2008-2015 identify high impact interventions which are simple, evidence-based and cost-effective that can prevent childhood illness and deaths. These include scaling up insecticide treated nets (ITNs), appropriate infant feeding breastfeeding, management of common childhood illnesses, immunization, antenatal care, clean delivery, newborn care, scaling up oral rehydration therapy and increasing access to water and sanitation.

This evaluation is a follow up of a series of LQAS surveys of the APHIA supported projects sites. In 2009, a baseline LQAS survey was conducted in 2009 in Nyanza and Western provinces and in 2010 a similar baseline was conducted in Central, Coast, Nairobi, Rift Valley, Eastern and North Eastern provinces. This LQAS survey aimed at collecting follow up information on a number of child survival indicators in the APHIA implementation sites in Western and Eastern provinces. The information collected through this evaluation will help determine the change in programme coverage and assess whether interventions have achieved the expected results as well as contributed to efforts towards the improvement of child survival indicators.

The survey specifically assessed different age cohorts of children less than five years for antenatal and postnatal care, nutrition, immunizations, and common childhood illnesses (fever, malaria, cough, and diarrhea). The different age groups assessed were: 0-23 months (under 2 years), 0-5 months, 6-23 months, 12-23 months and 24-59 months. In total the survey assessed 21 child survival indicators and 22 programme emphasis indicators. The following are the key findings of the survey:

- There has been a slight increase in the average coverage of the proportion of households using either, a flush, pit latrine or VIP toilet for both Eastern and Western regions although this increase is not statistically significant.
- Eastern region has shown a decline in access to safe drinking water from 54 percent in 2010 to 39 percent in 2012.
- Western region has shown a significant increase in women reporting having delivered their last child with a skilled provider, from 33 percent in 2009 to 81 percent in 2012 while there has been a decline in Eastern region from 74 percent in 2010 to 65 percent in 2012. However the average coverage of women reporting access to postnatal care still remains low in both regions; 14 percent for Western region and 18 percent for Eastern region.
- The average coverage for at least one ANC visit during the last pregnancy is high in programme areas, 100 percent for Western and 95 percent for Eastern. On the other hand, the average coverage of women attending at least four ANC visits is 60 percent for Western and 40 percent for Eastern regions.
- The average coverage of mothers of children aged 0-23 who received more than one TT injection during their last pregnancy is very low in both programme areas; 17 percent for Western and 9 percent for Eastern. Western programme area shows a significant decline for this indicator from 86 percent in 2009.

- The average coverage for management of fever with Coartem combination treatment (ACT) is 43 percent for Western and 17 percent for Eastern programme areas. The average coverage for western increased slightly from 32 percent in 2009 to 43 percent in 2012 while the coverage for Eastern remained the same.
- Less than half of children aged 0-23 months received appropriate treatment for diarrhea (use of oral rehydration salts (ORS), recommended homemade fluids and zinc) in the two programme areas; Western 49 percent and Eastern 45 percent.
- Over half (53 percent) of mothers of children aged 0-23 months in Western region practiced hand washing at appropriate times while for Eastern only 41 percent did the same.
- There has been a significant decline in the average coverage of mothers of children aged 0-23 seeking treatment for child diarrhea in Western programme area (from 77 percent in 2009 to 57 percent in 2012). The average coverage for Eastern province remains the same in both surveys (53 percent in 2012 and 55 percent in 2010).
- The average coverage of mothers of children aged 0-5 months who breastfeed their children immediately after birth is 46 percent for western region and 64 percent for eastern region. On the other hand exclusive breastfeeding of children aged 0-5 months in the last 24 hrs has increased in Western region (56 percent in 2012 from 34 percent in 2009), while the coverage for Eastern region has slightly declined from 62 percent in 2010 to 55 percent in 2012.
- The average coverage for complete immunization among children aged 12-23 months for the two programme areas fall below national averages. Eastern programme area shows a decline in the average coverage for complete immunization from 62 percent in 2010 to 22 percent in 2012. Similarly the coverage for western has declined from 38 percent in 2009 to 26 percent in 2012.
- Use of ITNs among children aged 24-59 months in western programme area is impressive (95 percent) while for Eastern province the coverage for this indicator is 39 percent.
- The average coverage of mothers of children aged 0-23 who felt that programmes laid emphasis on postpartum care, management of fever cases, ARI and diarrhea was low. Only 41 percent of the mothers from Western felt that programmes did lay emphasis on place of delivery and skilled attendance while the coverage for Eastern was 21 percent.

Although the health sector have identified high impact interventions to accelerate the reduction of maternal and child survival indicators, the average coverage of this indicators still remains low. This survey shows that mothers are not feeling the emphasis of available health programmes especially for postpartum care, management of childhood illnesses such as fever, diarrhea, ARIs and skilled delivery. The emphasis on programmes within Eastern programme area is unacceptably low in most aspects of maternal and child survival. There is need to integrate service delivery at the community level and increase emphasis on the essential maternal and child survival indicators at the community level. There is also need to lay more emphasis on the implementation of the community health strategy such as strengthening community IMCI, community based distribution of contraceptives, improving communication between health workers and mothers on the services provided and well as having district specific interventions. There is also need to make mothers understand what is contained in the MCH booklet.

I. Background



The Kenya Government with technical and financial assistance from MEASURE Evaluation conducted an evaluation on Child Survival in APHIA II catchment areas of Western and Eastern provinces. The two provinces were selected to represent the first and second round of LQAS. This evaluation applied the LQAS methodology in the data collection.

The LQAS methodology for data collection was developed in the 1920s to control the quality of output of industrial production processes. It involves a small sample of a manufactured batch or lot from which items are sampled for quality testing. If the defective items in the sample exceeds a predetermined number (decision rule), then the lot is rejected. The sample size is statistically determined, based on desired production standards and the corresponding decision rule. The sample size gives a manager high probability of accepting lots that meet the quality standards, and of rejecting substandard lots.

LQAS was adapted for use in the public health arena in the mid-1980s. This is the third time such a survey is being conducted in Kenya and the second time in the two provinces. The methodology assists project managers in identifying and prioritizing problems within the catchment areas.

I.1 Survey Organization

The 2011 LQAS evaluation was conducted by a team of eight (8) research assistants equally divided between the two regions under the supervision of four Regional Population Coordinators (RPCs), each team having a designated vehicle and driver. In some cases, supervision was carried out from the headquarters, the MOH and APHIA officers. The LQAS was carried out by the National Council for Population and Development (NCPD) in collaboration with the Ministry of Public Health and Sanitation (MOPHS). Financial and technical assistance for the survey were provided by USAID through MEASURE Evaluation (University of North Carolina). The survey design involved extensive consultations with MOPHS, APHIA staff from the field and other partners.

I.2 Survey Objectives and Design

This evaluation was a follow up of a series of LQAS surveys of the APHIA supported projects. A baseline survey was conducted in 2009 in Nyanza and Western provinces and another in 2010 in Central, Coast, Nairobi, Rift Valley, Eastern and North Eastern provinces.

The objective of this survey was to collect follow up information on a number of child survival indicators in the APHIA implementation sites in the two regions. The information collected through this evaluation will help determine how well the program has adapted its approaches in particular for child survival measures in the target areas.

This evaluation provides a key reference to assess whether interventions have achieved the expected results as well as contributed to efforts towards the achievement of child survival indicators.

1.2.1 Target Population

The survey specifically assessed different age cohorts of children less than five years in the following aspects; antenatal and postnatal care, nutrition, immunization and common childhood illnesses (fever, malaria, cough and diarrhea). The different age groups assessed were: under 2 years, 0–5 months, 6–23 months, 12–23 months, 0–23 months and 24–59 months. Mothers or caregivers of these eligible children were the respondents in their households.

1.2.2 Sampling Frame and Design

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

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

The following definitions contribute to an understanding of the LQAS methodology:

Supervision area (SA): Catchment area or program unit to be assessed or monitored.

Coverage: Proportion with desired outcome of an indicator in a supervision area.

Coverage benchmark: A preset minimum acceptable coverage level.

Average coverage: Proportion showing desired outcome in the whole program area (across all supervision areas).

Decision rule: The number in a given LQAS sample size that corresponds to a specific coverage level.

1.2.3 Survey Coverage

Although some of the nomenclature changed with the adoption of the new constitution in August 2010, historically, Kenya has been administratively divided into eight provinces, each divided into districts which are further sub-divided into divisions, locations, sub-locations and lastly villages. For the purposes of this survey, provinces were classified as regions and considered as program areas, while districts sampled from each region were classified as supervision areas. Within the districts, sub-locations were regarded as sample points and were demarcated into villages. Villages formed the lowest administrative units from which the data was collected.

The 2009 census results guided the selection of supervision areas for data collection. First the population was tabulated per province and district. Five supervision areas -mainly APHIA implementation areas- were then randomly selected from each province. The respective locations were thereafter listed and 19 sample points were then randomly selected for each selected supervision area. Thus, in each province, a total of 95 sample points were contacted and data for 95 data sets collected(5 x 19).

1.3 Data Collection Tools

Tools similar to those used in the 2010 LQAS survey in Eastern, Coast, Central, North Eastern, Nairobi and Rift Valley provinces were used in this survey. Being a follow up, additional questions were introduced to ascertain the extent to which progress has been made in the target areas. To develop these tools, the survey team borrowed liberally from tools developed by the World Health Organization (WHO), ICF Macro, the Kenya Child Survival and Development Strategy, and other surveys on child survival. The technical committee also sought input from a wide range of professionals working in specific program areas with an inclination to child survival.

The sample point household response record was used to track the number of households the interviewer had visited before all the survey tools for the respective sample point were completed. This was done by recording, as per the classification, the number of the first household visited and ascertaining the presence of any children less than five years old. After listing the number of all eligible children living in the household by category, consent was sought to interview the mother or caregiver. Going by order of the interviews, the interviewers then recorded the categories of children interviewed in the response record form.

The following nine questionnaires were used:

- i) LQAS base tool for mothers of children under 2 years
- ii) LQAS subsample 1 (mothers of children aged 0–5 months)
- iii) LQAS subsample 2 (mothers of children aged 6–23 months)
- iv) LQAS subsample 3 (mothers of children aged 12–23 months)
- v) LQAS subsample 4 (mothers of children aged 0–23 months with cough)
- vi) LQAS subsample 5 (mothers of children aged 0–23 months with fever)
- vii) LQAS subsample 6 (mothers of children aged 0–23 months with diarrhea)
- viii) LQAS subsample 7 (mothers of children aged 24–59 months)
- ix) LQAS subsample 8 (mothers of children aged 0-23 months with eye discharge)

1.4 Recruitment of the Field Staff

The NCPD Management authorized the Human Resource Division to recruit 8 interviewers for the exercise. Four were to collect data in Western Province and the other four in Eastern Province. Two data entry clerks were also recruited. The interviewers were drawn from Eastern and Western and had to understand the local language as a way of easing communication during data collection. Recruitment was done by a panel of three officers from the NCPD. Two other

participants who later developed the data entry screen were also invited for the training. The following criteria was used to select the survey staff: gender, educational level, professional / research experience, language, personality and general presentation.

1.5 Overview of the Training

NCPD in collaboration with the MOPHS held training for the LQAS survey interviewers from 16th to 17th February 2012 at Lenana Mount Hotel. The overall goal of the training was to equip the field team with knowledge and skills that would enable them systematically apply the LQAS methodology and collect accurate data for child survival indicators in selected areas of Western and Eastern provinces.

The main objectives of the training were to: explain the purpose and the objectives of the survey to the interviewers; share the LQAS survey process with the interviewers; explain the relationship of the survey to the APHIA II project in Western and Eastern provinces; enable interviewers understand each question, the order and skip patterns; build local capacity of the research team to collect data using LQAS methodology; and to take the interviewers through all the survey materials for uniform understanding.

1.5.1 Training Methodologies

Different teaching methodologies were applied during the training. Participants were first given lectures on the concepts of the LQAS, its background and use. They were further taken through the sampling process relating to the selection of households, identification of respondents at the point of interview including where a household listing was not available or provided. The team was taken through the LQAS manual, the different sections of the 9 tools, and their applicability to the different age cohorts. After a detailed explanation of each tool was made, the team was given an in-depth explanation of the meaning of each question, the modalities of asking each question, how to record different types of responses, the available skip patterns and cancellation of wrong answers.

1.6 Main Field Work

In both provinces or programme areas, five districts that form the APHIA II catchment areas were randomly selected and considered as the supervision areas. In each of the five randomly selected supervision areas, 19 interview locations (sample points) were randomly selected. The set of nine questionnaires was administered at each of these 19 sample points in each district (supervision area).

1.6.1 Identification of the 19 Sample Points in Each District

A list of all the locations and individual populations in each of the districts was retrieved from the 2009 census. From the list, 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 sub-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 among the available sub-locations.

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

1.6.2 Selecting the Households

If the team found a very large village, research assistants subdivided it into sizeable zones and then randomly picked one zone to start with. Within each zone, several homesteads were further grouped into smaller working groups and one homestead was randomly selected as a starting point. In cases where the set of questionnaires was not completed in a single household, the rule was to always turn left when moving to the nearest household from the main entrance. The same rule applied while moving from one homestead to the next.

The following were the steps taken by the research teams in the identification of households within a randomly sampled zone where the interviews were administered:

- First:** When the teams got to the center of the village (for small manageable villages) or the selected zone (for large villages), they prepared a sketch map using known landmarks to demarcate the boundaries. The map showed all the features within the village/zone, which was useful in locating the households.
- Second:** At that level the number of zones were decided upon and numbered on small pieces of paper. The starting point/zone was then randomly selected.
- Third:** Homesteads were then assigned numbers. Having randomly decided on the starting zone, the household to start with was again randomly selected using the small pieces of paper on which household numbers were written. The research assistants had the option of using pens or bottles to determine the direction of the first interview household.

1.6.3 Who Was Interviewed?

After the first homestead had been identified, the team moved to the site to determine who should be interviewed. As earlier stated, there were specific categories of children below five years of age whose mothers/caregivers were to be interviewed. At each selected household, the interviewer asked if there were any eligible children as per the classification on the sample point household response record. Wherever eligible children were found they, they were recorded appropriately on the record form. The interviewer then requested consent for an interview and if granted, proceeded to conduct the interview beginning with the base tool if there were any children aged two years and below.

1.6.4 Data Collection

Field work for the LQAS was conducted by 8 research assistants in the months of February and March 2012. The research assistants worked in teams of four in each province. Eastern Province has two distinct regions, Meru and Kamba, therefore the four research assistants were divided into two groups for ease of coverage.

While in the field, each team had its own vehicle and driver and was supervised by a Regional Population Coordinator. Given the nature of the exercise, RPCs worked closely with the research teams, making the necessary working appointments and ensuring that the sampling procedures were followed correctly.

1.6.5 Data Processing and Analysis

The programmer designed data entry screens module using CS-Pro software for the data entry team. The data was verified by double entry of all the questionnaires to check for any inconsistency. Raw data from the field was received at NCPD headquarters by the data administrator who went through each consignment to make sure that all the 19 required questionnaires for every sample point had been submitted with all the information that was required. The data was verified by double entry of all the questionnaires to check for any inconsistencies.

In addition to the initial variables, used in the first and second LQAS a few additional questions were introduced to the questionnaires to assess respondent opinion on current health programs with emphasis being placed on:

1. Contraceptive use
2. Malaria prevention
3. Postpartum care
4. Water and sanitation
5. Child spacing
6. Immunization
7. Breast feeding and child nutrition
8. Delivery place and skilled attendance
9. Management of childhood illnesses
10. Polio

The data captured was exported to SPSS for analysis. The estimates were weighted using district population sizes. Nineteen sets of questionnaires were completed for each supervision area, making a total of 95 sets of completed questionnaires for each of the two APHIA II program areas.

2. Survey Indicators



Child survival issues were examined through 21 indicators with a focus on the following areas: water and sanitation, access of mothers to maternal health services, and services related to childhood illnesses such as malaria, acute respiratory infections and diarrhea. The age of the child in months was used as a reference point in categorizing the indicators, which were grouped into 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 (or children if twins) 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 received more than one TT injection before their last delivery
6. Percentage of mothers of children aged 0–23 months who saw a health worker for antenatal care
7. Percentage of mothers of children aged 0–23 months who usually wash their hands at least four appropriate times during the day
8. Percentage of mothers of children aged 0–23 months who took co-trimoxazole (Septrin) or amoxicillin for acute respiratory infection (ARI)
9. Percentage of mothers of children aged 0–23 months who sought treatment for child's cough at a health facility
10. Percentage of children aged 0–23 months that were given Coartem (AL) for fever.
11. Percentage of mothers of children aged 0–23 months who sought treatment for child's fever at a health facility
12. Percentage of children aged 0–23 months who got appropriate treatment for diarrhea
13. Percentage of mothers of children aged 0–23 months who first sought treatment for child's diarrhea at a health facility

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

14. Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth
15. 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

16. 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

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

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

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

2.6 Category 6: Additional Indicators with Emphasis on Health Programmes

20. Percentage of mothers of children aged 0-23 months who felt that health programmes increased emphasis on contraceptive use
21. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on malaria prevention
22. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on postpartum care
23. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on water and sanitation
24. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of fever cases
25. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of diarrhea cases
26. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of ARI's
27. Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on delivery place and skilled attendance
28. Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on child spacing

29. Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on breast feeding and child nutrition
30. Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on management of childhood illnesses
31. Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on child spacing
32. Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on breastfeeding and child nutrition
33. Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on management of childhood illnesses
34. Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on child immunization
35. Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on management of childhood illnesses
36. Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on polio
37. Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child immunization
38. Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on malaria prevention
39. Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child spacing
40. Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child nutrition
41. Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on management of childhood illnesses

3. Indicator - Specific Survey Findings



Coverage indicators are good proxies for monitoring child survival. High coverage shows that delivery strategies are being successful in reaching children and mothers. A failure to increase coverage, assuming adequate resources and good planning have been applied is a cause for urgent concern. Program managers as well as partners, should respond to low coverage rates by examining how interventions are being delivered and by removing bottlenecks or developing revised plans for delivery.

The program level data answer basic questions about child survival, such as “What proportions of newborns and children have benefited from known and life-saving interventions?” “Are there gaps in coverage?” and “How equitable is the coverage that exists?” This chapter presents the findings of the 2012 LQAS survey according to the indicator categories listed in section 2 while drawing comparisons from previous LQAS surveys on child survival carried out in 2009 and 2010 respectively. The findings summarized in this chapter are intended to help programmes and their partners assess progress and prioritize actions in an effort to address child mortality and are not to be seen as conclusions in and of themselves.

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

Lack of sanitation is a major public health problem that causes disease, sickness and death especially among children. Dehydration from diarrhea kills about 2.2 million people worldwide each year, most of them children under five. Improvements in water supply, hygiene and sanitation have an estimated potential to reduce incidence of diarrhea by about one fifth and the number of deaths due to diarrhea by more than half (UNICEF/WHO, 2004).

According to Table 3.1 Western Province has 92 percent coverage for this sanitation indicator. However three of its supervision areas fall substantially below average coverage (Bunyala, Samia and Teso South) and would do well to borrow from intervention measures put in place in the better performing areas of Busia and Teso North. All supervision areas in Eastern Province (at 90 percent coverage) are within an acceptable coverage range, as compared to the average coverage, in terms of sanitation. This program area can lend insight to poor performing supervision areas in Western Province on how to widen its scope in sanitation coverage.

There has been a slight increase in the average coverage of the sanitation indicator for both Western and Eastern Provinces, although this increase is not statistically significant. The sanitation indicator coverage has increased from 89% in 2009 to 92% (2012) and 86% in 2010 to 90% (2012) for Western and Eastern Provinces respectively. . Kitui in Eastern Province which was substantially below average coverage in 2010 has joined other acceptably performing SAs in 2012. However, Teso South, Samia and Bunyala (previously referred to as Budalangi) in Western Province have dropped from their acceptable coverage in 2009 to below average in 2012.

Table 3.1: Coverage of households with children aged 0–23 months using a flush, pit or VIP toilet 2012

Indicator: % of households with children aged 0-23 months using a flush, pit or VIP toilet			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 91.6	(87.2 - 96)
		Decision Rule: 16	Meets Decision Rule?
Bunyala	19	15	No
Teso North	19	19	Yes
Teso South	19	15	No
Busia	19	19	Yes
Samia	19	15	No
Total	95	83	
Eastern		Coverage: 89.9	(82 - 97.8)
		Decision Rule: 15	Meets Decision Rule?
Igembe	19	18	Yes
Kibwezi	19	17	Yes
Kitui	19	15	Yes
Meru South	19	19	Yes
Tharaka	19	19	Yes
Total	95	88	

2009

Indicator: Percentage of households with children aged 0–23 months using a flush, pit or VIP toilet			
Sample areas	Sample size	Correct responses	Confidence limits
Western		Coverage: 89.1	(81.9–96.3)
		Decision rule: 15	Meets decision rule?
Bunyala	19	16	Yes
Teso North	19	16	Yes
Teso south	19	18	Yes
Busia	19	17	Yes
Samia	19	17	Yes
Total	95	84	

2010

Indicator: % of households with children aged 0–23 months using a flush, pit or VIP toilet			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 86.2	(78.9–93.5)
		Decision rule: 15	Meets decision rule?
Igembe	19	19	Yes
Kibwezi	19	19	Yes
Kitui	19	12	No
Marsabit	19	13	No
Tharaka	19	18	Yes
Total	95	81	

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

Access to safe drinking water is not only a fundamental need and human right; it also has considerable health and economic benefits to households and individuals (UNICEF/ WHO, 2005). For program purposes, a lack of access to safe drinking water is important because it contributes to death and illness in children. The seventh MDG includes a target of halving, from 1990-2015, the proportion of people without sustainable access to safe drinking water. Improving water and sanitation are important in preventing infectious diseases and thereby to achieving the health-related MDGs. Of the various ways of disinfecting household drinking water, the commonest are boiling and chlorination (WHO, 1997).

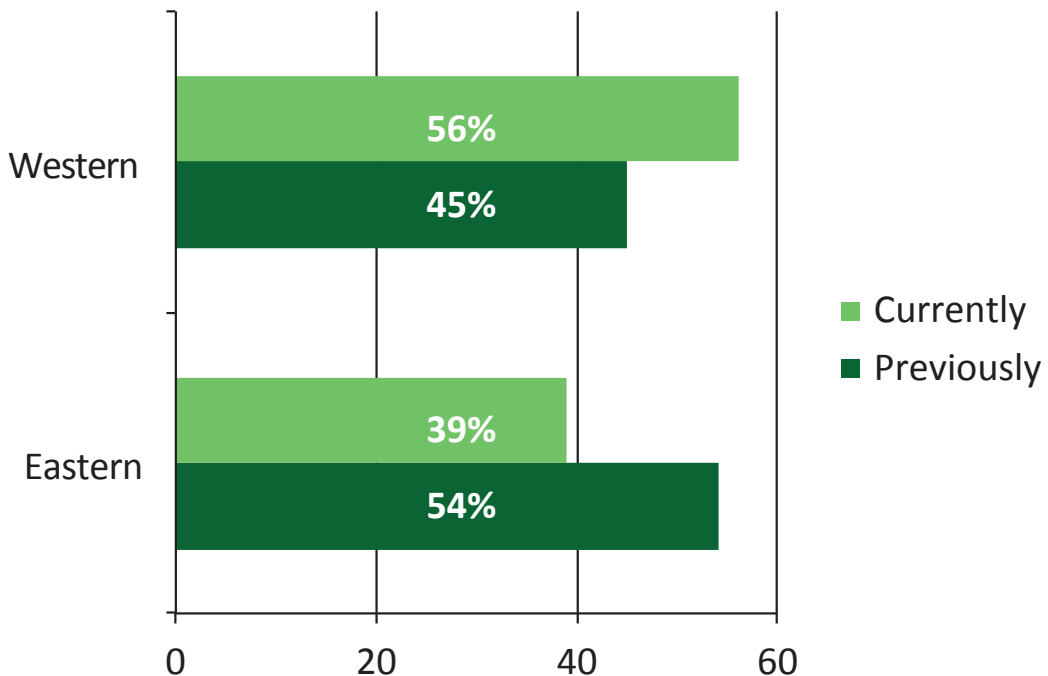


Figure 3.1: Mothers of children aged 0-23 months who boil or chlorinate their drinking water to make it safe for drinking

The data in Table 3.2 reports that in Western Province, 56 percent of mothers with children aged 0-23 months treat their water properly to make it safe for drinking and that of its five supervision areas, only Samia falls below the average coverage. This suggests a heartening improvement in this indicator, as the average coverage was estimated at 45 percent in 2009 for this province.

Eastern has a particularly low coverage rate of about 39 percent with Kibwezi being substantially below average coverage. Interventions should focus on encouraging safe water drinking practices in both program areas and especially in the poor performing Samia and Kibwezi. Factors contributing to the apparent decline in coverage for Eastern Province (from 54 percent in 2010) should be identified and addressed.

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

2012

Indicator: % 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
Western		Coverage: 55.9	(44.2 - 67.6)
		Decision Rule: 9	Meets Decision Rule?
Bunyala	19	11	Yes
Teso North	19	11	Yes
Teso South	19	11	Yes
Busia	19	11	Yes
Samia	19	8	No
Total	95	52	
Eastern		Coverage: 39.1	(26.9 - 51.3)
		Decision Rule: 5	Meets Decision Rule?
Igembe	19	6	Yes
Kibwezi	19	3	No
Kitui	19	8	Yes
Meru South	19	10	Yes
Tharaka	19	9	Yes
Total	95	36	

2009

Indicator: 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
Western		Coverage: 44.8	(33.2–56.4)
		Decision rule: 6	Meets decision rule?
Bunyala	19	10	Yes
Teso North	19	9	Yes
Teso south	19	4	No
Busia	19	10	Yes
Samia	19	8	Yes
Total	95	41	

2010

Indicator: % 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
Eastern		Coverage: 53.5	(42–65)
		Decision rule: 8	Meets decision rule?
Igembe	19	9	Yes
Kibwezi	19	8	Yes
Kitui	19	13	Yes
Marsabit	19	4	No
Tharaka	19	11	Yes
Total	95	45	

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

The presence of a skilled attendant at delivery is associated in observational studies with better delivery outcomes, including reduced maternal deaths (Graham, et al 2001; WHO, UNICEF, UNFPA and AMDD 2006). This association is plausible since a skilled attendant is authorized to perform life-saving functions with support of a functional health system can provide life-saving interventions in a timely manner. Although 92% of pregnant women receive ANC from a skilled health provider at least once, only 42% of deliveries are conducted under skilled care (KDHS 2008-09). The Kenya National Health Sector Strategic Plan (NHSSP 2005-2010) placed a target of 90 percent of deliveries by skilled staff by the year 2010 which is also the target aimed at in the MDGS.

Current findings show a significant increase in skilled attendance for Western Province from 33% in 2009 to 81% in 2012; while there has been a significant reduction in skilled attendance for Eastern Province from 74% in 2010 to 65% in 2012 (Table 3.3). . In Western Province, Samia, Busia and Teso South have acceptable coverage while the coverage for Bunyala and Teso North are below average. For Eastern Province Kitui, Kibwezi, Igembe and Meru South report skilled attendance are within or above average coverage while Tharaka's coverage falls below the average coverage mark. Extraordinary efforts are needed in both program areas and especially in Eastern Province and the poor performing areas of Bunyala and Teso North in Western and Tharaka in Eastern to save the lives of mothers and infants and to progress toward the national target.

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

2012

Indicator: (Base 0-23) % of mothers of children aged 0-23 months who delivered their child with a skilled attendant			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 81.3	(73.1 - 89.5)
		Decision Rule: 14	Meets Decision Rule?
Bunyala	19	13	No
Teso North	19	13	No
Teso South	19	16	Yes
Busia	19	17	Yes
Samia	19	14	Yes
Total	95	73	
Eastern		Coverage: 65	(53.2 - 76.8)
		Decision Rule: 11	Meets Decision Rule?
Igembe	19	14	Yes
Kibwezi	19	14	Yes
Kitui	19	11	Yes
Meru South	19	15	Yes
Tharaka	19	8	No
Total	95	62	

2009

Indicator: 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
Western		Coverage: 33.1	(22.4–43.8)
		Decision rule: 4	Meets decision rule?
Bunyala	19	10	Yes
Teso North	19	9	Yes
Teso south	19	7	Yes
Busia	19	5	Yes
Samia	19	4	Yes
Total	95	35	

2010

Indicator: % of mothers of children aged 0–23 months who delivered their child with a skilled attendant			
Sample Areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 73.9	(64.3–83.5)
		Decision rule: 12	Meets decision rule?
Igembe	19	14	Yes
Kibwezi	19	11	No
Kitui	19	17	Yes
Marsabit	19	8	No
Tharaka	19	12	Yes
Total	95	62	

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

This study shows that the average coverage for postnatal care for the two programme areas is very low. For Western province, the average coverage for postnatal care is 14 percent while that for Eastern province is 18 percent. Western province has shown a decline in the average coverage of postnatal care from 2009 when the average coverage was 23 percent. For Eastern Province, there has been no change in the coverage between the two assessments. Effective postnatal care, like antenatal care, requires several contact visits. The national guidelines recommend 4 postnatal visits as follows: within 48hrs, 1-2 weeks, 4-6 weeks and lastly at 16 months. In Kenya, 53 percent of women do not receive postnatal care at all while almost 42 percent receive postnatal care within 2 days (48 hrs) (KDHS 2008-09).

Efforts should be directed toward identifying and managing constraints in postpartum care provision strategies so as to improve coverage in both program areas.

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

2012

Indicator: % of mothers of children aged 0-23 months who got postpartum care within a week after delivery			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 14.2	(6.3 - 22.1)
		Decision Rule: N/A	Meets Decision Rule?
Bunyala	19	0	N/A
Teso North	19	4	N/A
Teso South	19	5	N/A
Busia	19	2	N/A
Samia	19	2	N/A
Total	95	13	
Eastern		Coverage: 18	(8.6 - 27.4)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	4	Yes
Kibwezi	19	1	Yes
Kitui	19	2	Yes
Meru South	19	6	Yes
Tharaka	19	4	Yes
Total	95	17	

2009

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
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	

2010

Indicator: % of mothers of children aged 0–23 months who got postpartum care within a week after delivery			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 16.8	(8.1–25.5)
		Decision rule: 1	Meets decision rule?
Igembe	19	3	Yes
Kibwezi	19	3	Yes
Kitui	19	3	Yes
Marsabit	19	3	Yes
Tharaka	19	5	Yes
Total	95	17	

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

Mothers and newborns are considered protected from tetanus if the pregnant woman receives two doses of tetanus toxoid (TT) vaccine during an appropriate period before childbirth. The tetanus toxoid vaccines are often provided during antenatal care visits but some countries have improved coverage rates through the introduction of maternal and neonatal tetanus campaigns.

The survey collected data on whether mothers of children aged 0–23 months received more than one TT injection before their last delivery in Western and an improvement in Eastern. Table 3.5 indicates that all SA's are at an equally low level of coverage in Western Province, with an average coverage of 23 percent. Eastern Province reported less than 10 percent coverage (9 percent) of mothers with more than one TT injection within the necessary time to give protection.

A comparison of data from the 2009 and 2010 LQAS shows a huge decline in the proportion of mothers that received more than one TT injection before their last delivery. In Western there was a disheartening decline from 86 percent in 2009 to 17 percent. The suggested decline was less pronounced in Eastern from 18 percent in 2010 to 9 percent.

Increases in coverage for TT injections contribute to better child survival. The data should therefore spur program planners in both provinces to take urgent action to achieve appropriate coverage for this life-saving procedure and to contribute to child survival.

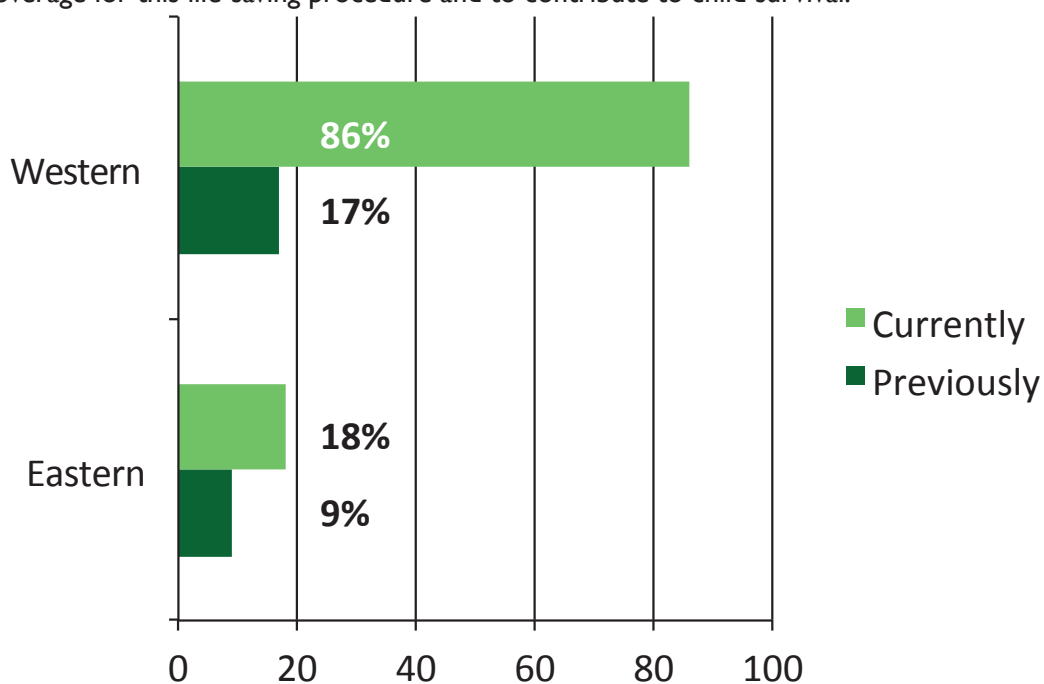


Figure 3.2: Mothers of children aged 0-23 months who received more than 1 TT injection before their last delivery

Table 3.5: Coverage of households of children aged 0–23 months who received more than 1 TT injection before their last delivery

2012

Indicator: % 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
Western		Coverage: 16.8	(8.1 - 25.5)
		Decision Rule: 1	Meets Decision Rule?
Bunyala	19	3	Yes
Teso North	19	5	Yes
Teso South	19	3	Yes
Busia	19	3	Yes
Samia	19	2	Yes
Total	95	16	
Eastern		Coverage: 9.1	(1.8 - 16.4)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	1	N/A
Kibwezi	19	6	N/A
Kitui	19	3	N/A
Meru South	19	1	N/A
Tharaka	19	0	N/A
Total	95	11	

2009

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
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	

2010

Indicator: % 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
Eastern		Coverage: 18.3	(9.1–27.5)
		Decision rule: 1	Meets decision rule?
Igembe	19	4	Yes
Kibwezi	19	4	Yes
Kitui	19	3	Yes
Marsabit	19	4	Yes
Tharaka	19	2	Yes
Total	95	17	

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

Antenatal care can provide a platform for delivering several effective maternal and new born interventions, including (among others) TT immunization, intermittent preventive treatment for malaria and preventing mother-to-child transmission for HIV. As earlier noted, 92 percent of women in Kenya receive antenatal care from a medical professional either from doctors (29 percent) or nurses and midwives (63 percent). A very small fraction (less than 1 percent) receives antenatal care from traditional birth attendants, and 7 percent do not receive any antenatal care at all (KDHS 2008-09).

Both program areas record impressive coverage with an all-round coverage for Western Province (100 percent) and 95 percent for Eastern Province (Table 3.6).

These results echo those reported for Western in 2009 (98 percent) and for Eastern in 2010 (99 percent). Even so, efforts to sustain high antenatal coverage rates are still required- which will depend on the specific interventions and the quality of antenatal care.

Table 3.6: Percentage of mothers of children aged 0–23 months that saw a health worker for antenatal care

2012

Indicator: % of mothers of children aged 0-23 months who saw a health worker for ante-natal care			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 100	(100 - 100)
		Decision Rule: N/A	Meets Decision Rule?
Bunyala	19	19	N/A
Teso North	19	19	N/A
Teso South	19	19	N/A
Busia	19	19	N/A
Samia	19	19	N/A
Total	95	95	
Eastern		Coverage: 95.2	(89.6 - 100.8)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	18	N/A
Kibwezi	19	17	N/A
Kitui	19	18	N/A
Meru South	19	19	N/A
Tharaka	19	18	N/A
Total	95	90	

2009

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
Western		Coverage: 98.1	(95.7–100)
		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	

2010

Indicator: % of mothers of children aged 0–23 months who saw a health worker for antenatal care			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 98.8	(97.4–100.2)
		Decision rule: N/A	Meets decision rule?
Igembe	19	19	N/A
Kibwezi	19	19	N/A
Kitui	19	19	N/A
Marsabit	19	18	N/A
Tharaka	19	17	N/A
Total	95	92	

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

Infectious diseases, many of which are spread by unclean hands, remain the leading cause of death and disease worldwide. Hand washing is therefore a valuable way to help fight the spread of disease among individuals and for the purpose of this survey, from mother to child. It is recommended that caregivers of children should wash hands; before feeding the child, after changing the child, after visiting the toilet and before preparing food for the child.

The survey sought to ascertain whether mothers of children aged 0–23 months usually wash their hands at least four appropriate times during the day. Findings in Western Province show that just over one-half (53 percent) of the mothers interviewed usually practice this hygienic behavior. Further, two of its SAs; Teso North and Teso South are substantially below average coverage for this indicator. Only 41 percent of mothers in Eastern Province practice hand washing at appropriate times and the majority of its SAs – Igembe, Tharaka and Meru South report below average coverage (Table 3.7).

Table 3.7: Percentage of mothers of children aged 0–23 months that usually wash their hands at least 4 appropriate times during the day

2012

Indicator: % of mothers of children aged 0-23 months who usually wash hands at least 4 appropriate times during the day			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 53.1	(42.2 - 64)
		Decision Rule: 8	Meets Decision Rule?
Bunyala	19	11	Yes
Teso North	19	4	No
Teso South	19	6	No
Busia	19	13	Yes
Samia	19	13	Yes
Total	95	47	
Eastern		Coverage: 40.6	(34.7 - 46.5)
		Decision Rule: 6	Meets Decision Rule?
Igembe	19	1	No
Kibwezi	19	13	Yes
Kitui	19	18	Yes
Meru South	19	2	No
Tharaka	19	2	No
Total	95	36	

2009

Indicator: % of mothers of children aged 0–23 months who usually wash their hands at least 4 appropriate times during the day			
Sample areas	Sample size	Correct responses	Confidence limits
Western		Coverage: 1.8	(0–3.7)
		Decision rule: N/A	Meets decision rule?
Budalangi	19	2	N/A
Teso North	19	0	N/A
Teso south	19	0	N/A
Busia	19	0	N/A
Samia	19	1	N/A
Total	95	3	

2010

Indicator: % of mothers of children aged 0–23 months who usually wash their hands at least 4 appropriate times during the day			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 16.7	(8.1–25.3)
		Decision rule: 1	Meets decision rule?
Igembe	19	2	Yes
Kibwezi	19	1	Yes
Kitui	19	5	Yes
Marsabit	19	4	Yes
Tharaka	19	5	Yes
Total	95	17	

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

The survey assessed whether children aged 0–23 months were given septrin or amoxil when they sought ARI treatment at a health facility. As Table 3.8 shows, average coverage of septrin use for suspected ARI in children is alarmingly low in both program areas. Of all children 0-23 months in Western Province with ARI symptoms, only 36 percent received the correct treatment - though all its supervision areas meet average coverage. In this province, fewer children than in the 2009 LQAS (47 percent) were given appropriate treatment for ARI. In Eastern Province the coverage is even lower at 28 percent but with all its SAs meeting average coverage. However, point prevalence of appropriate ARI treatment appears to have improved in Eastern Province; up from 18 percent in 2010. The limited availability of co-trimoxazole for ARI treatment is evidence enough of the need for greater investments in health care systems so that children have access to this essential treatment.

Acute respiratory infection (ARI) is one of the leading causes of childhood morbidity and mortality throughout the world, with the highest prevalence of ARI in children aged 6–11 months. Early diagnosis and treatment with antibiotics can prevent a large number of ARI deaths. Children with severe respiratory illnesses should be thoroughly examined by a provider and, if indicated, hospitalized. In most of these cases, recourse to antibiotics is warranted. The Integrated Management of Childhood Illnesses (IMCI) guidelines recommend at least one oral antibiotic for treatment of respiratory infections in children and that the first dose of any prescribed medicine, particularly antibiotics, should be administered at the facility so that treatment can begin immediately. This practice also provides an opportunity to reinforce the dosage to the caretaker and to ensure that the child is able to take the medicine. Co-trimoxazole (Septrin) has been recommended as one of the first line medications for the prevention and management of ARIs. In Kenya, provincial variations also exist for ARI, with Coast Province having the highest levels (13 percent), and Eastern and Western provinces having the lowest (6 percent) (KDHS 2008-09).

The survey assessed whether children aged 0–23 months were given Septrin or Amoxil when they sought ARI treatment at a health facility. As Table 3.8 shows, average coverage of Septrin use for suspected ARI in children is alarmingly low in both program areas. Of all children 0-23 months in Western Province with ARI symptoms, only 36 percent received the correct treatment- though all its supervision areas meet average coverage. In this province, a fewer proportion of children than in the 2009 LQAS (47 percent) were given appropriate treatment for ARI. In Eastern Province the coverage is even lower at 28 percent but with all its SAs meeting average coverage. However, point prevalence of appropriate ARI treatment appears to have improved in Eastern Province; up from 18 percent in 2010. The limited availability of Co-trimoxazole for ARI treatment is evidence enough of the need for greater investments in health care systems so that children have access to this essential treatment.

Table 3.8: Percentage of children aged 0–23 months that were given Co-trimoxazole (Septrin) for ARI 2012

Indicator: % of children aged 0-23 months who were given Co-Trimoxazole (septrin) for ARI			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 36.4	(25.6 - 47.2)
		Decision Rule: 5	Meets Decision Rule?
Bunyala	19	9	Yes
Teso North	19	7	Yes
Teso South	19	9	Yes
Busia	19	5	Yes
Samia	19	9	Yes
Total	95	39	
Eastern		Coverage: 28.4	(17.5 - 39.3)
		Decision Rule: 3	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	4	Yes
Kitui	19	8	Yes
Meru South	19	8	Yes
Tharaka	19	3	Yes
Total	95	26	

2009

Indicator: Percentage of children aged 0–23 months who were given co-trimoxazole (Septrin) for ARI			
Sample areas	Sample size	Correct responses	Confidence limits
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	

2010

Indicator: % of children aged 0–23 months who were given co-trimoxazole (Septrin) for ARI			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 18.2	(9.4–27)
		Decision rule: 1	Meets decision rule?
Igembe	19	7	Yes
Kibwezi	19	1	Yes
Kitui	19	1	Yes
Marsabit	19	2	Yes
Tharaka	19	4	Yes
Total	95	15	

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

About 72 percent of children sought treatment for cough from an appropriate health care provider in both Western and Eastern Provinces (Table 3.9).

All the SAs in Western province meet average coverage for children seeking treatment for cough from an appropriate health care provider with no significant change since the 2009 survey. Kibwezi is the only SA in Eastern Province that reports substantially less than average coverage of mothers who seek care for child’s cough at a health facility. The findings translate to a 16 percentage point difference in estimates for this indicator in Eastern Province compared to the 2010 survey.

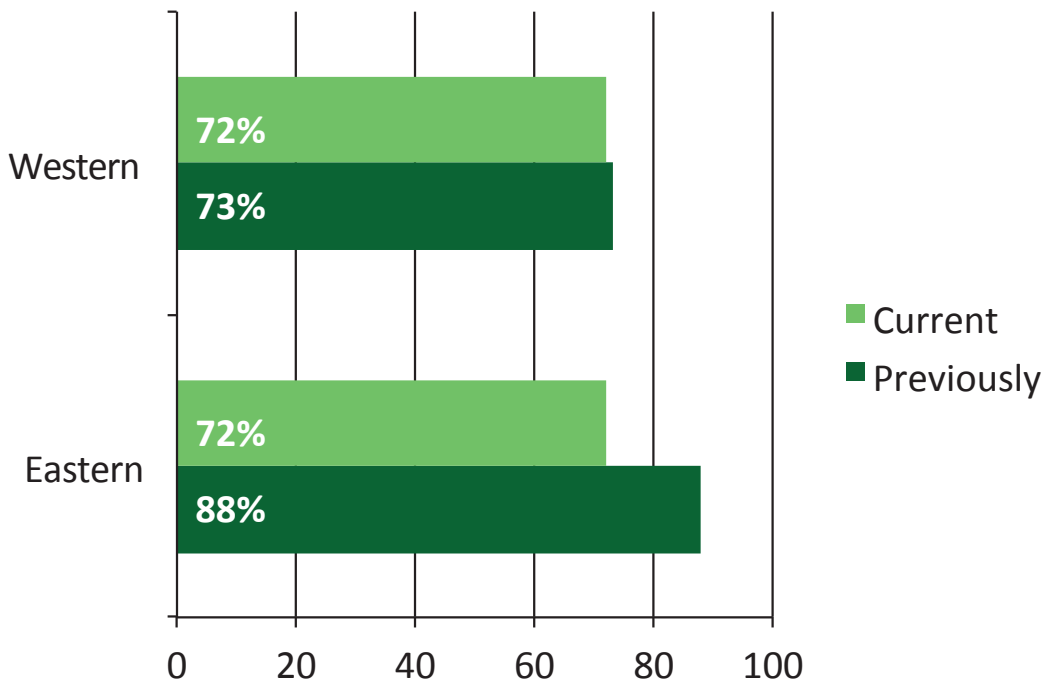


Figure 3.3: Mothers of children 0-23 months who sought treatment for child’s cough at a health facility

Table 3.9: Coverage of households with children aged 0–23 months that sought treatment for child's cough at a health facility

2012

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
Western		Coverage: 71.9	(61.4 - 82.4)
		Decision Rule: 12	Meets Decision Rule?
Bunyala	19	13	Yes
Teso North	19	14	Yes
Teso South	19	12	Yes
Busia	19	14	Yes
Samia	19	15	Yes
Total	95	68	
Eastern		Coverage: 72.4	(61.2 - 83.6)
		Decision Rule: 12	Meets Decision Rule?
Igembe	19	15	Yes
Kibwezi	19	8	No
Kitui	19	12	Yes
Meru South	19	16	Yes
Tharaka	19	14	Yes
Total	95	65	

2009

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
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	

2010

Indicator: % 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
Eastern		Coverage: 87.9	(80.5–95.3)
		Decision rule: 15	Meets decision rule?
Igembe	19	18	Yes
Kibwezi	19	15	Yes
Kitui	19	16	Yes
Marsabit	19	18	Yes
Tharaka	19	17	Yes
Total	95	84	

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

One of the targets for MDG 6 is to halt and reverse the incidence of malaria and other major diseases. Kenya Government policy presently recommends that all fevers in children under five years of age be presumptively treated as malaria with Artemesinin combination treatment (ACT), which is provided free of charge at government and mission health facilities. Currently recommended interventions for the management of these diseases as well as nutrition are delivered via the Integrated Management of Childhood Illness (IMCI) strategy which recommends the use of anti malarial and antipyretic (especially in high malaria risk areas), followed by referral to appropriate facilities for further treatment for children with severe febrile illness (UNICEF/WHO, 2004). Achieving high coverage with the recommended treatment interventions would prevent the majority of child deaths from these causes.

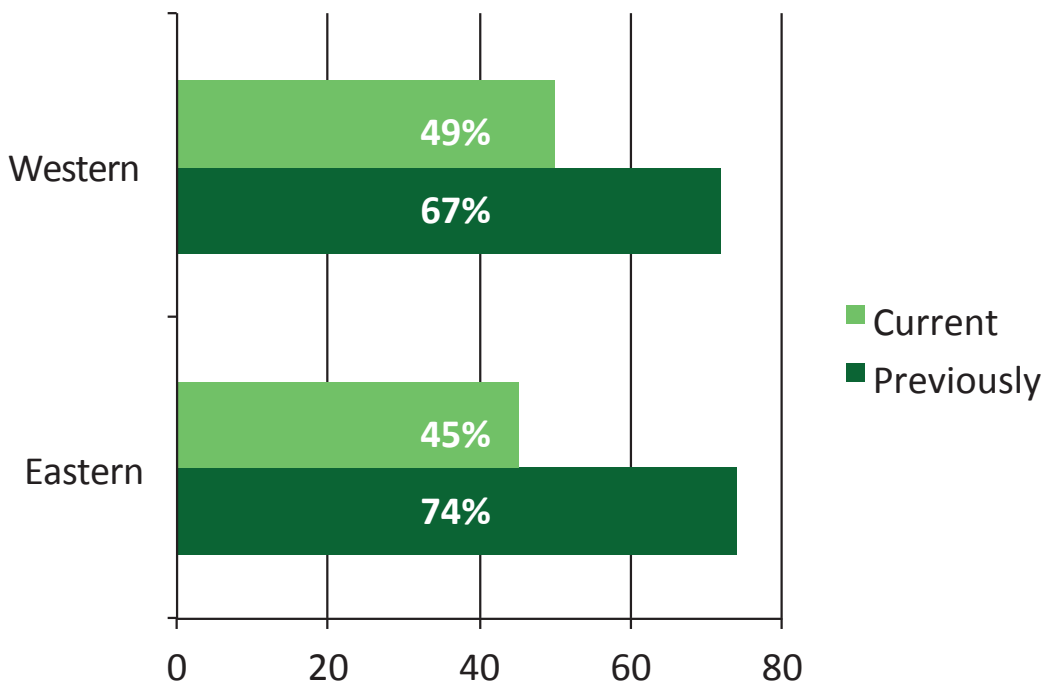


Figure 3.4: Mothers of children aged 0-23 months who were given Coartem (AL) for fever

Table 3.10: Percentage of children aged 0 –23 months who were given Coartem (AL) for fever

2012

Indicator: % of children aged 0 -23 months who were given Coartem (AL) for fever			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 43.3	(32.8 - 53.8)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	4	No
Teso North	19	15	Yes
Teso South	19	13	Yes
Busia	19	5	No
Samia	19	7	Yes
Total	95	44	
Eastern		Coverage: 17.4	(8.1 - 26.7)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	4	Yes
Kibwezi	19	1	Yes
Kitui	19	2	Yes
Meru South	19	6	Yes
Tharaka	19	3	Yes
Total	95	16	

2009

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
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	

2010

Indicator: % of children aged 0–23 months who were given Coartem (AL) for fever			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 18.8	(9.7–27.9)
		Decision rule: 1	Meets decision rule?
Igembe	19	2	Yes
Kibwezi	19	3	Yes
Kitui	19	6	Yes
Marsabit	19	7	Yes
Tharaka	19	1	Yes
Total	95	19	

As shown in Table 3.10, average coverage for fever/presumed malaria treatment with Coartem has been met by only three SAs in Western Province; Samia, Teso North and Teso South. Coverage for the province is also low at 43 percent although its movement is in the right direction, as compared to the 32 percent coverage witnessed in 2009. Although all SAs in Eastern Province meet the average coverage for this indicator, overall coverage for the province remains very low at 17 percent, which is slightly lower than what was reported in 2010 (19 percent). As with the indicator for treatment for cough, proper mechanisms should be used to deliver the more effective ACTs to rapidly increase effective coverage in both program areas.

3.1.11 Percentage of mothers of children aged 0–23 months who sought treatment for child’s fever at health facility.

Care seeking for malaria was relatively low for Western Province at 63 percent, having declined from 82 percent in 2009, and is below the average coverage in Busia. In Eastern Province – maintaining at 88 percent since 2010- Kibwezi falls below average coverage (Table 3.11). Programs should work hard in Busia and Kibwezi to encourage care seeking behavior for fever as part of the strategy to reduce child deaths. Measures should also be put in place to generally improve coverage in Western Province.

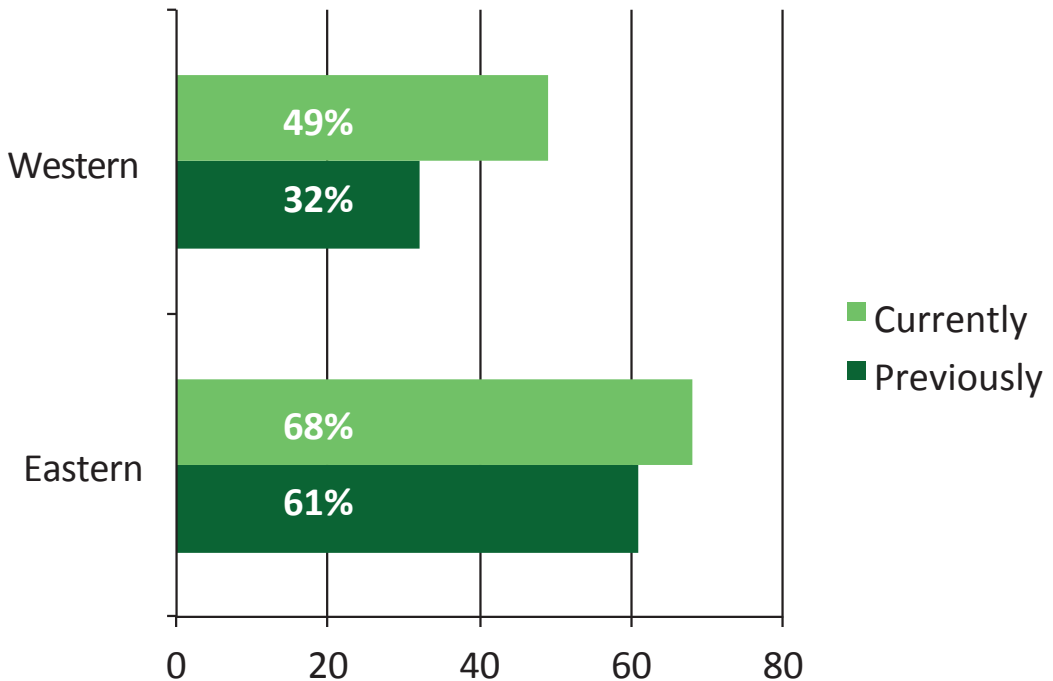


Figure 3.5: Mothers of children aged 0-23 months who sought treatment for child having fever at a health facility

Table 3.11: Percentage of mothers of children aged 0–23 months who sought treatment for child’s fever at a health facility

2012

Indicator: % 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: 62.5	(51.2 - 73.8)
		Decision Rule: 10	Meets Decision Rule?
Bunyala	19	11	Yes
Teso North	19	15	Yes
Teso South	19	15	Yes
Busia	19	9	No
Samia	19	14	Yes
Total	95	64	
Eastern		Coverage: 87.7	(79.8 - 95.6)
		Decision Rule: 15	Meets Decision Rule?
Igembe	19	17	Yes
Kibwezi	19	10	No
Kitui	19	17	Yes
Meru South	19	16	Yes
Tharaka	19	16	Yes
Total	95	76	

2009

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	(73.4–89.6)
		Decision rule: 14	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	

2010

Indicator: % 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
Eastern		Coverage: 87.8	(80.1–95.5)
		Decision rule: 15	Meets decision rule?
Igembe	19	18	Yes
Kibwezi	19	16	Yes
Kitui	19	15	Yes
Marsabit	19	19	Yes
Tharaka	19	18	Yes
Total	95	86	

3.1.12 Percentage of children aged 0–23 months who got appropriate treatment for diarrhea

Diarrhea is the second leading cause of death among children under five years old globally. Nearly one in five child deaths – about 1.5 million each year – are due to diarrhea. Only 39 percent of children with diarrhea in developing countries receive the recommended treatment, and limited trend data suggests that there has been little progress since 2000 (UNICEF/WHO, 2009). According to guidelines in the IMCI strategy, a sick child’s caretaker should receive the following essential advice before leaving the health facility: give the sick child extra fluids during the illness, continue to feed the sick child and watch for signs and symptoms that indicate the child should immediately be brought back to a health care provider. The guidelines have defined first-line, pre-referral and other important medications for treating diarrheal in the sick child with first- line medicines such as ORS packets.

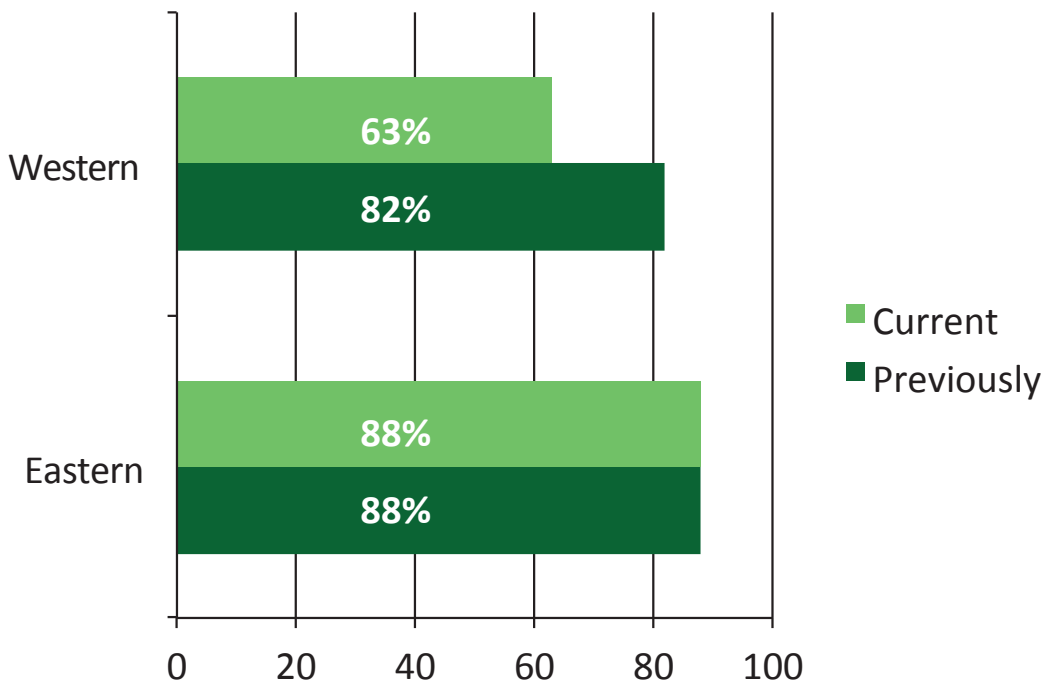


Figure 3.6: Mothers of children aged 0-23 months who got appropriate treatment for diarrhea

Table 3.12: Percentage of children aged 0–23 months who got appropriate treatment for diarrhea

2012

Indicator: % of children aged 0-23 months who got appropriate treatment for diarrhea			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 49	(37.9 - 60.1)
		Decision Rule: 7	Meets Decision Rule?
Bunyala	19	8	Yes
Teso North	19	12	Yes
Teso South	19	13	Yes
Busia	19	6	No
Samia	19	13	Yes
Total	95	52	
Eastern		Coverage: 44.7	(32.5 - 56.9)
		Decision Rule: 6	Meets Decision Rule?
Igembe	19	6	Yes
Kibwezi	19	6	Yes
Kitui	19	9	Yes
Meru South	19	15	Yes
Tharaka	19	10	Yes
Total	95	46	

2009

Indicator: Percentage of children aged 0–23 months who got appropriate treatment for diarrhea			
Sample areas	Sample size	Correct responses	Confidence limits
Western		Coverage: 66.5	(55.8 - 77.2)
		Decision rule: 11	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	

2010

Indicator: % of children aged 0–23 months who got appropriate treatment for diarrhea			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 73.8	(63.3–84.3)
		Decision rule: 12	Meets decision rule?
Igembe	19	14	Yes
Kibwezi	19	13	Yes
Kitui	19	14	Yes
Marsabit	19	17	Yes
Tharaka	19	15	Yes
Total	95	73	

According to Table 3.12 slightly less than a half (49 percent) of mothers in Western Province got appropriate treatment for their child's diarrhea; only Busia reports lower than average coverage. Eastern's coverage is also low at 45 percent, with all areas showing similar performance. To improve coverage of this indicator in Busia in particular and in both program areas in general, there is need for increased sensitization on appropriate treatment of diarrhea especially since compared to previous survey years in both program areas the knowledge on actions mothers should take when the child has diarrhea seems to have decreased considerably (from 67 percent in Western in 2009 and from 74 percent in Eastern in 2010).

3.1.13 Percentage of mothers of children aged 0–23 months who first sought treatment for child's diarrhea at a health facility.

The survey focused attention on the prevention and management of diarrheal diseases through use of oral rehydration salts (ORS), recommended homemade fluids and zinc.

Table 3.13 shows coverage for Western Province at 57 percent with its entire SAs save for Busia meeting the average coverage for the program area. In Eastern Province, 53 percent of mothers of children aged 0-23 months first sought treatment for diarrhea at a health facility. Coverage for Kibwezi in this program area is low and requires to be given priority. Looking at previous LQAS surveys, care seeking for diarrhea in children indicates a decline for Western Province (a 20 percentage point difference) while coverage was similar for Eastern Province.

Table 3.13: Percentage of children aged 0–23 months who first sought treatment for diarrhea at a health facility

2012

Indicator: % of mothers of children aged 0-23 months who first sought treatment for child's diarrhea at a health facility			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 56.7	(45.2 - 68.2)
		Decision Rule: 9	Meets Decision Rule?
Bunyala	19	11	Yes
Teso North	19	14	Yes
Teso South	19	13	Yes
Busia	19	8	No
Samia	19	13	Yes
Total	95	59	
Eastern		Coverage: 53	(40.6 - 65.4)
		Decision Rule: 8	Meets Decision Rule?
Igembe	19	8	Yes
Kibwezi	19	5	No
Kitui	19	10	Yes
Meru South	19	18	Yes
Tharaka	19	11	Yes
Total	95	52	

2009

Indicator: Percentage of mothers of children aged 0–23 months who first sought treatment for child's diarrhea at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
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	

2010

Indicator: % of mothers of children aged 0–23 months who first sought treatment for child's diarrhea at a health facility			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 55.1	(43.5–66.7)
		Decision rule: 9	Meets decision rule?
Igembe	19	12	Yes
Kibwezi	19	10	Yes
Kitui	19	8	No
Marsabit	19	14	Yes
Tharaka	19	13	Yes
Total	95	57	

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

Early initiation of breastfeeding benefits both mothers and newborns. Immediate breastfeeding, facilitated by placing the newborn skin-to-skin on the mother's breast, helps prevent hypothermia, promotes bonding, and reduces the mother's risk of hemorrhage. The mother's milk during the first postpartum days, colostrums also provides protective antibodies and essential nutrients.

In 2009 33 percent of mothers in Western Province were initiating breastfeeding immediately after birth. The 2012 data reveals that there was considerable improvement with slightly less than one-half (46 percent) of newborns being immediately initiated to breast milk (Table 3.14).

The entire SAs in Western meet the set average coverage. It appears that Eastern Province has higher coverage for this indicator (64 percent)-though the estimate was slightly higher in 2010 at 68 percent-and all SAs met the average coverage. Current coverage for this indicator suggests that additional attention should be directed to this newborn practice in both program areas and more so in Western Province.

Table 3.14: Percentage of mothers of children aged 0–5 months who breastfed their child immediately after birth

2012

Indicator: % of mothers of children aged 0-5 months who breastfed their child immediately after birth			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 45.5	(33.9 - 57.1)
		Decision Rule: 7	Meets Decision Rule?
Bunyala	19	13	Yes
Teso North	19	8	Yes
Teso South	19	7	Yes
Busia	19	8	Yes
Samia	19	11	Yes
Total	95	47	
Eastern		Coverage: 64.3	(52.3 - 76.3)
		Decision Rule: 10	Meets Decision Rule?
Igembe	19	10	Yes
Kibwezi	19	15	Yes
Kitui	19	14	Yes
Meru South	19	14	Yes
Tharaka	19	12	Yes
Total	95	65	

2009

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
Western		Coverage: 32.6	(22.0 - 43.2)
		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	

2010

Indicator: % of mothers of children aged 0–5 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 68.2	(57.1–79.3)
		Decision rule: 11	Meets decision rule?
Igembe	19	13	Yes
Kibwezi	19	13	Yes
Kitui	19	13	Yes
Marsabit	19	12	Yes
Tharaka	19	13	Yes
Total	95	64	

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

According to Table 3.15 the prevalence of exclusive breastfeeding in the last 24 hours before the survey for Western Province is at 56 percent and is above coverage for all the SA's. The results in this program area may be seen to be more impressive given that in 2009 the coverage for the same indicator was 34 percent. The estimate for Eastern Province is 55 percent coverage, down from 62 percent estimated in 2010, with all SA's except Igembe meeting the average coverage. Results for this indicator should be interpreted with care, because breastfeeding behaviour is influenced by many socio-cultural factors that extend beyond whether or not mothers received an educational intervention. Still, consistent messaging is an avenue through which exclusive breastfeeding immediately after birth can be increased in both program areas and especially in Igembe County.

Table 3.15: Percentage of mothers of children aged 0–5 months who exclusively breastfed their child in the last 24 hours

2012

Indicator: % 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
Western		Coverage: 56	(44.2 - 67.8)
		Decision Rule: 9	Meets Decision Rule?
Bunyala	19	14	Yes
Teso North	19	11	Yes
Teso South	19	10	Yes
Busia	19	10	Yes
Samia	19	11	Yes
Total	95	56	
Eastern		Coverage: 55.4	(44.2 - 66.6)
		Decision Rule: 9	Meets Decision Rule?
Igembe	19	6	No
Kibwezi	19	13	Yes
Kitui	19	15	Yes
Meru South	19	10	Yes
Tharaka	19	12	Yes
Total	95	56	

2009

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
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	

2010

Indicator: % 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	
Eastern		Coverage: 61.9	(52–71.8)	
		Decision rule: 10	Meets decision rule?	
Igembe	19	6	No	
Kibwezi	19	16	Yes	
Kitui	19	16	Yes	
Marsabit	19	16	Yes	
Tharaka	19	9	No	
Total	95	63		

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

Survey results indicate that approximately 49 percent of mothers in Western Province breastfed their child immediately after birth (See Table 3.16). Coverage for the supervision areas in this province were at par with their respective program average coverage. Eastern Province has about 68 percent coverage and two of its SA’s (Kibwezi and Igembe) fail to meet the average coverage. The findings suggest that the uptake and reinforcement of this behaviour will require special programmatic attention within the continuum of care especially in Kibwezi and Igembe and in the Western program area. The results for both program areas show movement in the desired direction when compared to those reported in 2009 in Western (32 percent coverage) and in 2010 in Eastern (61 percent).

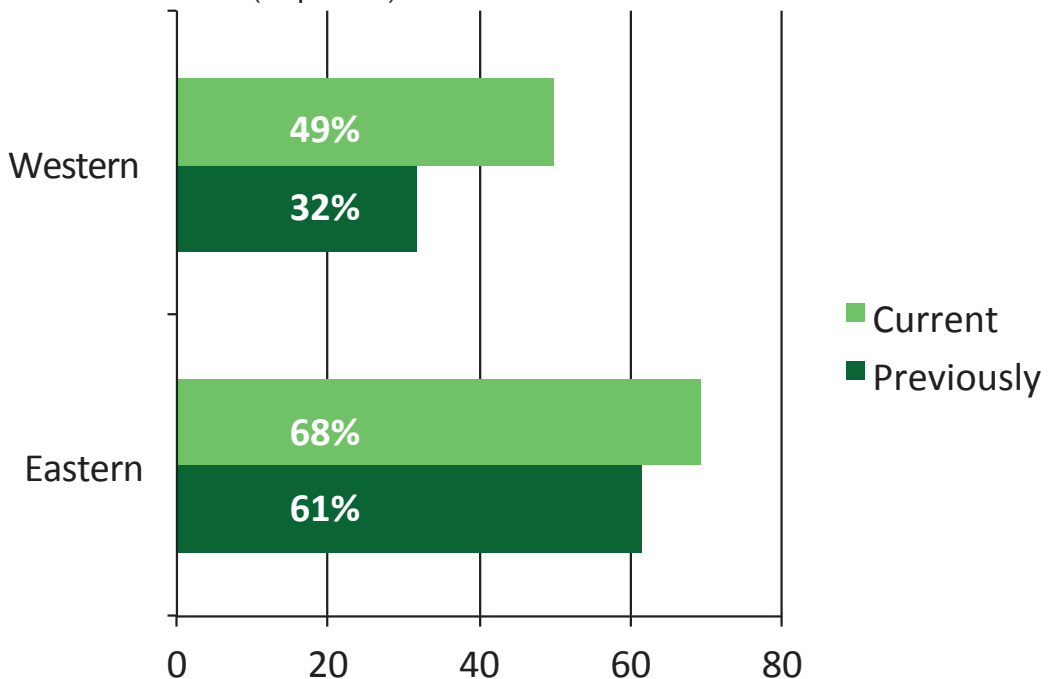


Figure 3.7: Mothers of children aged 6-23 months who breastfed their child immediately after birth

Table 3.16: Percentage of mothers of children aged 6–23 months who breastfed their child immediately after birth

2012

Indicator: % 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: 48.9	(37.2 - 60.6)
		Decision Rule: 7	Meets Decision Rule?
Bunyala	19	9	Yes
Teso North	19	12	Yes
Teso South	19	9	Yes
Busia	19	8	Yes
Samia	19	11	Yes
Total	95	49	
Eastern		Coverage: 67.9	(56.4 - 79.4)
		Decision Rule: 11	Meets Decision Rule?
Igembe	19	10	No
Kibwezi	19	10	No
Kitui	19	15	Yes
Meru South	19	17	Yes
Tharaka	19	13	Yes
Total	95	65	

2009

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	

2010

Indicator: % of mothers of children aged 6–23 months who breastfed their child immediately after birth			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 60.9	(49.5–72.3)
		Decision rule: 10	Meets decision rule?
Igembe	19	9	No
Kibwezi	19	16	Yes
Kitui	19	12	Yes
Marsabit	19	12	Yes
Tharaka	19	11	Yes
Total	95	60	

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

3.4.1 Percentage of children aged 12–23 months completely immunized

Immunization has been identified as one of the high impact interventions for reducing child mortality by the health sector in Kenya. It is a cost effective intervention that the health system can provide. Immunization against vaccine-preventable diseases is vital to reducing child morbidity and mortality. The Expanded Programme on Immunization (EPI) under the Ministry of Health (MOH) is aimed at ensuring that all children are fully immunized by their first birthday. Children should receive one dose of tuberculosis vaccine (BCG); three doses of the vaccine against Diphtheria, Pertussis, Tetanus, Hepatitis B, and Haemophilus Influenza type b [(DPT-HB + Hib I) or pentavalent]; four doses of oral polio vaccine (OPV); and one dose of Measles vaccine. The Kenya Community Strategy for Health recommends taking children as scheduled to complete a full course of immunizations. The proportion of children fully immunized increased from 57 percent in 2003 to 77 percent in 2008-09. The proportion of children who have not received any of the recommended immunizations has also declined from 7 percent in 2003 to 3 percent in 2008-09 (KDHS 2003; 2008-09). Provincially, immunization coverage for the survey areas varies; Eastern 84 percent and Western 73 percent (KDHS 2008-09).

This survey showed that among children aged 12-23 months, the average coverage for full immunization was 26 percent for Western province and 22 percent for Eastern province; both of which fall way below the national immunization coverage. (Table 3.17). This is despite the fact that most SA's (with the exception of Igembe) met the average coverage estimates. These findings should trigger immediate action to identify and address the reasons for this low coverage in both program areas in general, and in Igembe and Tharaka in Eastern Province in particular. It should be noted that these findings are highly unsatisfactory when compared to earlier results, especially for Eastern in 2010, which had a statistically significant decline from 62 percent.

Table 3.17: Percentage of children aged 12–23 months completely immunized 2012

Indicator: Percentage of Children aged 12-23 months completely immunized			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 26	(15.6 - 36.4)
		Decision Rule: 3	Meets Decision Rule?
Bunyala	19	4	Yes
Teso North	19	4	Yes
Teso South	19	6	Yes
Busia	19	5	Yes
Samia	19	5	Yes
Total	95	24	
Eastern		Coverage: 22	(13.3 - 30.7)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	0	No
Kibwezi	19	6	Yes
Kitui	19	9	Yes
Meru South	19	5	Yes
Tharaka	19	2	Yes
Total	95	22	

2009

Indicator: Percentage of children aged 12–23 months completely immunized			
Sample areas	Sample size	Correct responses	Confidence limits
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	

2010

Indicator: % of children aged 12–23 months completely immunized			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 61.6	(50–73.2)
		Decision rule: 10	Meets decision rule?
Igembe	19	10	Yes
Kibwezi	19	13	Yes
Kitui	19	12	Yes
Marsabit	19	13	Yes
Tharaka	19	14	Yes
Total	95	62	

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

As shown in Table 3.18, the average coverage of children who slept under a bed net for this indicator is 94 percent for Western Province and 60 percent for Eastern Province. However, Samia SA falls below the average coverage for the programme area. Measures put in place in SA's which show good results in Western Province should be applied in Samia to improve coverage. Scale up is recommended in Eastern Province with plans put in place to identify resources for accelerating coverage in this indicator. Bed net usage in Western Province has definitely improved having been much lower at 78 percent in 2009. In Eastern Province there was a decline from 2010.

Table 3.18: Percentage of children aged 24–59 months who slept under a bed net last night

2012

Indicator: % of children aged 24-59 months who slept under a bed net last night			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 94.1	(90.6 - 97.6)
		Decision Rule: 16	Meets Decision Rule?
Bunyala	19	17	Yes
Teso North	19	17	Yes
Teso South	19	19	Yes
Busia	19	19	Yes
Samia	19	14	No
Total	95	86	

Eastern		Coverage: 60.3	(47.9 - 72.7)
		Decision Rule: 10	Meets Decision Rule?
Igembe	19	12	Yes
Kibwezi	19	11	Yes
Kitui	19	10	Yes
Meru South	19	13	Yes
Tharaka	19	13	Yes
Total	95	59	

2009

Indicator: Percentage of children aged 24-59 months who slept under a bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
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	

2010

Indicator: % of children aged 24-59 months who slept under a bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 66.4	(56-76.8)
		Decision rule: 11	Meets decision rule?
Igembe	19	16	Yes
Kibwezi	19	12	Yes
Kitui	19	9	No
Marsabit	19	9	No
Tharaka	19	15	Yes
Total	95	61	

3.5.2 Percentage of children aged 24-59 months who slept under a treated bed net last night.

Studies have shown that use of insecticide-treated nets (ITNs), which is an MDG indicator, can reduce all-cause mortality among children under five either by killing mosquitoes or preventing them from biting. Countries with endemic malaria are working hard to increase ITN use among children as one part of their strategy to reduce child deaths.

Results from the survey indicate that the average coverage for use of ITNs among children aged 24-59 months is 95 percent for Western Province and 39 percent for Eastern Province. In Western province all SA's with the exception of Samia, meet the average coverage, while Igembe in Eastern Province does not meet the average coverage. Building on existing program opportunities to introduce new interventions has probably contributed to relatively high coverage of bed nets in Western Province and this should be emulated in Samia and in Eastern Province as a whole.

Impressive improvement of this indicator can be reported for Western, which reported 70 percent coverage in 2009. Estimates for Eastern, though not statistically significant, also indicate movement in the desired direction.

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

2012

Indicator: % of children aged 24-59 months who slept under a treated bed net last night			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 94.7	(91.3 - 98.1)
		Decision Rule: 16	Meets Decision Rule?
Bunyala	19	17	Yes
Teso North	19	17	Yes
Teso South	19	19	Yes
Busia	19	19	Yes
Samia	19	15	No
Total	95	87	
Eastern		Coverage: 39.2	(28.1 - 50.3)
		Decision Rule: 5	Meets Decision Rule?
Igembe	19	3	No
Kibwezi	19	11	Yes
Kitui	19	10	Yes
Meru South	19	11	Yes
Tharaka	19	11	Yes
Total	95	46	

2009

Indicator: Percentage of children aged 24–59 months who slept under a treated bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
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	

2010

Indicator: % of children aged 24–59 months who slept under a treated bed net last night			
Sample areas	Sample size	Correct responses	Confidence limits
Eastern		Coverage: 31.2	(20.8–41.6)
		Decision rule: 4	Meets decision rule?
Igembe	19	5	Yes
Kibwezi	19	1	No
Kitui	19	7	Yes
Marsabit	19	9	Yes
Tharaka	19	14	Yes
Total	95	36	

3.6 Additional Indicators on emphasis on Health Programmes

3.6.1 Percentage of mothers of children aged 0-23 months who felt that health programmes increased emphasis on contraceptive use

About 64 percent of mothers in Western province held the opinion that health programs were effective in increasing emphasis on use of contraception (Table 3.20). However Bunyala and Samia have less than average coverage for this indicator. An issue of pressing concern is the extremely low coverage in Eastern province (28 percent) with some of its SAs, Meru South and Tharaka, having less than average coverage. The challenge of further encouraging contraceptive use is imperative for both program areas especially in Eastern Province, and in all the under-performing SA's.

Table 3.20: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on contraceptive use

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Contraceptive Use			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 63.6	(52.5 - 74.7)
		Decision Rule: 10	Meets Decision Rule?
Bunyala	19	6	No
Teso North	19	16	Yes
Teso South	19	14	Yes
Busia	19	12	Yes
Samia	19	9	No
Total	95	57	
Eastern		Coverage: 27.7	(17.1 - 38.3)
		Decision Rule: 3	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	14	Yes
Kitui	19	10	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	28	

3.6.2 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on malaria prevention

The results show that Western Province has a considerably high coverage for mothers who feel that malaria prevention has been emphasised by health programs (82 percent coverage). All the supervision areas in Western Province meet the average coverage. In Eastern Province which reports a low average coverage of 23 percent, Meru South, Tharaka and Igembe SA's are below the average coverage (Table 3.21). The results suggest the potential for education programs aimed at malaria prevention, especially for Eastern province and in its poor performing SA's.

Table 3.21: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on malaria prevention

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Malaria Prevention			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 81.3	(71.9 - 90.7)
		Decision Rule: 14	Meets Decision Rule?
Bunyala	19	16	Yes
Teso North	19	18	Yes
Teso South	19	15	Yes
Busia	19	15	Yes
Samia	19	14	Yes
Total	95	78	
Eastern		Coverage: 22.9	(12.9 - 32.9)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	2	Yes
Kibwezi	19	7	Yes
Kitui	19	9	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	19	

3.6.3 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on postpartum care

The survey found that the average coverage for mothers of children aged 0-23 months who felt that the programme placed emphasis on postpartum care was only 35 percent for mothers in Western Province and 23 percent for mothers in Eastern province (Table 3.22). Although the national coverage for postpartum care is low, it seems that programmes are not focusing on promoting postpartum care and this needs urgent attention.

Table 3.22: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on postpartum care

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Postpartum Care			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 35.3	(23.9 - 46.7)
		Decision Rule: 5	Meets Decision Rule?
Bunyala	19	3	No
Teso North	19	7	Yes
Teso South	19	8	Yes
Busia	19	7	Yes
Samia	19	6	Yes
Total	95	31	
Eastern		Coverage: 21	(10.6 - 31.4)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	5	Yes
Kitui	19	7	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	16	

3.6.4 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on water and sanitation

As shown in Table 3.23 coverage for this indicator is considerably fair in Western Province at 78 percent with its entire SA's achieving average coverage. In Eastern Province only 23 percent of mothers of children 0-23 months feel that programs have increased emphasis on water and sanitation; two of its SA's, Tharaka and Meru South, are below average coverage. Health programs especially in Eastern Province and its poor performing SA's should respond aggressively and play a supportive role to improve emphasis on this indicator.

Table 3.23: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on water and sanitation

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Water and Sanitation			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 78.1	(68 - 88.2)
		Decision Rule: 13	Meets Decision Rule?
Bunyala	19	17	Yes
Teso North	19	16	Yes
Teso South	19	14	Yes
Busia	19	14	Yes
Samia	19	16	Yes
Total	95	77	

Eastern		Coverage: 23	(13 - 33)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	2	Yes
Kibwezi	19	8	Yes
Kitui	19	9	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	20	

3.6.5 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of fever cases

The average coverage for mothers who felt that programmes laid emphasis on management of fever cases is at 24 percent for Western province and 17 percent for Eastern province (Table 3.24). Additional efforts are obviously needed in both program areas to effectively generate the attention necessary to adequately address management of fever cases.

Table 3.24: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of fever cases

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Management of Fever Cases			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 23.5	(15.1 - 31.9)
		Decision Rule: 2	Meets Decision Rule?
Bunyala	19	4	Yes
Teso North	19	11	Yes
Teso South	19	6	Yes
Busia	19	2	Yes
Samia	19	3	Yes
Total	95	26	
Eastern		Coverage: 16.7	(7.7 - 25.7)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	1	Yes
Kibwezi	19	4	Yes
Kitui	19	7	Yes
Meru South	19	1	Yes

Tharaka	19	0	No
Total	95	13	

3.6.6 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of diarrhea cases

It is sad to note that the average coverage for mothers who felt that programmes laid emphasis on management of diarrhea cases is very low; 23 percent for Western province and 8 percent for Eastern province (Table 3.25).

Table 3.25: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of diarrhea cases

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Management of Diarrhea Cases			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 22.7	(14.4 - 31)
		Decision Rule: 2	Meets Decision Rule?
Bunyala	19	5	Yes
Teso North	19	11	Yes
Teso South	19	4	Yes
Busia	19	2	Yes
Samia	19	4	Yes
Total	95	26	
Eastern		Coverage: 8.2	(0.9 - 15.5)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	1	N/A
Kibwezi	19	3	N/A
Kitui	19	3	N/A
Meru South	19	0	N/A
Tharaka	19	0	N/A
Total	95	7	

3.6.7 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of ARI's

Findings in Table 3.26 suggest that coverage for this indicator is extremely low in both program areas at only 9 percent in Western Province and approximately 12 percent in Eastern Province. Health programs should urgently employ sufficient advocacy on management of ARIs in both

program areas to increase emphasis.

Table 3.26: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on management of ARI's

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on Management of Acute Respiratory Infections			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 9.4	(2.5 - 16.3)
		Decision Rule: N/A	Meets Decision Rule?
Bunyala	19	2	N/A
Teso North	19	3	N/A
Teso South	19	0	N/A
Busia	19	2	N/A
Samia	19	2	N/A
Total	95	9	
Eastern		Coverage: 11.7	(4 - 19.4)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	0	N/A
Kibwezi	19	0	N/A
Kitui	19	6	N/A
Meru South	19	0	N/A
Tharaka	19	0	N/A
Total	95	6	

3.6.8 Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on place of delivery and skilled attendance

Table 3.27 represents findings on coverage for increased emphasis on place of delivery place and skilled attendance. Western Province has an average coverage of about 41 percent with Samia supervision area being below the average coverage. Coverage is extremely low for Eastern Province at only 21 percent with Tharaka and Meru South falling below the average coverage. Bearing in mind that Kenya is lagging behind in the achievement of MDG 5 it is imperative that programmes place emphasis on place of delivery and skilled attendance as

there is evidence showing that both interventions effectively reduce maternal mortality.

Table 3.27: Percentage of mothers of children aged 0-23 months who felt that health programs increased emphasis on place of delivery and skilled attendance

Indicator: % of mothers of children aged 0-23 who felt that health programmes in their area increased emphasis on place of delivery and skilled attendance			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 40.7	(29.6 - 51.8)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	6	Yes
Teso North	19	13	Yes
Teso South	19	10	Yes
Busia	19	6	Yes
Samia	19	5	No
Total	95	40	
Eastern		Coverage: 21.2	(10.8 - 31.6)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	7	Yes
Kitui	19	7	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	18	

3.6.9 Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on child spacing

Slightly less than half (49 percent) coverage is reported for this indicator in Western Province with two of its SA's Bunyala and Samia performing below average coverage (Table 3.28). Eastern Province reports a very low coverage of 24 percent and has Tharaka and Meru South falling below coverage. Findings in both program areas give the indication that implementation of health programs have not increased emphasis on child spacing and should thus be a priority.

Table 3.28: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on child spacing

Indicator: % of mothers of children aged 0-5 who felt that health programmes in their area increased emphasis on Child Spacing			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 49	(37.4 - 60.6)
		Decision Rule: 7	Meets Decision Rule?
Bunyala	19	5	No
Teso North	19	12	Yes
Teso South	19	8	Yes
Busia	19	11	Yes
Samia	19	5	No

Total	95	41	
Eastern		Coverage: 23.8	(13.2 - 34.4)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	8	Yes
Kitui	19	8	Yes
Meru South	19	1	No
Tharaka	19	1	No
Total	95	21	

3.6.10 Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on breast feeding and child nutrition

Almost 60 percent of mothers in Western Province were in agreement with this indicator although Bunyala and Samia did not achieve the average coverage (Table 3.29). In Eastern province, only 28 percent coverage was achieved for this indicator in Eastern Province with Tharaka and Meru South SAs failing to achieve the average coverage. Renewed emphasis should be placed in increasing coverage for this indicator especially in Bunyala, Samia, Tharaka and Meru South SA's and in Eastern Province in particular.

Table 3.29: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on breast feeding and child nutrition

Indicator: % of mothers of children aged 0-5 who felt that health programmes in their area increased emphasis on Breast Feeding and Child Nutrition			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 59.4	(48.4 - 70.4)
		Decision Rule: 9	Meets Decision Rule?
Bunyala	19	7	No
Teso North	19	15	Yes
Teso South	19	9	Yes
Busia	19	13	Yes
Samia	19	7	No
Total	95	51	
Eastern		Coverage: 28.1	(17.4 - 38.8)
		Decision Rule: 3	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	12	Yes
Kitui	19	10	Yes
Meru South	19	1	No
Tharaka	19	1	No
Total	95	27	

3.6.11 Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on management of childhood illnesses

The average coverage for mothers of children aged 0-5 months who felt that programmes increased emphasis on management of childhood illness was 44 percent for western province and 19 percent for Eastern province. Health programs in both program areas, particularly Eastern Province should focus efforts on increasing emphasis of childhood illnesses. Particular attention should be paid to Tharaka to be at the same level with better performing SA's.

Table 3.30: Percentage of mothers of children aged 0-5 months who felt that health programs increased emphasis on management of childhood illnesses

Indicator: % of mothers of children aged 0-5 who felt that health programmes in their area increased emphasis on Management of Childhood Illnesses			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 44	(32.3 - 55.7)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	6	Yes
Teso North	19	9	Yes
Teso South	19	8	Yes
Busia	19	8	Yes
Samia	19	11	Yes
Total	95	42	
Eastern		Coverage: 19.4	(9.2 - 29.6)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	9	Yes
Kitui	19	6	Yes
Meru South	19	1	Yes
Tharaka	19	0	No
Total	95	19	

3.6.12 Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on child spacing

At 44 percent coverage in Western Province, only Busia fails to meet the average coverage (Table 3.31). In Eastern, all SAs apart from Kitui and Kibwezi fail to meet average coverage. Program efforts should prioritize child spacing especially in Eastern Province and in the poor performing Busia, Igembe, Tharaka and Meru South SAs.

Table 3.31: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on child spacing

Indicator: % of mothers of children aged 6-23 who felt that health programmes in their area increased emphasis on Child Spacing			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 43.9	(33.4 - 54.4)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	7	Yes
Teso North	19	16	Yes
Teso South	19	12	Yes
Busia	19	5	No
Samia	19	6	Yes
Total	95	46	
Eastern		Coverage: 25.4	(15.4 - 35.4)
		Decision Rule: 3	Meets Decision Rule?
Igembe	19	2	No
Kibwezi	19	12	Yes
Kitui	19	10	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	25	

3.6.13 Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on breastfeeding and child nutrition

Among mothers of children aged 6-23 months, the average coverage of those who felt that programmes laid an emphasis on breastfeeding and nutrition was 58 percent for Western province and 28 percent for Eastern province (Table 3.32). Bunyala and Samia supervision areas in Western Province fall below the average coverage while Tharaka and Meru South in Eastern Province are below average coverage.

Table 3.32: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on breastfeeding and child nutrition

Indicator: % of mothers of children aged 6-23 who felt that health programmes in their area increased emphasis on Breast Feeding and Child Nutrition			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 58.4	(47.5 - 69.3)
		Decision Rule: 9	Meets Decision Rule?
Bunyala	19	6	No
Teso North	19	18	Yes
Teso South	19	11	Yes
Busia	19	12	Yes
Samia	19	3	No
Total	95	50	

Eastern		Coverage: 27.5	(16.9 - 38.1)
		Decision Rule: 3	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	12	Yes
Kitui	19	10	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	26	

3.6.14 Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on management of childhood illnesses

On average, over 4 out of 10 mothers of children aged 6-23 months reported that programmes laid an emphasis on management of childhood illnesses from western province while for Eastern province the average coverage was 2 out of 10 mothers (Table 3.33). Health programs in Bunyala, Tharaka and Meru South in particular and in both program areas in general need to employ a more comprehensive approach to increase emphasis on management of childhood illnesses so as to boost child survival.

Table 3.33: Percentage of mothers of children aged 6-23 months who felt that health programs increased emphasis on management of childhood illnesses

Indicator: % of mothers of children aged 6-23 who felt that health programmes in their area increased emphasis on Management of Childhood Illnesses			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 43.8	(32.6 - 55)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	3	No
Teso North	19	16	Yes
Teso South	19	9	Yes
Busia	19	7	Yes
Samia	19	6	Yes
Total	95	41	
Eastern		Coverage: 23.2	(12.7 - 33.7)
		Decision Rule: 2	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	8	Yes
Kitui	19	8	Yes
Meru South	19	1	No
Tharaka	19	0	No
Total	95	20	

3.6.15 Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on immunization of children

The average coverage of mothers of children aged 12-23 who felt that health programmes increased emphasis on child immunisation is 76 percent for Western Kenya and 19 percent for Eastern province (Table 3.34). There seems to be a significant difference in the indicator between the two programme areas with health programmes in Eastern province not laying emphasis on immunisation.

Table 3.34: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on immunization of children

Indicator: % of mothers of children aged 12-23 who felt that health programmes in their area increased emphasis on Immunization of Children			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 75.9	(66.2 - 85.6)
		Decision Rule: 13	Meets Decision Rule?
Bunyala	19	13	Yes
Teso North	19	18	Yes
Teso South	19	13	Yes
Busia	19	15	Yes
Samia	19	11	No
Total	95	70	
Eastern		Coverage: 19.3	(9.1 - 29.5)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	3	Yes
Kibwezi	19	8	Yes
Kitui	19	6	Yes
Meru South	19	1	Yes
Tharaka	19	0	No
Total	95	18	

3.6.16 Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on management of childhood illnesses

In Western Province, less than one- half (43 percent) of the mothers interviewed under this category felt that health programs increased emphasis on management of childhood illnesses, with Bunyala SA falling below the average coverage. In Eastern Province, the average coverage was very low; at 11 percent (Table 3.35). Health programs should renew efforts to improve emphasis on management of childhood illnesses in both program areas especially in Bunyala and in Eastern Province.

Table 3.35: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on management of childhood illnesses

Indicator: % of mothers of children aged 12-23 who felt that health programmes in their area increased emphasis on Management of Childhood Illnesses			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 43.2	(31.8 - 54.6)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	5	No
Teso North	19	13	Yes
Teso South	19	8	Yes
Busia	19	7	Yes
Samia	19	9	Yes
Total	95	42	
Eastern		Coverage: 11.1	(2.8 - 19.4)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	2	N/A
Kibwezi	19	5	N/A
Kitui	19	3	N/A
Meru South	19	1	N/A
Tharaka	19	0	N/A
Total	95	11	

3.6.17 Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on polio

The average coverage for mothers who felt that health programmes increased emphasis on polio in Eastern province is very low (13 percent), while the average for Western province is significantly higher (83 percent) (Table 3.36). The challenge for health programs lies in determining how to elevate the issue of polio within existing efforts especially in Bunyala SA and in Eastern Province as a program area.

Table 3.36: Percentage of mothers of children aged 12-23 months who felt that health programs increased emphasis on polio

Indicator: % of mothers of children aged 12-23 who felt that health programmes in their area increased emphasis on Polio			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 83.4	(74.9 - 91.9)
		Decision Rule: 14	Meets Decision Rule?
Bunyala	19	11	No
Teso North	19	19	Yes
Teso South	19	15	Yes
Busia	19	16	Yes
Samia	19	16	Yes
Total	95	77	

Eastern		Coverage: 13.3	(4.5 - 22.1)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	2	N/A
Kibwezi	19	8	N/A
Kitui	19	4	N/A
Meru South	19	1	N/A
Tharaka	19	0	N/A
Total	95	15	

3.6.18 Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on immunization

According to Table 3.37, Western Province was estimated to have 82 percent average coverage for mothers who felt that health programs increased emphasis on immunization. Both Samia and Teso South supervision areas fall below the average coverage. Results for Eastern Province are extremely low at about 14 percent. Increasing emphasis on immunization will require consistent and sustainable efforts by health programs especially in Eastern Province and in Samia and Teso South for Western province.

Table 3.37: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on immunization

Indicator: % of mothers of children aged 24-59 who felt that health programmes in their area increased emphasis on Immunization			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 81.8	(73.1 - 90.5)
		Decision Rule: 14	Meets Decision Rule?
Bunyala	19	16	Yes
Teso North	19	19	Yes
Teso South	19	13	No
Busia	19	16	Yes
Samia	19	13	No
Total	95	77	
Eastern		Coverage: 14.4	(6.5 - 22.3)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	0	N/A
Kibwezi	19	16	N/A
Kitui	19	6	N/A
Meru South	19	1	N/A
Tharaka	19	1	N/A
Total	95	24	

3.6.19 Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on malaria prevention

Table 3.38 presents the coverage for mothers of children aged 24-59 who felt that health programs increased emphasis on malaria prevention. The average coverage for this indicator is 77 percent for Western Province, with only Teso South falling below average coverage. For Eastern province, the average coverage for this indicator is also very low at 16 percent. As such, health programs especially in Eastern Province and Teso South should emulate strategies implemented in better performing SA's in Western Province in an effort to increase emphasis on malaria prevention.

Table 3.38: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on malaria prevention

Indicator: % of mothers of children aged 24-59 who felt that health programmes in their area increased emphasis on Malaria Prevention			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 76.7	(67 - 86.4)
		Decision Rule: 13	Meets Decision Rule?
Bunyala	19	14	Yes
Teso North	19	18	Yes
Teso South	19	12	No
Busia	19	15	Yes
Samia	19	13	Yes
Total	95	72	
Eastern		Coverage: 15.6	(6.3 - 24.9)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	2	Yes
Kibwezi	19	6	Yes
Kitui	19	5	Yes
Meru South	19	1	Yes
Tharaka	19	1	Yes
Total	95	15	

3.6.20 Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child spacing

Table 3.39 presents findings for increased emphasis on child spacing. In Western Province, 52 percent of mothers of children in the above age category felt that there was increased emphasis on child spacing. Bunyala and Samia however failed to achieve average coverage for this indicator. In Eastern Province only 16 percent of mothers share this sentiment, though; its SAs make the average coverage.

Table 3.39: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child spacing

Indicator: % of mothers of children aged 24-59 who felt that health programmes in their area increased emphasis on Child Spacing			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 51.9	(40.4 - 63.4)
		Decision Rule: 8	Meets Decision Rule?
Bunyala	19	6	No
Teso North	19	15	Yes
Teso South	19	11	Yes
Busia	19	10	Yes
Samia	19	4	No
Total	95	46	
Eastern		Coverage: 15.9	(7.1 - 24.7)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	1	Yes
Kibwezi	19	10	Yes
Kitui	19	6	Yes
Meru South	19	1	Yes
Tharaka	19	1	Yes
Total	95	19	

3.6.21 Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child nutrition

Table 3.40 shows that results for this indicator are low for Western Province at about 41 percent with two of its SAs, Busia and Bunyala, being below coverage. Eastern Province has extremely low coverage for the same indicator at just 13 percent. Health programs should effectively adopt new practices to improve emphasis on child nutrition more so in Eastern Province and in Busia and Bunyala in Western Province.

Table 3.40: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on child nutrition

Indicator: % of mothers of children aged 24-59 who felt that health programmes in their area increased emphasis on Child Nutrition			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 40.6	(30.3 - 50.9)
		Decision Rule: 6	Meets Decision Rule?
Bunyala	19	1	No
Teso North	19	17	Yes
Teso South	19	10	Yes
Busia	19	5	No
Samia	19	7	Yes
Total	95	40	

Eastern		Coverage: 12.6	(5 - 20.2)
		Decision Rule: N/A	Meets Decision Rule?
Igembe	19	0	N/A
Kibwezi	19	12	N/A
Kitui	19	5	N/A
Meru South	19	1	N/A
Tharaka	19	2	N/A
Total	95	20	

3.6.22 Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on management of childhood illnesses

Among mothers of children aged 24-59 months, the average coverage for respondents who felt that the programmes increased emphasis on management of childhood illnesses was 38 percent for western province and 15 percent for Eastern province (Table 3.41). Health program efforts will need to target both program areas and particularly their poor performing SA's of Bunyala and Igembe.

Table 3.41: Percentage of mothers of children aged 24-59 months who felt that health programs increased emphasis on management of childhood illnesses

Indicator: % of mothers of children aged 24-59 who felt that health programmes in their area increased emphasis on Management of Childhood Illnesses			
Sample Areas	Sample Size	Correct Responses	Confidence Limits
Western		Coverage: 37.7	(26.3 - 49.1)
		Decision Rule: 5	Meets Decision Rule?
Bunyala	19	1	No
Teso North	19	9	Yes
Teso South	19	7	Yes
Busia	19	7	Yes
Samia	19	10	Yes
Total	95	34	
Eastern		Coverage: 15.2	(7 - 23.4)
		Decision Rule: 1	Meets Decision Rule?
Igembe	19	0	No
Kibwezi	19	5	Yes
Kitui	19	7	Yes
Meru South	19	1	Yes
Tharaka	19	1	Yes
Total	95	14	

4. Recommendations

This LQAS survey focused on district or supervision areas in the two Programme areas (Western and Eastern) that had poorly performing indicators. LQAS is a simple survey methodology that can be used at the local level to assess the impact of public health programmes. The above study brings out issues of inequity with regards to access to maternal and child health services within and between programme areas. This evaluation elicits some positive aspects in maternal and child health indicators in the two program areas. The following recommendation can be made from this survey,

- There is need to build the capacity of managers and service providers at the district level in LQAS methodology so that they can use the survey as a tool to monitor progress on health interventions. There is also need to have an in-depth discussion with poor performing districts and have targeted interventions.
- There is need to improve the communication between health service providers and mothers. Health service providers need to educate mothers on the services they are being given during routine ANC.
- There is need for programmes to be implemented in an integrated manner. For example initiatives within environmental health aimed at improving water and sanitation at the community level should also include indicators for diarrhea among children during evaluation.
- Community IMCI and facility IMCI should be integrated and not be implemented at independent or vertical programmes
- The MCH booklet should be well disseminated up to the facility level for use by health service providers. Job aids for the booklet should be developed and made user-friendly for easy use by health service providers.
- This survey has shown that at the community level, mothers are not feeling the impact of health programmes especially with respect to management of childhood illness such as fever, diarrhea, ARI and especially for Eastern region, immunization and malaria prevention. There is therefore need to intensify community awareness and education on management of childhood illness, immunization, skilled attendance and postpartum care.
- Although the above presented in this survey cannot be attributed to a particular intervention, there is need to emphasize on the implementation of the community health strategy while focusing on the already identified high impact interventions.
- There is also need to map out stakeholders working in the area of child health, maternal health and Nutrition on a national scale so that areas without partner support can be identified. This mapping exercise will be essential if available resources have to be distributed equitably.

5. References

KNBS and ICF Macro. 2010. Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: Kenya National Bureau of Statistics and ICF Macro.

MOH. 2001. Kenya National Malaria Strategy 2001-2010. Ministry of Health, Nairobi, Kenya.

UNICEF. UNICEF/WHO Meeting on Child Survival Survey-based Indicators, New York, June 17-18, 2004. Summary List of Child Survival Indicators.

Wardlay T, Johansson EW, Hodge M. Pneumonia: The Leading Killer of Children. Division of Policy and Planning, UNICEF. Draft Working Paper, December 2005

WHO. 1997. Guidelines for Drinking-Water Quality. Surveillance and Control of Community Supplies. World Health Organization, Geneva.

WHO/UNICEF. Meeting the MDG Drinking Water and Sanitation Target: A Mid-Term Assessment of Progress. 2004. ISBN 92 4 136278 1.

WHO/UNICEF. Joint Monitoring Programme for Water Supply and Sanitation. Water for life: Making it happen. World Health Organization and UNICEF, 2005. ISBN 92 4 156293 5

UNICEF/WHO. 2009. Diarrhea: Why Children Are Still Dying and What Can Be Done. United Nations Children's Fund and World Health Organization, Geneva.

Graham, W.J., J.S. Bell and C.H.W. Bullough. 2001. "Can skilled attendance at delivery reduce maternal mortality in developing countries?" in V. de Brouwere and W. van Lerberghe eds., Safe motherhood strategies: a review of the evidence. Antwerp : ITG Press. pp. 97-129

WHO, UNICEF, UNFPA and AMDD. 2006. Technical consultations on guidelines for monitoring the availability and use of obstetric services (summary report). Geneva. In preparation. World Health Organization, United Nations Children's Education Fund, United Nations Population Fund, Averting Maternal Deaths and Disabilities Programme.

National Council for Population and Development

PO Box 48994 - GPO, Nairobi 00100, Kenya

Tel: 254-20-271-1600/01

Fax: 254-20-271-6508 Email: info@ncpd-ke.org

www.ncpd-ke.org

NCPD is a semi-autonomous government agency that formulates and promotes population policy and coordinates related activities for sustainable development in Kenya.