

MELA RESEARCH

**Progress in Maternal, Child
Health and Family Planning
in over 300 districts of IFHP
program areas in Ethiopia:
*Baseline-Endline comparison***

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TABLE OF CONTENTS

<i>EXECUTIVE SUMMARY</i> _____	3
<i>I. INTRODUCTION</i> _____	5
1.1. Background and objectives: _____	5
1.2. Baseline Methodology _____	5
1.3. Endline Methodology _____	8
1.4. Endline survey organization _____	10
1.5. Endline field data collection and quality assurance _____	10
1.6. Endline data processing and analysis _____	11
1.7. Purpose of this report _____	12
1.8. Ethical clearance _____	12
<i>II. PRESENTATION OF RESULTS</i> _____	13
2.1. Household characteristics _____	13
2.2. Maternal Health _____	14
<i>Antenatal care</i> _____	14
<i>Delivery care</i> _____	15
<i>Weighting at birth</i> _____	16
<i>Postpartum care</i> _____	17
2.3. Infant and young child feeding practices _____	18
<i>Breastfeeding practices</i> _____	18
2.4. Child health _____	22
<i>Vitamin A for children 6-23 months</i> _____	22
<i>Home management of diarrhea</i> _____	23
<i>Treatment for ARI</i> _____	24
<i>Immunization coverage</i> _____	25
2.4. Family Planning _____	26
2.5. HIV/AIDS knowledge: _____	27
<i>Annex 1: Selected indicators in IFHP areas, 2008 & 2013</i> _____	30

EXECUTIVE SUMMARY

Background:

The Integrated Family Health Program (IFHP) is a USAID funded health program implemented by Pathfinder International and John Snow, Inc. (JSI) in partnership with the Consortium of Reproductive Health Associations of Ethiopia (CORHA). The program focus areas of IFHP are family planning, reproductive health, maternal, newborn and child health including nutrition and malaria. The program operates in the four major regions, Amhara, Tigray, Oromia and SNNPR, and to a limited extent in Somali and Benishangul Gumuz. Primary collaborators are the four Regional Health Bureaus (RHBs) and selected zonal and Woreda offices. The program covers over 35 million people in 301 Woredas and over 7200 Kebeles in Tigray, Amhara, Oromia and SNNP regions.

IFHP established baseline measures for key indicators in 2008/2009 and an endline survey was conducted between April 28 and May 30, 2013 in the four regions using comparable methodology. The endline survey intended to provide measures of key indicators as in the baseline to assess the degree that these indicators have changed over the life of the project, as well as to collect key demographic information on project beneficiaries in their homes and communities, and assess their exposure to key health messages and their use of services.

This report presents selected baseline and endline indicators only for the IFHP area. It is not intended to provide explanation for the observed trend as this is beyond the scope and purpose of the report.

Method:

The endline survey as that of the baseline was based on a two-stage cluster sample design. The surveys have two domains within each region: IFHP and non-IFHP areas, for a total of 8 separate domains. A sampling frame was constructed, listing kebeles (primary sampling units) and their population sizes, based on the most recent census data provided by the regions. The kebeles (clusters) were selected proportional to their population size (PPS). In each region 60 Kebeles were selected using PPS (30 from IFHP area and 30 from the non-IFHP). The survey primarily employed three types of questionnaires - the household tracking sheet, the women, and child. Using the women's questionnaire, 4802 women age 15-49 were interviewed (2404 in IFHP and 2416 in non-IFHP areas). A total of 4915 mothers of children age 0-23 months (2462 in the IFHP area and 2453 in the non-IFHP) were also interviewed using the child's questionnaire. The survey completed the household tracking sheet in 18,769 rural households - 8369 households in the IFHP and 9960 in the non-IFHP areas.

Results:

Baseline-endline comparison demonstrated significant improvements in several programmatic indicators in the IFHP area. Among the indicators evaluated, significant positive changes have been recorded in the following:

- *Environmental sanitation*
- *Antenatal care*
- *Professionally assisted delivery care and institutional delivery*
- *Postpartum care for the mother and the newborn*
- *Vitamin A for children age 6-23 months*
- *Initiation of breastfeeding within 1 hour*
- *Clostrum feeding*
- *Continuation of breastfeeding at 1 and 2 years*
- *Family planning use*
- *Knowledge of vertical transmission of HIV*

Positive changes were either modest or not recorded at all in the following:

- *Exclusive breastfeeding (0-5 months)*
- *Infant and young child feeding practices*
- *Meal frequency*
- *Dietary diversity and adequate diet (modest improvement)*
- *The home management of diarrhea*
- *Treatment for ARI*
- *Immunization coverage*

I. INTRODUCTION

1.1. Background and objectives:

The Integrated Family Health Program (IFHP) is a USAID funded health program implemented by Pathfinder International and John Snow, Inc. (JSI) in partnership with the Consortium of Reproductive Health Associations of Ethiopia (CORHA). The program focus areas of IFHP are family planning, reproductive health, maternal, newborn and child health including nutrition and malaria. The program operates in the four major regions, Amhara, Tigray, Oromia and SNNPR, and to a limited extent in Somali and Benishangul Gumuz. Primary collaborators are the four Regional Health Bureaus (RHBs) and selected zonal and Woreda offices. The program covers over 35 million people in 301 Woredas and over 7200 Kebeles in Tigray, Amhara, Oromia and SNNP regions.

The Integrated Family Health Program (IFHP) established baseline measures for key indicators using previous surveys conducted in April-June 2008 by the ESHE-II Project in SNNP, Amhara, and Oromia regions and a survey in Tigray Region conducted in December 2008 - January 2009 in collaboration with the L10K Project. Data from these 4 surveys was combined and re-analyzed to establish baseline measures in project and non-project areas in each of the four regions, and in all four regions combined.¹

The aim of this endline survey was to provide measures of the same key indicators to assess the degree that these indicators have changed over the life of the project, as well as to collect key demographic information on project beneficiaries in their homes and communities, and assess their exposure to key health messages and their use of services.

1.2. Baseline Methodology

The baseline IFHP data were generated by combining data from two independent surveys conducted in mid-2008 (April-June 2008) and end of 2008 (December 2008-January 2009). Between April and June 2008, the former USAID funded JSI/ESHE project conducted an end-line household health survey in the three most populous regions of the country, namely Amhara, Oromia and SNNP, as part of end of project evaluation. The survey was designed to provide project level as well as region wide estimates of key maternal, newborn and child health indicators. Recently, the IFHP in collaboration with the JSI/Last Ten Kilometers (L10K) project fielded a region wide household health survey in Tigray (i.e. between December 2008 and January 2009). Both surveys followed similar methodologies and collected comparable information, targeting women respondents of same reproductive profile. A brief account of the methodologies employed in the two surveys is discussed below:

¹ IFHP (2009) *Integrated Family Health Program Baseline Household Survey Report*, Addis Ababa: Pathfinder International, JSI, USAID.

ESHE end line survey in Amhara, Oromia and SNNP:

The survey employed a cluster sampling procedure whereby Kebeles (smallest administrative units) served as clusters. The survey divided a region into two domains, as ESHE-project focus Woredas and non-project Woredas. From each area, 30 clusters were selected using *probability proportional to size* (PPS), which results in a total of 60 clusters (Kebeles) for a region. All the Kebeles in each sample area were included in their respective sampling frame for selection.

Several maternal, newborn, child health and other related indicators were the focuses of the survey. The indicators emerged from interviewing the following groups: (1) women in the reproductive age (15-49 years), (2) women with children age 0-11 months and (3) women with children age 12-23 months. A Community questionnaire that collected Kebele/cluster profile with reference to availability of community health workers, health facility availability, whether or not the Kebele is endemic to malaria, among others, was also administered. Respondents to the community questionnaire were either health extension workers (HEWs) or Kebele chairpersons.

The end-line survey sample size for each target group was 30 interviews per cluster (i.e. 10 with women age 15-49, 10 with women of children age 0-11 months, 10 with women of children 12-23 months). Overall, there were 600 respondents women age 15-49 years; 600 respondent women with children age 0-11 months and another 600 respondent women with children 12-23 months, for the a region. For the three regions combined a sample size of 1800 was achieved in each category of respondents.

A total of 180 data collectors and supervisors were involved in the field work. The data collectors and supervisors were health workers mostly emerging from Woreda health offices. The survey team in each region were given a 5-day intensive training including role play and field practice. Close monitoring of data collection was made by the supervisors as well as regional ESHE office staffs that had undergone the 5-day training themselves. Data collection took about a month.

Data from the field were simultaneously entered into microcomputers at the then ESHE office in Addis Ababa. Two highly-experienced data entry clerks computerized the survey data using EPI-INFO 6.04. A brief training about the questionnaires, variables and the organization of the database was given to the data entry clerks.

IFHP Tigray baseline survey:

The IFHP survey also divided the Tigray region in to two domains, as IFHP areas and non-IFHP areas. A cluster sampling approach was employed, as that of the ESHE end-line survey. From each domain 30 Kebeles were selected using the PPS, totaling to 60 for the entire Tigray region. The survey was designed to provide project level as well as region-wide estimates. This survey also collected information allowing the estimation of several indicators values concerning maternal, newborn, and child health.

Akin to the ESHE end-line survey, the Tigray survey targeted the three groups: (1) women in the reproductive age (15-49 years), (2) women with children age 0-11 months and (3) women with children age 12-23 months. Nevertheless, the Tigray survey can be considered an improvement to that of the ESHE end-line survey in terms of sample size and the

amount of information it collected. At cluster level it achieved 42 interviews (20 with women age 15-49 years, 12 with women of children 0-11 months and 10 with women of children age 12-23 months). Overall, the IFHP survey in Tigray had 1200 respondents women age 15-49 years, 720 women of children 0-11 months and 600 women of children 12-23 months.

A total of 49 data collectors and supervisors were recruited from the Tigray regional health offices, trained for 5-days and deployed into the field. The regional health bureaus recruited the data collectors from Woreda Health offices and facilities. The training also included a 1-day field practice. The Data collection was closely supervised by the regional coordinators, the IFHP, L10K staffs as well as the consultant.

The data from the field were edited on the field as well as in the office. Data entry templates developed (in EPI-INFO) and tested for applicability. Three experienced data entry clerks recruited, trained and computerized the data in the L10K's office in Addis Ababa. Open ended responses were translated from Tigregna to Amharic before computerization. For this purpose a translator was hired and worked closely with the data entry clerks. In order to assure data quality, spot checking as well as a 5% double data entry was employed and high concordance was achieved between the computerized data and the hard copy.

The baseline sample size for the four regions by type of target population is shown in Table 1.

Table 1. Baseline survey sample size for each target respondents by region, 2008

	Survey sample size		
	Women 15-49 N	Women with Children 0-11mo N	Women with Children 12-23mo N
Amhara - IFHP areas	370	370	370
Amhara - Non-IFHP areas	230	230	230
Oromia - IFHP areas	330	330	330
Oromia - Non-IFHP areas	270	270	270
SNNP - IFHP areas	250	250	250
SNNP - Non-IFHP areas	350	350	350
Tigray - IFHP areas	600	360	300
Tigray - Non-IFHP areas	600	360	300
Total	3,000	2,520	2,400

1.3. Endline Methodology

The endline survey, like the baseline surveys, was conducted in IFHP and non-IFHP areas in the four most populous regions where IFHP works. Data collection was conducted from April 28-May 30, 2013. The household is the basic sampling unit, and women of reproductive age (age 15-49) in each sampled household were identified through a brief listing. These women were asked to answer questions about themselves, their family living conditions and their living children under two, if any. All women of reproductive age living in the sampled households were targeted for initial interview. The interviews covered demographic characteristics of the target respondents, as well as information about their household living conditions, exposure to messages, their use of health services, and their health knowledge and behaviors related to maternal, newborn, and child health and nutrition; family planning; and HIV and AIDS; and, in malaria-affected areas, about malaria.

The methodology for locating households and obtaining information on the women and their young living children used methods is comparable to those used in the four regional baseline surveys. In those surveys, a quota sample of women, and of children aged 0-11 months, and 12-23 months was obtained by the 'random walk' method, with women interviewed about their own health knowledge and behavior (including family planning) and their children in those age groups in every 5th household. After the quota of women was reached, children of the target age groups continued to be sought in each consecutive ('next nearest') household from the random starting point. In the end line survey, when the quota of women is reached, interviewers continued to the next nearest household, again recording each household visited and making a brief listing of women of reproductive age and their children born in the preceding two years, with a questionnaire applied in those households until the quota of under-twos (distributed equally among 0-11 month olds and 12-23 month olds) is reached.

A community questionnaire was administered in each of the 3 ESHE II regional surveys, and in Tigray. For the endline survey, a community component was also implemented, using a structured questionnaire to interview Health Extension Workers (HEWs), especially to ask about their training and the work they carry out with volunteers and community groups.

Endline Sample design

A two-stage cluster sample design was implemented. The surveys have two domains within each region: IFHP and non-IFHP areas, for a total of 8 separate domains. A sampling frame was constructed, listing kebeles (primary sampling units) and their population sizes, based on the most recent census data provided by the regions. The kebeles (clusters) were selected proportional to their population size (PPS). In each region 60 Kebeles were selected using PPS (30 from IFHP area and 30 from the non-IFHP).

For selecting households at the second stage, a random walk technique was implemented. The geographical center of the selected Kebele was located with the help from a local guide, and by 'spinning a pen' to decide the direction, the first 5 households in a direct line was counted. From those five, one was chosen randomly as the starting point for the household interviews. From that household, interviewers followed the road or path, turning to the next road or path in serpentine fashion to visit every 5th household until the target number of households with women of reproductive age is reached. In each household selected, a brief

listing of women and their young children was made, and all eligible women were invited to participate in the interview. If a household did not have an eligible woman, this was recorded on the household listing sheet and the interviewers moved to the 5th next household.

The table below shows the number of households, women (age 15-49 years) and children (0-23 months) interviewed by region.

Table 2. Samples size achieved and results of household, women's, child interviews, Endline Survey, May 2013

	Survey Area		Region				Total
	IFHP	Non-IFHP	Amhara	Oromia	SNNP	Tigray	
Households							
Sampled	8664	9782	6529	3221	4349	4347	18466
Completed HH form	8369	9960	6592	3348	4411	4445	18769
Households with eligible women	7304	8055	5328	2654	3705	3672	15359
Women							
Eligible	7304	8055	5328	2654	3705	3672	15359
Interviewed	2404	2416	1203	1213	1201	1203	4820
'extra' women (mothers of additional 0-23 month olds not interviewed using Women's Questionnaire)	1481	1498	727	848	673	731	2979
Children 0-23 months							
Number of child interviews completed	2462	2453	1230	1234	1222	1229	4915

Endline questionnaires:

The endline questionnaires were modeled on DHS and MICS questionnaires. Although the endline questionnaire was designed to be consistent with the baseline questionnaires, in some cases, the questions used in Tigray baseline were not the same as those used in the ESHE-II endline. When this was the case, the questions closest to international standards were used. In addition, in some cases questions have been added to ensure consistency with international indicators in this and subsequent surveys.

The main change to the questionnaires that were used at baseline is the use of the two last-born living children as targets for the maternal and child health questions. We sought up to two children born in the two years prior to the survey, recorded their ages in months, and asked all child questions for the last-born child. If a second child under age 2 was present, space was provided and questions were asked about this child, consistent with appropriate recall period and demands of various indicators. In the analysis, children in specific age ranges are selected and the responses of their mothers analyzed to construct each indicator. The number of children in each age group was tracked during fieldwork, to ensure that the quota of children in each age group was reached. One advantage of asking all questions about the last-born child regardless of which age group the child falls into is that estimates of a number of indicators can be made using the entire sample of 'last-born with the last two years', which is standard in most DHS and MICS surveys.

All questions were translated using Ethiopia DHS translations to Amharic, Tigrigna and Oromifa for all those questions that are included in the DHS; for those questions not asked in DHS, these were translated and back-translated prior to pre-test. The questionnaire was pre-tested and adjusted based on feedback from the pre-test. Questionnaires used in the training of interviewers were the final questionnaire revised following the pre-test.

1.4. Endline survey organization

Endline - recruitment of survey teams:

An ad-hoc recruitment committee composed of IFHP and Mela teams conducted the recruitment in Mekele (for the Tigray survey teams), Bahirdar (for the Amhara teams), Addis Ababa (for the Oromia survey teams) and Hawassa (for the SNNP teams). The interviewers and supervisors positions were advertised in the regional IFHP offices. Minimum qualification and relevant experiences were set for each position. The candidates who fulfilled the minimum criteria underwent through evaluations that encompassed written exams, face to face interviews, and a local language competency test. During screening, priority was given to those candidates who participated in the DHS and previous similar surveys. In each region, 5 teams were formed; each team composed of 4 interviewers and 1 supervisor. In total 80 interviewers and 20 supervisors were deployed. Eight reserve interviewers were also trained. Mela assigned one regional coordinators per region; the coordinators have extensive experience in large scale household surveys including the DHS and census.

Endline- training of survey teams:

The training was held during April 22-26 at Civil Service University in Addis Ababa. For the purpose of the training, the survey teams were split into three groups (1) Amhara/SNNP (2) Tigray and (3) Oromia. And the training was given in three venues of the same location. This grouping was based on the survey language use. The survey in Amhara and SNNP used the Amharic version of the questionnaires. While it employed the Oromiffa and Tigrigna versions, respectively, in Oromia and Tigray regions. Mela assigned experienced survey team trainers who speak the local languages for each group. In each of the training venues one DHS trainer and one assistant trainer were assigned to facilitate the training. The three DHS trainers all work for the Ethiopia Statistics Agency and have previously served as trainers for the DHS surveys as well as other surveys and the national censuses.

The 5-day training was organized to accommodate different methodologies including background information about the survey, survey concepts and procedures, item-by-item review of questionnaires, role play (demonstration interview), mock (pair) interview, Questions & Answers (Q&A), field practice, and feedback sessions. A one day field practice was part of the training. The training was assisted by a tailor-made manual and questionnaires. The logistics of the training was facilitated by the IFHP office.

1.5. Endline field data collection and quality assurance

The study teams were deployed to their respective survey regions immediately after the end of the training. Data collection started in late April and continue during May, 2013. Mela assigned survey coordinators were liaison with regional IFHP M&E officers who acted as

logistics/administrative coordinators. Overall coordination and supervision was provided by the lead consultants and the IFHP M&E team.

A data collection team (composed of 4 interviewers and 1 supervisor) worked together as a unit and moved from one Kebele to the next. The procedure was that the entire team entered a Kebele together and then split to the assigned households. In each Kebele the team hired a Kebele guide who is knowledgeable of the Kebele topography and settlement pattern. The supervisor stayed with the interviewers 100% of his/her time.

Supervision of the endline survey data collection process and survey undertakings took various layers. The main task of supervision rested on the team supervisors. At the second layer, the regional coordinators were in charge of supervising the performance of teams including the team supervisors. IFHP M&E officers survey also made frequent on-spot check of interviews in the Kebeles, randomly reviewed filled questionnaires, and presented in review meetings with the interviewers and team supervisors.

Teams were able to survey most of the initially selected clusters (Kebeles). In the four regions 11 Kebeles were replaced out of 240 Kebeles due to inaccessibility. These were 3 in SNNP, 3 in Oromia and 5 in Amhara. No Kebele was replaced in Tigray. The replacement of the Kebeles was done in Addis Ababa based on the sampling frame using a simple random sampling procedure.

Only three interviewers resigned during the course of data collection and were promptly replaced from the reserves.

1.6. Endline data processing and analysis

Data management and processing:

The data processing activities of this endline survey involved manual and automatic processes that encompassed a number of steps including receipt of completed questionnaires from the field, office checking/editing, data entry, data verification, and cleaning. Data processing was performed concomitantly with the data collection; with the first set of data arrived at Mela's office in Addis Ababa two weeks after the start of data collection. The data processing activities were carried out by a team of data editors and data entry clerks, and the data manager.

When filled questionnaires arrived in the office, the data editors performed questionnaire verifications that included checking for completeness of filled questionnaires, legibility, proper use of codes, and transfer of codes. A standard operating procedure (SOP) was employed to check the completeness and quality of the filled questionnaires. Editors received the questionnaires from the field using the questionnaire receipt form that was prepared for the purpose. After the initial screening, the office editors assigned office IDs to each questionnaire, and stored the questionnaires in the appropriate place for subsequent data entry.

Six data entry clerks computerized the data using EPI-INFO. The data entry template was designed to accommodate three interlinked EPI-INFO system files - QES, CHK and REC files. The QES file captured the variables as they appeared in the questionnaire modules. The

CHK file was programmed to control data entry such as skip patterns, range rules, valid values and consistency checks. The REC file was the actual database where entered data were stored. Data entry began about three weeks after the launching of data collection. The data entry clerks were given orientation and training on the structure of the data and the data entry templates.

The data manager was in charge of the overall execution of the data processing in the office. The data manager always checked the completeness of the entered data against the hard copies documentation for each Kebele. After verifying the completeness of the entered data, he exported the data to STATA 11 for consistency checking and intermediate analysis of key indicators. Data cleaning was done regularly based on the STATA output.

Data analysis:

Data analysis was performed using STATA 11. A detailed analysis plan was prepared by IFHP and provided to Mela for implementation. Several indicators of programmatic relevance were generated for the four region combined as well as for each region, stratified by survey domain (IFHP and non-IFHP in the four regions). Significance tests based on differences in two proportions was performed for indicators at baseline and endline, and between intervention and comparison areas at end line.

By design, the study interviewed equal number of women and children in each Kebele irrespective of the Kebeles population size (i.e. 20 Women age 15-49 years, 10 women with children 0-11 months and 10 women with children 12-23 months). In order to adjust for unequal probability of selection, sample weights were introduced.. The population size of each Kebele was used for the calculation of sample weighting. All indicators presented in this report and the other tables and annexes that are not included in this report are all based on weighted estimates.

1.7. Purpose of this report

This report presents selected baseline (2008) and endline (2013) indicators only for the IFHP areas to assess whether and what significant changes occurred in key indicators of knowledge and behavior in the population. Annex 1 presents baseline and endline values of over 50 key indicators and the statistical significant tests that compare two proportions. The report does not provide explanation for the observed trend as this is beyond the scope and purpose of the report.

1.8. Ethical clearance

Ethical approval for all aspects of the survey was obtained from the four Regional Health Bureaus (RHBs). Informed, oral consent was obtained from all respondents before starting an interview. A brief overview of the study objectives was read aloud in the local language to potential participants prior to requesting their voluntary consent to participate.

II. PRESENTATION OF RESULTS

2.1. Household characteristics

Four indicators are assessed to measure changes in selected household characteristics since the baseline in IFHP area. These are (1) percent households using improved sanitary facilities (2) percent households using improved drinking water (3) percent households with at least one bed net and (4) average number bed nets per household.

The use of improved sanitary facilities and drinking water sources increased significantly since the baseline (Figure 1). The proportion that reported using improved sanitary facilities increased significantly from 58.4% in 2008 to 74% in 2013 ($p < 0.000$). A modest but significant increase can also be noted in the proportion using improved drinking water during the period from 57.8% to 64.1% ($p < 0.000$).

Availability of at least one bed has shown a significant reversal trend from 69.2% in 2008 to 53.6% in 2013 (< 0.000). Likewise the average number of bed nets per household declined though insignificantly from 1.7 to 1.02 during the same period (See Annex 1).



2.2. Maternal Health

Antenatal care

In general, the use of antenatal care (ANC) increased significantly over the year (Figure 2). The proportion of mothers with children 0-11 months who received at least one ANC visit in any health facility was 54% in 2008 and this has increased significantly to 82% in 2013 ($p<0.000$). The proportion that received ANC from health post also increased significantly from 20.4% in 2008 to 30.5% in 2013. Two or more ANC visits were reported by 44% and 76.7% of the mothers, respectively, in 2008 and 2013 and the increase was statistically significant ($p<0.000$).

As shown in Figure 3, the receipt of two doses of TT vaccine by the mothers have shown a slight but significant ($p=0.05$) declining trend during the study period - 46.8% in 2008 and 42.9% in 2013.

Trend in the proportion of mothers who received iron/folic during the pregnancy of their most recent child age 0-11 months increased by over threefold during the period - from a low of 18.2% in 2008 to 62.5% in 2013 ($p<0.000$).

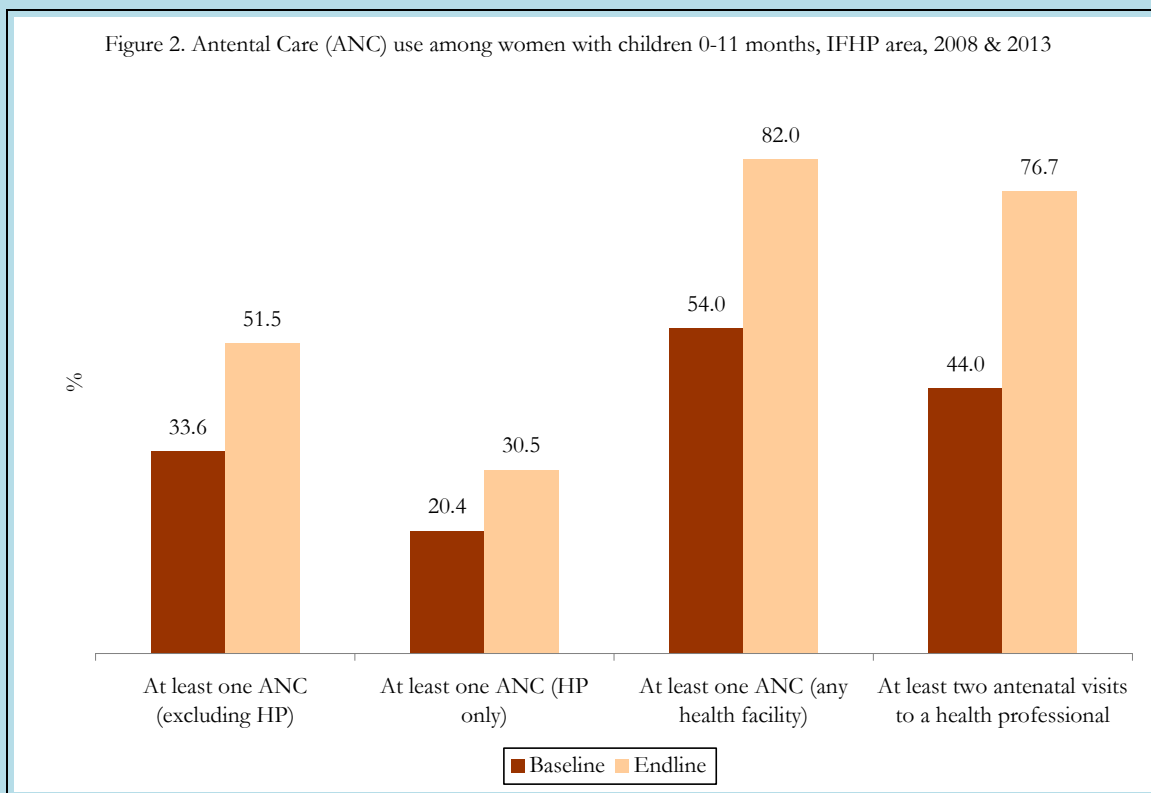
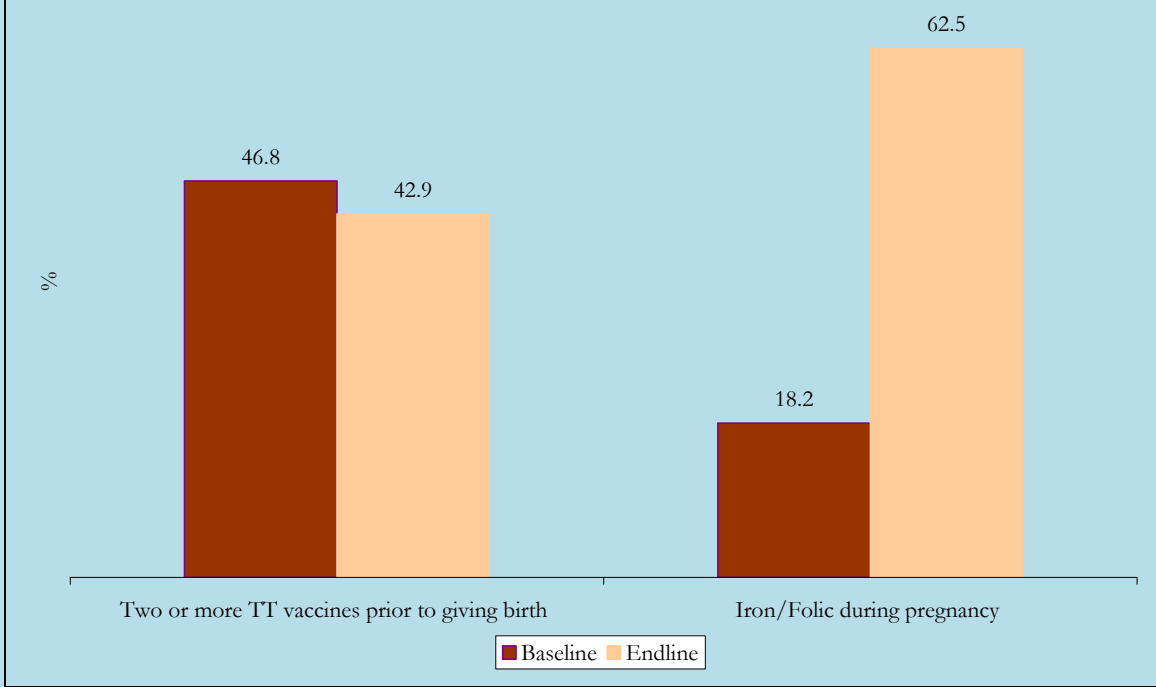


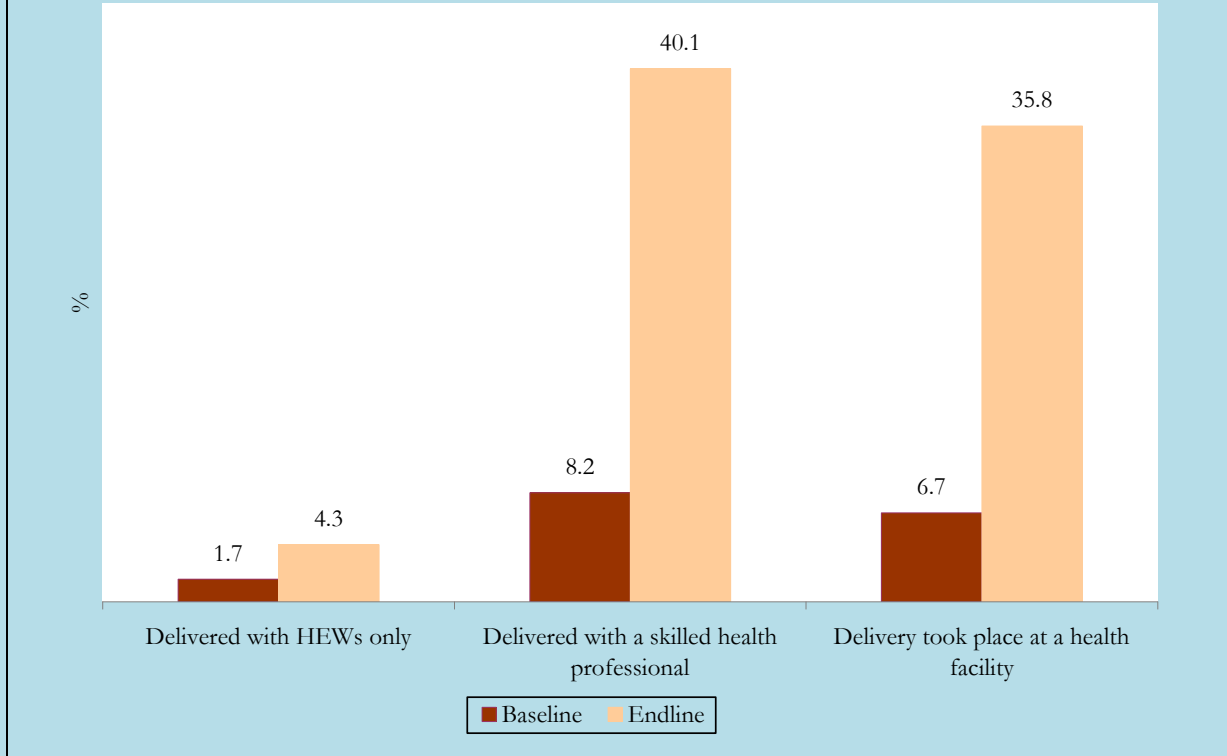
Figure 3. Among women with children 0-11 months, the proportion that received 2 or more TT vaccines and those who have received iron/folic acid during the last pregnancy, IFHP area, 2008 & 2013



Delivery care

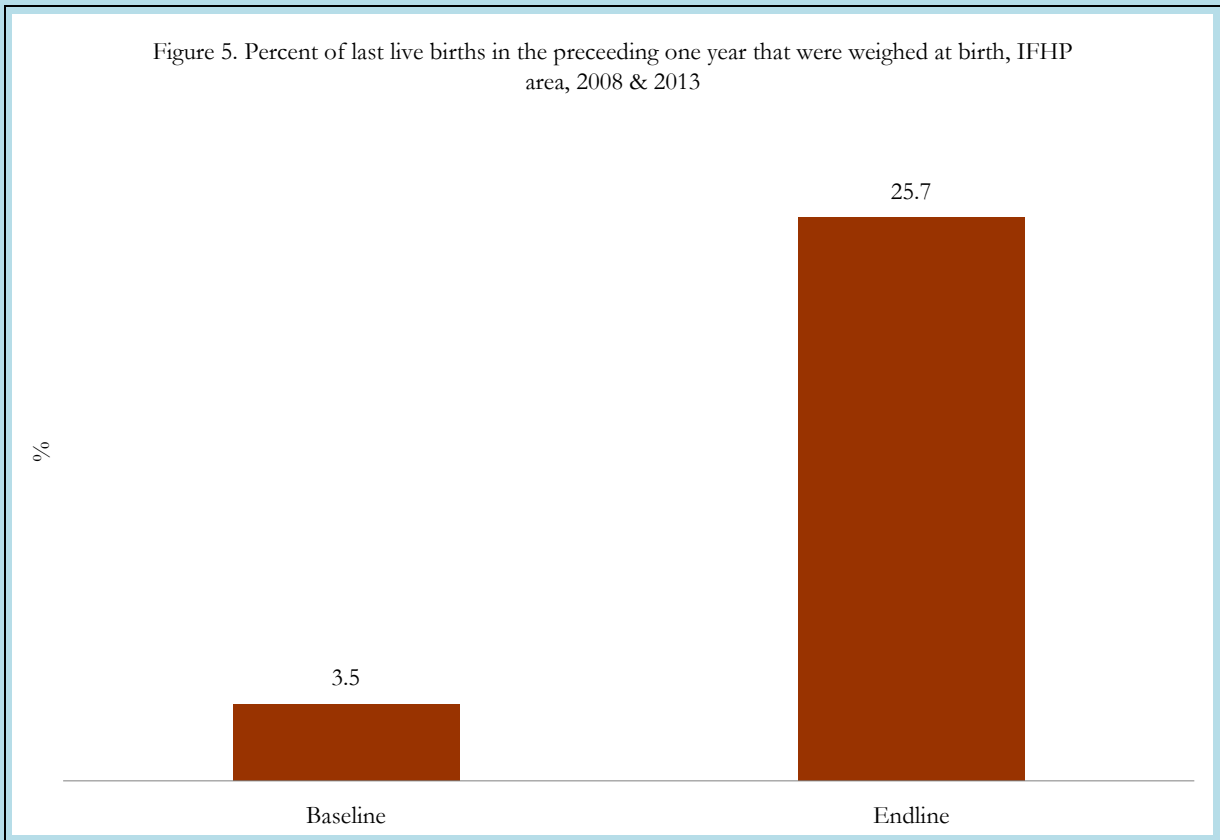
Only 8.2% of the women were assisted by a skilled professional including HEW in 2008 but this has increased significantly ($p < 0.000$) to 40.1% in 2013 (Figure 4). Only 1.7% and 4.3%, respectively, of the deliveries were assisted by HEWs in 2008 and 2013. The noted increase was significant ($p < 0.000$). Similarly, the proportion that delivered in health facility also increased significant during the study period - from 6.7% in 2008 to 35.8% in 2013 ($p < 0.000$).

Figure 4. Proportion that were assisted by health professionals and the place of delivery, IFHP area, 2008 & 2013



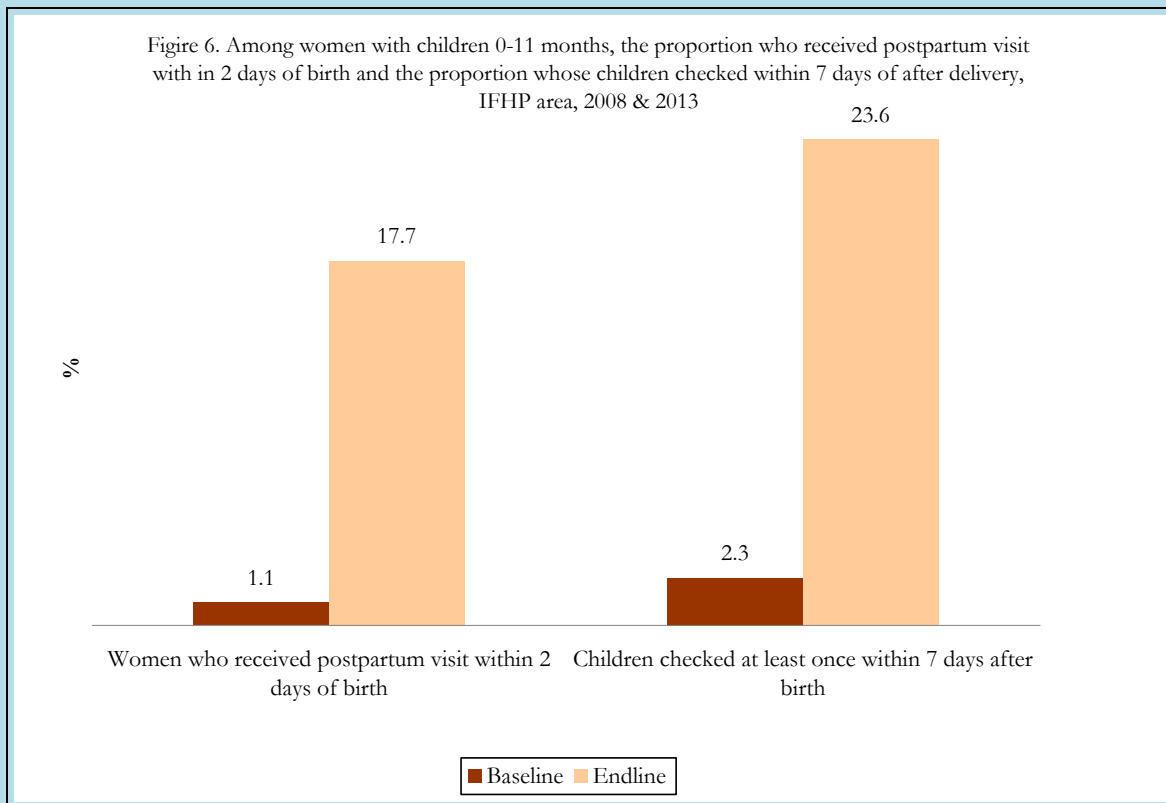
Weighting at birth

We computed the proportion of live births in the one year preceding the survey that were weighted at birth (Figure 5). The data show a remarkable and significant increase in the proportion of children who were weighted at birth (Figure 5) from 3.5% in 2008 to 25.7% in 2013 ($p < 0.0001$). This is consistent with the noted increasing trend in institutional delivery.



Postpartum care

As shown in Figure 6, the receipt of postpartum care within two days after birth by the mothers has increased significantly from 1.1% in 2008 to 17.7% in 2013 ($p < 0.0001$). Likewise, children who had received at least one visit by health professionals within seven days after birth also increased significantly - 2.3% in 2008 and 23.6% in 2013 ($p < 0.0001$).



2.3. Infant and young child feeding practices

Breastfeeding practices

Trend in breastfeeding practices revealed mixed results (Figure 7). The proportion that were put on the breast with one hour birth increased significantly from 52.5% in 2008 to 68.4% in 2013 ($p < 0.0001$). Clostrum was reported to be fed by 66.8% and 75.1% of the children, respectively, in 2008 and 2013. The noted increase was statically significant ($p < 0.0001$). On the other hand, the rate of exclusive breastfeeding for children 0-3 months of age declined significantly from 88.5% to 64.1%. Similarly, significant decline can be noted in the proportion of children 0-5 months who fed only breast milk in the last 24 hours from 82.6% in 2008 to 57% in 2013 ($p < 0.000$).

As shown in Figure 8. the proportion of children 12-15 months who continued breastfeeding at the age of one year increased significantly from 73.7% in 2008 to 95.3% in 2013 ($p < 0.0001$). During the same period, the proportion of children 20-23 months who continued breastfeeding that the age of two years was also increased from 61.3% to 81.6% ($p < 0.0001$).

Figure 7. Trend in breast feeding practices, IFHP area, 2008 & 2013

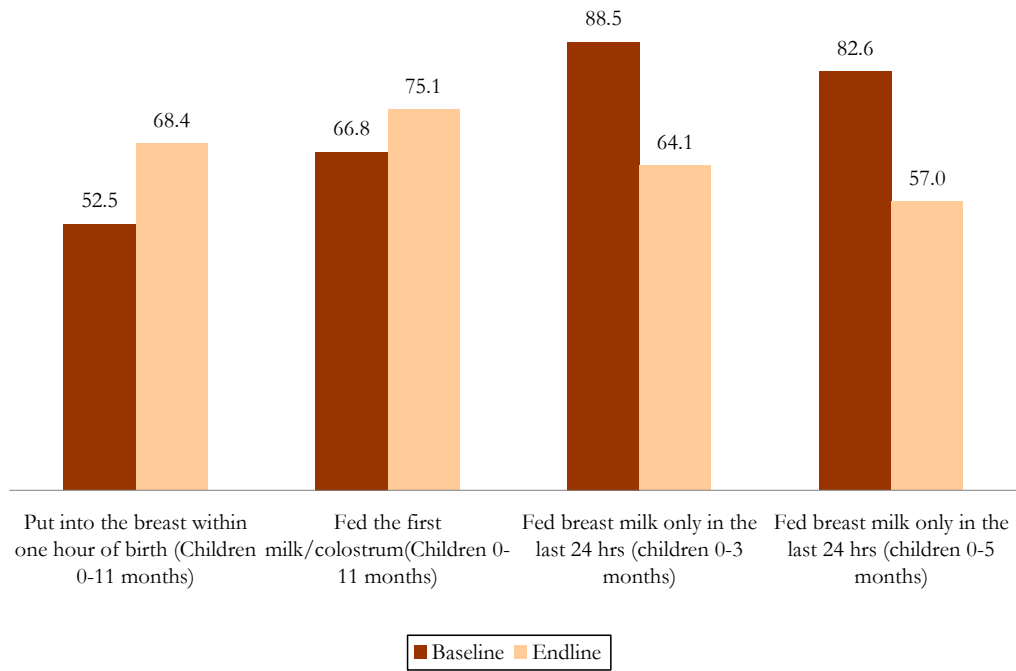
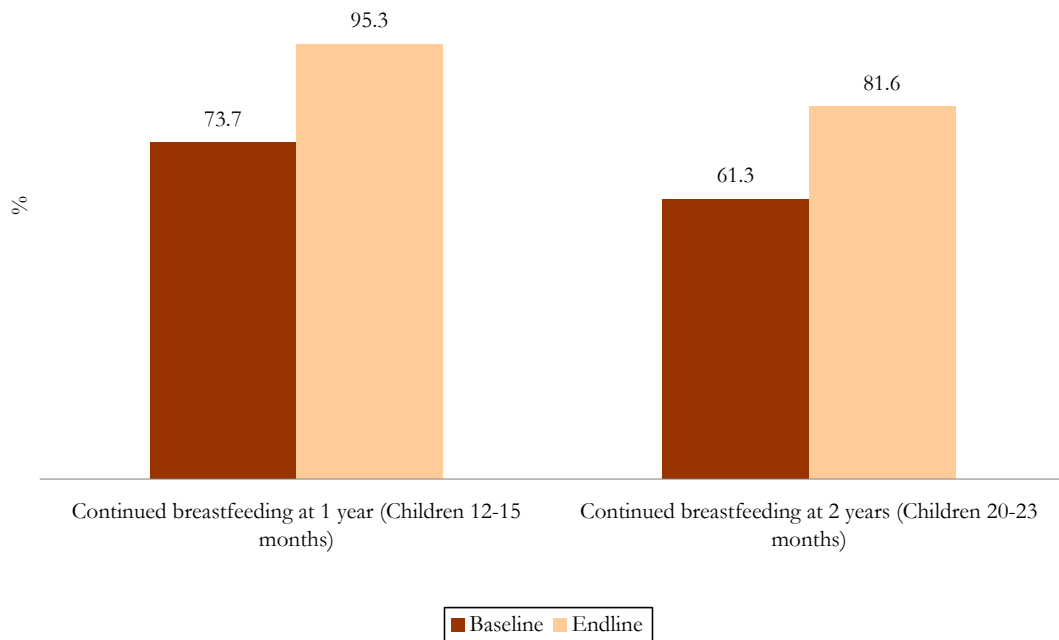
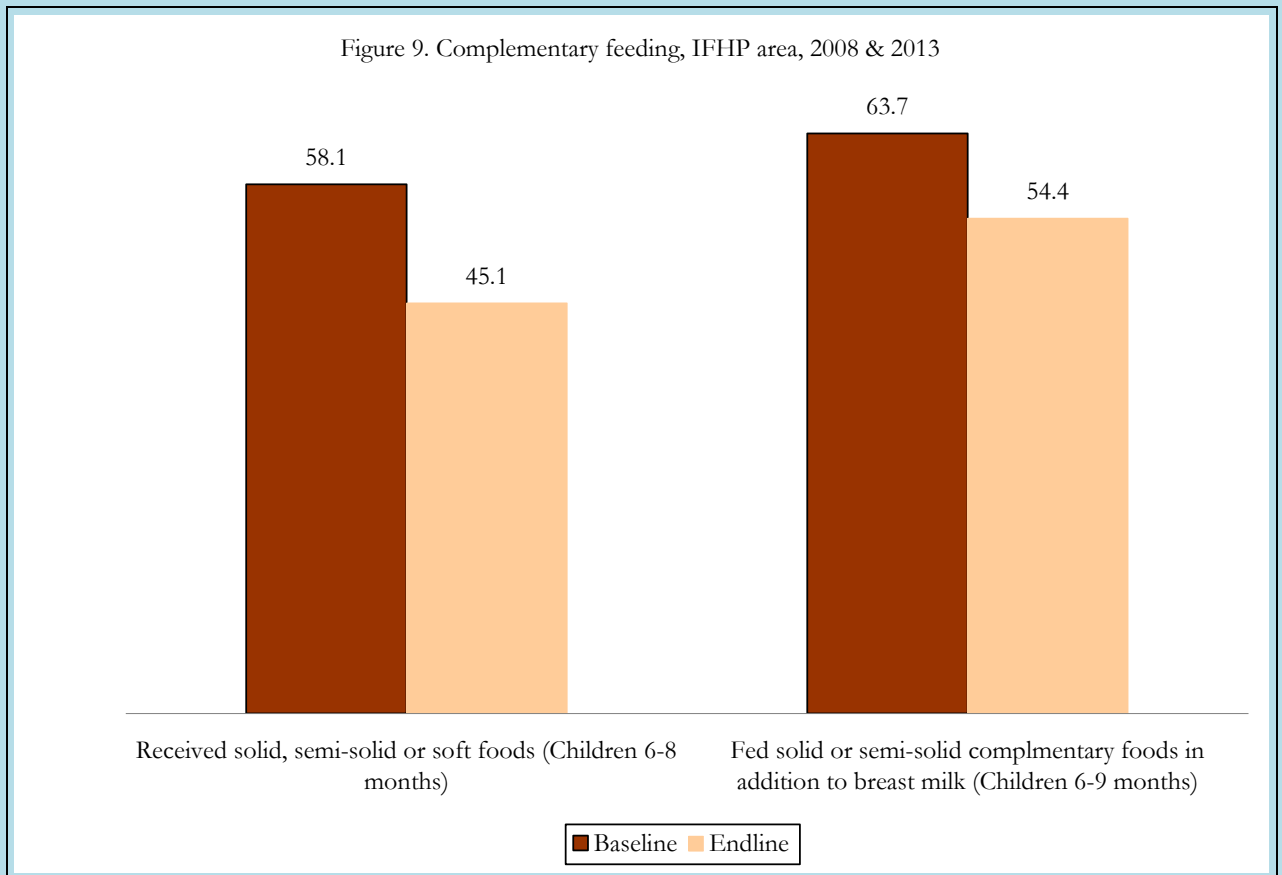


Figure 8. Continued breastfeeding at 1 and 2 years, IFHP area, 2008 & 2013



Timely complementary feeding:

The ‘timely complementary feeding rate’ is defined as the percentage of children age 6–9 months who were fed solid or semi-solid complementary foods in addition to breast milk in the 24-hour prior to the interview. The data in Figure 9 show that 63.7% and 54.4% of the children in 2008 and 2013, respectively, reported to have had semi-solid food in the 24 hours prior to the interview. The decline noted in 2013 as compared to 2008 is statically significant ($p=0.001$). We also computed the same indicator for children 6-8 months and found a significant decline from 58.1% in 2008 to 45.1% in 2013 ($p=0.005$).



Minimum Dietary Diversity (MDD):

Proportion of children 6-23 months who received foods from 4 or more food groups in the previous day is considered meeting the minimum dietary diversity. To compute a value for this indicator, a 7 food group² score variable was created. To create the seven food groups categories we asked mothers of the type of food the child had the previous day and the

² The 7 food groups used for calculation of this indicator are: (1)Grains, roots and tubers, (2)Legumes and nuts, (3)Dairy products (milk, yogurt and cheese), (4)Flesh foods (meat, fish, poultry and liver/organ meats), (5)Eggs, (6)Vitamin-A rich fruits and vegetables, and (7)Other fruits and vegetables

different food items were grouped into the 7 food groups. A score, based on the food groups, was categorized into two as (1) 4 or more food groups and (2) less than 4 food groups.

The proportion of children age 6-23 months who met the minimum dietary diversity was only 6.5% in 2008 but this has increased to 14.3% in 2013 ($p < 0.0001$) - Figure 10.

Minimum Meal Frequency (MMF):

Proportion of breastfed and non-breastfed children 6-23 months who received solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more the previous day. Minimum is defined as - 2 times for breastfed children age 6-8 months, 3 times for breastfed children 9-23 months, and 4 times for non-breastfed children 6-23 months. 'Meals' include both meals and snacks (other than trivial amounts), and frequency is based on mothers/caregiver report.

Based on the definition for minimum frequency for breastfed and non-breastfed children, 67.4% and 62.5% of the children age 6-23 months in 2008 and 2013, respectively, have met the minimum meal frequency (Figure 10). The noted slight decline was statically significant ($p = 0.002$).

Minimum Acceptable Diet (MAD):

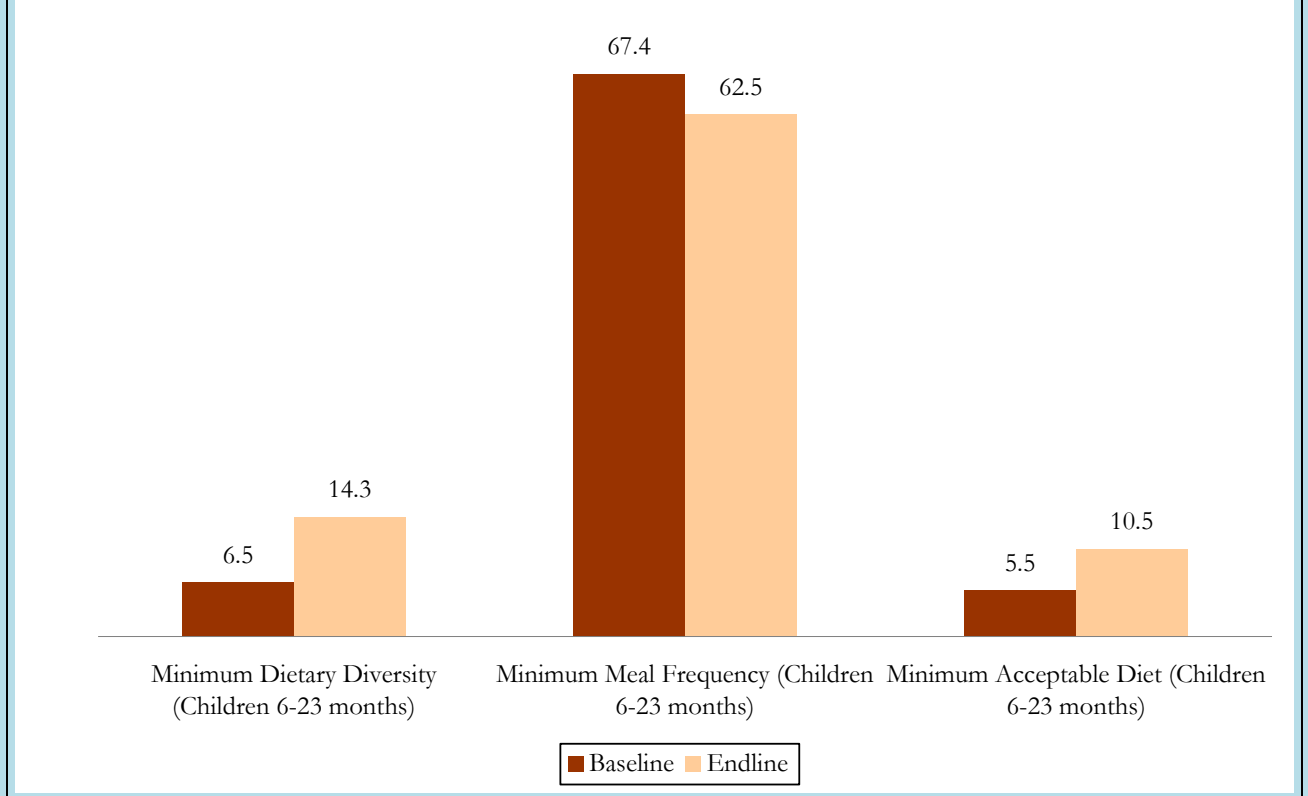
The Minimum acceptable diet is computed for children age 6-23 months, first separately by child's breastfeeding status³ and, then by combining breastfeeding and non-breastfeeding children to yield a single indicator. The minimum dietary diversity and minimum meal frequency scores computed above were combined to form the minimum acceptable diet indicator. However, for non-breastfed children, the dietary diversity component of this indicator is different from the individual practice indicator calculated earlier (which did not distinguish between breastfed and non-breastfed children). A dietary diversity for non-breastfeeding children was computed using a 6 food group score (instead of the 7 food group score above) in order to exclude the dairy group from the calculation. The number of milk feeds was counted separately for non-breastfed children to determine if the child received at least 2 milk feeds, the minimum number required for this indicator.

As shown in Figure 10, the proportion that met the minimum acceptable diet doubled during the period; from 5.5% in 2008 to 10.5% in 2013 ($p < 0.0001$).

³ **For breastfeeding children:** [*Breastfed children 6-23 months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day / breastfed children 6-23 months*]

For non-breastfed children: [*Non-breastfed children 6-23 months of age who had at least the 2 milk feedings and had at least the minimum dietary diversity and the minimum meal frequency during the previous day / non-breastfed children 6-23 months*]

Figure 10. Minimum dietary diversity, Minimum meal frequency and Minimum acceptable diet among children 6-23 months, IFHP area, 2008 & 2013

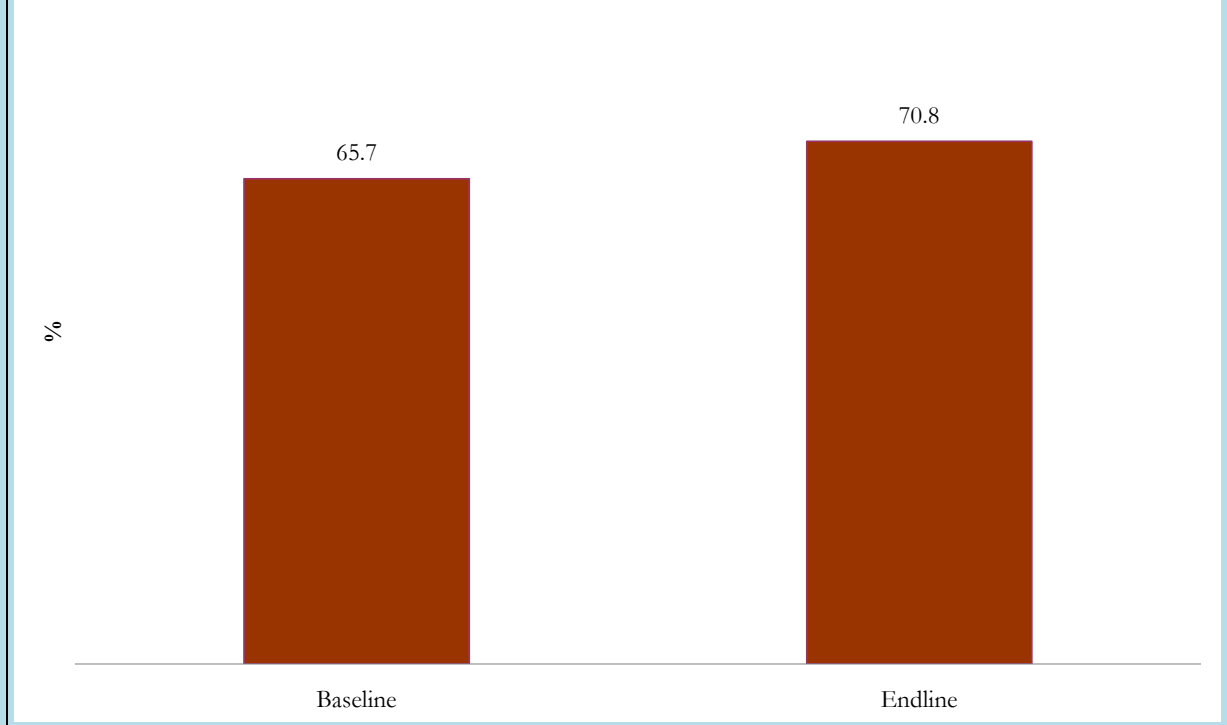


2.4. Child health

Vitamin A for children 6-23 months

Children age 6-23 months who received a dose of Vitamin A in the six months preceding the survey is shown in Figure 11. About two-third of the children age 6-23 months received a dose of Vitamin A in 2008 and this has increased slightly and significantly to 70.8% in 2010 ($p=0.001$).

Figure 11. Proportion of children 6-23 months who received Vitamin A in the last six months , IFHP area, 2008 & 2013

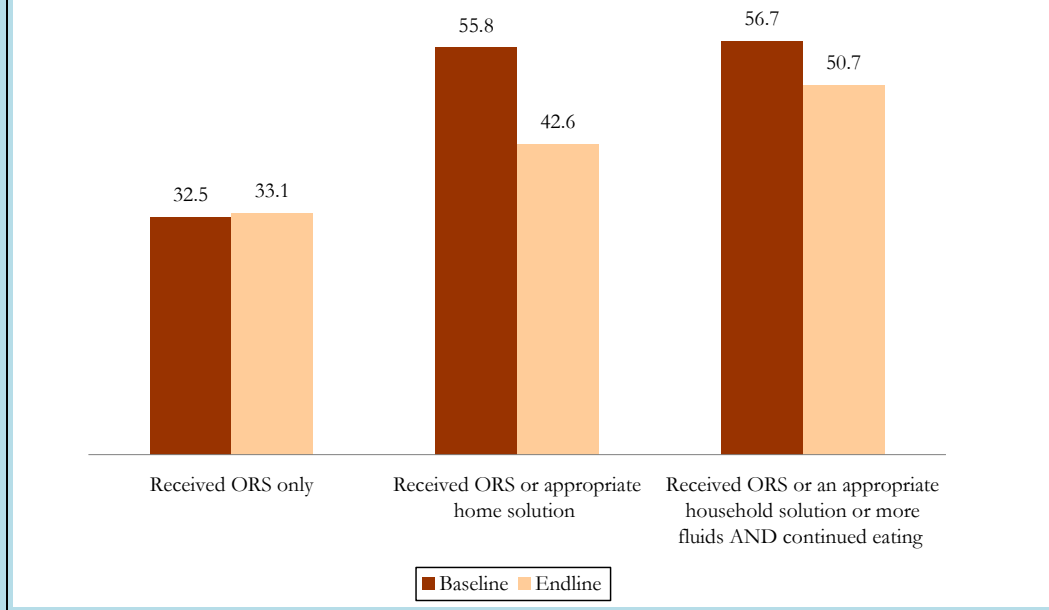


Home management of diarrhea

Mothers of children (age 0-23) with diarrhea in the previous 2-week of the survey were asked about the home management of the diarrhea. As shown in Figure 12, the proportion of children who had diarrhea in the previous 2-week and were given Oral Rehydration Solution (ORS) ONLY was 32.5% and 33.1%, respectively, in 2008 and 2013. The difference was not statically significant ($p=0.893$).

The proportion of children with diarrhea who were given ORS or appropriate home solution declined significantly from 55.8% in 2008 to 42.6% in 2013 ($p,0.0001$). In addition to the ORS or appropriate home solution, the proportion that also received more fluid and continued eating was 56.7% and 50.7%, respectively. The difference was not statistically significant ($p=0.073$).

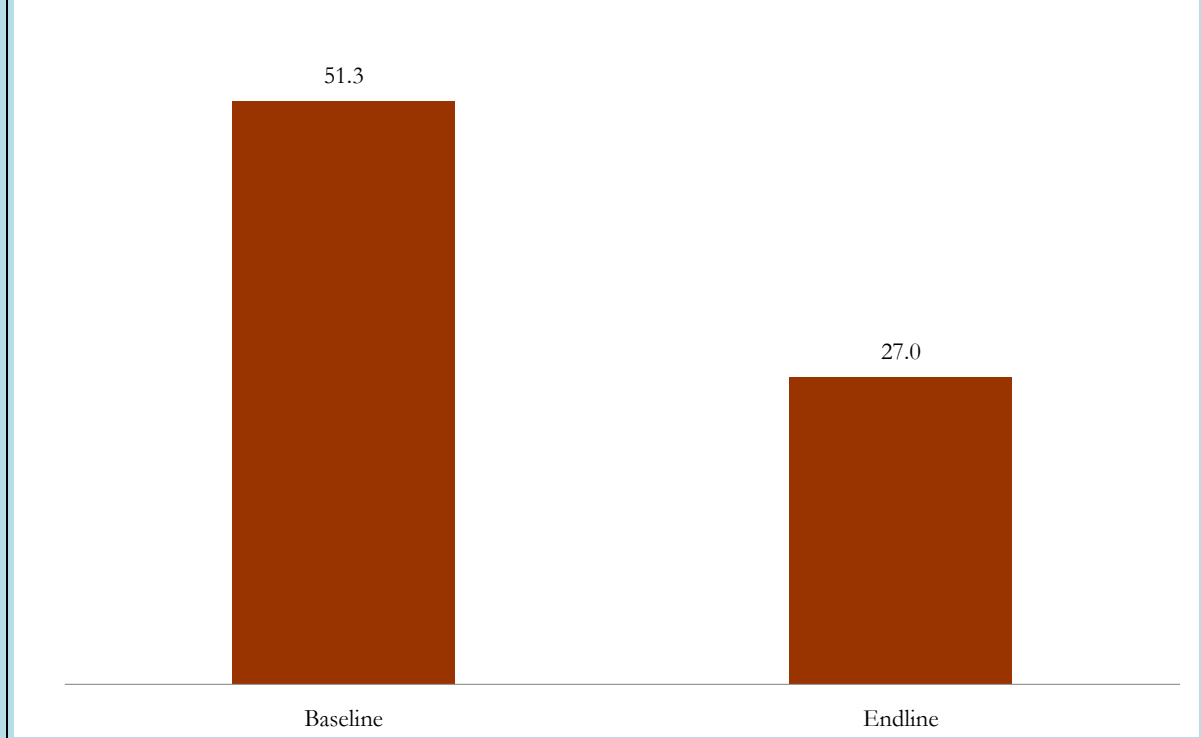
Figure 12. Among children age 0-23 months who had diarrhea in the 2-week preceding the survey, the proportion that were given ORS and/or appropriate home solution, more fluid, and continued eating, IFHP area, 2008 & 2013



Treatment for ARI

A symptom of ARI is defined as cough accompanied by short and rapid breathing, which is chest related. Among children with a symptom of ARI in the two weeks preceding the survey, the proportion that were taken to a health facility for treatment declined significantly from 51.3% in 2008 to 27% in 2013 (p<0.001) - Figure 13.

Figure 13. Among children 0-23 months with symptoms of ARI, the proportion that were taken to a health facility for treatment, IFHP area, 2008 & 2013



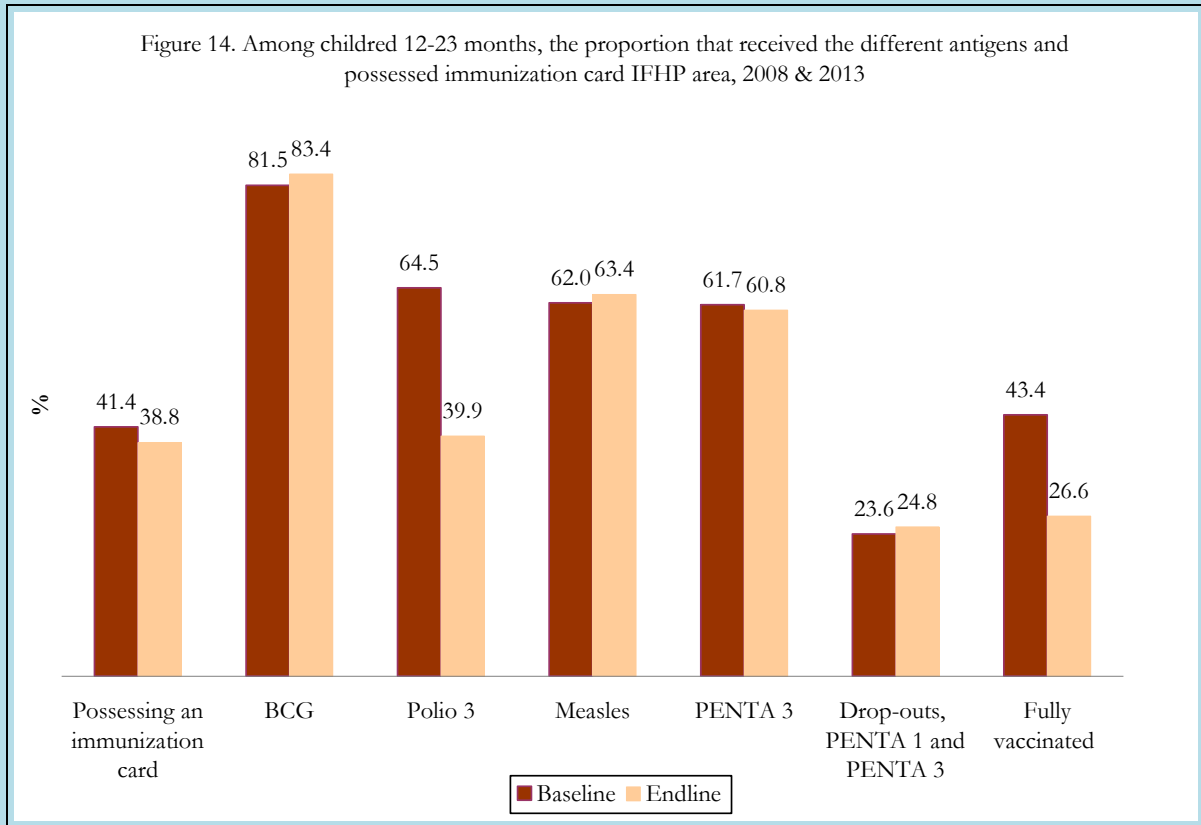
Immunization coverage

This survey computed child immunization indicators based on the sub-sample of children age 12-23 months. In these survey woman who has a child age 12-23 months was asked whether she had a vaccination card for the child. If card was available, the interviewer was required to copy carefully the dates on which the child received vaccinations against each disease. When the mother could not produce the card, she was asked whether the child had received a vaccination against tuberculosis (BCG), Pentavalent⁴ (PENTA), poliomyelitis (Polio) and measles. For PENTA and Polio, information was also obtained on the number of injections or oral doses given.

Figure 14 shows the percentage of children age 12-23 months who have received the various vaccinations. Vaccination cards were seen by the interviewers for only 41.4% and 38.8% of the children in 2008 and 2013, respectively. This difference was not statistically significant ($p=0.190$). Based on the information either recorded on the card or reported by the mother, the proportion that were fully vaccinated declined significantly from 43.4% to 26.6% during the study period ($p<0.0001$). The coverage of most of the antigens compare well between the baseline and endline except for Polio 3. The proportion that received Polio 3 was 64.5% in 2008 but this has declined to 39.9% in 2013. The coverage of BCG remained comparable between the two periods at 81.5% and 83.4% in 2008 and 2013, respectively. Likewise, 62%

⁴ Pentavalent is a multi-dose vaccine consisting of the following 5 vaccines: Diphtheria, Tetanus Toxoid, Pertussis, Hepatitis B, and Haemophilus Influenza (Hib)

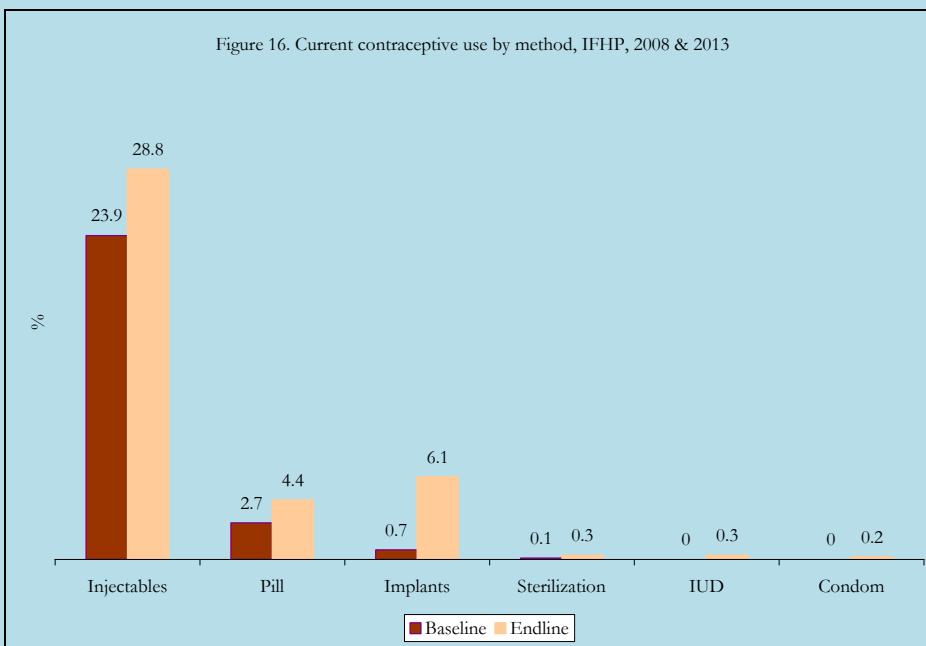
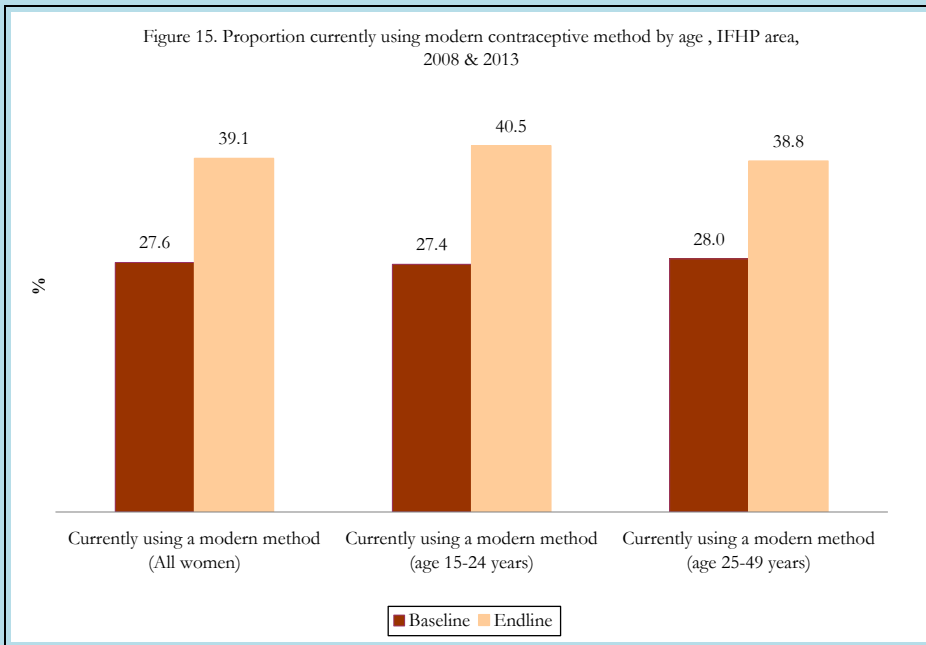
and 63.4% of the children were reported to be vaccinated against measles, respectively. The corresponding figures for PENTA 3 were 61.7% and 60.8%. Drop out rate for PENTA remained comparable between the two periods at 23.6% and 24.8%, respectively. It is important to note that the lower coverage of Polio 3 in 2013 compared to that in 2008 appears the sole reason for the decline in the proportion fully immunized during the study period.



2.4. Family Planning

Family planning use has increased significantly since the baseline. As shown in Figure 15, the modern contraceptive prevalence rate among all women age 15-49 years increased from 27.6% in 2008 to 39.1% in 2013 ($p=0.000$). Similar increase can be noted for the same among young women age 15-24 years (from 27.4% to 40.5%) and those age 25-49 years (from 28% to 38.8%).

The prevalence of Injectables has increased from 23.9% to 28.8% during the period (Figure 16). Nevertheless, the share of Injectables to the overall contraceptive use has decreased from 86.6% in 2008 to 73.6%. In 2013, 6.1% of the women were using Implants and this represents over a six-fold increase from the 0.7% recorded in 2008. The share of implants has also increased from 2.5% in 2008 to 15.6% in 2013. Pill use has improved slightly from 2.7% to 4.4%. The proportion of women that were using other modern methods remained very low and unchanged over the years.



2.5. HIV/AIDS knowledge:

Knowledge about HIV/AIDS can be considered relatively low in this population (Figure 16) although it has shown improvement since the baseline, especially in the proportion of women who know about the vertical transmission of HIV. Only 4.8% of the women in 2008 were able to mention the three ways of avoiding HIV/AIDS. This was increased significantly to 15.7% in 2013 ($p=0.000$).

Women's awareness the vertical transmission of HIV (mother-to-child) improved significantly since the baseline (Figure 17). The proportion that correctly mentioned all the three means of vertical transmission increased significantly from a low of 7.5% in 2008 to 53% in 2013 ($p=0.000$). The most dramatic increase was noted in women's awareness of vertical transmission during delivery (from 18.4% to 69%) and during pregnancy (from 29.7% to 64%). Modest but significant change was noted in the proportion that mentioned breastfeeding among the routes of vertical transmission from 60.1% in 2008 to 77% in 2013. The recorded changes were statistically significant at $p<0.000$.

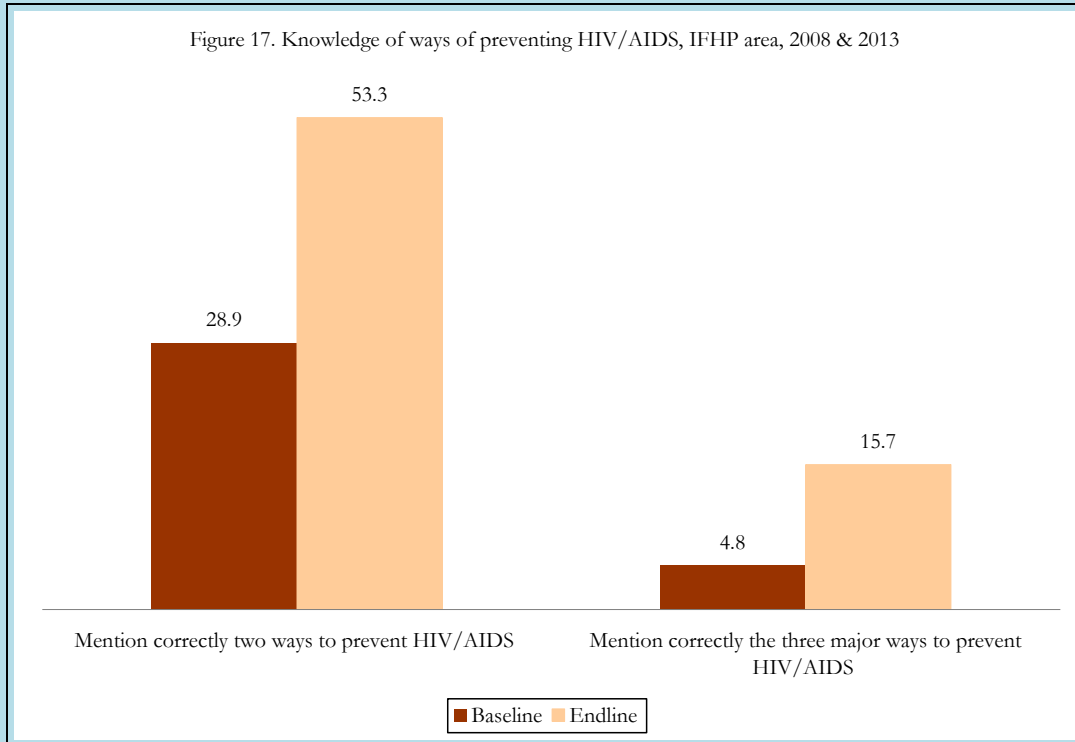
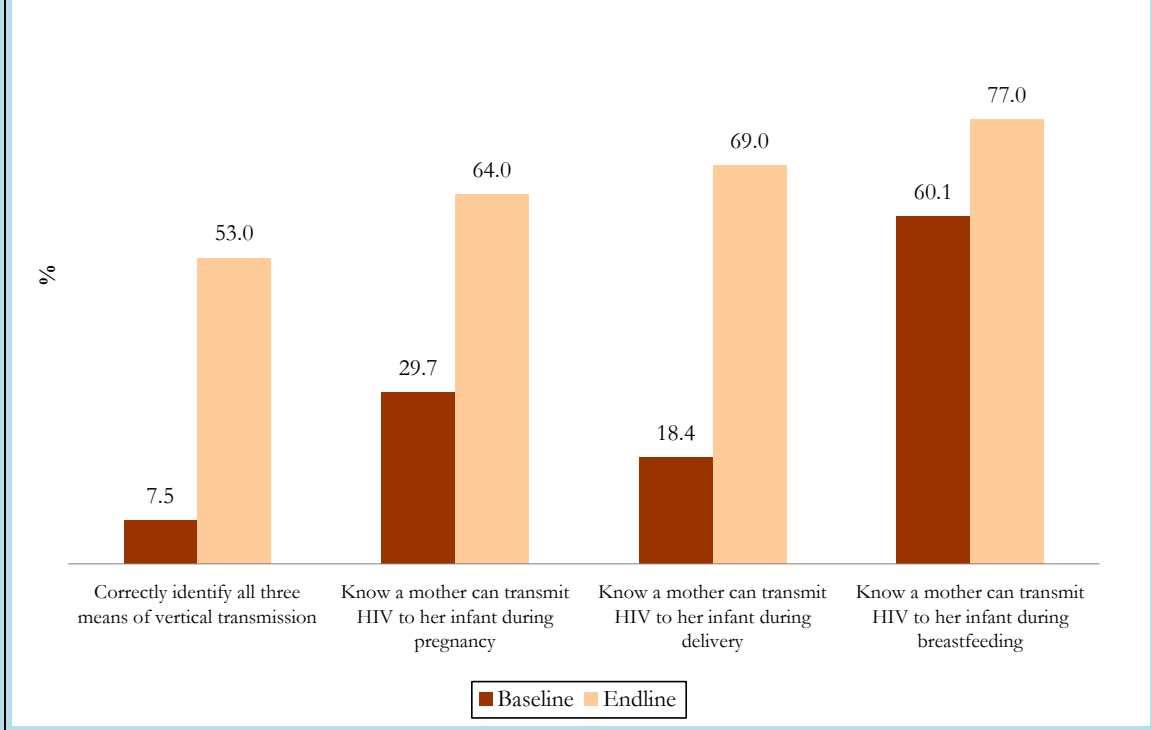


Figure 18. Knowledge of vertical HIV transmission, IFHP area, 2008 & 2013



Annex 1: Selected indicators in IFHP areas, 2008 & 2013

S/N	Variable/Indicator/Category	IFHP Areas- 4 Regions combined				Test for the difference in Baseline & Endline proportions (P-value)
		Baseline		Endline		
		%	N	%	N	
	HOUSEHOLD CHARACTERISTICS					χ^2 (P-value)
1	Percent of households using improved sanitary facilities	58.4	1,550	74.0	2404	105.40(0.000)
2	Percent of households using improved drinking water sources	57.8	1,550	64.1	2404	15.79 (0.000)
3	Percent of households with at least one bed net	69.2	1,550	53.6	967	62.78 (0.000)
4	Average bed nets per household	1.7	1,550	1.02	967	1.75 (0.228)
	MATERNAL, NEWBORN and CHILD CARE					
5	Percent of mothers with children 0-11 months who had at least one antenatal care at a health facility during pregnancy (excluding HPs)	33.6	1,310	51.5	1227	83.38 (0.000)
6	Percent of mothers with children 0-11 months who had at least one antenatal care at Health Post (HP) (excluding other health facilities)	20.4	1,310	30.5	1227	34.22 (0.000)
7	Percent of mothers with children 0-11 months who had at least one antenatal care at a health facility during pregnancy (including HPs)	54	1,310	82.0	1227	226.81 (0.000)
8	Percent of mothers with children 0-11 months who had at least two antenatal visits to a health professional prior to delivery	44	1,310	76.7	1227	282.18 (0.000)
9	Percent of mothers with children 0-11 months who were given at least 2 doses of Tetanus Toxoid (TT) vaccine within the appropriate interval prior to giving birth	46.8	1,310	42.9	1227	3.95 (0.050)
10	Percent of pregnant women who have received Iron/folic acid during the last pregnancy	18.2	1,310	62.5	1227	671.94 (0.000)
11	Percent of mothers with children aged 0-11 months who delivered with a skilled health professional (excluding HEWs)	6.5	1,310	35.8	1227	328.06 (0.000)

S/N	Variable/Indicator/Category	IFHP Areas- 4 Regions combined				
		Baseline		Endline		Test for the difference in Baseline & Endline proportions (P-value)
		%	N	%	N	
12	Percent of mothers with children aged 0-11 months who delivered with HEWs only (Excluding other skilled health professionals)	1.7	1,310	4.3	1227	18.83 (0.000)
13	Percent of mothers with children aged 0-11 months who delivered with a skilled health professional (including HEWs)	8.2	1,310	40.1	1227	358.41 (0.000)
14	Percent of children aged 0-11 months whose delivery took place at a health facility (including Health Posts)	6.7	1,310	35.8	1227	332.25 (0.000)
15	Percent of last live births in the 1 year preceding the survey that were weighed at birth	3.5	1,310	25.7	1227	254.94 (0.000)
16	Percent of women who report receiving postpartum visit within two days of birth	1.1	1,310	17.7	1227	211.38 (0.000)
17	Percent of children under one who were checked at least once with in 7 days after birth	2.3	1,310	23.6	1227	261.88 (0.000)
18	Percent of children (0-11 months children) who were put in to the breast within one hour of birth (IYCF New)	52.5	1,307	68.4	1227	108.34 (0.000)
19	Percent of infants aged 0-3 months who were fed breast milk only in the last 24 hours, and no other food given (IYCF New)	88.5	407	64.1	422	66.93 (0.000)
20	Percent of infants aged 0-5 months who were fed breast milk only in the last 24 hours, and no other food given (IYCF New)	82.6	638	57.0	613	98.13 (0.000)
21	<i>Percent of children 12–15 months of age who are fed breast milk (based on recall of the previous day) (continued breastfeeding at 1 year) (IYCF New)</i>	73.7	326	95.3	451	75.33 (0.000)
22	<i>Percent of children 20-23 months of age who are fed breast milk (based on recall of the previous day) (continued breastfeeding at 2 years) (IYCF New)</i>	61.3	225	81.6	423	31.66(0.000)

S/N	Variable/Indicator/Category	IFHP Areas- 4 Regions combined				
		Baseline		Endline		Test for the difference in Baseline & Endline proportions (P-value)
		%	N	%	N	
23	Percent of children 0-23 months of age who are appropriately fed (New)	60.1	2,544	72.0	2462	79.07(0.000)
24	Percent of children 0–23 months of age who are fed with a bottle yesterday or last night (IYCF New)	8.7	2,544	10.0	2462	2.52(0.113)
25	Percent of infants 6–8 months of age who received solid, semi-solid or soft foods (based on recall of the previous day) (IYCF New)	58.1	325	45.1	290	10.35(0.001)
26	Percent of children aged 6-9 months who where fed solid or semi-solid complementary foods in addition to breast milk (IYCF old)	63.7	450	54.4	405	7.89(0.005)
27	Proportion of children 6-23 months who received foods from 4 or more food groups in the previous day is considered meeting the minimum dietary diversity (minimum dietary diversity) (IYCF New)	6.5	1,906	14.3	1849	61.19(0.000)
28	Proportion of breastfed and non-breastfed children age 6-23 months who received solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more the previous day (Minimum meal frequency) (IYCF New)	67.4	1,906	62.5	1849	9.89(0.002)
29	Percentage of children 6-23 months of age who receive at least the minimum dietary diversity and the minimum meal frequency (minimum acceptable diet (MAD) (New)	5.5	1,906	10.5	1849	31.80(0.000)
30	Percent of last live births whose mother reports feeding the first milk (colostrum)	66.8	1,310	75.1	1227	20.94(0.000)
31	Percent of children aged 6-23 months who received a Vitamin A dose in the last six months	65.7	1,922	70.8	1849	11.22 (0.001)
32	Percent of children aged 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS only)	32.5	380	33.1	682	0.03 (0.892)

S/N	Variable/Indicator/Category	IFHP Areas- 4 Regions combined				
		Baseline		Endline		Test for the difference in Baseline & Endline proportions (P-value)
		%	N	%	N	
33	Percent of children aged 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) <u>or appropriate home solution</u>	55.8	380	42.6	682	16.85 (0.000)
34	Percent of children aged 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) <u>or an appropriate household solution or received more fluids AND continued eating somewhat less, the same or more food</u>	56.7	380	50.7	682	3.35 (0.073)
35	Percent of children 0-23 months with symptoms of ARI in the two weeks preceding the survey that were taken to a health facility for treatment	51.3	94	27.0	292	18.57 (0.000)
36	Percent of mothers with children 0-23 months who know at least 3 symptoms that would cause her to seek care immediately for a child under 5 years	67	2,562	50.4	2416	141.67 (0.000)
37	Percentage of children 0-23 months whose mothers (residing in malarious areas) report that child slept under bed-net the previous night	42.7	1,616	44.6	136	0.24 (0.652)
38	Percent of children 12-23 possessing an immunization card	41.4	1,250	38.8	1235	1.82 (0.190)
39	Percentage of children aged 12-23 months vaccinated against measles	62	1,250	63.4	1235	0.52 (0.481)
41	Percentage of children aged 12-23 months immunized against DPT3	61.7	1,250	60.8	1235	0.20 (0.681)
43	Percent of drop-outs between DPT1 and DPT3	23.6	1,250	24.8	1235	0.47 (0.512)
44	Percent of children aged 12-23 months fully vaccinated	43.4	1,250	26.6	1235	76.98 (0.000)
	FAMILY PLANNING:					
48	Percent of women in the age group 15-49 who know where to obtain at least one modern method	81.5	1,550	83.6	1754	2.52 (0.118)
49	Percent women aged 15-49 who are using a modern method	27.6	1,550	39.1	1727	49.85 (0.000)
50	Percent women aged 15-24 who are using a modern method	27.4	507	40.5	420	17.63(0.000)

S/N	Variable/Indicator/Category	IFHP Areas- 4 Regions combined				
		Baseline		Endline		Test for the difference in Baseline & Endline proportions (P-value)
		%	N	%	N	
51	Percent women aged 25-49 who are using a modern method	28.0	1,033	38.8	1288	30.04(0.000)
	HIV/AIDS:					
52	Percent of women 15-49 years who can mention <u>correctly two ways to prevent</u> HIV/AIDS	28.9	1,550	53.3	2404	227.69 (0.000)
53	Percent of women 15-49 years who can mention <u>correctly the three major ways</u> to prevent HIV/AIDS	4.8	1,550	15.7	2404	111.0(0.000)
54	Percent of women that correctly identify all three means of vertical transmission (i.e. transmission of HIV from mother to child)	7.5	1,550	53.0	2404	856.26 (0.000)
55	Percent of women 15-49 years who know a mother can transmit HIV to her infant during pregnancy	29.7	1,550	64.0	2404	444.60 (0.000)
56	Percent of women 15-49 years who know a mother can transmit HIV to her infant during delivery	18.4	1,550	69.0	2404	966.28 (0.000)
57	Percent of women 15-49 years who know a mother can transmit HIV to her infant during breastfeeding	60.1	1,550	77.0	2404	128.63 (0.000)