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TRANSFORM: MONITORING, EVALUATION, LEARNING AND ADAPTING

TRANSFORM PROGRAM BASELINE SURVEY REPORT

Final Report

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ACRONYMS

ANC	Antenatal Care
ARI	Acute Respiratory Tract Infection
CBHI	Community-based Health Insurance
CBNC	Community-based Neonatal Care
CPR	Contraceptive Prevalence Rate
CSPro	Census and Survey Processing System
DHS	Demographic and Health Survey
EA	Enumeration Areas
EDHS	Ethiopia Demographic and Health Survey
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
FP	Family Planning
GBV	Gender Based Violence
GOE	Government of Ethiopia
HC	Health Center
HDR	Health in Developing Regions
HF	Health Facility
HH	Household
HP	Health Post
ICCM	Integrated Community Case Management
IFHP	Integrated Family Health Program
IP	Implementing Partner
ITN	Insecticide Treated Net
KII	Key Informant Interview
LAFP	Long Acting Family Planning
MELA	Monitoring, Evaluation, Learning and Adapting
PHC	Primary Health Care
PNC	Postnatal Care
PPFP	Post-partum Family Planning
PRIN	PRIN International Research and Training Consultancy PLC
RH/FP	Reproductive Health / Family Planning
RMNCH	Reproductive, Maternal, Newborn, and Child Health
SNNP	Southern Nations, Nationalities and Peoples State
SuDCA	SUDCA Consulting PLC
TMG	The Mitchell Group, Inc.
USAID	United States Agency for International Development
USG	United States Government
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

The Transform program aims to end preventable maternal and child death in Ethiopia. It includes three principal interventions across eight regions: 1) Primary Health Care (PHC) in Oromia, Amhara, Tigray, and SNNP; 2) Health in Developing Regions (HDR) in Somali, Afar, Gambella, and Benishangul Gumuz; and 3) Water, Sanitation, and Hygiene (WASH) spread across those regions.

To ensure progress toward the overall objective of the Transform program, Transform: Monitoring, Evaluation, Learning and Adapting (Transform: MELA) was tasked by USAID/Ethiopia and the Government of Ethiopia/Federal Ministry of Health (GOE/FMOH) to conduct a baseline survey (as one of its key deliverables) that provides a basis for evaluating the effectiveness of the Transform interventions in those eight regions.

The 2018 Transform program baseline survey was implemented by Transform: MELA from September 2017 through February 2018 with the support of two local partners, PRIN International Research and Training Consultancy PLC (PRIN) and SUDCA Consulting PLC (SuDCA).

The baseline survey included a household/population survey of 6,595 women aged 15-49, supplemented by health facility data collection from 119 facilities, and qualitative data collection, which was comprised of 50 focus group discussions and eight key informant interviews in WASH-only committees. The household survey drew respondents from intervention areas and comparison areas at a 4:1 ratio; sampling relied on a multi-stage randomization process to first select kebeles within intervention and comparison woredas and then to select the households and individuals therein.

Methods: The analytical methods used in this survey include descriptive statistics; uni-variate, bi-variate, and multivariate analysis; and regression techniques. The indicator results in this report are presented with disaggregation by region. The survey also explores other factors that potentially affect outcomes, such as age, gender, education, contextual factors and wealth. Determinants of six key indicator outcomes (use of modern family planning methods, delivery by skilled providers, antenatal care utilization during last pregnancy, full vaccination of children aged 12-23 months, women's empowerment, and improved sanitation facilities) were assessed in a multivariate regression framework.

The analytical approach adopted for the evaluation of Transform activity effectiveness involves a comparison of changes to key indicators over time in intervention areas versus comparison areas. Thus, at the midline and endline stages, we will account for changes in program outcomes of interest **within** intervention groups, comparing values at those periods to the baseline values. At the same time, changes in outcomes of interest within comparison groups from baseline to midline and then endline will account for non-intervention changes. Differences in the changes within intervention groups and changes within comparison groups, respectively, will constitute "difference-in-differences" over time, which represent the changes that result from interventions after taking into account changes across the study area due to other, unobserved factors. Regardless of the size of those differences, the midline evaluation will use difference-in-differences methods and causality tracking strategies to track changes in intervention versus comparison areas

relative to baseline values. The long-term objective is to track progress on key indicators over time to understand the impact of the Transform activities.

At the midline, the evaluation team will thus conduct the same analyses to track changes over time. However, we can also adjust the scope of data collection to account for new or different outcomes of interest.

At this baseline stage, differences between intervention and comparison woredas are in most cases minor. This baseline survey report nevertheless presents results by intervention and control areas to establish a basis for subsequent comparisons. The report summarizes findings related to the key indicators identified by USAID/Ethiopia, the FMOH and Transform Implementing Partners (IPs). A summary table presented following the Executive Summary presents results for all indicators (see Annex 1 for additional details by region).

Key baseline findings are as follows:

Respondent Characteristics: Over half of women interviewed in the intervention woredas have no formal education, and less than 3 percent have greater than a secondary school education. Seventy-seven percent are married or cohabiting, and approximately 12 percent are single. A quarter of survey respondents has electricity, nearly one-quarter spends more than one hour per day fetching water, and over one-quarter believes that there are times when women deserve to be beaten.

Family Planning: Just over a quarter (26.4 percent) of women in the targeted reproductive age group in the study region currently uses modern methods of contraception. Unmet need for family planning stands at 27 percent in the intervention areas. Focus group respondents report that low levels of awareness, fear of side effects, cultural beliefs, and dissuasion from husbands represent some of the key barriers to family planning use.

Antenatal and Postnatal Care: About 68 percent of women who gave birth within the past year had at least one antenatal care visit, but only 41 percent of respondents from the intervention areas made at least four antenatal care visits during their most recent pregnancy. That figure is lower in Afar, Somali, and Gambella than in other regions, and both younger and older mothers were less likely to attain four visits. Around 36 percent of the mothers received early postnatal care (defined in the report below).

Skilled birth Attendance: In the intervention areas, close to 47 percent of births were attended by skilled health personnel at a health facility. Respondents note that poor roads and lack of personnel and services often prevented other women from getting such care.

Child Health: About 34 percent of children received all basic vaccinations, though the figure is much lower in Somali and Afar. In the intervention areas, 63 percent of children aged 0-5 months are exclusively breastfed; 10 percent of children in the intervention area had incidents of diarrhea two weeks before the survey, though only 28 percent of them were treated with ORS and Zinc.

WASH: Approximately 10 percent of households have access to basic sanitation facilities, and only about 1 percent of the surveyed households have hand-washing facilities with soap and water. Seventy-seven percent of households have access to a basic drinking water source, but only 11.5

percent of households use appropriate household water treatment methods. Interviews with WASH stakeholders indicate that the committees do not yet have the information and capacity they need to conduct institutional self-assessments and annual action plans for WASH.

Gender and Women's Empowerment: Eighty-three percent of women participate in their own health care decisions, and about half are accompanied by their spouses to at least one antenatal care visit. Gender based violence remains a concern, in terms of physical attacks, early marriage, and female genital mutilation.

Limitations of the Baseline Survey

The methodology employed for the Transform Baseline Survey, while appropriate and statistically rigorous, raises a few issues that users of the data should keep in mind. First, as is frequently the case with baseline surveys, some Transform activities began prior to the collection of baseline data. Those that did begin early are only in their nascent stages, so this is not viewed as a major concern, but it is nevertheless important to apply caution in taking baseline comparisons between intervention and comparison areas at face value. More complicated is the fact that previous USAID-funded activities targeted similar intervention sites and were undertaken in some of the same study areas. The inclusion of sites in the Transform program was determined based on other criteria and did not take previous USAID interventions into consideration, so it will be critical to account for exposure to previous programs prior to analyzing changes over time at the endline. Third, the ratio of intervention to comparison areas was established at 4:1, which limits our ability to identify matching comparison areas for each intervention area. The advantage to a greater share of intervention areas is that we are able to disaggregate the intervention data in numerous ways to evaluate potential mediating factors in the outcomes of interest, but it is worth noting that the comparison woredas are not perfect controls and should not be taken as such. The difference-in-differences and causality tracking strategies will account for these issues and will provide realistic and comparable measures.

Table I. Summary of Transform Program Baseline Indicator Values

Indicator	Baseline Values as of December 2017		p-value	Number of observations
	Intervention areas (%)	Comparison areas (%)		
Family Planning				
1. Contraceptive Prevalence Rate (CPR) among all women (any method)	26.8	28.2	0.288	6595
2. CPR among currently married women (any method)	32.8	34.9	0.197	5058
3. Modern CPR among all women	26.4	27.7	0.368	6595
4. Modern CPR among currently married women	32.3	34.2	0.253	5058
5. CPR for LAFP methods among currently married women	8.3	9.6	0.216	5058
6. CPR for LAFP methods among all women	6.9	7.8	0.257	6595
7. Unmet Need for Family Planning	26.7	27.4	0.561	6595
8. Use of modern contraception after birth (PPFP)	22.9	26.6	0.177	1462

Indicator	Baseline Values as of December 2017		p-value	Number of observations
	Intervention areas (%)	Comparison areas (%)		
9. Women who heard/saw RH/FP message	51.0	56.8	0.000	6595
Maternal and Newborn Health				
10. Women who had at least one ANC visit for their last birth by skilled health personnel	68.2	74.8	0.030	1462
11. Women who had four or more ANC visits for their last birth	41.0	47.3	0.059	1450
12. Women who had their first ANC visit during the first trimester	27.6	33.8	0.042	1438
13. Women who received essential components of ANC (BP - measured, urine and blood sample taken, nutrition counseling, danger sign counseling)	34.1	44.9	0.002	1184
14. Women with birth in the last one year who Received/Purchased Iron and Folic Acid Supplement during Pregnancy	47.2	55.1	0.030	1208
15. Women with birth in the last one year who took Iron and Folic Acid supplement for at least 90 days	21.7	26	.304	592
16. Skilled Birth Attendance	46.5	55.0	0.100	1462
17. Postnatal Care for the mother (within two days)	35.5	39.9	0.165	1462
18. Postnatal Care for the mother (within seven days)	41.4	46	0.157	1462
19. Early Postnatal Care for the newborn (within two days)	31.8	34.2	0.438	1462
20. Early Postnatal Care for the newborn (within seven days)	33.4	35.3	0.549	1462
21. Newborn received Essential Newborn Care (Vit K, TTC eye ointment, cord care with ointment - among births that occur in health facility)	7.0	4.5	0.246	711
22. Women who heard/saw MNCH information in the last few months	22.1	25.6	0.008	6485
23. Women who received MNCH services through a mobile health team	6.6	8.4	0.027	6486
24. Women who received family planning counseling after birth	22.9	26.7	0.174	1458
25. Pregnant women who slept under ITN the previous night	57.4	54.4	0.591	515
26. Pregnant women who received any malaria message in the last few months	79.6	73.2	0.141	598
27. Pregnant women who received all malaria messages in the last few months (all in the list)	27.1	24.1	0.513	598
Child Health and Immunization				
28. Children 12-23 months who are fully immunized	34.3	47.1	0.003	904

Indicator	Baseline Values as of December 2017		p-value	Number of observations
	Intervention areas (%)	Comparison areas (%)		
29. Children 12-23 months who received Measles vaccine within first year of birth	32.7	38.1		904
30. Children 12-23 months who received Penta3 vaccine within first year of birth	39.4	49.0		904
31. Newborn (0-2 months) who had sign of infection in the last two weeks	16.2	25.9	0.091	274
32. Newborn (0-2 months) with sign of infection for whom treatment was sought from appropriate healthcare provider (Doctor, Nurse, Midwife, Health Officer or HEW)	40.0	26.7	0.368	50
33. Newborn (0-1 month) who had sign of infection in the last two weeks	16.5	26.8	.140	180
34. Newborn (0-1 month) who had sign of infection for whom treatment was sought from appropriate healthcare provider (Doctor, Nurse, Midwife, Health officer or HEW)	34.8	27.3	.489	34
35. Children under 5 who had fever in the past two weeks	12.0	14.2	0.109	4582
36. Children under 5 who had fever in the past two weeks for whom advice/treatment was sought within 24 hours of onset of fever	46.9	51.7	0.352	568
37. Children under 5 who had symptoms of ARI in the past two weeks (cough accompanied by chest related short, rapid breathing and/or difficult breathing that is chest related)	7.1	6.2	0.399	4198
38. Children under 5 who had symptom of ARI (Pneumonia) in the past two weeks, who are treated with antibiotics	26.1	27.8	0.778	291
39. Children under 5 who had diarrhea in the past two weeks	10.4	13.2	0.023	4584
40. Children under 5 with diarrhea treated with ORS and Zinc	28.3	29.4	0.831	501
41. Children under 5 who were given drug for intestinal worms in the last six months	26.5	28.0		4585
42. Children under 5 who slept under ITN the previous night	42.8	39.6	0.091	4618
Child Nutrition (Infant and young child feeding practices)				
43. Women who received education on exclusive breastfeeding	33.5	38.2	0.002	6486
44. Early initiation of breastfeeding (within one hour of birth)	66.3	59.9	0.111	908
45. Children 0-5 months who are exclusively breastfed	62.8	73.6	0.037	558

Indicator	Baseline Values as of December 2017		p-value	Number of observations
	Intervention areas (%)	Comparison areas (%)		
46. Children under 5 who received Vitamin A in the last 6 months	39.8	33.5	0.079	2074
WASH				
47. Households with access to basic sanitation facilities	9.8	15.0	0.000	6593
48. Households with presence of handwashing facility observed	3.7	6.3	0.000	6595
49. Households that have hand washing facility with both soap and water at hand washing station- from total households surveyed	0.8	1.9	0.000	6595
50. Households that have hand washing facility with water and soap OR water and other cleansing agents like Ash, Mud or Sand at handwashing station	1.1	2.1	0.007	6595
51. Households with observed presence of both water and soap (NOT including other cleansing agents) at hand washing station (over the total HH observed for presence of hand washing station)	27.3	30.9	0.416	242
52. Households with access to financial loan for purchase of sanitation and hygiene products	1.1	1.7	0.092	6576
53. Households using appropriate water treatment method	11.5	10.4	0.000	6595
54. Households with access to a basic drinking water source	76.8	85.0	0.000	6594
Gender				
55. Women's participation in decisions regarding their own health	83.3	82.3	0.435	4987
56. Women's participation in decisions for purchase of sanitation and hygiene products	87.3	88.9	0.181	4994
57. Women accompanied by their spouse during ANC visits for their last birth	51.5	54.7	0.195	2571
58. Women accompanied by their spouse during child birth	71.0	74.9	0.062	2923

1. INTRODUCTION

USAID bases policy and investment decisions on the best available empirical evidence, and uses the opportunities afforded by project implementation to generate new knowledge for sharing with the wider community. Moreover, USAID is committed to measuring and documenting project and program achievements and shortcomings so that the Agency's multiple stakeholders gain an understanding of the returns on investment in development activities. USAID recognizes that monitoring and evaluation are key means through which it can obtain systematic and meaningful feedback on both the successes and shortcomings of the initiatives it supports. The USAID Evaluation Policy, as well as recent revisions made to the Automated Directives System (ADS) 200 series, demonstrate the Agency's commitment to generating strong monitoring and evaluation data and applying evidence-based learning.

To adhere to USAID's Evaluation Policy, and to ensure that an evidence-based learning agenda forms a core element of strategic and programmatic management decisions, USAID/Ethiopia supports Transform: Monitoring, Evaluation, Learning and Adapting (Transform: MELA), an initiative that facilitates performance monitoring, evaluation, reporting, and dissemination requirements as mandated in the most recent Automated Directives System (ADS 201), the USAID Evaluation Policy, and other Agency guidelines.

USAID/Ethiopia and the Government of Ethiopia/Federal Ministry of Health (GOE/FMOH) commissioned Transform: MELA to conduct a baseline survey (among other deliverables) to provide baseline values that will serve in the evaluation of Transform interventions aimed at ending preventable maternal and child death in Ethiopia. The baseline survey establishes benchmarks at the start of interventions for comparing key outcome and impact indicators at the midline and the end of the program in geographic areas that comprise the Transform portfolio.

The 2018 Transform program baseline survey was implemented by the Transform: MELA team from September 2017 through February 2018 with support from USAID/Ethiopia, the Federal Ministry of Health, and Transform: MELA's local implementing partners, PRIN and SuDCA.

1.1. Objectives of the Baseline Survey

The main objective of the baseline survey is to assess the knowledge, attitudes and practices of households regarding maternal, child health and WASH; and to establish baseline values for key performance indicators associated with the Transform interventions—Primary Health Care (PHC), WASH and Health in Developing Regions (HDR)—before the start of the interventions.

Specifically, the baseline survey:

- Collects data for establishing baseline values for key indicators of the Transform portfolio activities: PHC, WASH, and HDR;

- Creates a knowledge base for future midline and endline evaluations; and
- Tests planning assumptions and establishes programming gaps, if any.

1.2. Scope of the Baseline Survey

Key Transform Activities:

The baseline survey is intended to provide benchmark values related to key outcomes of the three Transform programs, namely:

- Transform Primary Health Care (PHC) activities forming the core of interventions in the regions of Oromia, Amhara, Tigray, and SNNP;
- Transform Health in Developing Regions (HDR) interventions operating in Somali, Afar, Gambella, and Benishangul Gumuz; and
- Transform Water, Sanitation, and Hygiene (WASH) activities spread across those regions.

Geographic Scope:

The baseline survey covers the eight regional states of Ethiopia: Tigray, Amhara, Oromia, SNNPR, Gambella, Afar, Somali, and Benishangul Gumuz. The Transform: MELA team, with support from the Transform Implementing Partners (IPs), USAID/Ethiopia and FMOH, determined the reporting domains the survey would cover to track progress on key measures related to maternal and child health. The map in Figure 1.2.1. below shows a scatter plot of the surveyed household population in the eight regions of Ethiopia.

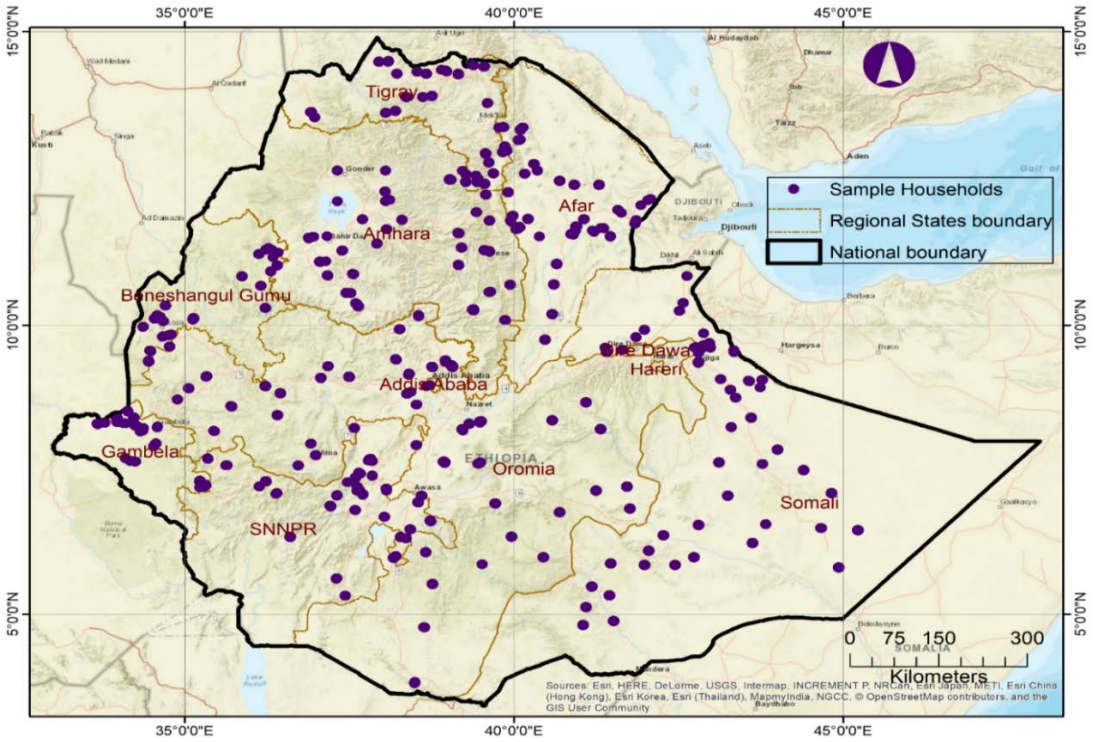


Figure 1.2.1. Map of Surveyed Locations

Technical Scope:

The baseline survey is comprised of a household/population-based survey (HH), a health facility (HF) survey, Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs). The HH survey covers women of reproductive age, 15-49 years, on the following topics: household and respondent characteristics, family planning, maternal health, child health, health systems strengthening, Water, Sanitation and Hygiene (WASH), gender and nutrition. The respondents were asked questions on a variety of themes:

- Background characteristics (age, education, media exposure, etc.)
- Birth history and childhood mortality
- Knowledge and use of family planning methods
- Antenatal, delivery, and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and child health
- Women's work and husband's background characteristics
- Status of sanitation facilities, hand washing, use of water treatment technology and basic drinking water sources

The survey includes measurements on program outcomes, such as knowledge, self-efficacy, outcome expectations, health behaviors, and gender norms. The HF survey was designed to measure health facility readiness, including an assessment of trained health personnel, service delivery, availability of essential drugs and equipment, and referral health systems. A qualitative study (FGDs) and KIIs were incorporated in the baseline survey design to provide the "why" behind findings from the quantitative study. Following this baseline survey, midline and endline evaluations will be conducted according to the same design as the baseline to assess the effectiveness of the Transform program interventions on health outcomes over time, including identifying associations between exposure to the interventions and key program indicators.

2. BASELINE SURVEY DESIGN & METHODOLOGY

2.1. Survey Sample Design (quantitative)

This baseline survey is a cross-sectional study that followed a two-stage sampling technique. First, prior to sampling, lists of Transform program targeted woredas at the time of the baseline in the eight regions were obtained from the USAID/Ethiopia and Transform IPs: 300 woredas in the PHC intervention regions; 58 woredas in the HDR intervention regions, and 19 woredas (within the eight intervention regions) receiving WASH activities at the time of survey.

The first stage of random sampling identified health posts/kebeles in the intervention woredas as primary sampling units, drawing from the list of health posts in those regions. Health posts were selected using a simple random sampling technique.

An optimal size of 30 HHs per kebele was used to determine the number of kebeles needed for each region. The number of randomly selected kebeles was distributed proportionally to the size of kebeles in each Transform intervention woreda per region, consistent with the desired number of respondents per woreda from the intervention woreda lists selected for the baseline survey.

The second stage of the sampling protocol entailed the random selection of households from the selected kebeles. Because of the difficulties and time-consuming exercise of developing a fresh list of households in a kebele, 3-4 gotts were selected randomly from within each kebele with the goal of generating a potential sample of 150-2oo households from those gotts. A fresh list of households for each selected gott then served as a frame to select 30 households per kebele. The key eligibility criterion for selecting the households was a woman aged 15-49, regardless of marital status, having residential status there. If more than one such eligible respondent was a member of a selected household, the enumeration team used a Kish grid method to randomly select one respondent among the eligible women.

The survey design included sampling from comparison woredas that did not receive the Transform interventions. The comparison woredas were randomly selected from the remaining non-intervention woredas in each region, with stratification by administrative zone to ensure that comparison woredas were selected from each area of a region. Woredas adjacent to the purposely selected intervention woredas were intentionally excluded to avoid spillover effects, and the number of comparison woredas was determined with the goal of achieving the desired intervention-to-comparison ratio explained below. The two-stage random sampling procedure for selecting kebeles, and then households within kebeles, proceeded in the same manner in the comparison woredas as in the intervention woredas.

Figures 2.1.1. and 2.1.2. summarize the sampling design for the intervention and comparison areas, respectively.

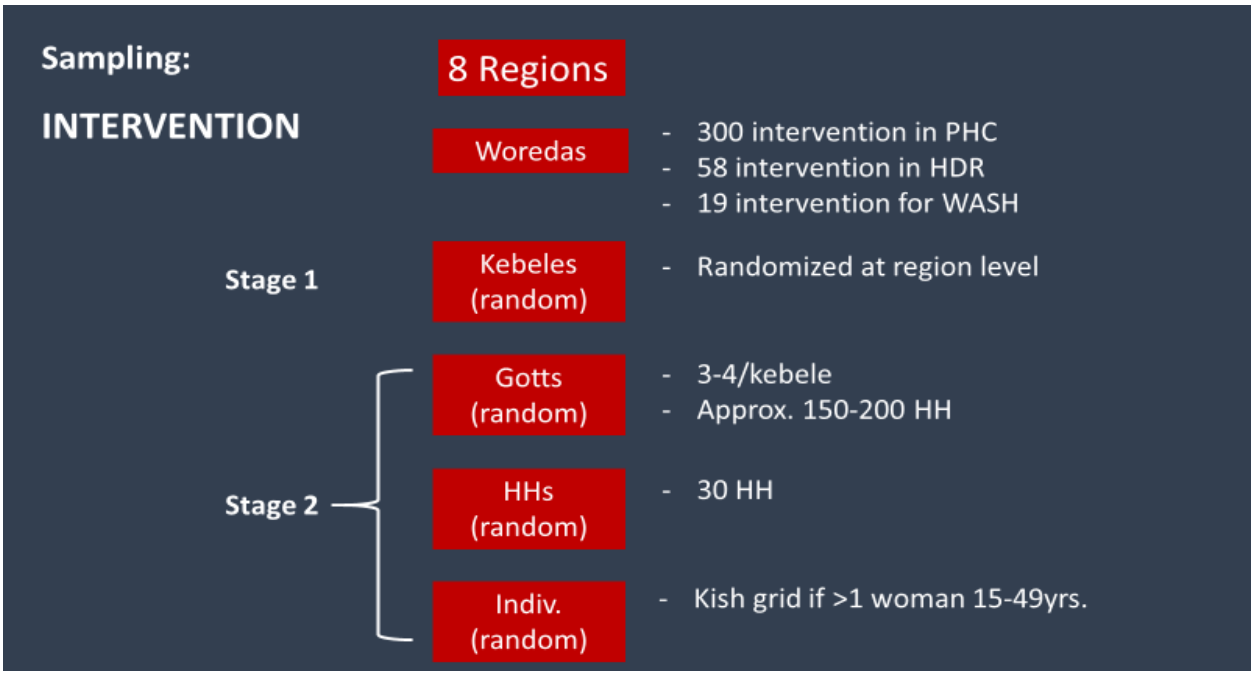


Figure 2.1.1. Sampling Procedure for Intervention Areas.

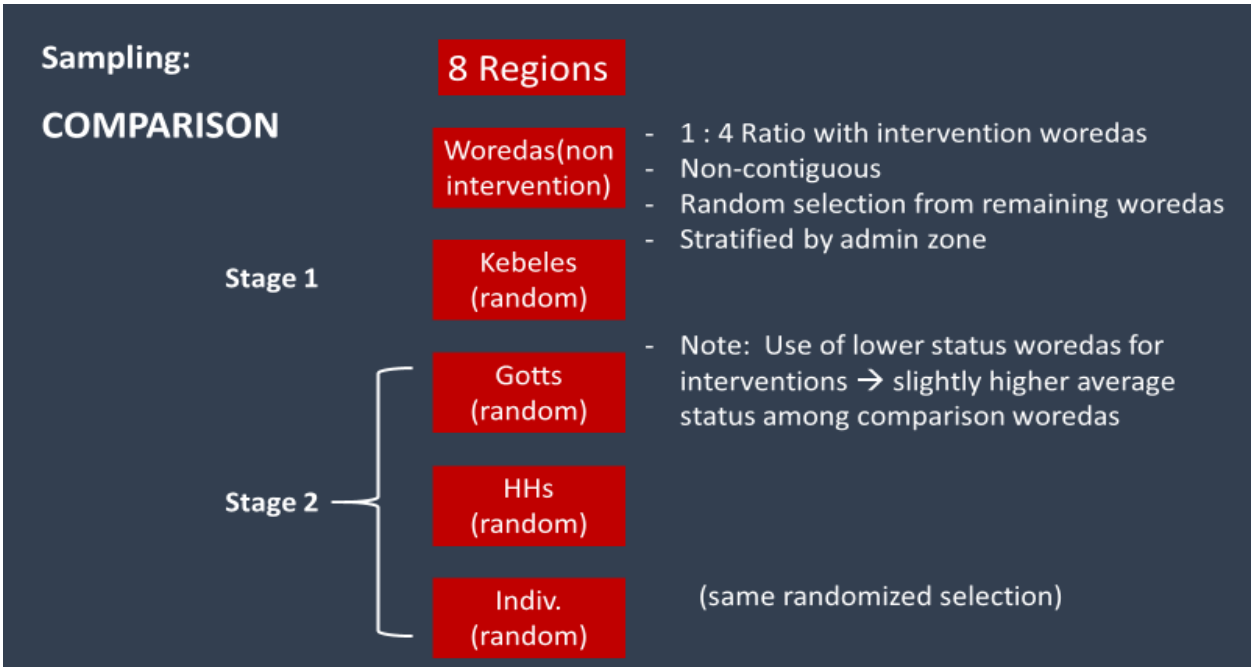


Figure 2.1.2. Sampling Procedure for Comparison Areas.

2.2. Survey Sample Size Determination

The baseline survey included both a population-based (HH) component (targeting women of reproductive age 15-49 and their children under 5) and a health facility (HF) component (targeting service providers at the health facilities and the overall health service delivery management system).

The sample size for the population-based (HH) component of the baseline survey was determined by considering the precision and capability of measuring changes on key outcome indicators of the Transform program. To calculate the sample size for the HH survey using Stata software, the evaluation team utilized two independent sample size estimation techniques based on population proportions: power and sample size calculation utility.[1] In doing these calculations, we considered a 95 percent confidence level (α), and 80 percent statistical power (β). The calculations anticipate on average a 10 percent difference in the baseline and endline proportions, which is consistent with the observed differences on key outcome indicators between the two recent Ethiopia Demographic and Health Survey (EDHS) surveys.[2] The estimated values for the indicators at baseline (P_1) from each region were taken from the 2016 EDHS report (see details under Annex 4).

Ideally, the requirements for each outcome indicator would need to be considered in determining the sample size needs for the baseline survey. However, it is most important to consider an indicator that requires a larger sample size to determine program effects, and then to use the sample size required for that indicator as a basis for others. In doing so, the sampling requirements of all other indicators will be satisfied. Variation between sampling units is also an important factor that contributes to the overall sampling variation. Therefore, the total number of primary sampling units to be included in the survey needed to be large enough to control for sample variance using design effects.

Based on the EDHS 2016 report, region-specific indicators were considered to obtain representative sample estimates for each region, in order to detect significant changes of 10%. Using this approach, the modern contraceptive prevalence rate provided the largest sample size for the Amhara and Tigray regions, and the percentage of children who have received at least one dose of the measles vaccine before reaching one year of age was used to calculate the sample size for Oromia, SNNP, Afar, Somali, and Gambella. The skilled birth attendance rate was used to calculate the sample size for Benishangul Gumuz.

The eight regions targeted by the Transform portfolio of activities have large differences in geographic and population size. Therefore, the calculated sample size was multiplied by 1.75 as the design effect for the four major regions (Transform: PHC target) and by 1.5 for the four developing regions (Transform: HDR targets). The main reason for using a slightly higher design effect for the PHC

[1] https://www.stat.ubc.ca/~rollin/stats/ssize/b2.html

2 Based on the changes observed in the 2011 and 2016 EDHS.

regions is that those four regions have particularly big differences in geographic coverage and population size. Thus, a total of 6,595 HH was randomly selected for inclusion: 5,312 HH from the intervention areas and 1,283 HH from the non-intervention areas. This region-based sample size estimation was based on the region-level indicators; it is statistically representative and comparable in size to other, similar surveys that have been conducted in the country. See Table 2.2.1. for details.

Table 2.2.1. Survey sample size by Intervention and Comparison areas

Region	Intervention areas			Comparison areas (4:1 Ratio)		
	# of woredas covered	Total HHs	# Kebeles (30HHs)	# of woredas covered	Total HHs	# Kebeles (30HHs)
Tigray	11	717	24	3	181	6
Amhara	20	722	25	5	179	6
Oromia	25	735	25	6	179	6
SNNPR	23	698	23	5	180	6
Benishangul Gumuz	7	579	19	3	141	5
Afar	8	608	20	3	142	5
Somali	12	651	21	3	128	5
Gambella	5	602	19	3	153	5
Total	**111**	**5,312**	**176**	**31**	**1,283**	**44**

The ratio of intervention-to-comparison woredas, and the corresponding ratio of survey respondents from those areas, was established at 4:1; it was determined based on the learning objectives of the evaluation, in the context of budgetary considerations and financial resources available for this baseline survey. Studies that aim to include statistical matching techniques often include a relatively larger pool of comparison observations in order to ensure a match with each intervention. Alternatively, a relatively larger number of intervention observations allows for analyses on sub-sets of the intervention data and for the disaggregation of data in multiple ways, which provides its own analytical advantages. The midline and endline evaluations will account for changes in program outcomes of interest **within** intervention groups relative to baseline values, while similar within group changes will be evaluated over time in the non-intervention areas. The differences over time obtained by measuring changes within intervention groups and comparison groups, respectively, will then be compared.

Health Facility Data Collection

The health facility data collection and focus group discussions (FGDs) were purposively introduced to this baseline survey to provide supplementary data to the household baseline survey, by establishing the availability of Reproductive, Maternal, Newborn, and Child Health (RMNCH) services, the ability of health service providers to meet the needs of community members, the quality of services, and the perceptions of beneficiaries. These instruments were not designed to set statistically representative

baseline values for the indicators, but instead to map out the availability of services relative to the general demand for services. Data collection covered available trained human resources; types of health care services available, including availability of essential commodities; and referral linkages. The demand for RMNCH was assessed using indicators from the household survey with representative regional samples. Structured interviews were also completed with health service providers, including Health Extension Workers (HEWs), Maternal and Child Health Care Wards for each selected Health Center (HC), and at hospitals. The study included a total of 94 health facilities from the intervention zones (41 health centers, 41 health posts, and 12 primary hospitals) and 24 health facilities from the comparison zones (12 HP and 12 HC, one per selected comparison woreda).

2.3. Qualitative Data Collection

Focus Group Discussions (FGDs)

To add greater context to the survey responses regarding community members' knowledge, attitudes, behavior and practices, and to contribute to an understanding of the "why" behind some of the findings, FGDs were conducted. FGDs were formed based on the following criteria:

- Administrative zones: Due to the relatively homogeneous nature of study populations in each administrative zone, FGDs were organized in each administrative zone.
- Purposive assignment of FGDs to study areas within each administrative zone was conducted based on the population size of the woreda under study as well as their performance tiering category (low, medium, or high, as determined in collaboration with USAID/Ethiopia and FMOH).

Three major categories of focus group participants were identified. These are:

- Women aged 15-24
- Women aged 25-49
- Adult and sexually active men aged 25-50

Focus group discussions were conducted among groups consisting of 6-12 participants who live in the catchment area of the study. The focus groups were facilitated by two data collectors (one moderator and one note taker) who spoke the local language fluently. The moderator and note taker were assigned to be of the same sex as the members of the focus group. A total of 50 FGDs were undertaken in the eight regions (34 in Amhara, Oromia, Tigray and SNNP; and 16 from Gambella, Somali, Afar and Benishangul Gumuz). All FGDs were audio-taped.

Key Informant Interviews (KII)

In addition to FGDs, the evaluation team conducted key informant interviews in the selected WASH intervention woredas to better understand the current WASH management system. Interviewers followed a KII guide and conducted eight KIIs in eight randomly selected WASH targeted woredas.

2.4. Survey Instruments and Tools

For the household and HF surveys, extensive household questionnaires were developed. For comparability, the survey instruments included standard questions from well-known sources such as the Demographic and Health Survey (DHS), the World Health Organization (WHO) and other health-related nationally administered questionnaires. Based on descriptions of the Transform program, survey objectives, and inputs gathered from a series of consultative meetings with IPs, USAID/Ethiopia and FMOH, Transform: MELA drafted the survey instruments and shared them with Transform IPs, USAID/Ethiopia, FMOH, and pertinent stakeholders for review and comments before finalizing.

The individual household questionnaire included questions for addressing key result area indicators identified for the Transform: PHC, HDR, and WASH components. Questionnaires were prepared in English and later translated into local languages, Amharic, Oromiffa, Tigregna and Somali. Transform: MELA back-translated instruments to ensure accuracy. The questionnaires were then uploaded to smart mobile phones/tablets using the CSPro program, and interviews were conducted using a tablet-based approach to ensure seamless data collection.

For the HF survey, the data collection tools were developed so that service providers and administrators could shed light on the status of service provision at health facilities in the study area. Structured questionnaires were developed and administered to HF service providers to gather information on their experience and training level, technical capacity, supervision skill, data use for decision making, etc.

The qualitative instruments and checklists for FGDs and KIIs were developed to understand the experiences, norms and attitudes of service providers, as well as beneficiaries' opinions and satisfaction level regarding the quality of health services being provided. Those questions were largely open-ended, based around key themes related to maternal and child health.

2.5. Training of Data Collectors

A four-day training was conducted for 26 supervisors and 101 data collectors, in Addis Ababa and in the eight regional capitals of Ethiopia. Data collectors had at least a BA/BSc degree, were fluent in both Amharic and English, had prior experience collecting data, and were fluent in other regional languages as necessary (including Afarigna, Afan Oromo and Tigrigna). Supervisors had an MA/MSc or doctorate in a health or social science field and previous experience supervising studies. The training covered topics such as research ethics in the field, rights of human subjects during research, research methodology and protocol, sampling procedures, informed consent, data collection tools, interviewing techniques, data management, security and quality, and gender considerations during data collection. The structure of the training included presentations, role-playing, review sessions and review of survey instruments.

The survey tools were pre-tested during the training before the commencement of data collection. The research team identified and documented issues found in the CSPro software and survey instrument (including skip patterns), clarified questions, and provided operational definitions to improve the survey. This process allowed us to test the instrument (across all languages), to clarify questions, and to improve the CSPro data collection software prior to formal data collection.

2.6. Data Collection

Transform: MELA, in collaboration with SuDCA and PRIN, conducted field level data collection covering the eight Transform targeted regions starting on the 10th of December 2017. The data was collected using smartphones for the household survey; paper-based questionnaires for the health facility surveys and Key Informant interviews; and with the aid of audio recorders for the focus group discussions (FGDs). SuDCA carried out the data collection in Afar, Somali, Gambella and B/Gumuz, while PRIN covered Oromia, Amhara, SNNP and Tigray. SuDCA and PRIN assisted with all aspects of data collection, including the HH surveys, HF surveys, and FGDs.

Each data collection team included an average of five interviewers (enumerators) and one supervisor. Survey coordinators worked across teams to facilitate sensitization of regional and local leadership, field logistics, and to provide the first level of data quality assurance. Prior to the data collection, the survey team, with the assistance of Kebele guides, observed and re-established the boundaries of the study kebeles, identified the available number of Gotts in the kebeles, and listed them on the Gott's registration form (from which three to four Gotts were randomly selected for inclusion in the survey). The survey team conducted a census of all households in the selected Gotts using a household listing form in order to establish a sampling frame for the locations. Interviewers went house-to-house enumerating members of the households in the selected Gotts. Guides from the local community were recruited to assist interviewers in ensuring that all households were covered and facilitated compliance by households. Field supervisors performed random checks to ensure accuracy and coverage of data. Once households were listed, the selection of respondents was done using a random number function. If the selected household had more than one eligible respondent, the survey team used a Kish Grid methodology to randomly select only one respondent to be interviewed. The Transform: MELA team provided the second layer of quality assurance in the field by supervising the data collection exercise in all eight Transform program regions.

2.7 Data Analysis

All data were cleaned, checked, and validated to immediately identify and address any issues during data collection, a process which took place directly with supervisors and data collectors. Once data collection was complete, an intensive cleaning process was conducted that included categorizing responses, addressing refusals and nonresponses for each question, and validating content.

Distributions and bivariate analyses were conducted to describe the characteristics of a select set of Transform program indicators. The evaluation team additionally performed Pearson's chi-square tests to assess the statistical significance of differences between the intervention and comparison areas at baseline for the same set of indicators. Logistic regression was used to conduct more detailed assessments regarding the predictors of six priority outcome areas, including modern family planning utilization, antenatal care utilization, delivery by a skilled birth attendant, child vaccination, women's decision making, and availability of basic sanitation facilities.

2.8 Ethical Procedures

Ethical approval was obtained from the Ethiopian Public Health Institute Scientific and Ethical Review Board. Data collectors and supervisors were trained in ethical research procedures including informed consent, privacy of participants, and confidentiality.

The study followed standard ethical procedures. Permission was obtained from the Head of Household and consent granted by the participant for all participants prior to the interview. For women under the age of 18, additional parental permission and participant assent were obtained prior to data collection.

2.9 Limitations of the Baseline Survey

The methodology employed for the baseline study, while appropriate and statistically rigorous, nevertheless was subject to three potential challenges:

First, as is often the case with baseline studies due to the timing of contracts and the pressures for Implementing Partners to begin work, some activities had begun in the Transform study area prior to the data collection for the baseline study. We should stress that the problem was very minimal compared to some baseline studies; those that had begun activities were only in their nascent stages so we do not expect that they have had an impact on outcomes at this early point. Perhaps of greater concern is the potential that other activities have been slow to take hold, in which case the midline and endline analyses will be gauging IP activities at different stages of implementation.

Second, and again common to broad initiatives like this one that covers eight regions in Ethiopia, other USAID-funded programs have previously existed in some of the study areas. These include, for example, the Integrated Family Health Program (IFHP) activities, which previously existed in up to 40 percent of the Transform intervention areas. Beyond just USAID-funded programs, activities supported by other donors may also have an impact on our ability to track progress specifically related to the Transform interventions. We will rely on difference-in-differences analysis to overcome some of this challenge, though it will also be important that we do a careful accounting of prior activities when we present and evaluate outcomes at the endline. Causality tracking strategies will be utilized together with difference-in-differences analysis to account for changes associated with prior activities, including the effect of activities implemented by other partners, when evaluating outcomes at the midline and endline stages.

Third, there are always difficult decisions to make in the sampling process. In this case, the evaluation team and USAID/Ethiopia weighed the option of including more comparison sites than intervention sites to ensure that each intervention site would have a match. However, because the analysis plan prioritizes difference-in-differences analysis rather than propensity score matching, it is less important that each intervention area have its match. Instead, the design elected to include more intervention sites than comparison sites (at a 4:1 ratio, as noted above). Difference-in-differences and causality tracking strategies will be employed to provide realistic and comparable measures.

3 BASELINE SURVEY FINDINGS

The baseline survey analyzed the key Transform program outcome indicators to establish the current status and base values of different health behaviors, practices, knowledge and attitudes, as well as health facilities readiness. The final categories of outcomes explored for the baseline analysis, analyzed in terms of intervention and comparison areas, are: family planning; child health; maternal health; nutrition; Water, Sanitation, and Hygiene (WASH); health facility readiness; and gender norms.

In total, analysis was done for 45 indicators, determined in advance in collaboration with USAID/Ethiopia, FMOH, and the Transform IPs. This section presents in-depth baseline findings for a number of these indicators, including how they were measured, values across intervention and comparison areas, and supporting insights from the qualitative data. It also includes the outcomes for other indicators that closely complement those presented in-depth. Indicator values in the intervention and comparison areas by region, for all indicators, are located in the annex.

We first present an overview of the characteristics of households in the study area, followed by the outcomes related to those key indicators.

3.1 Household and Respondent Characteristics

The Transform program baseline survey included a total of 6,595 respondents, representing a 98% response rate. All respondents were females of reproductive age (15–49 years), 80.5% of whom were drawn from the intervention areas and 19.5% of whom were in the comparison areas, reflecting the 4:1 ratio established in the survey design. Approximately 84% of respondents are aged below 40, 9.9% are aged 40-44 and 6.1% are aged 45–49 years. The mean age of the respondents was 29.5 years.

Approximately half of all respondents in the intervention areas (52%) and 45% of women in the comparison areas had no formal education. The proportion of women at each subsequently higher level of education declines steadily, with only 2.8% in the intervention and 2.1% in the comparison areas having above a secondary level of education.

In terms of religion, a plurality of respondents (38.3%) is Orthodox, followed by Muslims, who represent 36.9% of the sampled population, and Protestants, representing 21.6% of respondents in the intervention areas. Other religions, including Catholics, traditional religionists, and others account for less than 4%.

Women in a family union (i.e., currently married or cohabitating with a man) constitute 76.9% of the sample. The remaining 23.1% of women were split relatively equally between single women and those who are divorced, separated or widowed. Table 3.1.1 below provides additional details of the surveyed population.

Table 3.1.1. Background Characteristics of the Study Population

Characteristics		Intervention areas (N= 5312)	Comparison areas (N=1283)
		%	%
Age Group	**15-19**	14.4%	13.6%
	20-24	16.6%	15.5%
	25-29	20.4%	21.1%
	30-34	17.8%	18.2%
	35-39	14.4%	15.7%
	40-44	9.8%	9.9%
	45-49	6.6%	6.0%
Educational Status	**No Education**	52.8%	44.5%
	Primary Level	35.0%	36.9%
	Secondary Level	9.3%	16.5%
	Grade 12+	2.8%	2.1%
Religion	**Muslim**	36.9%	32.7%
	Protestant	21.6%	27.0%
	Catholic	0.9%	1.0%
	Orthodox	38.3%	38.9%
	Traditional	0.3%	0.0%
	No religion	0.9%	0.1%
	Other	1.1%	0.3%
Marital status	**Single**	11.5%	15.7%
	Married or Cohabitating	76.9%	75.8%
	Divorced	6.0%	4.1%
	Widow	4.4%	2.9%
	Separated	1.1%	1.5%

3.2 FAMILY PLANNING

Family planning represents a couple's conscious effort to limit or space the number of children they have through the use of contraceptive methods. Contraceptive methods are classified as modern or traditional methods. Modern methods include female and male sterilization, oral contraceptive pills, intrauterine contraceptive devices (IUD), implants, injectables, female and male condoms, emergency contraception, standard days method (SDM), and lactational amhenoria (LAM). Methods such as the rhythm method and withdrawal, as well as folk methods, are grouped as traditional.

3.2.1 Modern Contraceptive Prevalence Rate (CPR) Among Married Women

Modern CPR is measured as the share of women of reproductive age currently using (or whose sexual partner is currently using) at least one of the modern methods of contraception. The rate can also be calculated for types of contraception, for married women, etc. The survey results show that the highest proportion of users of modern contraception by region in the intervention areas

was in the Amhara region (48.2%), whereas the lowest usage rate is observed in Afar (5.1%) and Somali (6.2%). Table 3.2.1.1. provides detailed information on the CPR.

Examining the proportion of modern method users by educational background, nearly half of those who attained above secondary schooling (43.8% and 46.4% in the intervention and comparison areas, respectively) currently use modern methods of contraception, as opposed to a usage rate of approximately one-quarter among those with no formal education. (See annex 5, Table 3.2.1.1).

The Transform baseline survey findings are consistent with data from other studies, including EDHS 2016, regarding family planning use in relation to the level of education. Consistently, more educated women are notably more likely to use modern methods of contraception than are their less educated counterparts.

Table 3.2.1.1. Contraceptive Prevalence Rate (CPR) Among Married Women

Region	Intervention areas			Comparison areas		
	Modern Methods	Any Method	N	Modern Methods	Any Method	N
Oromia	42.0%	44.1%	569	41.0%	42.5%	134
Amhara	48.2%	48.4%	550	48.9%	49.6%	141
SNNP	45.2%	45.8%	553	41.0%	43.9%	139
Tigray	41.4%	41.4%	485	32.7%	32.7%	101
Afar	5.1%	5.1%	512	7.6%	7.6%	118
Somali	6.2%	6.4%	439	0.0%	0.0%	92
Gambella	21.6%	21.6%	476	33.1%	33.1%	121
Benishangul Gumuz	41.7%	42.1%	501	55.1%	55.1%	127
Total	**32.7%**	**32.8%**	**4085**	**34.2%**	**34.9%**	**973**

The observed modern CPR by age in the intervention areas ranged from 15.7% in the 45-49-year age group to 38.7% in the 20-24-year age group, which is followed by only a slightly lower CPR of 38.1% among the 25-29-year age group. Notably, the youngest age cohort and the two oldest age cohorts are less likely to currently use modern methods of contraception, in comparison to those aged 25-29. The CPR among women in different wealth categories in the intervention area ranges from 29.4% in the second wealth quantile to 34.3% among the middle wealth quantile, with no significant variation across the different wealth groups (see annex 5, Table 3.2.1.1).

In short, there is little difference in modern contraception use based on wealth category, and no clear pattern in more or less frequent use as one moves up the wealth scale.

Qualitative data from women participating in FGDs confirm that education and awareness regarding contraception has an important impact on current usage. Beyond a full understanding of the benefits and risks through education, however, it is also clear that gender and cultural factors play a role in contraceptive prevalence rates. Explaining male resistance to contraception in Thaita kebele, Gambella Region, women discussants had this to say:

"Our men want to have a big population that would defend our territories from neighboring counterparts. We often have skirmishes with our neighbors, we had one recently in fact. This signals to us the need for having as many children as possible who would defend the land at any one point in time…"

This finding is also supported by data from the household survey, in which 35% of women in the intervention areas say that their spouses do not support them if they wish to use family planning methods.

Women in Quorgem kebele, Gambella had this to say about the male perspective:

"…Our husbands stay with us until we give birth to at least three children. After that a man looks for another wife with whom he will stay with until she gives birth to at least three children. Anyways, husbands visit us once in a while, but support the family with whatever is necessary. However, if they ever hear about us accessing FP services, they will stop their support and beat us also. So, despite our needs for FP we refrain from attempting for fear of husbands."

3.2.2 Unmet Need for Family Planning

Unmet need for family planning is defined as the percentage of women of reproductive age, either married or in a union, who want to stop or delay childbearing but who are not currently using any method of contraception. The standard definition of unmet need for family planning includes women who are fecund and sexually active but are not using any method of contraception, despite reporting that they do not want any more children or want to delay the birth of their next child. In addition, it includes those women who are pregnant or who recently gave birth who report that the pregnancy was unwanted or that they would have wished to delay getting pregnant. It therefore shows the gap between women's reproductive intentions and their contraceptive behavior.[3]

The total percentage of unmet need for family planning is just over one-quarter (26.7% and 27.4% in the intervention and comparison areas, respectively). That is, over a quarter of sampled women wish to be using contraception but are not currently doing so.

The baseline result on unmet need is also consistent with EDHS 2016 findings, and the unmet need declines among the older age cohorts (40-49). These results could be explained by the fact that unmet need for the youngest age group is low since they may not have children yet or have few children and want to have more and hence are not in need of contraception; as the age group progresses the unmet need increases for the age group 20-25, then declining for the older age cohort. This could also be because of other factors such as low levels of awareness among younger women, which directly relates to demand for FP. This finding suggests opportunities for further research to establish these associations.

While the rate of unmet need in the study area is generally quite high, the rate is relatively low in the intervention areas of some regions, such as Afar (16.6%) and Somali (8.8%), respectively. Given the low level of CPR in these regions, this could be an indication of low levels of awareness,

[3] UN. unmet need for family planning 2014 metadata

religious believes or it could suggest that women in those regions simply are not seeking or desiring contraception. The regions of Somali and Afar have the highest proportion of Muslim population and also had the lowest rate of contraceptive use. Somali, in particular, was also noted by this survey in the FGDs to have the highest frequency of mentions of cultural/religious reasons as barriers to usage of family planning.

Figure 3.2.2.1. below illustrates the rate of unmet need for family planning both by intervention and comparison areas and by region.

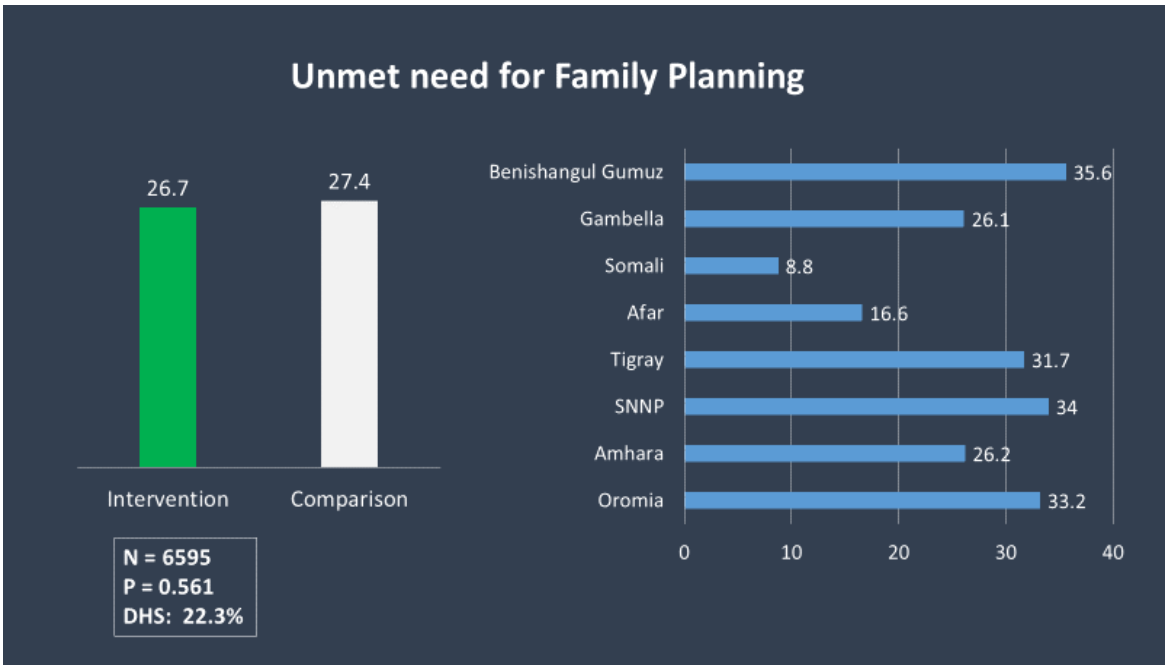


Figure 3.2.2.1. Unmet Need for Family Planning

Note that at this baseline stage, there is no notable difference between the rates of unmet need for family planning in the intervention versus comparison areas (p=0.561). Furthermore, the rate among the Transform sample is largely in keeping with the rate reported in the 2016 version of the Ethiopia DHS report, though the baseline survey rate is somewhat higher. The research team will continue to track these patterns at the midline stage.

The estimated unmet need values by age category indicate a very low rate among the group aged 15-19 years, both in the intervention and comparison areas (17.7% and 16.9%, respectively). Also, very low unmet need is reflected among respondents in the age groups of 40-44 and 45-49 (17.4% and 6.6%, respectively, in the intervention areas). (see annex 5, Table 3.2.2.1)

Table 3.2.2.1. Percent of Unmet Need for Family Planning

Region	Intervention areas	N	Comparison areas	N
Oromia	33.2%	735	33.5%	179
Amhara	26.2%	722	25.1%	179
SNNP	34.0%	698	36.7%	180
Tigray	31.7%	717	20.4%	181
Afar	16.6%	608	29.6%	142
Somali	8.8%	651	6.3%	128
Gambella	26.1%	602	30.7%	153
Benishangul Gumuz	35.6%	579	33.3%	141
Total	26.7%	5312	27.4%	1283

3.2.3 Women Who Received Family Planning Counseling After Birth

Recognizing the importance of postnatal family planning counseling as part of RH/FP programming, the baseline study includes this as one of the benchmarks for gauging outcomes and impacts over the life of the Transform program. The indicator is measured as the share of women with a live birth in the last one year who received family planning counseling after birth divided by the total number of women with a live birth in the last one year. The findings from this baseline survey on family planning counseling after delivery revealed the following results (Table 3.2.3.1).

Women were asked if anyone talked to them about family planning after they gave birth to their last child. The share of surveyed women in the intervention and comparison areas revealed respective proportions of 22.9% and 26.7% who received family planning counseling after birth. These figures are somewhat surprising given that nearly half of all surveyed women reported giving birth with a skilled birth attendant present. The expectation is that women who gave birth at a health facility would receive postpartum FP counseling by those skilled birth attendants before discharge from the facility.

Table 3.2.3.1. Women Who Received Family Planning Counseling After Birth

	Intervention areas		Comparison areas	
Region	%	N	%	N
Oromia	21.5	149	27.0	37
Amhara	25.7	109	20.8	24
SNNP	39.1	156	42.1	38
Tigray	39.0	154	27.3	33
Afar	11.8	220	26.5	49
Somali	8.4	131	3.8	26
Gambella	11.7	111	12.0	25
Benishangul Gumuz	25.8	151	37.8	45
Total	**22.9**	**1181**	**26.7**	**277**

By region, the data show that Somali women, both in the intervention and comparison areas, were least likely to have received FP counseling after birth (8.4% and 3.8%, respectively). Next to the Somali region were respondents in Gambella, with little more than one-tenth of women receiving FP counseling after birth (11.7% and 12.0% in the intervention and comparison areas, respectively).

Just over one-fifth (21.5%) of those in Oromia, compared to approximately one-fourth of respondents in Amhara and Benishangul Gumuz (25.7% and 25.8%, respectively) and more than one-third in Tigray (39.0%) and SNNP (39.1%) received FP counseling after delivery in the intervention zone.

3.2.4 Women Who Used Modern Contraception After Birth

Family planning after birth, often referred to as post-partum family planning (PPFP), helps to prevent unintended pregnancies just after a birth and pregnancies that are too closely spaced—such as in the first twelve (12) months—following childbirth. It has been advised that family planning after birth should not be taken as a package of vertical services but should instead be managed as an integral part of existing health services, as is the case with the delivery of routine family planning services.[4] This survey assessed the percentage of women who had a live birth in the past one year who received modern contraception after birth. From the baseline analysis, the proportion of women receiving PPFP in the intervention and comparison areas is 22.9% and 26.7%, respectively (p=.174). However, wide variation is observed upon delineating respondents by region (see Table 3.2.4.1).

In an assessment of post-partum modern family planning use by age group, those in the 20-24-year age cohort were most likely to receive PPFP (29.6%). On the other hand, women in the 40-44-year age group were least likely to receive PPFP (10.6%), which could be associated with the approach of menopause. No women in the 45-49-year age group received PPFP; this can be a function of both approaching menopause and the very small number of respondents in this subset. In the comparison areas, family planning after birth is practiced most by respondents in the 20–24 age group (34.5%) and least practiced among those in the 40-44 age group. Among all age groups, those 40-44 formed the lowest proportion (7.7%), again aside from those in the 45-49-year age group (0.0%). See Annex 5, Table 3.2.4.1.

[4] www.who.int; World Health Organization 2013; Programming Strategies for Postpartum Family Planning

Table 3.2.4.1. Percentage of Women Who had live birth in the one year who Received Modern Contraception After Birth

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	28.2	149	40.5	37
Amhara	33.0	109	16.7	24
SNNP	41.7	156	28.9	38
Tigray	34.4	154	39.4	33
Afar	6.4	220	8.0	50
Somali	3.1	131	0.0	26
Gambella	9.6	114	20.0	25
Benishangul Gumuz	30.5	151	48.9	45
Total	**22.9**	**1184**	**26.6**	**278**

Considering regional disaggregation in the intervention areas, respondents in SNNP reported the highest proportion receiving PPFP at 41.7%, and respondents in Somali region reported the lowest percentage of PPFP, with only 3.1% of women with births in the last one year receiving the service. Tigray was the second highest with 34.4%, followed by Amhara 33.0%, Benishangul Gumuz, 30.5%, Oromia 28.2%, Gambella 9.6%, and Afar 6.4%. In the comparison areas, Benishangul Gumuz had a PPFP rate of 48.9% which is the highest, and Afar had the second-lowest at 8.0%. No respondent in the Somali region reported receiving family planning after birth.

The assessment of FP after birth by educational background suggests that in the intervention area, the proportion of those with above secondary education (50.0%) surpassed all others in receiving PPFP; women with no formal education were the least likely to receive PPFP at 14.4%. Results from the comparison areas show similar trends regarding PPFP based on women's education levels.

Assessing FP after birth practices by wealth quintile in the intervention areas, women in the second wealth category were most likely to receive PPFP (24.8%), while women in the highest wealth category were the least likely to do so, with a proportion of 21.4%. With very marginal differences, the respondents in the middle wealth quintile (23.7%), the lowest quintile (23.0%), and the fourth wealth quantile (22.0%) lined up in the second, third and fourth positions. These results suggest that exposure to post-partum family planning does not vary across wealth lines, as approximately the same share of women in all wealth quintiles received the services (see annex 5, Table 3.2.4.1).

The fact that poorer women seem about as likely as wealthier women to receive PPFP could reflect their concern about the cost of giving birth, so perceptions about "affordability" could have a bearing on this observed trend, as they may have greater incentives to avoid the costs of a second birth in quick succession to the first. Pre-existing programming aimed at the poorest of residents—focusing particularly on traditional beliefs and culture, and sensitizing men and elders—could also be a factor that keeps their PPFP rates on par with the rates of wealthier women. Of course, among all levels of wealth, the source of PPFP, the channel used, and the clarity and scope of the information transmitted can all determine how the messages will be perceived and how influential they will be in increasing knowledge and actually leading to behavioral change.

Women in Gambella had the following to say regarding the importance of information and awareness in getting PPFP. A similar sentiment was echoed by FGD participants in Benishangul Gumuz, Afar, and Somali:

> "*Our partners used to punish us for going to the health center assuming that we were there to fetch contraceptives. Much worse, they wanted us to deliver at home. Even we ourselves until recently used to doubt the services that the health centers give (e.g., ANC, delivery and FP) because of the rumors that traditional beliefs and culture attached to the services. But, with the concerted counseling efforts of the health extension workers who visit us at home at least once in two or three months to counsel us and hold sensitization meetings with men and elders, we now seek the services, and our husbands support and encourage us to benefit from the services. The elders also play an advocacy role during public meetings.*"

3.2.5 Women Who Received RH/FP Message

Knowledge about Reproductive Health and Family Planning (RH/FP) is one of the gateways for a woman to contemplate obtaining services. When asked, respondents often said they heard about RH/FP services either from health workers, service clients, friends, public media, leaflets, posters or other outlets. Exposure to RH/FP constitutes a first step in adopting behavioral change.

The indicator measures the share of women who reported either seeing or hearing RH/FP messages from any of the sources noted above during the three months prior to the survey. Respondents were also encouraged to mention any other RH/FP method they had heard about or any other source of such information.

The share of surveyed women who heard or saw an RH/FP message during the previous three months in the comparison area was 56.8%, which was slightly higher than the rate in the intervention areas (51.0%). In terms of regional differences, findings of the survey in the intervention area showed a range from 40.4% in Oromia to 66.1% in Benishangul Gumuz. Following Benishangul Gumuz are SNNP (62.3%) and Tigray (62.2%); Amhara (50.6%), Gambella (43.2%) Somali (42.9%) and Afar (41.4%).

In the comparison areas, the lowest proportion of respondents who reported having heard or seen RH/FP information in the last three months prior to the survey was found in Somali (25.0%) as opposed to the highest in Tigray (79.05%), followed by SNNP (75.6%) and Benishangul Gumuz (74.5%). The proportions of respondents in Oromia who reported hearing RH/FP messages were about equal (40.4% and 40.2%) in the intervention and comparison areas, respectively (see Table 3.2.5.1).

Table 3.2.5.1. Women Who Heard RH/FP Messages

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	40.4	735	40.2	179
Amhara	50.6	722	46.4	179
SNNP	62.3	698	75.6	180
Tigray	62.2	717	79.0	181
Afar	41.4	608	47.2	142
Somali	42.9	651	25.0	128
Gambella	43.2	602	59.5	153
Benishangul Gumuz	66.1	579	74.5	141
Total	**51.1**	**5312**	**56.8**	**1283**

Variation also exists in the survey results disaggregated by age structure, region, educational background, and wealth quintiles. By age group, the proportion of women who heard or saw an RH/FP message ranged from 42.0% among the 45-49-year age cohort to 56.3% for the 25-29-year age group in the intervention area. In general, the data show no clear linear trend by age, rising sharply from the youngest age group (at just 43.1%) to the next and then dropping after the age

group of 30-34. Reaching that youngest cohort represents an important potential intervention area for Transform programming. Similar trends were observed in the comparison areas. In terms of educational background, the highest proportion of respondents in the intervention areas who reported having seen or heard RH/FP information in the last three months prior to the survey were those with above a secondary school level of education (63.2%), as opposed to just 43.4% among those with no formal education. The proportion of respondents having received RH/FP information among those who attained primary and secondary school was 60.7% and 56.4%, respectively. In the comparison areas, respondents with above a secondary level of education again registered the highest proportion who heard or saw RH/FP messages (72.1%) and those with no formal education represented the lowest, at 43.5%. In both the intervention and comparison areas, respondents with above a secondary education surpassed all other groups, and those with no formal education were least likely to be exposed to RH/FP messages. This constitutes another potential area for programming intervention (see annex 5, Table 3.2.5.1).

3.2.6 Factors Associated with Modern Family Planning Use

Understanding what motivates or prevents women and their spouses/partners from using family planning methods is important to improving family planning. In this section, the research team explores in a regression format the factors that are associated with women's use of modern family planning methods. First, a series of bivariate regressions was conducted to identify factors associated with modern family planning use. These findings on trends and determinants in the use of FP in Ethiopia are also supported by other studies, such as EDHS's in-depth analysis reports (2005, 2011), which have shown that education, age, the number of living children, RH/FP messages, and other socio-demographic characteristics are associated with FP use.

Numerous women's socio-demographic variables, such as age, marital status, level of education, religion, geographical region, wealth quintile and number of live births were tested for association with modern family planning utilization. In addition, having received family planning messages, the ability of women to make decisions about their own health care and perceived knowledge or attitudes regarding the use of family planning methods were also tested for association with modern family planning utilization.

Multivariate regression analyses were conducted to explore the use of modern family planning methods. Variables with a significant association in bivariate analyses at (p-values equal to or less than 0.05) were considered in the multivariate logistic regression analysis as independent predictors. Some important results are as follows, and details are provided under Annex 2. Women who were never married are less likely to use modern family planning as compared to those who were partnered, divorced/separated or widowed.

- Educated women are more likely to use modern family planning compared to women who do not have formal education.

Family Planning: Regression Analysis

- *Women with tertiary education are 2.1 times more likely to use modern contraception than those with no formal education.*
- *Women in predominantly pastoralist regions (Afar/Somali) are less likely to use modern family planning methods as compared to Tigray, Oromia, SNNP and Amhara regions.*
- *Women who reported they decide about their health care are 1.4 times more likely to use modern family planning.*
- *Those who reported hearing messages about family planning are 1.2 times more likely to use modern contraception.* ***(see Annex 2 for details)***

For example, women who have a tertiary level education are 2.1 times more likely to use modern family planning compared to women who had no formal education (AOR= 2.11, 95% CI: 1.38-3.23).

- There is significant variation by geographic region (women's place/area of residence) regarding modern family planning utilization; women who live in predominantly pastoralist regions (Afar and Somali) are less likely to use modern family planning methods as compared to Tigray, Oromia, SNNP and Amhara regions.
- Women who reported they are the ones who decide on their own health care needs are 1.4 times more likely to use modern family planning (AOR=1.39, 95%CI: 1.18-1.65), as compared to women who reported that their health care is decided by their husband/partners or others.
- Women's misconceptions about family planning is also a predictor of modern family planning utilization: women who believe that family planning can cause infertility or cause deformation in later births are less likely to use family planning.
- Women who do not believe that their husband/partner should have the final say in any decision making are 1.23 times more likely to use modern family planning (AOR=1.23, 95% CI: 1.06-1.42) compared to women who think their partners should have a final say in any household decision making.

3.2.7 Barriers to Using Family Planning Services

From the FGD findings, the following factors were identified as factors hindering women and adolescent girls from utilizing modern family planning services.

- **Barriers related to community or individual clients** include: lack of awareness on the part of women or husbands/partners, fear of side effects, cultural or religious beliefs, and husbands who do not encourage their spouses to use it (mainly observed in the Afar, Benishangul Gumuz, Somali and Gambella regions). This could be an area for further investigation.

  A woman in Benishangul Gumuz had this to say:

  "*Seeing or hearing women who suffered from removal of implants and intrauterine contraceptives at the health facility had made us uncomfortable and affected our interest to make our choice for the methods."*

- **Barriers related to health facilities** include**:** lack of family planning methods at facilities, health facilities not providing FP services at all times, health personnel absent from duty, and inaccessible health facilities.

Figure 3.2.7.1 below presents a visual summary of the relative mentions of different barriers to the use of family planning methods that occurred during the course of FGDs.

Note: The length of the bars indicates the frequency of each barrier mentioned in each FGD and not proportion of respondents.

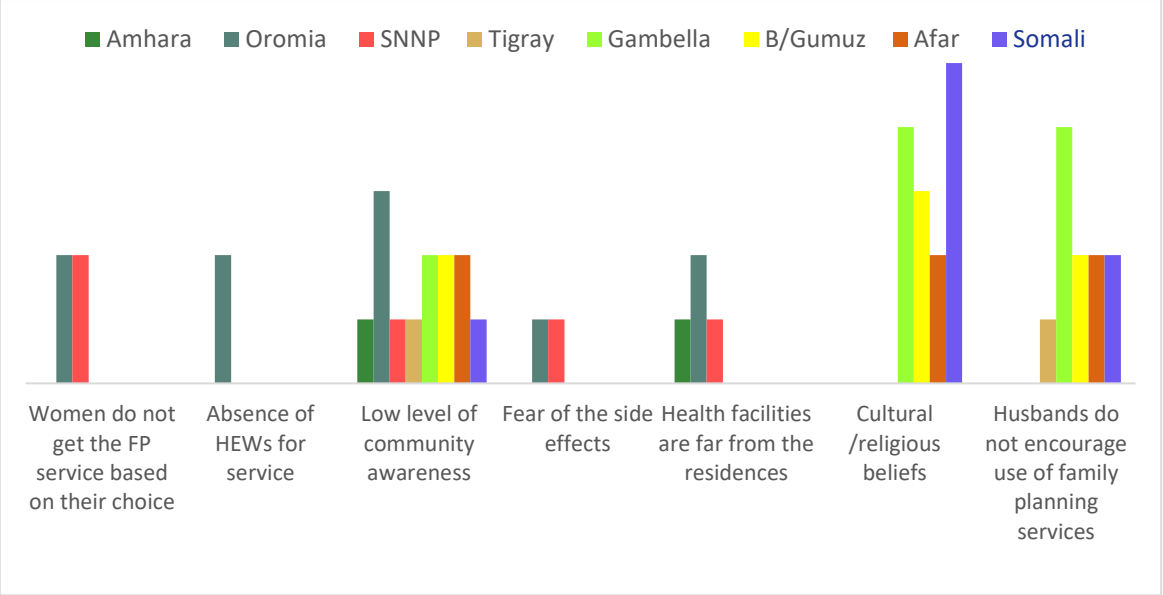


Figure 3.2.7.1. Barriers for Utilization of Family Planning Services

Program Implications

Based on the analyses related to family planning, a number of potential program implications may be considered. To increase the utilization of family planning services, interventions planned as part of the Transform suite of activities might give special focus to the following:

- Cultural leaders (religious, traditional) may have a role to play in couples' conscious efforts to limit or space the number of children they have.
- Male involvement is somewhat encouraging, with about 60% of partners supporting their wives if they wish to use family planning; deliberate focus on male engagement will help improve these statistics.
- Education and culturally appropriate messages matter.
- Access to, and awareness of, services is critically important.

3.3 MATERNAL HEALTH

Maternal health represents a critical intervention area in reducing preventable maternal and child death in Ethiopia. Women who adopt sound practices before, during, and after childbirth are much more likely to remain healthy themselves and to give birth to healthy children. The indicators included aimed at gauging progress over time in improving maternal health.

Antenatal Care

3.3.1 Women with at Least One ANC Visit

The baseline survey assessed antenatal care (ANC) visits of expectant mothers to determine the proportion of mothers who had taken the initiative to obtain vital information prior to birth. The indicator measures the share of women who gave birth within the last one year and who made at least one ANC visit attended by a skilled health professional prior to that birth.

Table 3.3.1.1. shows that over two-thirds of surveyed women (68.2%) in the intervention areas reported receiving at least one ANC visit attended by a skilled health professional, which is comparable to the EDHS 2016 finding (62.4%). In addition, the evaluation team cross-tabulated ANC visits with various background characteristics of the respondents (reproductive age group, educational level and wealth quintiles). The following information summarizes the findings:

- In the intervention areas, Somali (44.3%) had the lowest proportion and Tigray (94.2%) had the highest proportion of the respondents who had at least one ANC visit from a skilled healthcare provider. Amhara also had a high rate of women with at least one ANC visit (92.7%), while Afar, Benishangul Gumuz and SNNP had lower rates at 57.7%, 58.3% and 59.0%, respectively. See Table 3.3.1.1 for details.

- The proportion of women who had one ANC visit in the comparison areas varied from 42.3% in Somali to 97% in Tigray and close to that in Amhara (95.5%). The proportion of women in the regions of Gambella and Oromia was 84.0% and 81.1%, respectively. The respondents in the other regions including, Benishangul Gumuz, SNNP and Afar had lower rates at 75.6%, 68.4% and 62%, respectively.

- The intervention area findings distributed by age group of the respondents revealed that mothers in the age group 40-44 were least likely to have an ANC visit (57.4%), while 71.6%% of women aged 15-19 had the highest rate of at least one ANC visit (see Annex 5, Table 3.3.1.1 for details).

Table 3.3.1.1. Percent distribution of women who had live birth in the last 12 months (before the survey) with at least one ANC visit from a Skilled Healthcare Provider*

Region	Intervention areas		Comparison area	
	%	N	%	N
Oromia	71.1%	149	81.1%	37
Amhara	92.7%	109	95.8%	24
SNNP	59.0%	156	68.4%	38
Tigray	94.2%	154	97.0%	33
Afar	57.7%	220	62.0%	50
Somali	44.3%	131	42.3%	26
Gambella	78.9%	114	84.0%	25
Benishangul Gumuz	58.3%	151	75.6%	45
Total	**68.2%**	**1184**	**74.8%**	**278**

*Skilled healthcare provider refers to doctor, nurse, midwife, health officer.

3.3.2 Women with Four or More Antenatal Care (ANC) Visits

Receiving ANC care during pregnancy does not guarantee that women received all of the recommended and necessary interventions. However, at least four ANC visits increases the likelihood of receiving the full range of interventions (WHO, 2010). Although the indicator for "at least one ANC visit" refers to visits with skilled health providers (doctor, nurse, midwife), "four or more ANC visits" usually measures visits with any provider. The survey assessed the percentage of women (aged 15-49) who had a live birth in the last one year (before the survey) who received four or more ANC visits.

The survey results show that 41% of women in the intervention areas who gave birth within the year prior to the survey attended at least four ANC visits, 47.3% doing so in the comparison areas (p=0.059). Notable variation exists across the study regions. First, the data reveal a range from 16.5% in Afar to 60.4% in Tigray for the intervention areas, and from 7.7% in Somali to 84.8% in Tigray for the comparison areas. In both the intervention and comparison areas, critically low proportions of women attended four or more ANC visits among the pastoralist regions of Afar and Somali (see Table 3.3.2.1. below).

Table 3.3.2.1. Percent distribution of women who had live birth in the last 12 months (before the survey), attended four or more ANC visits

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	53.4%	148	48.6%	37
Amhara	55.0%	109	50.0%	24
SNNP	59.5%	153	43.2%	37
Tigray	60.4%	154	84.8%	33
Afar	16.5%	218	35.4%	48
Somali	16.9%	130	7.7%	26
Gambella	23.7%	114	40.0%	25
Benishangul Gumuz	49.7%	149	60.0%	45
Total	**41.0%**	**1175**	**47.3%**	**275**

Considering the role of education in women's attendance of four or more ANC visits, the findings show that in both the intervention and comparison areas, women who had no formal education were least likely to attain four ANC visits; only about one-third of those women did so. Conversely, 66.7% of women with secondary and above levels of education in the comparison areas, and 54.5% of those women who attained secondary school in the intervention areas, attended at least four ANC visits. Seeing it from the perspective of wealth quintiles, the share of women attending four ANC visits ranged from 36.1% among the wealthiest and 60.5% of the wealthy in the comparison area to 35.8% and 45.2% among the poorest and the medium quintile, respectively. The likelihood of attending four or more ANC visits by age group varied but not in any systematic way (see Annex 5, Table 3.3.2.1).

3.3.3 Women Who Had Their First ANC Visit Within the First Trimester

Given variation in effectiveness, costs and other barriers to accessing ANC, the optimal number of ANC visits for countries with limited resources is still debated. Nonetheless, it is always advised that ANC visits commence as early as possible in the first trimester and that they occur at regular intervals thereafter. Early ANC services can provide expectant mothers with vital information including danger signs during the pregnancy and precautions to undertake; information on preventing or managing health problems including those directly related to the pregnancy; information on healthy pregnancies, childbirth and postnatal recovery; instructions for caring for the newborn and promotion of early exclusive breastfeeding; and assistance with decisions regarding future pregnancies. As a result, it is recommended that the first ANC visit take place as early as possible in pregnancy, preferably in the first trimester. During that early visit, the woman's general health should be assessed, and she can be provided with appropriate remedial action or treatment of underlying medical conditions.[5]

[5] WHO. Department of Making Pregnancy Safer Standards for Maternal and Neonatal Care, Provision of effective Antenatal care, Geneva, 14 -16 October 2012

The baseline survey thus includes an indicator for early initiation of ANC visits, which is measured as the share of women who gave birth within a year prior to the survey and who initiated an ANC visit during the first trimester of the pregnancy. The baseline data was disaggregated by age group, regional residence, reported educational attainment, and wealth quintiles of the respondent; the responses revealed the following (Table 3.3.3.1.):

- The proportion of respondents who reported their first ANC visits within the first three months of pregnancy for their last birth were 27.6% and 33.8% in the intervention and comparison areas, respectively. Variation was also observed within the groups disaggregated by age group, region, educational background and wealth quintiles, as detailed below.
- Regarding the age structure of the respondents in the intervention areas, respondents in the age group 20-24 (36.9%) were most likely to have had their first ANC visit within three months of pregnancy. Conversely, the age group 40-44 reported the lowest likelihood of an ANC visit (22.2%) in the first three months of pregnancy. It is worth noting that, whereas a quarter of women aged 45-49 in the intervention areas took part in an early ANC visit. This is a function of chance, however, given the small sample size of women in that age category who gave birth during the previous year (n=8).

Table 3.3.3.1. Percent distribution of women who had live birth in the 12 months (before the survey) who had their first ANC during the first trimester of pregnancy

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	31.3	144	17.6	34
Amhara	35.8	106	58.3	24
SNNP	21.9	155	21.1	38
Tigray	35.7	154	63.6	33
Afar	15.8	215	31.9	47
Somali	24.6	130	15.4	26
Gambella	34.5	113	32.0	25
Benishangul Gumuz	30.2	149	35.6	45
Total	**27.6**	**1166**	**33.8**	**272**

In the comparison areas, equally 40.4% of respondents in the age groups of 20–24 and 25–29 reported to have had the first ANC visit in the first three months of pregnancy of their last birth, which is the highest among all age groups in the comparison areas. Disaggregating early ANC visits in the intervention area by region, 35.8% of mothers in Amhara and 35.7% of mothers in Tigray attended an ANC visit during their first trimesters, which were the highest rates among the eight regions; in Afar, only 15.8% did so. The reported rate made by respondents in SNNP, at 21.9%, was the second lowest, followed by Somali at 24.6%. Wide gaps were also observed across regions in the comparison areas.

It is advised that ANC visits commence as early as possible in the first trimester and that subsequent visits are spaced at regular intervals.

Younger expecting mothers seem to be more likely to go for ANC visits within the first 3 months compared to older women. This might be an area for further inquiry to establish the drivers of lower proportions among older expecting mothers, and to adjust programming accordingly.

For example, 63.6% of surveyed women in Tigray reported having an ANC visit within the first three months, as opposed to 15.6% in the Somali region.

As for the educational backgrounds of the respondents, the proportion of primary level attenders (32.8%) who reported to have an ANC visit within the first three months of pregnancy for their last birth was found to be highest, compared to the lowest rate of 22.7% among those with greater than a secondary education in the intervention area. Of those with no formal education, 24.5% had an ANC visit within their first trimester, so such early ANC visits are not a function of education level. There is also no clear pattern in early ANC visits by education level in the comparison areas, although those with no formal education are again below the median (at 29.3%). See Table 3.3.3.1 for details.

3.3.4 Women Who Received/Purchased Iron and Folic Acid Supplement During Pregnancy

Pregnant women require additional Iron and Folic Acid to meet their own nutritional needs as well as those of the developing fetus. Deficiencies in iron and folic acid during pregnancy can potentially negatively impact the health of the mother, her pregnancy, and the child. Evidence has shown that the use of iron and folic acid supplements is associated with a reduced risk of anemia in pregnant women.[6]

The baseline survey includes an indicator to gauge the use of iron supplements and a woman was asked if she was given or purchased iron tablets during her last pregnancy. This indicator provides information about the quality of ANC services and/or women's access to purchasing supplements through local pharmacies and community-based sources. It measures the proportion of women in the intervention and comparison areas who gave birth within the past one year and who reported that they received or purchased an Iron and Folic Acid supplement during their pregnancy.

According to the baseline survey results, 47.2% of women in the intervention area and 55.1% of those in the comparison areas received or purchased iron supplements during their last pregnancy (p=0.030). Furthermore, the figures differ widely based on different socio-demographic characteristics.

Only 20% of older women received/ purchased Iron and Folic Acid supplements during their last pregnancy, and they were also the lowest in attending ANC within the first 3 months. This suggests a need to focus more attention and work on attitudes and behavior change.

The findings on the age group characteristics in the intervention areas show that 58.6% of the respondents in the age group 35-39 had either received or purchased Iron and Folic Acid supplements during their last pregnancy, which was the largest of all age groups, as opposed to the lowest rate of 38.5% among those in the 40-44 age bracket (see Table 3.3.4.1). The second-highest proportion among the age groups is the 20-24-year age

[6] Geneva: World Health Organization; 2016 http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/)

group, at a rate of 52.9%; 41.5% of those aged 15-19 obtained an iron supplement. In terms of regional differences, the highest rate of iron supplement was observed in Tigray (71.1%), and the lowest was recorded in Gambella (17.4%). Just over half of the respondents in Amhara (59%) and Oromia (53%), and nearly half of those in Benishangul Gumuz (49.2%) were found to have received or purchased the iron supplement. Lower proportions were recorded among respondents of SNNP (42.4%), Afar (43%) and Somali (23%). See Table 3.3.4.1 for details.

In terms of education, the findings show some counterintuitive results. Those who stopped their education at the primary school level had the highest proportion of purchasing or receiving iron supplements in the intervention zone. Half of those who attained above secondary education, and less than half (44.7%) of those with a secondary education, reported having received or purchased the iron supplement.

Table 3.3.4.1. Percent Distribution of Women who gave Birth in the last one year Who Received or Purchased Iron and Folic Acid Supplement During Pregnancy

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	54.2	131	69.4	36
Amhara	59.6	104	56.5	23
SNNP	47.6	126	51.7	29
Tigray	72.5	149	58.1	31
Afar	36.5	170	65.9	41
Somali	21.3	80	33.3	15
Gambella	18.9	90	42.1	19
Benishangul Gumuz	50.8	124	45.0	40
Total	**47.2**	**974**	**55.1**	**234**

In terms of wealth quintiles, approximately half of the highest wealth quintile (49.8%) and the fourth wealth quintile (49.5%) in the intervention areas received/purchased iron supplement during their recent pregnancy. Less than half of the respondents who were in the middle wealth quintile (47.4%) and second wealth quintile (46.6%) had received/purchased iron supplement during that pregnancy, though the differences are minor. The lowest wealth quintile, at 43.3%, were the least likely to have received or purchased an iron supplement during their last pregnancy. The rates by wealth quintile were comparable among women in the comparison woredas, except that the lowest wealth quintile was no less likely than other wealth categories to receive the iron supplement (see Annex 5, Table 3.3.4.1 for details).

3.3.5 Women Who Received Essential Elements of Antenatal Care (ANC)

Every pregnancy has a risk in one form or another, which makes antenatal care visits critical for expecting mothers. Beyond the importance of early and frequent ANC visits, however, it is also critical that expecting mothers receive the essential elements of ANC; otherwise those ANC visits

are not as beneficial to the mother as they could be, reflecting inadequate service from health professionals.

The baseline survey thus includes an indicator for receiving the essential elements of ANC, measured as the proportion of women who gave birth within the 12 months prior to the survey who received all of the following ANC elements: Blood Pressure measured, Urine and Blood sample taken for laboratory test, nutrition counseling and counseling on danger signs and/or pregnancy complications.

The findings show that approximately one-third of women in the intervention areas (34.1%) received the essential elements of ANC during their last pregnancy, compared to 44.9% of women in the comparison areas (p=0.002). See Table 3.3.5.1 for details.

Table 3.3.5.1. Percent Distribution of Women Who Gave Birth in the last 12 months Who Received Essential Elements of ANC

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	23.9%	134	38.9%	36
Amhara	50.5%	105	52.2%	23
SNNP	28.1%	139	38.2%	34
Tigray	55.9%	152	63.6%	33
Afar	40.7%	135	60.6%	33
Somali	16.9%	65	25.0%	12
Gambella	21.7%	92	38.1%	21
Benishangul Gumuz	22.7%	128	33.3%	42
Total	**34.1%**	**950**	**44.9%**	**234**

Factors that Correlate with Use of ANC Services in General

Starting from the premise that women's socio-demographic characteristics influence better maternal health outcomes, the analysis team explored the possibility that factors related to women's social, economic and demographic characteristics may correlate with improved access to ANC services. Literature on the determinants of ANC use and expert knowledge and opinion on this topic suggest that women's age, marital status, religion, education level, region, the economic standing of their household, the number of live births they had, the receipt of reproductive health and family planning messages, and participation in household decision making are associated with use of ANC services. We thus included these variables in a regression model to establish the factors that potentially correlate with use of ANC services in general.

The multiple logistic regression analysis conducted to establish dependence between "use of ANC service" and "the social, economic and demographic characteristics" (see Annex 2 for details) showed that:

- Women who heard reproductive health messages (AOR= 1.38, 95%CI: 1.08-1.77) are more likely to have antenatal care follow-up.

- Women who do not agree that a husband/partner should have a final say in decision making (AOR= 1.36, 95%CI: 1.04-1.79) are more likely to have antenatal care follow-up; attitudes towards household decision making – "a man should have the final word about decisions in his home" lead to lower likelihood of using ANC.
- Women who have formal education are more likely to have antenatal care follow-up; women who have tertiary level education are 4 times more likely to have antenatal care compared to women who do not have formal education (AOR=4.30, 95%CI: 1.47-12.60).
- Having a smaller number of births is positively associated with antenatal care follow-up; the total number of children a woman has given birth to (more children is associated with lower use of ANC).
- Place of residence/region revealed significant variation in use of ANC services; women who live in regions with predominantly pastoralist populations (like Afar and Somali) are less likely to have antenatal care follow-up.

3.3.6 Skilled Birth Attendance

The FMOH had made "No women shall die from pregnancy and childbirth" one of its health slogans, with the assumption that all or most pregnant mothers will have access to both ANC services and skilled personnel during child birth. A pregnant mother with access to proper medical attention and hygienic conditions during delivery can greatly reduce the risk to her own life or physical well-being, by preventing delivery-associated complications and infections.

In view of the importance of reduced risk during childbirth, an indicator that measures the proportion of women who gave birth during the past year whose birth was attended by a skilled health professional in health facilities was included.

The survey results indicate that, among the 1,462 women (15-49 years) who were asked about their deliveries during the 12 months preceding the survey, 46.5% of those in the intervention areas and 55% of those in the comparison areas gave birth in a health facility with a skilled health professional in attendance. As Figure 3.3.6.1. below illustrates, this is higher than the EDHS (2016) rate of approximately 26%, likely for two reasons. First, the EDHS (2016) survey covered women who gave birth over the past five years rather than the past one year, so if the likelihood of skilled birth attendance has increased over the past five years, data drawn from just the past year will be systematically higher. Second, up to 40% of the intervention areas, and some of the comparison areas, were beneficiary areas of USAID-funded programs that preceded Transform and that also targeted skilled birth attendance, so again the results are likely to be somewhat higher assuming those programs had some positive effect. Despite these differences with the EDHS data, there is still ample room for improvement, and a difference-in-differences analysis at the midline and the endline will allow us to track those improvements over time.

To complement the results from the baseline survey, further exploration of the "why" behind these observed values will be necessary. These findings are after conducting analysis of baseline data – thus it would not have been possible to determine "the why factors" without knowing such trends existed and some are outside the scope of this baseline survey. But GOE, other stakeholders/implementers will always have interventions in comparison woredas – thus in order

to account for USG contribution at midterm and endline, difference-in-differences together with causality tracking strategies is proposed. Note that none of the above proposed tests have been used during this baseline survey—as baseline surveys do not measure change but establish baseline values.

Figure 3.3.6.1, summarizes the proportions who both gave birth with assistance of a skilled attendant and also at a health facility; those features largely overlap. The survey data cover those women who had a recent birth experience, reporting both the place of delivery and who assisted their delivery.

In the intervention areas, skilled birth attendance was found to be highest in the Tigray Region (85.7%) followed by Amhara (73.4%), SNNP (57.7%), Gambella (50.9%), and Oromia (50.3%), with the lowest rates in Afar and Somali (17.7% and 21.4%, respectively) – see Figure 3.3.6.1. Differentials in skilled birth attendance by age were also observed, with women aged 20-24 most likely to give birth with a skilled attendant (53.6%), followed by women aged 25-29 and 30-34 (46.8% and 45.2%, respectively). Women's education also seems to have a positive impact on skilled birth attendance, in that 85% of women who attended above secondary school were assisted by skilled health professionals; 55.3 % of women at the primary level were assisted by skilled birth attendants, as compared to 34.8% of women who had no formal education. The same patterns in skilled birth attendance by background characteristics are apparent in the comparison areas (see Table 3.3.6.1. below for additional details).

Table 3.3.6.1. Distribution of Live Births Delivered at a Health Facility and Assisted by a Skilled Provider in the 12 Months (Prior to Survey)

Region	Intervention areas (n=1184)		Comparison areas (n=278)	
	%	N	%	N
Oromia	50.3%	149	48.6%	37
Amhara	73.4%	109	70.8%	24
SNNP	57.7%	156	63.2%	38
Tigray	85.7%	154	90.9%	33
Afar	17.7%	220	34.0%	50
Somali	21.4%	131	42.3%	26
Gambella	50.9%	114	56.0%	25
Benishangul Gumuz	31.8%	151	48.9%	45
Total	**46.5%**	**1184**	**55.0%**	**278**

In Table 3.3.6.2. below, disaggregated figures separately show those whose births were attended by a Health Extension Worker (HEW), as some debate exists regarding whether or not they are classified as skilled personnel.

Table 3.3.6.2. Percent Distribution of women with live birth in the 12 months prior to the survey, Assistance During Delivery and Place of Delivery, by Region: Intervention areas

Region	Assistance during delivery			Place of delivery		
	Health personnel	HEW	Non-health personnel	Health facility	Health Post	Home/ Other
Oromia	51.7%	2.0%	46.3%	50.3%	2.7%	47.0%
Amhara	73.4%	2.8%	23.9%	73.4%	3.7%	22.9%
SNNP	60.3%	9.6%	30.1%	59.0%	10.3%	30.8%
Tigray	89.0%	4.5%	6.5%	85.7%	7.1%	7.1%
Afar	19.5%	2.7%	77.7%	17.7%	4.5%	77.7%
Somali	31.3%	0.8%	67.9%	21.4%	6.1%	72.5%
Gambella	53.5%	1.8%	44.7%	52.6%	2.6%	44.7%
Benishangul Gumuz	37.1%	11.3%	51.7%	31.8%	15.9%	52.3%
Total	**49.7%**	**4.6%**	**45.7%**	**46.8%**	**6.8%**	**46.5%**
EDHS 2016	**25.9%**	**1.8%**	**72.3%**	**26.2%**		**73.8%**
Health Personnel: (doctor, nurse, midwife or health officer)				Heath facility: private/NGO supported hospital and clinics, Public hospital, health center		

Factors Associated with Delivery Assisted by Skilled Birth Attendant

This analysis further explores the factors that correlate with skilled birth attendance in a multivariate framework. Based on literature on the determinants of skilled birth attendance and expert knowledge on this topic, women who delivered their last child within a year preceding the survey were included in the regression analysis and numerous socio-economic and demographic characteristics (age, marital status, level of education, religion, region, receipt of reproductive health messages, at least one ANC visit and women decision making on their own health care) were tested for association with the practice of delivery with a skilled birth attendant.

The results show that socio-demographic variables, such as level of education, religion, and geographical region, are associated with delivery attended by a skilled birth attendant. In addition, having at least one antenatal care visit and receiving reproductive health messages are positively associated with delivery with a skilled birth attendant. However, age, marital status, wealth index and the ability to decide on their own health care needs are not associated with delivery with a skilled birth attendant. The multivariate analyses revealed the following (see Annex 2 for details):

- Women who have a tertiary level education are six times more likely to deliver assisted by skilled birth attendants compared to women who had no formal education (AOR= 6.37, 95%CI: 1.64-24.75), and women who have a secondary level education are 1.7 times more likely to be attended by skilled providers during delivery of their last child as compared to those who had no formal education (AOR=1.67 95%CI: 1.01-2.78).

- Women who live in predominantly pastoralist regions (Afar and Somali) are less likely to be attended by skilled service providers during delivery as compared to predominantly agrarian regions (Tigray, Oromia, SNNP and Amhara).
- Women who have at least one ANC visit during pregnancy are nearly four times more likely to be attended by skilled service providers during delivery (AOR=3.7, 95%CI: 2.70-5.07) compared to women who do not have any antenatal visits during pregnancy. Women who have heard reproductive health messages are two times more likely to deliver assisted by a skilled birth attendant (AOR=1.84, 95%CI: 1.39-2.43).

FGD Evidence on Institutional Delivery by Skilled Health Personnel

FGD findings were also used to explore the factors associated with going to health institutions for skilled delivery. Most FGD participants agreed that women are increasingly going to health institutions for skilled delivery service compared to earlier periods. Health extension workers are doing their best to create community awareness and more women are delivering at health facilities. Different factors such as community awareness and support, improved physical access to health facilities including transportation, improved quality of service delivery (e.g. pregnant women waiting rooms in public health facilities) and free drugs and delivery services were mentioned as aspects responsible for increasing institutional delivery service utilization. These findings suggest that proximity and ease of access to a health facility, free drugs/services and the availability of an ambulance were the most important factors. Figure 3.3.6.2. below presents a visual representation of the relative mentions of various key factors in focus group discussions, by region.

Note: The length of the bars indicates the frequency of each barrier mentioned in each FGD and not proportion of respondents.

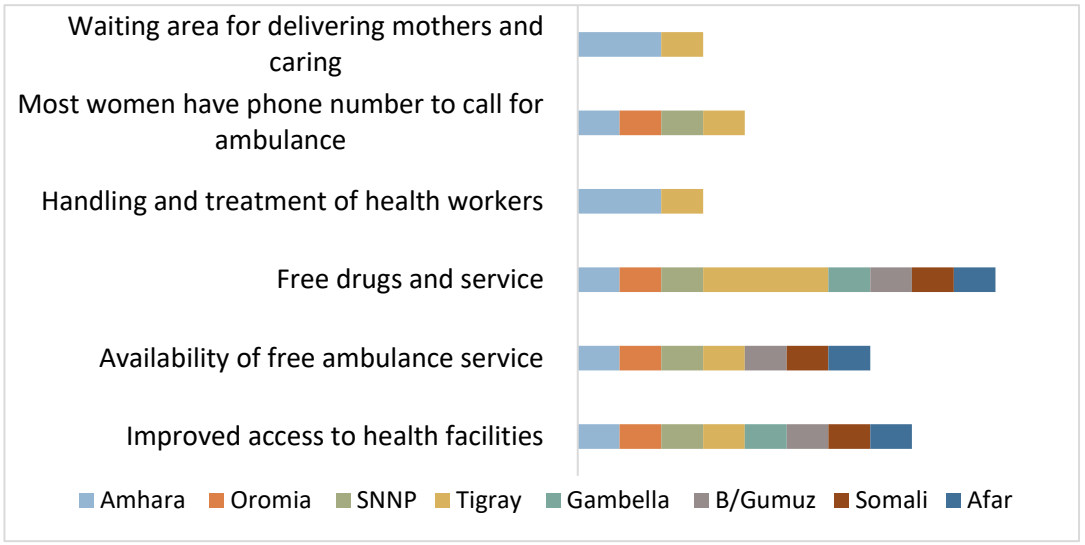


Figure 3.3.6.2. Enabling Factors for Skilled Birth Attendance

FGDs: Barriers to Institutional Delivery

In addition to inquiring about the factors that facilitate births attended by skilled health personnel at health institutions, the FGD facilitators also asked participants about the factors that made skilled delivery in health institutions more difficult. Among those barriers, things like road access (especially in Oromia) and lack of community awareness on the benefits of the service stood out. See Figure 3.3.6.3. for a visual depiction of the relative mentions of different barriers by region.

Commentary from FGD participants further reveals the extent to which access and awareness play a role in skilled birth attendance at health facilities. FGD discussants both male and women in Thaita kebele of Gog woreda in Gambella region said the following:

> *"pregnant women were found resorting to deliver at home or on their way to the health center, attributing the incidence to the wrongly estimated expected dates of delivery that the pregnant women were told during the ANC services on one hand, and, on the other hand, inaccessibility of the ambulances that were assigned by the health centers to the women in labor emergencies."*

Note: The length of the bars indicates the frequency of each barrier mentioned in each FGD and not proportion of respondents.

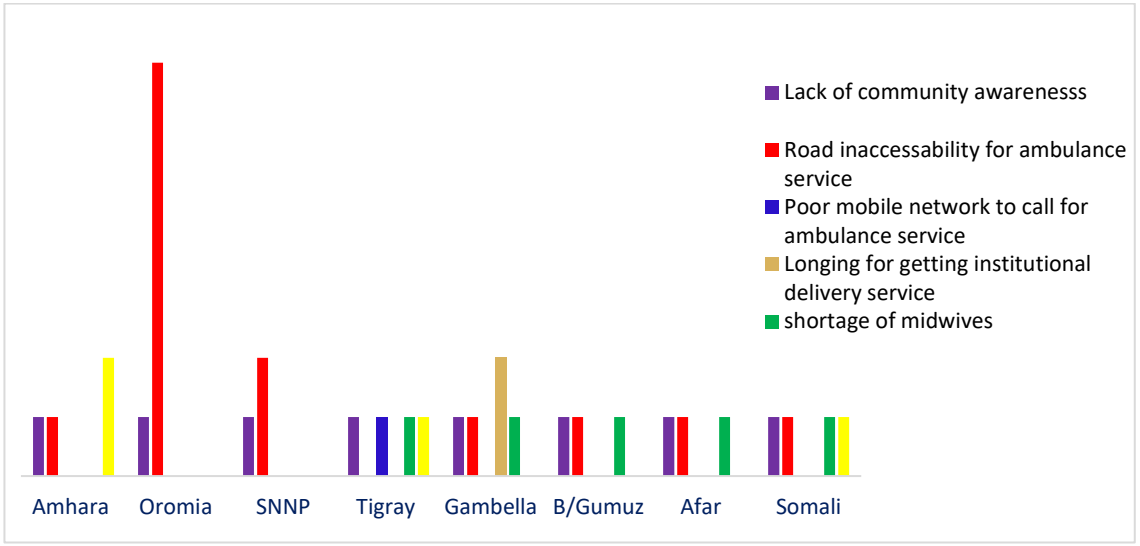


Figure 3.3.6.3. Barriers to Seeking Skilled Institutional Delivery Services

Therefore, women that were told the wrong expected date of delivery kept on staying at home assuming that labor would start sometime later or earlier than it often happened. Hence, they either go into labor and deliver at home earlier than the expected date of delivery that they planned to be at the health facility (health center) or, labor would start too late to allow them to be at the health facility and so they would deliver on their way to the center. They also complained that they either face poor connections in calling on the health center for emergency service or poor access to ambulances.

Program Implications

Even at this baseline stage, a number of factors stand out as potential areas for programming focus, based on the preceding analyses.

- Women's ownership of health care issues can improve birth care.

- Creating awareness among beneficiaries regarding what constitutes trained health professionals and re-training some of these health personnel can improve the recognition of appropriate service channels and improve the uptake of health services.
- Differentials based on education level can potentially be offset through awareness and sensitization programming among the less educated.

3.3.7 Early Postnatal Care (PNC) for the Mother

A review of the relevant literature highlights the fact that the postnatal period presents a critical phase in the lives of mothers and newborn babies, and that most maternal and infant deaths occur during this time. The World Health Organization (WHO) recommends that the first postnatal contact be done as early as possible within 24 hours of birth; and that all post-partum mothers and newborns should be followed-up with over at least three additional postnatal visits including in the first 48–72 hours, between days 7–14 after birth, and six weeks after birth. (WHO recommendation on PNC of the mother and new born, 2013).

Given the importance of postnatal care, the baseline survey includes an indicator to measure women who received a postnatal checkup within the first two days after birth. The first two days represent a key evaluation period because, according to WHO, half of all postnatal maternal deaths occur during the first week after the baby is born, and the majority of these occur during the first 24 hours after childbirth. EDHS and other surveys also capture PNC within two days, as it is a critical time for the mother and the newborn's health. Figure 3.3.7.1. shows the summary results.

In the intervention areas, 35.5% of mothers received postnatal checkup within two days, compared to 39.9% of women in the comparison areas (p=0.165). This rate is significantly higher than the rate reported in the 2016 DHS report, again due to the fact that this survey relied on data from women who gave birth during the past one year, while the EDHS relied on data from births over the past five years.

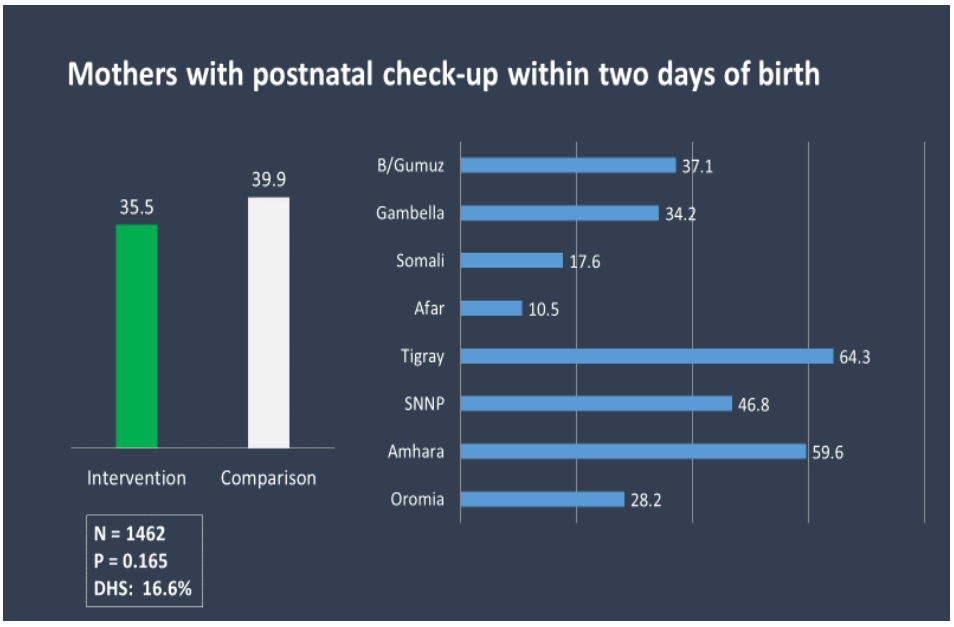


Figure 3.3.7.1. Early Postnatal Care for the Mother Within Two Days of Delivery,

Disaggregated by Region

The regional disaggregation revealed the following:

- The Tigray region presented the highest percentage of women who received postnatal checkup within the first two days after birth (64.3%), and Afar had the lowest (10.5%). Other regions ranged from 17.6% in Somali to 59.6% in Amhara, 28.2% in Oromia to 46.8% in SNNP, and 34.2% in Gambella to 37.1% in Benishangul Gumuz.
- As seen from Table 3.3.7.2 below, the majority (28.8%) of postnatal checkups happened within the first 4 hours of delivery.
- Only 63.1% of deliveries in health facilities received postnatal checkups within two days and only 3.6% of mothers with home delivery received postnatal checkups within two days after birth.
- It is also worth noting that 57.2% of mothers had no postnatal checkups.

Table 3.3.7.2. Percent Distribution of Women with Live Birth in 12 Months Prior the Survey, Mothers Timing of First Postnatal Checkup by Place of Delivery and Region: in intervention areas

Region and Place of Delivery	Mothers Timing of First Postnatal Checkup					Don't know/ Missing	No Postnatal Check-up*	Total (percent)	Number of Women
	Less than 4 hours	4-23 hours	1-2 days	3-6 days	7-41 days				
Place of Delivery									
Health facility**	51.6	7.6	3.9	10.4	1.3	0.2	25.1	100	634
Home/other	2.5	0.2	0.9	0.7	0.7	0.7	94.2	100	550
Region									
Oromia	23.5	2.7	2.0	6.7	1.3	0.0	63.8	100	149
Amhara	45.9	12.8	0.9	6.4	0.9	0.0	33.0	100	109
SNNP	41.7	3.8	1.3	6.4	0.6	1.3	44.9	100	156
Tigray	49.4	5.2	9.7	3.9	2.6	0.0	29.2	100	154
Afar	7.7	1.8	0.9	9.5	0.5	0.9	78.6	100	220
Somali	14.5	1.5	1.5	5.3	0.8	0.0	76.3	100	131
Gambella	28.1	5.3	0.9	0.9	1.8	0.0	63.2	100	114
Benishangul Gumuz	31.1	3.3	2.6	5.3	0.0	0.7	57.0	100	151
Total	**28.8**	**4.1**	**2.5**	**5.9**	**1.0**	**0.4**	**57.2**	**100**	**1184**

*includes women who received a check-up after 41 days

**Health facility includes public hospitals, health centers, health posts, private or NGO supported hospitals and clinics

3.3.8 Early Postnatal Care (PNC) for Newborns

The first 48 hours of life represent a critical phase in the lives of newborn babies and a period in which many neonatal deaths occur. Lack of postnatal health checks during this period can delay the identification of newborn complications and the initiation of appropriate care and treatment. Postnatal care for the newborn within two days of birth was assessed in the Transform baseline survey, and the data show that 31.8% and 34.2% of newborns received early postnatal check in the intervention and comparison sites, respectively.

By region, Tigray has the highest proportion (50%) of newborn postnatal check-ups, followed by Amhara (46.8%) and SNNP (42.3%). The result is lowest in the Afar (12.3%) and Somali (22%) regions (see Table. 3.3.8.1 for details).

The postnatal check-up for newborns within seven days after birth has only a slight difference. A much higher proportion of newborns who were delivered in a health facility were also reported to receive PNC compared to those delivered at home. This indicates that PNC for the newborn happens early before the mother leaves the facility.

Comparing early postnatal care for newborns by place of delivery at intervention sites, 55.1% of newborns delivered in health facilities have received postnatal care while only 11.3% of newborns delivered at home did so within two days of birth. The proportion of newborns that received early postnatal care also increases with the mother's education level.

Table 3.3.8.1. Percent Distribution of Women with live birth in the 12 months preceding the survey, Early Postnatal Checkup of Newborn (within two days of birth)

Region	Intervention			Comparison		
	Within 2 days	Within 7 days	N	Within 2 days	Within 7 days	N
	%	%		%	%	
Oromia	25.5%	27.5	149	10.8%	13.5	37
Amhara	46.8%	46.8	109	41.7%	41.7	24
SNNP	42.3%	44.2	156	36.8%	36.8	38
Tigray	50.0%	50.6	154	39.4%	42.4	33
Afar	12.3%	13.6	220	32.0%	34.0	50
Somali	22.1%	26.7	131	23.1%	23.1	26
Gambella	36.8%	36.8	114	44.0%	44.0	25
B/g	30.5%	32.5	151	46.7%	46.7	45
Place of Delivery						
Health Facility	55.1%	55.8%	554	47.8%	48.4%	157
Home	11.3%	13.7%	630	16.5%	18.2%	121
Total	**31.8%**	**33.4**	**1184**	**34.2%**	**35.3**	**278**

3.3.9 Essential Newborn Care

Women who had a live birth in the 12 months before the survey were asked if their infant received elements of essential newborn care after birth. Essential newborn care is calculated as the proportion of newborns who received eye ointment, Vitamin K, and ointment which is applied on the umbilical cord immediately after birth. Following the DHS standard, the indicator also requires

that the births should take place in a health facility, where newborns can be assured of receiving those essential elements. Table 3.3.9.1. shows newborns who received these three elements of essential newborn care.

Table 3.3.9.1. Percentage of Newborns Receiving Essential Newborn Care (Vitamin K, TTC Eye Ointment and Cord Care with Ointment

Region	Intervention	N	Comparison	N
Oromia	0.0%	75	0.0%	19
Amhara	3.8%	80	5.6%	18
SNNP	20.7%	92	4.2%	24
Tigray	1.5%	132	0.0%	32
Afar	0.0%	39	5.9%	17
Somali	25.0%	28	18.2%	11
Gambella	13.3%	60	14.3%	14
Benishangul Gumuz	0.0%	48	0.0%	22
Total	**7%**	**554**	**4.5%**	**157**

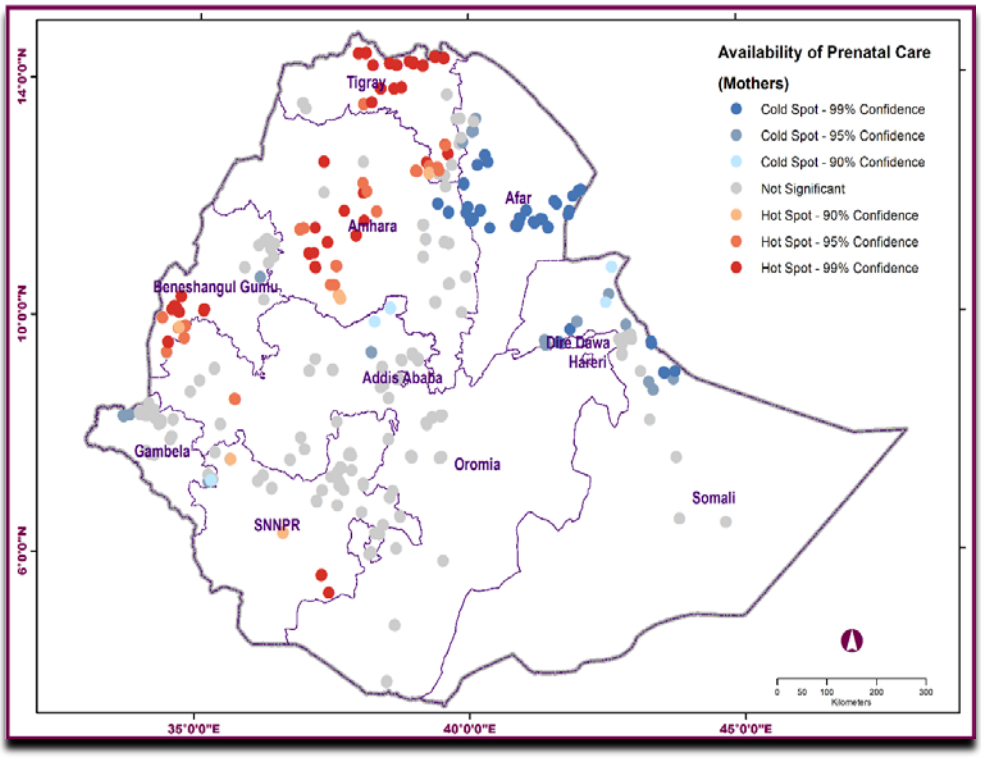
The survey results below show that, in the intervention areas, among live births delivered in health facilities in the last 12 months preceding the survey, 45.5% of newborns received a Vitamin K injection, 54.2% received TTC eye ointment, and 12.5% had received cord care with chlorohexidine ointment. See Table 3.3.9.2.

Table 3.3.9.2. Percentage of Newborns Receiving Components of Essential Newborn Care

Region	Newborns Receiving components of Essential Newborn Care: In Intervention areas			
	Percentage given Vitamin K injection	Percentage having TTC eye ointment applied	Percentage received cord care with ointment	N
Oromia	40.0%	38.7%	0.0%	75
Amhara	28.8%	33.8%	16.3%	80
SNNP	66.3%	65.2%	23.9%	92
Tigray	47.7%	65.2%	6.8%	132
Afar	35.9%	43.6%	0.0%	39
Somali	75.0%	85.7%	28.6%	28
Gambella	48.3%	68.3%	25.0%	60
Benishangul Gumuz	22.9%	33.3%	4.2%	48
Total	**45.5%**	**54.2%**	**12.5%**	**554**

GEOSPATIAL ANALYSIS: POSTNATAL CARE FOR MOTHERS

The map below shows households with the highest (hotspots, in red) and lowest (cold-spots, in blue) coverage for postnatal health care use among households. The red spots are areas with better coverage of postnatal care for mothers and the dots in blue are areas where the utilization is quite limited or unavailable at most.



The focus group discussions held both with men and women in the regions of Afar, Benishangul Gumuz, Gambella and Somali revealed that most of the expectant mothers delivered at home and did not receive early PNC, reporting the following:

> *"Men in our society are culturally endowed with the power of dominance. They therefore, do not want the bodies of their wives to be seen or touched by other persons. So, they do not want wives to deliver in the health facilities, so we deliver at home. This means we often don't get the postnatal care. But nowadays, men have been mentally changing and appreciate the Health extension workers teachings on maternal and child health. They have also started accompanying or giving financial support to the expectant mothers to get the postnatal checkup and child immunizations. However, as access to the health centers is difficult because of lack of transport services, expectant mothers usually deliver at home and then go for a post-natal checkup and child immunization about a week postpartum".*

In summary, many of the factors that would ensure sound health for the mother and the newborn are affected by access to services and awareness of the appropriate initiatives. Programming might focus on these areas, and even where improving roads or ambulance access is not feasible, educational programming with both men and women may have an important impact on improving the health of mothers before, during, and after delivery.

3.4 CHILD HEALTH

Just as the health of mothers is a key intervention area, programming aimed at the health of newborn children also constitutes a critical intervention area in reducing preventable deaths in Ethiopia. To that end, the baseline study includes a number of indicators to gauge progress on child health through the Transform suite of activities.

3.4.1 Newborn Infections

Women who had newborns 0-2 months during the survey were asked if their newborn infant had any sign of infection in the two weeks preceding the survey. The results indicate that 16.2% of infants from the intervention areas and 25.9% from the comparison areas had symptoms of infection in the two weeks prior to the survey (p=0.091). The highest proportions of newborn infections were reported from the Amhara region and the lowest were reported from the Afar region. Women who had above a secondary education are more likely to report signs of newborn infection compared to women who have no formal education; this likely has more to do with their awareness of infections than with the actual susceptibility of their babies to infections. See Table 3.4.1.1 for additional details by region'.

Table. 3.4.1.1. Proportion of Mothers Who Have Newborns (0-2 months) with Signs of Infection in the Last Two Weeks Preceding the Survey (by region)

Region	Intervention areas	N	Comparison areas	N
Oromia	12.9%	31	11.1%	9
Amhara	28.6%	21	12.5%	8
SNNP	25.0%	24	27.3%	11
Tigray	19.5%	41	33.3%	6
Afar	4.3%	23	22.2%	9
Somali	20.0%	20	0.0%	3
Gambella	4.8%	21	0.0%	1
Benishangul Gumuz	14.3%	35	54.5%	11
Total	**16.2%**	**216**	**25.9%**	**58**

Note: caution should be taken when interpreting and using the findings for the respondents' number is less than 25.

3.4.2 Children Under 5 Years Who Sought Treatment for Fever

The survey also assessed the incidence of fever among children under 5-years-old, and the share who sought treatment within 24 hours of the onset of fever, in the two weeks prior to the survey. A total of 12.4% of children (12.0% intervention and 14.3% comparison) were reported to have had a fever in the two weeks prior to the survey. The Gambella region has the highest proportion of under-5 children with a fever and the Somali region had the lowest.

Among children who had a fever, 46.9% from the intervention areas and 51.7% from the comparison areas sought treatment within 24 hours of onset of fever (p=0.352). The highest proportion of children who sought treatment for fever came in the Gambella region, among the intervention areas. Women who reached higher education are more likely to seek treatment within 24 hours of the onset of fever. See Table 3.4.2.1 for additional details.

Table 3.4.2.1. Children Under 5 Years of Age Who Had Fever in the Last 2 Weeks for Whom Treatment Was Sought Within 24 Hours of Onset of Fever

Region	Intervention areas		Comparison areas	
	%	N	%	N
Oromia	45.3%	52	41.7%	12
Amhara	39.4%	59	57.1%	7
SNNP	38.5%	58	30.0%	20
Tigray	42.9%	53	50.0%	10
Afar	41.3%	56	63.2%	19
Somali	28.9%	39	16.7%	6
Gambella	70.4%	86	55.2%	29
Benishangul Gumuz	56.5%	47	80.0%	15
Total	**46.9%**	**450**	**51.7%**	**118**

3.4.3 Children Under 5 With Diarrhea, and Those Receiving Treatment

Similarly, the baseline survey includes an indicator to measure the incidence of diarrhea and the subsequent rate of treatment. The indicator measures the rate of children under 5 in the intervention and comparison areas who suffered from at least one episode of diarrhea within the past two weeks. A complementary indicator measures the proportion of those children who were treated with ORS and zinc, the recommended treatment for diarrhea.

The results indicate that 10.9% of children overall (10.4% from intervention and 13.2% from comparison) had at least one diarrhea episode within two weeks prior to the survey (p=0.023). When regions are compared, the incidence of diarrhea was highest in the Gambella region (17.9%) and lowest (5.1%) in the Somali region.

Importantly, only a quarter of children who had diarrhea (28.3% from intervention areas and 29.4% from comparison areas, p=0.831) were treated with ORS and zinc. Moreover, disparity by region regarding diarrhea treatment is observed, as outlined in Table 3.4.3.1.

Table 3.4.3.1 Percent distribution of children under five with diarrhea in the two weeks before the survey, and those receiving treatment

Region	Children under 5 who had diarrhea episode in the past two weeks				Children who had diarrhea and treated with ORS and zinc			
	Intervention		Comparison		Intervention		Comparison	
	%	N	%	N	%	N	%	N
Oromia	8.1	495	9.4	117	27.5	40	9.1	11
Amhara	9.6	395	10.4	94	18.4	38	50.0	10
SNNP	9.5	528	16.4	134	38.0	50	18.2	22
Tigray	8.6	510	8.8	80	27.3	44	28.6	7
Afar	10.6	538	11.8	110	22.8	57	46.2	13
Somali	5.1	475	5.3	95	33.3	24	0.0	5
Gambella	17.9	390	25.6	86	32.9	70	32.0	22
Benishangul Gumuz	16.2	425	17.0	112	26.5	69	36.8	19
Total	**10.4**	**3756**	**13.2**	**828**	**28.3**	**392**	**29.4**	**109**

3.4.4 Under-5 Children with Symptoms of ARI and Treated with Antibiotic

The survey also estimated the prevalence of pneumonia among under-5 children. A child is considered to have symptoms of acute respiratory tract infection (ARI) when the mother reported that the child had both a cough and either fast breathing, difficulty breathing, or chest pain in the two weeks prior to the survey. The analysis also tracked the proportion of those children who received antibiotic treatment.

Accordingly, 7.1% from the intervention areas and 6.2% from comparison areas had symptoms of ARI in the last two weeks before the survey. Of these, 26.1% children from intervention areas and 27.8% from comparison areas got antibiotic treatment (p=0.778). Moreover, there was huge disparity among regions. None of the children who had symptoms of pneumonia from the Somali region got antibiotic treatment, whereas nearly half (50.0%) of children from the Tigray region got antibiotic treatment (see Table 3.4.4.1. for additional details). Of course, the sample size of children with pneumonia within the past two weeks is low, so large differences may occur simply by chance, but the results are still somewhat striking.

Table 3.4.4.1 Percentage distribution of under-five children with symptoms of ARI (pneumonia) and treated with antibiotic by region

Region	% of children with ARI symptoms in two weeks prior to the survey				% of children with ARI symptoms got antibiotic treatment			
	Intervention areas		Comparison areas		Intervention areas		Comparison areas	
	%	N	%	N	%	N	%	N
Oromia	5.9	439	5.3	106	34.6	26	40.0	5
Amhara	11.4	369	10.6	87	28.6	42	20.0	10
SNNP	4.8	495	4.5	121	25.0	24	0.0	3
Tigray	10.2	452	9.0	66	50.0	46	28.6	7
Afar	3.7	484	3.3	95	16.7	18	0.0	3
Somali	4.7	451	4.4	90	0.0	21	0.0	4
Gambella	7.8	370	7.5	81	17.2	29	0.0	8
Benishangul Gumuz	9.9	393	9.2	99	25.6	39	0.0	6
Total	**7.1**	**3453**	**6.2**	**745**	**26.1**	**245**	**27.8**	**46**

3.4.5 Children Fully Immunized

A child is considered to be fully vaccinated if s/he has received one dose of BCG vaccination, three doses of DPT-HepB-Hib, three doses of polio vaccine and one dose of measles vaccine. Information about vaccination status of children (age 12-23 months) was collected by reviewing immunization cards or asking the mother when the immunization card was not available. Vaccination cards or other written documentation that indicated the child's vaccination information were seen for 27.2% and 41.3% of the children age 12-23 months in intervention and comparison sites, respectively. The results indicate that 34.3% of children from the intervention areas and 47.1% from the comparison areas were fully vaccinated (p=0.003). The proportion of

fully vaccinated children varied from 9.9% in Afar region to 67.4% in Amhara region (see Table 3.4.5.1.).

The proportion of children who were vaccinated at the appropriate age (within the first year of birth) was estimated by reviewing the recorded dates on the immunization cards. For children whose vaccination status was determined based on the mothers' report, the proportions of vaccinations received by appropriate age is assumed to be in similar proportion to children with a written record of vaccinations on their immunization cards. The results show that 39.4% of children from intervention areas and 49.0% of children from comparison areas received penta-3 vaccination within the first year of birth. (see Annex 5, Table 3.4.5.1). Similarly, nearly one third, 32.7% of children from intervention areas and 38.1% from comparison areas were vaccinated for measles within the first year of birth. Disaggregation of the result in the intervention areas by region showed that Afar region has the lowest proportion of children receiving penta-3 (8.7%) and measles (15.4%), whereas Benishangul Gumuz has the highest proportion of children receiving penta-3 (65.0%) and measles (41.6%) within the first year of birth. The highest proportion of children receiving the measles vaccine is in Tigray region (44.2%). See Annex 5, Table 3.4.5.1. for details.

Table 3.4.5.1. Percentage Distribution of Fully Immunized 12-23-month children at any time before the survey (source: vaccination card or mother report)

Region	Percentage of Children 12-23 months fully vaccinated			
	Intervention areas	N	Comparison areas	N
Oromia	24.1%	83	42.1%	19
Amhara	67.4%	89	70.8%	24
SNNP	29.7%	101	33.3%	27
Tigray	44.2%	95	84.2%	19
Afar	9.9%	131	10.5%	19
Somali	20.4%	98	16.7%	12
Gambella	30.4%	69	61.5%	13
Benishangul Gumuz	61.4%	83	50.0%	22
Total	**34.3%**	**749**	**47.1%**	**155**
Note: caution should be taken when interpreting and using the findings in the comparison areas as the respondents' number is less than 25.				

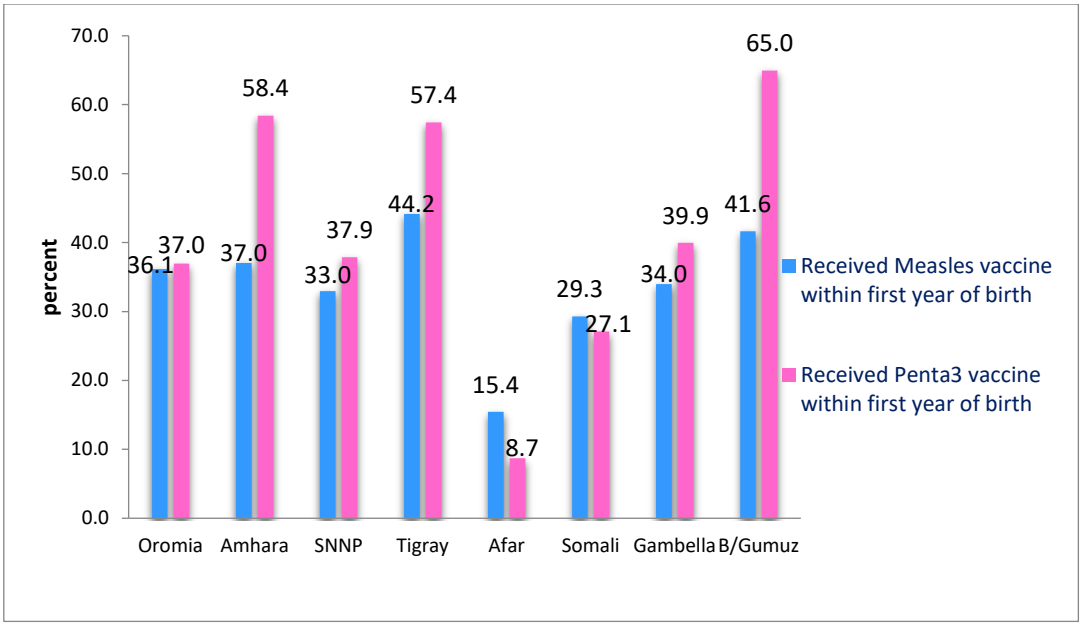


Figure 3.4.5.1. Proportion of Children from Interventions Areas Receiving Penta-3 and Measles Vaccination Within the First Year of Birth by Region

Factors Associated with Full Vaccination of Children (12-23 Months)

A bivariate analysis was used to evaluate the association between different potential predictor variables with full vaccination (immunization) of children aged 12-23 months during the time of the survey. Variables, such as age of the mother, religion, mother's education level and geographical region of residence, are positively associated with full immunization of children.

In addition, mothers hearing messages about children's health care, delivery in health facilities, and participation in household decision making are all positively associated with children being fully immunized. However, mothers' age, religion and education level were not found to be statistically associated with the full immunization of children in multiple logistic regression analysis.

The multivariate analysis indicated that:

Women who heard messages about newborn or child health (AOR=1.49, 95%CI: 1.05-2.11) and women who delivered their last child in health facilities (AOR=1.85, 95%CI: 1.29-2.65) are more likely to fully immunize their children. In addition, women who do not agree that a husband/partner should have a final say in decision making are more likely to vaccinate their children for immunization (AOR=1.47, 95% CI: 1.03-2.10). Children from developing regions, particularly Afar and Somali, are less likely to be fully immunized as compared to children from Amhara region. (See details under Annex 2, Factors Associated with Full Vaccination).

3.4.6 Exclusive Breastfeeding

Public health experts recommend that infants should receive no fluids or solids other than breastmilk for the first six months of life. The survey thus assessed the prevalence of exclusive breastfeeding among women who have children below six months old. For this study, children who did not take any complementary food or drink other than breast milk are considered to be

exclusively breastfeeding. Accordingly, a majority of children, 62.8% from the intervention areas and 73.6% from comparison areas, were exclusively breastfed (p=0.037). Gambella region has the highest proportion of exclusively breastfed children (77.4%), and the Somali region has the lowest (27.7%). Women who have a higher level of education have slightly higher proportions of exclusive breastfeeding. There was no difference in exclusive breastfeeding by wealth quintile (see Table 3.4.6.1.).

Additionally, women were asked if they have received education about the importance of exclusive breastfeeding, and 33.5% of women from the intervention woredas and 38.2% from the comparison woredas reported that they had received such information.

Tigray region has the highest proportion of women who received education on the importance of exclusive breastfeeding compared to other regions. Women with some formal education are more likely to report receiving education about the importance of exclusive breastfeeding compared to those with no formal education. Table 3.4.6.1. reports results for exclusive breastfeeding by socio-demographic characteristics. The table also reports results for a complementary indicator: the share of women who initiated breastfeeding immediately upon the birth of the child (i.e. within the first hour after birth).

Table 3.4.6.1 Percentage of Children Exclusively Breastfed, and % of Mothers Who Initiated Breastfeeding Within One Hour of Birth

Region	% children less than six months exclusively breastfeeding				% mothers who initiated breastfeeding within one hour of birth			
	Intervention	N	Comparison	N	Intervention	N	Comparison	N
Oromia	59.7%	62	78.9%	19	79.2%	72	61.9%	21
Amhara	44.7%	38	78.6%	14	78.7%	75	57.1%	21
SNNP	66.7%	51	68.8%	16	69.2%	104	48.0%	25
Tigray	61.8%	68	72.7%	11	80.1%	146	81.3%	32
Afar	74.1%	54	76.5%	17	52.3%	88	64.0%	25
Somali	27.7%	47	62.5%	8	35.4%	82	18.8%	16
Gambella	77.4%	62	71.4%	7	82.6%	69	63.6%	22
Benishangul Gumuz	75.7%	70	71.4%	14	48.8%	86	63.3%	30
Total	**62.8%**	**452**	**73.6%**	**106**	**66.3%**	**722**	**59.9%**	**192**

Women who had at least one birth in the past one year were asked when they initiated breastfeeding, to estimate early initiation of breastfeeding. According to the survey results, two-thirds of women (66.3% from intervention areas and 59.9% from comparison areas, p=0.013) reported that they started breastfeeding within one hour of birth. When regions are compared, early initiation of breastfeeding was highest in the Tigray region and lowest in the Afar region. Women who have some formal education (primary and secondary) are more likely to initiate breastfeeding within one hour of birth compared to women who do not have formal education. Early initiation of breastfeeding is more or less similar across women's age groups and household wealth quintile. (see Annex 5, Table 3.4.6.1.).

3.4.7 Children Under 5 Who Received Vitamin A in the Last Six Months

Women who have children under 5 years of age were asked if their children were given a Vitamin A supplement within the last six months. The results indicate that a Vitamin A supplement was given to 39.8% of under-5 children from intervention areas and 33.5% of children from comparison areas in the past six months preceding the survey (p=0.079). When regions are compared, the highest proportion of under-5 children receiving Vitamin A are from the Benishangul Gumuz region, and the lowest proportion are from the Gambella and Somali regions (see the results in Table 3.4.7.1.). Children of women who have above a secondary education have a higher likelihood of receiving Vitamin A supplements (60%) compared to children of women with no formal education (37%). No difference exists across household wealth quintiles in the proportion of children who received Vitamin A supplements.

Table 3.4.7.1. % of Children Under 5 Who Received Vitamin A in the Last Six Months (by region)

Region		Intervention areas	N	Comparison areas	N
Oromia		37.2%	231	34.5%	55
Amhara		43.5%	108	39.4%	23
SNNP		48.7%	236	35.1%	74
Tigray		48.7%	191	16.1%	19
Afar		37.2%	347	34.3%	70
Somali		30.8%	292	19.9%	55
Gambella		29.9%	127	25.0%	24
Benishangul Gumuz		46.4%	181	56.0%	41
Total		**39.8%**	**1713**	**33.5%**	**361**

3.4.8 Under-5 Children Who Slept Under ITNs

Sleeping under insecticide treated nets (ITNs) is one of the important interventions to prevent malaria. It is thus recommended that pregnant women and children be given priority to sleep under ITNs. Thus, an indicator that measures the proportion of children under 5 who slept under a treated mosquito net during the night prior to the survey was analyzed.

The study showed that 42.8% of children under 5 from intervention areas and 39.6% from comparison areas slept under ITNs the night before the survey (p=0.091). Two regions, Benishangul Gumuz and Gambella, which are known to have high rates of malaria throughout the year, also have higher proportions of children who slept under ITNs. See Table 3.4.8.1. for a disaggregation of ITN use across intervention and comparison areas by region.

Table 3.4.8.1 Percent distribution of women with children under 5 who slept under ITN the night before the survey.

Region	Intervention	N	Comparison	N
Oromia	20.1%	497	41.2%	119
Amhara	43.6%	399	23.4%	94
SNNP	24.8%	533	20.1%	134
Tigray	42.9%	513	40.7%	81
Afar	28.8%	542	11.8%	110
Somali	35.3%	476	25.8%	97
Gambella	77.3%	396	75.6%	86
Benishangul Gumuz	84.6%	428	85.0%	113
Total	**42.8%**	**3784**	**39.6%**	**834**

3.5 HEALTH FACILITY: Availability of Primary Health Care

The baseline household survey was complemented by qualitative data from focus group discussions, Key Informant Interviews and health facility data. The health facility data provide insights and understanding of the availability and quality of health services. As noted above, the health facility survey covered 53 Health Centers, 53 Health Posts and 12 Primary Health Care Hospitals both in intervention and comparison areas from the eight regions. The purpose of collecting data from health facilities was to provide supplementary data to establish if RMNCH services are available to meet the service needs exhibited through RMNCH indicator data in the HH survey. It is not designed to set base values for the indicators, but instead to map out the availability of services versus the demand for services, hence the estimates from the health facility data collection are not intended to be statistically representative. Data was collected on the availability of trained human resources and the type of health care services available, including availability of essential commodities and referral linkages. The demand for health services was assessed using RMNCH indicators from the representative HH survey.

3.5.1 Health Facilities with Trained Health Care Providers on Family Planning

In-service trainings are essential to improving the quality of health care. The percentage of health facilities with trained health care providers on family planning (disaggregated by region and type) is shown in Table 3.5.1.1 below.

Table 3.5.1.1 Health Facilities with Trained Health Care Providers on Family Planning (Disaggregated by Region and Type)

Note: N refers to the number of health facilities observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be representative of the regions but rather to provide additional insight.

Region	Indicators	Intervention areas (N=56)	Comparison areas (N=13)
		%	%
Oromia (n=12)	% health facilities with trained health care providers in implant	90.9	100
	% health facilities with trained health care providers in IUD	42.9	100
	% health facilities with trained health care providers in PPIUD	27.3	75.0
Tigray (n=6)	% health facilities with trained health care providers in implant	83.3	100
	% health facilities with trained health care providers in IUD	83.3	100
	% health facilities with trained health care providers in PPIUD	33.3	0.0
Amhara (n=9)	% health facilities with trained health care providers in implant	88.9	100
	% health facilities with trained health care providers in IUD	77.8	100
	% Health facilities with trained health care providers in PPIUD	44.4	50.0
SNNP (n=10)	% health facilities with trained health care providers in implant	100	100
	% health facilities with trained health care providers in IUD	50.0	100
	% health facilities with trained health care providers in PPIUD	33.3	0.0
Afar (n=4)	% health facilities with trained health care providers in implant	100	100
	%health facilities with trained health care providers in IUD	100	0.0
	% health facilities with trained health care providers in PPIUD	100	0.0
Somali (n=5)	% health facilities with trained health care providers in implant	66.7	100
	% health facilities with trained health care providers in IUD	33.3	0.0
	% health facilities with trained health care providers in PPIUD	33.3	0.0
Gambella (n=6)	% health facilities with trained health care providers in implant	100	100
	% health facilities with trained health care providers in IUD	100	100
	% health facilities with trained health care providers in PPIUD	33.3	0.0
B/Gumuz (n=4)	% health facilities with trained health care providers in implant	100	100
	% health facilities with trained health care providers in IUD	75.0	100
	% health facilities with trained health care providers in PPIUD	75.0	100

3.5.2 Health Facilities with Trained Health Worker on MNCH Services

Health centers and hospitals were assessed to determine the availability of health service providers trained on maternal, newborn and child health care (MNCH). The survey assessed the health facilities with trained health workers on Basic Emergency obstetric and Newborn Care (BEmONC), Integrated Management of Newborn and Child Illness (IMNCI) and Essential Newborn Care (ENC). Table 3.5.2.1. shows the percentage of facilities with trained health workers by type of training.

Table 3.5.2.1. Percent of Health Facilities with Trained Health Worker on Maternal, Newborn and Child Health Services (Health Center and primary Hospitals)

Note: N refers to the number of health centers and primary hospitals observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be representative of the regions but rather to provide additional insight.

Regions	Indicators	Intervention (N=56)	Comparison (N=13)
		%	%
Oromia (n=12)	% of health facilities with trained health workers on BEmONC	90.9	100.0
	% of health facilities with trained health workers on IMNCI	63.6	75.0
	% of health facilities with trained health workers on ENC	54.5	100
Tigray (n=6)	% of health facilities with trained health workers on BEmONC	100	100
	% of health facilities with trained health workers on IMNCI	83.3	100
	% of health facilities with trained health workers on ENC	50.0	100
Amhara (n=9)	% of health facilities with trained health workers on BEmONC	100	100
	% of health facilities with trained health workers on IMNCI	88.9	50.0
	% of health facilities with trained health workers on ENC	77.8	100
SNNP (n=10)	% of health facilities with trained health workers on BEmONC	91.7	100
	% of health facilities with trained health workers on IMNCI	58.3	50.0
	% of health facilities with trained health workers on ENC	50.0	50.0
Afar (n=4)	% of health facilities with trained health workers on BEmONC	75.0	100
	% of health facilities with trained health workers on IMNCI	100	100
	% of health facilities with trained health workers on ENC	75.0	100
Somali (n=5)	% of health facilities with trained health workers on BEmONC	66.7	0.0
	% of health facilities with trained health workers on IMNCI	33.3	100
	% of health facilities with trained health workers on ENC	33.3	0.0
Gambella (n=6)	% of health facilities with trained health workers on BEmONC	100	100
	% of health facilities with trained health workers on IMNCI	100	100
	% of health facilities with trained health workers on ENC	100	0.0
B/ Gumuz (n=4)	% of health facilities with trained health workers on BEmONC	66.7	100
	% of health facilities with trained health workers on IMNCI	75.0	100
	% of health facilities with trained health workers on ENC	100	100

3.5.3 Health Posts with Trained Health Extension Workers (HEWs) on CBNC and ICCM

A total of 54 health posts (41 from intervention areas and 13 from comparison areas) were surveyed to assess the availability of health extension workers (HEWs) trained in community-based newborn care (CBNC) and integrated community case management (ICCM). See Table 3.5.3.1 for details disaggregated by region.

Table 3.5.3.1. Health Posts with HEWs Trained on CBNC and ICCM by Region

Note: N refers to the number of health posts observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be representative of the regions but rather to provide additional insight.

Region	Indicators	Intervention (N=41)	Comparison (N=13)
		%	%
Oromia (n=10)	% health posts with trained HEWs on CBNC	80.0	75.0
	% health posts with trained HEWs on ICCM	80.0	75.0
Tigray (n=4)	% health posts with trained HEWs on CBNC	75.0	0.0
	% health posts with trained HEWs on ICCM	100.0	0.0
Amhara (n=7)	% health posts with trained HEWs on CBNC	100.0	50.0
	% health posts with trained HEWs on ICCM	100.0	100.0
SNNP (n=8)	% health posts with trained HEWs on CBNC	66.0	100.0
	% health posts with trained HEWs on ICCM	77.8	100.0
Afar (n=3)	% health posts with trained HEWs on CBNC	33.3	0.0
	% health posts with trained HEWs on ICCM	33.3	100.0
Somali (n=4)	% health posts with trained HEWs on CBNC	0.0	0.0
	% health posts with trained HEWs on ICCM	0.0	0.0
Gambella (n=3)	% health posts with trained HEWs on CBNC	0.0	100.0
	% health posts with trained HEWs on ICCM	0.0	0.0
B/Gumuz (n=2)	% health posts with trained HEWs on CBNC	33.3	0.0
	% health posts with trained HEWs on ICCM	100.0	0.0

3.5.4 Availability of Essential Drugs in Health Facilities

The availability of essential drugs was calculated by first taking the list of essential drugs as determined by FMOH. Availability of essential commodities was calculated by adding the number of days essential commodities were in stock in the last six months and dividing it by the number of drugs by 180 (number of days in six months. As shown in Figure 3.5.4.1. below, the availability of essential drugs was high in health facilities located in Tigray region (99.3%) and somewhat lower in Oromia (83.8%).

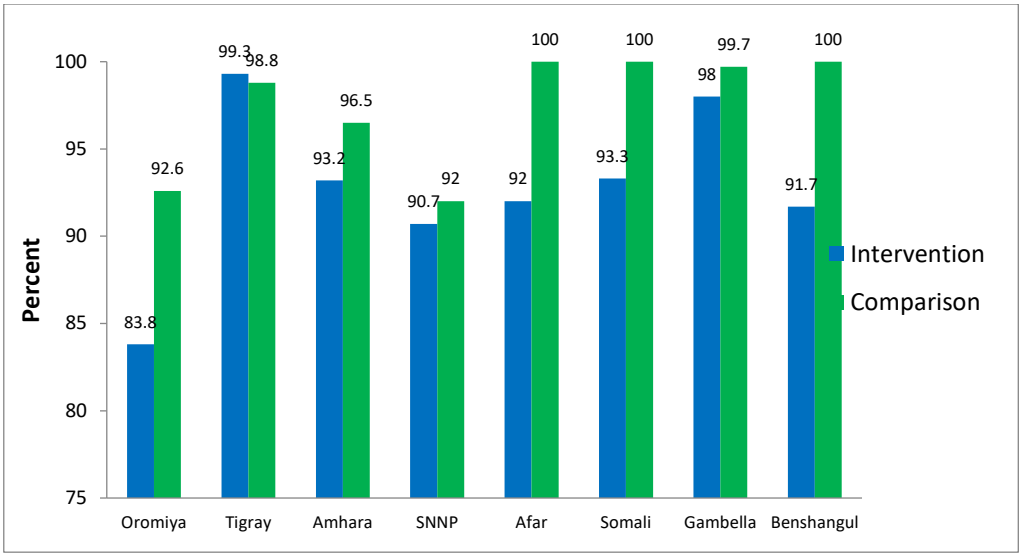


Figure 3.5.4.1. Percentage of Health Facilities with Availability of Essential Drugs by Region.

3.5.5 Health Facilities with Referral and Feedback System

The health facility results show that the share of health facilities with functional two-way referral systems (referred and received feedback, i.e. back referral) in the Transform: PHC and HDR targeted regions is around 38% and 31%, respectively. The result varies from region to region with the highest observed in Somali and Tigray, and the lowest in Oromia, SNNP and Afar, respectively; none report having such referral systems in Benishangul Gumuz and Afar. See Table 3.5.5.1. for additional details disaggregated by region.

Table 3.5.5.1. Percentage of Health Facilities with Referral and Feedback System (Reported)

Note: N refers to the number of health facilities observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be representative of the regions but rather to provide additional insight.

Region	Health facilities reported having referral linkage with feedback system		Health facilities that have standardized referral form/slip		Health facilities that have referred for MNCH service in the last one year		Percent of health facilities with functional two-way referral system (received back referral)	
	N	%	N	%	N	%	N	%
Tigray	9	90.0%	9	90.0%	9	90.0%	7	70.0%
Amhara	15	93.8%	11	78.6%	14	100.0%	9	64.3%
Oromia	15	71.4%	18	94.7%	14	77.80%	2	11.1%
SNNP	11	52.4%	13	81.3%	13	81.30%	4	25.0%
PHC regions	**50**	**73.5%**	**51**	**86.15%**	**50**	**87.28%**	**22**	**37.9%**
B/Gumuz	1	14.3%	3	75.0%	3	75.00%	0	0.0%
Gambella	2	33.3%	3	100.0%	3	100.0%	2	66.7%
Somali	3	60.0%	1	50.0%	3	100.0%	3	60.0%
Afar	3	42.9%	4	100.0%	4	100.0%	0	0.0%
HDR regions	**9**	**36.0%**	**11**	**81.25%**	**13**	**93.75%**	**6**	**31.2%**

3.5.6 Health Facilities Administration and Management System

The baseline also assessed the management and administration systems of health centers and primary hospitals. The study showed that most health facilities have an active board of directors as a governing body, and more than 95.6% of health facilities from Transform: PHC targeted intervention regions reported receiving supportive supervision, and the result is lower (79%) in HDR regions. Similarly, 85% and 73% of health facilities from PHC and HDR regions, respectively, have a quality improvement team. About 71% of surveyed health facilities started implementing community-based health insurance (CBHI) in Transform: PHC regions. See Table 3.5.6.1. for additional details by region.

Table 3.5.6.1. Health Facilities Administration and Management System (Reported)

Note: N refers to the number of health facilities observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be representative of the regions but rather to provide additional insight.

Region	Health facilities reported receiving supportive supervision in the last quarter		Health facilities with functional board of directors		Health facilities with women members in the board		Percentage of health facilities with functional quality improvement team		Health facilities that started implementation of CBHI	
	N	%	N	%	N	%	N	%	N	%
Tigray	6	100.00%	6	100.00%	6	100.00%	5	100.00%	6	100.00%
Amhara	9	100.00%	9	100.00%	6	66.70%	9	100.00%	7	77.80%
Oromia	10	90.90%	10	90.90%	9	81.80%	8	72.70%	8	72.70%
SNNP	11	91.70%	10	83.30%	10	83.30%	8	66.70%	4	33.30%
PHC regions	**36**	**95.65%**	**35**	**93.55%**	**31**	**82.95%**	**30**	**84.85%**	**25**	**70.95%**
B/ Gumuz	3	75.00%	4	100.00%	0	0.00%	4	100.00%	0	0.00%
Gambella	2	66.70%	3	100.00%	2	66.70%	3	100.00%	0	0.00%
Somali	3	100.00%	2	66.70%	3	100.00%	2	66.70%	0	0.00%
Afar	3	75.00%	2	50.00%	1	33.30%	1	25.00%	0	0.00%
HDR regions	**11**	**79.18%**	**11**	**79.18%**	**6**	**50.00%**	**10**	**72.93%**	**0**	**0.0%**

3.5.7 Health Facilities that Provide Post Gender-based Violence (GBV) Services

Health facilities were assessed for the availability of services for gender-based violence (GBV) including GBV screening, treatment services and referral for legal, psychosocial services, etc. The study shows that among health facilities located in intervention areas, 69% and 45% in the Transform: PHC and HDR regions, respectively, reported providing post gender-based violence services for survivors. Table 3.5.7.1. disaggregates the data by region and service type.

Table 3.5.7.1. % of Health Facilities with Trained Staff and Type of Post GBV Services (Reported)

Note: n value of each region refers to the number of health facilities observed for data collection from the selected intervention areas. Readers should be cautious in the interpretation of the findings as the samples are not meant to be a true representative of the regions, but rather to provide additional insight.

Region	Health facilities with staff trained on GBV services		Health facilities providing post GBV services		Type of GBV services					
					GBV screening		Provide Treatment		Referral for legal, psychosocial etc. services	
	N	%	N	%	N	%	N	%	N	%
Tigray	2	50.0%	7	70.0%	4	57.1%	4	57.1%	6	85.7%
Amhara	3	42.9%	9	56.3%	4	44.4%	5	55.6%	8	88.9%
Oromia	4	66.7%	21	100.0%	6	28.6%	18	85.7%	20	95.2%
SNNP	0	0.0%	10	47.6%	8	80.0%	8	80.0%	7	70.0%
PHC regions	**9**	**45%**	**47**	**68.5%**	**22**	**52.5%**	**35**	**69.6%**	**41**	**85.0%**
B/Gumuz	2	66.7%	4	57.1%	3	60.0%	4	80.0%	4	80.0%
Gambella	2	100%	2	33.3%	1	50.0%	1	50.0%	2	100.0%
Somali	2	100%	3	60.0%	2	66.7%	2	66.7%	3	100.0%
Afar	2	40%	2	28.6%	1	33.3%	1	33.3%	1	33.3%
HDR regions	**8**	**66.7%**	**11**	**44.8%**	**7**	**52.5%**	**8**	**57.5%**	**10**	**78.3%**

3.5.8 Barriers to Quality Public Health Services

Although a majority of FGD discussants reported improvement in health service quality in general, and reproductive health services in particular, they also noted a number of barriers that potentially prevent a substantial number of people from getting quality health services. Study participants mentioned numerous problems; the most commonly mentioned factors include:

- Maltreatment by health workers. Some health facility staff lack the empathy, compassion and hospitality toward service users during health visits
- Shortage/unavailability of essential drugs at health facilities
- Shortage of medical equipment (beds/couches for emergency, delivery, laboratory items, etc.)
- Perceived health workers' lack of skills

Figure 3.5.8.1. provides a visual depiction of the relative mentions of various barriers to quality service by region summarized from the focus group discussions. Lack of health care worker empathy and a perceived shortage of available drugs seem to be particularly important problems in Amhara and Oromia in particular.

Note: The length of the bars indicates the frequency of each barrier mentioned in each FGD and not the proportion of respondents.

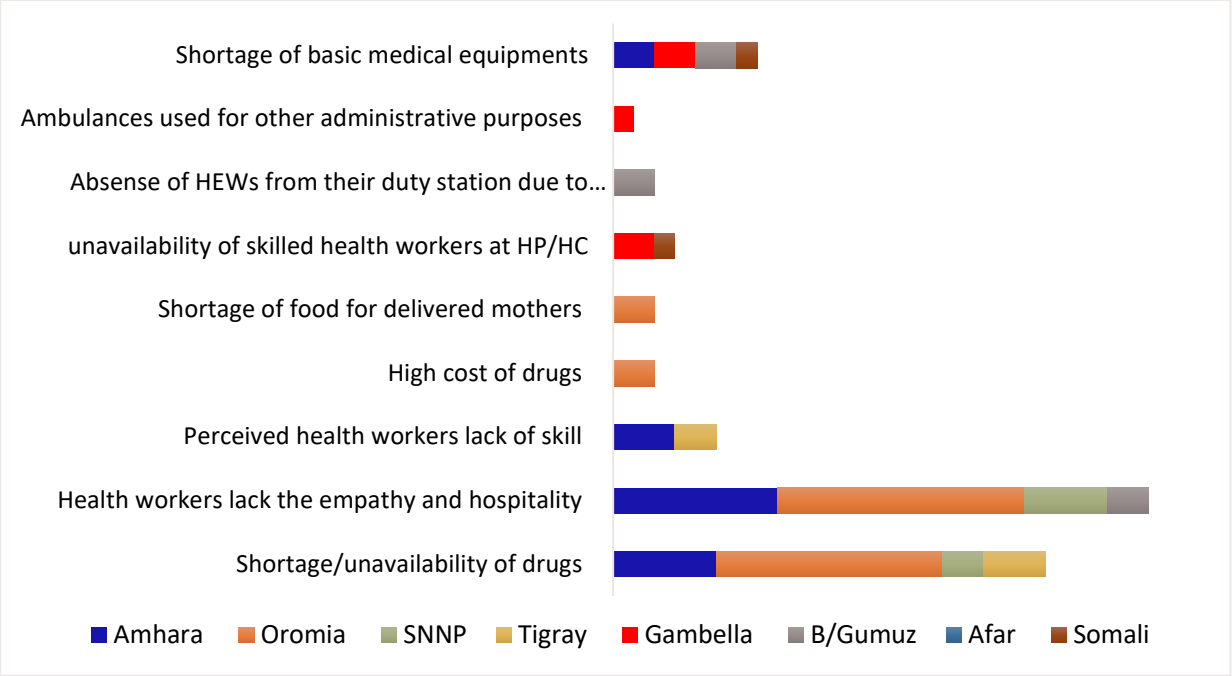


Figure 3.5.8.1. Factors Hindering Quality Public Health Services

Program Implications:

The health facility survey highlights a number of patterns that might influence programming decisions as the Transform projects get underway and evolve to meet local needs. The research team notes three such patterns here:

- Regional specific communication strategies are required given the different needs and barriers across regions.
- Identification of health system weaknesses and additional capacity strengthening for HEWs and health providers are needed.
- A robust monitoring system to track availability of resources, acquired skills, and implementation of program activities should be established.

3.6 WATER, SANITATION AND HYGIENE (WASH)

WASH has a major impact in protecting and improving the health of households in Ethiopia, especially against disease outbreaks. The EDHS 2016 states that increasing household access to safe drinking water and sanitation facilities is a long-standing development goal that Ethiopia and other countries have adopted.

In the Transform baseline survey, the WASH activity objectives associated with improved sanitation facilities, handwashing stations with soap and water, use of water treatment technology and basic drinking water sources were used as key indicators to measure the current status of water, sanitation, and hygiene in the Transform study area. The WASH indicators were assessed in the baseline survey in all the eight Transform program regions.

3.6.1 Households with Access to Basic Drinking Water Source

The World Health Organization and United Nations Children's Fund (UNICEF) Joint Monitoring Program for Water Supply, Sanitation and Hygiene (JMP) in 2017 redefined as a "basic drinking water source" the drinking water coming from what had been considered an "improved" source[7]. These sources include piped water into dwelling, yard or plot, public tap or standpipe, tube-well or borehole, protected dug well, protected spring and rainwater collection. Unimproved drinking-water sources include unprotected dug wells, unprotected springs, carts with small tank or drums provided by water vendor, tanker truck provision of water, surface water (river, dam, lake, pond, stream, canal, irrigation channel) and bottled water.[8] In this baseline survey, the Joint Monitoring Program definition has been applied in order to calculate the share of households with a basic drinking water source.

The baseline survey shows that in the intervention areas, 76.8% of households surveyed have access to a basic water source; this compares to 85.0% of HH in the comparison areas (p=0.000). The result is comparable to, but somewhat higher than, the EDHS 2016 findings of 64.8% (overall/national).

The main sources of basic (improved) drinking water in the intervention areas are Public Taps/Standpipes (accounting for 29.9% of the 76.8%) and Boreholes (accounting for 21.1% of the 76.8%). This percentage does not vary significantly across regions; however, the percentage with access to basic water sources drops in Afar (47.5%) and Somali (67.3%).

The EDHS 2016 does not provide regional level figures for "basic sanitation" and "basic drinking water sources", however running the percent of HHs with access to basic drinking water source using the EDHS unweighted regional data (ETHHR70FL.SAV) provides the following: Tigray 75.8%, Afar 48.6%, Amhara 61.0%, Oromia 62.4%, Somali 43.2%, Benishangul Gumuz 78.8%,

[7] WHO/UNICEF JMP, Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines https://washdata.org/reports

[8] According to WHO/UNICEF JMP bottled water is considered to be improved only if the secondary source used by the household for cooking and personal hygiene is improved.

SNNP 59.1%, Gambella 80.5%, which are comparable findings to those of the Transform program baseline survey.

Table 3.6.1.1. below provides more detail about access to basic drinking water sources in the Transform program intervention areas.

Table 3.6.1.1. Percent of Households with access to a Basic Drinking Water Source

Region and Water Source Type	Intervention (n = 5,311)	Comparison (n = 1,283)
TOTAL (% of HHs with access to basic drinking water sources[1])	**76.8%**	**85.0%**
BASIC WATER SOURCE TYPE		
Piped into Dwelling	0.1%	-
Piped into Yard	3.3%	16.2%
Piped into Neighbor	2.9%	2.1%
Public Tap / Standpipe	29.9%	33.1%
Borehole	21.1%	14.7%
Protected Well	9.2%	6.2%
Protected Spring	9.9%	12.7%
Rain Water	0.3%	0.1%
REGION (within region) [2]		
Oromia	78.2%	82.1%
Amhara	77.5%	92.2%
SNNP	73.8%	83.3%
Tigray	85.1%	98.9%
Afar	47.5%	79.6%
Somali	67.3%	45.3%
Gambella	93.0%	90.2%
Benishangul Gumuz	91.9%	100.0%

[1] Basic water source includes Piped into Dwelling, Piped into Yard, Piped into Neighbor, Public Tap / Standpipe, Borehole, Protected Well, Protected Spring, and Rain Water.

[2] % of HH with basic water sources by region is calculated over the total HHs surveyed in the specific region; for intervention areas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNP, 717 Tigray, 608 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison areas are, 179 Oromia, 179 Amhara, 180 SNNP, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul-Gumuz

Diseases related to poor water quality or lack of access to clean water can negatively impact health and can cause deaths in children under five years of age. This baseline survey calculated the share of households with children under five years of age that use unimproved water sources as their main drinking water source. In the intervention areas, although a promising proportion of HHs with children under five are using basic water sources, it appears that slightly higher proportions of households *with* children under five (12.6% of the HHs surveyed) use unimproved water sources compared to the 10.6% of HHs *with no* children under five years of age that use unimproved water sources. See Table 3.6.1.2. for details.

Table 3.6.1.2.: Share of Households With/Without Children Under 5 Using Unimproved Drinking Water Sources

		Water Source	
		Unimproved [1]	Basic [2]
Comparison (n = 1,281)	HHs with no Child/Children U5	6.8%	42.6%
	HHs with Child/Children U5	8.1%	42.5%
Intervention (n = 5,304)	HHs with no Child/Children U5	10.6%	34.3%
	HHs with Child/Children U5	**12.6%**	**42.5%**

[1] Unimproved water source includes unprotected well, unprotected spring, tanker truck, cart with small tank, surface water (river, lake, pond, stream or dam) and bottled water

[2] **Basic (**Improved) water source includes Piped into Dwelling, Piped into Yard, Piped into Neighbor, Public Tap / Standpipe, Borehole, Protected Well, Protected Spring, and Rain Water

3.6.2 Households Using Appropriate Drinking Water Treatment Methods

Household water treatment and safe storage can serve as an effective means to remove pathogens and reduce diarrheal diseases associated with ingested water, even when drinking water is collected from an unimproved or unsafe source.[9] According to EDHS 2016, more than 9 in 10 households (91%) do not treat their drinking water; this is more common in rural than in urban areas (92% versus 88%).

In this baseline survey, of the total households surveyed in the intervention areas, only 11.5% apply appropriate household water treatment methods [10] to treat the water or make the water safer. The most commonly used methods of water treatment are adding bleach or chlorine or other water treatment chemicals and boiling. See Table 3.6.2.1 for additional details.

[9] United Nations Children's Fund (UNICEF) and World Health Organization. Drinking Water: Equity, Safety and Sustainability; pp 41-44. 2011

[10] "Appropriate" household water treatment methods include boiling, filtration, adding chlorine or bleach, and solar disinfection. Straining water through a cloth or letting it stand and settle are not considered appropriate methods.

Table 3.6.2.1. Percent Distribution of Households Using Appropriate Household Water Treatment Method

Region and method	Intervention areas (n = 5,312)	Comparison areas (n = 1,283)
TOTAL		
% households using appropriate household water treatment method	**11.5%**	**10.4%**
REGION (within region) [1]		
Oromia	5.0%	1.7%
Amhara	6.9%	6.1%
SNNPR	9.5%	16.7%
Tigray	20.2%	5.0%
Afar	16.1%	18.3%
Somali	22.3%	25.8%
Gambella	6.5%	3.9%
Benishangul-Gumuz	5.5%	11.3%
APPROPRIATE HOUSEHOLD WATER TREATMENT METHOD [2]		
Boil	1.5%	2.2%
Bleach/Chlorine/Water Guard/Pur	10.4%	9.3%
Filter: Bio Sand/ Composite/ Ceramic Pot Filter	0.0%	0.0%
Solar Disinfection	0.02%	0.0%

1 % of HH with water treatment practices by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HH surveyed are 735 Oromia, 722 Amhara, 698 SNNPR, 717 Tigray, 608 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNP, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

2 Appropriate" household water treatment methods include boiling, filtration, adding chlorine or bleach, and solar disinfection Respondents may report multiple treatment methods

3.6.3 Households with Access to Basic Sanitation Facilities

The Joint Monitoring Program for Water Supply, Sanitation and Hygiene (JMP) defined a new term: "basic sanitation service". This is defined as the use of what had been considered "improved" sanitation facilities that are not shared with other households[11]. The JMP standards identify improved sanitation facilities as those with flush or pour-flush toilets connected to a piped sewer system, flush or pour-flush toilets connected to a septic tank, flush or pour-flush toilets connected to pit-latrines, pit latrines with slab, ventilated improved pit latrines and composting toilets. The survey also included pit latrines with slab and closing lid and pit latrines with self-closing/sealing as improved for the purposes of the Transform: WASH intervention.

[11] A lower level of service is now called "limited sanitation service" which refers to use of improved sanitation facilities that are shared between two or more households. A higher level of service is called "safely managed sanitation". This is basic sanitation service where excreta are safely disposed of in situ or transported and treated offsite.

This Transform program baseline survey uses the JMP definition of basic sanitation when calculating the base value for the indicator "percentage of households with basic sanitation facilities".

Approximately 10% of households in the intervention areas and 15% in the comparison areas reported having access to basic sanitation facilities (p=0.000). In other words, approximately 11% of the overall sample uses either a flush to septic tank, flush to pit latrine, ventilated improved pit latrine (VIP), pit latrine with slab, pit latrine with slab and closing lid, pit latrine with self-closing/sealing and/or composting toilet, and also does not share the facility with another household. See Table 3.6.3.1. for details.

Table 3.6.3.1. Percent Distribution of Households with Access to Basic Sanitation Facility

Region and facility type	Intervention (n = 5,310)	Comparison (n = 1,283)
TOTAL		
% of HHs with access to basic sanitation facility[1]	**9.8%**	**15.0%**
IMPROVED SANITATION FACILITY		
Flush to piped sewer system	0.0%	0.0%
Flush to septic tank	0.1%	1.3%
Flush to pit latrine	3.8%	4.4%
Ventilated Improved Pit Latrine (VIP)	1.0%	2.1%
Pit latrine with slab	4.2%	4.7%
Pit latrine with slab and closing lid	0.3%	1.3%
Pit latrine with self-closing/sealing	0.0%	0.2%
Composting toilet	0.3%	1.0%
REGION (within region) [2]		
Oromia	3.3%	2.8%
Amhara	6.2%	12.8%
SNNP	6.3%	7.8%
Tigray	7.9%	28.2%
Afar	16.3%	19.7%
Somali	31.5%	31.3%
Gambella	2.3%	7.8%
Benishangul-Gumuz	5.9%	14.2%

[1] Basic Sanitation facility includes flush to septic tank, flush to pit latrine, ventilated improved pit latrine (VIP), pit latrine with slab, pit latrine with slab and closing lid, pit latrine with self-closing/sealing and/or composting toilet but not shared

[2] % of HH with improved sanitation facility by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HHs surveyed are 735 Oromia, 721 Amhara, 698 SNNP, 717 Tigray, 607 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNPR, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

As Table 3.6.3.1 indicates, access to basic sanitation facilities in Somali (31.5%) and Afar regions (16%) in both the intervention areas and comparison areas is relatively high compared to other regions. A plausible reason why the rates of basic sanitation facilities are higher in those two regions is that the wider practice of Islam in these regions, coupled with other cultural norms and the effects of pre-existing sanitation programs in those regions, may have an effect.

Generally, conventional wisdom suggests that WASH and other development statistics in Somali and Afar are always low. However, these statistical trends have been validated with other studies. Studies like the DHS 2016 and Performance Monitoring and Accountability (PMA) 2020, when

disaggregated by region, reveal the contrary and demonstrate similar trends with the Transform baseline survey. The Somali region presents the highest figure (10.7% with access to basic sanitation facility and 16.1% with access to basic sanitation facilities but shared) among the eight Transform regions (Tigray 8.0%, Afar 3.3%, Amhara 1.6%, Oromia 5.9%, Benishangul Gumuz 1.9%, SNNP 8.4%, Gambella 6.4% for access to basic sanitation facility) as evidenced by the EDHS 2016.

PMA 2020 also presents higher figures for access to basic sanitation: Somali 17.3%, Tigray 15.8%, Afar 4.0%, Amhara 4.6%, Oromia 4.6%. Benishangul Gumuz 0.3%, SNNP 8.8% and Gambella 4.5%.

Factors Associated with Availability of Improved Sanitation Facilities

The evaluation team explored the relationship between various socio-economic and demographic factors of women (and households of the women) and the availability of improved sanitation facilities in bivariate analyses. Age of the women, their religion, education level and geographical region (place/area of residence) are significantly associated with availability of improved sanitation facility. However, household economic standing (measured through the wealth index) is not associated with availability of improved sanitation facilities.

The multiple logistic regression analysis (see Annex 2 for further details) revealed that:

- Women who have some formal education are more likely to have improved sanitation facilities in the household. Women who have primary level education are 1.6 times more likely to have improved sanitation facilities in the household (AOR=1.55, 95%CI: 1.22-1.97) and women who have secondary level education are 2.6 times more likely to have improved sanitation facilities in the household (AOR=2.55, 95%CI: 1.76 -3.68), compared to those with no formal education.

- Households with women in the age range 30-34 (AOR=1.59, 95%CI: 1.11-2.27) and in the age range 35-39 (AOR=2.38, 95%CI: 1.65-3.44) are more likely to have improved sanitation facilities.

- There is significant variation by geographic region (women's place/area of residence) regarding availability of improved sanitation facilities; households of women in predominantly pastoralist regions (Afar and Somali) are more likely to have improved sanitation facilities as compared to other regions; for Afar AOR=4.37, 95%CI: 2.58-7.4 and for Somali AOR=7.27, 95%CI: 4.31-12.24.

3.6.4 Households that Have Handwashing Facility with Both Soap and Water at Hand Washing Station

Handwashing at key times, the presence of a dedicated handwashing station, and household ownership of a pit latrine or pour flush toilet all help to protect against the outbreak of diseases. One key measure is whether households have a handwashing station in a location where family members regularly go to wash their hands, replete with soap and water.

In this baseline survey, the presence of a handwashing station in the household with the presence of water and soap was observed during the household interview/visit. Upon observing the presence of a handwashing station, the enumerators then determined whether soap and water were present. The soap may be in bar, powder, or liquid form. Locally available cleansing agents, such as ash or mud, could also be used as a substitute for soap. The indicator measures the share of HH in the intervention and comparison areas that have an observed handwashing station with soap and water.

Of the total households visited in the intervention areas, the enumerator's observation confirmed that only 0.8% of HH have the handwashing station with soap and water; this compares to 1.9% in the comparison woredas (p=0.000). Table 3.6.4.1. below provides additional information by region.

Table 3.6.4.1. Percent Distribution of Households That Have Handwashing Stations with Both Soap and Water Observed at the Handwashing Station

Region	Intervention areas (n = 5,310)	Comparison areas (n = 1,283)
% Households that have handwashing station with both soap and water at handwashing station	0.8	1.9%
Within regions[1]		
Oromia	1.0%	0.0%
Amhara	0.6%	0.6%
SNNP	1.3%	1.1%
Tigray	0.3%	6.1%
Afar	0.2%	4.2%
Somali	1.5%	0.0%
Gambella	0.2%	2.6%
Benishangul Gumuz	1.7%	2.1%

[1] n: for intervention areas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNP, 717 Tigray, 607 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, n: for comparison areas are, 179 Oromia, 179 Amhara, 180 SNNP, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

The low percentage of HH with water and soap at their handwashing stations does not vary significantly by region. However, the percentages for the intervention woredas of Tigray, Afar and Gambella are low compared to the other regions.

3.6.5 Access to Financial Loans for Purchase of Sanitation and Hygiene Products

Another important indicator measures the extent to which women in the surveyed areas are able to procure financial loans for the purchase of sanitation and hygiene products. Specifically, households were asked if they benefited from getting financial loans for the purchase of basic sanitation products such as toilet material and/or hygiene material.

The baseline results show that only about 1.1% of the households in the Transform intervention woredas have received financial loans for the purchase of sanitation and hygiene products. This compares to 1.7% of households in the comparison woredas (p=0.092).

Looking at the receipt of loans by region, households in the Tigray, Afar and Somali regions seem to have better access to financial loans for the purchase of sanitation and hygiene products. Table 3.6.5.1 below provides information on the receipt of such financial loans by region.

Table 3.6.5.1. Share of HH with Access to Financial Loan for the Purchase of Sanitation and Hygiene Products

Region	Intervention (n = 5,310)	Comparison (n = 1,283)
TOTAL		
% HHs that have received financial loan for the purchase of sanitation and hygiene products	**1.1%**	**1.7%**
REGION (within region) [1]		
Oromia	0.3%	0.0%
Amhara	0.3%	1.1%
SNNP	0.0%	1.1%
Tigray	5.6%	5.6%
Afar	0.3%	0.7%
Somali	1.2%	1.6%
Gambella	0.2%	2.7%
Benishangul Gumuz	0.5%	0.0%
FINANCIAL INSTITUTION		
Bank	0.0%	0.2%
Microfinance	0.8%	0.9%
Other (mainly Kebele and NGO)	0.3%	0.6%

[1] % of HH that received financial loan for the purchase of sanitation and hygiene products by region is calculated over the total HHs surveyed in the specific region; for intervention areas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNP, 717 Tigray, 607 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly the number of HHs surveyed in comparison areas are, 179 Oromia, 179 Amhara, 180 SNNP, 181Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

3.6.6 WASH Team Institutional Self-assessment and Formulation of Action Plans

The Key Informant Interviews (KIIs) represented an opportunity to explore in-depth some of the factors related to WASH outcomes in those woredas slated to receive the WASH activities. WASH stakeholders provided numerous useful insights and shed light on the current state of WASH programs at the outset of the Transform suite of activities.

One area of focus in the KIIs was the preparedness of woredas to implement the WASH activities. In this regard, the evaluation team examined whether or not the woredas under study have conducted annual institutional assessments related to WASH, whether they have established a WASH annual action plan, and whether they have as yet received any financial support from the Transform: WASH program.

Table 3.6.6.1. shows the results of this examination for the eight woredas in which WASH-related KIIs took place. The results indicate that just two of the eight have conducted an institutional self-

assessment for WASH so far (one of them scoring 54% and the other 16%), and the same two out of eight have established an annual action plan. Half of the eight woredas have received support from the Transform program at this early point in the program.

Table 3.6.6.1. Results of the WASH KII Examination

WASH system level indicators at Baseline

Region	Zone	Woreda	Conducted annual WASH institutional self assessment	Woreda with Annual WASH Action plan	Received any support from Transform WASH
Amhara	W/Gojam	Dessa Enese	No	No	No
Oromia	West Arsi	wondo	No	No	No
Oromia	Horo Gudro	Jima Genete	No	No	No
SNNP	Wolyita	Boloso bombe	**Yes (scored 54%)**	**Yes**	**Yes**
SNNP	Wolyita	Humbo	No	No	**Yes**
SNNP	Sidama	Malga	No	No	**Yes**
SNNP	Hadya	Soro	**Yes (scored 16%)**	**Yes**	**Yes**
B/Gumuz	Metekel	Dibate	No	No	No

In the course of those in-depth interviews, stakeholders noted a number of reasons for the absence to this point of the self-assessment and the action plan:

- No clear understanding of how to begin.
- Absence of functional WASH committee.
- Inadequate budget to get started.

These insights suggest some key programming opportunities that might shape the direction of the Transform interventions. These opportunities as well as others relevant to the WASH activities are in the Program Implications below.

Program Implications:

- The promotion of locally feasible and sustainable soap-and-water handwashing stations can have a big impact.
- Organization of WASH committees and tasks can begin immediately.
- Sanitation information must confront cultural conditions.

3.7 GENDER AND WOMEN'S EMPOWERMENT

The baseline survey measured a number of factors related to women's participation in decisions, male engagement in the birth process, and gender-based violence (GBV). The information will be used to guide Transform activities aimed at addressing the constraints that limit women's full engagement in decision making for improved health status of themselves and their children.

In this baseline survey, women who are married or cohabiting with a partner at the time of the survey were asked about their participation in decisions regarding sanitation and their own health care, about the use of self-earned cash, about household purchases, and about their attitudes regarding GBV.

3.7.1 Women Who Participate in Decisions Regarding Their Own Health Care

The baseline survey explored women's empowerment in relation to decision making over their own health care. This indicator measures the share of women of reproductive age (15-49), who are either married or cohabiting with a partner at the time of the baseline survey, who indicated that they participate in the decision making regarding their own health care. Participation in decision making includes both those women who say that they make those decisions by themselves and those who report making decisions jointly with their spouses/partners. Overall, 83.3% of women in the intervention areas reported they participated in decisions regarding their own health care, compared to 82.3% in the comparison areas (p=0.435). Figure 3.7.1.1. breaks down the findings for the intervention area by region.

The results of the Transform baseline survey are closely in keeping with the rate of female decision making reported in the 2016 EDHS. According to 2016 EDHS, 71% of currently married women participate in three specified household decisions (own health care, household purchases, and visits to their family), while 10% are not involved in any of these decisions. Furthermore, EDHS states that married women reported they are involved either alone (11-18%) or jointly (66-68%) in these decisions.

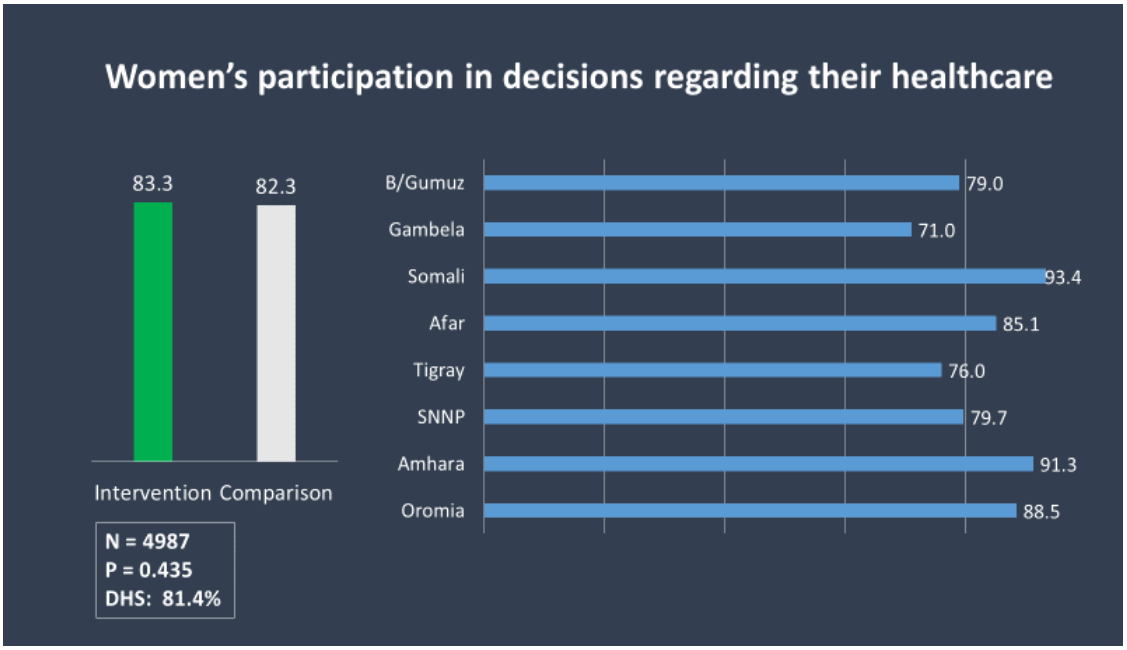


Figure 3.7.1.1. Share of Women Who Make Decisions Regarding Their Own Health Care

In further disaggregating the responses, more than half (52.8%) reported they make decisions on their health care jointly with their spouse or partner. An additional 30% indicated they make those decisions on their own (see Figure3.7.1.2. for additional details).

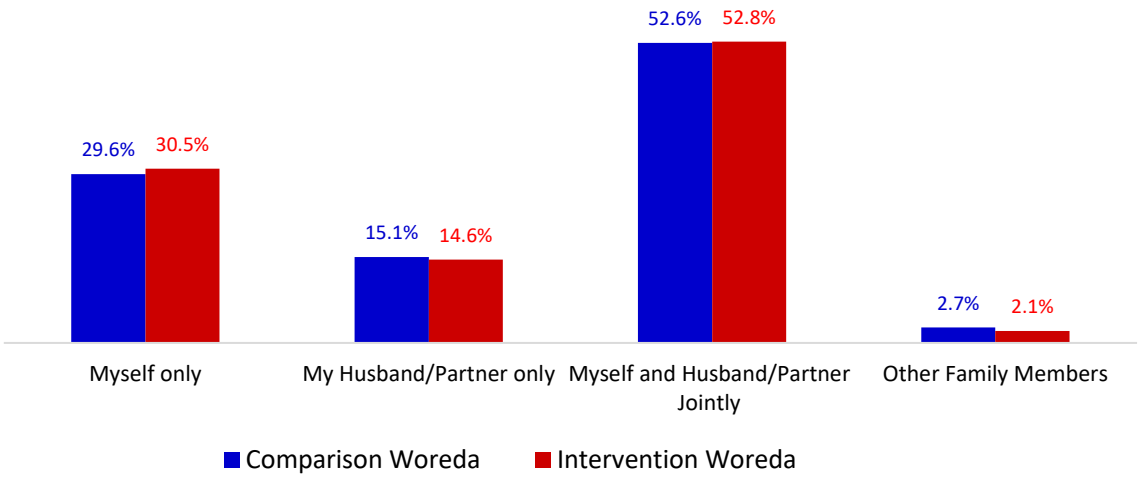


Figure 3.7.1.2. Share of Women Making Decisions on Their Own Health Care

3.7.2 Women's Participation in Decisions Regarding Purchasing Sanitation and Hygiene Products

The baseline survey also explores the extent to which women participate in household decisions regarding the procurement of sanitation and hygiene products. The findings for this indicator show that, of the currently married or cohabiting respondents in the survey, 87.3% of those in the intervention areas and 88.9% of those in the comparison areas (p=0.181) make decisions regarding the purchase of sanitation and hygiene products, either individually or jointly with their partners.

Figure 3.7.2.1. further breaks down the results in the intervention zone; the results indicate that approximately half of all women surveyed are solely responsible for HH decisions regarding sanitation.

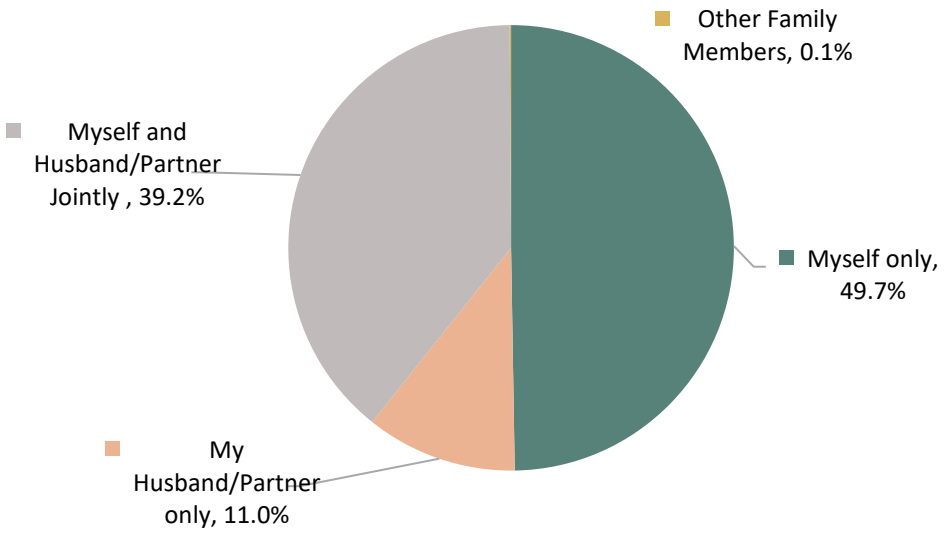


Figure 3.7.2.1. Share of Women Making Decisions on Household Purchase of Sanitation and Hygiene Products, Transform Intervention Woredas

As Table 3.7.2.1. below indicates, the participation of women in making decisions (either alone or jointly with their husband/partner) regarding the purchase of household sanitation products does not vary by household wealth status; it does vary, however, by the age of the women. Specifically, those in the age ranges 25-29 and 30-34 are more likely to participate in decisions relating to the purchase of household sanitation and hygiene products compared to women who are younger than 25 years of age or older than 35 years of age.

Table 3.7.2.1. Proportion of Women Who Participate in Making Decisions on Purchase of Sanitation Products

Region	Intervention (n = 4,042)	Comparison (n = 957)
TOTAL		
% women age 15-49 (married or cohabited or living with partners) who usually make decisions on purchase of sanitation and hygiene products either alone or jointly with their husband/partner	**87.3%**	**88.9%**
REGION (within region) [1]		
Oromia	93.8%	97.0%
Amhara	95.5%	96.5%
SNNP	83.7%	86.1%
Tigray	86.8%	89.6%
Afar	75.4%	76.7%
Somali	95.2%	98.9%
Gambella	76.0%	83.2%
Benishangul Gumuz	89.9%	83.5%

[1] % women age 15-49 (married or cohabited or living with partners) who usually make decisions on purchase of sanitation and hygiene products either alone or jointly with their husband/partner by region is calculated over the total HHs/women surveyed in the specific region; for intervention area total number of HH surveyed are 569 Oromia, 553 Amhara, 557 SNNP, 463 Tigray, 516 Afar, 456 Somali, 433 Gambella, and 495 Benishangul-Gumuz; similarly the number of HHs/women surveyed in comparison areas are, 134 Oromia, 142 Amhara, 137 SNNP, 96 Tigray, 116 Afar, 92 Somali, 113 Gambella, and 127 Benishangul-Gumuz

3.7.3 Women Who Were Accompanied by Their Husband to At Least One ANC Visit

Male engagement in the birth process was assessed by the share of husbands accompanying their wives on at least one Antenatal Care (ANC) visit. In the baseline survey among women of reproductive age (15-49), they were asked if their husbands had ever accompanied them to the health facility when they went for an ANC visit. Overall, slightly more than half of the women in the intervention area (51.5%) confirmed that their husbands accompanied them at least once to the health facility for an ANC visit. This compares to 54.7% in the comparison areas (p=0.195). The percentage in the intervention areas was highest in Amhara (68.5%) and Oromia (63.4%) and was lowest in Somali region (13.5%). See Figure 3.7.3.1. for additional details by region.

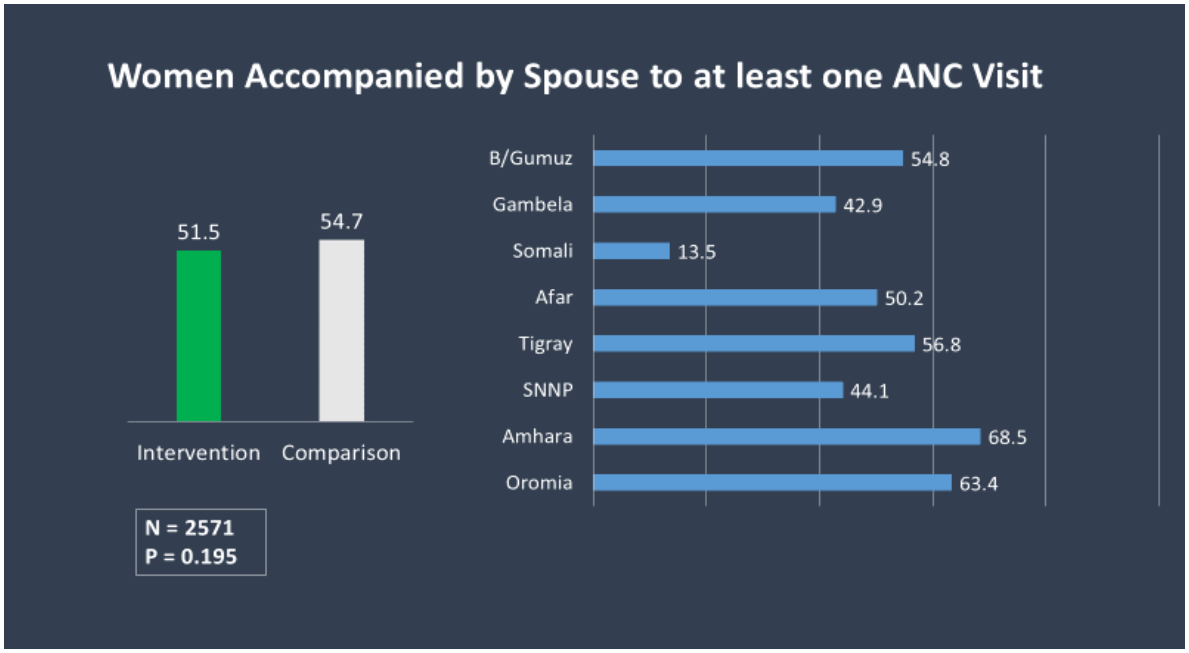


Figure 3.7.3.1. Share of Women Accompanied by Spouse to at least One ANC Visit

3.7.4 Women Whose Partner Was Present During Child Birth at Health Facility

Males' engagement was also assessed through their presence at the health facility when their wives delivered. Overall, close to three-quarters of male partners accompanied their spouse to the health facility for the birth of their child (71.0% in the intervention areas, 74.9% in the comparison areas; p=0.062).

The rate of male engagement in child births was highest in Oromia (90.4%) and Amhara (79.5%) and was lowest in Somali and Gambella (53.5% and 51%, respectively). See Table 3.7.4.1. for additional details by region.

Table 3.7.4.1. Share of Women Accompanied by Their Husband During the Birth of Their Last Child

egion	Intervention (n = 2,346)	Comparison (n = 577)
TOTAL		
% women accompanied by their husband during the birth of their last child	**71.0%**	**74.9%**
REGION (within region) [1]		
Oromia	90.4%	92.1%
Amhara	79.5%	94.2%
SNNP	76.1%	82.6%
Tigray	71.8%	68.8%
Afar	70.7%	64.6%
Somali	53.5%	44.6%
Gambella	51.0%	47.5%
Benishangul-Gumuz	76.6%	89.4%

[1] % women who have ever been accompanied by their husband during the birth of their last child by region is calculated over the total HHs/women surveyed in the specific region; for intervention areas total number of HH/women surveyed are 218 Oromia, 283 Amhara, 356 SNNP, 351 Tigray, 352 Afar, 297 Somali, 245 Gambella, and 244 Benishangul-Gumuz; similarly the number of HHs/women surveyed in comparison areas are, 76 Oromia, 69 Amhara, 86 SNNP, 64 Tigray, 82 Afar, 56 Somali, 59 Gambella, and 85 Benishangul-Gumuz.

3.7.5 Gender Inequality Norms

Gender roles, norms and behaviors can have an important influence on how women, men, girls and boys access health services and how health systems respond to their needs. The World Health Organization (WHO, 2010) recognizes that gender is an important determinant of health in two respects: 1) gender inequality leads to health risks for women and girls globally; and 2) addressing gender norms and roles leads to a better understanding of how the social construction of identity and unbalanced power relations between men and women affect the risks, health-seeking behaviors and health outcomes of men and women in different age and social groups.

The identification of appropriate gender-related measures is important for developing and evaluating interventions that aim to promote positive health outcomes by addressing the gender norms that function as barriers to health. Gender has been posited as a gateway factor to behaviors that affect health outcomes and health status. In keeping with that logic, a scale for Gender Equitable Men (GEM) has been designed to provide information about the prevailing gender norms in a community. The scale uses 24 items and 4 subscales that include domestic violence, sexual relationships, reproductive health and disease prevention, and domestic chores and daily life. The GEM scale has been successfully adapted and used in various countries, including Ethiopia, and is also used in middle- and high-income communities. (**Source**: compendium of Gender Scales Guide).

Transform: MELA employed the GEM scale to measure attitudes towards "gender equitable" norms with 24 items. Questions on the GEM scale have three response options: agree, partially agree and do not agree, where agree shows highly inequality norms and do not agree shows low inequality (or highly equitable) norms.

Measurement for the gender inequality norms is reported at three levels: high, moderate, and low. High support for gender inequality norms represents high gender inequality, while low support represents low gender inequality.

Gender Inequality by Region: Intervention Areas Only

Across all regions, 40.2% of women express a high level of gender inequality norms, while about 46.6% express moderate gender inequality. Significant variation exists among regions: high levels of inequality norms are observed in Gambella (54.7%) and Afar (53.2%), and low levels of inequality norms are observed in Oromia (28.6%) and Tigray (31.9%). See Figure 3.7.5.1. for additional details by region.

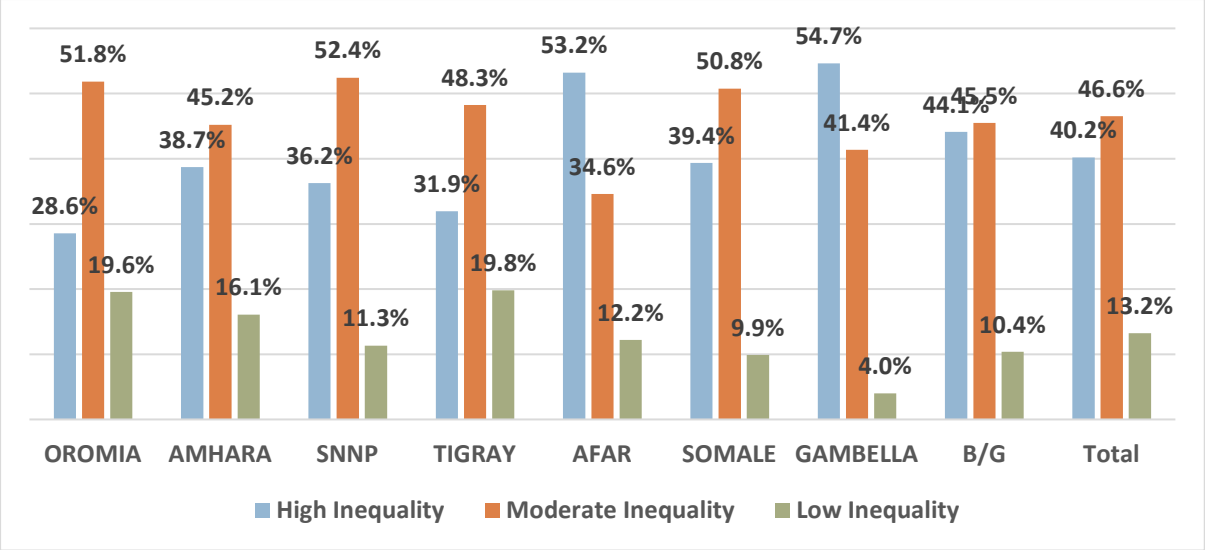


Figure 3.7.5.1. Gender Inequality Norms by Region

The survey further evaluated gender inequality norms based on the background characteristics of surveyed women. High gender inequality norms were observed among currently married women (42.8%) compared to those who are single (21.2%). Similarly, gender inequality norms were assessed among women in the different age groups, revealing that gender inequality norms increase steadily with the age of women. See Figure 3.7.5.2. below, and Table 3.7.5.1. for additional details by socio-demographic features.

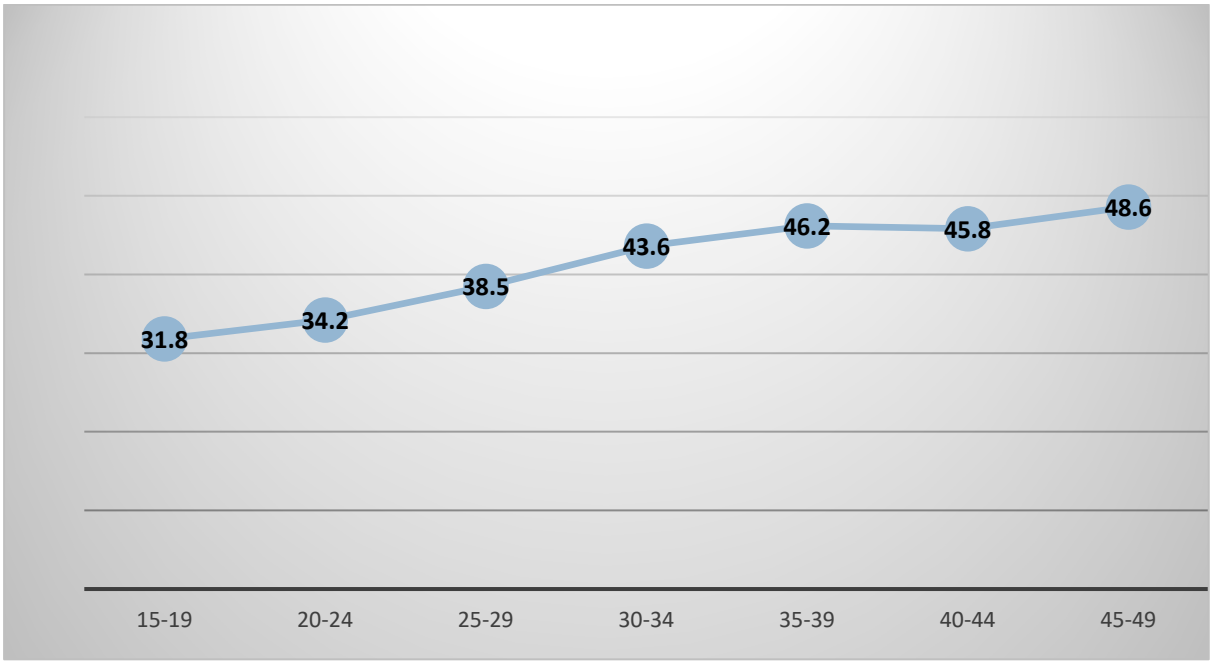


Figure 3.7.5.2. Percent of Women with High Gender Inequality Norms by Age Cohort

Table 3.7.5.1. Gender Inequality Norms by Age and Marital Status of Women

Women's Background Characteristics	Gender Inequality Norm		
	High	Moderate	Low
Marital Status			
Single	21.2%	49.6%	29.2%
Married	42.8%	46.1%	11.1%
Other	42.1%	46.4%	11.5%
Age Group			
15-19	31.8%	48.4%	19.8%
20-24	34.2%	46.6%	19.2%
25-29	38.5%	47.4%	14.2%
30-34	43.6%	46.6%	9.8%
35-39	46.2%	44.2%	9.6%
40-44	45.8%	46.0%	8.2%
45-49	48.6%	45.7%	5.8%
Total	**40.2%**	**46.6%**	**13.2%**

*Other in the marital status includes: Divorced, Separated and Widowed

Factors Associated with Women's Decision Making

Women's empowerment is an important factor for maternal and child health service utilization. Yet, it is a multi-dimensional concept and can be difficult to measure with one indicator. In order to evaluate women's empowerment in a regression framework, the research team used a proxy indicator for empowerment by asking women whether a husband/partner should have the final say in any decision-making process. Women are considered to be empowered if they do not agree with the above statement.

A multiple logistic regression analysis revealed that the age of a woman, her marital status, religion, her education level and the region where the woman resides are independently associated with women's empowerment. Specifically, women who have some formal education are more empowered as compared to those who have no formal education. Similarly, unmarried women are more empowered than women who are married or who live with a partner (see details in Annex 2, factors associated with women's decision making).

3.7.6 Common Forms of Gender Based Violence (GBV)

Complementing the baseline study's indicators on women's empowerment, the FGDs also focused on the common forms of GBV reported to be practiced in the study areas. These common practices include early marriage (except in the Tigray and Somali regions), female genital mutilation (in Somali, Afar, Benishangul Gumuz and SNNP, not reported as much in other regions), and physical violence, which was reported as very common in all of the eight regions.

Note: The length of the bars indicates the frequency of each barrier mentioned in each FGD and not proportion of respondents.

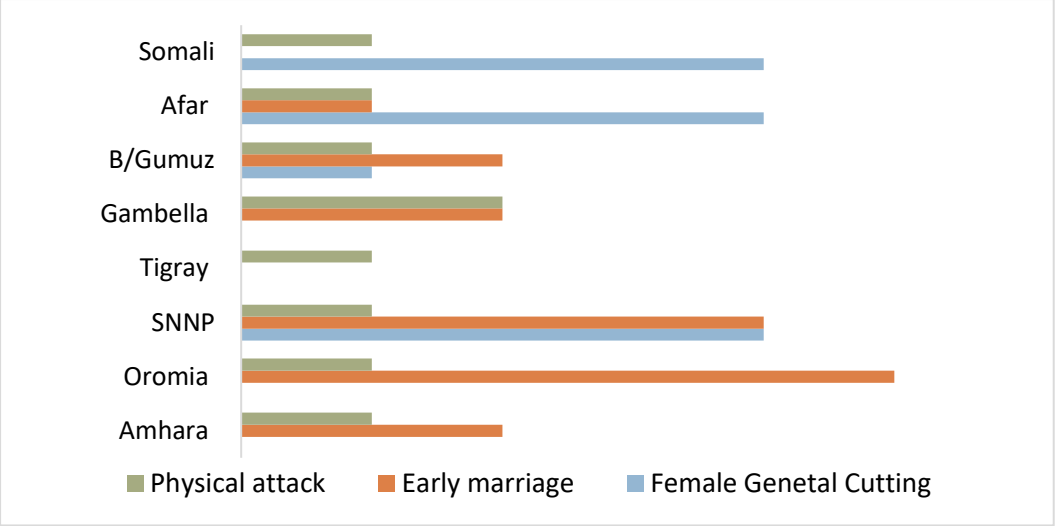


Figure 3.7.6.1. Visual Depiction of the Relative Mentions of Common GBV Issues by Region

Based on the results from the women's empowerment and GBV component of the baseline study, the following are suggested Program Implications for Transform IPs.

Program Implications:

- Integrating couples' communication, respect for women, and activities that promote the role of women in decision-making for themselves and their children's health could result in improved gender outcomes.
- These processes can be modelled into program initiatives that yield positive gender outcomes. Gender norms are crosscutting, and thus could be included in all aspects of every intervention.
- Program initiatives should have elements that encourage male involvement in aspects such as child birth and ANC visits. These could be integrated in the communications, messaging and advocacy components of programming.

4 CONCLUSION

The Transform program baseline survey, which establishes a baseline for evaluating progress in reducing preventable maternal and child deaths in Ethiopia, was successfully achieved. Like all similar surveys, difficulties and constraints were encountered during the data collection process, but the sponsor, the implementing consulting firm and the technical teams were all able to overcome them. Key to overcoming obstacles in the data collection was the constant collaboration between supervisors, team members and the data collection team. Proper field guidance, open communication lines, and regular support from local stakeholders all helped to ensure that a rigorous data collection exercise could succeed.

In particular, regular, in-depth collaboration between the Transform: MELA staff, their partners at PRIN and SuDCA, and local stakeholders, paid great dividends in ensuring minimal delays, trustworthy data, and an environment conducive to careful data collection and analysis.

This report represents an overview of the findings from the Transform program baseline study. The findings suggest a few important patterns to note at the outset of the Transform activities. First, there is little systematic difference between intervention and comparison locations at this stage, though the research team did find some slight advantages in comparison areas, which is a function of the study's design. Our approach is to track outcomes by intervention and comparison areas to establish a foundation for future difference-in-differences. Second, on nearly all indicators, widespread variation exists across regions. This finding may be of particular importance to USAID/Ethiopia, FMOH and IPs, as decisions are made regarding where to concentrate resources over the life of the program.

Regarding the slightly higher average values obtained for some indicators in the comparison areas compared to the intervention areas: this is likely associated with the targeting of low performing intervention woredas in order to improve the health outcomes there; recall that 75% were selected from the low performing woredas. While this introduces some differences at baseline, it should not affect the tracking of changes over time, as the evaluation team will rely on a difference-in-differences approach that will be supplemented with causality tracking methods (such as causal list inference, constant conjunction, coherence, mode of operandi inference, coherence, analogy, etc.).

Finally, taken together, the findings suggest that education and information, cultural factors, and access to services all play critical roles in the behaviors of households related to maternal and child health.

The sampling frame of this survey did not take into account in the list of study areas whether USAID/Ethiopia supported projects prior to the Transform program. Instead, this being a baseline survey, it establishes the "current status" for key indicators in the study regions without isolating the confounding factors, which will be more critical at midline and endline. This baseline survey had its main focus on the household survey and health facility data, along with qualitative information through FGD and Key Informant Interviews as supplementary forms of data. Given the need to know the gaps in service delivery and quality, Transform: MELA suggests conducting a health facility assessment using either secondary or primary data.

5 RECOMMENDATIONS

At this baseline stage of the study, the research team will refrain from making programming recommendations in the classic sense, in so far as the Transform activities are only beginning to launch. Nevertheless, the research team will use the opportunity to underscore some of the important lessons learned from conducting the baseline survey, which will inform our own processes for the midline and endline. Furthermore, the survey team summarizes that some of the programming Implications that arose from the statistical analyses and focus group discussions are priority issues at the outset of the Transform activities. In this way, the Transform implementing partners may take note of the status of beneficiaries now in order to best tailor their activities moving forward.

Transform: MELA will maximize meta-analysis and GIA 2 exercises to further explore and explain possible factors linked to the observed differences between intervention and comparison areas, wherever possible. The knowledge gained from this further exploration could contribute important learning gains for the Transform program.

Lessons Learned from the Baseline Survey:

1) Collaboration and engaging key stakeholders such as USAID/Ethiopia, FMOH, IPs, and local M&E partners played a critical role in shaping the design and supporting execution of the survey.
2) There should be contingency planning to address unforeseen circumstances and challenges.
3) Recruit qualified survey teams from the regions to ensure understanding of the context, address language barriers, and cost efficiency.
4) Contextual understanding, continuous closer monitoring and supervision of the survey ensured quality.
5) Allocate adequate resources for a wider survey.

Summary of Program Implications:

- Cultural leaders (religious, traditional) may have a role to play in influencing couples' efforts to limit or space the number of children they have.

- Male involvement is important; deliberate focus on male engagement will help.
- Education and culturally appropriate messages matter.

- Access to, and awareness of, services is critically important.
- Women's ownership of health care issues can improve birth care and maternal and child health in general.
- Differentials based on education level can potentially be offset through awareness and sensitization programming among the less educated.

- Regional specific communication strategies are required given the different needs and barriers across regions.
- Training of health cadres to be compassionate and respectful, and to provide quality services, would increase service uptake.
- A robust monitoring system to track availability of resources, acquired skills, and implementation of program activities should be established.
- The promotion of locally feasible and sustainable soap-and-water handwashing stations can have a big impact.
- Organization of WASH committees and tasks can begin immediately.
- Sanitation information must confront cultural conditions.
- Integrating couples' communication, respect for women, and activities that promote the role of women in decision-making for themselves and their children's health could result in improved gender outcomes.
- Gender norms are crosscutting, and thus could be included in all aspects of every intervention.

Next Steps

The Transform program is designed to reduce preventable maternal and child deaths in Ethiopia. The baseline survey provides rigorous empirical data that will serve as the foundation for evaluating the effectiveness and impact of the Transform program over time. The baseline survey is also designed to provide baseline values to the Transform implementing partners to set realistic targets and provide information about any potential programming gaps or areas that seem to require urgent focus at the outset. Next steps include supporting target setting at the program and activity levels; working closely with USAID/Ethiopia, FMOH and Transform IPs to monitor realization of the targets; and ensuring ready access to data that can inform programming decisions. We anticipate launching the midline survey of progress in late 2019.

ANNEX

ANNEX 1. Baseline Indicator Values by Region and Project Level

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	Family Planning																
1	Contraceptive Prevalence Rate (CPR) among all women (any method)	26.8	28.2	0.288	6595	35.0	39.2	38.0	33.8	**36.5**	2872	4.3	4.6	17.9	36.8	**15.5**	2440
2	CPR among currently married women (any method)	32.8	34.9	0.197	5058	44.1	48.4	45.8	41.4	**45.0**	2157	5.1	6.4	21.6	42.1	**20.4**	1928
3	Modern CPR among all women	26.4	27.7	0.368	6595	33.3	39.1	37.5	33.6	**35.9**	2872	4.3	4.5	17.9	36.4	**19.1**	2440
4	CPR among currently married women (modern methods)	32.3	34.2	0.253	5058	42.0	48.2	45.2	41.4	**44.3**	2157	5.1	6.2	21.6	41.7	**18.9**	1928
5	CPR for LAFP methods among currently married women	8.3	9.6	0.216	5058	10.5	13.1	11.9	14.8	**12.5**	2157	0.2	0.9	0.8	12.2	**3.6**	1928
6	CPR for LAFP methods among all women	6.9	7.8	0.257	6595	8.3	10.5	10.3	11.9	**10.2**	2872	0.2	0.6	10.7	10.7	**5.6**	2440
7	Unmet Need for Family Planning	26.7	27.4	0.561	6595	33.2	26.2	34.0	31.7	**31.2**	2872	16.6	8.8	26.1	35.6	**21.4**	2440
8	Use of modern contraception after birth (PPFP)	22.9	26.6	0.177	1462	28.2	33.0	41.7	34.4	**34.5**	568	6.4	3.1	9.6	30.5	**12.2**	616
9	Women who heard/saw RH/FP	51.0	56.8	0.000	6595	40.4	50.6	62.3	62.2	**53.7**	2872	41.4	42.9	43.2	66.1	**48.1**	2440

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	message in the last few months																
	Maternal and Newborn Health																
10	Women who had at least one ANC visit for their last birth by skilled health personnel	68.2	74.8	0.030	1462	71.1	92.7	59.0	94.2	**78.7**	568	57.7	44.3	78.9	58.3	**59.7**	616
11	Women who had four or more ANC visits for their last birth	41.0	47.3	0.059	1450	53.4	55.0	59.5	60.4	**57.3**	564	16.5	16.9	23.7	49.7	**26.0**	611
12	Women who had their first ANC visit during the first trimester	27.6	33.8	0.042	1438	31.3	35.8	21.9	35.7	**30.8**	559	15.8	24.6	34.5	30.2	**24.7**	607
13	Women who received essential components of ANC (BP - measured, Urine and Blood sample taken, nutrition counseling, danger sign counseling)	34.1	44.9	0.002	1184	23.9	50.5	28.1	55.9	**39.4**	530	40.7	16.9	21.7	22.7	**27.4**	420
14	Women with birth in the last one year who Received/ Purchased Iron and Folic Acid	47.2	55.1	0.030	1208	53.0	59.0	42.4	71.1	**59.0**	510	43.0	23.1	17.4	49.2	**34.3**	464

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	Supplement During Pregnancy																
15	Women with birth in the last one year who took Iron and Folic Acid supplement for at least 90 days	21.7	26	.304	592	7.0	34.9	21.7	21.3	20.9	302	17.7	5.9	11.8	36.5	23.3	159
16	Skilled Birth Attendance	46.5	55.0	0.100	1462	50.3	59.0	63.2	85.7	**66.4**	568	17.7	21.4	50.9	31.8	**28.1**	616
17	Postnatal Care for the mother (within two days)	35.5	39.9	0.165	1462	28.2	59.6	46.8	64.3	**49.1**	568	10.5	17.6	34.2	37.1	**22.9**	616
18	Postnatal Care for the mother (within seven days)	41.4	46	0.157	1462	34.9	66.1	53.2	68.2	**54.9**	568	10.5	17.6	34.2	37.1	**28.9**	616
19	Early Postnatal Care for the newborn (within two days)	31.8	34.2	0.438	1462	25.5	46.8	42.3	50.0	**40.8**	568	12.3	22.1	36.8	30.5	**23.4**	616
20	Early Postnatal Care for the newborn (within seven days)	33.4	35.3	0.549	1462	27.5	46.8	44.2	50.6	**42.1**	568	13.6	26.7	36.8	32.5	**25.3**	616
21	Newborn received Essential Newborn Care (Vit K, TTC eye ointment, cord care with ointment -	7.0	4.5	0.246	711	0.0	3.8	20.7	1.5	**6.3**	379	0.0	25.0	13.3	0.0	**8.6**	175

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	among births that occur in health facility)																
22	Women who heard/saw MNCH information in the last few months	22.1	25.6	0.008	6485	12.9	26.1	20.1	37.2	**24.0**	2859	18.9	16.6	19.1	24.4	**19.7**	2362
23	Women who received MNCH services through mobile health team	6.6	8.4	0.027	6486	3.7	2.8	5.7	15.1	**6.8**	2859	10.0	5.1	3.8	6.4	**6.4**	2363
24	Women who received family planning counseling after birth	22.9	26.7	0.174	1458	21.5	25.7	39.1	39.0	**31.9**	568	11.8	8.4	11.7	25.8	**14.5**	613
25	Pregnant women who slept under ITN the previous night	57.4	54.4	0.591	515	24.4	46.3	35.7	43.3	**37.9**	195	41.7	66.7	87.0	98.0	**74.6**	228
26	Pregnant women who received any malaria message in the last few months	79.6	73.2	0.141	598	77.6	68.6	69.2	89.6	**77.2**	219	76.7	69.6	95.8	85.0	**81.5**	271
27	Pregnant women who received all malaria messages in the last few months	27.1	24.1	0.513	598	32.7	19.6	17.3	16.4	**21.0**	219	28.3	21.5	45.8	33.3	**32.1**	271

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	Child Health and Immunization and Nutrition																
28	Children 12-23 months who are fully immunized	34.3	47.1	0.003	904	24.1	67.4	29.7	44.2	**41.3**	368	9.9	20.4	30.4	61.4	**27.6**	381
29	Children 12-23 months who received Measles vaccine within first year of birth	32.7	38.1		904	36.1	37.0	33.0	44.2	**37.5**	368	15.4	29.3	34.0	41.6	**28.1**	381
30	Children 12-23 months who received Penta3 vaccine within first year of birth	39.4	49.0		904	37.0	58.4	37.9	57.4	**47.7**	368	8.7	27.1	39.9	65.0	**31.3**	381
31	Newborn (0-2 months) who had sign of infection in the last two weeks	16.2	25.9	0.091	274	12.9	28.6	25.0	19.5	**20.5**	117	4.3	20.0	4.8	14.3	**11.10**	99
32	Newborn (0-2 months) with sign of infection for whom treatment was sought from appropriate healthcare provider (Doctor, Nurse, Midwife, Health officer or HEW)	40.0	26.7	0.368	50					**41.70**	24					**36.40**	11

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
33	Newborn (0-1 month) who had sign of infection in the last two weeks	16.5	26.8	.140	180	16.7	26.7	14.3	14.8	17.6	13	7.1	25.0	6.7	20.8	15.4	10
34	Newborn (0-1 months) with sign of infection for whom treatment was sought from appropriate healthcare provider (Doctor, Nurse, Midwife, Health officer or HEW)	34.8	27.3	.489	34					**30.8**	4					**40**	4
35	Children under 5 who had fever in the past two weeks	12.0	14.2	0.109	4582	10.50	14.90	11.00	10.40	**11.50**	1928	10.40	8.20	22.10	11.10	**12.50**	1826
36	Children under 5 who had fever in the past two weeks for whom advice/treatment was sought within 24 hours of onset of fever	46.9	51.7	0.352	568	45.3	39.4	38.5	42.9	**41.7**	223	41.3	28.9	70.4	56.5	**52.2**	228
37	Children under 5 who had symptoms of ARI in the past two weeks (cough accompanied by	7.1	6.2	0.399	4198	5.9	11.4	4.8	10.2	**7.9**	1755	3.7	4.7	7.8	9.9	**6.3**	1698

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	chest related short rapid breathing and/or difficult breathing that is chest related)																
38	Children under 5 who had symptom of ARI (Pneumonia) in the past two weeks, who are treated with antibiotics	26.1	27.8	0.778	291	34.6	28.6	25.0	50.0	**36.2**	138	16.7	0.0	17.2	25.6	**16.8**	107
39	Children under 5 who had diarrhea in the past two weeks	10.4	13.2	0.023	4584	8.1	9.6	9.5	8.6	**8.9**	1928	10.6	5.1	17.9	16.2	**12.0**	1828
40	Children under 5 with diarrhea treated with ORS and Zinc	28.3	29.4	0.831	501	27.5	18.4	38.0	27.3	**28.4**	176	22.8	33.3	32.9	26.5	**28.2**	220
41	Children under 5 who were given drug for intestinal worms in the last six months	26.5	28.0		4585	24.8	27.2	38.1	28.8	**30.0**	1930	20.1	3.4	24.4	46.8	**22.9**	1827
42	Children under 5 who slept under ITN the previous night	42.8	39.6	0.091	4618	20.1	43.6	24.8	42.9	**32.2**	1942	28.8	35.3	77.3	84.6	**53.9**	1842

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	Child Nutrition (Infant and young child feeding practices)																
43	Women who received education on exclusive breastfeeding	33.5	38.2	0.002	6486	26.3	39.7	31.0	52.7	**37.4**	2859	25.9	21.4	32.1	36.4	**28.8**	2363
44	Early initiation of breastfeeding (within one hour of birth)	66.3	59.9	0.111	908	79.2	78.7	69.2	80.1	**77.6**	393	52.3	35.4	82.6	48.8	**53.5**	325
45	Children 0-5 months who are Exclusive Breastfed	62.8	73.6	0.037	558	59.7	44.7	66.7	61.8	**59.4**	219	74.1	27.7	77.4	75.7	**66.1**	233
46	Children under 5 who received Vitamin A in the last 6 months	39.8	33.5	0.079	2074	37.2	43.5	48.7	48.7	**44.5**	766	37.2	30.8	29.9	46.4	**36.0**	947
	WASH																
47	Households with access to basic sanitation facility	9.8	15.0	0.000	6593	3.3	6.2	6.3	7.9	**5.9**	2871	16.3	31.5	2.3	5.9	**14.4**	2439
48	Households with presence of handwashing station (facility – observed)	3.7	6.3	0.000	6595	2.6	2.5	4.6	2.8	**3.1**	2872	1.5	2.9	1.7	5.9	**3.0**	2440
49	Households that have handwashing facility with both soap and water at handwashing station- from	0.8	1.9	0.000	6595	1.0	0.6	1.3	0.3	**0.8**	2872	0.2	1.5	0.2	1.7	**0.9**	2440

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	total households surveyed																
50	Households that have handwashing facility with water and soap OR water and other cleansing agents like Ash, Mud or Sand at handwashing station	1.1	2.1	0.007	6595	1.0	0.7	2.1	0.4	**1.0**	2872	0.7	1.5	0.2	2.8	**1.3**	2440
51	Households with observed presence of both water and soap (NOT including other cleansing agents) at hand washing station (over the total HH observed for presence of hand washing station)	27.3	30.9	0.416	242	36.8	22.2	28.1	10.0	**24.7**	89	11.1	52.6	10.0	29.4	**30.6**	72
52	Households with access to financial loan for purchase of sanitation and hygiene materials	1.1	1.7	0.092	6576	0.3	0.3	0.0	5.6	**1.6**	2871	0.3	1.2	0.2	0.5	**0.6**	2432
53	Households using appropriate	11.5	10.4	0.000	6595	5.0	6.9	9.5	20.2	**10.4**	2872	16.1	22.3	6.5	5.5	**12.9**	2440

s/n	Indicator	Baseline Values as of December 2017		p-value	Number of observations	Regional values for intervention sites											
		Intervention (%)	Comparison (%)			Oromia	Amhara	SNNP	Tigray	PHC Regions	PHC N	Afar	Somali	Gambella	B/Gumuz	HDR regions	HDR N
	water treatment method																
54	Households with access to basic drinking water source	76.8	85.0	0.000	6594	78.2	77.5	73.8	85.1	**78.7**	2871	47.5	67.3	93.0	91.9	**74.5**	2440
	Gender and Women Empowerment																
55	Women's participation in decisions regarding their own health	83.3	82.3	0.435	4987	88.5	91.3	79.7	76.0	**84.2**	2138	85.1	93.4	71.0	79.0	**82.3**	1895
56	Women's participation in decisions for purchase of sanitation products	87.3	88.9	0.181	4994	93.8	95.5	83.7	86.8	**90.1**	2141	75.4	95.2	76.0	89.9	**84.2**	1896
57	Women accompanied by their spouse during ANC visits for their last birth	51.5	54.7	0.195	2571	63.4	68.5	44.1	56.8	**57.7**	1196	50.2	13.5	42.9	54.8	**43.1**	878
58	Women accompanied by their spouse during child birth	71.0	74.9	0.062	2923	90.4	79.5	76.1	71.8	**78.2**	1208	70.7	53.5	51.0	76.6	**63.3**	1138

ANNEX 2. MULTIVARIATE REGRESSION ANALYSES.

Factors associated with modern family planning use among women

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age in years		
15-19	1	1
20-24	**3.77 (2.98 -4.79)**	**1.18 (.88-1.60)**
25-29	**4.44 (3.53 -5.59)**	**1.15 (0.84-1.57)**
30-34	**3.48 (2.75-4.41)**	**0.93 (0.66-1.30)**
35-39	**3.32 (2.61-4.24)**	**1.02 (0.71 -1.45)**
40-49	**1.57(1.21-2.03)**	**0.51(0.35 -74)**
Marital status		
Never married	1	1
Married/live with partner	**13.88 (9.48 -20.32)**	**8.84(5.58-43.00)**
Divorced/Separated	**5.01 (3.17-7.90)**	**3.18(1.90-5.34)**
Widowed	1.06 (0.51-2.22)	1.44(0.65-3.18)
Religion		
Muslim	1	1
Protestant	**1.93(1.65-2.25)**	0.73 (0.58 -0.93)
Catholic	1.24 (0.65-2.36)	0.61 (0.28-1.31)
Orthodox	**2.77 (2.42 -3.17)**	**1.22 (1.01 -1.49)**
Others	1.01(0.63-1.61)	**0.47 (0.28-0.78)**
Educational status		
No education	1	1
Primary	**1.90 (1.69-2.15)**	**1.41(1.22-1.65)**
Secondary	**1.35(1.12-1.62)**	1.02(0.80 -1.30)
Higher education	**2.13(1.55-2.93)**	**2.11 (1.38-3.23)**
Region		
Tigray	1	1
Oromia	1.11 (0.91 -1.35)	**1.47 (1.14-1.89)**
Amhara	**1.38(1.14-1.68)**	**1.34(1.07-1.67)**
SNNPR	1.26 (1.04-1.54)	**1.54 (1.17-2.03)**
Afar	**0.11 (0.07 -0.15)**	**0.14 (0.09 0.21)**
Somali	**0.09 (0.06 -0.13)**	**0.12 (0.08-0.18)**
Gambella	**0.52 (0.41-0.65)**	**0.68 (0.51-0.92)**
Benishangul Gumuz	**1.39(1.13-1.70)**	1.25(0.97-1.61)
Wealth index		
Very poor	1	1
Poor	0.91 (0.77 -1.09)	1.22 (1.00 -1.48)
Middle	0.85 (0.72-1.01)	1.14 (0.93-1.39)
Rich	**0.79(0.66-0.94)**	1.04(0.85-1.28)
Very rich	0.94(0.79-1.11)	1.09(0.89-1.32)
Number of live births		
0	1	1
1-2	**5.65(4.59-6.95)**	**2.16 (1.64 -2.84)**
3-4	**4.44(3.63-5.49)**	**2.16 (1.58-2.94)**
5 and above	**2.67(2.16-3.30)**	**1.67 (1.20-2.34)**
Received FP messages		
No	1	1
Yes	**2.14 (1.1 -2.40)**	**1.18(1.30-1.71)**
Decide in their health care needs by themselves		
No	1	1
Yes	**2.76 (2.43-3.13)**	**1.39(1.18-1.65)**
FP can cause infertility or deformed babies		
Agree	**1**	**1**
Disagree	**2.57 (2.08-3.17)**	**1.38(1.09-1.76)**
Don't know	**4.27 (3.70-4.91)**	**2.03(1.72-2.39)**
Husband/partner should have final say in any decision		
Agree	1	**1**
Partially agree	1.03(0.86-1.24)	1.03(0.83-128)
Disagree	**1.27(1.13-1.42)**	**1.23(1.06-1.42)**

Factors associated with antenatal care use during the last pregnancy

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age Group		
15-19	1	1
20-24	**1.69 (1.09 -2.61)**	1.34 (0.80 -2.24)
25-29	**1.56 (1.02 -2.37)**	1.43 (0.83-2.44)
30-34	1.43 (0.92-2.20)	1.53 (0.85-2.74)
35-39	1.58 (0.98-2.54)	1.65 (0.86-3.20)
40-49	0.83(0.44-1.58)	0.88 (0.39-2.00)
Marital status		
Never married	1	1
Married/live with partner	**0.22 (0.06 -0.79)**	0.44 (0.11-1.79)
Divorced/Separated	**0.23 (0.06-0.94)**	0.29 (0.06-1.32)
Widowed	**0.10 (0.02-0.63)**	0.21 (0.02-1.84)
Religion		
Muslim	1	1
Protestant	**1.86 (1.41-2.44)**	0.80 (0.51-1.26)
Catholic	0.91 (0.18-4.73)	0.43 (0.08-2.46)
Orthodox	**3.14 (2.43 -4.04)**	1.10 (0.74 -1.63)
Others	0.85 (0.39-1.87)	0.50 (0.21-1.18)
Education		
No education	1	1
Primary	**2.13 (1.70-2.69)**	**1.47 (1.11-1.93)**
Secondary	**2.05 (1.42-2.92)**	1.27 (0.81 -2.01)
Higher education	**8.62 (3.21-23.15)**	**4.30 (1.47-12.60)**
Region		
Tigray	1	1
Oromia	**0.60 (0.40 -0.91)**	0.80 (0.48-1.34)
Amhara	0.64 (0.41-1.01)	0.72 (0.44-1.16)
SNNPR	0.70 (0.46-1.06)	0.93 (0.53-1.65)
Afar	**0.14 (0.09 -0.21)**	**0.21 (0.11 -0.37)**
Somali	**0.10 (0.06 -0.17)**	**0.13 (0.07 -0.26)**
Gambella	**0.20 (0.12-0.32)**	**0.31 (0.17-0.59)**
Benishangul Gumuz	**0.59 (0.39-0.89)**	0.77 (0.46-1.29)
Wealth Quintile		
Very poor	1	---
Poor	0.72 (0.51-1.02)	---
Middle	1.02 (0.73-1.42)	---
Rich	0.88(0.63-1.23)	---
Very rich	0.95(0.69-1.30)	---
Number of live births		---
<=1	1	1
2-4	**0.71 (0.53-0.93)**	**0.65(0.45-0.95)**
5 and above	**0.62 (0.46-0.84)**	0.66(0.41-1.06)
Received RH/FP messages		
No	1	1
Yes	**1.98 (1.60 -2.46)**	**1.38(1.08-1.77)**
Husband/partner should have final say in any decision		
Agree	1	1
Partially agree	1.09 (0.76-1.55)	1.10(0.74-1.64)
Do not agree	**1.76(1.40-2.21)**	**1.36(1.04-1.79)**

Factors associated with full vaccination among children 12-23 months

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age in years		
15-19	1	1
20-24	1.34 (0.70-2.56)	0.99 (0.47-2.10)
25-29	**1.85 (1.00-3.43)**	1.33 (0.65-2.73)
30-34	1.77 (0.94-3.33)	1.37 (0.65-2.90)
35-39	**2.15 (1.09-4.22)**	1.52 (0.68-3.39)
40-49	0.68 (0.26-1.78)	0.68 (0.23-2.01)
Marital status		
Never married	1	--
Married/live with partner	0.97 (0.23-4.10)	--
Divorced/Separated	0.79 (0.16-4.00)	--
Widowed	0.50 (0.07-3.43)	--
Religion		
Muslim	1	1
Protestant	**1.33 (0.92 -1.93)**	0.82 (0.44-1.53)
Orthodox	**3.15 (2.28 -4.35)**	1.03 (0.61-1.74)
Others	1.32 (0.55-3.16)	0.85 (0.31-2.30)
Educational status		
No education	1	1
Primary	**1.65 (1.23-2.22)**	1.23 (0.85-1.79)
Secondary	**2.27 (1.38-3.76)**	1.33 (0.74-2.46)
Higher education	**1.52 (0.67-3.46)**	0.80 (0.32-2.05)
Region		
Amhara	1	1
Oromia	**0.18(0.10 -0.32)**	**0.22(0.11 -0.43)**
SNNPR	**0.20 (0.12-0.35)**	**0.23 (0.11-0.48)**
Tigray	**0.48(0.28-0.83)**	**0.40(0.23-0.71)**
Afar	**0.05(0.03 -0.10)**	**0.08(0.04 -0.19)**
Somali	**0.12 (0.06 -0.22)**	**0.15 (0.07 -0.32)**
Gambella	**0.26 (0.14-0.47)**	**0.37 (0.17-0.81)**
Benishangul Gumuz	0.67 (0.39-1.17)	0.82 (0.44-1.53)
Wealth index		
Very poor	1	--
Poor	1.23 (0.80 -1.89)	--
Middle	1.26 (0.82-1.94)	--
Rich	0.77 (0.50-1.20)	--
Very rich	0.88 (0.58-1.34)	--
Heard messages about health of the mother, newborn or children		
No	1	1
Yes	**1.84 (1.36 -2.49)**	**1.49 (1.05-2.11)**
Place of delivery of the last child		
Home	1	1
Health institutions	**2.96 (2.21 -3.96)**	**1.85 (1.29 -2.65)**
Husband/partner should have final say in any decision		
Agree	1	1
Partially agree	0.93 (0.59-1.48)	1.14 (0.66-195)
Do not agree	**1.45 (1.08-1.94)**	**1.47 (1.03-2.10)**

Factors associated with delivery by skilled attendant

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age in years		
15-19	1	--
20-24	1.28(0.83-1.99)	--
25-29	1.02(0.67-1.56)	--
30-34	0.99(0.64-1.54)	--
35-39	0.85(0.53-1.38)	--
40-49	0.71(0.38-1.34)	--
Marital status		
Never married	1	--
Married/live with partner	0.67(0.22-2.06)	--
Divorced/Separated	1.75(0.46-6.62)	--
Widowed	0.63(0.13-3.07)	--
Religion		
Muslim	1	1
Protestant	**3.28(2.46 -4.36)**	1.12(0.66-1.89)
Catholic	2.16(0.43-10.8)	1.36(0.22-8.23)
Orthodox	**7.70(5.76 -10.3)**	**2.22(1.40-3.53)**
Others	1.51(0.57-4.04)	**0.85(0.24-3.02)**
Educational status		
No education	1	1
Primary	**2.40(1.89-3.05)**	**1.27(0.97-1.71)**
Secondary	**4.94(3.21-7.60)**	**1.67(1.01-2.78)**
Higher education	**11.62(3.45-39.07)**	**6.37(1.64-24.75)**
Region		
Tigray	1	1
Oromia	**0.39(0.22 -0.68)**	1.31(0.63 -2.70)
Amhara	**0.42(0.24-0.73)**	0.56(0.31-1.02)
SNNPR	**0.22(0.13-0.37)**	0.60(0.29-1.22)
Afar	**0.04(0.02-0.07)**	**0.15(0.07 -0.29)**
Somali	**0.05(0.03-0.09)**	**0.24(0.12 -0.50)**
Gambella	**0.22(0.13-0.38)**	0.48(0.23-1.02)
Benishangul Gumuz	**0.14(0.08-0.24)**	**0.32(0.17-0.63)**
Wealth index		
Very poor	1	--
Poor	0.23(0.56-1.15)	--
Middle	0.78(0.55-1.10)	--
Rich	0.82(0.58-1.16)	--
Very rich	0.70(0.50-0.97)	--
Heard RH messages		
No	1	1
Yes	**2.51(2.01 -3.13)**	**1.84(1.39-2.43)**
ANC visit at least once		
No	1	1
Yes	**5.69(4.35-7.44)**	**3.7(2.70-5.07)**
Decide for their healthcare needs		
Yes	1	--
No	0.86(0.66-1.11)	--

OR: odds ratio; CI: confidence interval; ANC: antenatal care & RH: reproductive health

Factors associated with availability of improved sanitation facility in the household

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age in years		
15-19	1	1
20-24	1.09 (0.81 -1.47)	1.00 (0.69 -1.45)
25-29	0.98 (0.74 -1.32)	1.22 (0.86 -1.74)
30-34	1.15 (0.86-1.54)	**1.59 (1.11-2.27)**
35-39	**1.58 (1.19-2.11)**	**2.38 (1.65-3.44)**
40-49	**1.54(1.16-2.05)**	**2.02(1.40-2.92)**
Marital status		
Never married	1	---
Married/live with partner	0.87 (0.69 -1.10)	---
Divorced/Separated	0.88 (0.61-1.27)	---
Widowed	1.24 (0.83-1.85)	---
Religion		
Muslim	1	1
Protestant	**0.33(0.26-0.42)**	**2.03 (1.24-3.33)**
Catholic	**0.09 (0.01-0.64)**	0.58 (0.08-4.44)
Orthodox	**0.52 (0.44-0.61)**	**1.57 (1.05-2.33)**
Others	**0.08(0.02-0.33)**	0.47 (0.11-1.98)
Educational status		
No education	1	1
Primary	0.85 (0.71-1.01)	**1.55(1.22-1.97)**
Secondary	**1.26(1.00-1.60)**	**2.55(1.76 -3.68)**
Higher education	1.20(0.76-1.88)	1.61(0.85-3.06)
Region		
Tigray	1	1
Oromia	**0.24 (0.16 -0.37)**	**0.38 (0.22-0.66)**
Amhara	**0.60(0.43-0.82)**	0.93(0.63-1.37)
SNNPR	**0.52 (0.37-0.72)**	0.68 (0.40-1.16)
Afar	**1.49 (1.13-1.97)**	**4.37 (2.58 -7.40)**
Somali	**3.36 (2.61-4.32)**	**7.27 (4.31-12.24)**
Gambella	**0.26 (0.17-0.41)**	**0.35 (0.19-0.65)**
Benishangul Gumuz	**0.59(0.42-0.84)**	1.24(0.80-1.93)
Wealth index		
Very poor	1	---
Poor	1.12 (0.87 -1.43)	---
Middle	1.06 (0.83-1.36)	---
Rich	1.04(0.81-1.33)	---
Very rich	0.87(0.68-1.12)	---
Location of water source		
In own dwelling/yard	1	1
Elsewhere	**0.44(0.31-0.63)**	1.43(0.96-2.12)

Factors associated with women's decision making

Factors	Unadjusted OR (95% CI)	Adjusted OR(95%CI)
Age in years		
15-19	1	1
20-24	1.07 (0.89 -1.28)	**1.33 (1.06-1.65)**
25-29	0.88 (0.74 -1.04)	**1.35 (1.08 -1.69)**
30-34	0.75 (0.63-0.90)	**1.40 (1.10-1.77)**
35-39	0.83 (0.69 -1.00)	**1.62 (1.27-2.07)**
40-49	**0.71 (0.59-0.85)**	**1.33(1.04-1.71)**
Marital status		
Never married	1	1
Married/live with partner	**0.48 (0.41 -0.56)**	**0.63(0.51-0.78)**
Divorced/Separated	0.83 (0.66-1.05)	1.00(0.75-1.32)
Widowed	**0.52 (0.39-0.69)**	0.82(0.58-1.16)
Religion		
Muslim	1	1
Protestant	**0.83(0.72-0.96)**	0.83 (0.67 -1.04)
Catholic	0.89 (0.51 -1.56)	0.97 (0.52-1.83)
Orthodox	**1.59 (1.42-1.79)**	**1.34 (1.12-1.60)**
Others	0.79(0.53-1.17)	1.04 (0.67-1.62)
Educational status		
No education	1	1
Primary	**1.63 (1.45-1.82)**	**1.92(1.68-2.19)**
Secondary	**3.42(2.89-4.05)**	**4.35(3.56 -5.31)**
Higher education	**4.45(3.24-6.11)**	**5.19(3.68-7.31)**
Region		
Tigray	1	1
Oromia	1.07 (0.86 -1.29)	**1.65 (1.32-2.06)**
Amhara	**0.72(0.59-0.86)**	0.85(0.70-1.03)
SNNPR	**0.52 (0.43-0.63)**	**0.74 (0.58-0.96)**
Afar	**0.35 (0.28-0.43)**	**0.71 (0.54-0.95)**
Somali	0.86 (0.71-1.04)	**1.49 (1.14-1.94)**
Gambella	**0.27 (0.21-0.33)**	**0.34 (0.26-0.44)**
Benishangul Gumuz	**0.49(0.40-0.60)**	**0.70(0.55-0.89)**
Wealth index		
Very poor	1	---
Poor	1.09 (0.93-1.29)	---
Middle	1.10 (0.93-1.29)	---
Rich	1.15(0.98-1.35)	---
Very rich	1.10(0.94-1.29)	---

ANNEX 3. WEALTH INDEX AND WEALTH QUINTILE ANALYSIS

The wealth index is based on asset ownership and household characteristics rather than monetary income. The variety of asset and household characteristics was used to create a meaningful wealth index.

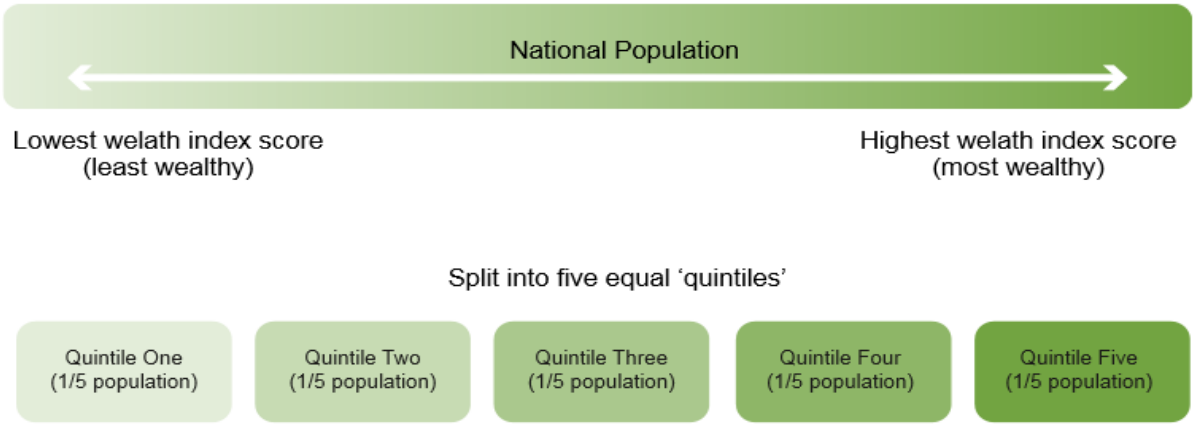
Wealth index Indicator variables

Assets Owned by Household or a Member of the Household	Household Characteristics:	Number of Livestock
Electricity (q231_a)	Water Source (q202)	Number of milk cow (MC228)
Radio (q231_b)	Toilet Type (q210)	Number of Horse, Donkey and Mule (HGM228)
Television (q231_c)	Cooking Fuel (q223)	Number of Camels (CM228)
Non-mobile telephone (231_d)	Material of Floor (q235)	Number of Goat (GT228)
Computer (q231_e)	Material of Walls (Hv214)	Number of Sheep (SP228)
Refrigerator (q231_f)	Material of Roof (q236)	Number of poultry (PO228)
Table (q231_g)	Number of Rooms Used for Sleeping (q226)	Number of Beehives (BE228)
Chair(q231_h)	Water Source (q202)	
Bed with mattress (q231_i)	Toilet Type (q210)	
Watch (q232_a)	Cooking Fuel (q223)	
Mobile phone(232_b)	Material of Floor (q235)	
Bicycle (q232_c)	Material of Walls (Hv214)	
Motor bike (q232_d)		
Animal drawn cart (q232_e)		
Car or truck (q232_f)		
Boat with motor(q232_g)		
Bajaj(q232_h)		

Methods

Principal Components Analysis: Turns the various asset and household characteristics into a wealth index. Through PCA, each asset and household characteristic is given a factor weight and, based on these, each respondent in the survey can be given a wealth index score. The weight variable is the number of family per 100,000.

Wealth quintiles: it is based on the wealth index as shown in the next diagram.



ANNEX 4. HOUSEHOLD SURVEY SAMPLE SIZE BY REGION

Two independent population proportions sample size estimation techniques were used to calculate the sample size for the HH survey using the Stata software, power and sample size calculation utility (see also formula below).[12]

$$n_1 = n_2 = \frac{\left(z_\alpha\sqrt{2\bar{P}\,\bar{Q}} + z_\beta\sqrt{P_1Q_1 + P_2Q_2}\right)^2}{\delta^2}$$

Where:

α: The probability of type I error (significance level) is the probability of rejecting the true null hypothesis.

β: The probability of type II error (1 – power of the test) is the probability of not rejecting the false null hypothesis.

$$\delta = \left|P_2 - P_1\right| \quad \bar{P} = \frac{P_1 + rP_2}{r+1} \text{ and } r = 1$$

P1 and P2 are the proportions of the outcome indicators of interest at baseline and end-line.

In the calculation, a 95% confidence level (α), and 80% statistical power(β) were used. It was anticipated on average a 10% difference in the baseline and end-line proportions that is consistent with the observed differences on the key outcome indicators between the two recent EDHS surveys (based on the changes observed in the 2011 and 2016 EDHS).

The estimated proportion of the indicator (P1) at baseline from each region is taken from the Ethiopian Demographic and Health Survey report (EDHS, 2016). Hence, region specific indicators were considered to obtain regionally representative sample estimates. Using this approach, the modern contraceptive prevalence rate provided the largest sample size for the Amhara and Tigray regions; and the percentage of children who have received at least one dose of the measles vaccine before reaching one year of age was used to calculate the sample size for Oromia, SNNP, Afar, Somali, and Gambella. The skilled birth attendance rate was used to calculate the sample size for Benishangul Gumuz. The regionally representative sample estimates with P1 and P2 are captured in the table below.

[12] https://www.stat.ubc.ca/~rollin/stats/ssize/b2.html

Estimated Sample Size for the Household survey by Region

Region	P1	P2	Estimated Sample Size	Design Effect	Non-response rate	Intervention group		Comparison group	
						Total HHs	# Kebeles (30HHs)	Total HHs	# kebele (30HHs)
Tigray	35	45	376	1.75	10%	724	24	180	6
Amhara	47	57	391	1.75	10%	753	25	188	6
Oromia	43	53	391	1.75	10%	753	25	188	6
SNNPR	58	68	365	1.75	10%	703	23	176	6
B/Gumuz	29	39	352	1.5	10%	581	19	144	5
Afar	30	40	356	1.5	10%	587	20	144	5
Somali	48	58	390	1.5	10%	643	21	160	5
Gambella	62	72	346	1.5	10%	571	19	140	5
Total						**5,315**	**177**	**1,320**	**44**

The eight regions targeted by the Transform portfolio of activities have large differences in geographic and population size. Therefore, the estimated sample size was multiplied by 1.75 design effect for the four major regions (Transform: PHC target) and by 1.5 for the four developing regions (Transform: HDR targets). The main reason for giving slightly higher design effect for the PHC is because of huge differences regarding geographic coverage and population size. In addition, a representative sample will also be taken from the non-intervention areas to serve as a comparison group, with 4:1 ratio (4 intervention study sites to 1 non-intervention area).

ANNEX 5. LIST OF TABLES

List of Tables

Table 3.2.2.1. Unmet Need for Family Planning by Demographics

Background characteristics	Intervention areas	N	Comparison areas	N
Region				
Oromia	33.2%	735	33.5%	179
Amhara	26.2%	722	25.1%	179
SNNP	34.0%	698	36.7%	180
Tigray	31.7%	717	20.4%	181
Afar	16.6%	608	29.6%	142
Somali	8.8%	651	6.3%	128
Gambella	26.1%	602	30.7%	153
Benishangul Gumuz	35.6%	579	33.3%	141
Age Group				
15-19	17.7%	763	16.9%	177
20-24	32.5%	881	31.5%	200
25-29	34.6%	1087	36.6%	265
30-34	31.7%	939	34.7%	242
35-39	27.1%	770	25.6%	199
40-44	17.4%	524	19.7%	122
45-49	6.6%	348	3.8%	78
Education level				
No formal education	23.5%	2806	26.0%	572
Primary	29.4%	1859	31.2%	475
Secondary	32.3%	495	23.1%	212
Above secondary	34.9%	152	25.0%	24
Wealth Quintile				
Poorest	23.2%	997	25.9%	228
Poor	26.5%	1044	27.4%	259
Medium	27.5%	1089	29.8%	258
Wealthy	26.9%	1042	28.4%	271
Wealthiest	29.0%	1140	25.5%	267
Total	26.7%	5312	27.4%	1283

Table 3.2.3.1. Women Who Received Family Planning Counseling After Birth

	Intervention		Comparison	
Women's Background	%	**N**	%	**N**
Age Group				
15-19	19.6	102	34.8	23
20-24	20.3	266	20.7	58
25-29	26.0	342	25.3	91
30-34	23.0	270	25.0	60
35-39	24.0	146	36.4	33
40-44	14.9	47	33.3	12
45-49	37.5	8	0.0	
Region				
Oromia	21.5	149	27.0	37
Amhara	25.7	109	20.8	24
SNNP	39.1	156	42.1	38
Tigray	39.0	154	27.3	33
Afar	11.8	220	26.5	49
Somali	8.4	131	3.8	26
Gambella	11.7	111	12.0	25
Benishangul Gumuz	25.8	151	37.8	45
Educational level				
No formal education	17.8	647	24.4	127
Primary	27.7	404	30.8	120
Secondary	29.6	108	16.7	24
Above secondary	50.0	22	33.3	6
Wealth Quintile				
Poorest	18.5	259	28.8	52
Poor	21.0	233	25.7	70
Medium	25.0	220	27.5	51
Wealthy	25.8	221	25.6	43
Wealthiest	24.6	248	26.2	61
Total	**22.9**	**1181**	**26.7**	**277**

Table 3.2.4.1. Women Who Received Modern Contraception After Birth

Background Characteristics	Intervention areas	N	Comparison areas	N
Age Group				
15-19	17.6	102	26.1	23
20-24	29.6	267	34.5	58
25-29	28.7	342	27.5	91
30-34	18.0	272	21.7	60
35-39	15.1	146	27.3	33
40-44	10.6	47	7.7	13
45-49	0.0	8		
Region				
Oromia	28.2	149	40.5	37
Amhara	33.0	109	16.7	24
SNNP	41.7	156	28.9	38
Tigray	34.4	154	39.4	33
Afar	6.4	220	8.0	50
Somali	3.1	131	0.0	26
Gambella	9.6	114	20.0	25
Benishangul Gumuz	30.5	151	48.9	45
Education				
No formal education	14.4	647	14.8	128
primary	33.3	406	39.3	120
Secondary	28.3	109	21.9	24
Above secondary	50.0	22	66.7	6
Wealth Quintile				
Poorest	23.0	260	26.2	53
Poor	24.8	234	36.7	70
Medium	23.7	221	25.9	51
Wealthy	22.0	221	22.7	43
Wealthiest	21.4	248	21.4	61
Total	**22.9**	**1184.0**	**26.6**	**278**

Table 3.2.5.1. Women Who Heard RH/FP Messages

Background Characteristics	Intervention			Comparison	
	%	N		%	N
Age group					
15-19	43.1	763		49.2	177
20-24	54.6	881		59.5	200
25-29	56.3	1087		64.2	265
30-34	54.3	939		55.4	242
35-39	51.4	770		58.3	199
40-44	46.4	524		52.5	122
45-49	42.0	348		50.0	78
Region					
Oromia	40.4	735		40.2	179
Amhara	50.6	722		46.4	179
SNNP	62.3	698		75.6	180
Tigray	62.2	717		79.0	181
Afar	41.4	608		47.2	142
Somali	42.9	651		25.0	128
Gambella	43.2	602		59.5	153
Benishangul Gumuz	66.1	579		74.5	141
Education					
No formal education	43.4	2805		43.5	573
primary	60.7	1812		68.6	522
Secondary	56.4	562		62.8	145
Above secondary	63.2	133		72.1	43
Wealth Quintile					
Poorest	49.8	1002		55.6	223
Poor	49.3	1034		57.2	269
Medium	49.9	1101		55.3	246
Wealthy	51.0	1047		59.8	266
Wealthiest	55.4	1128		55.9	279
Total	**51.1**	**5312**		**56.8**	**1283**

Table 3.3.1.1. Percentage of Women With At least One ANC Visit from a Skilled Healthcare Provider*

	Intervention areas		Comparison areas	
Background Characteristics	**%**	**N**	**%**	**N**
Region				
Oromia	71.1%	149	81.1%	37
Amhara	92.7%	109	95.8%	24
SNNP	59.0%	156	68.4%	38
Tigray	94.2%	154	97.0%	33
Afar	57.7%	220	62.0%	50
Somali	44.3%	131	42.3%	26
Gambella	78.9%	114	84.0%	25
Benishangul Gumuz	58.3%	151	75.6%	45
Age Category				
15-19	71.6%	102	56.5%	23
20-24	71.2%	267	74.1%	58
25-29	68.1%	342	81.3%	91
30-34	65.1%	272	73.3%	60
35-39	69.9%	146	75.8%	33
40-44	57.4%	47	69.2%	13
45-49	62.5%	8	0	0
Education level				
No formal education	59.5%	647	62.5%	128
Primary	79.8%	406	86.7%	120
Secondary	75.2%	109	79.2%	24
Above secondary	72.7%	22	83.3%	6
Wealth Quintile				
Poorest	60.0%	260	73.6%	53
Poor	68.4%	234	72.9%	70
Medium	74.7%	221	80.4%	51
Wealthy	71.5%	221	74.4%	43
Wealthiest	67.7%	248	73.8%	61
Total	**68.2%**	**1184**	**74.8%**	**278**

*Skilled healthcare provider includes doctor, nurse, midwife or health officer

Table 3.3.2.1. Percentage of Women with Four or More ANC Visits

Background characteristics of respondents	Intervention areas		Comparison areas	
	%	N	%	N
Region	53.4%	148	48.6%	
Oromia	55.0%	109	50.0%	37
Amhara	59.5%	153	43.2%	24
SNNP	60.4%	154	84.8%	37
Tigray	16.5%	218	35.4%	33
Afar	16.9%	130	7.7%	48
Somali	23.7%	114	40.0%	26
Gambella	49.7%	149	60.0%	25
Benishangul Gumuz	29.7%	101	50.0%	45
Age Category				
15-19	45.5%	264	47.4%	22
20-24	41.6%	341	51.6%	57
25-29	42.8%	269	36.7%	91
30-34	41.4%	145	56.3%	60
35-39	29.8%	47	38.5%	32
40-44	12.5%	8	0	13
45-49				0
Education Level	33.6%	642	33.6%	
No formal education	51.7%	404	56.7%	125
Primary	42.1%	107	66.7%	120
Secondary	54.5%	22	66.7%	24
Above secondary				6
Wealth Quintile	35.8%	257	42.3%	
Poorest	40.6%	234	50.0%	52
Poor	45.2%	219	51.0%	68
Medium	41.4%	220	60.5%	51
Wealthy	42.9%	245	36.1%	43
Wealthiest	**41.0%**	**1175**	**47.3%**	61
Total				**275**

Table 3.3.3.1. Women Who Had Their First ANC Within Three Months of Pregnancy for Their Last Birth

	Intervention		Comparison	
	%	N	%	N
Age				
15-19	27.0	100	33.3	21
20-24	36.9	263	40.4	57
25-29	24.9	337	40.4	89
30-34	25.1	267	25.0	60
35-39	24.0	146	24.2	33
40-44	22.2	45	25.0	12
45-49	25.0	8		
Region				
OROMIA	31.3	144	17.6	34
AMHARA	35.8	106	58.3	24
SNNP	21.9	155	21.1	38
TIGRAY	35.7	154	63.6	33
AFAR	15.8	215	31.9	47
SOMALI	24.6	130	15.4	26
GAMBELLA	34.5	113	32.0	25
B/G	30.2	149	35.6	45
Education				
No formal education	24.5	636	29.3	123
primary	32.8	400	34.5	119
Secondary	27.8	108	54.2	24
Above secondary	22.7	22	33.3	6
Wealth quintile				
Poorest	25.2	254	34.0	53
Poor	29.3	229	36.4	66
Medium	28.0	218	31.4	51
Wealthy	25.1	219	37.2	43
Wealthiest	30.5	246	30.5	59
Total	**27.6**	**1166**	**33.8**	**272**

Table 3.3.4.1. Distribution of Women with birth in the last one year Who Received/Purchased Iron and Folic Acid Supplement During Pregnancy

Characteristics of Respondents	Intervention areas		Comparison areas	
	%	N	%	N
Age				
15-19	41.5	82	68.8	16
20-24	52.9	221	44.4	54
25-29	46.4	295	52.5	80
30-34	40.6	217	62.2	45
35-39	58.6	116	67.9	28
40-44	39.5	38	45.5	11
45-49	20.0	5		
Region				
Oromia	54.2	131	69.4	36
Amhara	59.6	104	56.5	23
SNNP	47.6	126	51.7	29
Tigray	72.5	149	58.1	31
Afar	36.5	170	65.9	41
Somali	21.3	80	33.3	15
Gambella	18.9	90	42.1	19
Benishangul Gumuz	50.8	124	45.0	40
Education				
No formal education	41.7	496	55.1	98
Primary	55.2	362	55.6	108
Secondary	44.7	94	50.0	22
Above secondary	50.0	22	66.7	6
Wealth Quintile				
Poorest	43.3	208	54.5	44
Poor	46.6	191	50.8	61
Medium	47.4	190	62.2	45
Wealthy	49.5	182	58.3	36
Wealthiest	49.8	203	52.1	48
Total	**47.2**	**974**	**55.1**	**234**

Table 3.3.5.1. Women Who Received Essential Elements of ANC

	Intervention areas		Comparison areas	
Background Characteristics	**%**	**N**	**%**	**N**
Region				
Oromia	23.9%	134	38.9%	36
Amhara	50.5%	105	52.2%	23
SNNP	28.1%	139	38.2%	34
Tigray	55.9%	152	63.6%	33
Afar	40.7%	135	60.6%	33
Somali	16.9%	65	25.0%	12
Gambella	21.7%	92	38.1%	21
Benishangul Gumuz	22.7%	128	33.3%	42
Age Group				
15-19	28.6%	84	41.2%	17
20-24	38.1%	226	55.1%	49
25-29	34.3%	277	37.3%	83
30-34	30.6%	209	39.6%	48
35-39	35.6%	118	66.7%	27
40-44	38.7%	31	30.0%	10
45-49	20.0%	5		
Education				
No formal education	30.0%	464	45.2%	93
Primary	38.5%	374	45.1%	113
Secondary	35.1%	94	36.4%	22
Above secondary	44.4%	18	66.7%	6
Wealth Quintile				
Poorest	28.4%	190	42.2%	45
Poor	29.8%	188	50.0%	58
Medium	35.6%	188	45.5%	44
Wealthy	40.9%	181	26.3%	38
Wealthiest	36.0%	203	55.1%	49
Total	**34.1%**	**950**	**44.9%**	**234**

Table 3.3.6.1. Distribution of Live Births in the 12 Months Prior to Survey Delivered at a Health Facility and Assisted by a Skilled Provider, According to Background Characteristics

Background Characteristics	Intervention areas		Comparison areas	
Region	%	N	%	N
Oromia	50.3%	149	48.6%	37
Amhara	73.4%	109	70.8%	24
SNNP	57.7%	156	63.2%	38
Tigray	85.7%	154	90.9%	33
Afar	17.7%	220	34.0%	50
Somali	21.4%	131	42.3%	26
Gambella	50.9%	114	56.0%	25
Benishangul Gumuz	31.8%	151	48.9%	45
Age Group				
15-19	41.2%	102	65.2%	23
20-24	53.6%	267	53.4%	58
25-29	46.8%	342	58.2%	91
30-34	45.2%	272	53.3%	60
35-39	43.2%	146	45.5%	33
40-44	34.0%	47	53.8%	13
45-49	37.5%	8	0.0%	0
Education Level				
No formal education	34.8%	644	42.2%	128
Primary	55.3%	414	64.3%	112
Secondary	75.5%	106	65.6%	32
Above secondary	85.0%	20	100.0%	6
Wealth Quintile				
Poorest	45.9%	196	54.8%	42
Poor	50.0%	234	51.7%	60
Medium	50.0%	236	48.1%	54
Wealthy	46.6%	223	68.2%	66
Wealthiest	41.0%	295	50.0%	56
Total	**46.5%**	**1184**	**55.0%**	**278**

Table 3.3.7.2. Mothers Timing of First Postnatal Checkup: Intervention Areas

Background characteristic	Time after delivery of mother's first postnatal check						No postnatal check-up*
	Less than 4 hours	4-23 hours	1-2 days	3-6 days	7-41 days	Don't know/ Missing	
Place of Delivery							
Health facility**	51.6%	7.6%	3.9%	10.4%	1.3%	0.2%	25.1%
Home/other	2.5%	0.2%	0.9%	0.7%	0.7%	0.7%	94.2%
Region							
Oromia	23.5%	2.7%	2.0%	6.7%	1.3%	0.0%	63.8%
Amhara	45.9%	12.8%	0.9%	6.4%	0.9%	0.0%	33.0%
SNNP	41.7%	3.8%	1.3%	6.4%	0.6%	1.3%	44.9%
Tigray	49.4%	5.2%	9.7%	3.9%	2.6%	0.0%	29.2%
Afar	7.7%	1.8%	0.9%	9.5%	0.5%	0.9%	78.6%
Somali	14.5%	1.5%	1.5%	5.3%	0.8%	0.0%	76.3%
Gambella	28.1%	5.3%	0.9%	0.9%	1.8%	0.0%	63.2%
Benishangul Gumuz	31.1%	3.3%	2.6%	5.3%	0.0%	0.7%	57.0%
Age Group							
15-19	21.6%	1.0%	4.9%	5.9%	1.0%	0.0%	65.7%
20-24	31.1%	4.5%	1.9%	9.4%	1.5%	0.0%	51.7%
25-29	31.3%	5.8%	2.3%	3.5%	0.9%	0.0%	56.1%
30-34	26.8%	4.4%	2.6%	7.7%	0.7%	1.5%	56.3%
35-39	30.1%	2.7%	1.4%	2.1%	1.4%	0.7%	61.6%
40-44	19.1%	0.0%	6.4%	6.4%	0.0%	0.0%	68.1%
45-49	37.5%	0.0%	0.0%	0.0%	0.0%	0.0%	62.5%
Education Level							
No formal education	20.8%	2.2%	2.0%	6.5%	0.2%	0.2%	68.2%
Primary	36.2%	5.8%	2.7%	5.3%	1.0%	1.0%	48.1%
Secondary	44.3%	7.5%	2.8%	5.7%	4.7%	0.0%	34.9%
Above secondary	50.0%	15.0%	15.0%	0.0%	10.0%	0.0%	10.0%
Wealth Quintile							
Poorest	31.6%	3.1%	2.0%	5.6%	1.5%	0.0%	56.1%
Poor	25.2%	4.3%	3.0%	5.1%	0.9%	0.4%	61.1%
Medium	32.2%	4.7%	2.1%	4.2%	1.3%	0.8%	54.7%
Wealthy	30.9%	3.1%	2.7%	4.5%	0.4%	0.0%	58.3%
Wealthiest	25.4%	5.1%	2.7%	9.2%	1.0%	0.7%	55.9%
Total	**28.8%**	**4.1%**	**2.5%**	**5.9%**	**1.0%**	**0.4%**	**57.2%**

*includes women who received a check-up after 41 days

**Health facility includes public hospitals, health centers, health posts, private or NGO supported hospitals and clinics

Table3.3.8.1. Early Postnatal Checkup of Newborn (within two days of birth)

	Intervention		Comparison	
	%	N	%	N
Region				
OROMIA	25.5%	149	10.8%	37
AMHARA	46.8%	109	41.7%	24
SNNP	42.3%	156	36.8%	38
TIGRAY	50.0%	154	39.4%	33
AFAR	12.3%	220	32.0%	50
SOMALI	22.1%	131	23.1%	26
GAMBELLA	36.8%	114	44.0%	25
B/G	30.5%	151	46.7%	45
Place of Delivery				
Health Facility	55.1%	554	47.8%	157
Home	11.3%	630	16.5%	121
Education Level				
No formal education	23.9%	644	29.7%	128
Primary	37.4%	414	38.4%	112
Secondary and above	53.2%	126	36.8%	38
Age of mother				
15-19	25.5%	102	34.8%	23
20-24	31.8%	267	27.6%	58
25-29	33.9%	342	36.3%	91
30-34	33.1%	272	35.0%	60
35-39	30.1%	146	33.3%	33
40-44	27.7%	47	46.2%	13
45-49	25.0%	8		
Wealth Quantile				
Lowest	31.6%	196	31.0%	42
Second	23.9%	234	33.3%	60
Middle	38.6%	236	33.3%	54

Table. 3.4.1.1. Proportion of Mothers Who Have Newborns (0-2 months) with Signs of Infection in the Last Two Weeks (by Mothers' Background Characteristics)

Background characteristics	Intervention areas	N	Comparison areas	N
Region				
Oromia	12.9%	31	11.1%	9
Amhara	28.6%	21	12.5%	8
SNNP	25.0%	24	27.3%	11
Tigray	19.5%	41	33.3%	6
Afar	4.3%	23	22.2%	9
Somali	20.0%	20	0.0%	3
Gambella	4.8%	21	0.0%	1
Benishangul Gumuz	14.3%	35	54.5%	11
Age Group				
15-19	7.7%	13	0.0%	3
20-24	15.8%	57	0.0%	8
25-29	9.0%	67	45.5%	22
30-34	25.6%	39	21.4%	14
35-39	18.8%	32	0.0%	7
40-44	37.5%	8	50.0%	4
45-49				
Education level				
No formal education	13.0%	115	21.4%	28
Primary	18.7%	75	25.0%	24
Secondary	17.4%	23	40.0%	5
Above secondary	66.7%	3	100.0%	1
Poorest	16.1%	31	50.0%	14
Poor	8.3%	48	16.7%	6
Medium	20.0%	45	23.1%	13
Wealthy	13.2%	38	12.5%	16
Wealthiest	22.2%	54	22.2%	9
Total	**16.2%**	**216**	**25.9%**	**58**

Table 3.4.2.1. Children Under 5 Years of Age Who Had Fever in the Last 2 Weeks for Whom Treatment Was Sought Within 24 Hours of Onset of Fever (by Background Characteristics of Women Respondents)

Background Characteristics	Intervention	N	Comparison	N
Region				
Oromia	45.3%	52	41.7%	12
Amhara	39.4%	59	57.1%	7
SNNP	38.5%	58	30.0%	20
Tigray	42.9%	53	50.0%	10
Afar	41.3%	56	63.2%	19
Somali	28.9%	39	16.7%	6
Gambella	70.4%	86	55.2%	29
Benishangul Gumuz	56.5%	47	80.0%	15
Age Group				
15-19	50.0%	22	25.0%	4
20-24	50.0%	90	50.0%	20
25-29	49.3%	142	52.9%	34
30-34	42.2%	102	37.8%	37
35-39	48.4%	62	84.6%	13
40-44	35.7%	28	71.4%	7
45-49	50.0%	4	66.7%	3
Education Level				
No formal education	41.7%	223	43.8%	64
Primary	46.2%	171	57.5%	40
Secondary	70.0%	50	72.7%	11
Above secondary	66.7%	6	66.7%	3
Wealth Quintile				
Poorest	50.0%	76	44.0%	25
Poor	45.9%	85	60.0%	20
Medium	43.6%	94	59.3%	27
Wealthy	56.3%	80	45.8%	24
Wealthiest	41.7%	115	50.0%	22
Total	**46.9%**	**450**	**51.7%**	**118**

Table 3.4.6.1. Percentage of Children Exclusively Breastfed, and % of Mothers Who Initiated Breastfeeding Within One Hour of Birth (by Mothers' Background Characteristics)

Background Characteristics	% children less than six months exclusively breastfeeding				% mothers who initiated breastfeeding within one hour of birth			
	Intervention	N	Comparison	N	Intervention	N	Comparison	N
Region								
Oromia	59.7%	62	78.9%	19	79.2%	72	61.9%	21
Amhara	44.7%	38	78.6%	14	78.7%	75	57.1%	21
SNNP	66.7%	51	68.8%	16	69.2%	104	48.0%	25
Tigray	61.8%	68	72.7%	11	80.1%	146	81.3%	32
Afar	74.1%	54	76.5%	17	52.3%	88	64.0%	25
Somali	27.7%	47	62.5%	8	35.4%	82	18.8%	16
Gambella	77.4%	62	71.4%	7	82.6%	69	63.6%	22
Benishangul Gumuz	75.7%	70	71.4%	14	48.8%	86	63.3%	30
Age Group								
15-19	57.5%	40	62.5%	8	66.1%	56	30.0%	10
20-24	61.5%	117	77.8%	18	69.9%	156	70.3%	37
25-29	64.8%	128	70.0%	40	64.4%	205	54.5%	66
30-34	68.4%	95	81.5%	27	64.5%	166	58.7%	46
35-39	60.7%	56	62.5%	8	69.3%	101	65.2%	23
40-44	40.0%	15	80.0%	5	63.6%	33	80.0%	10
45-49	100.0%	1			60.0%	5	59.9%	192
Education Level								
No formal education	59.5%	227	72.0%	50	58.9%	380	50.6%	79
Primary	63.6%	162	77.8%	45	73.0%	259	67.1%	79
Secondary	73.2%	56	66.7%	9	82.6%	69	71.4%	28
Above secondary	71.4%	7	50.0%	2	64.3%	14	33.3%	6
Wealth Quintile								
Poorest	64.3%	70	80.0%	20	66.4%	128	59.4%	32
Poor	58.6%	87	72.2%	18	73.6%	144	43.6%	39
Medium	62.0%	92	85.7%	21	67.6%	139	75.0%	40
Wealthy	60.9%	87	73.9%	23	64.2%	134	58.3%	48
Wealthiest	67.2%	116	58.3%	24	61.0%	177	63.6%	33
Total	**62.8%**	452	**73.6%**	106	**66.3%**	722	**59.9%**	192

Table 3.4.7.1. % of Children Under 5 Who Received Vitamin A in the Last Six Months (by Mother's Background Characteristics)

Background Characteristics	Intervention	N	Comparison	N
Region				
Oromia	37.2%	231	34.5%	55
Amhara	43.5%	108	39.4%	23
SNNP	48.7%	236	35.1%	74
Tigray	48.7%	191	16.1%	19
Afar	37.2%	347	34.3%	70
Somali	30.8%	292	19.9%	55
Gambella	29.9%	127	25.0%	24
Benishangul Gumuz	46.4%	181	56.0%	41
Age Group				
15-19	35.7%	42	50.0%	4
20-24	42.2%	332	28.6%	70
25-29	43.0%	526	41.7%	103
30-34	36.6%	432	27.5%	102
35-39	41.6%	262	36.2%	47
40-44	29.1%	103	33.3%	30
45-49	25.0%	16	20.0%	5
Education Level				
No formal education	37.0%	1075	33.3%	201
Primary	44.7%	506	37.5%	128
Secondary	37.0%	92	14.3%	28
Above secondary	60.0%	40	50.0%	4
Wealth Quintile				
Poorest	38.3%	290	44.3%	61
Poor	38.4%	341	33.3%	75
Medium	42.9%	366	36.9%	65
Wealthy	39.6%	298	30.6%	72
Wealthiest	39.5%	418	26.1%	88
Total	**39.8%**	**1713**	**33.5%**	**361**

Table 3.6.1.1. Percent of Households Using Basic Drinking Water Source

Characteristics of respondents	Intervention (n = 5,311)	Comparison (n = 1,283)
TOTAL (% of HHs with access to improved drinking water sources[1])	**76.8%**	**85.0%**
WEALTH QUINTILE		
Poorest	14.1%	16.8%
Poor	15.1%	16.8%
Medium	16.2%	16.7%
Wealthy	14.9%	17.5%
Wealthiest	16.6%	17.2%
IMPROVED WATER SOURCE TYPE		
Piped into Dwelling	0.1%	-
Piped into Yard	3.3%	16.2%
Piped into Neighbor	2.9%	2.1%
Public Tap / Standpipe	29.9%	33.1%
Borehole	21.1%	14.7%
Protected Well	9.2%	6.2%
Protected Spring	9.9%	12.7%
Rain Water	0.3%	0.1%
REGION (within region) [2]		
Oromia	78.2%	82.1%
Amhara	77.5%	92.2%
SNNP	73.8%	83.3%
Tigray	85.1%	98.9%
Afar	47.5%	79.6%
Somali	67.3%	45.3%
Gambella	93.0%	90.2%
Benishangul Gumuz	91.9%	100.0%

[1] Basic water source includes Piped into Dwelling, Piped into Yard, Piped into Neighbor, Public Tap / Standpipe, Borehole, Protected Well, Protected Spring, and Rain Water. [2] % of HH with improved water sources by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNPR, 717 Tigray, 608 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNPR, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul-Gumuz

Table 3.6.2.1. Percent Distribution of Households Using Appropriate Drinking Water Treating Method

Characteristics of respondents	Intervention (n = 5,311)	Comparison (n = 1,283)
TOTAL	**11.5%**	**10.4%**
Women's Education Level		
No Education	6.1%	5.7%
Primary Level	4.7%	3.7%
Secondary Level	1.6%	1.6%
Grade 12+	0.6%	0.5%
WEALTH QUINTILE		
Poorest	2.4%	1.8%
Poor	2.7%	2.9%
Medium	2.7%	2.3%
Wealthy	2.7%	2.0%
Wealthiest	2.7%	2.5%
REGION (within region) [1]		
Oromia	5.0%	2.2%
Amhara	6.9%	8.9%
SNNPR	9.5%	17.8%
Tigray	20.2%	5.5%
Afar	16.1%	18.3%
Somali	22.3%	25.8%
Gambella	6.5%	5.9%
Benishangul-Gumuz	5.5%	12.1%

[1] % of HH with water treatment practices by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNPR, 717 Tigray, 608 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNPR, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

Table 3.6.3.1. Percent Distribution of Households Using Basic Sanitation Facility

Characteristics of respondents	Intervention (n = 5,310)	Comparison (n = 1,283)
TOTAL (% of HHs using improved sanitation facility[1])	**9.8%**	**15.0%**
WEALTH QUINTILE		
Poorest	1.6%	3.0%
Poor	1.9%	3.3%
Medium	2.1%	2.7%
Wealthy	2.2%	2.7%
Wealthiest	2.1%	3.4%
IMPROVED SANITATION FACILITY		
Flush to piped sewer system	0.0%	0.0%
Flush to septic tank	0.1%	1.3%
Flush to pit latrine	3.8%	4.4%
Ventilated Improved Pit Latrine (VIP)	1.0%	2.1%
Pit latrine with slab	4.2%	4.7%
Pit latrine with slab and closing lid	0.3%	1.3%
Pit latrine with self-closing/sealing	0.0%	0.2%
Composting toilet	0.3%	1.0%
REGION (within region) [2]		
Oromia	3.3%	2.8%
Amhara	6.2%	12.8%
SNNP	6.3%	7.8%

Tigray	7.9%	28.2%
Afar	16.3%	19.7%
Somali	31.5%	31.3%
Gambella	2.3%	7.8%
Benishangul-Gumuz	5.9%	14.2%

[1] Basic Sanitation facility includes flush to septic tank, flush to pit latrine, ventilated improved pit latrine (VIP), pit latrine with slab, pit latrine with slab and closing lid, pit latrine with self-closing/sealing and/or composting toilet but not shared

[2] % of HH with improved sanitation facility by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNPR, 717 Tigray, 607 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly, the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNPR, 181 Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

Table 3.6.5.1. Share of HH with Access to Financial Support or Loans for the Purchase of Sanitation Products and/or Services

Characteristics of respondents	Intervention (n = 5,310)	Comparison (n = 1,283)
TOTAL	**1.1%**	**1.7%**
WEALTH QUINTILE		
Poorest	0.1%	0.5%
Poor	0.3%	0.2%
Medium	0.2%	0.5%
Wealthy	0.2%	0.2%
Wealthiest	0.3%	0.4%
REGION (within region) [1]		
Oromia	0.3%	0.0%
Amhara	0.3%	1.1%
SNNPR	0.0%	1.1%
Tigray	5.6%	5.6%
Afar	0.3%	0.7%
Somali	1.2%	1.6%
Gambella	0.2%	2.7%
Benishangul Gumuz	0.5%	0.0%
FINANCIAL INSTITUTION		
Bank	0.0%	0.2%
Microfinance	0.8%	0.8%
Other (mainly Kebele and NGO)	0.3%	0.6%

[1] % of HH that accessed financial support or loan for the purchase of sanitation products and/or by region is calculated over the total HHs surveyed in the specific region; for intervention Woredas total number of HH surveyed are 735 Oromia, 721 Amhara, 698 SNNPR, 717 Tigray, 607 Afar, 651 Somali, 602 Gambella, and 579 Benishangul Gumuz; similarly the number of HHs surveyed in comparison Woredas are, 179 Oromia, 179 Amhara, 180 SNNPR, 181Tigray, 142 Afar, 128 Somali, 153 Gambella, and 141 Benishangul Gumuz

Table 3.7.2.1. Proportion of Women Who Participate in Making Decisions on Purchase of Sanitation Products

Characteristics of respondents	Intervention (n = 4,042)	Comparison (n = 957)
TOTAL	**87.3%**	**88.9%**
WEALTH QUINTILE		
Poorest	14.6%	15.9%
Poor	17.3%	19.1%
Medium	18.1%	17.2%
Wealthy	17.5%	18.3%
Wealthiest	19.8%	18.4%
REGION (within region) [1]		
Oromia	93.8%	97.0%
Amhara	95.5%	96.5%
SNNP	83.7%	86.1%
Tigray	86.8%	89.6%
Afar	75.4%	76.7%
Somali	95.2%	98.9%
Gambella	76.0%	83.2%
Benishangul Gumuz	89.9%	83.5%
EDUCATION LEVEL		
No Education	47.1%	41.0%
Primary Level	27.8%	30.3%
Secondary Level	6.6%	9.5%
Grade 12+	1.9%	1.4%
AGE		
15-19	6.4%	4.2%
20-24	14.4%	11.1%
25-29	19.3%	18.9%
30-34	17.0%	19.1%
35-39	12.6%	15.3%
40-44	8.6%	8.8%
45-49	4.9%	4.8%

[1] % women age 15-49 (married or cohabited or living with partners) who usually make decisions on purchase of sanitation products either alone or jointly with their husband/partner by region is calculated over the total HHs/women surveyed in the specific region; for intervention Woredas total number of HH surveyed are 569 Oromia, 553 Amhara, 557 SNNPR, 463 Tigray, 516 Afar, 456 Somali, 433 Gambella, and 495 Benishangul-Gumuz; similarly the number of HHs/women surveyed in comparison Woredas are, 134 Oromia, 142 Amhara, 137 SNNPR, 96 Tigray, 116 Afar, 92 Somali, 113 Gambella, and 127 Benishangul-Gumuz

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