



UI-FHS Mid-Program Review in the Pastoralist Regions of Ethiopia



August 2018

Acknowledgements

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Acronyms

DRS	developing regional states
FGD	focus group discussion
FMOH	Federal Ministry of Health
HC	health center
HEW	health extension worker
HP	health post
EPI	Expanded Program on Immunization
IRB	institutional review board
JSI	JSI Research & Training Institute, Inc.
KII	key informant interview
MPR	mid-program review
PBSS	process-based supportive supervision
QI	quality improvement
QIT	quality improvement team
RED	Reaching Every District
RHB	regional health bureau
RI	routine immunization
UI-FHS	Universal Immunization through Improving Family Health Services
WoHO	woreda health office

Background

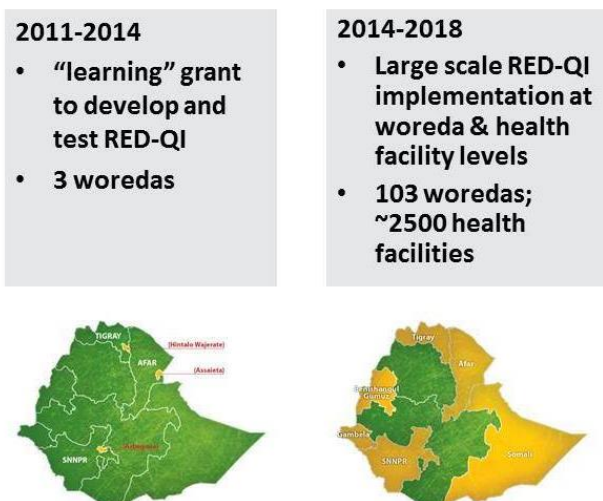
Over the past decade, Ethiopia has made remarkable progress in reducing child mortality.¹ This notable achievement is partly due to performance improvements in immunization, as a result of the roll out of Ethiopia's Health Extension Program and implementation of the Reaching Every District (RED) strategy. However, national immunization performance achievements mask significant disparity in immunization coverage at sub-national level. According to the latest Ethiopian Demographic Health Survey (2016), immunization coverage for the third dose of pentavalent vaccine was 20.1 percent in Afar Region and 36.3 percent in the Ethiopian Somali (Somali) Region, well below the national average of 53.2 percent. In addition, analysis of district (*woreda*)-level data, presented in the annex, reveals further coverage disparity between *woredas*, implying a growing need to focus on the most hard-to-reach and marginalized populations in Ethiopia, many of whom live in Afar and Somali Regions. The great majority of people living in Somali and Afar are pastoralists, whose nomadic lifestyle makes vaccination more difficult, as contacting infants five times in the first year of life to ensure they get vaccines as per the national schedule is a real challenge. As Ethiopia works to improve access to health services for all citizens, it is critical to design strategies to overcome the unique challenges within the Afar and Somali health systems.

In 2011, the Bill & Melinda Gates Foundation awarded JSI Research & Training Institute, Inc. (JSI) the Universal Immunization through Improving Family Health Services (UI-FHS) grant to help the Ethiopia Federal Ministry of Health (FMOH): 1) develop an evidence-based approach to universal immunization, integrated with family health service delivery; and 2) identify the determinants of effective, affordable and sustainable universal immunization programs in three *woredas*. Based on learning from the original three *woredas*, UI-FHS designed the Reaching Every District using Quality Improvement (RED-QI) approach to strengthen the routine immunization (RI) system in various contexts within Ethiopia.

Starting in October 2014, UI-FHS expanded the RED-QI strategy to more than 100 *woredas* in six regions, most of which were in the developing regional states (DRS) (Figure 1). The project end date is April 2021.

The original RED-QI model has been adapted for low-resource health systems to focus first on building and then strengthening an RI system through quality improvement (QI) methods and tools. This model was implemented in *woredas* with large numbers of pastoralist populations, so in addition to building and strengthening the RI

Figure 1. UI-FHS Project Scope and General Timeline



¹ EDHS, 2016; Yibeltal Assefa et al BMJ Glob Health 2017;2.

system, the approach focused on improving the quality and accessibility of services to mobile populations.

The RED-QI approach was designed to help woredas implement the five components of the RED strategy. RED-QI gives program managers and implementers tools to help them strengthen their routine immunization program and continuously locate and vaccinate every eligible woman and child on time.

This is achieved by:

- building capacity of health staff to strengthen the routine immunization program
- linking the community with health staff to plan and manage resources
- providing technical assistance for supportive supervision and monitoring and using data for action
- using QI tools to help health personnel identify and prioritize problems in immunization services and create local solutions.

It is particularly challenging to reach pastoralist communities with routine immunization because they move with their herds of animals across vast swaths of marginal grazing lands and rarely stay in one place. There is scant research on ways to strengthen the RI system and improve services for this segment of the population. This mid-program review (MPR) was designed to help the UI-FHS project improve operationalization of RED-QI in the Afar and Somali contexts, and provide information to improve RI service delivery among similar populations in other settings.

Objectives

The MPR objectives were to:

- assess the effect of implementation of RED-QI in the Afar and Somali Regions of Ethiopia
- examine contextual factors that influenced implementation
- assess the sustainability of the interventions in one woreda, Assaieta,² and factors that hinder and facilitate sustainability.

Research questions

- How well is RED-QI being implemented in Afar and Ethiopian Somali Regions?
- How can RED-QI implementation be strengthened?
- Key sub-questions:
 - Which aspects of the RED-QI approach helped woredas improve RI service delivery?
 - Which aspects of RED-QI are less useful?
 - Which aspects of RED-QI would woredas like to sustain after the program ends? Which would facilitate sustainability?
 - What challenges did woredas face in implementing RED-QI?

Methodology

Study design

The MPR used a mixed-methods design. Two qualitative methods, key informant interviews (KIIs) and focus group discussions (FGDs) were used to gather perspectives from health staff at woreda health offices (WoHOs), health centers (HCs), and health posts (HP) on RED-QI approaches to strength RI service delivery. Program data, mostly quantitative, was analyzed to corroborate findings from the KIIs and FGDs. Data sources included process-based supportive supervision (PBSS)³ checklist scores, administrative coverage data and situational analysis reports.

Units of analysis

The data collection sites were in Afar and Ethiopian Somali Regions (Figure 2). In Afar, four woredas were selected for data collection: Assaieta, Erebti, Gulina, and Mille. Assaieta and Mille were selected to

²Project implementation in Assaieta closed in December 2015. Assaieta was one of the three original learning woredas of UI-FHS project in which RED-QI approach was developed and refined. Implementation in Assaieta differed in duration and intensity than in subsequent woredas.

³Process-based supportive supervision refers to supportive supervision that focuses on one program, in this case, immunization. The checklist contains a set of questions aimed at understanding the performance of health facilities and woredas for routine immunization. During each visit, supervisors build the capacity of their health workers to overcome immunization service delivery challenges.

examine sustainability because UI-FHS had ended three years and six months prior to data collection, respectively. At the time of data collection, Harshin and Gode Woredas in Somali Region were still implementing RED-QI so data collection did not include sustainability. See Table 1.

Figure 2. Map of Regions in Ethiopia

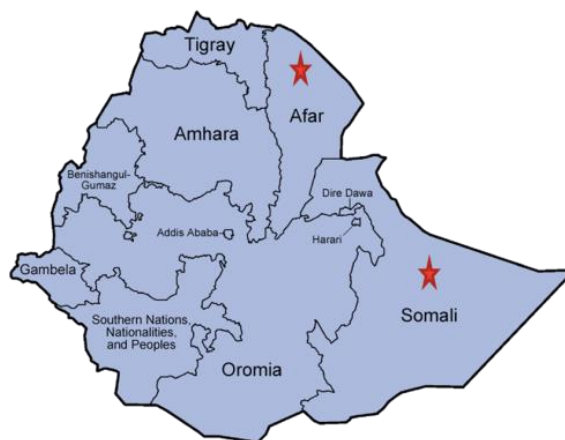


Table 1. Woredas where the Mid-Program Review was Conducted in Afar and Somali

Region	Woreda	Status during the MPR (August 2017)	Duration and time of implementation
Afar	Assaieta	Post-implementation (3 years)	36 months; July 2011–October 2014
Afar	Gulina	Final month of implementation	21 months; December 2015–August 2017
Afar	Mille	Post-implementation (6 months)	20 months; July 2015–February 2017
Afar	Erebt	Mid-implementation (month 13 of 21)	21 months; July 2016–March 2018
Somali	Harshin	Mid-implementation (month 17 of 27)	27 months; March 2016–May 2018
Somali	Gode	Mid-implementation (month 11 of 20)	20 months; September 2016–April 2018

Data were collected from respondents at WoHOs, HCs, and HPs. Woredas selected for the review had a sizable portion of the population designated as pastoralist (at least 20 percent). Facilities were selected based on their performance scores from PBSS visits to ensure that high- and low-performing facilities (relative to other facilities in the same woreda) were selected in each woreda. Facilities that showed

performance improvement over time were placed in the high-performing category and facilities that showed no change or showed a decline were placed in the low-performing category. Findings from Assaieta are presented within the sustainability section of this report.

Respondents

Selected regional health bureau (RHB) staff members including Expanded Program on Immunization (EPI) managers were interviewed to assess the use of RED-QI and enable planning for the next phase of the project. Key informants and FGD participants included health facility staff, including EPI focal persons, vaccinators, clinical nurses, heads of HCs and HPs, supervisors, WoHO managers, and quality improvement team (QIT) members. UI-FHS program staff were interviewed to provide historical background on the project and regional context.

Data collection

JSI hired four Addis Ababa-based researchers to conduct the KIIs and FGDs. All had their Masters' degrees and two were working on their PhDs. UI-FHS staff from Washington DC trained these four data collectors in Addis. The four-day training comprised an introduction to UI-FHS objectives and RI terminology and concepts like RED-QI; a review of good practices when conducting KIIs and FGDs; and a review of the KII and FGD guides to ensure that the questions were translated into local languages accurately. On the last day, the data-collection trainees traveled to a test woreda to administer all tools to respondents to assess the clarity of the questions, record the expected duration of the interviews and focus groups, and to practice using the guides to interview and conduct discussions. Tools were revised based on team feedback after the pilot test.

The four researchers split into two teams. Each team also comprised a JSI/UI-FHS supervisor from the Washington DC office, and a UI-FHS regional immunization advisor who helped to schedule interviews and introduce the team to health facilities and WoHOs. Interview guides were developed for each of the three levels (WoHO, HC, and HP). KII and FGD guides were translated into Amharic, Afar, and Somali languages. Focus group discussions were conducted with health facility staff and community members of QITs the WoHO, HC, and HP levels. In selected woredas community leaders were also included in focus groups.

The teams conducted a total of 36 KIIs and 11 FGDs (see Tables 2&3).

Table 2. Number of KIIs Conducted

Region*		WoHO	HC	HP	RHB
Afar	Assaieta	2		2	
	Mille	2	2	2	
	Gulina	2	2	2	
	Erebt	2	2	2	
	Regional Health Bureau				1
Afar total		8	6	8	1
Somali	Harshin	2	2	2	
	Gode	2	2	2	
	Regional Health Bureau				1
Somali total		4	4	4	1
Total number of KIIs		12	10	12	2

Table 3. Number of FGDs Conducted

Region		WoHO	HC	HP
Afar	Assaieta			
	Mille	1	-	2
	Gulina	1	-	2
	Erebt	1	-	-
Afar total		3	-	4
Somali	Harshin	1	-	2
	Gode	1	-	-
Somali total		2	-	2
Total number of FGDs		5		6

Data processing and analysis

A thematic approach was used to analyze the data. Analysis was a two-stage process: 1) daily in-country analysis of interviews and FGDs from hand-written notes taken during data collection; and 2) structured analysis of transcripts. The research teams audio recorded KIIs and FGDs with respondent consent and transcribed them into Word documents. KIIs and FGDs conducted in other languages were translated into English during transcription. Transcripts were imported into NVivo 11.⁴ The research team in JSI DC analyzed the data applying an initial set of *a priori* codes for major categories, which were refined as themes emerged during analysis. The research team used the thematic analysis methods defined by Richard Boyatzis,⁵ which include reviewing the data in detailed progressive stages and labeling and sorting it using the codes. Additionally, qualitative findings were triangulated with data from program documents and monitoring data, which included feedback forms from trainings; situational analyses that served as a baseline; and PBSS data to validate and supplement the qualitative responses from interviews and focus groups. As themes emerged during analysis, quantitative indicators were examined where available to quantify and corroborate the level of change described by interview and focus group respondents. Administrative data were also reviewed to examine trends in coverage in the five woredas between 2015/2016 when UI-FHS began implementation, and August 2017 when the MPR was conducted. Implementation was ongoing or had recently completed in all woredas except Assaieta. Administrative coverage data for Penta1, Penta3, and measles vaccines are included in the annex. As data quality continues to be a noted issue in reported administrative coverage in Ethiopia, coverage data were not further analyzed or triangulated against other MPR data sources.

Ethical review

This MPR was determined as exempt by the JSI Institutional Review Board (IRB) (OHRP IRB00009069 John Snow, Inc.). The IRB considered: 1) risks and anticipated benefits, if any, to subjects; 2) selection of subjects; 3) procedures for securing and documenting informed consent; 4) safety of subjects; and 5) privacy of subjects and confidentiality of the data. All research was conducted in accordance with this approved submission. Personal or identifying information was not retained within the transcripts, which will be kept in a secure location. In addition, the Afar and Somali RHBs provided UI-FHS with letters of support permitting the project to visit health facilities and communities for data collection.

⁴ Software that facilitates qualitative data management and analysis.

⁵ Boyatzis, R. E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development* (1 edition). Thousand Oaks, CA: SAGE Publications, Inc.

Findings

The UI-FHS program team prioritized and organized the findings by the following themes:

1. Capacity building
 - a. Training
 - b. Supportive supervision
 - c. Experience sharing/exchange visits
2. Review meetings
3. Micro-planning
 - a. Support for mobile and outreach services
4. Use of RED-QI tools
5. Changes to RI system
6. Data use
7. Sustainability
8. Contextual factors

Each theme is presented by describing UI-FHS role and the MPR findings and how they compare to baseline measures. Where possible, data from PBSS is included to show performance trends.

I. Capacity building

Since its inception, UI-FHS has implemented a comprehensive, multi-level strategy to improve health personnel ability to expand the reach, availability, quality, and use of RI services. This strategy includes:

- training
- supportive supervision
- experience sharing/exchange visits
- review meetings.

Training

In each woreda, UI-FHS implements a series of trainings on micro-planning for EPI; supportive supervision; and use of QI tools to operationalize the RED strategy. The trainings are reinforced through capacity-building strategies in the workplace. Current training curriculum and methodologies were designed from lessons from the “learning phase” of UI-FHS. UI-FHS distributes training materials to all participants to use as job aids to reinforce concepts as needed.

Most respondents appreciated the training approach, which focused on applying theory through group exercises. The training reports contain data on pre- and post-training survey scores. All training participants showed an improvement in scores post-training, indicating an increase in knowledge. Respondents stated trainings introduced them to new ways of strengthening service delivery, and said

that they learned how to create micro- and session plans, identify target populations, update and interpret EPI monitoring charts, use RED-QI tools and, in the case of HCs and WoHOs, conduct supportive supervision.

Most respondents across WoHOs, HCs, and HPs reported receiving some training from UI-FHS. All WoHOs, with the exception of Harshin, indicated that they received training on micro-planning, supportive supervision, and RED-QI tools. Harshin WoHO was unable to complete its training due to a community emergency that called the participants away. Because of this interruption, respondents from Harshin stated that they had difficulty understanding RED-QI concepts but mentioned that supportive supervision visits gave them the opportunity to seek clarifications and expand their knowledge. JSI provided technical support through follow-up visits to help them catch up.

Some respondents mentioned having job aids and manuals for reference after the training, while others stated that they did not have hard copies of tools that they could refer to once they completed training. Demand for such material was unanimous across the respondents, who also asked that all reference material be translated into local languages.

A few respondents stated that they were trained by co-workers through cascade trainings. When asked to describe the cascade approach, respondents said that they were introduced to concepts during conversations or after work but did not describe the formal training tools and methods used in the UI-FHS training. It seems the transfer of knowledge was casual and informal. Respondents also reported a desire for the project to provide refresher trainings to reinforce key concepts. Since the UI-FHS trainings are not provided to all health workers in a woreda, respondents generally felt that additional health workers at HPs should be trained and that initial trainings should be followed by refreshers. Respondents across WoHOs, HCs, and HPs also underscored the importance of supportive supervision to reinforce concepts through post-training support, whether the health worker received supervision or provided it.

Supportive Supervision (SS)

The FMOH calls for the provision of regular supervision to various levels of the health system following the integrated supportive supervision (ISS) guidelines. In addition, PBSS can be provided for more in-depth support to specific programs, such as EPI. However, it should be noted the Ethiopian FMOH does not currently use a standardized checklist for EPI-specific PBSS. During the KIIs, respondents were not asked to distinguish between ISS and PBSS; they were asked to describe their experience with SS broadly.

Supportive supervision is intended to be structured, routine, on-the-job training and mentorship. UI-FHS trained WoHO and HC staff to enact the following steps for SS:

- 1) Explain the skill or activity to be learned.
- 2) Demonstrate the skill or activity (e.g., through role-play).
- 3) Practice the demonstrated skill or activity.
- 4) Review the practice session and give constructive feedback.
- 5) Practice the skill or activity with staff under supervisor's guidance.

The emphasis of UI-FHS support was PBSS with limited technical assistance for ISS, but these steps should be taken regardless of the SS being provided. PBSS is a project-initiated activity focused solely on RI. At the start, PBSS is to be implemented by one UI-FHS staff member and one supervisor from the HC or WoHO. As supervisors in the woreda build their capacity in the process, support from UI-FHS lessens with the expectation that the woreda will take on the activity independently. Woredas should have between six and eight visits over a roughly 12-month period. ISS is a regular FMOH exercise of supervision on integrated program activities including immunization, which as per FMOH guidelines is supposed to be conducted over a period of 1–2 weeks every quarter. UI-FHS provides a limited amount of technical assistance for ISS in selected locations. ISS and PBSS each have their own checklist. Respondents said SS was conducted by the WoHO/HC and consisted mainly of on-the-job training across multiple technical areas, including micro-plan preparation, EPI monitoring charts use, addressing low coverage, cold chain issues, and family planning. HPs reported that coaching received during SS was helpful and needed. HCs and HPs also stated that they were supplied with charts/paper/materials during the SS visits. Respondents reiterated that they used SS visits to clarify areas in which they had limited understanding or may have missed at training.

In general, respondents at the WoHO and HC levels stated that health worker performance—health extension workers (HEWs) specifically—had improved since they started providing supportive supervision. Some felt that HEWs generally had low capacity and required on-the-job support and many indicated that the checklists helped them focus on specific areas of improvement in a systematic manner. Supportive supervision was a welcomed practice that improved performance, particularly at the HP level. As seen in Figure 3,⁶ most woreda health offices showed an improvement in performance scores on their PBSS checklists, suggesting that an increase in on-the-job coaching and other SS activities improve EPI process indicators like micro-plans and use of RED-QI tools to solve problems. Harshin's scores, however, do not show improvement. This may have been because the woreda had to respond to an acute watery diarrhea outbreak between January and September 2017, which likely diverted resources and attention away from RI services.

⁶ Assaieta data not included in graph because it was one of the three original learning woredas of the UI-FHS project. Major changes in the project's data collection methods, including a standardization of PBSS questions, occurred after Assaieta's implementation was complete.

“When training is given, women health workers usually do not ask questions in training halls though they have misunderstandings. However, when they meet us during support supervision, they ask questions and we also identify many gaps they have during supervision and then we show them on the spot. Therefore, the on-job training brings magnificent change in improving the knowledge and skill gaps of the health workers.”

– WoHO KII respondent

All respondents at WoHO and HC levels reported providing SS but not per the schedule described above. Respondents at WoHO, HC, and HP levels also reported receiving SS but not on schedule. Limited resources—particularly transport and personnel shortages—were reported as preventing timely supportive supervision visits. This was true at baseline as well; most woredas reported inconsistent SS visits due to limited resources like transport, fuel, and per diem. Figure 4 shows that the introduction of UI-FHS support corresponded to an increase in the number of WoHO supervisors who reported conducting PBSS in the previous month from 0 to 40 percent.

Figure 3. Woreda-Level PBSS Scores between the First and Most-Recent PBSS Visits

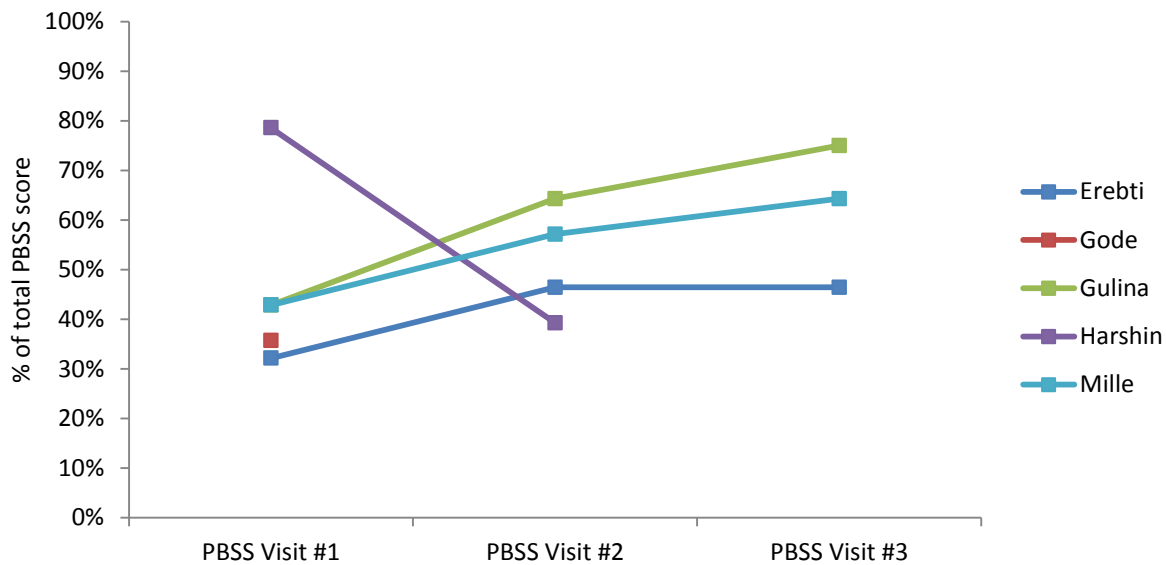
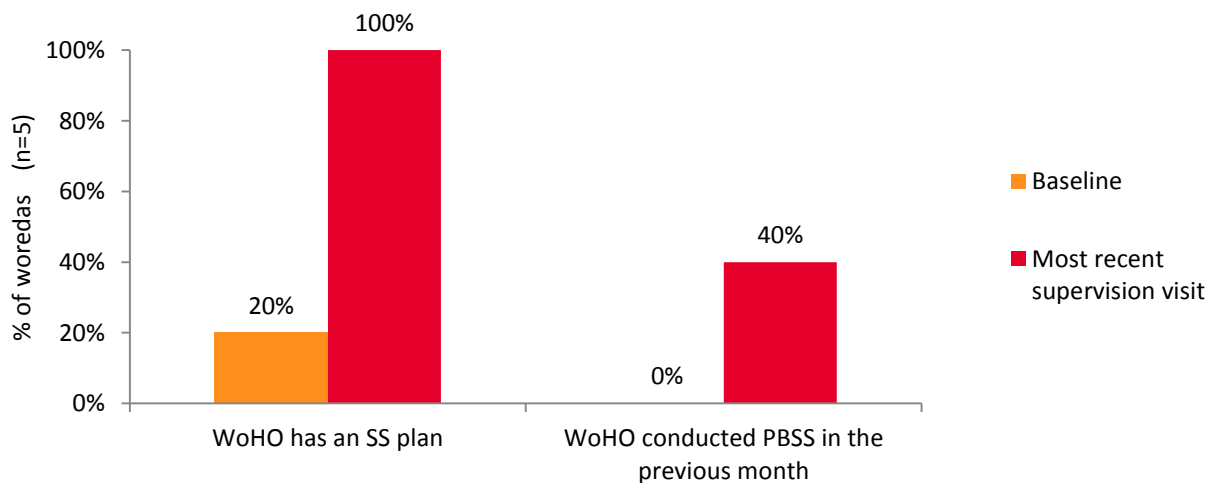


Figure 4. Supportive Supervision Indicators in Mid-Program Review Woredas



Experience sharing/exchange visits

UI-FHS designed the exchange visits, which were typically organized as visits between woredas within a region. These visits are expected to take place once during the 20 months of woreda-level implementation to facilitate learning between a woreda that had established RED-QI and one that was beginning to implement RED-QI. The following findings pertain to the four of the six sampled woredas that reported participating in exchange visits.

WoHO respondents who participated in the visits reported learning about ways to improve data recording and quality; how to use tickler boxes to trace defaulter children; and using community members to encourage women to use antenatal care services and return for vaccinations after birth. Some respondents in Gulina did not know what happened during exchange visits, implying that knowledge-sharing beyond those who made the visits was limited in this woreda.

Respondents from service-delivery levels (HC and HP) were able to describe what they learned during the visits in which they participated. In addition to learning about practices that improve services, health workers reported adapting these practices upon their return to work. Examples of such practices are using a ledger book to manage vaccines, syringes, safety boxes, and other supplies needed during vaccination; clarifying the role and membership of the QIT after learning how another facility managed its QIT; strengthening linkages between HPs and QITs; creating catchment maps; and latrine construction and use.

Baseline assessments in each woreda indicated that there was no standardized approach to experience-sharing or exchange visits, and no schedule for conducting meetings to discuss the visits. The MPR showed an increase in the frequency of summary meetings from baseline and that respondents from HPs, HCs, and WoHOs found the exchange visits useful because they resulted in staff initiating changes in their own facilities based on the cross-learning.

2. Review meetings

The term ‘review meeting’ is used interchangeably with monthly and quarterly review meetings because different locations hold these meetings at varying frequencies. Baseline assessments in the five woredas showed that review meetings were inconsistent and that minutes were not taken, although all health services were addressed when they were held.

The MPR indicate that UI-FHS technical and financial support has played a major role in ensuring that meetings occur regularly, even if not always on schedule, and helped maintain a focus on EPI. UI-FHS provides a range of support for initial review meetings in implementation woredas, including support for agenda setting and meeting facilitation. UI-FHS also provides limited technical support for subsequent meetings. In about half of the sampled woredas, UI-FHS provided financial support for two quarterly review meetings; in the other half the project provided technical and financial support for four woreda monthly meetings. UI-FHS encouraged HC and HP staff to attend meetings to raise WoHOs’ awareness of issues faced at lower levels of the health system.

Review meetings are learning opportunities for woreda health staff and health workers from various facilities to gather and discuss performance and data quality. Facilities present data on

monthly/quarterly coverage, high achievers share best practices, and group discussions focus on how to improve low performance in facilities and recommend actions to close performance gaps. Some respondents also reported looking at RED categorization⁷ data as an entry point for discussions on immunization performance and progress. Respondents across all levels of the health system considered review meetings to be useful. Several respondents mentioned that the presence of stakeholders such as woreda administration and local political leaders at meetings reinforced the importance of immunization and elevated accountability for EPI performance, since hearing top leaders emphasize immunization underscores its importance for health workers.

3. Micro-planning

Staff from WoHOs, HCs, and some HPs were trained in micro-planning. During training, participants learned to prepare micro-plans including catchment mapping, session planning, stock management and logistics, and resource considerations. Because all HP staff were not available to attend the trainings, immunization specialists from UI-FHS helped all WoHOs develop cascade training plans.

Respondents consistently listed micro- and session plans as the most useful tools for improving EPI services in woredas. Respondents at all levels explained that micro-planning improved service delivery by:

- Increasing availability of services by mapping each health facility's catchment area, estimating the target population, planning vaccination sessions, and tracing defaulters. Respondents mentioned that dividing annual micro-plans into monthly and weekly plans helped them break down and specify the resources required to achieve their objectives. Breaking down a major objective into achievable and manageable chunks was useful in helping teams focus and solve problems.
- Improving community awareness of RI because health workers established dates for fixed and mobile sessions and communicated the dates through kebele and community leaders such as sheikhs. Health workers reported that when people knew the dates of vaccination sessions, they attended them. This, in turn, enabled health workers to better schedule their time. One respondent stated that the pastoralist community synchronizes its movements with the

“It is important because we are able to present our achievement and gaps to woreda administrators who are key decision makers. If we present a budget shortage for RI, they will understand the challenge, rather than only hearing about our requests all the time. Though the woreda head is not there the whole time, he will at least attend the last moment where decision is made.”

–Gulina WoHO

⁷ The RED categorization tool is based on WHO's system for classifying the access and utilization of immunization services. The Excel-based tool collects and analyzes core immunization performance indicators to help health staff understand individual facility performance.

immunization sessions. Stronger linkages between communities and the health system were considered critical by respondents: when the community knew when the health workers planned to vaccinate, it created a sense of mutual reliability and trust.

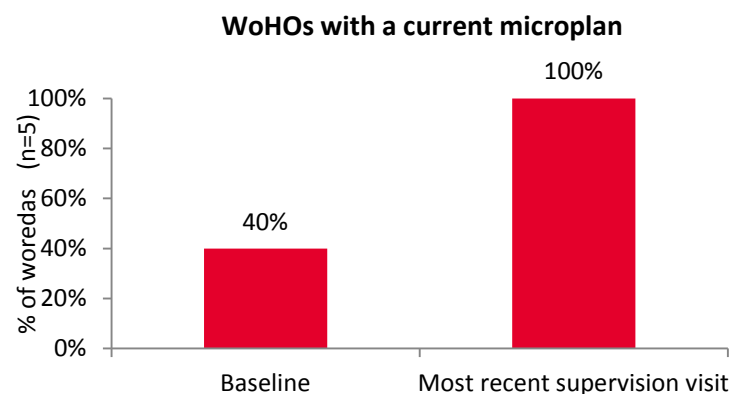
- Improving vaccine stock management and logistics through forecasting, calculating the doses of vaccines needed for sessions, and calculating vaccine wastage and coverage. One HC reported a prolonged stockout of ledgers at the woreda health office, which resulted in it being unable to record and monitor its vaccine stock. WoHO respondents emphasized that micro-planning helped them manage vaccine stock as well as personnel and the EPI program budget.

“The changes brought by micro-plan is the outreach which we have been expecting people at the outreach sites to come to the HP initially, but in the past three months, we planned using the micro-plan and reached children in 5 kms ranges, which in turn improved our coverage. We even worked beyond our target in some of the months.”

—Health worker, Erebti

All WoHOs, HCs, and HPs reported having an up-to-date micro-plan during the mid-program review. This was an improvement from baseline, when only two of the five woredas had micro-plans. In some cases, it was possible to verify the existence of a micro-plan at the facility or WoHO during data collection. Health workers in some HFs were unable to show micro-plans because they were saved on computers that they did not have access to. At baseline, the two woredas that had micro-plans did not demonstrate knowledge of how to use it. During the most recent supervision visit, all five woredas had current micro-plans (Figure 5) and were able to describe how they used them.⁸

Figure 5. Increase in Number of Woredas with a Current Micro-plan



⁸Assaieta data not included in graph because it was one of the three original learning woredas of the UI-FHS project. Major changes in the project’s data collection methods, including a standardization of PBSS questions, occurred after Assaieta’s implementation was complete.

Support for mobile and outreach services

Mobile and outreach services rely on a strong micro-planning process. Several WoHO and facility-level respondents acknowledged the importance of the mobile strategy to serve previously unreached people, thereby improving access, equity, and coverage. Respondents from all levels stressed the importance of including outreach and mobile services as part of regular immunization services.

Several respondents from WoHO and facility levels mentioned insufficient budget for transport and per diem were major concerns. Woredas noted that their available transport was meant for emergencies only and they lacked the budget for additional motorbikes or other vehicles. Budget constraints also made it difficult for health workers to conduct mobile service delivery because it takes a couple of days to travel to and from communities. Health workers rely on communities to provide accommodation and food.

Baseline data indicated that the provision of outreach and mobile services was varied and inconsistent across the five woredas. In some, partner organizations supported outreach and mobile for their own projects; occasionally their support included EPI (e.g., transport of vaccines). Other woredas did not have complete information on the number of outreach and mobile sites, which made it difficult to ensure accurate service coverage. MPR respondents said that UI-FHS' financial support for per diems, fuel for motorbikes, and materials like markers, graph papers, and formats are critical to outreach and mobile services. All five woredas expressed a need for a well-planned and resourced strategy for mobile and outreach services.

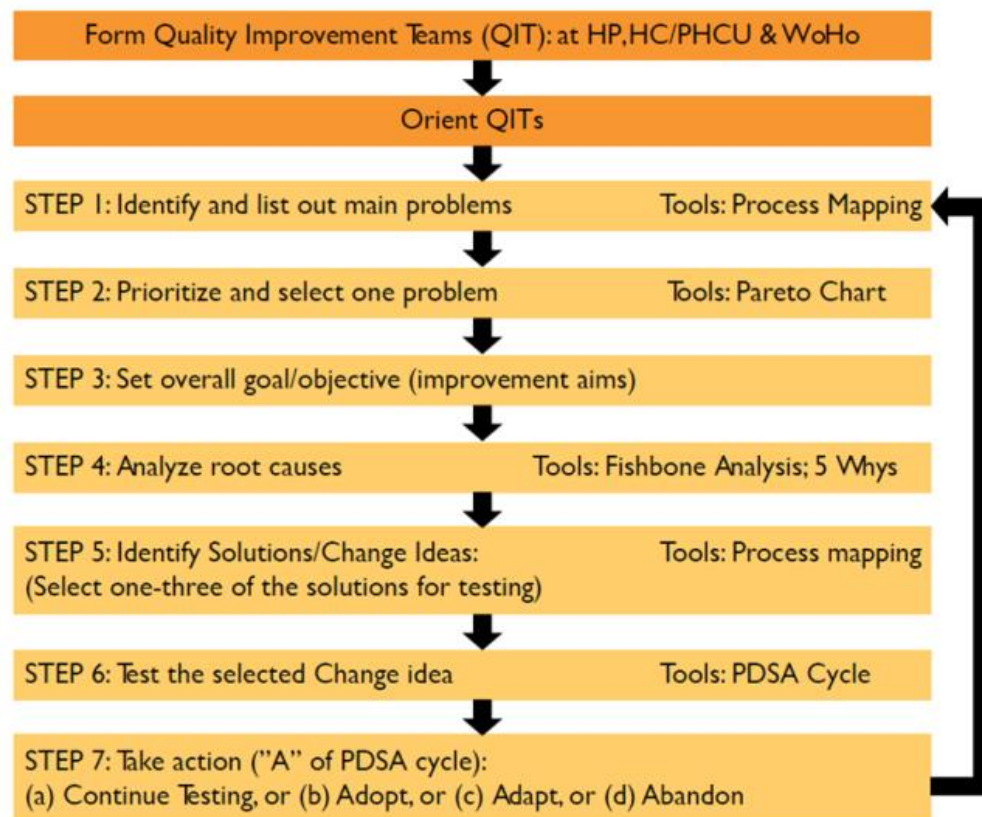
Erebtí woreda in Afar region conducted 28 mobile and outreach sessions between May and October 2017, through which 213 infants were vaccinated with Penta1, 198 with Penta3, and 196 with Measles vaccine. The project does not have baseline data to verify the respondent reports, however we assume this data represents an increase, as prior to UI-FHS support, the woreda only had four fixed immunization sites and limited woreda funding for mobile and outreach services.

4. Use of RED-QI tools

UI-FHS focuses on expanding the use of and institutionalizing RED-QI tools to strengthen RI service delivery. UI-FHS augmented the Reaching Every District approach by adding QI tools to help health personnel prioritize and address problems using the process and tools indicated in Figure 6.

MPR respondents reported mixed use of QI tools. Some were better understood, appreciated, and used than others. The use of the fishbone for root cause analysis was widespread across WoHO, HC, and HP. Pareto charts to prioritize problems were mentioned by a few respondents. Some people reported being trained in their use but not using them; others did not indicate awareness or use of them.

Figure 6. The QI Process as applied to RED



WoHOs indicated that the QI tools had the greatest benefit at the HC and HP level because they emphasize problem solving that is amenable to change at the service-delivery level. Respondents explained that these tools broadly enabled problem solving by breaking the broad challenges down into manageable components that can be addressed by testing possible solutions.

Respondents listed the following challenges to consistent QI tool use:

- A heavy workload limits their time for using them.
- They do not always remember the concepts and refresher trainings were not provided.
- High staff turnover; knowledge is passed on informally and incompletely so new staff are not as well versed in the concepts.

At baseline, none of the wordas reported using QI tools. The growing awareness of the concepts, their value, and incremental application is a positive finding and indicates potential for greater use and expansion to non-RI areas.

5. Changes to RI system

Respondents were asked to reflect on whether the systematic introduction of the RED-QI approach with UI-FHS support had affected performance of the RI system. The majority of respondents from WoHOs, HCs, and HPs reported positive changes to the RI system since the introduction of RED-QI.

The RED-QI strategy was vital to strengthening the RI system in the following ways:

The development and use of session plans as part of the microplanning process helped health personnel plan service delivery and ensure greater reach to the target population. Session plans facilitated defaulter tracking by community engagement. According to respondents, the improvements in reach of services also contributed to improved use of services by the communities.

Most HP and HC respondents mentioned that PBSS visits improved service delivery because they reinforced training concepts. PBSS also identified enhanced documentation and recording of data because it entails an examination of how WoHOs, HCs, and HPs record activities and stimulates the use of data to make decisions about next steps. Discussions with supervisors during these visits encourage health workers to pay closer attention to documentation.

All respondents reported improved relationships between the communities and health systems because the two worked closer together to solve problems and trace defaulters through QITs and HEWs. Specific examples of improved relationships included community mobilization and growing awareness of RI among the pastoralist population. Respondents from Harshin reported an improvement in cold chain management and supportive supervision through use of the RED-QI approaches.

Overall, respondents spoke of improved, intentional, and more frequent collection and use of data to plan and deliver services, and improved capacity to plan and manage service delivery.

6. Data use

UI-FHS promotes and supports the regular collection, review, and use of data through multiple sources including the health management information system to enable health workers and administrators to plan and manage RI service delivery. In this section we present examples of data use since the introduction of UI-FHS. While respondents were not asked to provide examples of data use, the preceding sections offer compelling examples of how health personnel used data to facilitate planning, service delivery, and overall performance improvement. The concept of data collection for reporting and review is interwoven through most of the findings. Many respondents, including those from Assaieta, mentioned the importance of data to measure progress and identify solutions to problems. In general, respondents reported increased recognition of the value of data and increased emphasis on their use to refine and improve program implementation. The following points indicate a shift in the culture of data use:

- Micro-plans were widely reported to facilitate data use because the existence of a plan triggered a review process to check whether activities were conducted as scheduled. Prior to UI-FHS support, these meetings were inconsistent.
- Many respondents also noted an increase in reporting on immunization coverage data at review meetings.
- Defaulter tracing was a commonly reported activity by respondents. QITs were enlisted to help track those who did not receive the required vaccinations and to encourage them to return for services.

- Due to the consistent focus on coverage, most respondents reported knowing their target populations and coverage and stated that they used up-to-date monitoring charts to track progress. PBSS data show a trend toward increased availability of up-to-date monitoring charts, which UI-FHS considers a proxy for use.
- A few respondents reported using tickler files to track women and defaulters.
- One respondent named area mapping as critical for identifying target populations and planning fixed outreach and mobile sessions for each village.
- A few respondents mentioned recording and reviewing written feedback provided during each SS visit to ensure that follow-up activities were taken to modify practices that did not meet quality standards.
- WoHOs reported reviewing reports before they were shared with regions. WoHOs also reported that they acted on the reports they reviewed by reaching out to facilities with low performance and offering additional SS.
- Most WoHOs reported conducting data quality checks by comparing monthly reports with registration books, monitoring charts, and tally sheets.
- Limited use of the RED categorization tool was reported. Often RED categorization was on computers that health workers could not access, which limited their ability to use the tool. However, the Gulina WoHO reported using the RED categorization tool to identify poor and strong performers.

“We were not linking our services to the community; we didn’t do community mobilization and discussion before; we didn’t use micro-plan. However, we have started working on all of these after JSI introduced.”

– Health worker, Erebti

7. Sustainability

UI-FHS considers services as sustained if they are planned and budgeted for, as originally designed or modified to fit the need of the woreda. UI-FHS sustainability was examined through an analysis of direct questions to respondents who were asked to identify factors that hindered sustainable program implementation and factors that would increase the chances of sustainability. Sustainability was also understood by noting systemic challenges described by respondents in response to other questions on barriers to effective RI performance.

Factors that enabled sustainability:

- Community support for health workers and immunization resulted in improved vaccine acceptance and use of health services.
- Consistent supportive supervision visits were opportunities to solve problems.
- Session plans ensured improved service availability for target populations.

Factors that hindered sustainability:

- Human resource shortages (health extension workers) because Afar and Somali are considered hardship locations.⁹ Most HEWs who were recruited didn't speak the local language/dialect so community members don't trust them as much as local-language speakers.
- Shortage of or malfunctioning fridges prevented safe vaccine storages.
- Insufficient supply of vaccine carriers limited the ability of health workers to conduct outreach and mobile services.
- Lack of transport and per diems prevent health workers from conducting outreach and mobile services and supportive supervision visits.
- Limited opportunities for RED-QI refresher trainings.

Assaieta

Assaieta, one of the original three learning woredas, was a good candidate for a sustainability assessment because UI-FHS stopped working there in 2014. During its implementation in the woreda, UI-FHS introduced and supported use of RED-QI to strengthen service delivery through:

- SS checklists that enabled supervisors to stay focused and cover all relevant topics during each visit
- provision of per diem and fuel for transport for supportive supervision visits
- tools like fishbone and Pareto charts to identify and prioritize challenges to strengthen RI service delivery
- micro-plans to manage RI service delivery by breaking down activities by weekly and monthly schedules
- use of data ranging from the health management information system to program-specific data to track whether program activities were having the intended effect
- expanding QIT membership to include more villages and strengthening relationships between QITs and the HPs (QITs help health posts track defaulters and alert communities to outreach sessions)
- training and supportive supervision to strengthen the capacity of health workers to deliver services.

Of the activities listed above, respondents reported the following initiatives were continuing due to support from other donor or implementing partners:

- The QITs remain active and are being supported by Emory University.
- WoHOs continue to use SS checklists.

⁹ Education levels are generally lower in Afar and Somali than other regions in Ethiopia. HEWs and nurses there are often recruited from other parts of the country.

- WoHOs hold monthly performance evaluation meetings where they award prizes to the best-performing facilities and provide suggestions to the facilities with low performance.
- One HP had a QIT minute book dated June 2017. The minutes from this book indicated that participants discussed ways to identify pregnant women and visit mothers of newborns to ensure they were aware of the importance of vaccination. (Thorough documentation of QIT meetings was not common practice and this respondent was a clear outlier.)

However, respondents from Assaieta reported that experience sharing, micro-planning, and plan-do-study-act cycles were happening with less frequency since UI-FHS ended due to lack of per diem, fuel for transport, unavailability of materials and stationery, and in the case of plan-do-study-act, the inability to remember concepts.

8. Contextual factors

The mid-program review sought to examine factors outside the project's control (e.g., policy, finance, seasonality) that influenced implementation. Respondents listed the following factors, which, in addition to influencing implementation affected sustainability.

- Financial support from donors for mobile and outreach enabled teams to travel to communities because donor support funded vehicles and per diems.
- When political leaders made RI a priority, the program had the needed resources (within reason) and progress was monitored to ensure that everyone at all levels of the system maintained focus on EPI.
- Disease outbreaks like acute watery diarrhea disrupted RI services because they diverted resources, especially staff who had to focus on controlling the emergency.
- The topography of Afar, where camels and mules are required to carry teams and vaccines to communities, was a challenge. Further, transport by animal takes much longer than by vehicle and imposes additional cold chain challenges.
- Inadequate funding curtailed service delivery, supportive supervision, exchange visits, and review meetings severely.
- Staff shortages because few health workers were willing to take long-term assignments in Afar and Somali, where living and working conditions are particularly challenging because of the desert climate and topography, and pastoralist populations who do not speak the same local language. This barrier limits health workers ability to develop strong, trusting relationships with communities.
- Afar implements a policy that prohibits less-qualified HEWs to provide vaccination and other injections. In a region with a shortage of health personnel, this policy further hindered their ability to reach more of their target populations. However, according to the RHB, the policy is being revised and HEWs will soon be allowed to vaccinate.

- Infrastructure challenges, particularly the lack of electricity, means that electricity-powered refrigerators do not work and vaccines therefore do not stay cold. Respondents noted that the increased use of solar power was helping to mitigate this challenge.
- Lack of stationary meant that HPs and HCs had to make their own EPI registers using whatever paper they could find.

Conclusions and recommendations

The vast majority of people living in Somali and Afar are pastoralist, meaning they are nomadic. This makes reaching these populations with high-quality vaccine five times in the first year of life an enormous challenge. As Ethiopia improves access to health services for all citizens, it is critical to design strategies that address the challenges with the Afar and Somali health systems and that target the pastoralist populations.

UI-FHS has made many strides in strengthening the RI system in Afar and Somali. The RED-QI approach has been implemented in line with the objectives agreed upon by the FMOH and UI-FHS. Conclusions and recommendations from the MPR are outlined below.

A multi-faceted approach is needed to build health worker capacity

A variety of interventions should be used to build and sustain the RI capacity of health staff in Afar and Somali regions. Classroom training alone is insufficient and this mid-program review found that despite creating training plans with woredas, the plans were not cascaded because of insufficient technical capacity and resources. Despite challenges with cascade training, UI-FHS's multi-faceted approach, which included classroom training, supportive supervision, and opportunities for peer learning and discussion focused on data during review meetings, increased health worker capacity to manage the RI system.

Supportive supervision offered opportunities to reinforce concepts and identify areas that need strengthening. Supervision checklists were considered useful by supervisors at HCs and WoHOs. Assaieta Woreda reported using PBSS checklists (three years after the departure of UI-FHS) because they helped supervisors stay focused and cover essential agenda items at each visit.

Exchange visits were occasions for peer-to-peer information exchange during which best practices were shared and adapted by other facilities.

Review meetings convened a broad group of stakeholders and prompted decision-making and accountability for RI service delivery and system improvements. These meetings were also an opportunity to review data and discuss resource and financing needs for health services.

Other technical concepts, such as plan-do-study-act cycles, reinforced and strengthened team work and built skills in local problem-solving. However, some concepts were challenging to sustain because of their abstract nature and limited opportunities for health workers to relearn or seek clarification from peers or supervisors.

Respondents noted that resource constraints for all of the above mentioned approaches limited the frequency and threatened the sustainability of these activities.

Recommendations

- Regional health bureaus, WoHOs, and other partners should take a multi-faceted approach to capacity building, including supplementing classroom training with on-the-job training through supportive supervision, peer learning, and job aids. In addition, develop training materials in

local languages and ensure their availability at facilities. This will allow health workers to refer to relevant documents in a timely manner to remind themselves of concepts as needed.

- Supportive supervision will be critical for building and sustaining health system improvements in Afar and Ethiopian Somali regions and it will be important to allocate additional resources and training for supportive supervision.
- As exchange visits across different woredas can be cost-prohibitive and difficult to organize, focus on exchange visits among health workers within a woreda, linking strong health workers with peers who need additional support.
- Encourage woredas to hold regular review meetings so staff can look at their data and learn from each other.
- As per the new national guidelines on quality improvement, UI-FHS encourages the establishment of QITs at regional, zonal, woreda, and health facility levels and supports efforts to improve the quality of services using a variety of QI tools and approaches.

Planning for RI service delivery is critical, but WoHOs need support with the process

Prior to UI-FHS support, most woredas in Afar and Ethiopian Somali regions did not have EPI micro-plans. EPI micro-planning has proved critical for improving RI service delivery, because it facilitates session planning and access by estimating and mapping target populations. Conducting regular immunization sessions, including mobile and outreach strategies, was essential in serving hard-to-reach populations, such as pastoralist communities. Respondents reported that micro-planning increased community awareness of immunization and accountability of the health system, as plans were communicated to mothers who then demanded services. In addition, health facilities used program data to involve communities in the identification and tracking of defaulter children. Micro-planning also improved resource estimation, although respondents acknowledged that budgetary and logistics constraints make reaching pastoralist communities more difficult.

During the review, health workers and WoHOs discussed challenges to monitoring the movements of the pastoralist communities. The involvement of kebele and community leaders in micro-planning and communications before conducting mobile and outreach services improved service utilization. But health workers need resources and skills to plan and implement mobile and outreach services, which includes reliable cold chain and logistics.

Recommendations

- Strengthen health worker capacity for bottom-up micro-planning and for the planning and implementation of mobile and outreach services across the region. Support annual woreda-level follow-up for micro-planning and mobile and outreach services.
- Continue to strengthen relations between the health system and community by including key stakeholders such as kebele and community leaders in micro-planning and communications for mobile and outreach services.

- Work with RHBs to adapt national strategies to their regional context; this includes budgeting for mobile and outreach services as part of the RI system.
- Given the known challenges with vaccine management in the regions, build capacity and increase focus on analysis of vaccine management and supply chain issues.

Investments must be made to sustain strong RI systems

UI-FHS supports implementation of activities for approximately 20 months in each woreda, and helps each WoHO design a plan to continue to implement activities post-UI-FHS support. Twenty months seems sufficient for introducing concepts and strengthening implementation; none of the respondents expressed concerns with the amount duration of time in which they had to learn, adapt, and implement the activities. However, given the persistent shortfall of resources, the WoHOs asked for continued support from UI-FHS for RI system strengthening. As UI-FHS uses a phased approach in woredas, supporting each for a predetermined period of time, the project cannot continue to support wide-scale implementation at woreda-level in Afar and Somali regions. Instead, the project will work with the RHB and partners to strengthen RI service delivery.

Discussions on sustainability focused on resource shortfalls, and data from Assaieta reinforced the importance of resources to ensure interventions continue to be implemented. A shortage of resources cannot be resolved quickly but can be mitigated by asking the FMOH, RHBs, donor, and partner organizations to look for opportunities to strengthen resource mobilization, planning, and budgeting for RI services.

Recommendation

JSI can share its experience in other countries and settings with decision-makers to inform policy and planning to help the FMOH overcome challenges in the DRS.

In conclusion, implementation of the RED-QI approach in Afar and Somali regions has strengthened various facets of the RI system, but requires continued support and engagement from the RHB to build upon and sustain achievements. Over the next three years, UI-FHS intends to work with the FMOH and RHBs in the DRS to mitigate ongoing challenges in the regions and to strengthen the reach and quality of immunization services.

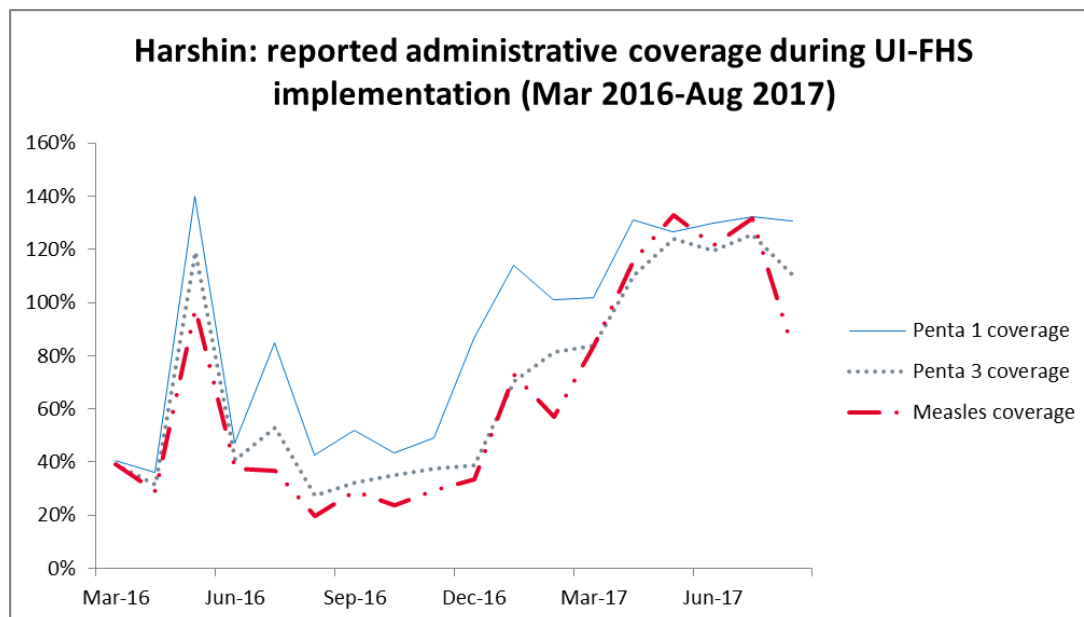
Study limitations

Self-reported data: The primary data collected in the MPR was qualitative and collected through KIs and FGDs. Self-reported data by respondents about their experience with UI-FHS could not always be independently verified. Such data are also vulnerable to bias or memory lapses in which respondents may recall specific events and give them more importance than other events. The data collection team used thorough interviewing techniques like asking respondents for examples and to elaborate to ensure the authenticity and veracity of responses.

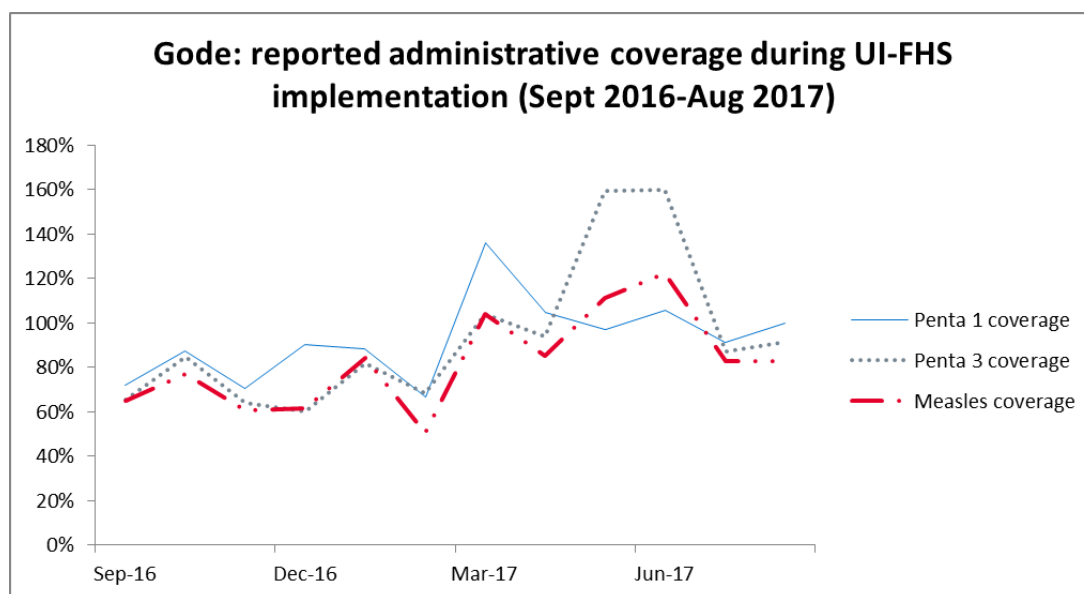
Type of respondents: This review focused on RI service delivery and the respondents were health staff at all levels of the health system. However, the study did not include community members. Community perspectives on RI service delivery in pastoralist regions are vital to understanding challenges to accessing health care and for informing strategies to strengthen links between communities and health services.

Quality challenges with administrative data: Coverage data were one of the data points for triangulation. However, as evidenced in the annex, fluctuating coverage that includes data points as high as 111 percent suggest underlying data quality challenges, which make it difficult to interpret with certainty.

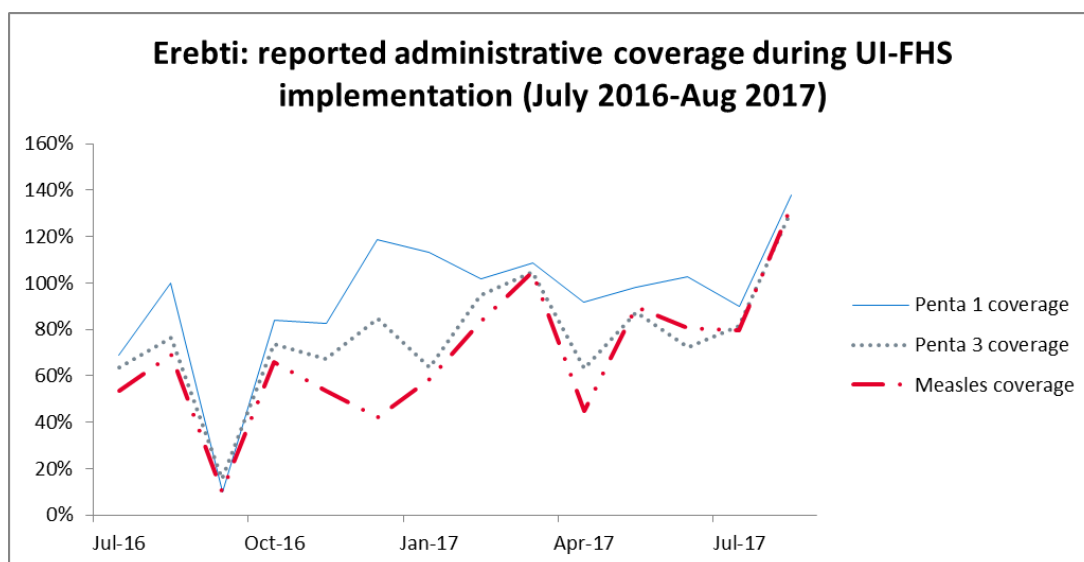
Annex: Reported Administrative Coverage for Penta1, Penta3, and Measles in Five Woredas: Harshin, Gode, Erebti, Gulina, and Mille



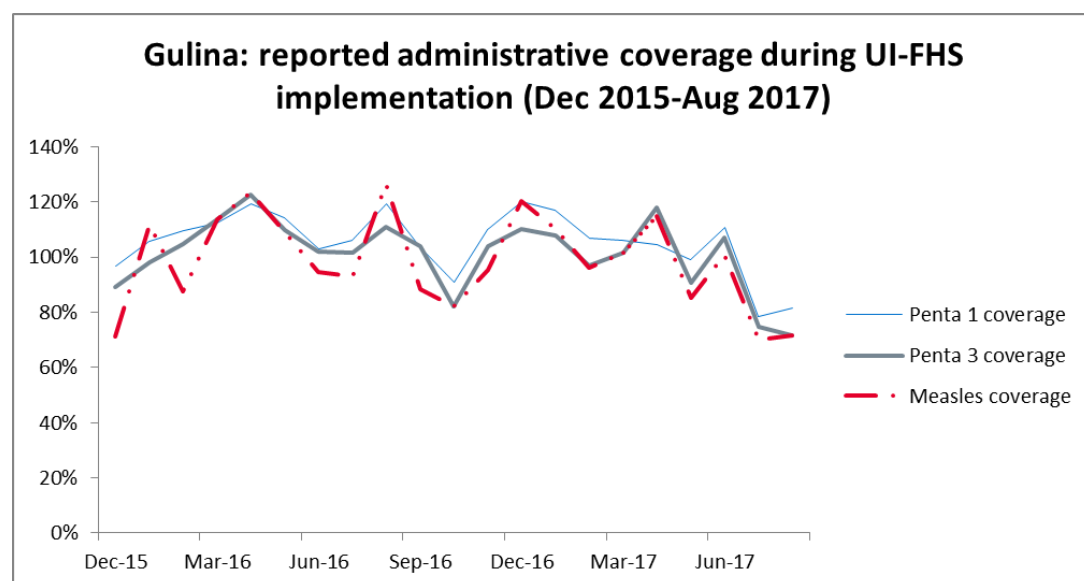
In Harshin Woreda, where UI-FHS was implemented from March 2016 through MPR data collection in August 2017, administrative coverage fluctuated considerably but rose overall. Penta1 coverage rose from 41 percent to 131 percent; Penta3 from 39 percent to 111 percent; and measles coverage increased from 39 percent to 83 percent.



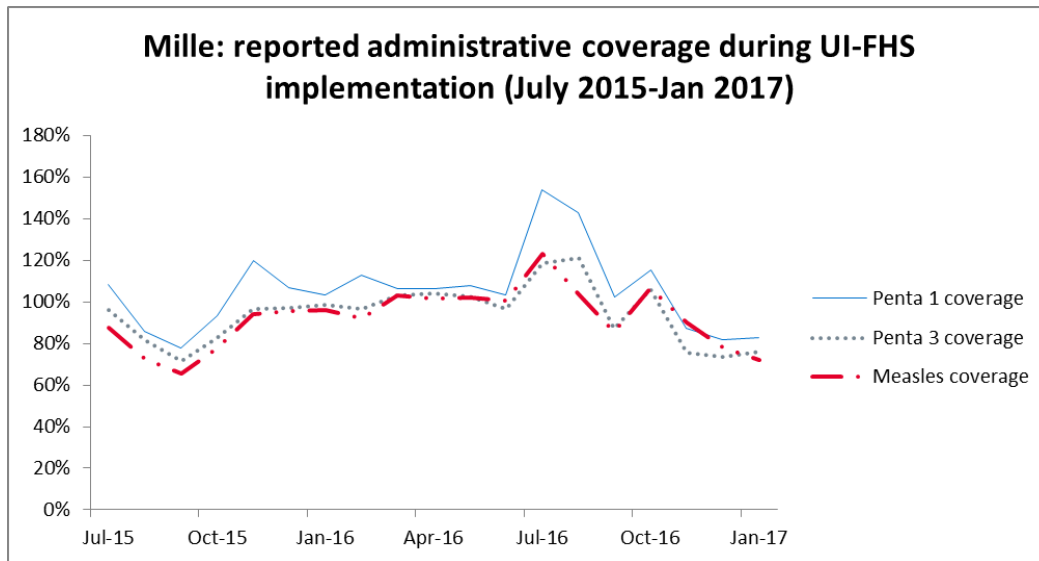
In Gode Woreda, UI-FHS was implemented from September 2016 through MPR data collection in August 2017. During this time, administrative coverage for Penta1 rose from 72 percent to 100 percent; Penta3 coverage rose from 66 percent to 91 percent; and measles from 65 percent to 83 percent.



In Erebt Woreda, where UI-FHS was implemented from July 2016 through MPR data collection in August 2017, administrative coverage fluctuated considerably. Penta1 coverage rose from 69 percent to 138 percent; Penta3 from 64 percent to 131 percent; and measles coverage increased from 54 percent to 133 percent.



In Gulina woreda, UI-FHS was implemented from December 2015 until August 2017. During this time, administrative coverage had some fluctuation but ultimately decreased slightly. Penta1 coverage decreased from 97 percent to 82 percent; Penta3 from 89 percent to 71 percent; and measles coverage fluctuated but was at 71 percent at start and end points.



In Mille woreda where UI-FHS was implemented from July 2015 until January 2017, administrative coverage experienced some fluctuations but decreased overall. Penta1 coverage decreased from 108 percent to 83 percent; Penta3 from 96 percent to 76 percent; and measles coverage decreased from 88 percent to 72 percent.



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