Supply Chains 4 Community Case Management

Ethiopia

Assessing training coverage of the Integrated Pharmaceutical Logistics System at selected health centers in four regions in Ethiopia using the Lot Quality Assurance Sampling Method

August 2012

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SC4CCM Project

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Abstract

In 2012, the SC4CCM Project assessed training coverage of the Integrated Pharmaceutical Logistics System at selected Health Centers in four regions in Ethiopia using the Lot Quality Assurance Sampling Method. Results from the analysis show that all four regions reached the project targets for three of a total of five indicators. Based on the results of the LQAS, SC4CCM was able to conduct intervention support.

Cover photo: SC4CCM Project. Health extension worker in health post store room, Amhara Ethiopia, 2012.

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Acronyms

HC	Health Center
HEWs	Health extension workers
HPMRR	Health Post Monthly report and Resupply form
IPLS	Integrated Pharmaceutical Logistics System
LQAS	Lot Quality Assurance Sampling
OJT	On-the-job training
PFSA	Pharmaceuticals Fund and Supply Agency
PHCU	Primary Health Care Unit
PS	Problem solving
RCHLA	Regional Community Health Logistic Advisor
RHBs	Regional Health Bureaus
RLs	Ready Lessons
SC4CCM	Supply Chain for Community Case Management of Pneumonia and other Common Diseases of Childhood

Glossary

Supervision area	A county or sub-counties in a given area where services are being delivered. A supervision area should reflect management units, should consider existing project resources, and be practical and feasible
Decision rule	Tells us whether a supervision area reaches the benchmark set by the project
Benchmark	A predetermined level of coverage for an indicator that the project aims to reach at a specific time period
Phase I	The first of SC4CCM's two-phased intervention strategy; during this time, SC4CCM and USAID|DELIVER partnered to provide national coverage of supply chain knowledge, skills and tools among HEWs to ensure basic processes and competencies are in place to contribute to incremental improvements in product availability

Acknowledgements

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Executive Summary

Ethiopia introduced its Health Extension Program in 2004, and to date more than 38,000 Health Extension Workers (HEWs) are working throughout the country to improve the quality and availability of primary healthcare services, particularly in rural areas where 84 percent of the population lives in Ethiopia. HEWs are trained to provide 16 packages of services covering disease prevention & control, family health, hygiene & environmental sanitation, health education & communication, and Integrated Community Case Management (ICCM: assessment classification and treatment of pneumonia, malaria, diarrhea and severe acute malnutrition). In order to strengthen the logistic knowledge and skills of HEWs to ensure they have the appropriate medicines available to treat these conditions, the Improving Supply Chains for Community Case Management of Pneumonia and Other Common Diseases of Childhood (SC4CCM) project designed and implemented a group training approach for imparting knowledge and building the capacity of HEWs on the Integrated Pharmaceutical Logistics System (IPLS) aimed at improving supply chain performance at the health post level.

To identify gaps and to design practical and feasible support in the implementation of IPLS for HEWs, SC4CCM has been monitoring the progress of the group training sessions, which incorporate IPLS lessons and Problem Solving (PS), three months after the intervention was rolled out in March-April 2012. The project used Lot Quality Assurance Sampling (LQAS) methodology to evaluate SC4CCM activities in four regions (Amhara, Oromiya, SNNPR, and Tigray) between May-June 2012. The monitoring exercise had three overarching objectives:

- To create discussion among program/partner supervisors and technical coordinators about HC level performance on select indicators for IPLS for HEWs and PS sessions of the supply chain system
- To establish whether supply chain program inputs and knowledge of the IPLS for HEWs among Health Center (HC) pharmacy managers are associated with success in meeting overall indicator targets of intervention roll out
- To provide data to help the project team identify regions that will require intervention support and inform the development of an intervention support plan using LQAS results

LQAS was selected as the sampling and analysis method. The supervision areas, for this monitoring exercise were defined as the four regions Amhara, Oromiya, SNNPR, and Tigray. HCs from the 4 regions were chosen for this monitoring exercise and using LQAS methodology, we determined whether the HCs in each region reached an established performance benchmark for an indicator. The results from the LQAS analysis will provide data for programmatic decision making and for information exchange across supervision areas.

Results from the analysis show that all four regions reached the project targets for the following three of a total of five indicators:

- % of HC pharmacy managers that received training in PS;
- % of HC pharmacy managers that received training in all 5 IPLS Ready lessons for HEWs; and
- % of HCs that have training materials.

Tigray missed the target for the indicator '% of HCs that provided training to HEWs on the first IPLS lesson as scheduled', due to a delay in starting the Training of Trainers (TOT), unavailability and irregularity of Primary Health Center Unit (PHCU) meetings, and a lack of assistance from the PHCU director in some HCs. In addition, only HCs in Tigray and SNNPR reached the target for the indicator '% of HCs with adequate knowledge on all 5 IPLS lessons'. In Amhara and Oromiya, respondents had difficulty understanding some of the content of IPLS Ready lessons

These findings are helpful in identifying challenges in intervention roll out and gaps in supply chain knowledge among TOTs that need to be addressed during the intervention support phase over the next four months.

Background

Improving Supply Chains for Community Case Management of Pneumonia and other Common Diseases of Childhood (SC4CCM) is a five-year, multi-country project implemented by JSI Research & Training Institute, Inc. (JSI) with the goal of identifying simple, affordable and sustainable supply chain solutions for the unique challenges faced by community health workers. In Ethiopia, SC4CCM works closely to support the Pharmaceuticals Fund and Supply Agency (PFSA) in improving supply chain performance at health posts. In 2010 SC4CCM conducted a baseline assessment of the supply chain for HEWs and identified the following key findings:

1. Low product availability at resupply points
2. Lack of basic supply chain management (SCM) knowledge and skills among HEWs and some supervisors
3. Lack of reported logistics data from HEWs to higher levels to support decision making
4. Poor storage conditions and inappropriate use of storage space at health post (HP) level
5. Transportation challenges in general, especially of bulky and slow-moving products to health posts.
6. Motivating factors for HEWs include training, product availability, tools to perform their jobs, and their relationship with the community

The project believes that basic SC skills must exist before further interventions to strengthen the supply chain and improve product availability can be implemented. As a result the intervention strategy is

divided into two phases: the first phase which is being implemented addresses the knowledge gap of both the HEW and their supervisor/resupply point.

Training Intervention Design

During the first phase of the intervention strategy, SC4CCM collaborated with USAID | DELIVER PROJECT to test the effectiveness of two methods of training—intensive group training vs. on-the-job training (OJT)—to determine which is better at improving HEWs knowledge and skills and therefore should be used to conduct future trainings for HEWs on the IPLS. During this phase, SC4CCM is implementing the group training approach in 96 woredas across 8 zones in the four biggest regions of Ethiopia (Amhara, Oromia, Tigray, and SNNPR), while the USAID | DELIVER PROJECT is implementing the OJT approach in another set of zones. The project is working in two zones per region to maximize the reach of the project so that other Integrated Community Case Management initiating zones and woredas in the same region will also benefit from what is learned.

The IPLS Lessons and Problem Solving (PS) group training approach was designed as a low cost technique of achieving maximum coverage for providing basic supply chain (SC) skills among HEWs and empowering Health Center (HC) staff to routinely identify and address SC problems. This would be achieved by capitalizing on HEWs traveling to HCs for salaries and the PHCU directive for conducting monthly meetings to train HEWs on attitude, skills and supplies during this time. These monthly meetings enable the provision of SC knowledge, skills and tools amongst HEWs to ensure knowledge of SC basic processes and competencies and to contribute to *incremental* improvements in product availability. The lessons are designed as five simple, one hour supply chain management (SCM) training modules for HEWs and supervisors each with a 30 minute problem solving session. The lessons are designed in basic logistics: roles, storage, recording and reporting. These lessons can be delivered individually or in combination. The PS sessions provide an opportunity for reinforcement on SC knowledge and skill gap areas that were identified following initial training and use. A three day TOT workshop was conducted for HC pharmacy managers and HC directors to provide training to HEWs and problem solve on common problems occurred during monthly HC meetings.

As part of this learning effort SC4CCM has identified a smaller sample of 28 woredas for evaluation and monitoring that has been divided into groups with the following delivery methods:

1. **Intensive** woredas: group training and Zonal/Woreda staff orientations, SC4CCM co-facilitation of some monthly PHCU meetings (targeting weak HCs) and joint monitoring and supervision to all HCs and select HPs with Woreda and HC staff to model and support effective implementation, review meetings for HC staff in each woreda to share experiences and discuss ideas to improve coverage rate

2. **Non-intensive** woredas: group training and Zonal/Woreda staff orientations, review meetings at woreda level with Woreda and Zonal staff to gauge progress and advocate for improving coverage rate

3. **Comparison** woredas (USAID | DELIVER): OJT approach which entails a TOT for pharmacy storekeepers and HEW supervisors, who then provide OJT to HEWs when they come up to collect products from the HC or during on-site supervision at HP. USAID | DELIVER provides monitoring/supervision.

The LQAS monitoring exercise includes a total of 18 woredas from this smaller sample of 28 woredas: 8

intensive training woredas and 10 non intensive training woredas. The comparison group was not included because the project will not provide intervention support there as this is supported by the USAID | DELIVER PROJECT.

Methodology

In an effort to introduce an inexpensive, easy-to-use and sustainable system to monitor key indicators, JSI R&T/SC4CCM use LQAS methodology to select a sample of HCs to assess the knowledge of pharmacy staff and PHCU directors on the IPLS and their practice of PS in the four regions. The primary objectives of the LQAS are to:

1. Create discussion among program/partner supervisors and technical coordinators about HC level performance on select indicators for IPLS and PS sessions of the supply chain system

2. Establish whether supply chain program inputs and IPLS knowledge among HC pharmacy managers are associated with success in meeting overall indicator targets of intervention roll out

3. To help the project team identify regions that will require intervention support and inform the development of an intervention support plan using LQAS results

A key feature of LQAS is providing binary (adequate or not adequate) estimates of key indicators with a small sample size within a supervision area (SA). A SA is a programmatically defined catchment area where interventions are being rolled out. In this project, we defined the four SAs as the four regions where Phase I interventions are taking place in the evaluation woredas-Amhara, Oromiya, Tigray, and SNNPR. A benchmark, or a predetermined level of coverage that the project aims to reach for each indicator at a specific time period, is defined. Then based on LQAS methodology, a decision rule is applied, providing information on whether a SA reaches the benchmark (pass) or is below the benchmark (fail). In this sample, a total of 70 health centers were included from the four regions to determine whether coverage of training for HEWs on IPLS lessons, PS sessions, and HC level knowledge on IPLS lessons met the set targets, allowing for the identification of priority areas for intervention support. Data collection was conducted using EpiSurveyor, a mobile phone-based technology designed by DataDyne. The mobile application enables data to be uploaded to the server where it is stored on a regular basis, making it more readily available for analysis. Both qualitative and quantitative data were collected between May-June 2012. The qualitative data were collected to complement quantitative results and provides more detailed information to explain complex issues. Open-ended questions were asked to assess the challenges that both HC pharmacy managers and PHCU directors face conducting the IPLS lessons and PS sessions with HEWs.

Sample Size

The sample sizes determined for Amhara and Oromiya per supervision area were 19 health centers (HCs) using standard LQAS procedures. Nineteen is the smallest sample size that allows at least 90% sensitivity and specificity for all benchmarks or targets for indicators between 10%-95%. The 19 HCs in Amhara and Oromiya, each out of 60 and 28 HCs respectively, were selected using probability proportional to size sampling, based on the number of health posts (HP) in each health center. As there were only 12 HCs in Tigray and 20 HCs in SNNPR in the SAs, all HCs were chosen (census rather than LQAS) for both regions for monitoring.

An important note is that the results from Oromiya and Amhara were only based on the sample of 19 HCs and therefore we could not provide point estimates for each of the indicators within these two regions. However, in Tigray and SNNPR, since we conducted a census, we were able to provide point estimates for each of the indicators within these 2 regions.

Data Collection Procedures

Data were collected using a standardized, structured questionnaire, which was pre-tested in four HCs from April 18-23, 2012, both in intensive and non-intensive woredas in the Amhara region. The questions on the LQAS data collection tool were directed to HC pharmacy managers, nurses, and health officers who received the TOT and who provide training to the HEWs. Data was collected between May 18-30, 2012 from Amhara, Oromiya, and SNNPR and between July 9-13, 2012 in Tigray. Two staff per HC were interviewed; the HC pharmacy manager/nurse/health officer and HC director. Regional Community Health Logistics Advisors (RCHLAs) from the SC4CCM project collected data from their respective regions, and representatives from the respective woredas served as observers during data collection.

LQAS Parameters/Indicators

The five key indicators that were measured during the LQAS are listed below:

- % of HC Pharmacy managers who received training in all 5 IPLS lessons
- % of HC pharmacy managers trained in PS
- % of HCs with adequate knowledge on 5 IPLS lessons
- % of HCs that provided training to HEWs on IPLS lesson 1 as scheduled
- % of HCs that have training materials

In addition, data on other indicators were also collected to provide a clearer picture of intervention roll out.

- % of HEWs trained on the 5 IPLS lessons
- # of HCs that at least had one meeting after TOT to conduct PS session
- # of HC staff who had previous IPLS training
- # of HC directors who have been trained on IPLS
- # of HC directors who have been trained on PS

Qualitative data were also collected to help explain the results from the quantitative results. The pharmacy store managers were interviewed about challenges in:

- Understanding the content of IPLS lessons
- Completing all IPLS content in the time allocated
- Cascading training of HEWs as planned
- Conducting the PS session and using the tracking tool

And PHCU directors were asked about the challenges in:

- Coordinating and managing IPLS for HEWs at HC
- Understanding content of the IPLS lessons
- Coordinating and managing the PS session

Data Analysis

Data was exported from EpiSurveyor to Excel, and analysis was done using Microsoft Excel and SPSS Version 17. Benchmarks or targets for each indicator were set by the project based on a series of discussions. Based on these targets, as per LQAS methodology, a decision rule was set for each target. The decision rules helped classify the performance of the sample of health centers as being 'satisfactory' or 'unsatisfactory' for the 5 key indicators for LQAS.

LQAS Results

The LQAS was designed to look at 5 key indicators. These key indicators were chosen to give the project insight into the different factors influencing the successful implementation of the IPLS / PS Sessions. To be able to implement the sessions, first the HC staff required training on how to conduct the sessions and materials to support them. The trainings needed to result in the HC staff having adequate knowledge to be able to train the HEWs. And finally the HC staff has to arrange meetings with the HEWs at the HC to conduct the sessions. Only if all these five aspects are in place will this intervention be successful. The results for the 5 indicators measured during LQAS, for the four supervision areas—Amhara, Oromiya, SNNPR and Tigray—are presented in Tables 1-6 below across both intensive and non-intensive intervention woredas. It should be noted that the differences between the intensive and non-intensive woredas are in the intervention support that will be given as a result of the LQAS. Prior to the LQAS all woredas in both groups had received equal intervention.

Table 1: Comparison of supervision areas by all 5 key LQAS Indicators

	Indicators	Target	Supervision area (Y=at or above target; N=below target)			
			Amhara	Oromiya	SNNPR	Tigray
1	% of HC Pharmacy managers who received training in all 5 RLs	80%	Y	Y	Y	Y
2	% of HC pharmacy managers trained in problem-solving	80%	Y	Y	Y	Y
3	% of HCs with adequate knowledge on 5 RLs	70%	N	N	Y	Y
4	% of HCs that provided training to HEWs on RL1 as scheduled	80%	Y	Y	Y	N
5	% of HCs that have training materials	80%	Y	Y	Y	Y

Table 2: Key indicator 1, % of HC Pharmacy managers who received training in all 5 IPLS Lessons

Supervision area	Results (No. of HCs)		Target	Sample size	Fail (F) /Pass (P)
	Yes	No			
Amhara	18	1	80%	19	P
Oromiya	19	0	80%	19	P
SNNPR	20	0	80%	20	P
Tigray	12	0	80%	12	P
TOTAL	69	1		70	

Table 3: Key indicator 2, % of HC Pharmacy managers trained in PS

Supervision area	Results (No. of HCs)		Target	Sample size	Fail (F) /Pass (P)
	Yes	No			
Amhara	18	1	***80%***	***19***	P
Oromiya	19	0	***80%***	***19***	P
SNNPR	20	0	***80%***	***20***	P
Tigray	12	0	***80%***	***12***	P
TOTAL	69	1		***70***	

Table 4: Key indicator 3, % of HCs with adequate knowledge on 5 IPLS Lessons

Supervision area	Results (No. of HCs)		Target	Sample size	Fail (F) /Pass (P)
	Yes	No			
Amhara	8	11	70%	19	F
Oromiya	9	10	70%	19	F
SNNPR	16	4	70%	20	P
Tigray	9	3	70%	12	P
TOTAL	42	28		70	

Table 5: Key indicator 4, % of HCs that provided training to HEWs on RL1 as scheduled

Supervision area	Results No of HCs		Target	Sample size	Fail (F) /Pass (P)
	Yes	No			
Amhara	15	4	80%	19	P
Oromiya	15	4	80%	19	P
SNNPR	16	4	80%	20	P
Tigray	8	4	80%	12	F
TOTAL	54	16		70	

Table 6: Key indicator 5, % of HCs that have training materials in Amhara, Oromiya, SNNPR and Tigray

Supervision area	Results No of HCs		Target	Sample size	Fail (F) /Pass (P)
	Yes	No			
Amhara	19	0	80%	19	P
Oromiya	19	0	80%	19	P
SNNPR	20	0	80%	19	P
Tigray	12	0	80%	12	P
TOTAL	70	0		70	

The results can be divided into three main areas: the ability of HC staff to conduct IPLS / PS sessions by being given the skills and tools needed (key indicator 1, 2, 5), the ability of the HC to implement the IPLS lessons once they return to their place of work (key indicator 4), and HC staff knowledge as a result of the TOT (key indicator 3).

Skills and Tools Required for IPLS / PS Sessions

All four supervision areas reached the targets for the three indicators that pertain to the HC staff having the skills and tools required to implement the IPLS / PS sessions: % of HC pharmacy managers that received training in all 5 IPLS lessons; % of HC pharmacy managers that received training in PS; and % of HCs that have training materials. The majority of HC pharmacy managers who were interviewed received training on 5 IPLS lessons and on how to conduct PS in our sample of HCs, as per the expected roll out of the intervention across all 4 regions.

Implementation of IPLS Sessions

By the time of the LQAS data collection it was expected that every health center should have conducted the first IPLS lesson. All regions except Tigray reached the target on the % of HEWs who had received training on IPLS lesson 1 as scheduled. In Amhara, Oromiya, SNNPR, and Tigray, the percent of HEWs who had been trained on IPLS1 were 75%, 67%, 63 % and 50% respectively. Overall coverage as scheduled for IPLS lesson 1 was good. The coverage for IPLS lesson 2 was also quite high and slowly declined across the regions for the subsequent IPLS lessons, see Table 9.

Health Center Staff Knowledge

An overall knowledge score was calculated by summing up all the correct answers provided by the respondent on topics related to the IPLS. We defined adequate knowledge within a SA when at least 70% of the sample of HCs in the SA scored at least 70% or higher on the knowledge assessment. Only Tigray

and SNNPR reached the target for adequate knowledge on the 5 IPLS lessons. In Amhara and Oromiya, approximately half of the HCs that were sampled did not reach target for adequate knowledge on 5 IPLS lessons. Results showed that the majority of respondents had sufficient knowledge in the six rights of logistics and the definition of IPLS. In addition, the majority of the respondents were able to list the four data elements related to transactions of pharmaceuticals recorded on a bin card (records quantity of drugs received, quantity of drugs issued, losses or adjustments, and balance) as recorded below in Table 7.

Table 7: HC staff who responded correctly on data elements recorded in Bin Card

# of Correct Response	Region			
	Amhara	Oromiya	SNNPR	Tigray
None	-	-	-	-
One or two	2	2	-	-
Three	2	1	-	1
Four	15	16	20	11
Total	19	19	20	12

Similarly, a majority of respondents from all four regions was able to list all 4 elements (beginning balance, quantity received, losses and adjustments, and ending balance) recorded in the HPMMR form correctly as shown below in Table 8.

Table 8: HC staff who responded correctly on data elements recorded in HPMRR

# of Correct Response	Region			
	Amhara	Oromiya	SNNPR	Tigray
None	1	1	1	-
One or two	2	5	3	1
Three	2	-	-	1
Four	14	13	16	10
Total	19	19	19	12

However, in Amhara and Oromiya, there were some areas where HC pharmacy managers/nurses/health officers lacked knowledge resulting in a failure to reach the benchmark for these two regions (SAs) as shown below in Table 9.

Table 9: Areas where knowledge was poor among respondents in Amhara and Oromiya

What types of losses are referred to in a bin card?
What does “adjustments in a bin card” refer to?
How is balance calculated in a bin card?
How to conduct a physical count?
What are some good storage practices?
What is FEFO?
What is the purpose of an HPPMR form?
How to fill loss/adjustment from bin card to HPMRR?
How to complete the ‘Completed by Health Center’ part of HPMRR?
How to fill the column ‘Quantity Supplied’ in HPMRR?
How to get the first beginning balance in HPMRR and how to fill ‘Quantity Supplied’ column in HPMRR?
What is the difference between the beginning & ending balance of the HPMRR?
Where to bring the data for the calculated consumption last month & quantity supplied on HPMRR?
What to fill on the bin card in the space provided for "unit of issue"?
Not clear on how much & how frequent does the HEWs issue pharmaceuticals to their dispensing table

In Oromiya, with regard to competency, there were respondents who did not understand how to fill losses/adjustments from bin card to HPMRR. Some respondents did not understand how to complete the ‘Completed by Health Center’ portion and how to fill the column ‘Quantity Supplied’ on HPMRR. Also, some respondents had difficulty inputting the first beginning balance and filling the ‘Quantity Supplied’ column on HPMRR.

In Amhara, respondents had difficulties understanding the difference between the beginning and ending balance of the HPMRR. In addition, respondents did not know where to record the data for the calculated consumption of the prior month and the quantity supplied on HPMRR. There was also confusion on how to fill the bin card in the space provided for "unit of issue,” and whether this referred to tabs, vials, boxes or packs. Also, respondents were not clear on how much and how frequently the HEWs issue pharmaceuticals to their dispensing table.

Other Supportive Indicators

In addition to the 5 indicators that followed the LQAS methodology described above, data on other indicators was collected to provide additional information on intervention roll out. These indicators are presented below in Table 10.

Table 10. Other indicators

Region	Sample size	% of HEWs who were trained on IPLS 1	% of HEWs who were trained on IPLS 2	% of HEWs who were trained on IPLS 3	% of HEWs who were trained on IPLS 4	% of HEWs who were trained on IPLS 5	# of HC staff that received previous training in IPLS	# of HCs at least that have one meeting after TOT to conduct PS session	# of HCs where directors are trained in IPLS	# of HCs where directors are trained in PS
Amhara	19	75%	72%	53%	48%	48%	6	6	20	12
Oromiya	19	67%	52%	34%	40%	42%	5	3	8	8
SNNPR	20	63%	50%	21%	11%	16%	5	5	21	17
Tigray	12	50%	78%	75%	42%	47%	9	3	0	0
TOTAL	70						25	17	49	37

% of HEWs who were trained on the 5 IPLS lessons

As previously mentioned during the LQAS period in Amhara, Oromiya, SNNPR, and Tigray, the percent of HEWs who had been trained on IPLS1 were 75%, 67%, 63 % and 50% respectively. Overall coverage as scheduled for IPLS lesson 1 was good. The coverage for IPLS lesson 2 was also quite high and slowly declined across the regions for the subsequent IPLS lessons as expected.

of HCs staff that previously received training on IPLS

Half of the HC staff that was interviewed did not have previous IPLS training. In Amhara, only 3 out of the 11 HC pharmacy managers that failed the knowledge competency had previous IPLS training, and only 3 out of the 8 HCs that passed the knowledge competency had previous IPLS training. In Oromiya, 1 out of the 9 HCs that failed the knowledge competency had previous IPLS training, and 7 out of the 10 HCs that passed the

knowledge competency had previous IPLS training. The majority of respondents from Tigray had previous IPLS training and had adequate knowledge while the majority of respondents in SNNPR did not have previous IPLS training, but still had adequate knowledge.

of HCs that have at least one meeting after TOT to conduct PS session

Only 6 (out of 19), 3 (out of 19), 5 (out of 20) and 3 (out of 12) HCs in Amhara, Oromiya, SNNPR, and Tigray, respectively, started conducting problem solving (PS) sessions after the TOT was conducted.

of HC directors that had received training in IPLS and PS

In Amhara and SNNPR, the majority of HC directors reported being trained in IPLS. In Oromiya, a smaller proportion of HC directors interviewed reported being trained in IPLS. However in all 3 regions, HC directors reported receiving training in PS. In Tigray, there was a delay in conducting the orientation and training of HC directors in IPLS and PS resulting in no directors being trained at the time of LQAS.

Discussion

Skills and Tools Required for IPLS / PS Sessions

For the three indicators pertaining to this area all four regions passed. The TOT workshops managed to reach a large number of health centers and the materials required to conduct the HEW trainings had been received by the HC staff.

Implementing IPLS and PS lessons

Results on the coverage of training of HEWs in the IPLS lesson 1 in Amhara, SNNPR and Oromiya were as per the expected benchmark that was set by the project. However, in Tigray due to a delay in starting the TOT for PHCU Directors as the trainings were not approved by the regional health bureau at the time of LQAS, unavailability and irregularity of PHCU meetings particularly in the non-intensive woredas, and lack of assistance from the PHCU director in some HCs from both woredas, the target of 80% was not reached at the time of LQAS.

The coverage for IPLS lessons 2-5 was higher than expected across all regions. Results from the qualitative data showed that most of the trainings for HEWs were not taking place at PHCU monthly meetings as initially planned due to the irregularity of the monthly PHCU meetings; therefore, some HCs conducted the trainings during separate meetings which sometimes consisted of a full day of training for all IPLS lessons, which could explain the higher coverage of IPLS lessons 2-5. However, there were some challenges with IPLS lesson roll out. These included (i) HEWs complaining that they were tired due to long hours of the meetings since some were also traveling a long distance to go back to their destination; (ii) in some health centers the woreda supervisors were also not allowing HCs to take time for IPLS training during monthly meetings, and instead gave priority for routine monthly monitoring; (iii)

replacement/turnover of trained PHCU directors by other staff; (iv) per diem request by HEWs for training, long distances of HPs from catchment HC; v) unavailability of HEWs for longer periods due to other training and family commitments; and (vi) lack of support from the Woreda health office for training of HEWs on IPLS and PS.

Results from the baseline showed that HEWs did not have previous knowledge on supply chain and logistics concepts, a concern which was also echoed in interviews with HC pharmacy managers at the time of LQAS. The intervention was purposefully designed with this lack of previous knowledge in mind. The idea of implementing the lessons at each monthly meeting with a problem solving session immediately following each lesson was to allow for follow up on concepts that the HEWs had not fully understand from the lesson the previous month. However as many of the HCs have chosen to train on all IPLS lessons in one day, the time was insufficient to complete the activities in each ready lesson as the HEWs required additional explanations. We postulate that this could be because a full 5 hours was not spent on all the lessons (1 hour per lesson as per the design of the group training), resulting in not being able to complete all topics as planned in one day plus does not have the benefit of the problem solving sessions to reinforce gaps in knowledge. However, this warrants further review and will be monitored during supervision and intervention support.

The PS session is an important part of the training, but our data showed that roll out of PS sessions was lower than expected across all regions. Qualitative data shows that due to the lack of regular PHCU meetings, many HCs were more focused on completing all the IPLS lessons before conducting PS and at most only provided an overview of PS during training at the time of LQAS. Since routine PS sessions had not yet started in the HCs visited during LQAS none of the HCs were using the tracking tool for PS yet. In addition, PS can only begin to happen once HEWs travel back to HPs and begin to use the SC tools, then bring up challenges they are facing as they use the tools in subsequent meetings, which had not occurred at the time of LQAS. Also, some HCs planned to use onsite supportive supervision to conduct PS rather than including it during training sessions, given that there was often a shortage of time to discuss issues at the meetings/trainings. There was also some feedback that there was a lack of awareness of PS among PHCU directors and HEWs supervisors in some health centers.

Knowledge among HC pharmacy managers

Results showed that the knowledge on specific topics in the IPLS was low among respondents in Amhara and Oromiya. We postulate that the possible explanations for these results could be:

- The respondents might not have had prior knowledge on supply chain which may have limited their understanding of training content. The TOT was only designed to be a three day event on the assumption that all HC staff had received prior supply chain training. Given that this was not the case, it is likely that the three-day TOT was not long enough for HC staff to acquire adequate supply chain knowledge. However, results on previous training on IPLS among respondents show that while previous knowledge in IPLS maybe important, it is not sufficient for adequate knowledge on key supply chain topics (based on the varying results among the regions) and therefore additional training continues to be important, which will be addressed during intervention support.

- The respondents did not have adequate practice in using HPMRR forms, as at the time of LQAS, majority of the HPs had not started using the HPMRR to make requests for resupply and so the HC pharmacy managers did not have a chance to practice using the forms beyond the training day.

- In some cases the respondents might not have been regularly assigned for conducting store management and therefore may have forgotten their newly acquired skills due to inconsistent application.

- After receiving the TOT, the respondents might not have read the training manual and practiced, which are both important for reinforcing the training skills and knowledge that was gained during TOT .

Strengths and Limitations of LQAS

LQAS is a quick method to identify high performing and low performing SAs in terms of key indicators related to intervention rollout. The qualitative data helped explain the quantitative results, and both types of information are useful for setting priorities within a supervision area for intervention support. Compared to conducting a larger survey, it is less costly, time consuming, and labor intensive, because it allows for smaller sample sizes and makes collection and analysis relatively quick. However, there are certain limitations in LQAS monitoring. In some HCs, the LQAS might have been conducted too early to see useful results as HC staff had not yet rolled out training to HEWs, and therefore minimal impact was seen on coverage indicators related to coverage of HEWs training. Also we could not calculate point estimates for indicators in Amhara and Oromiya. As compared to Tigray and SNNPR, where a census of all HCs in the project area was included for monitoring, the sample sizes in Amhara and Oromiya were small and therefore any estimates would have less precision.

Recommendations

Given the results from this LQAS exercise, we recommend to:

- Provide intervention support for HC pharmacy managers on knowledge areas which were shown to be poor to ensure that adequate training is provided to HEWs

- Provide support to HC pharmacy managers and PHCU Directors to conduct PS with HEWs regularly

- Advocate the importance of conducting training for IPLS and for conducting PS with HEWs during review meetings and any forums

- Advocate for the support of Woreda and zonal level staff in the training of HEWs on IPLS lessons and PS

- Advocate for regular PHCU meetings specifically for conducting training for HEWs on IPLS lessons and PS

Conclusion

Project targets for three out of five indicators were reached by all four regions. These were: ‘ % of HC

pharmacy managers that received training in PS'; '% of HC pharmacy managers that received training in all 5 IPLS lessons'; and '% of HCs that have training materials'. Tigray missed the benchmark for '% HCs that provided training to HEWs on IPLS lesson 1 as scheduled' due to a delay in starting the TOT, unavailability and irregularity of PHCU meetings, and a lack of assistance from the PHCU director in some HCs. Only Tigray and SNNPR reached the target for '% of HCs with adequate knowledge on 5 IPLS lessons' as respondents from Amhara and Oromiya had difficulty understanding some of the content of IPLS lessons. In addition, roll out of PS among HEWs was found to be low. Therefore, intervention support will focus on improving the knowledge of HC pharmacy managers and on addressing the challenges to carrying out PS with HEWs.

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