URBAN IMMUNIZATION ASSESSMENT

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Acronyms

AA-RHB	Addis Ababa Regional Health Bureau
ACIPH	Addis Continental Institute of Public Health
DHIS2	District Health Information Software
EVM	Effective vaccine management
EPI	Expanded Program on Immunization
FHT	Family Health Team
FGD	Focus group discussion
HC	Health center
HEW	Health extension worker
HF	Health facility
HFA	Health facility assessment
HW	Health worker
HH	Household
IRB	Institutional Review Board
KII	Key informant interview
MP	Microplan
MLM	Mid-level management
NCD	Non-communicable disease
ODK	Open data kit
OR	Outreach services
RHB	Regional Health Bureau
RI	Routine immunization
SS	Supportive supervision
UI-FHS	Universal Immunization through Improving Family Health Services
WoHO	Woreda health office

Background: Routine Immunization in Ethiopia

In Ethiopia, major efforts to improve routine immunization (RI) coverage have been underway. However, major gaps and challenges to reaching the desired coverage still exist.[6] Coverage of children who received all routine immunizations was 43% according to the Ethiopian Mini Demographic and Health Survey (2019), which was slightly higher than the 38% coverage reported in the 2016 EDHS. Major inequities between urban and rural immunization coverage exist, with 57% of the urban population compared to 37% of the rural population having received all basic vaccinations (EDHS 2019). This statistic, however, does not include the hidden urban poor population who live mainly in the slum areas. Over the last decade, rapid urbanization has occurred, with >5% annual increase in rural to urban migration, especially in the capital Addis Ababa. While children in Addis Ababa are more likely to be vaccinated,[7] the disparities in immunization coverage among urban poor have been documented,[8] and concerns about accurately identifying and including urban poor in EPI targets remains a challenge.

[6] https://www.joghr.org/article/19354-cost-effectiveness-and-equitable-access-to-vaccines-in-ethiopia-an-overview-and-evidence-synthesis-of-the-published-literature
[7] https://www.sciencedirect.com/science/article/pii/S0264410X20304199
[8] https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-017-4473-7

Background: RED-QI Approach and Assessment of Urban Health System

JSI has been implementing the Reaching Every District using Quality Improvement (RED-QI) approach in rural remote and pastoralist communities in Ethiopia for the past 10 years. The approach demonstrated clear improvements in the routine immunization system and the ability of implementing health facilities to identify and reach zero-dose and under-immunized children. Recognizing the need to address inequities in urban immunization coverage, particularly for urban poor populations, JSI designed an assessment to improve understanding of the capacity of the urban health system in Addis Ababa to deliver high-quality immunization services to urban poor and to then use this information to inform tailoring of the RED-QI approach for the urban context.

[1] WHO. WHO | Global Vaccine Action Plan 2011-2020 [Internet]. 2012 [cited 5 Nov 2018]. Available: https://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/

[2] https://www.gavi.org/our-impact/evaluation-studies/technical-assistance-through-partners-engagement-framework

[3] Ethiopia Federal Ministry of Health, Addis Ababa. Ethiopia National Expanded Programme on Immunization Comprehensive Multi-Year Plan 2016-2020. 2015 [cited March 25 2021]. Available: https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Ethiopia/ethiop_cmyp_latest_revised_may_12_2015.pdf

[4] https://sustainabledevelopment.un.org/post2015/transformingourworld.

[5] https://www.gavi.org/our-alliance/global-health-development/sustainable-development-goals.

Literature Review

JSI reviewed published articles to examine the health system challenges and gaps affecting implementation of routine immunization in Ethiopia. It identified vaccination storage, supply shortages, service interruptions, lack of defaulter tracing, lack of community engagement, and reporting and documentation as the key barriers for the EPI.[9] The gaps and challenges to immunization are often unique when it comes to the urban poor, especially those residing in a marginalized situation, such as urban slums. A systematic review of immunization, urbanization, and slums found that the factors that affect immunization coverage of the urban poor fall mainly into four categories: socioeconomic factors; migration status[10]; information, beliefs, and behavior; and health services.[11] For example, distance to health centers is negatively associated with immunization.[12,13] Other key factors include timing of the service provision,[14] cost of accessing services, loss of income, and not knowing where to access services.[15]

[9] https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-09304-1

[10] Islam MM, Azad KM. Rural-urban migration and child survival in urban Bangladesh: are the urban migrants and poor disadvantaged? J Biosoc Sci. 2008 Jan;40(1):83-96. doi: 10.1017/S0021932007002271. Epub 2007 Jul 19. PMID: 17640395.

[11] https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-017-4473-7

[12] Ghei K, Agarwal S, Subramanyam MA, Subramanian SV. Association between child immunization and availability of health infrastructure in slums in India. Arch Pediatr Adolesc Med. 2010;164(3):243–9

[13] Igarashi K, Sasaki S, Fujino Y, Tanabe N, Muleya CM, Tambatamba B, et al. The impact of an immunization programme administered through the growth monitoring programme Plus as an alternative way of implementing integrated Management of Childhood Illnesses in urban-slum areas of Lusaka, Zambia. Trans R Soc Trop Med Hyg. 2010;104(9):577–82

[14] Sadoh AE, Sadoh WE, Uduebor J, Ekpebe P, Iguodala O. Factors contributing to delay in commencement of immunisation in Nigerian infants. Tanzan J Health Res. 2013;15(3):186–92

[15] Prakash R, Kumar A. Urban poverty and utilization of maternal and child health care services in India. J Biosoc Sci. 2013;45(4):433–49

Recent Assessment on Urban Health in Addis Ababa

Acacus, an international consultancy firm,[16] conducted an assessment in March 2021of slum areas in and around Addis (un-published and personal communication). The assessment included identification and GIS mapping of slums, including their location, population, and distance to the nearest health facilities. The exercise located 75 urban slums in 36 woredas in 10 sub-cities of Addis Ababa. The assessment also conducted a short survey among the mothers/caregivers of children on their utilization and barriers to accessing EPI and on the nutritional status of their children. They conducted key informant interviews (KIIs) with health extension workers (HEWs) to gain insight into front-line drivers of low performance (e.g., staff availability, communication gaps). The findings and data from the urban assessment provides context and base information for JSI's assessment.

[16] https://www.acasus.com/

Purpose and Objectives

Purpose

To examine the current ability of the urban health system in Addis Ababa to implement high-quality immunization services, with a focus on understanding service delivery for the urban poor populations.

The assessment will help inform adaptation of the RED-QI approach (in collaboration with the Addis Ababa RHB and WoHO) for the urban health system in Addis Ababa, in an effort to improve the quality and reach of immunization services, particularly for urban poor.

Broad Objective

To assess the capacity of the health system, as well as challenges/barriers to delivering RI to the urban poor.

Research Questions

1. How is the health system in Addis Ababa organized to provide services to urban poor populations?
2. What are the characteristics of the population served by urban health centers in their catchment areas (providers' perspective)?
3. What is the level of capacity and training of the health workers (HWs) to provide routine immunization in the specific context of urban poor areas?
4. What kind of resources are available to the health facilities (HFs) and HWs serving the urban slums to address their needs for RI?
5. Does the health system have flexibilities to cater to the urban poor population?
6. What are some solutions to address the challenges to delivering quality RI in the urban slums?
7. What is the community's perception of the RI services provided to the urban slum?
8. Who are the partners/organizations working or supporting the RI system in the slum areas?

Methods

Mixed Approach

- **Quantitative:**
  - Health facility assessment (HFA)
- **Qualitative:**
  - Key informant interviews (KIIs)
  - Focus group discussions (FGDs)

Health Facility Assessment (HFA)

Study Area

- The study area was slum areas in sub-cities and woredas in and around Addis Ababa.
- There are 46 woredas within 11 sub-cities in Addis; this includes 88 slum areas (Acasus assessment)
- By design, each woreda is expected to include at least one health center (HC) that caters to its target population in a designated geographic area, which includes the woreda's slums.
- After initial scoping of the HCs located within Addis, 39 out of 46 HFs were included in the HFA; 7 woredas did not have an HC located within the woreda itself and were excluded from the assessment.

HFA Data Collection (1)

- Addis Continental Institute of Public Health (ACIPH), a local research organization with long experience in conducting health facility and household surveys, was hired to collect the HFA data after a competitive application process.

- Four teams of data collectors (two people per team for a total of eight data collectors) and two supervisors were responsible for data collection. In consultation with UI-FHS, ACIPH recruited experienced data collectors from its pool of resource people who have prior experience conducting HFAs.

  ACIPH and the Universal Immunization through Improving Family Health Services (UI-FHS) project provided a two-day training to the data collection teams to ensure that they were well acquainted with the objectives of the project, the HFA tool, and the Covid-19 precautionary measures to be followed throughout the data collection period.

- The team pre-tested the tool in two HCs outside of the study area to address any issues with the tool prior to data collection.

- UI-FHS and ACIPH closely supervised data collection and the overall progress of the field teams.

HFA Data Collection (II)

Data Quality Assurance

Data collectors and their supervisors collected data electronically using open data kit (ODK), which enabled the supervisors to review data daily and provide feedback to the field team. Additionally, the tool was programmed in a way that all relevant information was pre-filled and proper skip patterns were followed.

Data Management and Analyses

Upon completion of data collection, data was cleaned using logic checks. In some instances, the field teams were asked to revisit the HC and verify unclear information. STATA version 14 was used for data cleaning and data analysis. All changes to the raw data output files were recorded. Formatting, reshaping, translation, and labeling of data was documented using detailed and well-annotated .do files. Additionally, .do files and STATA output tables were generated for the descriptive analysis as per the key indicator variables.

Ethical Considerations

The study protocol has been reviewed by the Addis Ababa Health Bureau Institutional Review Boards (IRBs) and granted permission (reference number A/A/1104/227) to conduct the assessment. Verbal informed consent was obtained before conducting the interviews. The consent forms were read aloud by interviewers to the respondents, after which the respondents were asked if they understood and agreed to participate. The consent statement included the purpose of the research and clarified the expected duration of respondents' participation, as well as the potential risks and benefits of taking part in this study, so that individuals could make an informed decision.

Qualitative Assessment (I)

Addis is divided into 11 sub-cities, each with a varying number of woredas. KIIs and FGDs were conducted in six woredas from three sub-cities. An appendix of all sub-cities and their woredas are included here.

Selection criteria for the sub-cities and woredas were as follows:

- **Sub-cities**: Sub-cities were categorized as small, medium, or large depending on the number of slum areas in each woreda under each sub-city. One sub-city was then selected from each category:
  - Large: Akaki (11 woredas)
  - Medium: Gulele (4 woredas)
  - Small: Lideta (3 woredas)

Qualitative Assessment (II)

Selection criteria for the KIIs and FGDs included in the qualitative assessment:

- Participants for the KIIs and FGDs were selected from slum areas in each of the six study woredas, with support from HF staff serving those communities.
- The KIIs included WoHO and HF staff (managers and service providers); an additional three KIIs were held with the head of EPI/maternal, newborn, and child health (MNCH) at the sub-city level.
- The FGD participants included two groups:
  - Community leaders (political, religious, influencers) who live in the slum area communities; and
  - Mothers of children under two years living in the slum area communities.

KIIs and FGDs: Sample Size

		Number of KIIs			Number of FGDs		
Sub-city name	**Sub-city**	**WoHO**	**HFs**		**Community**	**Mothers w/ child under 2**	**Total**
	EPI Head		Manager	Provider			
Large (Akaki)							
	1	1	1	1	1	1	5
		1	1	1			3
		1	1	1			3
Medium (Gulele)							
	1	1	1	1	1	1	5
		1	1	1			3
Small (Lideta)							
	1	1	1	1	1	1	5
Total KIIs /FGDs	**3**	**6**	**6**	**6**	**3**	**3**	**27**

FINDINGS

HFA: Distribution of HCs and Slums

Distribution of HCs by Sub-city

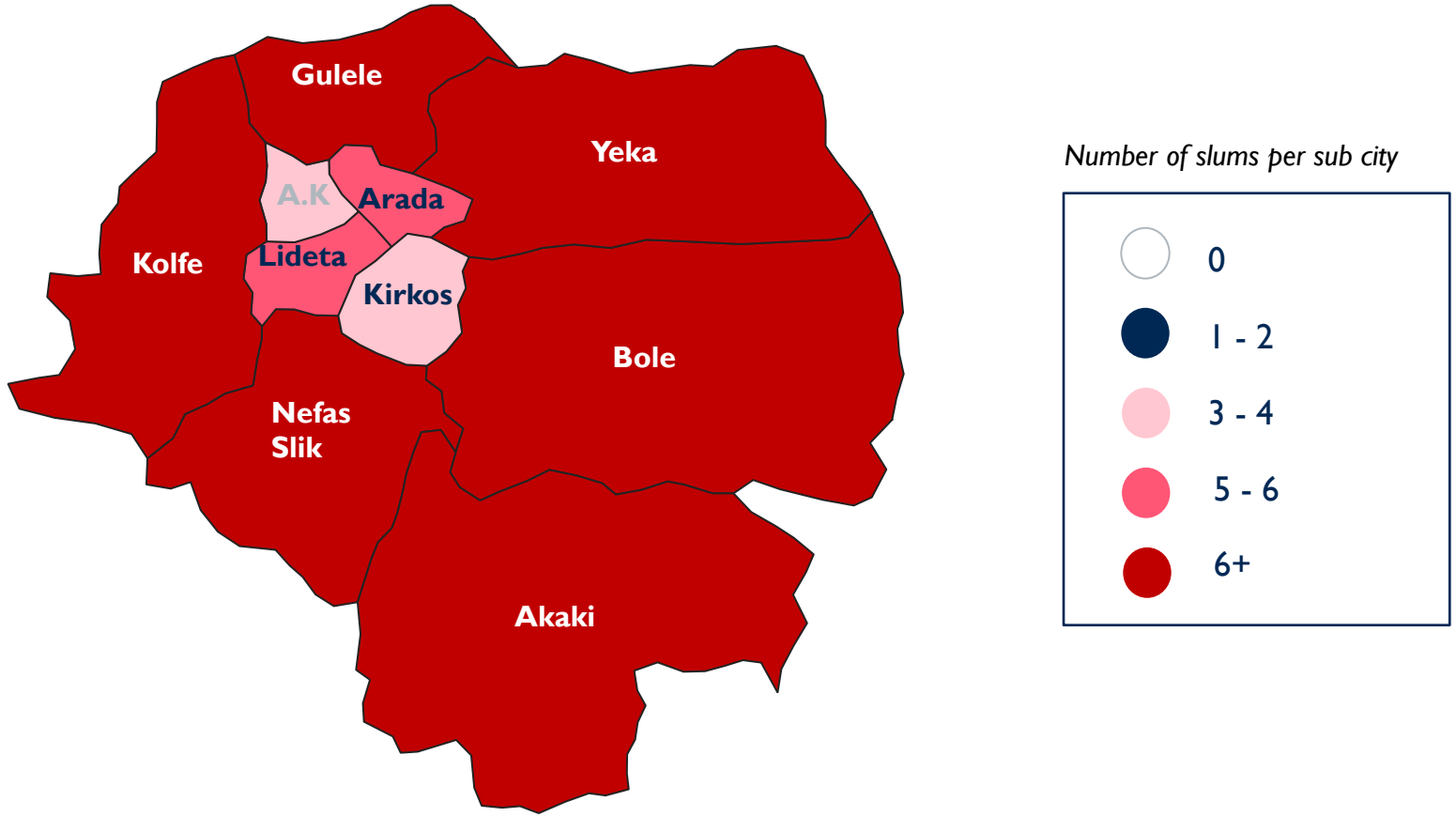
Sub-city name	Number	Frequency
Akaki	9	23.1
Bole	5	12.8
Kolfe	4	10.3
Gulele	4	10.3
Arada	4	10.3
Nefas Silk	3	7.7
Lideta	3	7.7
Yeka	3	7.7
Addis Ketema	2	5.1
Kirkos	2	5.1
Total	**39**	**100.0**

Distribution of Slums by HCs

Number of slums covered by HCs	Frequency	Percent
1	9	23.1
2	5	12.8
3	13	33.3
4	4	10.3
5	4	10.3
6	2	5.1
7	1	2.6
10	1	2.6

Acasus identified 88 urban slum areas in 46 woredas of Addis Ababa, present in all 10 sub-cities

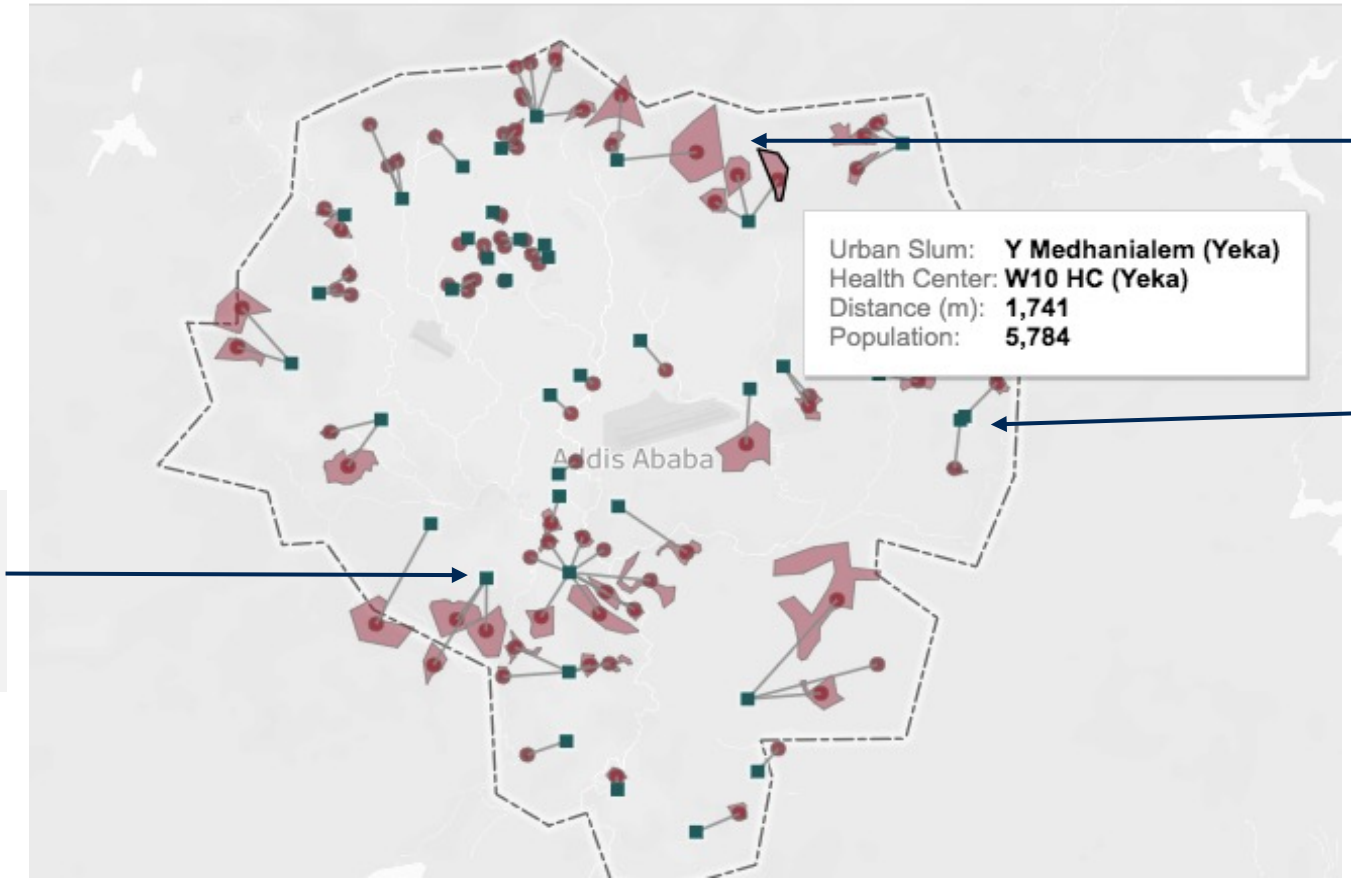
Number of urban slums in Addis Ababa by sub city (n=88)



Credit: Acasus

Acasus mapped slums, estimated populations, and identified the nearest EPI-health center to each slum

View of slums and proximity to Primary Health Care HFs, in selected woredas



Urban slum area

Health facilities within a 5km radius

Urban slum area outside a 5km radius

Key

- Health facility
- Urban slum

Credit: Acasus

Characteristics of the Slum Population Served by the HCs (I)

- Slum dwellers generally live in overcrowded areas with poor sanitation and hygiene, a poor waste disposal system, and limited access to water and electricity. The slum settlements are largely illegal, and since most of the households (HHs) do not own houses, multiple HHs live under the same roof. Some respondents expressed positive aspects of communal living. Mainly, people from an ethnic background with similar language live in the same places, providing support to one another.
- Extremely poor HHs rent very poor-quality houses that often have plastic roofs. Children often suffer from illness due to poor living conditions (lack of sanitation, hygiene) and poverty. The common illnesses are diarrhea, upper-respiratory tract issues, and malnutrition.

"I was surprised when I saw those slum areas in the first time. I said, is it Addis Ababa? Their living condition is very horrifying and also poor environmental hygiene."

"In our catchment, they live in very crowded houses and interconnected homes. They have strong social interaction, sharing many of their lives. They eat together and support each other."

"What we see where we go for family health services is that most of them have no fixed job and lead their life by working as daily laborer, 'gulete' (small stand selling local items), selling something on the road, and any kind of work they get."

- Many have migrated from rural areas of the same or surrounding regions. While some have been living in the slums for a long time, many are also transient. Some slum villages are home to people from a specific geographic location and with a specific type of work, such as weaving or pottery. Most people are involved in various types of low-paying work, such as daily labor, factory work, weaving, traditional food trade, pottery, housewifery, or commercial sex work, and are often away during the daytime.

Characteristics of the Slum Population Served by the HCs (11)

"There is no data about their educational background, but from our observation, people in the slum areas seem less educated; many people can't read and write."

- Some language barriers exist, with limited understanding of Amharic. Slum dwellers came from different regions and ethnic groups; many speak a different language(s). The language barrier might create communication gaps between slum populations and service providers. They have minimal education or discontinued education or are illiterate. However, some woredas may have slums where populations of relatively higher education dwell.

"Their (slum dwellers') behavior is similar; they accept or reject something as a whole. The woreda has been facing such challenge on COVID-19 vaccine among these areas." – WoHO representative

- Some respondents from the provider side perceived the slum population as being "different" from "general" populations (general population meaning "non-slum dwellers"). They were often poor, uprooted from rural areas and neighboring regions (e.g., SNNPR, Oromia, Amhara). However, some respondents also acknowledged that they had limited information regarding the health and immunization status of the slum population. Among some respondents, the perception of "different" was expressed in negative way.

How the Health System in Addis Ababa Serves the Urban Slums

Leadership and Management of the HCs (Sub-city vs. Woreda) (I)

"The HC requests woreda health office when it faces resource shortage[s]; otherwise, it has its own budget and internal revenue. So it seeks support as an additional source of resources. As mentioned, it gets technical support from the sub-city, and administrative issues are solved by HC and woreda health office management together." – WoHO representative

Unlike the health system structure in the regional states, the WoHOs in Addis Ababa do not manage or supervise the HCs in their woredas. In the regions, the WoHO manages multiple HCs in the woreda catchment. In Addis Ababa, each woreda has one WoHO and one HC, and both share the same building in most of the woredas. The WoHO is not considered superior to the HC in the hierarchy, and both are accountable to sub-city health offices (zonal health offices).

The HCs are directly supported by the sub-city health office. The sub-city health offices are accountable to the Addis Ababa regional health bureau. As such, the planning for technical services cascades to the HCs directly from the sub-city offices. For routine immunization, the sub-city health offices provide the targets, the indicators to follow, and overall service provision guidance to the HCs. The WoHO participates primarily in coordinating immunization campaign activities (polio and measles) rather than routine immunization.

Leadership and Management of the HCs (Sub-city vs. Woreda) (II)

"WoHO is only a member of the health center board and we meet on [a] monthly basis, and evaluate performances quarterly. In the evaluation sessions, performance of immunization services is presented and evaluated as one of the service but reports are sent to the sub city." - WoHO representative

"Sometimes we may mobilize the community by using speaker on car moving in the villages when needed especially during campaigns. We don't have other strategies other than HEWs and women development association working together." - WoHO representative

"The HC is providing all the vaccines, as WoHO, we are trying to support the HC, including on the supplies and provision of COVID 19 vaccine." - WoHO representative

The WoHO coordinates community-based activities, while the HC provides clinical services. Nonetheless, there are situations when they cooperate and work together. There is a family health team (FHT) comprised of Health Extension Professionals, WoHO staff and HC staff who provide health services including health education on hygiene and sanitation, palliative care, non-communicable disease (NCD) screening, and nutrition through home-to-home visits. As part of these services, the FHTs also identify "zero dose" children or defaulter children for immunization, and if they find any, they refer them to the HC.

The WoHO also leads ***immunization campaigns (polio, measles and recently COVID-19)*** and they are carried out jointly with the HCs and with support from the communities. Moreover, the WoHO head is a member of the HC board that consists of HC leaders, a woreda administrator and community representative who evaluate monthly the overall services at the HC. However, the WoHO as a structure has no direct role in supervision of the HCs, or providing technical or logistical support for the routine immunization activities at the HCs.

Health Centers' Supervision and Reporting

"The woreda is not that much involved in the monitoring and supervision, they focus on COVID vaccines and recently they are visiting us because of that, but for RI, it is limited, rather it is the sub-city which supervises us." - HC head

"I never see any one from woreda for RI supervision. Those from the sub-city give us feedback orally or sometimes write on the registration book; but mostly they discuss with administrator and we get feedback through the HC head. If they gave feedback on something to be corrected, they check first for that next time they come" EPI focal person

- As mentioned earlier, supportive supervision to the HCs is provided by sub-city health offices. The WoHOs currently are not structured to provide supervision to HCs. They do not have budget allocated for this nor the technical capacity to provide supportive supervision to the HCs.

- The HCs enter data into the DHIS2 system and directly share it with the sub-city office. The WoHOs neither have access to DHIS2 data nor RI-specific data. However, the HC director shares performance reports on the key HC services with the WoHO head as he is a member of the HC board that evaluate the overall performance of the HCs on a monthly basis.

HFA: Health centers' supervision and reporting (I)

Supervision, monitoring, and HMIS in health centers *Addis Ababa, Ethiopia*		
	No. of HCs	Percentage
Supportive supervision (SS) from sub-city to HC	39/39	100.0
Frequency of supervision		
Monthly	17/39	43.6
Quarterly	22/39	56.4
Received SS in last three months	38/39	97.4
Has immunization related supervision checklist	7/39	18.0
HC gets written feedback from supervisors		
No	13/39	33.3
Yes (regularly)	17/39	43.6
Yes (sometimes)	9/39	23.1

- All 46 health facilities (health centers) reported receiving supportive supervision (SS) from the sub-city health office for RI. The frequency of supervision varied with 17 out of 39 health centers (44%) receiving SS monthly and 22 out of 39 HFs (56%) receiving SS quarterly.
- Only 7 out of 39 HFs (18%) mentioned that the supervision has an additional immunization-related supervision checklist.
- The majority of HFs (66%) reported having received some written feedback from supervisors

HFA: Health centers' supervision and reporting (II)

Monitoring and HMIS in health centers, *Addis Ababa, Ethiopia*		
	No. of HCs	Percentage
Monitoring chart	38/39	97.4
Submits data directly to DHIS2	37/39	94.9
Review meetings		
Yes – Every month	25/39	64.1
Yes - Quarterly	10/39	25.6
Defaulter tracking		
Mechanism for defaulter tracking (Children who received some vaccinations but are due for additional doses)	39/39	100.0
Mechanism for left-outs/zero dose (Children who were born and have not yet come in for any vaccination)	39/39	100.0

- All but two health centers reported directly to DHIS2 on a monthly basis.
- Almost all HCs held review meetings although the frequency of those meetings varied by site.
- All HCs have a mechanism in place to track defaulters. The most common approach mentioned for defaulter tracking was reaching the mothers/ caregivers through phone calls.
- All HCs also reported having a mechanism to track left outs/zero dose. Health workers reported identifying zero dose children during home visits and then referring those children for services.

Defaulter and Zero-dose Tracking

- All HCs report having a system in place for tracking defaulters. Parents' addresses and contact information (phone numbers) along with doses received are recorded at the HCs during RI visits. Based on this information, the HWs send reminders mainly through phone calls. However, this only worked for parents who had phones. Receiving reminders seemed to be an effective strategy to reach those who default according to the HWs. HEWS will also visit HHs to encourage defaulters to come for immunization (if they do not have a phone).

- The only system for identifying and tracking zero dose children is through HH visits. As the microplan is developed top-down and denominators are not accurate, it is likely that the HFs are missing zero dose children, particularly in slum areas as HEWS are not visiting each HH in their catchment area regularly.

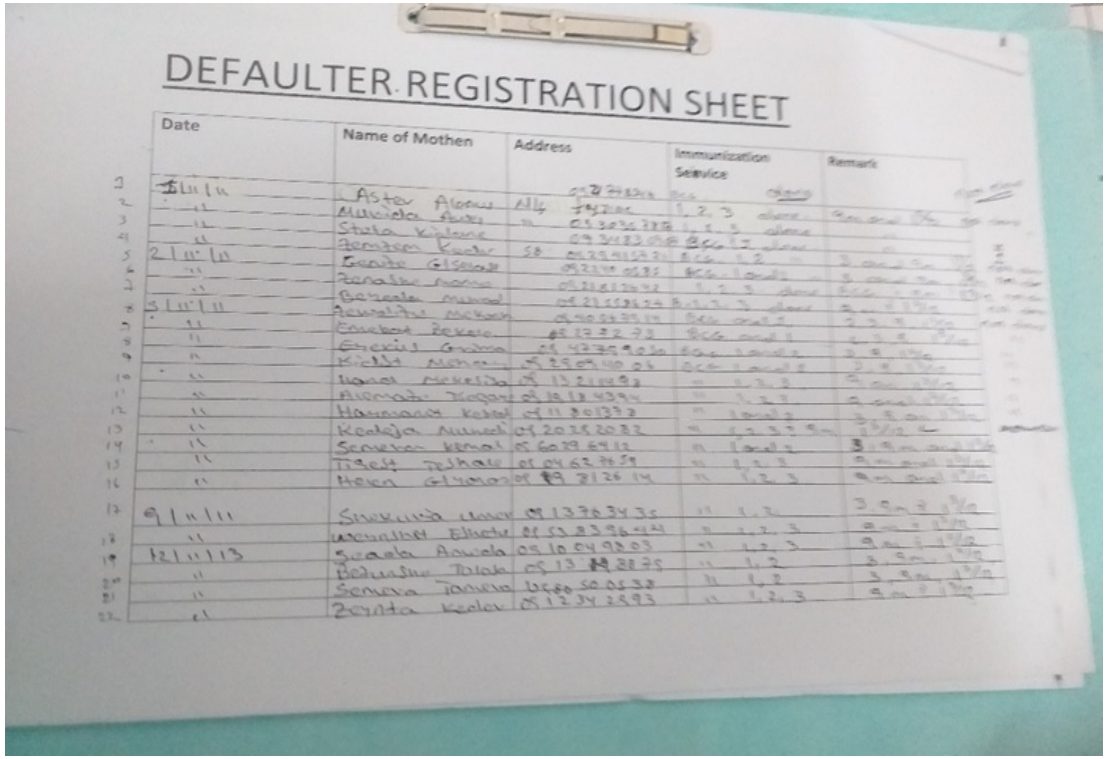
- HEWs and FHTs also checked for immunization status during their field visits and referred defaulters and zero dose to HCs with referral slips/cards.

"Most of those missed their appointment said they forgot but brought their child when reminders were sent to them by phone. If the child transferred to other place or default because of other reasons we recorded the reason of defaulting on defaulter tracing book in "reason for defaulter" column. If we couldn't get by phone, we give the name of children and the area they come from for HEWs" - EPI Focal Person

"The card has a space for feedback, and we send back the feedback when a child come to us with referral and start the EPI. We write the information which indicate starting of the immunization and the day on which the child appointed for the next time the referral card and send back to the HEWs who refer to us." - HC head

Defaulter Tracking

HCs have a defaulter tracing book that is kept in a box. A small card containing the child's name, ID, and appointment date is placed in a box that is labeled by month. The card is transferred to another box reflecting the next appointment date if the child comes in and receives a vaccination. The card left in the original box shows that the child didn't come in for this month's appointment. HCs record that child's name, ketena (neighborhood), and phone number in the defaulter book and call the mother at the registered phone number.



It should be noted that HFs can do zero dose tracking using the ticker file or register IF they track the mother from pregnancy, record the birth in the register and on a card, and then place the name of the baby in the tickler file box once the baby is born. **This practice is NOT done however.**

Gaps in Management and Supervision

- HCs expressed that they need more management and supervision support from the higher ups to provide overall services. They mentioned a wide range of areas where WoHO or the sub-city offices can provide additional support.

"I see most of the time people come from woreda when there is campaign and sometimes during FHT outreach program. From sub-city MCH department come every month and supervise us as I haves said. They also support us technically as well as any other thing we request. Otherwise, I don't see any one come from woreda to support or supervise RI." - EPI focal person

"We need, trainings, more HR in the department, transport to visit the slums and arrange outreach, the management also needs to deal with staff's demand for per-diem during outreach, sometimes supplies gaps or delays are there which can be improved. I also wish if there are NGOs that can support us to fill this gap."

HFA: Availability of Microplans for RI

- Only 10 (26%) out of 39 HCs mentioned having a ***microplan (MP)*** as part of the EPI strategy.
- Of the 10 HCs that had an MP, all had an up-to-date MP for the 2013 EFY and had a target population set.
- The main source of data for setting annual targets for EPI was the performance of the previous year (80%).
- All 10 HCs with an MP had EPI-related information for fixed session but only one HC (10%) had outreach sessions on their MP.
- **None of the HCs with an MP had slum-specific EPI information.**

RI:Availability of MPs

All HCs have some kind of plan for RI services, which mainly includes "targets." However, RI planning at the HC level is not typically centered around a formal "microplan." The MP development process is expected to be based on a bottom-up approach with the involvement of HC representatives and the communities. Ideally, head count is applied for target estimation. *However, all of the plans (and MPs) are prepared by sub-cities and shared with HCs (plans and targets are developed top-down). The EPI providers do not participate in MP preparation.* **The target population is estimated using a conversion factor at the woreda level and the previous year's performance.** Each HC uses this denominator to report on coverage; however, HCs commonly provide immunizations for children outside of their catchment area but this is not tracked. Despite these deficiencies, all of the HCs visited during the KIIs had some type of planning document.

"We have a microplan (pointing to the wall. However, [….], the supervisors last time told us that it should not be considered as a complete microplan. It was prepared by the sub-city and sent to us. Microplan should have detailed planning for each ketena, but ours doesn't have that. It (the microplna) has the total population, conversion factors for live birth, infants and pregnant women, the target population obtained using conversion factor, antigen and the annual as well as monthly dose for each antigen at woreda level." - HC focal person

" Plans are done at the district level from the total population by using a conversion factor. […], it includes all activities. Currently there is no microplan only for immunization; however, the plan has the number of under-five and less than one year children." - WoHO office representative

Gaps in RI Planning

- Service providers see gaps in the way the plans and/or the RI targets are estimated. While they were not certain as to why there are gaps in the target estimations, they were certain that the targets were not accurate.

- Some HCs render EPI services to far more people than were assigned to them as a "target," resulting in an overburdened system.

"We plan based the woreda's estimated target children […], but we provide services for far more than that target. People from neighboring woredas get services from this HC. […], it is more than our capacity and sometimes we couldn't services all those come within working hours." - HC head

"Sometimes we overachieve and sometimes we underachieve. I think, the population is transient and the planning is not exact. We and the HEWs do not know the actual number of children in slum areas." - EPI focal person

- HCs also experience mixed results in terms of meeting targets as a result of inaccurate target setting and the nature of the population they cater to. For example, the slum population are generally transient, and this also causes shifts in meeting the target.

RI Service Provision

HFA: Days and Hours of RI Service Operation		
	No. of HCs	Percentage
Provided RI services in the last 3 months	39/39	100.0
Plan RI services for the next 3 months	39/39	100.0
Offer fixed RI services	39/39	100.0
Offer outreach RI services	0	0
Offer RI services both morning and afternoon of weekdays	9/39	23
Provide RI service only in the morning hours of weekdays (i.e RI service NOT provided in the afternoon)	30/39	77.0
Offer extended hours for RI (after 4pm)	9/39	23.1
Provide RI services during weekends (Saturday, Sunday or public holidays)	0	0

- While the majority of HFs in the HFA mentioned having a full day of services, KIIs with HCs revealed that the HCs generally prefer to provide immunizations in the morning:

"Usually we give vaccine only during the morning […….], this is a trend in most health facilities and people also know this." - HC head

- Response from qualitative interviews were mixed on the need to expand service hours. HF staff had mixed opinions on the need to expand hours, as did community leaders. Input from caregivers/mothers suggested additional hours would be helpful to them.

"Immunization services are routine services that are supposed to be provided during routine service hours. If immunization services are provided on extra times such as weekends, extra time payment should be paid to the providers." – EPI focal person at HC

Fixed and Outreach Sessions (1)

- All RI services are HC-based with the majority of HCs reporting immunization services to be available in the morning only; HC staff indicate that most immunization sessions are only held in the morning and vaccines may be discarded by noon. Addis Ababa Regional Health Bureau (AA-RHB) does not have any strategy regarding conducting outreach services for RI other than during campaigns. In addition, the HCs clearly expressed that they worked under the directive of sub-cities and there was no instruction to conduct outreach services.

- Some HCs perceived visits conducted by FHTs and health extension workers (HEWs) as outreach activities. However, though FHTs provided

"We have outreach services. There is a team called primary health care/family health team which consists 8 members from different professionals including medical doctors conduct home to home visit and give services like hygiene and sanitation education, palliative care, non-communicable disease(NCD) screening and referral."….. During their home visit the PHC would refer those children who didn't start immunization with referral slip." - EPI focal person

"We have not received any direction from the sub-city […],. We have the PHCU program when we visit every household, but we are not informed to provide immunization services as part of the PHCU. If directions are indicated by a higher level, we can do that. It will be better if we can provide additional service hours and approaches to the slum population. Anyone interested to work voluntarily, it is possible. But, to work at the health center level, we should be provided with guidance or directions."

"We plan to reach the community in slums through our family health teams during non market days and during holidays for other services, however, for RI we didn't do it yet." - HC Head

Fixed and Outreach Sessions (II)

The need for outreach services (OR), however, was expressed by several HCs, especially in order to reach the slums that are not close to any HCs and/or have accessibility issues. The HCs also expressed the challenges related to planning and executing OR services. Transportation, costs related to transportation, per-diem, and a shortage of HWs including vaccinators were some of the constraints for OR planning and operations. One HC mentioned that they don't offer any outreach services yet, but they were planning to have monthly RI outreaches with the FHTs while they go out to the communities.

"We don't refer for RI service and we don't have outreach for the slums yet. However, if we have to serve the peripheral slums well, we should also provide RI service in the afternoon as well. We need some flexibility like this and also outreach […} Because it increases access to them and they will utilize it more since are a number of factors that hinder them from coming here [….]" - HC head

"I feel that we have to think of outreach for them to improve RI coverage and utilization. Outreach needs travel cost and staffs will demand per diem by comparing it with the trends during campaign." - HC head

"Most of them bring their child on time and at their appointment. Actually, defaulters or those never bring their child to vaccine are very few. So, I don't think outreach services is important to provide vaccine only for these area. Because, it also cause vaccine wastage since most of the vaccine should be given for many children ones opened." - HC manager

However, some respondents did not see the need for outreach services for slums. In addition to the cost of operating OR, vaccine wastage was also a concern resulting from low client turn out. According to them, the population in the slums are well aware of the EPI hours at the HCs and generally come for services during the service hours.

Flexibility, Resources, and/or Special Strategy/Planning for Slum Areas

- There was no specific strategy or plan in the health system for slum populations. The sub-city officials have not given special attention to slum populations:

"We have no flexibility or special arrangement to provide immunization services for the slum target population…If we are not getting enough children for vaccination, opening a vial for 1-2 children is not recommended, and mothers with children may wait long time until the number of children increases." – Sub-city representative

- However, some respondents expressed that the conditions in the slum areas might need special attention and critical assessments. That way, the HCs catering to clients from the slum areas need further guidance for tailored service provisions suitable for this particular population:

"If they (sub-city or woreda) plan separately for the slum population, supplies provided in line with the plan, and additional staffs are employed, I think we can provide immunization services to the slum population in their locality."

- While the conditions in slum areas are bad, they should not be generalized. Proximity of a slum area to the HC is important. Data from Acasus indicates that slum residents face barriers in accessing health services: transportation cost, time constraints etc.

Capacity and Training of Health Workers to Provide Routine Immunization

HFA: Capacity and Training of RI Providers

	Frequency	Percentage
HCs that **did not** report a shortage in HWs who can vaccinate	26	67
Availability of trained personnel on the day of the survey		
Immunization in practice	36	92
Cold chain management	28	72
Effective vaccine management (EVM)	20	51
Mid-level management (MLM) training	2	5
Temperature monitoring		
Health facilities that have a temperature monitoring system	39	100
Temperature excursion in the past two weeks	4	10

- One third of the HCs reported a shortage of HWs who can vaccinate.
- Nearly all HCs have providers with training in immunization in practice.
- Half of the HCs have personnel trained in EVM and only 2 have personnel trained in MLM on the day of survey.
- Three quarters of the HCs have personnel trained in cold chain management.
- While all HCs had a temperature monitoring system, only 10% had a temperature excursion with the previous two weeks.

KII: Capacity and Training of RI Providers (I)

- Although some HCs mentioned that they had adequate number of trained HWs, most HCs reported a shortage of staff trained in immunization. The sub-city offices and the AA-RHB in collaboration with partners organize trainings in immunization. The WoHOs do not have the mandate or budget to provide RI trainings. Although some HCs have adequate HWs trained in immunization, only a few of them provide RI services due to a shortage of staff and high turnover in HCs. Sometimes, two or three providers were responsible for providing RI services to a large number of children.

"The main challenge is the shortage of manpower at the HC. There is a high staff turnover in the last two years. The other is that the leaders do not give attention to immunization in slum areas." - EPI provider

- The providers emphasized that if a special strategy was designed to reach slum areas, additional emphasis should be given to the adequacy of human resources.

- **The providers also stressed that WoHO and HC managers did not recognize the importance of any specific strategy to the slum areas.**

"We have one long serving staff who have been committed in EPI room, but she suffered from burnout and frustrated and said I need to leave the department, that is why we brought new untrained staff by reshuffling with her, so we need more trained staffs since there is huge load on EPI service delivery" - HC head

KII: Capacity and Training of RI Providers (II)

- EPI focal persons and HC heads questioned the adequacy of trainings on immunization. While many HWs are trained on vaccination, there is nevertheless a need to develop the capacity of workers on other aspects of immunization such as program management, cold chain management, etc.

- Respondents noted training gaps including a lack of refresher trainings, a lack of trainings for new/additional staff before they are assigned to the EPI unit, and a lack of training on cold chain management. Budget deficiency was also mentioned as a challenge in the efforts to train more HWs.

- All the respondents also claimed that they did not receive training on providing RI services specifically for the slum population. In the even that special RI strategies are planned for slum areas, they recommended recruiting new staff for the EPI unit and the provision of training to RI providers and community volunteers.

"There is no refresher for staffs and the training given is not adequate; it is just basic EPI training and cold management training to the EPI focal person; however, it will be good if all of them are trained well." - HC Head

"Cold chain, especially most of the format is not found in the basic EPI. So, it is good if such training given. Even, the basic one was not enough at that time, we took for 3 days while module needs about 6 days. Also many of us assigned to EPI clinic many years after the training. If you trained to days, the rotation may after 4 years and everything is new for you at that time. So enough and regular refreshment training is very essential." - EPI focal person

KII: Capacity and Training of RI Providers (III)

- The HCs expressed the need for more capacity building for their existing staff and recruiting or assigning new and trained staff to HCs. Due to the policy of "rotation of staff" across all health departments within the HCs, there is always someone available for providing RI. However, respondents expressed that this meant that HWs from other departments also needed to be trained on immunization. In addition, respondents noted the need for refresher trainings as many staff received training some time ago and needed to refresh their knowledge and skills.

"Trained personnel are assigned to EPI clinic. Also when we do rotation, one person is always left there for second round to share experience for new comers. But, we received basic training but even that has been more than 3 years since given for us. Therefore, refresher training and also most of us didn't received cold chain management other than the basic EPI training." - EPI Head

"I think health workers from other departments also should be trained on EPI, which helps to expand our HR capacity in the facility to provide the service widely to the slums and whenever there is gap at the HC. It is always good to have trained staffs as reserves." - EPI Focal Person

Partner Engagement in Slum RI Services

- All respondents at the WoHO and HC levels claimed that no partner organization has been supporting RI services specifically for slum populations. Some respondents acknowledged that there were trainings provided by the WoHO in collaboration with the RHB, however these trainings were not focused on strategies to improve engagement went and service to slum areas.

"No. I do not know any organization working to offer RI services to the slum population as far as I have been here for more than a year."

- The importance of partner engagement was highlighted by almost all respondents if RI strategies targeting slum areas are to be initiated.

"As far as I know, there is no any partner currently working on RI. But the RHB support by providing training, deliver supplies for immunization and etc."

Solutions/Recommendations for Addressing Challenges Related to Delivering Quality RI to the Urban Slums

Recommendations from Respondents: Role of MOH and RHB (I)

Develop clear strategies to provide services to the slum population and increase involvement from the higher level:

- Ensure a strategy that would address the gaps and challenges in the slum areas. They also need to ensure that manuals and job aides available for HWs are updated. Some respondents at the HF level indicated that higher officials often lack an understanding of the situation in the slum areas and encouraged them to assess the slum situations in person regularly.

- Encourage external supervision of the slum areas, which would make it easier to identify the gaps that HCs normally overlook. Respondents also suggested that in addition to dedicated strategies for slum areas, there should be dedicated personnel to ensure services for the growing slum population.

"When we have external supervisors or partners they see our gap that we didn't see. Their assessment during campaign usually is supportive for us to see who is vaccinated or not, and what gap and the level of coverage in the areas, the sub-city and WoHO may play vital role here." - HC head

"They (the higher officials) should see the communities living in the slums area and their living conditions. Once they understand the existing situation, I believe they can decide what they should do." EPI focal person

Recommendations from Respondents: Role of MOH and RHB (II)

Develop accurate target estimation and microplans:

- Developing MPs and target estimations accurately should be a priority according to some respondents.

Ensure vaccine supplies:

- The HFA has shown that 5 out of the 39 (12.8%) health centers have experienced a vaccine stock out and 7 out of the 39 (17.9%) health centers have experienced an immunization logistic supply stock out in the past 6 months. In the 5 health centers that experienced a vaccine stock out, the stock out was most often reported for Penta, OPV, Rota, BCG and syringes.

Establish a separate registry book for slum populations:

- There is no separate registry to document the immunization status of slum populations or procedure to disaggregate that data at the HF level. Some respondents perceived the need for a separate registry documenting addresses, contact information, and immunization status solely for the slum population. However, those who suggested the idea also expressed that executing such an initiative would require major help from MOH and partners.

  *Note: rather than a separate book, identifying and enumerating slum areas within the register could be helpful

"It very good if MOH and RHB identify the exactly number of under five children in these areas, prepare micro plan targeted to the children and then, provide necessary support for the mothers in areas minimum of transpiration cost could facilitate their decision to bring their children to RI."

"There is BCG and syringe gaps and a problem of lack of timely delivery of supplies. When we don't have vaccine today, people nearby can come the other day, but the slums from rural side may not come back easily again which needs improvement in the future." - EPI focal person

Recommendations from Respondents: Role of MOH and RHB (III)

Understand gaps in coverage and challenges to seeking care:

- Currently, there is a lack of RI coverage data disaggregated by slum population in Addis Ababa. Understanding the magnitude of the problem (unimmunized and under-immunized) in slum populations, including barriers to seeking care would be the first step in knowing the challenges to reaching children in the slum areas. As such, the HMIS/ DHIS2 data is reported only at an aggregate (sub-city) level, it is not reported out by woreda level.

Establish flexible and extended working hours:

- Respondents primarily at the woreda level perceived that having HEWs and FHTs working at the community levels is a sufficient strategy to identify the immunization gaps among slum children. However, some respondents at the HC level acknowledged that limited service hours might be a challenge for the slum population to access RI services. In most HFs, EPI services are provided only during the morning on weekdays. According to HC respondents, the population is aware of the limited service hours and avail services accordingly. To cater to the slum populations, especially the populations that live far away, respondents recommended extending the service hours to the afternoon.

"We don't have plans for the slums specifically, so we may not know the gaps and who is defaulting or not able to get the service at all in each slum.[……]We also have the assumption that they are minor in number and it is assumed that they better come here than we go for small number of slum population which requires fuel and transportation as well as demand for per diem for staffs that are main challenges for our facility." - HC head

"If we have to serve the peripheral slums well, we should also provide RI service in the afternoon as well. We need some flexibility like this and also outreach as I said earlier. Because it increases and they will utilize it more since there are a number of factors that hinder them from coming here." - HC head

Recommendations from Respondents: Role of MOH and RHB (IV)

Offer outreach services:

- Only a few respondents perceived some benefits to having outreach RI services. However, even those who perceived benefits felt that the cost and human resource requirement would be too high if the sub-city/ woreda were to conduct outreach.
- As part of outreach services, respondents recommended constructing a room/small house as an immunization center in slum villages where the providers could provide RI services once or twice weekly. Nonetheless, the respondents indicated the consequences if outreach services are not sustained: *"We should be careful to ensure the sustainability of outreach services. If we discontinue after starting the outreach service in the village and making them familiar with that, the community will be disappointed to come here again" - EPI provider at HC*

Take a compassionate approach:

- Some respondents at the HCs expressed that the slum dwellers often come from different cultures and backgrounds and have low education and socioeconomic conditions. As a result, they might often be intimidated or confused while seeking services. Providers, including RI providers, need to be compassionate and should have the skills to properly counsel the clients on how to continue with services.

Increase involvement of the FHT and HEWs in the slum areas:

- Several respondents mentioned the benefits of improved linkages between the HEWs and the communities in slum areas.

"I feel that we have to think of outreach for them to improve RI coverage and utilization. Outreach needs travel cost and staffs may still demand per diem by comparing it with the trends during campaign."

"The slum population community feel disoriented when they come to our health center compared to other people. They are from the outskirts mainly rural and they are busy working and have little exposure to towns." – HC Head

"We see some gap in the level of understanding of mothers and we may have to adjust our counseling and our wordings, tones etc when we feel that they do not understand us." - EPI focal

"It needs more close working link with HEWs to reach these slums by having more follow up by the family health teams we have. There is every Friday meeting with HEWs so may be this platform can be used."

Recommendations from Participants: Role of RHBs and Partners (Private Health Facilities)

Improve awareness of the slum population:

Increasing awareness of the slum communities (especially those with low education, limited access to services, and living far from the HCs) should be a priority for RHBs, other partners, and community leaders. Some respondents expressed that other private health facilities in the vicinity can also play a role in improving awareness of the community regarding immunization, which contributes to strengthening the capacity of the community organization.

Involve private health facilities in community strengthening:

Private health facilities can play a role in strengthening community leaders. One respondent noted that by sponsoring members of the community for Community based health insurance (pay the subscription fee), private health facilities can engage the community leaders for awareness creation.

Offer supporting service provision through private clinics:

Respondents perceived a great opportunity to involvement private healthcare clinics to fill some gaps and reduce the public sector workload. For example, private clinics could provide personnel during outreach sessions and/or provide immunization at the HFs.

Recommendations from Participants: Role of Communities

Provide support in mobilizing the community:

A positive attitude toward involving the community in raising awareness and developing care seeking behavior was expressed by the respondents. Participation of the community was reported as being critical to improving RI coverage in the slum areas. In addition to awareness and health advocacy, the communities also hold the potential to support the health system by helping to organize outreach activities and/or identifying defaulters or left-out children. Community leaders have been involved with the FHTs and also support the woredas during vaccination campaigns. Further training of the community leaders to engage in RI would be beneficial.

"The community has a trend to translate what they have learnt during awareness raising in to practice, so it is good to work hard on awareness especially in these slums."-WoHO head

"Community volunteers will be very important if they are trained to provide awareness creation and community mobilization activities. So, it helps if prominent community members are selected and trained to assist outreach services. The sub-city should provide directions for the HEWs on how to involve the communities."

Participate in microplan development:

The MP is prepared based on conversion factor and the respondents from HCs indicated that it should be prepared using head counts. **They mentioned that community volunteers would have a pivotal role in identifying and listing newborns in slum areas to prepare slum-specific plans for RI services and make sure none of the children in slum areas are left out.**

Focus Group Discussions

Community and Mothers' Perception of the RI Services Provided to Urban Slums

FGDs among mothers in the slum shed light on the way RI is perceived in their slum communities. Mothers perceived that immunization helps their children to develop protection against various diseases (tetanus, paralysis/polio, measles and meningitis were mentioned).

"I understand that immunization means prevention of diseases [….]. Immunization has many benefits and has been drawn from many experiments/investigations. I believe that immunization is a requirement and obligatory for children." - Mother

"Immunization helps to prevent children from different diseases such as meningitis, measles, and others. It helps our children grow healthy." - Mother

Vaccination practice in the community:

In general, the community group (especially the mothers) expressed that they know the benefit of having their children vaccinated and take actions accordingly. As per some respondents, some mothers who are not clear about the diseases that the vaccines prevent **still go for vaccination, trusting the health workers' recommendations to vaccinate their children**. According to mothers groups' perception, many mothers were aware that the children had to get a dose on the 45th day of birth, with subsequent doses of Penta, and some (but not all) remembered that the measles vaccine should be scheduled at 9 months.

"Not all children receive the 9-month dose as they forget […] but almost no women miss the 45th date vaccine, and the 9th month one is it depends." - Mother

Most of the children in the participants' communities were vaccinated against Penta. Mothers did not necessarily take their children to the same HFs all the time. According to the respondents, since the population has access to several HCs, mothers had multiple options for immunization. The community expressed doubt that the majority of eligible children had received the measles vaccine scheduled at 9 months.

Perspectives from Mothers on Engagement with the Health System

Sources of information:

HEWs and healthcare workers (FHT) were the key sources of information for immunization in the communities. Information provided by healthcare providers at the HCs during pregnancy visits (ANC follow-up), after the birth of a baby, and during subsequent visits was also reported as vital. Most mothers mentioned that to the best of their knowledge, most of the children in their communities were born at health facilities and have received vaccinations.

Health development armies (HDAs) and local mothers organized coffee ceremonies which the HEWs also utilized as an additional platform for health promotional activities including spreading EPI messages. Healthcare providers from HCs also participated in the coffee ceremonies together with HEWs. Neighbors, loudspeakers promoting health information, and media (TV and radio programs) were also a source of EPI information. Announcements during a campaign (polio was mentioned specifically) has been mentioned as another source.

"The healthcare providers educate us about immunization during pregnancy and follow-up [….]. In addition, the healthcare workers provide education about immunization services for mothers visiting the health center for immunization services." - Mother

"The healthcare providers come to the village and provide health education including immunization. This is how most of us receive health education and most of the mothers get awareness of immunization." - Mother

Mothers' Perception: Challenges to Immunization (I)

Gaps in understanding:
Despite the positive and favorable views on EPI demand and utilization, some mothers mentioned that information provided by the HWs at the HCs and in the communities was not adequate, leaving gaps in the understanding on the benefits of vaccines, how vaccines work, the vaccinations schedule, and common side effects from vaccination. Respondents mentioned that there may still be some who with barriers to accessing immunization (including knowledge gaps).

Access to services:
Extending immunization service hours so that mothers/caretakers (especially working parents) would have more flexibilities to bring their children for immunization

"At HC, a vaccine is given only on two days (Tuesday and Thursdays) and in the mornings. It is better if given from Monday to Friday. In that case there will not be long queue and long waiting time. Mothers can simply get services, even an employed mother can take an hour permission and get immunize her child." – Mother

"Many in the communities don't have adequate awareness.[….] or know about the benefit of vaccines. However, they simple immunize children because HW tell to immunize their child. HW doesn't provide adequate information for mothers." – Mother

"There are people in our community who do not want to see their babies crying due to injections. For example, my baby got very fatigued and she was crying continuously after the injection of the vaccine. When my husband saw that, he became angry and said, 'it is better to stop the vaccination as it makes him sick. […..]there are people who think immunization causes children to get ill like my husband." - Mother

Mothers' Perception: Challenges to Immunization (II)

Other reasons for not having the children vaccinated include: lack of awareness of the benefit of vaccination; poverty; lives far away and transportation cost was high; fear of children becoming cranky; didn't have time to do so. Misunderstanding of immunization appointment dates was also mentioned. Some mothers might not remember immunization appointment dates, particularly the measles vaccine administered at 9 months without receiving reminders.

Language barriers during communication and being unable to understand the information provided at the HCs and by the HEWs was also highlighted as a factor affecting immunization.

"Most of us are laborers, illiterate and poor. We are always running to buy food for our family. Some mothers carry fire leaves from the forest every day. [….]. So, sometimes a mother may prefer work to immunization of her child because she may think buying potatoes for her children will be better than immunizing the child." - Mother

"Most of the people in our community are uneducated and there are people with language barriers. We cannot confidently say that all mothers are aware of immunization. I am a health development army member. During my home-to-home visits, I have met mothers who missed the immunization schedules." - Mother

Mothers' Perception: Challenges to Immunization (III)

Lack of vaccines at HCs:

Mothers expressed that there was a demand for vaccination. However, unavailability of vaccines when the mothers made the effort to go the HCs sometimes discourages them to return, because of cost, and time. When mothers arrived at the HC, they were told that there either no vaccines available or the adequate number of children required to open vaccine vials that are administered for 10 or 20 children such as BCG. This is a particular problem for those who work as daily laborers, vendors, sellers, factory workers and others with work schedules that do not allow them to go back to the HCs repeatedly. Cost was another consideration; as day laborers, money is at a premium and mothers could not afford the transport costs. Interestingly, one mother mentioned that rescheduling vaccination to a later date might harm the child.

"Mainly, many people know the appointment date, even illiterate remember the date. They tell us the appointment date on the card, but when arrived at HC there is a long is the queue, there is a shortage of vaccines." - Mother

"Health workers bring and vaccinate children but I have a question that 'won't this have harmful effects on the child?' And this is the most I am fearing about (vaccinating at a later day)." – Mother

"When I go to HC they say if 20 children don't appear, they can't open the vaccine, hence, though I paid 100 birr for transport, I have to return back without getting the service." - Mother

Mothers' Perception: Support to Improve Immunization (I)

Community:

- All mothers agreed the community as a whole should work together to ensure that no one is left behind on immunization. Mothers suggested that there should be community volunteers to help the mothers to help with the language. Mothers reported that sometimes neighbors or relatives offer to take the child for vaccination if the mothers are too busy.
- Community forums such as EDIRs should be utilized for advocating for immunization in the slum areas.
- Community leaders also suggested that they can help HCs in awareness creation, counseling, and facilitating the appropriate time for vaccination.

"Mothers in my neighborhood supported me to get immunized for my child. I didn't take my child for a vaccine to HC for a long time. Then they asked me and I told them that my child didn't receive any vaccine. Then they took my child to HC and get immunized. They advise me to follow for a vaccine." - Mother

"Currently, many husbands are taking their children for vaccinations. Previously, it was not common. [….] But, there are some husbands perceive taking a child for vaccine is the role of mothers." - Mother

- Fathers should be actively involved in supporting the mothers throughout pregnancy and other child care including immunization. As such, they should be part of health promotional messages on maternal and child health. Involving fathers has other benefits as well. Sometimes the fathers understand the language (Amharic) and can help communicate messaging to mothers.

Mothers' Perception: Support to Improve Immunization (II)

Health facilities:

While the HEWs support the mothers alongside HDA members through home visits and discussions on maternal and child health, some mothers perceived that the presence of HEWs in their communities was irregular and not strong. Mothers suggested that their activities to create awareness in the community should be strengthened, visible and more frequent.

> ***"HDAs…can inform mothers before HEWs come to the village. So, when the HEWs come to the village, all mothers gather. The coffee ceremony is being held while the discussion and health education is ongoing. This is very important to improve awareness of the community. HEWs have been doing this, so this should be strengthened more than before." - Mother***

Communities' Overall Perception

- The FGDs among the community representatives described the majority of the slum dwellers as engaged in low paying work and with a low level of educational attainment. They generally reside in crowded areas with a low standard of living.

- The communities mentioned several groups such as the 1 to 30, network, the 1 to 5 HH, and use of Idris (collection of money from the community) as being active in the community.

- Some community members were involved in promoting health and wellness through their association with different groups in their communities and maintaining liaison with HEWs and/or local administrations.

- All community respondents perceived the health of the children in their communities as good. However, some believed that by living in poverty and with substandard hygienic conditions, the children suffered from ailments such as cold, cough, diarrhea, etc.

Communities' Perception: Immunization

- There was a mixed perception about the immunization status of the children. While community members from one community thought most of the children (90% as expressed) were immunized, respondents from another community believed only half of their children were immunized.

- The key challenge for the community to immunize their children was the busy work schedule of the mothers/caretakers. Other challenges included transient slum populations and the refusal of the HCs to provide immunization if a critical mass of children were not present.

"There are some challenges from HC. For example, a child may not get a vaccine on the appointment. Sometimes, they said the number children is not adequate to open the vaccine. They wait for 20 children to give a vaccine, and provide another appointment. In such case, there are some mother forgot the appointment, as she already visited HC on the first appointment." – Community leader

"HEWs conduct home to a home visits to identify any defaulter. Due to this, almost there is no defaulter and left out the child in these villages. They check the immunization card of each child in the villages." - Community leader

"Half of the community get their children vaccinated, and a lot of children default, this is because of awareness about the benefit of it [….] the other key point is that, we have to focus on our daily bread; most of us live in difficult condition and relay on meager income (affecting immunization)" - Community leader

Communities' Perception: Support from the Community

The community expressed that not all communities were aware immunization gaps though most of them were willing to help their own communities. The community shared how they could support their communities in several ways, especially to improve the immunization status of the children:

- Identifying and tracking defaulters and left-out children and connecting them with the HEWs
- Assist the HEWs during home visits and health advocacy
- Counseling and facilitating mothers for taking their children for immunization
- Supporting mothers to communicate with their husbands about the importance of immunization
- Generate funds and compensate mothers on lost labor wage if needed when they take their children for immunization
- HCs should consider having extra hours and/or outreach sessions outside of normal working hours to provide immunization

"The community is willing to contribute voluntarily but the problem is that, there is no one which mobilizes and aware community groups to work on health related issues. Both men and women in our community are open and have the initiative to work on anything that benefits the people here." – Community leader

"If a mother gives birth by C/S [….] the neighbor can take the child for immunization" - Community leader

Conclusions

- A top-down microplanning approach (RHB designing HC level microplans) means that services are not tailored for the population, denominators do not reflect the actual population, and accountability for monitoring implementation of the MP is limited at the HC level.
- The current immunization service delivery system (exclusively providing static services) limits the ability of the health system to reach urban poor populations; there is high demand from HWs and community members for outreach services
- HCs have defaulter tracking systems; however, the current system may not capture urban poor or high-risk marginalized populations
- A strategy (beyond HH visits) for identifying and tracking zero dose children needs to be implemented
- A focused strategy to identify, reach and monitor children living in urban poor areas may improve the equity and reach of primary health care more broadly in Addis

Recommendations (I)

- Consider an overhaul to the microplanning approach. Build the capacity of HCs to design community-based microplans to tailor services for their population, improve the accuracy of denominators and encourage monitoring the plan; HCs will still submit plans to the RHB for review and approval. We believe this will improve the reach and equity of services.
    - As part of a strategy to improve equitable service delivery, it is essential to identify and enumerate slum areas and to design services for those populations; targeted planning for service delivery to those communities is needed.
- Invest resources in outreach services for targeted communities (e.g. slum areas). Include funding for HW training, additional health staff to cover the HC during outreach sessions, and social mobilization (including how to leverage FHT presence and reach). Consider expanding or shifting the hours of immunization services to accommodate day laborers (explored through bottom-up MP process).
- Focus on strengthening skills of managers in adaptive management and strengthening the overall supportive supervision process

Recommendations (II)

- Highlight the importance of zero-dose tracking. This starts with identification and registration of pregnant women and tracking them through delivery. Once the mother has given birth, record the name of the child in the register and on a child-health card and place them within the tickler file. This child then becomes part of the defaulter tracking system. In addition, consider alternatives to phone messaging for mothers/caregivers where communication is a barrier.

- Establish use of RED Categorization tool at sub-city level to further disaggregate which woredas/HCs have low coverage, high drop-out rates, and/or inconsistency in reporting

- Establish and utilize Quality Improvement Teams (QITs) comprised of HW and community members to strengthen the relationship between the community and the health system. At the managerial level, a QIT formed w/ the sub-city, WoHO and HC would improve communication and coordination btwn the teams

- Service experience - the experience the caregiver has when bringing her child for immunization - is critical. These findings emphasize that HW attitudes towards urban poor can negatively affect their ability to consistently use services. Training and communication strategies with HWs will be critical.