

POLICY BRIEF

eCHIS IMPLEMENTATION IN ETHIOPIA: WHAT ARE WE LEARNING FROM THE NATIONAL SURVEY?



SUMMARY

As the electronic community health information system (eCHIS) has been developed, it's increasingly been deployed to track and support services that health extension workers (HEWs) deliver in Ethiopia. eCHIS success depends on the acceptability of the technology among users. The Digital Health Activity (DHA), in collaboration with the Ministry of Health (MOH), and Jimma, Gondar, and Haramaya Universities, conducted a study on the acceptability, usability, barriers, and facilitators of eCHIS from May 12–29, 2022. The study identified that despite near universal acceptance of eCHIS among HEWs, actual usage is considerably lower. The acceptance-use gap is attributed to various barriers at different levels in the healthcare system. This brief discusses the urgent need to reconsider certain aspects of the eCHIS implementation approach.



KEY FINDINGS:

- HEWs have high acceptance (94–97%) of eCHIS.
- However, only half of the HEWs either frequently or always use eCHIS in their routine work indicating a huge discrepancy between acceptability and actual use.
- Lack of infrastructure and resources; poor quality of training, follow up, and supervision; parallel recording using both the manual and electronic system; and HEW workload are the major reasons for the acceptance-use gap.
- Data quality, retrievability, and traceability; tablet portability; cost-effectiveness; encouragement from supervisors; and positive image in the community resulting from HEWs using tablets in their routine activities facilitate eCHIS use.
- An integrated and coordinated approach to eCHIS implementation that encompasses removing barriers and reinforcing facilitators and motivators is required.

INTRODUCTION

eCHIS implementation started in Ethiopia in September 2018. The eCHIS, a primarily mobile-based application that works in online and offline environments, digitized the manual family folder. It facilitates sharing of household and individual information between HEWs and other staff, and helps HEWs monitor patient status (1).

Between September 2018 and August 2022, eCHIS was scaled up in over 370 woredas, 1,530 health centers, and 7,155 health posts across Ethiopia. A total of 4,186,779 households with a population of 18,051,113 have been registered using eCHIS and about half of the health posts have started providing service using eCHIS (2).

However, the eCHIS is in a scale-up stage and requires continuous monitoring, learning, and adapting. In addition, ensuring HEW acceptance and use of eCHIS in their regular work is fundamental to its scale up. While studies indicate high digital health system acceptance by community health workers (CHWs), its actual use is limited and CHWs prefer to use the paper forms (3, 4). Despite the many benefits of digitizing the health information system, implementation is constrained by many barriers, resulting in poor use of the application by health workers (5).

This study assessed the acceptability, usability, barriers, and facilitators of eCHIS among health workers in Ethiopia, and found interesting results. This policy brief highlights the major findings and provides recommendations to ensure effective, efficient, and sustainable eCHIS use.

METHOD

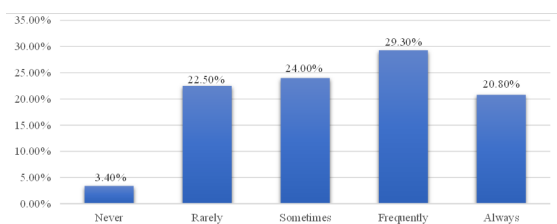
The study used both qualitative and quantitative approaches. The quantitative data were collected from 587 HEWs from an equal number of health posts to determine the acceptability and use of eCHIS and the factors associated with them. For the qualitative study, a total of 54 in-depth interviews were conducted among HEWs, HEWs supervisors, health information technicians, health service providers, and managers to explore the barriers, facilitators, and motivators of eCHIS use.

RESULTS

Near universal acceptance but lower use

HEW eCHIS acceptance is 94.4%–97.4% demonstrating a near universal acceptance of the eCHIS. However, only half use it frequently or always in their routine work (Figure 1). This acceptance-use gap is attributed to the various barriers to eCHIS implementation. The study suggests that the foundation is laid but eCHIS progress will depend on overcoming barriers and carefully reconsidering current implementation approaches.

Figure 1. Frequency of eCHIS use among HEWs, June 2022.



WHAT ARE THE BARRIERS TO eCHIS USE?

Despite encouraging results, eCHIS implementation has been constrained by multiple interrelated barriers at different levels of the healthcare system. These include:

1. Lack of information technology infrastructure and readily available maintenance support

Infrastructure-related barriers included lack of or improperly functioning tablets including low

processing speed and storage capacity; low power storage capacity of power banks and lack or non-functionality of SIM cards; connectivity and electric power interruptions; lack of readily available tablet maintenance services and airtime recharging; and lack of eCHIS-DHIS2 integration. Addressing the barriers is very critical for eCHIS usability.

2. Poor quality eCHIS training and heavy workload

Most HEWs and other health workers included in the study reported that eCHIS training quality is poor. This includes mixing trainees (e.g., HEWs, HITs and other health workers together during training), lack of post training follow up and supervision. This is causing HEWs to prefer the manual CHIS over eCHIS. Issues mentioned about the training included: content skipping, insufficient demonstration and practical sessions, and lack of post-training follow up, ongoing supportive supervision, and mentoring. Training is also given module-by-module, in separate sessions, which means that trainees are unable to use functional components of eCHIS until that specific module is scheduled.

The large-volume data resulting from the complexity of household registration forms; time traveling long distances during house-to-house visits; and frequent campaigns including additional duties and assignments increase HEW workload, further restricting their use of eCHIS. In the quantitative study, perceived ease of use, which is affected by training, was significantly associated with intention to use and acceptability.

3. Lack of prior exposure to technology and fear of losing tablets

Most HEWs reported limited exposure to tablets and software, and navigating through the different pages of the eCHIS application and adjusting screen setting have been major problems, especially during service delivery. This is complicated by application-related challenges such as being stuck on a page and involuntarily restarting the application without saving data. Fear of tablet theft and robbery during home-to-home visits for household registration and service delivery also hinder eCHIS use.

4. Policy gaps

Policy directives like the need for parallel recording of CHIS and eCHIS and a phase-based release of modules hinders use of eCHIS, mainly because they increase workloads. The lack of clear policy on use

of eCHIS tablets for personal or business also affects use, and means that HEWs must carry two gadgets (i.e., tablet and personal phone).

Lack of adequate budget for regular supportive supervision and review meetings hampers eCHIS implementation as well. In addition, inconsistent direction about concurrent or sequential use of eCHIS for household registration and/or service delivery has caused varying use levels across woredas.

Health workers and the community value eCHIS and its potential benefit

Despite the use barriers, eCHIS users mentioned several benefits and facilitators, including improved data quality, traceability, retrievability, and transparency, and tablet portability. In addition, encouragement from supervisors at the health center and woreda levels, and colleague and community recognition and acceptance motivate HEWs to use eCHIS in their routine work.

RECOMMENDATIONS

Prioritize and invest in eCHIS infrastructure:

- The MOH and sub-national health structures must ensure the continuity of airtime recharging for HEWs to sync their data. It is also important to create accountability at woreda or health center level to ensure all HEWs who are expected to use eCHIS have, at a minimum, compatible 4G SIM cards dedicated for this purpose.
- The MOH and partners must ensure procurement of appropriate tablets for eCHIS. This may include procuring tablets that have large storage and processing capacity. It is very important to consider the economy of scale when procuring tablets. This could include framework and/or lifetime procurement from prequalified manufacturers that MOH can agree to replace old and broken tablets with minimal additional expenses.
- Woredas are responsible for distributing tablets to HEWs in health posts in which eCHIS is implemented. To reduce the vulnerability of tablets to theft, loss, and damage, woredas and partners should provide bags and protective covers for HEWs.

- The MOH, regional health bureaus, and woreda health offices must ensure that all tablets distributed have power banks with adequate storage capacity. Power banks that are damaged, lost, or have reduced storage capacity must be identified and replaced on time.
- MOH and regional structures must ensure availability of reliable electric power when selecting health posts for eCHIS implementation.
- The MOH and digital health partners must accelerate the eCHIS-DHIS2 integration to increase woreda and health center commitment to oversee eCHIS implementation at the health post level.
- MOH and partners must continue to support local capacity to enable timely and responsive troubleshooting and maintenance support for eCHIS.

Improve training quality and supportive supervision to enable HEWs to use eCHIS properly:

- MOH and its partners must ensure that eCHIS training is provided per the standard, including sufficient time and resources for theoretical, practical, and demonstration sessions. They must standardize training duration across regions and administer certification only to those who meet the required competencies upon training completion.
- MOH partners must make sure that every trained person receives post-training follow up to ensure initiation of eCHIS use and provide tailored support specific to the context.
- eCHIS training institutions must train similar categories of workers to impart relevant knowledge and skills and foster group dynamics.
- MOH partners must make sure that primary health care unit (PHCU) directors and woreda health office heads are included in eCHIS training. This includes following up on eCHIS use by service providers at the health center level for activities including referral feedback.

- Establish a national standard for eCHIS training sequence. This should include cost considerations associated with phase-based release of modules.
- eCHIS training for HEWs should cover tablet management including screen setting (e.g., brightness, ergonomics, and use of anti-reflection protection).

Adopt and implement ways to enhance technology literacy, accessibility, and ownership among health care workers:

- MOH and partners must ensure that the eCHIS application is properly functioning at all times and mitigate related challenges by establishing a helpdesk or providing onsite support. This may include minor troubleshooting as part of health worker pre-service training.
- When procuring tablets, consider the quality of tablets, especially user friendliness and potential adverse health effects (due to using low-quality tablets).

Ensure administrative and leadership commitment and resource availability for sustained use:

- Woreda health offices must plan and allocate adequate budget and other resources for supportive supervision of eCHIS implementation. This will demonstrate leadership commitment and eCHIS ownership at the lower health administrative levels.
- Woreda health offices must assign an adequate number of HEWs to health posts to avoid work overloads, which hinder eCHIS use. This will promote use of eCHIS during frequent campaigns and other engagements in which HEWs must participate. When HEWs leave for education or maternity or quit, the woreda health office must ensure timely replacement and training.

There is an urgent need to address the policy gaps:

- To prevent work overload, dissatisfaction, and fatigue associated with concurrent HEW use of eCHIS and CHIS, the MOH must consider changing the eCHIS implementation modality, which is based on the phased release of modules. We recommend that MOH consider implementing all eCHIS releases at once in selected sites and scale up all releases to other woredas in phases. This includes giving clear direction to woreda health officials about order and priority of household registration and service delivery using eCHIS, and will cut costs associated with multiple trainings for the release of each module.
- There is an increased vulnerability of HEWs for robbery and theft when they carry their personal phone and eCHIS tablet at same time. Yet personal use of tablets depletes their storage and processing capacity. MOH must provide clear guidance on use of tablets for personal matters while alleviating HEW concerns about carrying two devices.

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