



# RMNCH IRT **BLENDED LEARNING** PILOT

ABRIDGED REPORT



የጤና ሚኒስቴር ስላጥናት  
MINISTRY OF HEALTH, ETHIOPIA

**LAST  
MILE  
HEALTH**



# CONTENTS

<b>INTRODUCTION</b>	<b>1</b>
<b>RMNCH IRT BLENDED LEARNING PILOT</b>	<b>3</b>
<b>EVALUATION OVERVIEW</b>	<b>9</b>
<b>RESULTS</b>	<b>13</b>
<b>KEY LEARNING</b>	<b>25</b>
<b>RECOMMENDATIONS</b>	<b>26</b>
<b>PATHWAY TO SCALE AND LOOKING FORWARD</b>	<b>27</b>

## ACRONYMS

<b>CPD</b>	Continuous Professional Development
<b>eCHIS</b>	Electronic Community Health Information System
<b>HEW</b>	Health Extension Worker
<b>IRT</b>	Integrated Refresher Training
<b>LMH</b>	Last Mile Health
<b>MOH</b>	Ministry of Health
<b>NCDs</b>	Non-Communicable Diseases
<b>RMNCH</b>	Reproductive, Maternal, Newborn, and Child Health
<b>SNNPR</b>	Southern Nations, Nationalities, and Peoples' Region

# INTRODUCTION

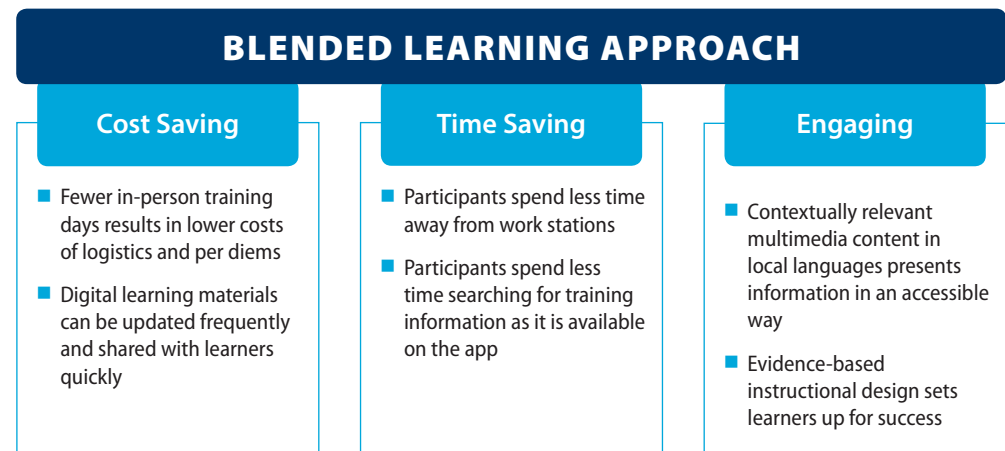
Ethiopia's flagship Health Extension Program is recognized as a global leader in expanding access to primary healthcare in rural and remote areas through community health workers. The program deploys over 40,000 health extension workers (HEWs), most of whom are female. HEWs provide preventive, promotive, and curative health services in their communities and are credited with contributing to a reduction in child and maternal mortality in Ethiopia over the past two decades. Despite its success, Ethiopia's Health Extension Program faces several challenges, including maintaining the quality of services delivered while continuously improving HEWs' knowledge and skills. In this regard, it is essential that HEWs have access to high-quality training content.

As part of the ongoing efforts to build knowledge and skills and strengthen service delivery, HEWs participate in a series of in-service refresher trainings called Integrated Refresher Trainings (IRT). HEWs take part in face-to-face IRT once every two years at the district level, and training covers six modules: 1) reproductive, maternal, newborn, and child health (RMNCH); 2) hygiene and environmental health; 3) non-communicable diseases (NCDs); 4) major communicable diseases; 5) social behavior change communication (SBCC); and 6) first aid/emergency.

The Ministry of Health (MOH) has identified a number of key challenges associated with the IRT modules that have adversely impacted HEWs' learning outcomes and skills proficiency. These challenges include ineffective learner

engagement and limited interactive content. Moreover, these trainings are delivered face-to-face over the course of many days without the use of technology, which makes them highly inefficient and resource intensive.

To address these challenges, the MOH and Last Mile Health forged a close collaboration to develop a blended learning approach to revolutionize training for HEWs. Featuring both digital and in-person components, the blended learning approach was piloted on the RMNCH module of IRT.





The blended approach uses adult learning principles, combined with digital technology



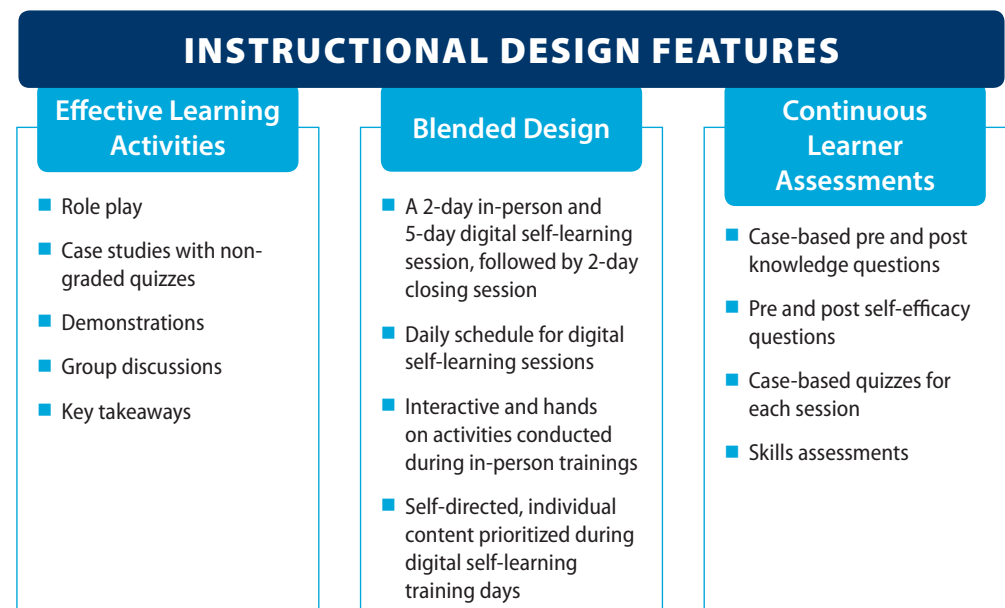
# RMNCH IRT BLENDED LEARNING PILOT

In 2021, Last Mile Health worked with the MOH, content experts, and technology partners to develop a blended RMNCH IRT. This approach draws on the perspectives of diverse stakeholders including several MOH directorates, regional health bureaus, subject matter experts, instructional design experts, HEWs, and peer organizations to design, adapt, and disseminate high-quality digital training content.

## INSTRUCTIONAL DESIGN

The conventional RMNCH IRT is conducted in-person over the course of seven days at the district or zonal levels, delivered by trained facilitators from the district or health centers. This approach was updated to a blended learning format that combines four days of in-person training with five days of digital self-learning (two hours per day), with the goal of enhancing training effectiveness and efficiency. The blended approach aims to improve knowledge and skills in key RMNCH competencies while reducing training cost, increasing accessibility of training materials, embedding multimedia content, and providing individual data from participating HEWs on knowledge gaps to target follow-up supervision visits more effectively.

The blended approach uses adult learning principles, combined with digital technology, to increase HEWs' access to learning opportunities, build their knowledge, and strengthen their skills. The instructional design includes effective learning activities such as roleplays, case studies, demonstrations, and group discussions.



In addition, the design embeds continuous assessment through case-based pre- and post-training knowledge questions, quizzes, and skills assessments, providing even more opportunities for learning.

- 
- 9 CHARACTER STORIES**  
animation videos showing the journey of HEWs solving problems of a village
  - 16 ANIMATED VIDEOS**  
demonstrating standards of care and providing step-by-step guidance
  - 22 LECTURE VIDEOS**  
on standards of care, delivered by clinicians
  - 102 ILLUSTRATIONS**  
showing illustrative pictures to demonstrate subject matter

## MULTIMEDIA RESOURCES

A suite of multimedia content including animated videos and character stories, illustrations, and lecture videos was developed in local languages, recognizing gender and cultural sensitivities and local context to enhance learner engagement and knowledge acquisition around RMNCH services. Digital resources can serve multiple purposes including education of mothers and families during home visits on RMNCH.

## DIGITAL PLATFORM

The blended training is delivered through the Extension Essentials app, which contains all training content as well as a daily schedule for in-person and digital self-learning. Once a user downloads the module, all its contents and activities can be accessed offline anytime, anywhere. The digital platform provides real time data to evaluate the training. This includes participation and time spent in activities and course completion, learners' reactions to the course, pre- and post-training knowledge, self-efficacy assessments, and engagement with digital components after the training. The Extension Essentials app is delivered on the same tablets HEWs use for the electronic community health information system (eCHIS), and was deployed and supported with woreda-level health information technicians.





Digital resources can serve multiple purposes including education of mothers and families during home visits on RMNCH



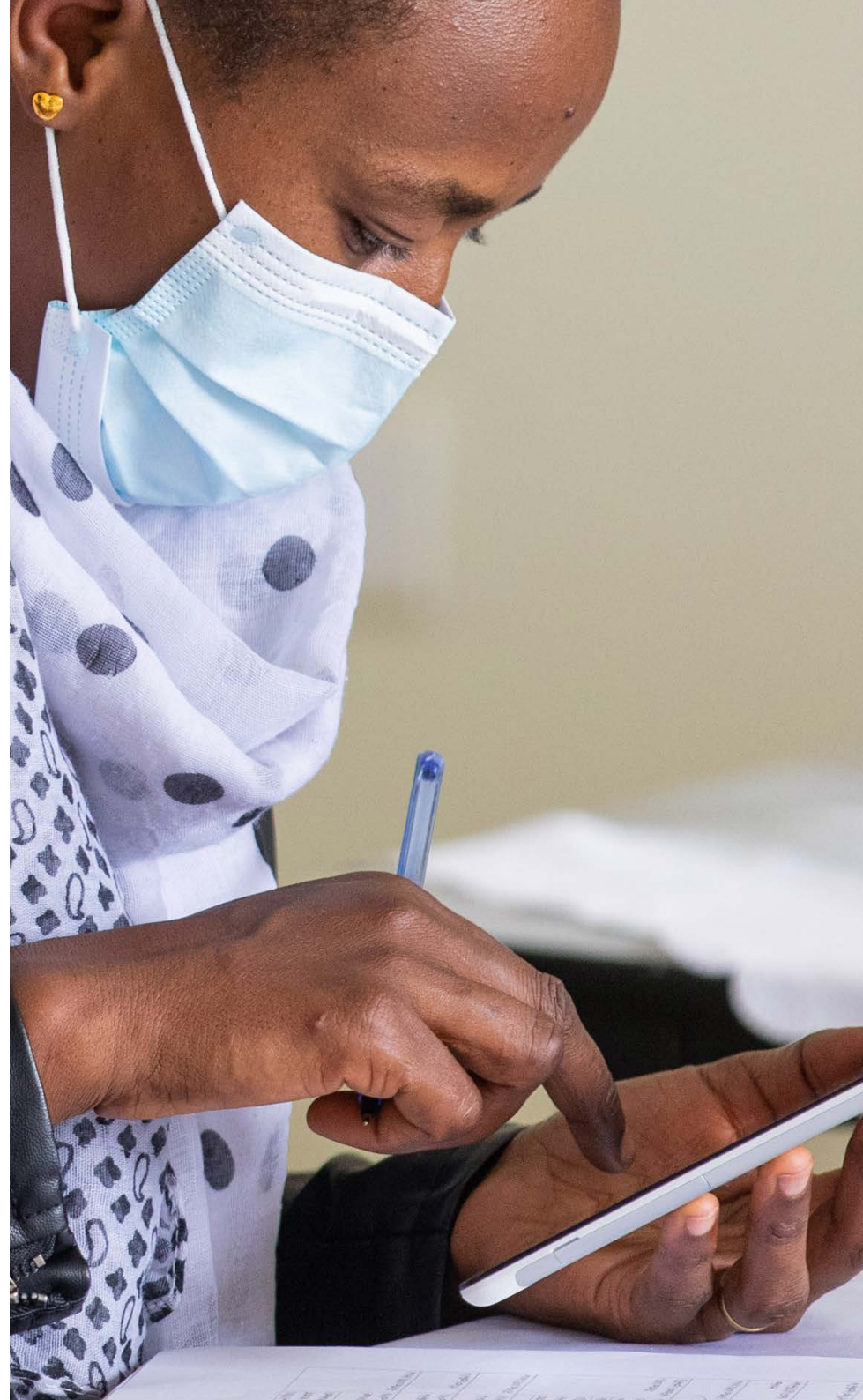
## TRAINING MODALITIES

The blended RMNCH IRT was delivered through MOH-accredited continuous professional development (CPD) centers, which are embedded with pre-service training institutions such as health science colleges and hospitals. This ensures sustainability, builds the capacity of MOH training institutions, and links pre-service and in-service training. CPD centers also provided facilities and equipment for conducting skills assessments and demonstration materials for the training's practical sessions.

HEW supervisors were also engaged in the training, promoting continued support during the post-training period.

## USER TESTING

To ensure the blended module's design met HEWs' needs, user testing was conducted prior to the pilot. Understanding user experiences and preferences allowed the course designers to amend training content and format, and tailor resources to better meet learners' expectations and needs. Initial user testing showed that HEWs were receptive to the blended design, and they provided vital feedback on the app's functionality, as well as content and multimedia resources. User testing identified quizzes and multimedia resources as the best features of the training: they were effective for retaining information, interactive, easy to understand (due to the use of local languages), relevant to real-life community challenges, and easy to navigate.





## DATA USE FOR QUALITY IMPROVEMENT AND ADAPTIVE MANAGEMENT

A key component of the blended RMNCH IRT instructional design centered on generating and using data for real-time decision-making and quality improvement. The team shared learner pre-test data with facilitators to ensure competency gaps were addressed. Facilitators ended each day of in-person sessions with a learner pulse-check to understand what learners felt was going well and what could be improved for the following sessions. Facilitators also completed a daily debrief form and shared this information with the implementation team to reflect on and address facilitation challenges quickly as well as to share successes across training sites. Learner data was summarized and shared with HEW supervisors for tailored mentorship and supervision to fill identified knowledge and skill gaps of HEWs after the completion of the training. Learners also completed continuous knowledge assessments in the app to track their progress.

## PILOT IMPLEMENTATION

The blended learning RMNCH IRT was piloted in 20 districts serving a population of more than 3 million people across Oromia, Sidama, SNNPR, and Amhara regions. The pilot targeted over 1,000 HEWs and HEW supervisors. In addition, 10 training coordinators, 38 health information technicians, and 88 course facilitators participated in the pilot.

Concurrently, 20 districts with approximately 1,000 HEWs and HEW supervisors serving a population of 3.2 million people across the same regions were selected as comparison sites for the research component of the pilot. Conventional in-person in-service trainings implemented by zonal or district health bureaus took place in these districts.





A mixed-method evaluation was conducted to assess the effectiveness of the blended RMNCH IRT pilot



# EVALUATION OVERVIEW

The overarching objective was to evaluate the effectiveness of the blended RMNCH IRT pilot. The evaluation objectives include:

- 1 **REACH** To measure the overall reach of the blended RMNCH IRT and determine learner characteristics and reach among target learners.
- 2 **REACTION** To understand how the blended RMNCH IRT fulfills learners' needs and addresses gaps in conventional IRT implementation.
- 3 **LEARNING** To determine if the blended RMNCH IRT supports increased knowledge, self-efficacy, and skills in key RMNCH competencies needed for community health work.
- 4 **BEHAVIOR** To determine how learners apply key RMNCH knowledge and skills within their work.
- 5 **SYSTEMS** To determine to what extent the blended IRT approach contributes to community health systems improvements (specifically the cost of implementing quality IRT).

The mixed-methods evaluation of the blended RMNCH IRT pilot utilized a quasi-experimental before-after matched comparison group design with 20 districts in each study arm. The intervention and comparison sites were selected with the MOH using convenience sampling and matched based on location, population size, and health infrastructure (number of health centers, health posts, and HEWs).

## METHODS

The primary methods used to measure the evaluation objectives included:

Method	Assessment Area	Timing and Study Arm
<b>Learner surveys</b>  <i>Gray text only measured in intervention sites</i>	<ul style="list-style-type: none"> <li>■ Learner characteristics</li> <li>■ ICT competence</li> <li>■ RMNCH knowledge and self-efficacy</li> <li>■ Satisfaction with the training</li> <li>■ Usability of digital platform</li> <li>■ Feasibility of blended approach at scale</li> <li>■ Challenges and suggested improvements</li> </ul>	Pre- and post-training Intervention and Comparison
<b>Passive in-app activity data</b>	<ul style="list-style-type: none"> <li>■ Engagement with digital components</li> <li>■ Implementation fidelity to blended approach</li> </ul>	Continuous Intervention only
<b>Facilitator surveys</b>	<ul style="list-style-type: none"> <li>■ Satisfaction with the curriculum design, digital platform</li> <li>■ Quality of facilitation</li> <li>■ Learner performance</li> <li>■ Challenges and suggested improvements</li> <li>■ Feasibility of blended approach at scale</li> </ul>	Post-training Intervention only
<b>Supervisor surveys</b>	<ul style="list-style-type: none"> <li>■ Ability to support HEWs during blended IRT</li> <li>■ Satisfaction with the blended learning IRT</li> <li>■ Use of training data in follow-up supervision visits</li> <li>■ Challenges and suggested improvements</li> </ul>	Post-training Intervention only



Method	Assessment Area	Timing and Study Arm
<b>Skills assessments</b>	<ul style="list-style-type: none"> <li>■ RMNCH skills</li> </ul>	Pre- and post-training Intervention only
<b>Learner focus group discussions</b>	<ul style="list-style-type: none"> <li>■ Early application of RMNCH knowledge and skills</li> <li>■ Experience with the digital platform</li> <li>■ Satisfaction with the instructional design, course content</li> <li>■ Use of digital training components after IRT</li> <li>■ Opinion of blended training vs. in-person training</li> <li>■ Feasibility of blended approach at scale</li> <li>■ Role of supervisor in blended IRT</li> </ul>	Post-training Intervention only
<b>Cost data capture</b>	<ul style="list-style-type: none"> <li>■ Cost per learner of delivering standard and blended IRT for the RMNCH module</li> <li>■ Cost per training output and outcome indicators</li> </ul>	Training period Intervention and Comparison

*This abridged report* includes available data from learner surveys, skills assessments, in-app activity, facilitator surveys, supervisor surveys, and open response questions posed to learners and facilitators. A full evaluation report inclusive of all data sources will be drafted in July 2022.

## INCLUSION CRITERIA AND ANALYSES

All analyses were restricted to individuals who attended the trainings. Analyses of assessment data were restricted to learners who successfully completed both a pre-training and post-training assessment. Analyses comparing blended learning and comparison (fully in-person) training sites were restricted to HEW learners. Univariate and bivariate analyses were performed using STATA 17.



Learners remained engaged on the app during the digital self-learning period, averaging 2.8 hours per day



# RESULTS

## Evaluation Objective 1

### REACH

### WHO ATTENDED IRT?

**Blended IRT:** 1,122 learners attended trainings. Of these, 1,095 completed a pre- and post-training knowledge assessment.

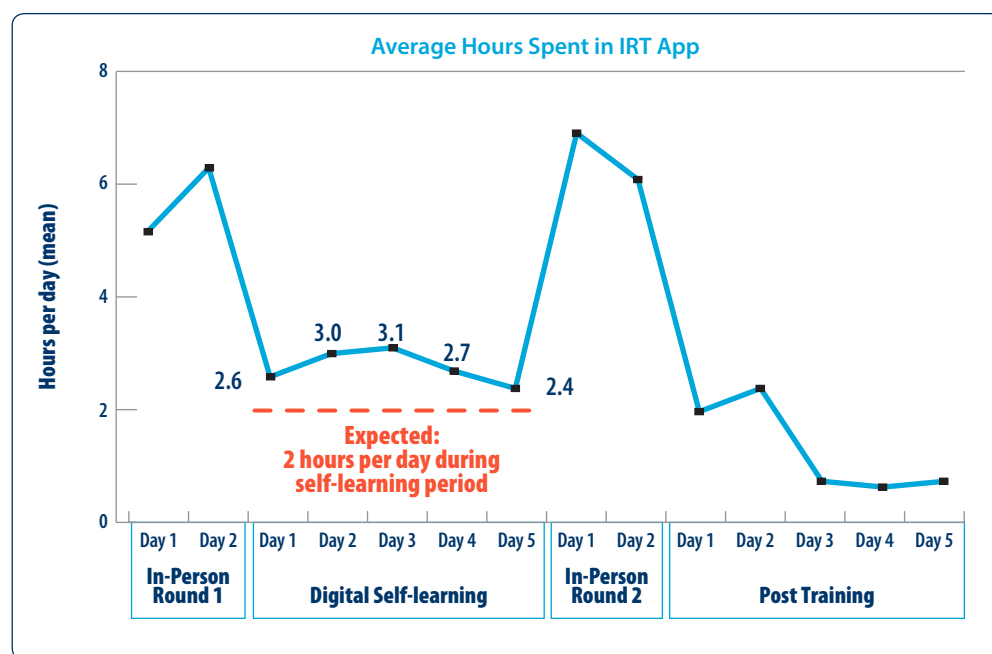
**Comparison IRT:** The pilot targeted approximately 1,000 learners taking the conventional RMNCH IRT module. As of May 2022, 986 learners had attended trainings, of which 920 completed a pre- and post-training knowledge assessment. Data collection is ongoing and approximately 100 additional comparison learner participants are expected.

Demographics and professional experience were broadly similar for learners in the blended and comparison training groups. However, the proportion of HEWs and female learners was slightly higher at comparison sites than blended sites. To ensure comparability, analyses comparing the two groups have been restricted to HEWs, resulting in 1,000 blended learners and 920 comparison site learners for the following analyses. For some assessments, data are only available for a subset of this analytic group; in these cases, the actual number of learners is noted. For example, the knowledge assessment results are restricted to the 976 out of 1,000 blended HEWs who completed both pre- and post-training knowledge assessments.

Learner Characteristic	Blended IRT n=1,122	Comparison IRT n=986
Female	90%	97%
HEW	89%	97%
Rural (HEWs only) <sup>a</sup>	93%	100%
Previously attended any IRT	60%	59%
Previously attended RMNCH IRT	59%	56%
Highest training: Level IV (HEWs only)	68%	65%
10+ Years experience as HEW / HEW Supervisor	46%	49%
<sup>a</sup> Based on rural health post designation		

## Evaluation Objective 2 ENGAGEMENT

## HOW DID BLENDED IRT LEARNERS USE THE EXTENSION ESSENTIALS APP?



Learners logged the most hours on the Extension Essentials app during the in-person training days (average of 6.0 hours per day).

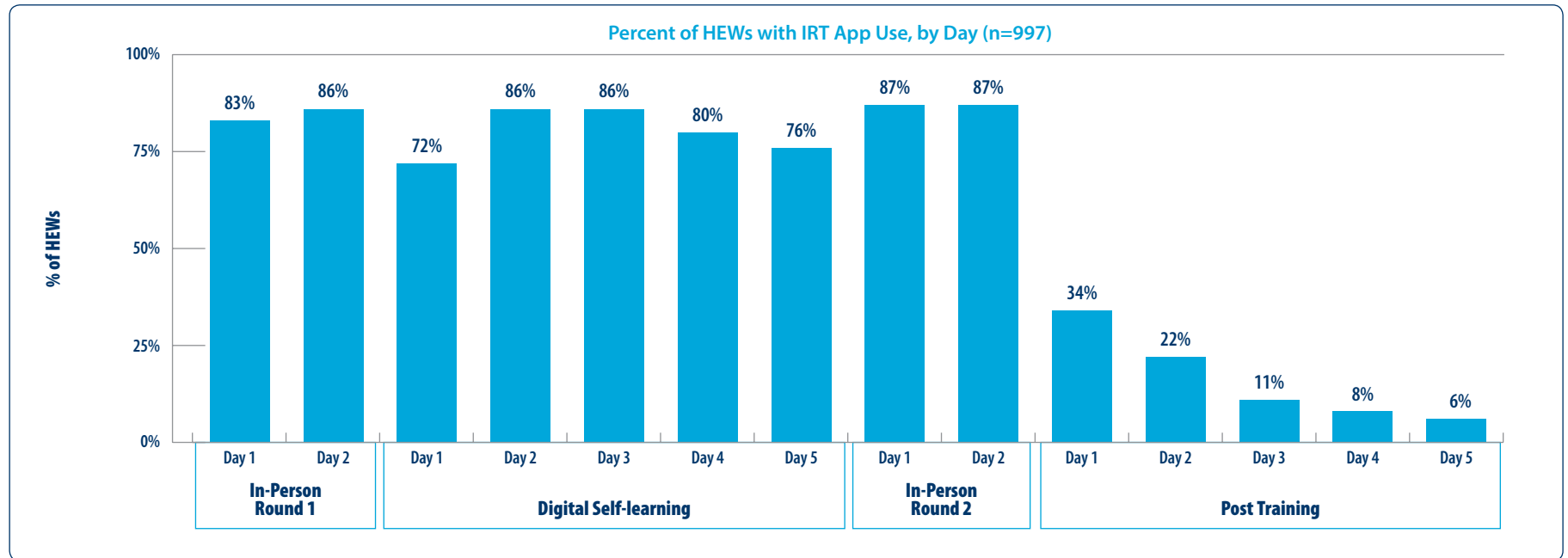
Learners remained engaged on the app during the digital self-learning period, averaging 2.8 hours per day, surpassing the expectation of two hours per day for this period.

Engaging content, a clear daily schedule, and the training design likely contributed to consistent engagement during the self-learning period.

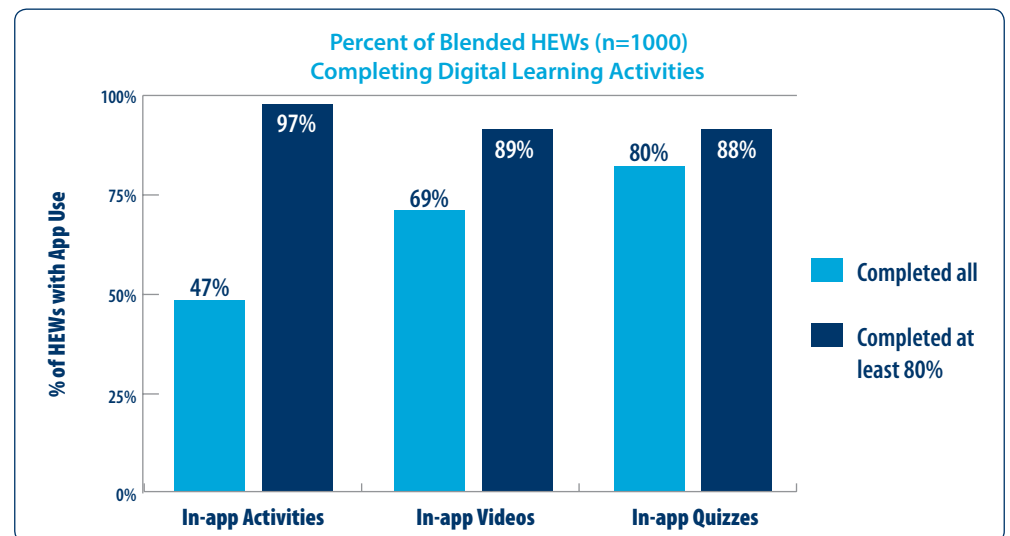
*“I wish all our trainings were delivered with this technology. It is simply not boring. Printed modules given to trainees are usually found piled up at health posts.... Now this is right at their fingertips. They can easily refer to it anytime.”*

*Seada Kedir, Training Facilitator*





Almost all learners completed the required amount of in-app activities (95%), in-app videos (89%), and in-app quizzes (88%): a demonstration of strong learner engagement with digital components of the blended approach.



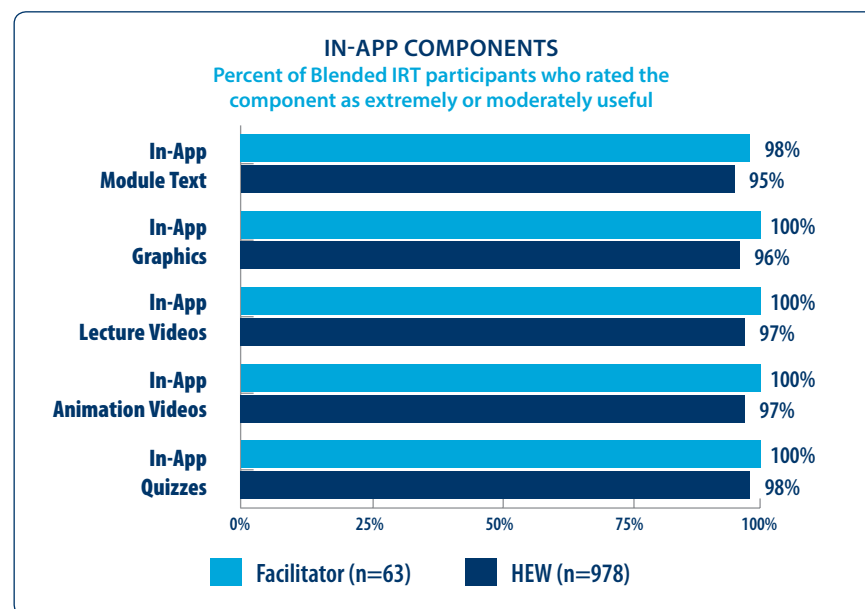
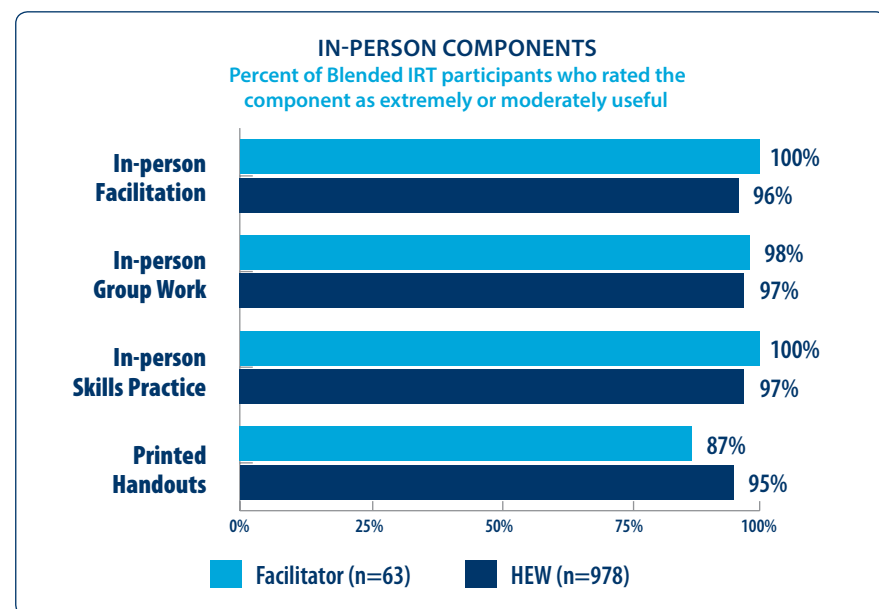
## Evaluation Objective 2

### REACTION

## HOW DID BLENDED IRT MEET LEARNERS' NEEDS?

Facilitators and learners rated all in-app training components positively. Illustrations, lecture videos, and animation videos received the highest proportion of “extremely useful” ratings, demonstrating a positive reaction to the blended components of the training.

While participants also valued in-person components including facilitation, group work, and skills practice, the prominent training modality used in conventional IRT (printed handouts) received the lowest usefulness score, especially as rated by facilitators.

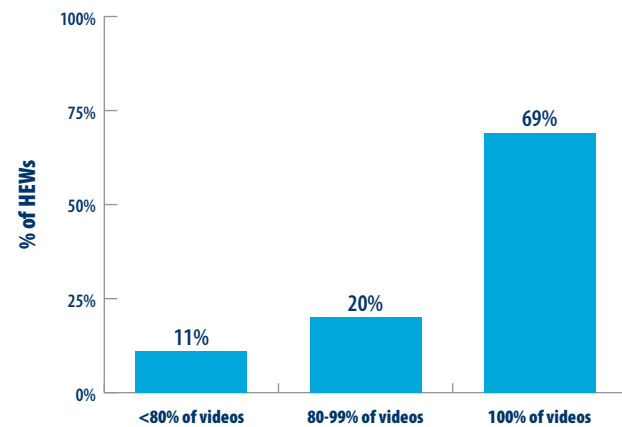




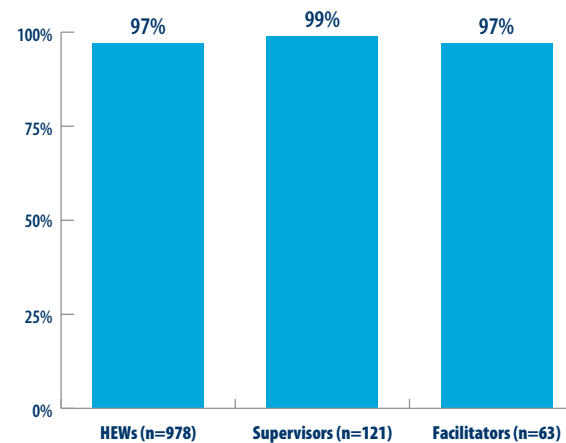
Positive learner feedback on the contextualized multimedia created for the blended RMNCH IRT is bolstered by the fact that almost all learners (89%) completed the required amount of video views.

All participant types (learners, facilitators, and HEW supervisors) recommended scaling the blended approach nationally.

Percent of in-App videos watched by blended HEWs (n=1000)



Percent of blended training participants who recommend scaling the blended approach nationally



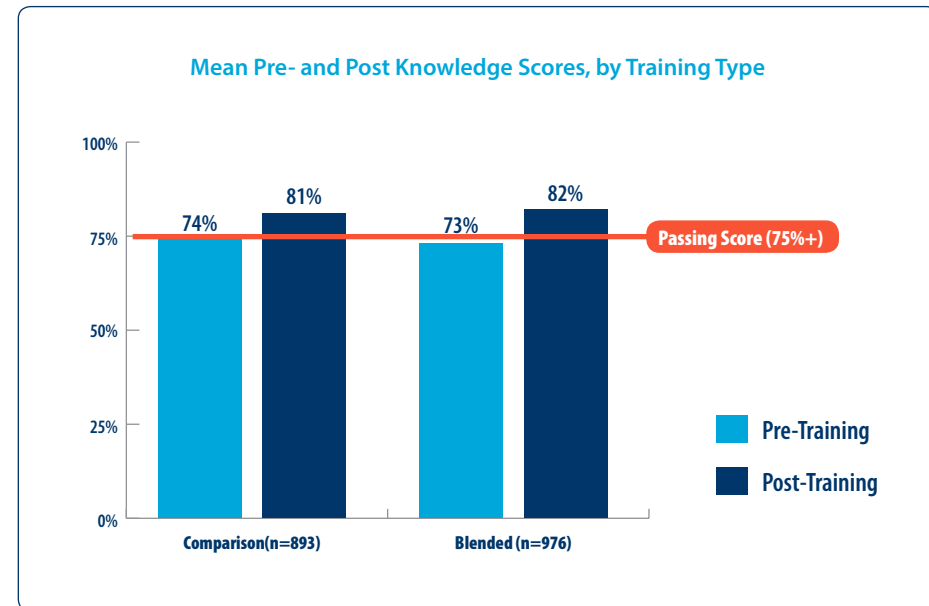
Overall, blended IRT facilitators reacted well to the blended approach: the majority (86%) felt well-prepared, and only 8% felt it was challenging to utilize the blended approach. 100% of facilitators reported that learners were highly engaged.

## Evaluation Objective 3 LEARNING

### DOES BLENDED RMNCH IRT SUPPORT INCREASED KNOWLEDGE, SKILLS, AND SELF-EFFICACY IN KEY RMNCH COMPETENCIES?

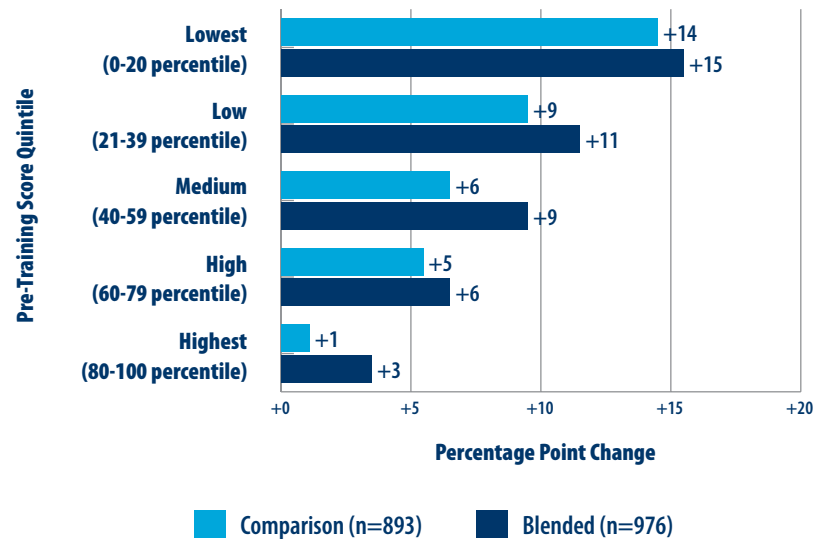
#### KNOWLEDGE

There were no substantial differences in knowledge change between blended and conventional learners; both groups scored similarly on pre- and post-training knowledge assessments. The findings suggest the blended approach is just as effective as conventional IRT at achieving knowledge gains.

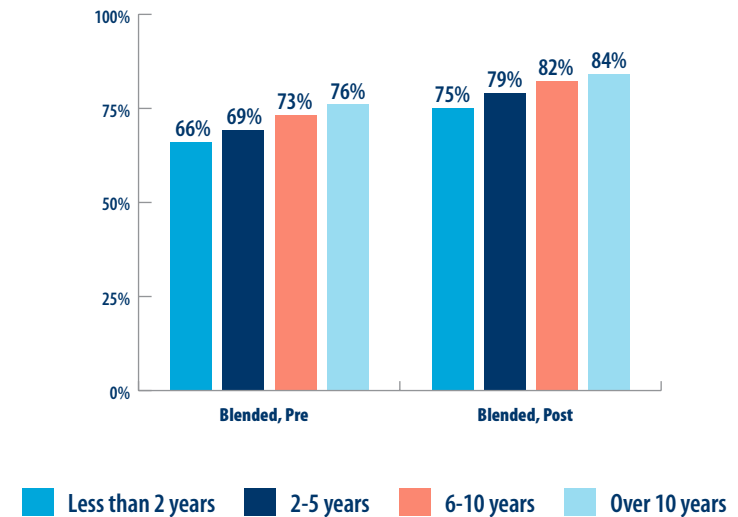




Mean Pre- to Post Knowledge Score Change, by Pre-training Score Group



Mean Knowledge Assessment Score, by Years Experience as HEW (n=976)



On average, HEWs who scored lower on the pre-training knowledge assessment showed larger improvements after training.

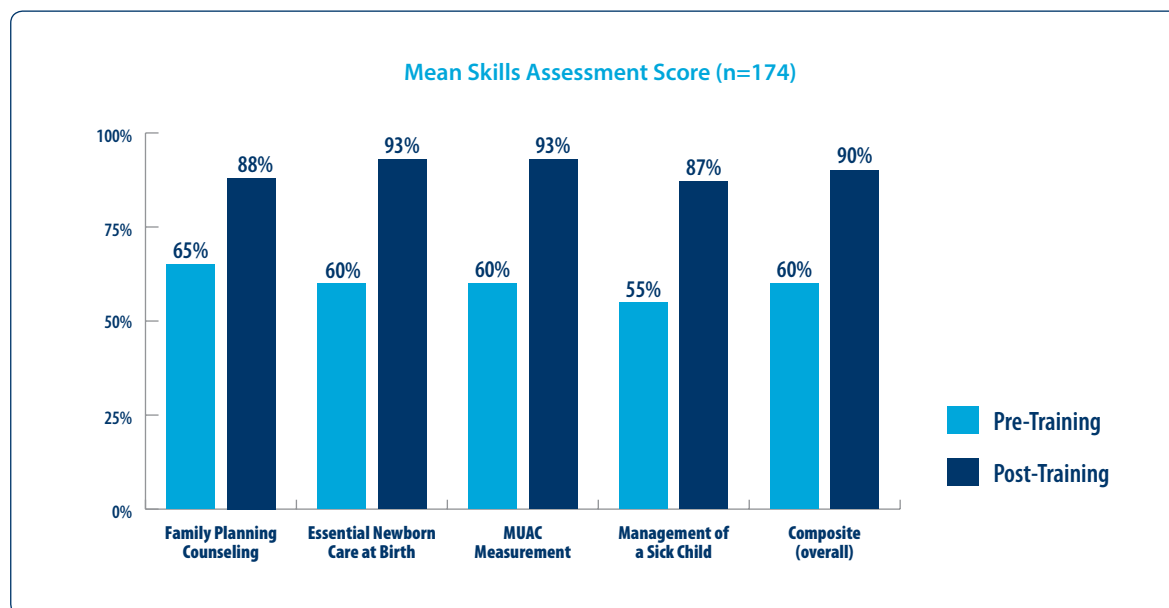
Blended IRT HEWs who scored in the bottom 20% on the pre-test improved an average of 15 points, from a mean score of 55% pre-test to 70% post-test.

Blended IRT HEWs with more years of work experience tended to score higher on pre- and post-knowledge assessments.

Blended IRT HEWs with at least 10 years of experience scored an average of 9 points higher on the post-test than those with less than 2 years of experience. Results were similar for comparison learners, suggesting that the technological platform was not a barrier to experienced HEWs.

## SKILLS

After training, skills assessment scores among blended IRT learners improved dramatically for all RMNCH key competencies. The average composite skills assessment score increased from 60% to 90%.



*“The blended training built confidence of HEWs since the app is with them to refer to any time they face difficulties while providing service.”*

*Zelege Balta Dana, HEW Supervisor*





Learner data was summarized  
and shared with HEW supervisors  
for tailored mentorship and supervision

Evaluation  
Objective

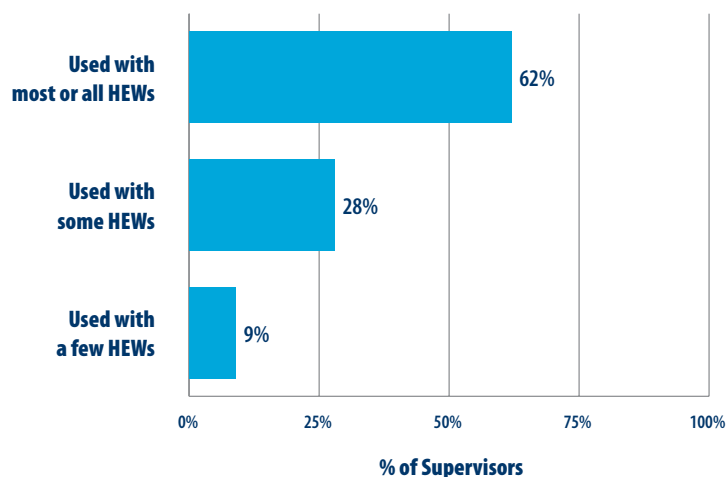
4

## BEHAVIOR

HOW DO HEW SUPERVISORS USE IRT  
DATA IN FOLLOW-UP SUPERVISION  
VISITS?

One month after the blended IRT training concluded, the team shared individual learner reports with HEW supervisors for the HEWs they supervise. These reports summarized knowledge and self-efficacy scores across RMNCH IRT units. All HEW supervisors who received learner reports for their supervisees reported using them in follow-up supervision visits. Of those, 98% reported finding learner reports useful in planning and conducting supervision visits.

HEW supervisor use of knowledge assessment report to supervise the HEWs they oversee (n=53 supervisors)



Note: due to rounding, percentages presented do not always sum to 100%.

*"I discussed the scores with respective HEWs, and those who scored low repeated the modules."*

*Mohamed Husen Dekabo, HEW Supervisor*

*"Based on the gaps identified, I planned to provide support especially on Focused ANC [Antenatal Care], youth health, and nutrition programs."*

*Genet Lamesa Jote, HEW Supervisor*



## Evaluation Objective 5 SYSTEMS

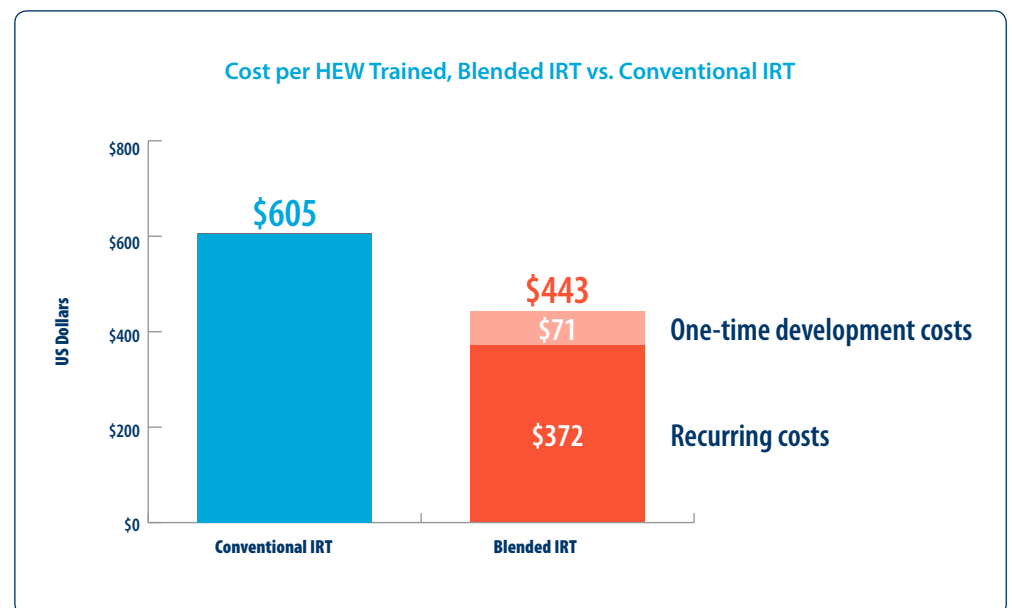
### WHAT DIFFERENCES EXIST BETWEEN THE COSTS OF DELIVERING RMNCH IRT IN FULLY IN-PERSON AND BLENDED TRAINING MODALITIES?

The blended IRT approach costs less than conventional IRT. Recurring blended costs associated with running the training were 39% lower than the conventional approach.

*“The training was the first of its kind. It saves time and reduces training costs. It should be encouraged and provided for all HEWs throughout the country.”*

*Mesfin Getahun Tulu, HEW Supervisor*

Even when including one-time costs such as app development, the blended approach was still less expensive. Scaling the blended training beyond the initial 1,000 HEWs included in the pilot will further distribute the fixed up-front costs associated with this model.





A photograph of a woman and a young girl looking at a tablet together. The woman, wearing a blue long-sleeved shirt and a white headband, is holding the tablet. The girl, wearing a pink shirt, is pointing at the screen. The background is a green wall.

Illustrations,  
lecture videos,  
and animation  
videos received  
the highest  
proportion of  
*“extremely useful”*  
ratings



# KEY LEARNING

## INCLUSIVE AND EVIDENCE-BASED PROGRAM DESIGN

- The blended RMNCH IRT was collaboratively designed with key stakeholders to directly address identified gaps in HEW training; it complements the MOH's plan for HEP optimization.
- The blended RMNCH IRT is an exemplary in-service training experience; it utilizes user-centered design, adult learning principles, digital technology, localized multimedia content, and continuous assessment to provide learners with a more engaging and meaningful training.
- The digital platform provides real-time data to evaluate the training, including participation and time spent in activities and course completion, learners' reaction to the course, pre- and post-training knowledge and self-efficacy assessments, quizzes, and engagement with digital components after the training.

## LEARNER ENGAGEMENT AND REACTION TO DIGITAL LEARNING

- Learners remained engaged on the app during the digital self-learning period, averaging 2.8 hours per day, surpassing the expectation of two hours per day for this period.

- In-app components of the blended approach including illustrations, lecture videos, and animation videos received the highest proportion of “extremely useful” ratings from both learners and facilitators.

## KNOWLEDGE AND SKILLS ACHIEVEMENT AND APPLICATION

- The blended RMNCH IRT costs less and takes less time to implement while achieving similar knowledge outcomes as conventional IRT (as measured directly after the conclusion of training).
- After training, skills assessment scores among blended IRT learners improved dramatically for all RMNCH key competencies.
- When HEW supervisors received customized learner reports, they used the data to inform follow-up supervision visits. The ability to generate and use individual data for targeted supervision is a powerful quality-improvement tool of the blended approach.
- The blended RMNCH IRT provides a more interactive experience for learners and increased availability of training materials to learners after training. These program design components could contribute to sustained improvement in learning outcomes and service delivery, but further measurement would be needed.

## RECOMMENDATIONS

Last Mile Health, in collaboration with the MOH, will complete the collection of the remaining data, conduct analysis of the complete set of data for each evaluation method, and share the final report. Data and experience from the pilot implementation will be reviewed to make evidence-based program adaptations that improve the quality of the blended RMNCH IRT.

The MOH and LMH will continue to collaborate to scale up the blended RMNCH IRT in additional districts with adequate technological infrastructure. In addition, the MOH and LMH will coordinate blended RMNCH IRT scale-up efforts including resource mobilization, implementer training, and program effectiveness measurement.

Finally, the MOH will apply the learnings from the blended RMNCH IRT implementation in the development of a blended learning approach for the remaining IRT modules.

# PATHWAY TO SCALE AND LOOKING FORWARD

## INSTITUTIONALIZE BLENDED LEARNING

Incorporate a blended learning approach to the MOH guidelines for the implementation of competency-based IRT on health extension packages.

## ADAPT NEW BLENDED LEARNING MODULES

LMH and MOH will continue the collaborative partnership to develop a blended learning approach using digital technologies for the remaining IRT modules, starting with the major communicable diseases (MCDs) and non-communicable diseases (NCDs) modules, for scale-up across all regions.

## SCALE BLENDED IRT ACROSS ETHIOPIA

Scale up the blended IRT across all regions with MOH leadership.

- The scale-up will prioritize eCHIS-implementing woredas and will follow the pathway for the eCHIS expansion.
- LMH will provide technical support to regional health bureaus (RHBs) and continuous professional development centers (CPD) to build local capacity on a blended learning approach.
- LMH has committed to providing technical and financial support for scale-up efforts of the blended IRT in selected woredas.
- LMH will collaborate with the MOH, RHBs, donors, and partners to mobilize resources in support of the scale-up efforts



## ACKNOWLEDGMENTS

The blended RMNCH IRT for HEWs was implemented with close support from Last Mile Health and fully owned and executed with guidance, approval, and close partnership with the MOH.

The MOH and LMH would like to extend thanks to all the HEWs, HEW supervisors, training facilitators, health information technicians, and training coordinators who took part in the implementation of the blended IRT pilot. Special thanks goes to the Regional Health Bureaus of Amhara, Oromia, SNNPR, and Sidama for implementing the pilot and CPD centers in regions hosting the blended training; the local multimedia team that produced multimedia resources in local languages; instructional designers and content experts from the MOH and LMH; and other partners and collaborators who helped make this blended learning pilot a success.



