Remote Training Improves Knowledge of Key Maternal, Newborn, and Child Health Services in Nampula Province, Mozambique

Alcançar is a consortium comprising eight international and national organizations whose goal is to reduce maternal, newborn, and child mortality in Nampula Province, Mozambique. The consortium is led by FHI 360 and funded by the U.S. Agency for International Development (USAID) for 5 years (April 2019– March 2024). Alcançar aims to establish Nampula Province as a model for improving provision and increasing use of high-quality, patient-centered maternal, newborn, and child health services by delivering a package of technical support to all levels of Nampula's health system. The project strategy includes innovative, evidence-based quality improvement approaches to sustain and enhance health service delivery. Alcançar includes FHI 360 (prime), Dimagi, Ehale, Institute for Healthcare Improvement (IHI), Viamo, Associação de Jovens de Nacala (AJN), HOPEM Network, and PRONTO International.

Photo: Jessica Scranton/FHI 360

PROBLEM OVERVIEW

While Mozambique has made progress to improve maternal, newborn, and child health (MNCH) service availability and use, the infant, under-five, and maternal mortality rates remain high. The national infant mortality rate and under-five mortality rate have decreased in the past several decades, and currently stand at 64 deaths per 1,000 live births and 97 deaths per 1,000 live births (DHS 2011), respectively. However, the maternal mortality rate has stagnated around 489 deaths per 100,000 live births (MISAU 2015).

At project launch in 2019, Alcançar conducted a baseline assessment on MNCH knowledge by asking health care providers multiple choice questions regarding routine steps of care and signs or symptoms of complications. These knowledge scores demonstrated room for improvement. Knowledge gaps identified among health workers providing essential MNCH care included diagnosis of severe bleeding and treatment of postpartum hemorrhage, and pediatric warning signs, symptoms, and management of pneumonia and malaria.

Hence, there is a need for training and professional development to build the capacity of providers to consistently deliver highly effective interventions. Frontline workers, especially community health workers or agentes polivalentes elementares (APEs), face several challenges in building their knowledge and confidence: many work alone, are in remote areas with little access to learning opportunities and training, and have infrequent clinical mentorship visits and supervision. This makes it difficult for them to stay up to date on changing clinical guidelines.

APEs and maternal and child health (MCH) nurses offer an opportunity to expand the geographical reach of effective MNCH services and health messages about care-seeking at the community level. These health worker cadres deliver the bulk of MNCH preventive and curative services in the province and are typically the first contact a woman or family has with the health system; thus, their capacity and confidence to properly screen, diagnose, treat, and refer are critical to positive health outcomes.

ACTIVITY DESCRIPTION

Alcançar is working with the Ministry of Health (MOH) at provincial, district, and facility levels to build the competencies of front-line health care providers through remote trainings. Alcançar, using an approach developed by partner Viamo, has developed and deployed mobile phone-based training (known as remote training) to support health worker capacity and knowledge. This approach has been used since 2018 in 26 countries across the globe (Figure 1).
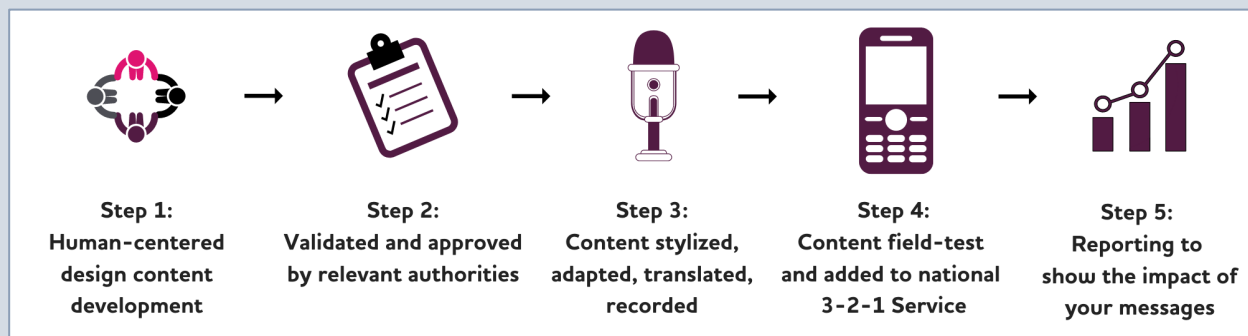
The remote trainings support health workers' continued professional development across a broad range of topics and include messages around overcoming negative gender and youth norms and providing respectful care. Training modules are pretested, refined, and delivered in local languages via interactive voice response (IVR) technology (i.e., pre-recorded audio). "Push" content includes pre-scheduled trainings sent to APEs and nurses on their mobile devices. APEs and nurses receive a call with a five-minute recorded audio message in their preferred language (Portuguese or Makuhwa), followed by questions to test their understanding and retention of the content. In the event health workers miss the incoming call with the weekly lesson, they can call a dedicated toll-free hotline to "pull" the content and complete the remote training at a time that suits them better. The content is accessible across all types of phones and delivered free of charge. The approach is intended to be complementary to and improve efficiencies in existing training structures and methods.

The remote training approach has proved an effective means for continued professional development during the COVID-19 pandemic, when in-person trainings have been less possible.

Figure 1. Five-step process to inform training

To inform the training content and its deployment, Viamo led a five-step process during which the project team engaged key stakeholders in relevant clinical areas, including national and international content experts, implementing organizations, and government ministries, to form "content committees." The adaptation was informed by Viamo's human-centered design research conducted prior to the start of the content development process. Human-centered design is a cyclical process and falls broadly into four phases: research and building empathy, brainstorming and synthesis, prototyping, and testing and iteration. Once developed, the content was validated and adapted to the target audience, then translated into Portuguese and Makuhwa. The last steps of the remote training deployment included content testing with a sample of health workers, fine-tuning, and reporting results through a live dashboard accessible on the internet.

Step 1:
Human-centered design content development

Step 2:
Validated and approved by relevant authorities

Step 3:
Content stylized, adapted, translated, recorded

Step 4:
Content field-test and added to national 3-2-1 Service

Step 5:
Reporting to show the impact of your messages

Topics for the remote training were informed by the Alcançar baseline assessment and focus group discussions with Alcançar staff members, the MOH, Viamo staff members, and other key stakeholders. Once topics were agreed upon, the team held an intensive workshop to develop the lesson content based on national protocols and existing MOH-approved trainings and made adaptations for the cultural context of Nampula Province (Table 1).

Alcançar is using a scaled approach to implement the remote trainings, starting in seven districts and expanding across the 16 additional districts of Nampula in 2022.

**Table 1. Remote training rounds of APEs and nurse**

| Module	Agentes polivalentes elementares (APEs)	Nurses
Pregnancy, danger signs, and major complications	Lesson 1. Introduction to pregnancy/ MNCH training course Lesson 2. The first signs of pregnancy Lesson 3. Danger signs on pregnancy Lesson 4. Bleeding in early pregnancy Lesson 5. Antepartum hemorrhage Lesson 6. Maternal nutrition	Lesson 1. Introduction to pregnancy/MNCH training course Lesson 2. Pregnancy Lesson 3. Symptoms and danger signs of pregnancy Lesson 4. Bleeding in early pregnancy Lesson 5. Concepts and classification of pre-eclampsia Lesson 6. Treatment of pre-eclampsia Lesson 7. Eclampsia Lesson 8. Antenatal hemorrhage Lesson 9. Postpartum hemorrhage Lesson 10. Maternal nutrition
Malaria	Lesson 1: Malaria overview Lesson 2: Malaria in children under 5 years Lesson 3: Malaria classification Lesson 4: Malaria management Lesson 5: Malaria prevention	Lesson 1: Malaria overview Lesson 2: Malaria in pregnancy Lesson 3: Malaria classification Lesson 4: Malaria treatment
Diarrhea	Lesson 1: Diarrhea overview Lesson 2: Diarrhea classification Lesson 3: Diarrhea treatment Lesson 4: Diarrhea prevention Lesson 5: Counseling for mothers and caregivers	
Pneumonia	Lesson 1: Overview of pneumonia Lesson 2: Pneumonia classification Lesson 3: Pneumonia signs and symptoms Lesson 4: Diagnosis of pneumonia Lesson 5: Pneumonia treatment Lesson 6: Complications of pneumonia	
Malnutrition		Lesson 1: Malnutrition and its complications Lesson 2: Classification of malnutrition Lesson 3: Signs and symptoms of malnutrition Lesson 4: Malnutrition diagnosis Lesson 5: Treatment of malnutrition

PROGRAM OUTCOMES

The first remote training was launched in November 2020 in Angoche, Erati, Memba, Monapo, Moma, Nacala-Porto, and Ribaue districts. The remote training reached several hundred APEs and nurses, and the team monitored how many APEs and nurses started at least one lesson, completed at least one narrative, and answered at least one question for each training module (Figures 2 and 3).

Figure 2. Number of APEs reached with remote training (November 2020–September 2021)
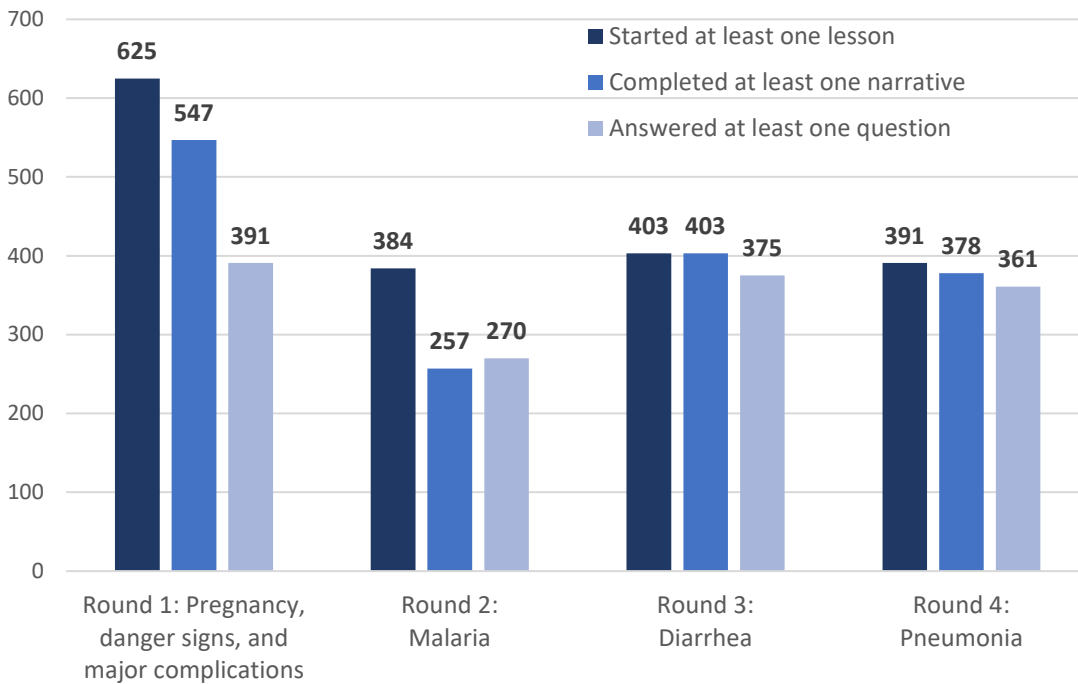
**Figure 3. Number of nurses reached with remote training (November 2020–September 2021)**
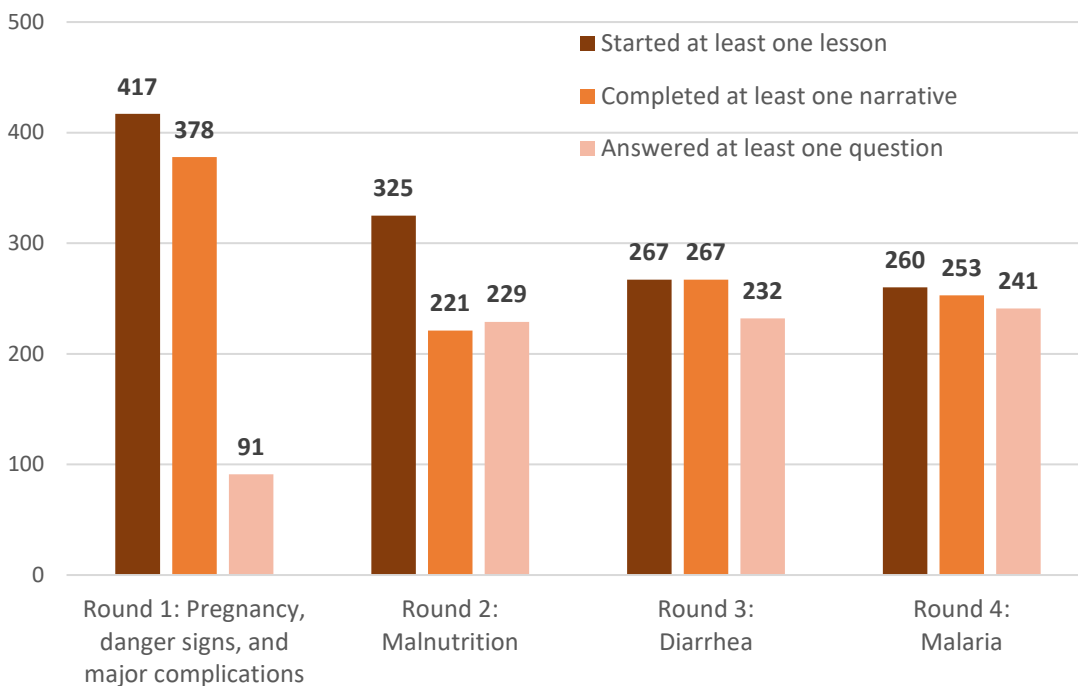
Before (pretest) and after (posttest) each round of training, four to seven multiple choice questions were administered to measure knowledge retention and provide feedback for continued improvement. Respondents were scored by calculating the correct number of responses out of the total number of questions for each round, and average participant scores were calculated for each module (Figures 4 and 5).

Improvements in scores were observed among APEs for rounds 1 (pregnancy, danger signs, and major complications), 2 (malaria), and 4 (pneumonia). There was a slight decrease in average score among APEs for round 3 (diarrhea). This may be because more participants completed the posttest than the pretest. Among nurses, improvements were observed for rounds 1 (pregnancy, danger signs, and major complications), 3 (diarrhea), and 4 (malaria). Improvements were not observed for round 2 (malnutrition).

Figure 4. Remote training knowledge retention among APEs (November 2020–September 2021)
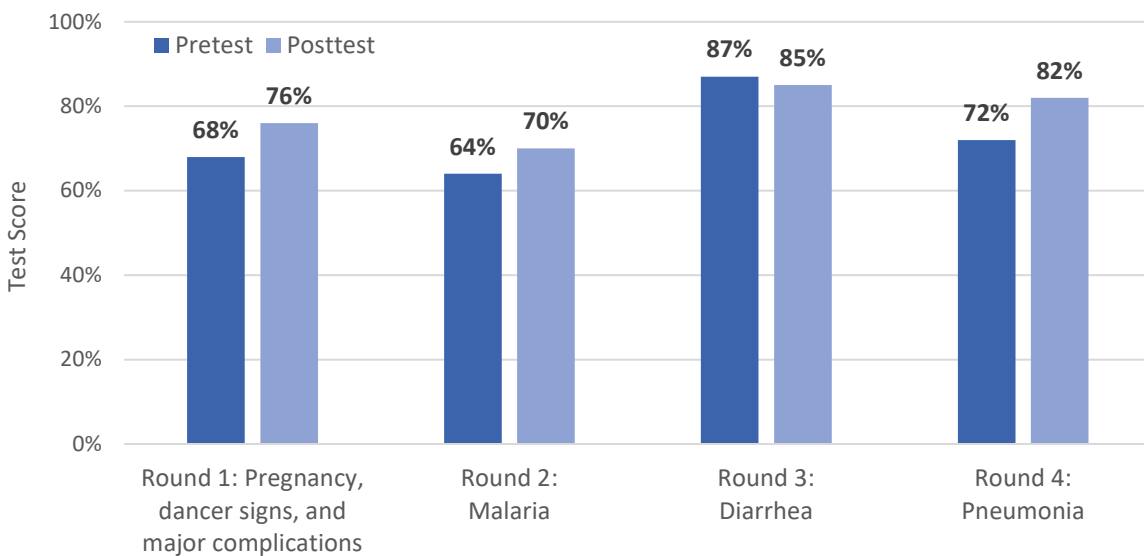
Figure 5. Remote training knowledge retention among nurses (November 2020–September 2021)
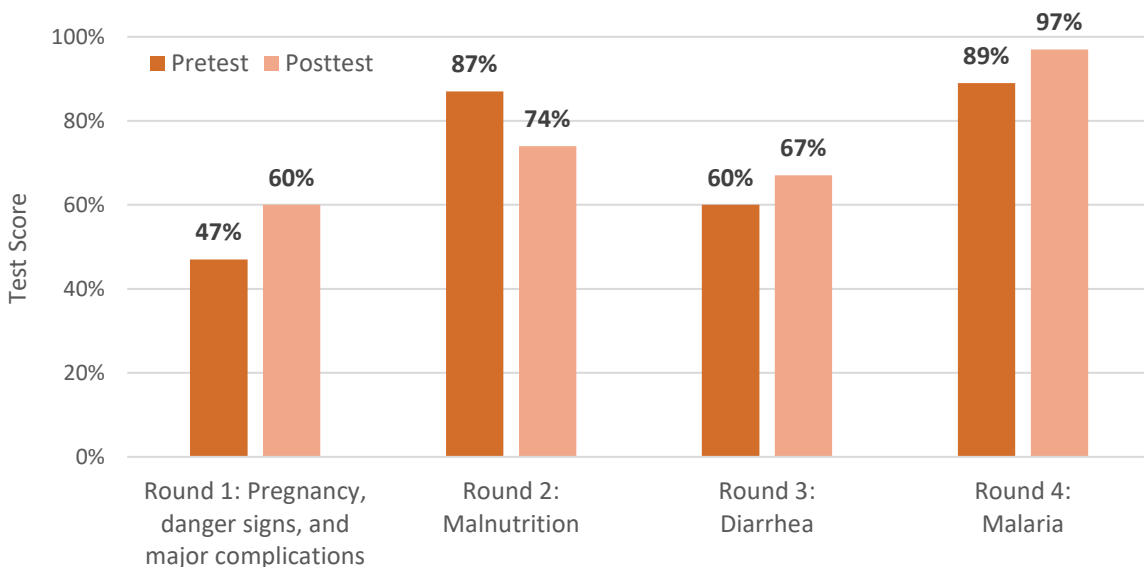
APEs and nurses described how the remote trainings were useful to their work, especially in helping them identify and screen for danger signs and diseases and refer people to health facilities.

Olga Ussene Raja, a nurse from Angoche District, thought the remote training was *"important because it provides evidence and expands knowledge. [I] learned how to prevent complications in maternal and child health patients by identifying danger signs."*

Alima Amade, an APE in Nacala Porto District, said that the remote training *"helped with methods of prevention of illnesses such as diarrhea and others related to maternal and child health."*

Novas Eduardo, an APE in Nacala Porto District, described how, *"before, I didn't know how to identify some diseases … [the remote trainings] gave me knowledge to identify maternal and child health-related issues. Before, I used to resort to traditional treatments only; now I advise the community members to go to the health units."*

WHAT'S NEXT?

The four remote training rounds will be expanded to an additional 16 districts in fiscal year 2022. To address knowledge gaps identified in the training, Alcançar and Viamo are working together to analyze training content and questions, which will be adjusted to improve understanding among the target group. The team will also encourage APEs and nurses to repeat lessons in which knowledge retention was low.

CONCLUSION

Remote training offers a cost-effective solution that can be deployed for ongoing training, especially in the age of COVID-19, when in-person trainings have been restricted. Further, updated content can be rapidly deployed through remote trainings, which is critical in a context where guidelines are frequently changing to respond to a dynamic pandemic context. The results of the remote training assessment will help the MOH identify and quantify knowledge gaps among frontline health care providers and tailor clinical mentorship as needed. Lessons learned from implementation in Nampula can serve as a basis for expanding the curriculum across Mozambique. Finally, monitoring data from the remote training can inform the content and implementation of an updated national MNCH training protocol.

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ADDITIONAL INFORMATION

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REFERENCES

Ministerio da Saude - MISAU/Moçambique, Instituto Nacional de Estatística - INE/Moçambique and ICF International. Moçambique Inquérito Demográfico e de Saúde 2011. Calverton, Maryland, USA: MISA/ Moçambique, INE/Moçambique and ICF International. 2011.

Ministério da Saúde (MISAU), Instituto Nacional de Estatística (INE). Survey of Indicators on Immunization, Malaria and HIV/AIDS in Mozambique (IMASIDA). 2015. Available at: https://www.dhsprogram.com/pubs/pdf/AIS12/AIS12_SE.pdf

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