

Improving Clinical Practice Sites through a Low-Dose, High-Frequency Training Approach

MCSP/HRH Liberia Case Study

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Background

The United States Agency for International Development (USAID)'s flagship Maternal and Child Survival Program's Human Resources for Health Project in Liberia (MCSP Liberia/HRH) worked with the Ministry of Health (MOH) to accomplish two key objectives: build the capacity of pre-service education (PSE) faculty and educators and strengthen the PSE learning environment. In recognition of the critical role clinical education plays in student competence at graduation, in 2017, MCSP interviewed faculty and staff in the five midwifery and three medical laboratory technician (MLT) schools' primary clinical settings



Preceptors practice skills at one of the primary clinical setting hospitals supported by MCSP. Photo by MCSP.

to assess technical competency among staff. The results showed that both faculty in the schools and preceptors who observe and teach students in clinical settings lacked essential clinical skills taught in the PSE curriculum, that preceptors' skills were not regularly and formally assessed, and that best practices were not consistently demonstrated. For example, midwifery faculty and preceptors did not regularly practice postpartum family planning, newborn resuscitation, recognition and management of danger signs during pregnancy, infection prevention and control, and respectful maternity care.

In order to provide technical updates on these critical issues, MCSP, in consultation with the PSE schools and their clinical settings, and with the agreement of USAID, planned to use a facility-based, low-dose, high-frequency (LDHF) approach to clinical trainings. LDHF is a capacity-building approach that promotes maximal retention of clinical knowledge, skills, and attitudes through short, targeted, in-service, simulation-based learning activities that are spaced over time and reinforced with structured, ongoing practice sessions on the job site. This approach had

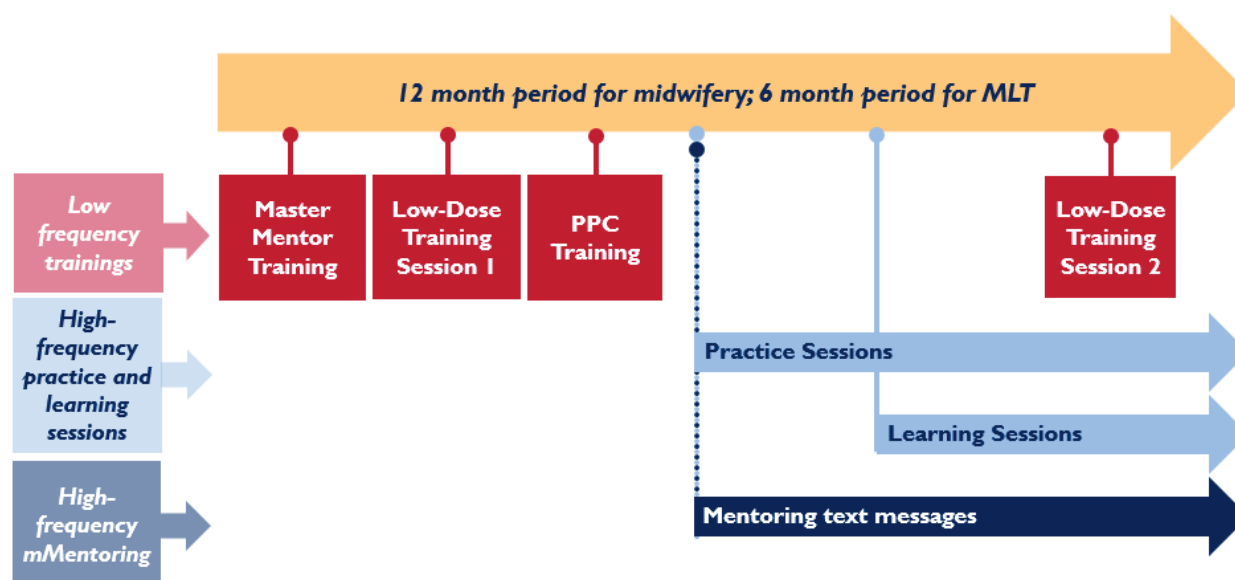
been tested in Ghana and Uganda and resulted in significant improvements in patient outcomes: in Uganda, a 62% decrease in early newborn deaths,¹ and in Ghana, a 56% reduction in newborn deaths within 24 hours.²

While successfully implementing the midwifery LDHF program, MCSP tried the same approach to build competency for MLT faculty and preceptors. The MLT LDHF program lasted only six months but used a methodology similar to the one used by the midwifery program. Using the results of a competency assessment conducted at the clinical sites, MCSP determined that the MLT LDHF training would focus on four procedures: sample (blood) collection, malaria microscopy for diagnosis, blood type or blood grouping testing, and packed cell volume (hematocrit) testing.

Methodology

Figure 1 shows the LDHF model that MCSP used in Liberia with notes on how it was adapted for midwifery and MLT clinical settings. The methodology is explained in more detail below.

Figure 1. MCSP Low-Dose, High-Frequency Approach to Improve Clinical Practice Sites in Liberia



Low-Dose Trainings

MCSP started by training master mentors to support the LDHF activities. Both the midwifery and MLT trainings included one faculty member from each school, one preceptor from each clinical site, the MCSP PSE mentors based in each school, and MCSP staff. This 3-day training provided information on how to run simulations, use assessment tools, and manage the LDHF process.

MCSP's trainings for both midwifery and MLT faculty and preceptors were led by the master mentors with MCSP staff present to backstop the trainings. They started by administering an objective structured clinical exam (OSCE) to test trainees according to checklists from procedure manuals as they performed specific skills. After the OSCEs, the master mentors provided specific, targeted feedback to each participant to help them understand what they did correctly and where they made errors. Next, the mentors gave brief presentations on key skills, focusing on areas of difficulty for participants during their OSCEs. Trainings

¹ Evans CL, Johnson P, Bazant E, Bhatnagar N, Zgambo J, Khamis AR. 2014. Competency-based training "Helping Mothers Survive: Bleeding after Birth" for providers from central and remote facilities in three countries. *Int J Gynaecol Obstet.* 126(3):286–90.

² Gomez PP, Nelson AR, Asiedu A, et al. 2018. Accelerating newborn survival in Ghana through a low-dose, high-frequency health worker training approach: a cluster randomized trial. *BMC Pregnancy Childbirth.* 18(1):72.

finished with each participant taking another OSCE to see how their skills had improved, and the master mentors provided a final round of individualized feedback.

For the midwifery program, MCSP's first 3-day training focused on normal maternal and newborn conditions. Following this training, the practice and learning sessions described below started for participants in their schools and clinical settings. MCSP and the master mentors then delivered a second low-dose training for the same group of participants at each site, focusing this time on maternal and newborn complications.

MCSP and the MLT master mentors only conducted one training session to cover the four key skills identified. Trainings were conducted in a laboratory to enable participants to get practical experience throughout the workshop.

High-Frequency Practice and Learning Sessions

After both the first midwifery and MLT trainings, peer practice coordinators (PPCs), who were selected from among the participants and received a 1-day orientation, facilitated practice and learning sessions in the schools and clinics to reinforce new skills learned with support from MCSP's PSE mentors. Both programs provided PPCs with a plan for conducting the sessions, including a schedule with topics to cover and guidance on session management.

For the midwifery program, the practice and learning session plan called for PPCs to hold 20-minute practice sessions with each participant each week, using a checklist to coach participants in one skill per session. On average, each midwifery clinical site logged 400 hours of practice session time within 6 months. The plans also required master mentors and PPCs to facilitate two learning sessions at each facility, held 1 and 2 months after the first training. During the sessions, trainees provided feedback to the PPCs and master mentors on the LDHF experience, including success, challenges, solutions, and lessons learned.

For the MLT program, the practice sessions plan required the PPCs to conduct one peer practice session every two weeks. PPCs assessed participants' skills using the OSCE checklist. Individual self-assessment was encouraged for participating MLT faculty and preceptors and supplemented by facilitators' feedback, and two learning sessions were held. On average, each MLT clinical site logged 230 hours of practice time within 3 months.

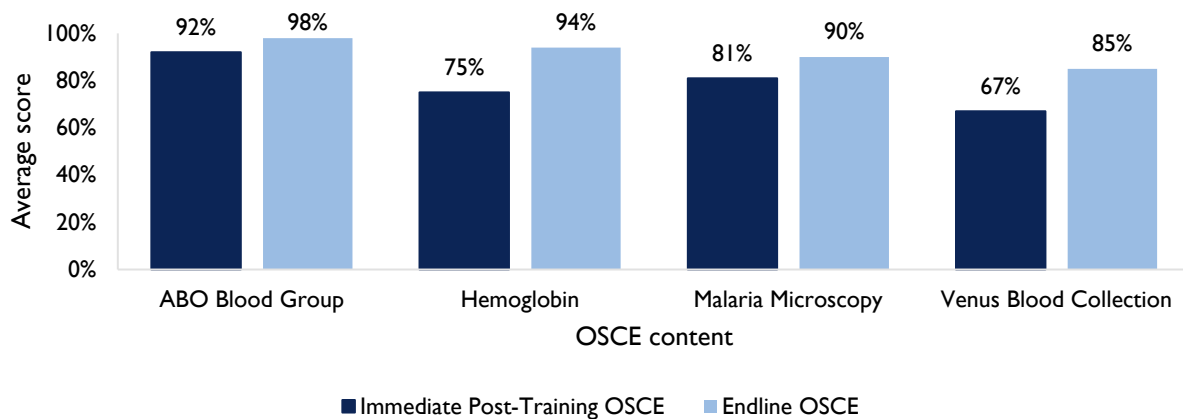
High-Frequency Mobile Mentoring (mMentoring)

Both the midwifery and MLT programs also delivered SMS text messages to participants sent three times a week; these messages began after training and continued for 5 months for midwifery and 4 months for MLT. The messages either asked a single question and allowed participants to text back an answer or provided reminders on best practices. The 26 midwifery messages (sometimes sent more than once) had a response rate of 58%, while the 20 MLT messages (also sometimes sent more than once) had a 54% response rate. These brief quizzes and reminders reinforced key concepts delivered in the trainings, and they will continue to be sent by the MOH after MCSP's close.

Results

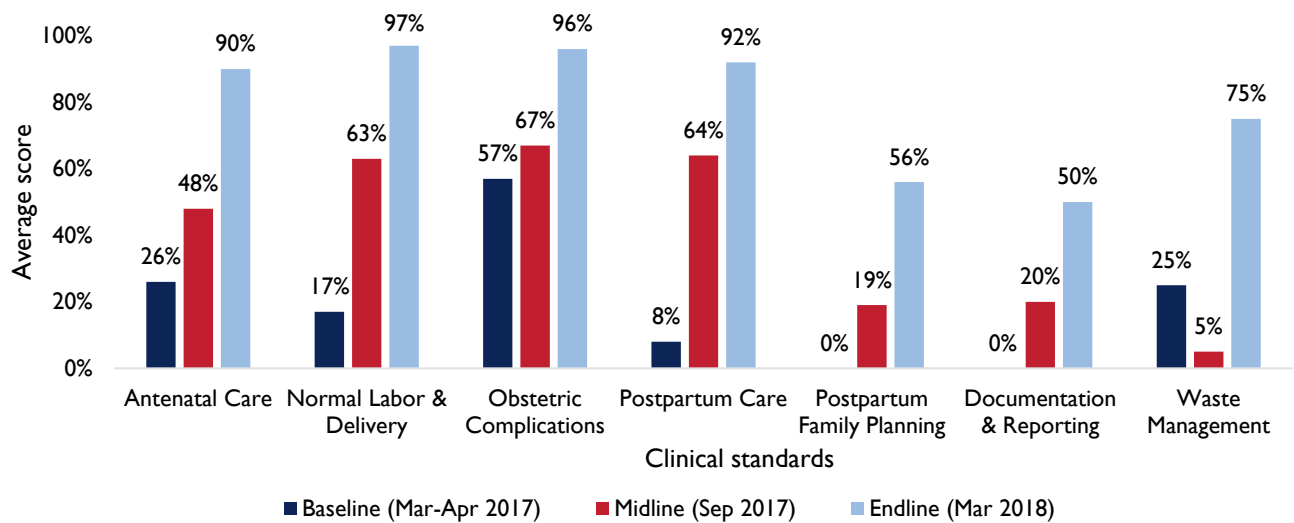
Immediate post-training OSCE data compared to OSCE data collected at endline show that participants' skills were not only sustained but continued to improve through the high-frequency practice and learning sessions and mMentoring. The average post-test score for the midwifery OSCE was 90% for the immediate post-training OSCE (administered in February 2018), while it was 98% at MCSP's endline assessment (conducted July 2018). Figure 2 shows how the OSCE scores increased for each of the four MLT OSCEs administered.

Figure 2. Medical Laboratory Technician Objective Structured Clinical Exam (OSCE) Score Averages Increased from the Immediate Post-Training Test (February 2018) to Endline (July 2018)



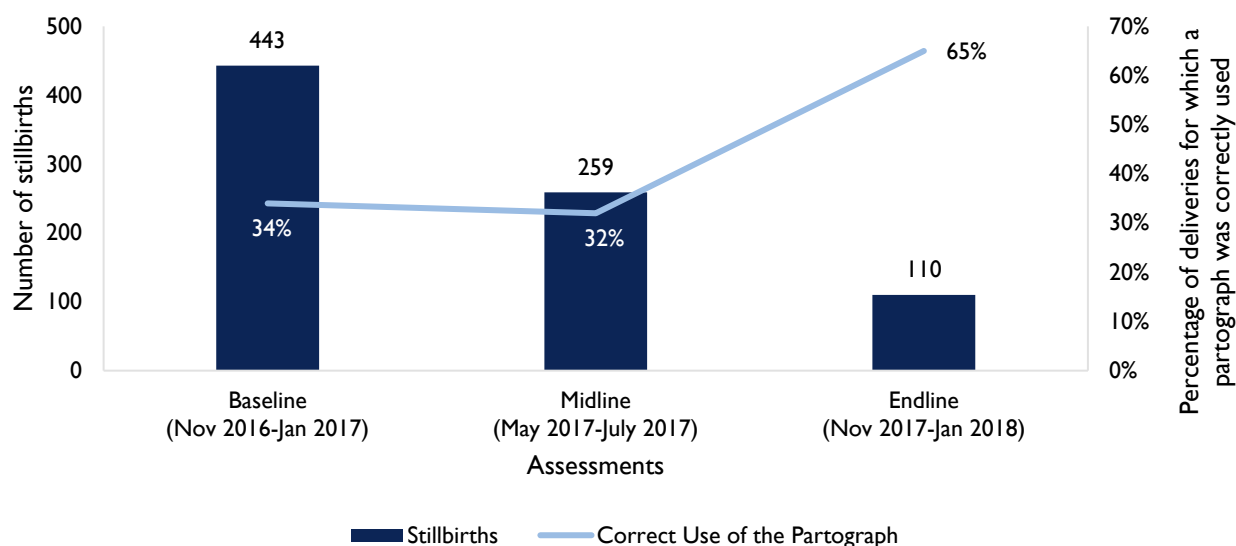
Evaluations of the midwifery clinical sites to determine their performance on MOH clinical standards also showed significant improvements in these facilities. Figure 3 shows the average facility performance against standards by technical area at baseline, midline, and endline.

Figure 3. Average Facility Scores on Ministry of Health Clinical Standards Increased (March 2017–March 2018)



Finally, data collected show that increase in health worker skills improved client outcomes. Figure 4 shows an increase in correct use of the paragraph associated with decreased numbers of stillbirths in facilities, while the number of deliveries remained relatively consistent. While MCSP cannot claim causality between the LDHF approach and these changes, the reduction of stillbirths from over 400 to just over 100 within a year is significant.

Figure 4. Percentage of Deliveries for which a Partograph Was Correctly Used Increased, while Number of Stillbirths Decreased (November 2016–January 2018)



MCSP is also optimistic that the LDHF approach will work for MLT clinical sites on a larger scale because of the success shown so far, because the approach promotes practical skills, and because it is set up to work even in situations with limited resources.

Lessons Learned

MCSP's experience revealed lessons learned to improve future implementation of the LDHF model:

- The LDHF approach used in Liberia was effective for several reasons:
 - LDHF trainings for teams in the workplace used simulation, practice, and feedback followed by additional short, repeated practice sessions and SMS reminders.
 - Embedding learning at the facility ensures that the full team is engaged to improve its skills and is key to successfully translating learning into practice.
 - Use of the OSCE allows participants to demonstrate skills repeatedly, get individualized feedback, and learn where they need to improve.
- Most importantly for planning, MCSP learned (through implementation in Liberia and in other countries) that when determining a capacity-building approach, the skill criticality and the frequency at which it is performed matter. Skills that are highly critical and are used infrequently (e.g., managing shock, anaphylaxis, or newborn resuscitation) need regular and repeated practice opportunities and are ideal for use of the LDHF approach. Skills that are not as critical and performed frequently (such as MLT lab skills) may not need as much repetition, and more efficient approaches, such as facility-based mentoring and coaching using job aids, may be considered for use instead.
- Practicing providers can be resistant to change or believe their skills are sufficient. Emphasizing their role and importance in educating students, demonstrating gaps through OSCE results, and involving providers in identifying solutions to gaps are effective strategies to increase motivation and willingness to participate in skills updates.
- Job aids should be ready immediately after the first training to enable participants to start referencing and using them in practice upon returning to their facilities.

- Text messages should start immediately after the training to ensure that training messages are being consistently reinforced and to encourage participation.
- Administrative staff from clinical settings should be provided with a full-day orientation on their role to understand the LDHF process and support participants.
- Using real patient samples for MLT capacity-building instead of simulations enabled master mentors to understand where there were competencies and gaps and address those effectively during training.

Recommendations

To continue the progress MCSP has made through LDHF approaches, MCSP recommends the following:

- Midwifery schools should continue supporting weekly practice sessions for priority skills (that are highly critical and used infrequently) with PPCs and master mentors.
- MLT schools could consider using a more efficient training design to address basic lab skills that are frequently performed, which could save time and money.
- Schools should include budget allocations for additional trainings, include these trainings as part of structured on-the-job orientations (required by national Civil Service Agency policy), or conduct trainings creatively in-house so as not to incur increased costs.
- Schools should include preceptors in in-service trainings that are offered for faculty and include content on clinical teaching, coaching, and mentoring at the clinical site.
- The MOH should consider implementing the LDHF model to train faculty, staff, and health workers in other locations and for other cadres, focusing on highly critical skills performed infrequently.

MCSP is confident that continued LDHF approaches to training, especially for critical skills performed infrequently, will lead to higher-quality PSE and services provided by health workers in Liberia, ultimately supporting a health system that better meets the needs of the population.

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