

ENHANCING PROVIDER COMPETENCIES THROUGH THE LOW-DOSE, HIGH-FREQUENCY TRAINING APPROACH

May 2022

Madeleine Mukeshimana, MD; Rosine Bigirimana; Richard Kalisa, MD, PhD; Assumpta Kayinamura Mwali, MD; and Samson Radeny, PhD; IntraHealth International.

BACKGROUND

A well-trained and skilled health workforce is key to enhancing provider readiness to deliver quality health care, especially in low- and middle-income countries (LMICs) where health outcomes are not progressing fast enough to meet optimal health targets like the Sustainable Development Goals (Lassi et al. 2016). LMICs recognize the need for capacity development of health workers and often implement refresher trainings aimed at boosting their skills, knowledge, and competencies (Murphy et al. 2014). Such trainings are in most instances carried out off-site, often requiring staff to be away from their duty stations for prolonged durations, depriving their already human resource constrained health facilities of essential care providers (Banke-Thomas et al. 2017). Training content is often delivered in a didactic manner focusing more on lectures and take-home reading material, with few practical real-life simulation sessions or work with clients, minimizing knowledge retention (Ugwa et al. 2018). A promising and increasingly used alternative approach to health workforce training is low-dose, high-frequency (LDHF), developed by Jhpiego. LDHF has shown much better long-term competency and skill retention compared to classical training approaches (Evans et al. 2018). The rationale for the LDHF approach is based on an extensive review of health worker trainings conducted in LMICs that revealed the majority of the trainings did not improve the quality of health

care delivery among the trained health providers (Jhpiego 2013). LDHF has had promising results in different settings, improving provider performance in countries such as Ghana, Uganda, Tanzania, and Ethiopia (Gomez et al. 2018; Willcox et al. 2019; Krishnan et al. 2021; Tadesse et al. 2021).

LDHF training uses short, targeted in-service simulation-based learning activities, which are spaced over time and reinforced with structured, ongoing practice sessions at the workplace (Jhpiego 2013). These sessions are context-specific, tailored to meet the needs of health workers by providing them with need-to-know knowledge that is applicable in their work environment and focusing less on theoretical classroom content that might in some cases be out of touch with the resource-constrained realities on the ground (Evans et al. 2014). The LDHF approach is a highly interactive and continuous process that enables trainers and trainees to openly discuss the learning content and foster a culture of teamwork through interactive exercises, including role plays, case discussions, and use of anatomical models and other teaching aids (Willcox et al. 2019).

Capacity development using LDHF principles is a critical approach used by the USAID Ingobyi Activity to provide Rwandan health workers with the required skills to deliver quality care to communities. Ingobyi is a five-year cooperative agreement led by IntraHealth International to



USAID
FROM THE AMERICAN PEOPLE

IntraHealth
INTERNATIONAL
Because Health Workers Save Lives.



improve the quality of reproductive, maternal, newborn, and child health (RMNCH) and malaria services in Rwanda. Ingobyi addresses the critical knowledge and skills gaps of health providers through targeted in-service trainings using LDHF in 26 supported hospitals and 325 health care centers. These trainings are enhanced with clinical mentorship and supportive supervision to foster long-term skill retention and application in everyday clinical practice.

THE LDHF APPROACH

IDENTIFICATION OF SYSTEMIC GAPS

Findings from routine supportive supervision, reports from mentors, and review of service data from supported health facilities are used to identify gaps affecting service delivery and the quality of care. One way of countering these gaps is through targeted, tailored, in-service training at the health facility to improve provider competencies in a deficient technical area identified from the routine assessments. Other criteria for selecting facilities in need of training include newly created health centers, health facilities with newly recruited staff, and health facilities that have previously not received on-site training.

ORIENTATION MEETINGS

Prior to trainings, Ingobyi Activity, officials from the Ministry of Health (MOH) and Rwanda Biomedical Centre (RBC), facility leaders and facility mentors convene for an orientation meeting to discuss the rationale for the training, training schedules, and any facilitation needed during the trainings. These meetings are crucial because they clearly define the roles and responsibilities of all relevant stakeholders to ensure smooth running of the training activities.

ORIENTATION OF TRAINERS AND FACILITATORS

Ingobyi Activity carries out five-day orientation of the selected trainers and facilitators to not only strengthen their clinical competencies but provide them with the skills and confidence required to teach and guide other health workers. District-based trainers are identified in collaboration with hospital leaders. When there is a need for external facilitators, Ingobyi works with professional associations. Some of the topics covered in the orientation trainings include adult teaching principles and methodologies, mentorship

principles, LDHF principles, communication skills, data analysis, leadership, rapport building, coaching skills, and use of checklists to evaluate trainee progress. Trainers must be well versed with the training materials, encourage interactive learning, and emphasize integration of acquired knowledge and skills into clinical practice.

BASELINE ASSESSMENT OF HEALTH PROVIDERS' CLINICAL COMPETENCIES

An initial pre-test using MOH-approved theoretical and practical tests is carried out to determine the baseline skills and knowledge of the health providers in different RMNCH and malaria competencies as well as national clinical guidelines. This helps trainers design the training plan based on the providers' knowledge gaps.

TRAINING SESSIONS

The trainings are organized in small sessions, delivered at least two times per week for consecutive weeks until the trainees are considered competent in a given technical clinical competency/skill. This is usually preceded by a pre-test to determine their level of knowledge in a particular area. The dosing and frequency of the sessions is adjustable depending on the perceived difficulty of the topic, level of provider skills and knowledge, and speed at which the learners are grasping the content. Training involves both theoretical and practical sessions, but more time is given to practical hands-on simulation activities, which mimic context-specific real-life case scenarios usually faced by health providers. A variety of teaching aids, such as anatomical models, flipcharts, posters, clinical presentations, demonstrations, and case scenarios are employed. Each technical area has a pre-defined number of sessions. For example, basic emergency obstetric and newborn care (BEmONC) training is conducted over four weeks in four sessions of three days per week and covers 13 maternal competencies and three newborn competencies. Integrated management of childhood illness (IMCI) is conducted over four weeks in four sessions of two days per week. For family planning, the training is conducted over six weeks, three days a week.

The training is participatory both in theory and practical sessions and constructive feedback is key to its success. The identified strengths and contributions of providers shown during the

sessions as well as the subsequent assessments are used by trainers to continuously offer encouragement to learners while any areas of improvement are harmoniously discussed in a non-confrontational manner that does not demotivate the trainees.

Each topic must be completed before proceeding to the next to ensure that trainees receive the full package of knowledge and skills as intended. This allows for effective peer-to-peer discussions of the gained knowledge and utilization of acquired skills in routine clinical practice. Continuous self-evaluation during the training is encouraged to allow trainees to develop self-awareness on what areas they need to improve and encourage them to take the learning process seriously. To foster self-learning after the sessions, the teaching aids are made available to learners at the facility for continuous practice.

ASSESSMENT OF TRAINEES

A post-training assessment using approved theoretical and practical tests and checklists is carried out to determine the skills and knowledge gained through the trainings. Trainees must score at least 85% to be considered to have mastered the given competency. Trainers evaluate trainees’ competencies as they attend to clients. In the absence of clients for a given competency, anatomical models are used. Trainees who qualify receive continuing professional development (CPD) points.

DEBRIEFING MEETINGS

Debriefing meetings are an important step in the training process. Trainers, trainees, and health facility management meet to discuss progress and suggest areas for improvements if necessary. The meetings also provide an opportunity for trainers to conduct advocacy with facility management to address areas where change is required to facilitate continuous learning and improvements in service delivery. For example, the trainers may emphasize the need to provide the work environment with necessary supplies and equipment not only to conduct training but to facilitate the health providers’ work performance after training.

RESULTS

REACHING MORE HEALTH CARE PROVIDERS TO IMPROVE THEIR SKILLS

Ingobyi Activity trained 24% and 45% of health care providers in 2020 and 2021, respectively, through LDHF training (Table 1). During its first year, Ingobyi trained district-based mentors/trainers who cascaded the training using LDHF in health facilities within their catchment areas. The LDHF training targets health providers with no previous training in key technical and service delivery areas, while those with previous training are supported through continuous mentorship and supportive supervision.

Table 1. Number of health providers trained by USAID Ingobyi Activity, 2019-2021

Low-dose high-frequency training	2019	2020	2021
Number of providers trained through LDHF	0	1,432	2,422
Total number of providers (nurses, midwives, and medical doctors) in supported health facilities	5,622	5,919	5,349
% of providers reached through LDHF	0%	24%	45%

IMPROVED PROVIDER PERFORMANCE AND COMPETENCY

Increased provider performance on the post-training tests shows that LDHF trainings are improving the RMNCH and malaria skills and knowledge of health workers. For example, BEmONC in-service training conducted in supported health facilities over four-to-six weeks in 2020-2021 for 619 providers from 111 health centers and 169 providers from 16 hospitals resulted in trainees' scores on theoretical and practical assessments improving from 59% pre-test to 88% post-test. Similarly, in a training on IMCI of 544 facility staff from 108 health centers, test scores increased from 39% pre-test to 87% in the post-training assessment. For training on lifesaving neonatal protocols targeting 273 staff (including doctors, nurses, and midwives) working in neonatal units at 26 supported hospitals, average test scores rose from 62% pre-test to 88% in post-test assessments.

The increase in provider knowledge and skills from these LDHF trainings has resulted in improved services in the three years since the Ingobyi Activity's inception in 2018 as demonstrated by these examples:

- A rapid assessment of the availability and quality of family planning (FP) services conducted at 122 Ingobyi-supported health facilities where 56 providers were trained showed increased provider skills in provision of FP services. The assessment also revealed that availability of both short- and long-acting reversible FP methods increased, with these methods now available in 99% of facilities, up from 81% at the start of the project.
- At least 95% of newborns were put on the breast within one hour of birth in all supported facilities due to training and subsequent mentorship.
- The proportion of women giving birth who received uterotonics in the third stage of labor or immediately thereafter increased by 19.8% from 2018 to 2021.
- The proportion of newborns not breathing at birth who were successfully resuscitated by trained health workers rose by 18.8% between 2018 and 2021.
- The number of newborns who received postnatal care within two days increased by 15.2% between 2018 and 2021.

IMPLEMENTATION CHALLENGES

- Some of the teaching aids like anatomical models are expensive to procure for all supported health facilities. This limits simulations and practical sessions. Ingobyi Activity will continue advocating with hospital leaders, district leaders, the MOH, and other stakeholders to avail budgets for teaching aids.
- Shortages of staff and heavy workloads affect availability of training staff and trainees. Ingobyi is increasingly coordinating with both trainers and health facility administrations to harmonize schedules so that staff are available for training.
- Lack of essential supplies and equipment needed by providers to apply the skills they have learned can lead to "skill atrophy" due to a lack of practice, which in turn could hinder service delivery.

LESSONS LEARNED

- LDHF improves the skills retention, confidence, and motivation of health providers to carry out lifesaving interventions. The interactive practical sessions motivate trainees to do their work well because they have new skills that they lacked. This also provides trainers a chance to gauge the attitudes and behaviors of service providers and identify motivated staff and non-motivated ones who need further encouragement and motivation.
- Health facility leadership need to take more ownership of the trainings by paying close attention to the training sessions and ensuring that trainees' and trainers' needs are met in order to achieve the objectives and long-term sustainability of training outcomes.
- CPD credits and certificates increase trainees' motivation.
- Capacity development is not achieved by training alone but has to be enhanced with subsequent clinical mentorship and routine supervision if the goal of having a highly trained health workforce is to be achieved.

CONCLUSIONS

Many programs still needlessly utilize a lot of resources to deliver off-site refresher training. Such trainings are not only expensive to conduct, but do not necessarily translate training content into competency. The LDHF approach has proven to be cost-effective while increasing competency through continuous simulation-based sessions, which engage both trainers and trainees to solve health delivery gaps. Training, however, should not be carried out in isolation, but should be part of a package involving mentorship and supportive supervision to ensure continuous and sustainable learning.

REFERENCES

- Banke-Thomas A, Wilson-Jones M, Madaj B, van den Broek N. 2017. "Economic evaluation of emergency obstetric care training: a systematic review." *BMC Pregnancy Childbirth* 17: 403. <https://doi.org/10.1186/s12884-017-1586-z>.
- 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." *International Journal of Gynaecology and Obstetrics* 126(3) :286–290. <https://dx.doi.org/10.1016/j.ijgo.2014.02.021>
- Evans, CL et al. 2018. "Peer-assisted learning after onsite, low-dose, high-frequency training and practice on simulators to prevent and treat postpartum hemorrhage and neonatal asphyxia: a pragmatic trial in 12 districts in Uganda." *PLoS One* 13(12): e0207909. doi: 10.1371/journal.pone.0207909
- Gomez PP 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, 72. <https://doi.org/10.1186/s12884-018-1705-5>
- Jhpiego. 2013. Low Dose, High Frequency: A Learning Approach to Improve Health Workforce Competence, Confidence, and Performance. Available from: https://hms.jhpiego.org/wp-content/uploads/2016/08/LDHF_briefer.pdf
- Krishnan V et al. 2021. "Need for more evidence in the prevention and management of perinatal asphyxia and neonatal encephalopathy in low and middle-income countries: A call for action." *Seminars in Fetal & Neonatal Medicine* 26(5):101–271. doi: 10.1016/j.siny.2021.101271
- Lassi ZS et al. 2016. "Systematic review on human resources for health interventions to improve maternal health outcomes: evidence from low- and middle-income countries." *Human Resources for Health* 12;14:10 <https://doi.org/10.1186/s12960-016-0106-y>
- Murphy GT et al. 2014. "A scoping review of training and deployment policies for human resources for health for maternal, newborn, and child health in rural Africa." *Human Resources for Health* 12, 72. <https://doi.org/10.1186/1478-4491-12-72>
- Tadesse M et al. 2021. "Effect of a low-dose/high-frequency training in introducing a nurse-led neonatal advanced life support service in a referral hospital in Ethiopia." *Frontiers in Pediatrics* 25;9:777978. doi: 10.3389/fped.2021.777978
- Ugwa E et al. 2018. "Simulation-based low-dose, high-frequency plus mobile mentoring versus traditional group-based training approaches on day of birth care among maternal and newborn healthcare providers in Ebonyi and Kogi States, Nigeria; a randomized controlled trial." *BMC Health Services Research* 18(1):630. doi: 10.1186/s12913-018-3405-2
- Willcox M, LeFevre A, Mwebaza E, Nabukeera J, Conecker G, Johnson P. 2019. "Cost analysis and provider preferences of low-dose, high-frequency approach to in-service training programs in Uganda." *Journal of Global Health* 9(1):010416. doi: 10.7189/jogh.09.010416

This technical brief is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of IntraHealth International and do not necessarily reflect the views of USAID or the United States Government.

CONTACT

Samson Radeny
Chief of Party, IntraHealth International/Rwanda
sradeny@intrahealth.org



www.intrahealth.org/countries/rwanda