



# EMERGENCY DRILLS IMPROVE MANAGEMENT OF MATERNAL AND NEWBORN COMPLICATIONS

One of the innovative quality improvement approaches mentors use in First Referral Units (FRUs) is emergency obstetric and newborn care drills. Modeled after the concept of emergency drills used in disaster management, these drills are simulated life-saving emergencies involving staff and infrastructure preparedness. Staff at FRUs can encounter a variety of maternal and newborn emergencies that require a rapid response following clinical guidelines to administer life-saving care. Time, skills, and ready access to drugs and supplies matter when faced with a newborn who is not breathing or a mother who is having convulsions during labour and delivery. The mentoring visits provide an ideal occasion to bring the concept and practice of emergency drills to the FRU staff.

## OVERVIEW

Drills are exercises intended to help FRU staff find out how prepared they are for handling emergencies. These are scripted role plays simulating real life situations for which FRU staff should be prepared. To develop the emergency drills approach and materials, Sukshema Project drew on the resources developed for

the Maternal Health Task Force pilot study implemented by St. Johns Research Institute and Karnataka Health Promotion Trust with support from the Institute for Clinical Effectiveness and Health Policy, Argentina that had successfully applied this approach. The project team developed three guidelines and scripts for drills practice. The emergencies covered include pregnancy-induced hypertension (PIH)/eclampsia, postpartum haemorrhage (PPH), and birth asphyxia in neonates. Each script provides detailed instructions to the specialist mentor and nurse mentors on how to facilitate the drill.

The newborn drills used a newborn model (neoNatalie) that mentors brought with them to the FRU. All other equipment and supplies used in the drills were from the facility itself and as such a measure of their preparedness to deal with these emergencies.

The composition of trainee teams was dependent on the number of personnel available in individual facilities and usually included several staff nurses assigned to the labour room or newborn stabilization unit. In some cases all available nurses participated (including off duty

nurses who came in for this exercise) while other times only those nurses who would normally be available carried out the drill and their colleagues observed.

All efforts are made to have the drills be as realistic as possible. The drills took place in the labour ward so providers could assess how they would handle an emergency situation with the resources and staff at hand. The specialist mentor directed the drill providing clinical information relevant to the enacted case scenario. Facility staff had to provide care as they would during a real emergency. The mentors did not intervene or give guidance to the staff while the drill was in session.

To facilitate reflection and learning from the experience, each emergency drill session was video recorded with a small handheld video camera. Following the drill, participants watched the video on a laptop screen in the labour room and mentors facilitated a discussion of what staff had done well and opportunities for improvement. This debrief session proved a vital part of the exercise as it helped staff know what to do to be more prepared in the future. Specialist mentors also used this opportunity to reinforce the use of case sheets as a job aid for effective management of complications. If available, site specialists observed the emergency drills and took part in the debrief. The entire session lasted for about 45 minutes to an hour including the debriefing session.

**FRU staff response to emergency drills.** FRU staff was initially hesitant to participate actively in the emergency drills but this changed over time as nurses became more comfortable with the concept and witnessed its benefits. Mentors explained that nurses initially preferred to be observers. One specialist mentor noted, "At first nurses were not taking drills seriously so I had to stress that this is like a real life situation so you have to move quickly. They were too relaxed and casual about it and did not want to take responsibility." She noted, however, that these attitudes changed over time and she



**Photo:** Taping an emergency drill

witnessed improvements in nurses' competence over subsequent drills during each mentoring visit as well as an improved sense of teamwork. Soon nurses were volunteering to participate. Mentors all stated that each drill was better than the last. In the first drills the equipment and drugs were not easily available and teamwork was less effective. For example, in at least one FRU the mentor noted that during the newborn resuscitation drill the radiant warmer was not working and the ambu-bag was not readily accessible. In later drills, nurses had the emergency kits available and newborn corners were properly organized and stocked. As one mentor explained, "the nurses were very confused in the first drill and there were many wrong practices and gaps in knowledge." One nurse summarized the feeling of many about the drills when she stated, "It has experienced us. Now we practice so we can't forget."

Several mentors shared stories of how nurses came to appreciate the drills when they encountered real cases that were similar to the case scenarios used in the drills. One mentor explained how they had completed the PIH drill in the morning. Staff was "not so serious at the

time of the drill." Later that afternoon a woman presented with PIH and the nurse with mentor support was able to manage this and conduct a normal delivery.



**Photo:** Emergency drill debrief

Nurses found drills to be a very helpful way to learn. As one stated, "We have improved a lot." They shared how they were using the skills and processes they learned in drills with patients. As one nurse described it, "The drills have helped in following step by step. Earlier we used to improvise but now we are now more systematic." Another stated, "We used to handle emergencies haphazardly. Now we manage complications stepwise. Before we searched for things but now we have separate kits for complications."

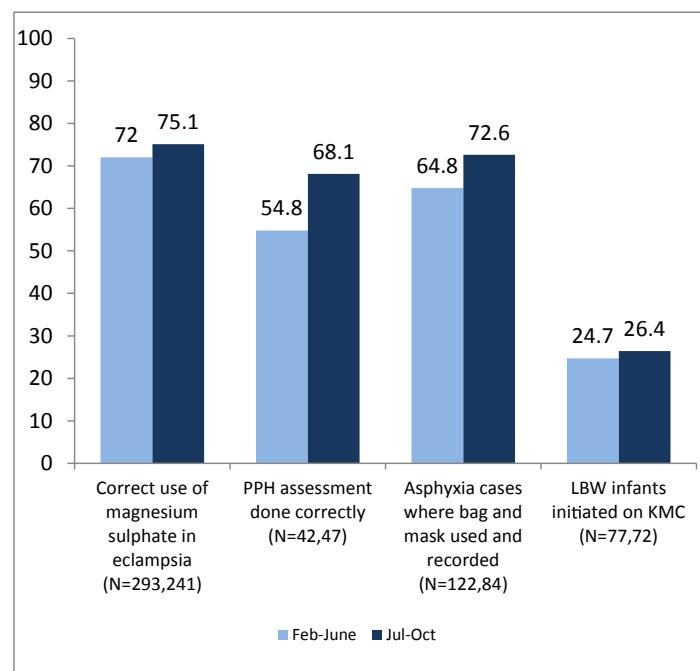
#### **Contributing to improved quality of care.**

The project carried out audits of case sheets to assess provider performance in managing complications over time. Figure 1 shows that on the key topics addressed by the emergency drills, compliance with standards of care increased. For two emergency obstetric drill topics, PIH and PPH, providers' correct use of magnesium sulphate to manage PIH/pre-eclampsia increased from 72% to 75% and management of PPH improved from 55% to over 68% from the February-June to July-October time periods. Managing newborn complications also showed improvement as providers documented that 73% of asphyxia cases were managed with bag and

mask compared to 65% earlier. The practice of kangaroo mother care (KMC) as a strategy for supporting low birth weight babies improved only modestly.

Sukshema Project has demonstrated that emergency drills are an innovative and appreciated form of learning that can help prepare staff to improve teamwork and highlight the need to enhance skills to handle emergencies. This intervention holds promise for incorporation into other maternal and newborn training and mentoring programmes.

**Figure 1. Provider adherence to select maternal and newborn emergency care indicators as documented by case sheet audits**



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Funded by the Bill & Melinda Gates Foundation, the Sukshema project supports the Government of Karnataka to develop and implement strategies to improve maternal, newborn, and child health (MNCH) in alignment with the Government of India National Rural Health Mission (NRHM). The project is implemented by Karnataka Health Promotion Trust in collaboration with University of Manitoba, St John's Medical College, IntraHealth International, and Karuna Trust. The six-year project started in September 2011.

**The goal of Sukshema is to:**

*Develop and adopt effective operational and health system approaches within the NRHM to support the state of Karnataka and India to improve maternal, newborn, and child health outcomes in rural populations.*

To achieve this goal, the project integrated and aligned key aspects of the Foundation's MNCH strategy with the NRHM in eight districts in northern Karnataka, with the following four key objectives:

1. Enable expanded availability and accessibility of critical MNCH interventions for rural populations.
2. Enable improvement in the quality of MNCH services for rural populations.
3. Enable expanded utilization and population coverage of critical MNCH services for rural populations.
4. Facilitate identification and consistent adoption of best practices and innovations arising from the project at the state and national levels.

