

Emergency Obstetric And Neonatal Care (EmONC) Training To Reduce Maternal & Neonatal Morbidity & Mortality In Pakistan

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Abstract

If all the maternity staff is trained in Emergency Obstetrics & Newborn Care (EmONC) and life saving skills regularly, many deaths and disabilities could be averted at health care facilities. Even at tertiary hospitals, timely and appropriate care is often not provided for various reasons including lack of knowledge and training of the staff.

The aim of this EmONC training is to use evidence-based global guidelines and best practices to develop and strengthen the capacity building of the health care providers as a team for providing quality obstetric and neonatal services, to address the major causes of maternal and newborn deaths and disability in Pakistan. Post partum haemorrhage, eclampsia, sepsis, obstructed labour, abortions and the iatrogenic causes of maternal death are specifically addressed in this training provided for Doctors, Midwives and Nurses who are involved in childbirth and newborn care.

Introduction

The maternal health indicators continue to remain poor in Pakistan. Pregnancy related complications are one of the leading causes of death in adult women (20%) in Pakistan, i.e. 1 in 89 women die of maternal causes. The latest Pakistan Demographic & Health Survey (PDHS) based on 96,000 households gives the Maternal Mortality Ratio (MMR) of 276.¹ Population based data on MMR is limited. Nationally representative fig-

ures for MMR are not available as the system for registering births and deaths is incomplete and unreliable. National estimates of MMR from previous reports show wide fluctuations between 350-500 per 100,000 live births. Hospital data, though biased, show a high MMR.² Trends in MMR from tertiary care hospitals of Pakistan paint a depressing picture. It is difficult to say whether this indicates an actual increase in the number of deaths, or whether more women are dying in the hospitals and less at home.

Nearly 70% of births take place at home, mostly by unskilled birth attendants in unhygienic conditions. Infant mortality rate is 78 deaths per thousand live births. Most of these infant deaths are within the first few days of life due to birth asphyxia. Pakistan's child mortality rate is one of the highest in the world, second only to Afghanistan.¹

There is poor infrastructure, especially in rural areas, with insufficient numbers of health professionals (doctors, nurses, midwives and trained birth attendants). There is too much load on tertiary care hospitals. There are frequent power outages and inadequate water supply. Sterilization of instruments is not appropriate (lack of availability of water or chlorine tablets/solution). Hot climate makes storage of drugs and vaccines difficult and they are expensive. Re-use of disposable syringes and needles is leading to rising incidence of Hepatitis B and C, and other infections.

Haemorrhage (antepartum and postpartum), sepsis, obstructed labour and abortions remain major killers of childbearing women all over the world.³ In Pakistan, the major causes of deaths derived mainly from hospital studies and PDHS^{1,2} are similar, with haemorrhage, eclampsia, puerperal sepsis, obstructed labour / ruptured uterus and abortion, accounting for most of the deaths.

The obstetric emergencies coming to the tertiary hospitals, from private maternity homes, the secondary or sometimes even from other tertiary care facilities, are often in a moribund condition. The staff at those facilities are often not trained or equipped properly to handle such cases, as indicated by the significant percentage of iatrogenic maternal deaths.¹ Even after reaching a tertiary hospital, timely and appropriate care is often not provided, for various reasons including lack of knowledge and training of the staff. Thus if all the staff is

trained in EmONC and life saving skills regularly, many deaths and disabilities could be averted.

For any significant reduction in maternal mortality ratios, "quality" EmONC should be available at every (secondary & tertiary care level) hospital. In addition to the initial need for a well-trained team at these tertiary and secondary care level hospitals, there are ongoing training needs as members of the EmONC team leave for other jobs.

Moreover, the content of training also needs constant updating, as there have been substantial changes in obstetric and midwifery practice that have not been incorporated into basic training at medical / nursing schools. The use of Active Management of Third Stage of Labour (AMTSL) for PPH prevention⁴ and the role of Misoprostol for both prevention and treatment of PPH^{5,6} are well established now. The use of, manual vacuum aspiration (MVA), versus dilatation and curettage (D&C), vacuum extraction versus forceps, managing labor with a partograph (WHO) and simplified management protocols for eclampsia are also important components of the training.

The assumption that pre-service midwifery and medical education should meet this need is challenged by a significant discrepancy between what is taught at the schools and what the graduates are expected to do, once they graduate.

Another challenge for training in EmONC is that many of the major causes of maternal mortality are rare events, even in the busy units. In order for providers to be consistently prepared for emergencies, clinical skills and competency must be achieved and maintained through simulations and emergency drills, applying basic general principles. The relative infrequency of emergency obstetric events also affects the duration of training events and the need for innovative training methods.

Methodology

A three day biannual training program was designed and is being conducted for the service providers of government and private maternity facilities since 2009, at Karachi and Lahore, by the Association for Mothers & Newborns (AMAN), in collaboration with the National Committee for Maternal and Neonatal Health (NCMNH). The last 3 trainings have also been supported by the JANUM Network (a network of philanthropists).

The aim of this training is to develop and strengthen the capacity building of the health care providers as a team for providing quality obstetric and neonatal services, to address the major causes of maternal and newborn deaths and disability. This also minimizes the iatrogenic causes of maternal death. This training is for Doctors, Midwives and Nurses who are involved in childbirth and newborn care.

The course is based on evidence-based global guidelines and best practices. The material for the course is the manual for EmONC, developed by NCMNH. A copy of this manual and its pocket book is given to each participant. Other references are, *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors* (WHO), materials from the learning resource package that supports this manual, developed by the Maternal and Neonatal Health (MNH) program at JHPIEGO.

JHPIEGO/Maternal and Neonatal Health Program, *Guidelines for Assessment of Skilled Providers after Training in Maternal and Newborn Healthcare* (2004), *Prevention of Postpartum Hemorrhage Initiative (POP-PHI) Manual*, *Best Practices in Maternal & Newborn Care: A learning Resource Package for Essential & Basic Emergency Obstetric & Newborn care* (2008) JHPIEGO, USAID, *Access to Clinical and Community*

maternal, neonatal and women's health Services (ACCESS) and Infection Prevention guidelines for Health care Facilities with limited resources, JHPIEGO.

Objectives of Training

At the end of the training the participants should be able:

- To work as a competent EmONC team members, motivated to serve in difficult circumstances and clearly understand their roles and responsibilities.
- Gain the knowledge and clinical skills needed to respond appropriately to common obstetric & neonatal emergencies.
- Deal all emergency obstetric cases according to well-defined guidelines and standard protocols.
- Develop a mechanism to monitor and support the implementation of such standards by maternal & perinatal audit, emergency drills, etc.
- Manage and maintain an information system at the hospital.

The 3 days intensive training program is described in (Table I).

The course begins at a designated training site and focuses on the overview of maternal health situation and high MMR of Pakistan and the Millenium development Goals (MDG's) with a focus on MDG's 4 and 5.⁷ The training takes place in a classroom with small group practice areas, and is not dependent on a clinical area. A classroom teaching area/meeting room close to the labor ward is ideal for discussions and practice with manikins and models. The lectures are delivered both in Urdu and English.

The participants receive a certificate of attendance at the end of the 3th day. A follow up at the participant's workplace, is also planned, during which the clinical trainers for the course provide follow-up visits for mentoring at request and further evaluation.

This training is also provided upon request by individual centers in cities other than Karachi and Lahore.

Experienced master trainers were identified and a planning meeting organized to finalize the training strategies, curriculum, methodology and training guidelines.

The trainers are experienced clinicians who are committed to further improving their facilitation skills, employing adult learning principles.

Conducting the EmONC Training

The training starts with a Pre Test followed by a presentation of Maternal and Neonatal morbidity & mortality statistics from PDHS, 2007. The Eliminating National Gaps—Advancing Global Equity (ENGAGE) presentation, Population Reference Bureau (PRB) and NCMNH are used to

Table I. The three days Intensive Training Program

Timings	Day 1	Day 2	Day 3
08:30-09:00 am	Registration	Recap	Recap
9:00-10:00 am	Pretest Introductions <i>Engage presentation</i> <i>Situation Analysis</i>	Partogram & care in Normal Labour	Neonatal Resuscitation & New-born Care
10:00-11:00 am	Emergency Preparedness	Prolonged & Ob- structed labor Partogram practice	Practice Neonatal resuscitation in small groups
11:30-12:30 pm	AMTSL	Evidence based C section Techniques/ Episiotomy repair/ Re- pair Cervical tear	Infection Prevention Sepsis
12:30-1:30 pm	PPH & Massive Haemorrhage Balloon tamponade & B lynch practice	Instrumental Deliveries	Maternal Mortality & Perinatal Audit. Post-Partum Care
1:30- 02:00 pm	Misoprostol	Post abortion Care & MVA	Emergency Drills <i>Shoulder Dystocia/ cord pro- lapsed/ Breech</i>
3 - 4 pm	Eclampsia & Pre- Eclampsia	Family Planning in Antenatal , Emergency & Postpartum settings	Management of Adverse events Practice
04:00- 05:00 pm	AMTSL Practice <i>All Facilitators</i>	Practice on models <i>All Facilitators</i>	Post-test/ Course evaluation Certificate Distribution



AMTSL Role Play Practice



MVA Demonstration



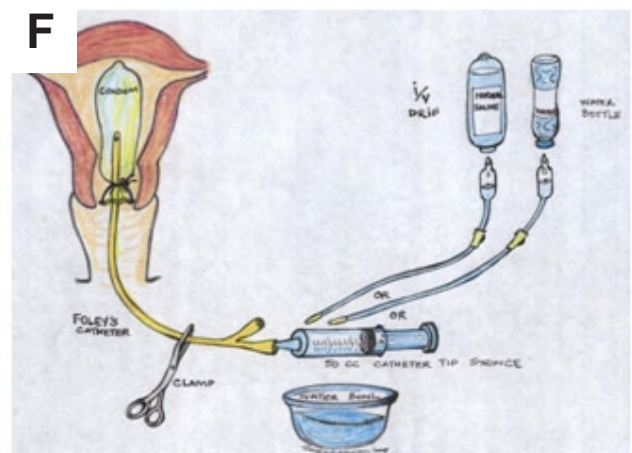
Midwives have separate sessions on: AMSTL, Emergency Care, Partogram , episiotomy repair, & Neonatal Resuscitation



Newborn Resuscitation small group practice



Emergency Packs



Condom Balloon Tamponade for PPH

Figure 1. Showing some of the demonstrations (A to F).

present the population/family planning and abortion data from Pakistan.

An emergency obstetric drill is enacted by the facilitators, depicting an emergency with a case scenario of PPH, to highlight deficiencies in the care provided.

Discussion is carried out about what essential items need to be part of an emergency trolley, and emergency boxes for conditions like eclampsia and PPH. Other aspects of emergency care are also discussed with the participants. Cardio pulmonary resuscitation (CPR) methods are demonstrated and practiced on manikins by each participant.

Demonstration is given on the use of emergency packs for PPH, Eclampsia, Condom balloon tamponade; using the top of a small sized and a large sized mineral water bottle and tape to make disposable masks for artificial breathing in emergency.

AMTSL demonstration is given with a role play using a checklist. Misoprostol use is discussed and handouts on evidence based dosages are given to the participants.

Management of PPH with drugs is discussed, bimanual compression, aortic compression, Anti-shock garment, condom balloon tamponade and B-Lynch suture application, are demonstrated on fabric models.

Severe Pre-Eclampsia / Eclampsia are discussed with the help of case studies.

Giant (WHO modified) partograms are used to demonstrate its use for cases of normal labor, prolonged and obstructed labor. The participants practice in small groups with a facilitator. Some of the demonstrations are shown in Figure 1 (A-F).

Evidence based Caesarean section techniques are discussed with the help of power point presentation and video display for the doctors who perform this operation.

Instrumental Delivery is demonstrated with power point and Video display. Participants are asked to practice forceps and vacuum delivery on pelvic models in small groups with the facilitators.

An introduction to MVA is made with a video, post abortion care (PAC) presentation and demonstration on models.

Family planning in Antenatal and EmONC Settings (including post-placental and postpartum Intra Uterine Contraceptive device (IUCD) insertion, is discussed in an interactive manner with powerpoint presentation and video demonstration.

The last sessions daily are demonstration and practice on the models and sponges (for episiotomy repair). MVA, Episiotomy repair and B- lynch suture practice is done on the models by the participants, in groups.

Neonatal resuscitation and essential newborn care is demonstrated with power point presentation and demonstrated on a manikin.

Essential Newborn Care and resuscitation Check list is distributed to each participant and discussed. Practice of neonatal resuscitation on manikins with checklist, is carried out.

Emergency Obstetric Drills are discussed and demonstrated. Cord Prolapse, Breech delivery, Shoulder Dystocia and their management are discussed with the help of videos.

Participants perform an obstetric emergency drill of correct PPH management on the last day.

Infection prevention using universal precautions is discussed and demonstrated; methods for making 0.5% chlorine solution is discussed and a "passing the parcel" game with relevant questions, is also conducted.

Management of Sepsis is discussed with case studies and "Kaun Banega Carorepati" Quiz Game.

Management of adverse events, Maternal and Perinatal Death Audit are discussed with a powerpoint presenta-

tion. The course ends with the Workshop evaluation and Post Test.

Evaluation

Each training event is evaluated with an anonymous feedback form. Knowledge is assessed with a Pre Test and a Post Test. They are also given an Action Plan form so that they can document changes they bring about to their workplace as a result of the EmONC training. This is an ongoing challenging step of evaluation, which will help shape the future trainings, and bring to light any other constraints to achieving better quality EmONC.

Results

A total of 5 workshops with an average of 30 participants in each have been conducted to date, at Lady Dufferin Hospital, Karachi, Marie Stopes Society, Karachi, Murshid Hospital, Karachi, Fatima Memorial Hospital Lahore and Jinnah Postgraduate Medical Center (JPMC), Karachi. In all the trainings, it was a mixed group of Doctors, Nurses/ Midwives and Lady health workers.

Feedback Evaluation from Participants

Participants expressed that they were very pleased that they attended the course as they learnt new techniques and improved their knowledge in a friendly atmosphere. They were particularly pleased that Doctors, Midwives and Nurses were taught in the same manner and lectures were both in Urdu and English which helped them overcome their inhibitions with each other, to work better as a team.

Emergency preparedness, Neonatal Resuscitation, Obstetric Drills, Family Planning, CPR, B-LYNCH, Ec-

lampisia, AMTSL, PPH management and partogram sessions on Giant Partograms were concentrated upon. The friendly atmosphere in which the workshop was conducted was encouraging for most of the participants. They particularly enjoyed participating in mock situations of emergency drills.

Condom Balloon tamponade for PPH was a new technique for most of the participants.

Checklists were appreciated as they can be placed on the walls of their clinics/hospitals for guidance. Session on MVA and Misoprostol was of particular interest as participants realized that these are safer methods compared to D&C. Most participants showed keenness to disseminate and apply the knowledge and skills they acquired during these workshops, at their workplace. None of the sessions were considered a waste of time.

Some suggested that the duration should be increased, but it was generally appreciated that a lot of topics were covered in a short span of time. Further trainings were requested in MVA and Instrumental deliveries. The overall view of the participants about this training was very encouraging and positive.

Knowledge Assessment: All participants in all 5 workshops conducted so far, improved their post-test scores; the majority had a 2 fold or greater increase in scores.

A further follow up of the training is planned with interviews and facility visits of the participants.

Discussion and Suggestions

Evidence based interventions to reduce maternal morbidity and mortality from leading causes are provided in the chart below (PDHS 2007), on which this training is based (Figure 2).

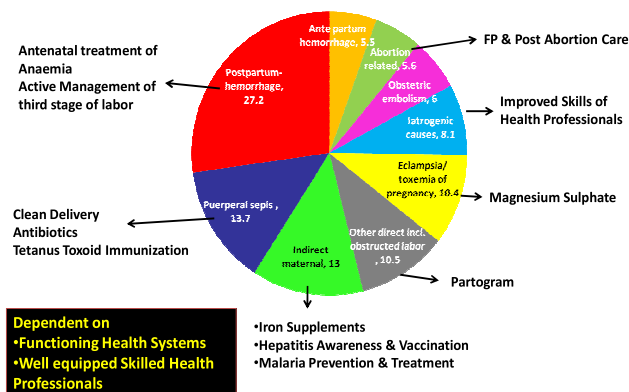


Figure 2. Evidence based Interventions to reduce Maternal Mortality.

Other authors have reported positive results of similar EmONC trainings from Pakistan and other countries.⁸⁻¹⁰

Regular / Refresher Trainings in EmONC of personnel providing maternity care, can be one of the ways to work towards achieving Millenium Development Goals (MDGs) 4 & 5, to which Pakistan is a signatory,⁴ but sadly lagging behind in its goals. AMAN in affiliation with NCMNH, has pledged to hold 2 such trainings every year. So far 5 such courses have been held in which 150 doctors and Nurses/ Midwives have been trained. During these trainings stress is laid on utilizing local resources to improve quality of care. For instance reusing plastic water bottles to make disposable resuscitation masks for adults and newborns, safe disposal of sharps, use of Misoprostol etc.

Other measures that should be employed include education of the community and Birth attendants in Home-Based life saving skills (HBLSS). Use of Clean/ Safe delivery kits, with possibility of misoprostol and chlorine tablets (for infection prevention) added to them; AMTSL for prevention of bleeding after child birth; Emergency packs for life threatening maternal complications like hemorrhage and fits at facilities, Manual Vacuum Ex-

tractors for quick delivery of babies instead of forceps, Vaccination of mother and baby, Vitamin A & D supplementation in addition to Iron and calcium, MVA for Post Abortion Care (PAC) instead of sharp curettage; Partograms to avoid obstructed labour and Magnesium Sulfate for Eclampsia .

Iatrogenic causes account for 8.1% of maternal deaths in Pakistan.¹ Regular EmONC Trainings of Staff has the potential to reduce this significant and preventable cause of maternal death, as well as the other leading causes in Pakistan.

Further facility based evaluation of this training is ongoing and will be reported in the future.

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