Labour ward drills

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Emergency Obstetric drills

- What is a drill?
- Why there is an interest in emergency drill?
- Examples of emergency Perinatal drill
- Difficulties in running a drill
- Advantages of drill
Emergency Fire Drill

“Drill” means a response to a planned, simulated event.

- Fire Drill - Best indicator that an emergency evacuation will run smoothly and successfully
Labour Ward Drill

- Very Few obstetricians are exposed to enough perinatal emergencies.
- A rehearsed series of manoeuvres in planned and simulated event may be the only salvation.
- Especially for the occasional obstetricians.
What is an Emergency Perinatal drill?

- On-site training of perinatal emergencies with a simulation-training scenario to provide controlled experience in an obstetric unit

- Without exposure of real patients to inadequate care
Aim of the drill

1. To **train the staff** and test **local systems and protocols**

2. To **test professional teamwork** and **individual skills, behavior and knowledge**

3. Increase **efficiency** during an actual event.
Why Perinatal Drills?

Interest in improving the management

- Recommended by: Confidential Enquiry into Maternal Deaths & Stillbirths, RCM, RCOG & JCAHO
- Affects the amount of medical negligence insurance
- Participation is part of qualification

Confidential Enquiry into Maternal and Child Health (CEMACH) report highlights the urgent need for areas of improvement.
Traditional Cycle of Risk Reduction

In this system, adverse incidents must occur before corrective measures can be taken. Maternity services cannot afford to wait for a real case to test the quality of care.
Examples of Perinatal Drills

- Massive Obstetric Hemorrhage.
- Shoulder Dystocia
- Eclampsia
- Maternal Collapse and CPR.
- Neonatal Resuscitation.
- Cord Prolapse
- Crash Caesarean Section.
How a drill is conducted?

- Use model based scenarios
- Actor
- Mannequin
- Doll
- Use protocols - EBM
- Execute a sequence of actions and management in response to a planned simulated event
Information for staff

- You are about to take part in a simulated emergency
- The patient is an actor - simulate any invasive procedures
- Say aloud what you are doing
- Everything else you do in this situation should be carried out as normal
- Any I.V drugs or fluids should be prepared as normal but delivered into the bowl beside the patient.
- All the members of the team should be taking part in this simulation
Eclampsia Drill - Clinical Scenario

36 year old primi, at 32 wks with PIH & IUGR

On admission her BP: 148/96 mm Hg and urine showed 3+ protein

Blood pressure fell to 146/90 mmHg. She has gone into spontaneous labour & has been transferred to the delivery suite

Oral labetalol was started

She now mentions headache & visual disturbance
Drill

A doctor or a midwife is asked to take over the patient’s care.
Allowed to obtain information from the patient and her notes.
The patient then *simulates a convulsion*.
The **drill scenario** is developed in response to the actions of the staff, who are guided by:
- the patient (for example simulating airway obstruction) and
- by observations posted by the **drill director** such as blood pressure readings.
# Eclampsia Drill: Key events & responses

<table>
<thead>
<tr>
<th>Call for help-Obstetric specialist / Anesthetist / Senior midwife / Staff</th>
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</thead>
<tbody>
<tr>
<td>Correct patient positioning -left lateral</td>
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<tr>
<td>Airway assessment and management</td>
</tr>
<tr>
<td>Delivery of oxygen</td>
</tr>
<tr>
<td>Intravenous access</td>
</tr>
<tr>
<td>Pharmacological intervention: Correct order, choice, dose and administration of drugs</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Monitoring : O2 Saturation, BP, Heart rate and rhythm</th>
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<tbody>
<tr>
<td>Blood glucose concentration</td>
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<tr>
<td>Renal function – urinary catheter</td>
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<tr>
<td>Fetal wellbeing (CTG) monitoring</td>
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<tr>
<td>Magnesium toxicity</td>
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<tr>
<td>Delivery plan</td>
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Problems identified:

- Difficulty in summoning senior staff urgently
- Multiple different protocols for managing eclampsia, many out of date.
- Deficiencies in skills and knowledge
- Time wasted in fetching individual items for management
- Variable presentation of magsulph in drug cupboards/ liaison with pharmacy
- Confusion about staff roles resulting in inefficient activity

Action to Correct Problems:

- Rapid activation of team: One switchboard call
- Development and dissemination of an EBM protocol
- Correct positioning of the fitting patient
- Choice of anticonvulsant, Safe administration of Magsulph
- Immediate individual feedback and education - Didactic instruction on magsulph administration
- Creation of strategically placed “Eclampsia Boxes
- Necessary equipment, Protocol
- Clear division of tasks in management protocol
At the end

- A debriefing session
  To discuss positive and negative points about their performance and that of the team
- Followed by a systematic discussion of the key event and responses that should have taken place
Shoulder Dystocia Drill

- Occurs as a result of disproportion between the bisacromial diameter of the fetus and the AP diameter of the pelvic inlet, the anterior shoulder of the fetus becomes impacted behind the symphysis pubis.
- High perinatal mortality and morbidity
- Brachial plexus injuries 44–16%-
  - Temporary paralysis-90%, Permanent 10%
- Increased maternal morbidity.
- Postpartum haemorrhage
Shoulder dystocia Drill

To identify this as turtle sign needs experience

- 50 per cent of dystocia cannot be predicted

Shoulder dystocia is confirmed when standard delivery manoeuvres fail to deliver the fetus and the head to body delivery interval is prolonged ≥ 60 seconds (Sriemevan et al. 2000; Gherman et al. 2006)

- Time keeping is vital - After delivery of the head, the umbilical artery pH falls by 0.04 / min until respiration is established

- All birth attendants need a well rehearsed 'fire drill' to optimise the outcome
Management Principles

Emergency manoeuvres are designed to do one of three things:

- Increase the functional size of the bony pelvis - McRoberts manoeuvre

- Decrease bisacromial diameter of the fetus utilising: Suprapubic pressure. Woods screw manoeuvre

- Change the relationship of the bisacromial diameter within the bony pelvis by rotating the fetus into the wider oblique diameter - Rubin & Woods screw reverse

Each of the following manoeuvres should be attempted for up to 30 seconds before moving to the next manoeuvre.
Key responses

Immediately after recognition of shoulder dystocia, the McRoberts’ maneuver is effective in 42% of cases. It is the single most effective intervention, should be performed first.

Supra pubic pressure increases success rates to 58%.

CALL FOR EXTRA HELP
manoeuvres

1. Rubin manoeuvre (2)
2. Woods Screw Manoeuvre
3. Reverse Woods Screw Manoeuvre
4. Delivery of the Posterior Arm

Delivery of the Posterior Arm in all-fours
HELPERR mnemonic from American Life support organisation

- Help
- Evaluate for episiotomy
- Legs (the McRoberts manoeuvre)
- Pressure- suprapubic
- Enter manoeuvres (internal rotation)
- Remove the posterior arm
- Roll on (Gaskin)
Third-line methods

- Several have been described for those resistant to all simple measures. These include:
  - Cleidotomy
  - Symphysiotomy
  - Zavanelli manoeuvre

Rarely required.

Avoid panic, pulling, paresis
Documentation - Recording

- Time of delivery of the head
- Direction - the head is facing after restitution
- Manoeuvres, their timing and sequence
- Time of delivery of the body
- Staff in attendance and the time they arrived
- Record the fetal heart rate noted at various times
- Condition of the baby (APGAR score)
Patient and Family Debriefing

- Make sure the patient has understood:
- What has happened, Why you have done, What you have done, and why the outcome is as it is
Reasons for not running fire drills/ Difficulties encountered

- Staff found it threatening and stressful (on trial) or not very helpful
- Difficulty in arranging multidisciplinary training
- Times restraints
- Historically separate training
- Difficulty in running drills in busy units
- Requirement of a dedicated risk management staff
- Planning and conducting fire drills demands a substantial amount of time and energy
- Each drill may only include a few staff
Positive aspects

- Increased confidence
- Making the training constructive and fun
- Positive learning experience and not a threat
- Individual feedback
- Better knowledge among staff of the location of the eclampsia box or defibrillator
- More conveniently located telephones
Positive aspects of fire drill

- Management follows Evidence based practice
- Staff are summoned faster
- Resuscitation process is better organised
- Drugs are prepared and administered more quickly
- Increase their comfort with the order of manoeuvres
- Simplification and reduction of tasks required in an emergency
- Useful educational activity
Positive aspects

- Organization of supplies
- Synchronization of the clocks in the Labour ward and Operating Rooms on the computer systems,
- To assure accuracy and proper documentation of events

Review of existing trays for adequacy of instruments or medications
Positive aspects

- Perceived benefits of multidisciplinary training for midwives, doctors, health care assistants, porters, theatre staff and adjunctive services such as the hospital switchboard.

Training together shows how the team would work together.

- Used to rate technical skills and behavioral performance during the emergency management.
Evaluation of Emergency Drills

- A systematic review of skills training is needed
  Little evidence available
  Difficult to demonstrate a benefit of training

- Training with a simulation scenario improved residents performance in the management

- Training with a mannequin which provides feedback may reduce the peak force used by the birth attendant during simulated delivery
Evaluation of Simulation

- Simulation And Fire drill Evaluation (SAFE) study: The south west obstetric network:
  
  **Phase 1:**
  - Develop methods and tools to evaluate the effect of simulation
  - Drill interventions for the management of acute emergencies
  - Assessing the knowledge and skills of the staff

  **Phase 2:**
  - Randomize staff to different forms of training for emergencies
Emergency Obstetric Drills in UK

185 Maternity units interviewed
95 centers (51%) were conducting drills
90 units (49%) were not conducting
26 units (29%) were developing them

Conclusion

Traditional methods of risk management reduction may not be applicable to infrequent yet serious conditions

Perinatal emergencies Drills

- Allows risks to be identified without exposure of real patients to inadequate care
- Allows a greater sense of 'reality'
- Provides controlled experience for all staff
Conclusion

- **Tests** local systems and protocols, communications, teamwork and individual skills and behavior and knowledge
- **Increases** efficiency during an actual event
- Can **identify** and **correct** potential deficiencies in the care of patients
- **Action** to Correct Problems Identified During Drills
Drills make sure knowledge/presence of mind