Condition O: Obstetrical Crisis

Marie R. Baldisseri, MD, FCCM
Associate Professor of Critical Care Medicine
University of Pittsburgh School of Medicine

Maternal Mortality

- Since 1975, overall mortality has decreased by 50% but has not changed during the past 30 years.
- 7.5 maternal deaths per 100,000 live births
- Most common causes are pulmonary embolus, amniotic fluid embolus, and trauma.
- 0.5 % of pregnancies require ICU admission
- 12 - 20% mortality rate for obstetric patients admitted to ICUs.

Maternal ICU Admissions

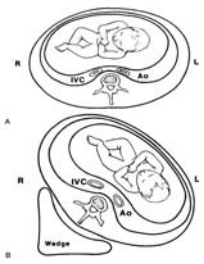
- Hypertensive Diseases (30%)
  - Eclampsia
  - Pre-eclampsia
  - HELLP
- Hemorrhage (20%)
  - Shock
  - Placental abruption
  - Postpartum hemorrhage
- Pulmonary Causes
  - Pulmonary edema
  - Pneumonia
  - ARDS
  - Asthma

Cardiac Mortality

Condition	***Maternal mortality***
Mitral stenosis	*0.1-6.0%*
NYHA class III or IV	*5.0-7.0%*
Aortic stenosis	*0-2.0%*
Pulmonary hypertension	*30-50%*
Mechanical heart valve	*1.0-4.0%*
Coarctation of the aorta	*0-2.0%*
All Marfan's patients	*0-1.1%*
with risk factors	*50%*
Eisenmenger's syndrome	*36%*
Cyanotic congenital heart disease	*1.0%*
Peripartum cardiomyopathy	
in current pregnancy	*18-50%*
in previous pregnancy with persistent LV dysfunction	*19%*
Myocardial infarction within 2 weeks of delivery	*50%*

Left lateral tilt position

Left lateral decubitus position increases maternal stroke volume by 30% with decompression of the inferior vena cava and the aorta by the gravid uterus.



Development of Condition O

Review of available literature regarding management of obstetrical emergencies included the JCAHO Sentinel Alert; Issue 30, "Preventing Infant Death and Injury During Delivery."

- **This Alert identified areas of concern in the management of obstetrical emergencies as contributing factors to many of the poor outcomes (injury or death) from reported cases of obstetrical emergencies:**
  - **A. poor communication between providers**
  - **B. failure to function as a team**
  - **C. staff competency, orientation and training**
  - **D. physician unavailability or delay**

Goals in developing an Obstetrical Crisis (Condition O)

- Most obstetrical patients are considered low risk but may develop high risk situations. Establishing an 'Obstetrical Crisis' is to prevent or mitigate deterioration of a potentially dangerous clinical situation for obstetrical patients.
- A multi-disciplinary team of senior experts immediately responds to the bedside to provide care, evaluate and treat the patient's clinical status.

Expectations

- Lower the number of "stat" clinical situations and deliveries.
- Quickly deliver a critical core group of providers to the bedside of any obstetrical patient with a deteriorating clinical condition.
- Encourage any hospital care provider, including nurses, residents or attending obstetrical staff to initiate this process.

Nomenclature

- A: Cardiopulmonary Arrest
- C: Medical Crisis
- O: Obstetrical Crisis: an antepartum/intrapartum patient demonstrating early signs and symptoms of a deteriorating clinical condition.

RED FLAG CHECKLIST

TASK MANAGEMENT

- Task Saturation
- Fixation / pre-occupation
- Failure to prioritize
- Being rushed, feeling pressured
- Deviating from normal practice
- Trying something new under pressure

SELF-MANAGEMENT

- Boredom / fatigue
- Personal problems – health: mental, physical
- Workload, multi-tasking
- Intuition:
  - "Doesn't feel right".
  - "Something feels wrong"

Condition O Baseline Criteria

- Acute vaginal bleeding or severe intrapartum bleeding
- Severe abdominal pain
- Difficulty documenting fetal heart rate
- Fetal bradycardia/decelerating fetal heart tones
- Inability to complete delivery
- Shoulder dystocia
- Eclampsia

Implementation of Condition O

1. Condition O team members were identified with team responsibilities outlined, and clinical criterion were established for initiation of Condition O.
2. An education plan was developed and a roll-out date agreed upon. The education process included presentations at Nursing education meetings, the Departments of Obstetrics and Anesthesia Grand Rounds, Obstetrical Resident teaching rounds, Quality Council meeting, and during initiation of Mock Codes.

Implementation of Condition O

3. A multidisciplinary task force defined the clinical criteria of an obstetrical crisis and the appropriate response team members and roles of the Condition O team.
4. The team was assembled, given pagers, and educated on the roles.

Condition O Team Members

- Critical Care Medicine physician
- Maternal Fetal Medicine attending or fellow and/or OB Hospitalist
- 4th year OB/Gyn Resident
- Staff anesthesiologist
- Labor suite nurse assigned to the patient
- Labor suite charge nurse or designee
- Administrative Clinician (AOD)

Action Plan

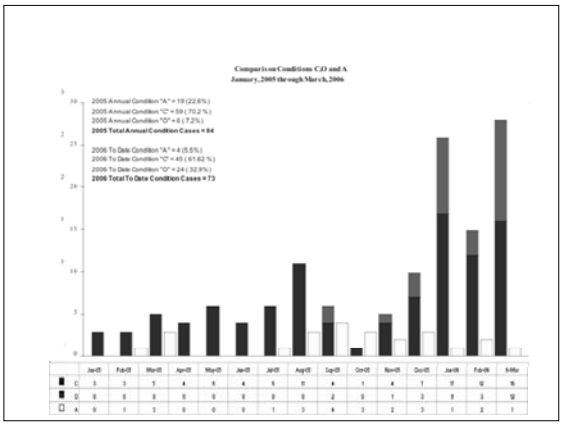
- **Developed a Peer Review process for Condition O cases which is similar to the review of Condition A and C.**
- **Review these cases for outcomes and identify concerns that relate to patient safety. Identify opportunities for process improvement to ensure quality obstetrical care and reduce the risk for medical error in Condition O events.**
- **Condition O is expected to be upgraded or changed to a Condition C or A if the patient's clinical situation so demanded.**

Follow Up

- **12/05 - Reinforced with staff the criterion for Condition O and the importance of initiating for emergent obstetrical situations.**
- **12/05 - Change Culture: If a Condition O was unnecessarily called, philosophy of "no blame" is imperative.**
- **1/06 - Developed plan to implement effective communication skills (SBAR).**
- **2/7/06 - Team Building Seminar presented to multidisciplinary healthcare staff.**
- **4/06 - Multidisciplinary rounds for labor suite patients every four hours.**
- **2006 Wiser Center Simulation Training for Condition O.**

Results

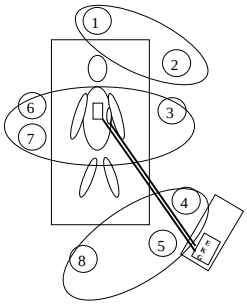
- **6/1/05 - 12/31/05, there were 6 Condition O's initiated.**
- **After reinforcement and reeducation with staff in 12/05, there have been 24 Condition O's initiated in 1/06-3/06.**
- **Continue to monitor Condition O cases and evaluate for trends.**



Education

- Teaching nursing unit personnel on the use of criteria for calling obstetrical emergencies.
- Teaching nurses and physicians how to recognize a pregnant patient with an obstetrical complication that requires senior-level obstetrical consultation and intervention.
- Teaching nurses and physicians in the initial stabilization and management of the pregnant patient with an obstetrical complication.

Team Roles & Goals



Role	Responsibility
1. Airway Manager	Assist ventilation, intubate
2. Airway Assistant	Assist ventilation, oxygen and suction setup, suction
3. Bedside Assessor	Assess enough patent IV's, push meds, defib pads, check pulse*
4. Crash Cart Manager	Access and prepare drugs from crash cart
5. Treatment Leader	Assess team, delegates duties, assess data, direct treatment, set priorities, triage patient
6. Circulation	Check pulse, perform chest compressions*
7. Procedure MD	Perform procedures: IV, chest tubes, ABGs
8. Data Manager	Results, chart, record interventions

Simulation Training for an Obstetrical Crisis

Course Maternal Condition "O" Urgent Cesarean Delivery with General Anesthesia

Dsalby PI, Gosman G, Stein K, Wise N, Nelson P, Simhan H, Pedaline, S, Waters J.

Peter M. Winter Institute for Simulation, Education and Research

Simulation Training

- One of the scenarios conducted at WISER is urgent cesarean delivery with general anesthesia, "stat c/s" which can be an emergency situation. .
- A preexisting high fidelity simulation center (WISER Institute) at our institution allowed development of a multidisciplinary Obstetrical Crisis Team Training Course (OCTT Course)
- Non-operating room training in urgent general anesthesia logistics for multi-disciplinary team participants is possible during this course, utilizing an Urgent Cesarean Section Algorithm as a format

Simulation Training

At WISER web-based study and pre-course surveys are reviewed, participants are briefed, then participate in a simulation scenario that is filmed and viewed.

Participants are then debriefed on performance, team organization, and communication skills. Post course surveys will evaluate long term participant reaction.

Simulation Training

Obstetrical, Nursing, and Anesthesia practitioners participate in the WISER course. At WISER similar roles to those at MWH are assumed by course participants and emergency scenarios acted out by participants who eventually must call a Condition O.

Results of the Simulation Training

- Participants have voiced appreciation of the logistical power of "Condition O", different disciplines problems, and crisis team dynamics appear enhanced immediately after the course.
- 8 out of 10 anesthesiology course participants responded to their experience with the OCTT course a mean of 3.5 months after taking the course.
- 100% of participants would recommend for other providers to take the OCTT course.

Well-functioning teams are critical

- Simulation training can build organized teams.
  - –Briefings, assertion, situational awareness, and clear communication are trainable skills.
- Very applicable to labor and delivery/OB teams.
- Teams using these skills prevent and treat problems more efficiently and more rapidly.