Mobile Obstetric Simulation & Team Training

Jeanne-Marie Guise, MD, MPH
Division of Maternal Fetal Medicine
Depts. OB/GYN, Med Informatics, Public Health
Oregon Health & Science University
guisej@ohsu.edu
• Review background information and statistics regarding obstetric safety

• To discuss the concepts of simulation and team training

• To present simulation & team training as a potentially potent tool to improve safety

• To discuss our experience developing, implementing, and evaluating a mobile obstetric simulation & team training program for rural settings
2006 Maternal Mortality per 100,000 live births

- Iceland: 0 (#1)
- Sweden: 2
- Austria: 4
- Denmark: 5
- Canada: 6
- Japan: 10
- United Kingdom: 13
- Singapore: 15
- United States: 17
- Afghanistan: 1900
- Sierra Leone: 2,000

WHO Monitoring & Eval July 2006
2006 Infant Mortality per 1,000 live births

- Singapore: 2.29 (#1)
- Sweden: 2.76 (#2)
- Hong Kong: 2.95 (#3)
- Japan: 3.24 (#4)
- France: 4.21 (#12)
- Canada: 4.69 (#23)
- United Kingdom: 5.08 (#28)
- South Korea: 6.16 (#40)
- Cuba: 6.22 (#41)
- Taiwan: 6.29 (#42)
- United States: 6.43 (#43)
- Angola: 183 (#225)

CIA fact book 2006
In the US
- Every 8 seconds a baby is born
- Every hour 3 babies die
- Every day 2 women die pregnancy-related deaths

In Oregon
- Every 12 minutes a baby is born
- Every other day a baby dies
- Every other year a mother dies from a pregnancy-related death
National Focus on Patient Safety

1999 – Institute of Medicine issues report “To Err is Human” based on NY and Colorado/Utah Study Data

– 44,000 die each year of medical errors (minimum may be as high as 180,000)

– errors occur in 2.9-3.6% of all hospitalizations (38 million/year)

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Rate of Adverse Events</th>
<th>Rate of Negligence in Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonatology</td>
<td>0.6%</td>
<td>25.8%</td>
</tr>
<tr>
<td>OB</td>
<td>1.5%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Medicine</td>
<td>3.6%</td>
<td>30.9%</td>
</tr>
<tr>
<td>Ortho</td>
<td>4.1%</td>
<td>22.4%</td>
</tr>
<tr>
<td>Urology</td>
<td>4.9%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Surgery</td>
<td>7.0%</td>
<td>28%</td>
</tr>
<tr>
<td>Neurosurg</td>
<td>9.9%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Cardiac surg</td>
<td>10.8%</td>
<td>23.0%</td>
</tr>
</tbody>
</table>

Communication and teamwork are consistently among the top contributors to adverse obstetric events:

- Audit of stillbirths in the UK found 75% of cases were associated with “suboptimal care” (CESDI 2000)
- The Joint Commission (JCAHO) sentinel event alert reported 2/3 of unexpected sentinel events attributable to human factors such as communication
- 31% of adverse events in closed malpractice claims attributable to communication problems (White 2005)
- In training institutions 70% of adverse events involved communication or teamwork failures
Joint Commission Recommends

- Teamwork training
- Drills of high risk events
- Develop clear guidelines for nursing interpretation of fetal tracings

IOM

“establish interdisciplinary team training programs for providers that incorporate proven methods of team training, such as simulation”
The Challenge

“Our staff is time constrained and it is hard to get them away from patient care to improve their patient care”

CEO, Hospital
Rural Obstetric Crisis

- **In US**
  - 1 in 7 OB/GYNs plans to stop delivering babies
  - Morbidity 3 times higher in rural vs urban areas
- **In Oregon**
  - 1 in 3 FPs, OB’s, CNMs plans to stop delivering babies
  - 66% planning to quit are in rural areas
  - **Reasons**
    - Liability premiums
    - Fear of lawsuits
    - Low volume
    - Skill level


Rural Sites Have Unique Challenges

• Smaller OB volume
• Need to be proficient in many fields
• Competing Educational Demands
• Limited Staff to Cover Time Away
• Limited Funds
• Higher Travel Costs
Our Question

Could a mobile simulation program that provides evidence-based education and practice through simulation at local sites be a potential solution?
Simulation: a good venue for adult learning

- **ACTIVE EXPERIMENTATION** - Simulation
- **CONCRETE EXPERIENCE** - Simulation
- **ABSTRACT CONCEPTUALIZATION** - Debriefing and education
- **REFLECTIVE OBSERVATION** - Video review

Adults learn and remember more when they participate actively in self-discovery and analysis compared to lectures (passive).
Adverse events are complex. *In situ* simulation advantages.

Adapted from Reason J. BMJ. 2000;320:768-770.
James Reason Human Error
Research Goals

– Develop and test a standardized curriculum for mobile simulation and team training

– Implement and evaluate the value in rural settings

– Measure teamwork in real-life clinical setting

– Understand how simulation applies to clinical care

AHRQ Contract: 1 U18-HS015800
TEAM SCHEDULE
7:30-7:45am  Intro & sign confidentiality forms
7:45-8:00am  OB Simulation # 1
8:00-8:15am  Debriefing #1
8:15-8:30  Team Training Didactic
8:30-8:45  OB Didactic #1
8:45-9:00 am  OB Simulation #2
9:00-9:15 am  Debriefing #2
9:15-9:30 am  OB Didactic #2
9:30-9:450am  Debriefing #2
9:45-10:00  Participant Evaluation

Typically, labor and delivery teams consist of 2 staff RNs and 1 obstetrical professional, but team composition is determined by the hospital.
Create Safe Learning Environment
assumption
confidentiality agreement
neutrality
Evidence based Education
Everyone is intelligent, well-trained, cares deeply for their patients and wants to improve
Simulation Video

AHRQ Contract: 1 U18-HS015800
What is debriefing?

A facilitated interdisciplinary discussion

A stepwise process designed to

– Analyze a critical event
– Examine what occurred and why
– Facilitate improvements
  • Manage repercussions of current event
  • Manage similar events better
  • Avoid event
– Highlight teamwork concepts
  • How we work together
  • How we work with resources/equipment
93% of nurses and physicians reported the program improves communication, teamwork, and patient safety in their hospital.

Objective measurable improvements in teamwork and individual team skills were observed after training.

Measured Improvements in teamwork over time across all practice types
   Both rural and urban improved
   Rural sites had unique areas of even greater improvement
Medication Errors

- Major medication errors occurred during simulations
- Almost 50% reduction in errors after training
- Safer medication behaviors noted 1 year later
- Reflecting learned behaviors that last

>80% of physicians, nurses, and staff felt that obstetric drills and team training were critical to their unit.
STORC's Clinical Teamwork Scale measures the efficacy of teamwork at your hospital. Every time you participate in a delivery, come here and fill out a survey. Each quarter, you’ll be able to see the latest aggregated results from your hospital.
### Clinical Teamwork Scale

**Ratings**

- **Overall:**
  - Unacceptable
  - Poor
  - Average
  - Good
  - Perfect

- **Communication:**
  - Not Relevant
  - Unacceptable
  - Poor
  - Average
  - Good
  - Perfect

- **Team:**
  - How many providers attended the delivery?
  - How many nurses attended the delivery?

- **Decision Making:**
  - Not Relevant
  - Unacceptable
  - Poor
  - Average
  - Good
  - Perfect

- **Other:**
  - Patient friendly
  - No
  - Other

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**Example Ratings:**

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<thead>
<tr>
<th>Overall</th>
<th>Unacceptable</th>
<th>Poor</th>
<th>Average</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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**Submit Evaluation**

- Reset
- Submit
Anonymous Safety Reporting

### Safety Reporting System

- Please allow 7 seconds for the Safety Reporting System to load.
- Do not report criminal activities on this form.
- This report does not substitute for your institution’s formal reporting.

<table>
<thead>
<tr>
<th>Step 1: Background</th>
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<tbody>
<tr>
<td><strong>Shift</strong></td>
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<td><strong>Service area</strong></td>
</tr>
<tr>
<td><strong>Involvement</strong></td>
</tr>
<tr>
<td><strong>What is Your Profession</strong></td>
</tr>
<tr>
<td><strong>Years in Profession</strong></td>
</tr>
<tr>
<td><strong>Type of Delivery Center</strong></td>
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<tr>
<td><strong>OB Volume</strong></td>
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<tr>
<td><strong>Number of Deliveries Participated in</strong></td>
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Please use the 'Next and Previous' buttons to navigate.

Note: To use the OB Safety Reporting System, you will need Flash Player II or above, which can be freely downloaded from [http://www.adobe.com](http://www.adobe.com).
Toolkits

- 10 minute educational module on teamwork with video examples
- Web-based system for evaluating clinical teamwork in everyday care
- Mobile program
  - Guides to simulation and teamwork
  - Evidence-based clinical didactics
  - Best evidence teamwork didactic
  - Objective evaluations
Perspectives
Thank you

Jeanne-Marie Guise, MD, MPH

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