Objectives

- List initial steps to develop simulation training for OB hemorrhage
- Review cognitive, technical and behavioral objectives for OB hemorrhage training
- Discuss scenario set up and tips for enhancing realism
- Describe critical behaviors for management of hemorrhage and how to capture performance during training

Scenario Development: Why hemorrhage??

- Leading cause of maternal morbidity and mortality world-wide
  - 1-3% of pregnancies affected within 24 hours of delivery

  http://www.cmqcc.org/resources/617

Key to Management of Obstetrical Hemorrhage:

*Early Recognition and Treatment*

Unit Data

- Sentinel events
- How do staff perceive they function during hemorrhage?
- Any problems or issues?
- Case review of hemorrhage can provide story for simulation

Disclosure:

No conflict of interest
Early Recognition

- Measurement of blood loss on all patients
  - Increase surveillance and notify provider when 500 ml mark noted

Early Recognition

- Trends in vital signs
  - Accuracy: measure HR and RR for one full minute counted with stethoscope
  - BP measured at level of heart, appropriate size cuff
- Early warning system

http://www.cemach.org.uk/

Early Warning System

- Assessment of:
  - Mental status
  - Heart rate
  - Respiratory rate
  - Systolic blood pressure
  - Temperature
- Documentation strategy that assists in alerting the bedside provider to changes in patient status

Management

- What are current issues on the unit?
- Develop or review guidelines for transfusion
- Trouble with the Pyxis...


Management

- Based on evidence, literature, best practice guides
  - Cognitive aids
  - Supply cart
  - Uterotonic medication kit

Aligning protocol with practice

- Does your unit follow your policies/procedures/protocols for hemorrhage?
- Does your system support the evidence based guidelines you expect staff to follow?
- Does your staff know how to use cognitive aids if available?
Cognitive Learning Objectives

- Maternal vital sign changes (narrowing PP, tachycardia and tachypnea) and appearance
- Most common cause of hemorrhage: Uterine atony
- Treatment of uterine atony including medications, procedures
- Massive transfusion guidelines (MTG) for blood administration

Technical Learning Objectives

- Quantitative measurement of blood loss
- Second IV: blood tubing, NS
- Activation of MTG and use of blood warmer for transfusion
- Correct use of balloon devices

Behavioral Learning Objectives

- Know your environment
  - Location of key supplies
  - Cart needed?
- Anticipate and plan
  - Emergency supply set-up
  - Second IV with blood tubing and NS

- Assume leadership role
  - Leader needs 'big picture'
- ERROR: task saturation
  - IF two MDs: one is the leader and one responsible for treatments
  - IF one MD: MD to perform tasks, documenter next to MD with cognitive aid, current VS until more help arrives

- Distribute workload effectively
  - MD – team leader
  - RN – IVs, medications
  - RN/OB technical staff – by MD for support
  - RN – patient support, VS assessment
  - RN – documentation, communication with charge nurse/nursing supervisor
**Behavioral Learning Objectives**

- Allocate attention wisely, use all available information/resources
- **ERROR:** fixation error
  - Over concentration on a resource or piece of equipment that has failed
  - Antidote: Think out loud

**Call for help**
- Interventional Radiology?
- Gyn Oncologist?

**Maintain professional behavior**
- Noise level in room
- Interaction with patient and family

**Simulation: Making it Real**

- Use an actual case for story
- Task trainer vs manikin
- In situ vs simulation center
- BLOOD
  - From 'patient'
  - To administer

**Task trainer vs Manikin**

- Task trainer
  - Actor plus pelvis
- Manikin
  - Mechanical: vital signs, blood loss

**In situ vs Simulation Center**

- In situ
  - Time constraints
  - Privacy for debriefing
  - Training observed by patients, families
- Simulation Center
  - Make setting as realistic as possible
  - Supplies and equipment

**BLOOD**

- Red cloth can simulate blood loss
- DO NOT use food products – encourages germ growth in manikin, task trainer
- Blood bags filled with fake blood
- Fake blood
  - Add blue colored dish soap for realism
  - BUT NOT WITH RAPID INFUSER
Develop critical behaviors list

- Recognition of symptoms, fundal massage prn
- Call for help promptly, alert care provider and anesthesiologist
- Oxygen per face mask at 8-10 L/min, keep patient warm
- IV access: send labs, 2nd line with blood tubing and normal saline
- Medications for PPH given/readily available
- Blood on standby or ordered
- Differential diagnoses, anticipate possible treatments

CMQCC Toolkit

- Components:
  - Develop or update policies and procedures for hemorrhage
  - Educate staff on P&P
  - Conduct briefings after each incident
- Measure blood loss on all patients
- Conduct drills with all staff
- www.cmqcc.org

References


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