Appendix G: Simulations and Drills Sample Scenarios

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Three sample postpartum hemorrhage scenarios are presented in this document:

- Uterine Atony Utilizing Manikin
- In Situ Postpartum Unit Hemorrhage
- In Situ Labor and Delivery Unit Hemorrhage

Sample Drill #1: Postpartum Hemorrhage - Uterine Atony Utilizing Manikin

Scenario Overview

Patient description: 'Renee Harper', 32 y.o. G2P1, 38 weeks' gestation, admitted for spontaneous labor, OB history remarkable for previous postpartum hemorrhage requiring transfusion.

Labor course: Epidural for pain management, spontaneous vaginal birth after a five-hour labor. No complications for mother or infant during the birth, occurring 30 minutes ago, epidural catheter removed, patient is holding infant.

History:
Medical: Unremarkable, OB history remarkable for previous postpartum hemorrhage
Surgical: Unremarkable
Social: Smoker for 5 years, stopped before first pregnancy

Baseline lab values: Labs WNL except Hct 24

Learning Objectives

Cognitive:

- States major causes of postpartum hemorrhage
- Lists changes in maternal physiology that may mask symptoms of hemorrhage
- Knowledge of policies and procedures for hemorrhage management, placement of tamponade devices and blood transfusion particularly massive transfusion

Technical:

- Provide adequate and continuous uterine massage.
- Administer uterotonic medications in correct dose, route and time
- Application of tamponade device to control bleeding per protocol

Behavioral:

- Communication during hand off is acknowledged by the receiver
- Concerns voiced about the patient or management plan are acknowledged by the team leader
- Team leader assigns roles if not already assigned or key role not filled

Target Trainees: Obstetricians, Labor & Delivery/Postpartum nurses

Anticipated Duration: 10 minutes

Scenario Set-Up

Room configuration: LDR bed against right wall, manikin in bed, IV pump with mainline, fetal monitor and patient monitor next to bed, wooden bedside cabinet next to bed

Equipment:

- Manikin, neonatal manikin swaddled
- IV (1000 mL LR with 20 units oxytocin) with IV pump set up with dump bucket
- Monitor for maternal VS (BP cuff, pulse oximeter)
- Red fabric
- Postpartum hemorrhage medication kit
- Tamponade device with stopcock, tubing, fluid for inflation
- Hemorrhage Cart

Manikin/task trainer preparations: Manikin in bed with thin amount of baby powder on face to give appearance of paleness, red cloth in uterus with approximately ½ yard in bed, Uterus boggy, starts to firm with medication administration, firm after tamponade device placed

Presets: Patient monitor: BP 120/90 → 80/40, HR 120 → 140, RR 24 → 32, SaO2 96% → 92%. With correct actions, bleeding resolves and vital signs return to preset levels. If correct actions not taken, vital signs continue to deteriorate and bleeding continues.

Pump: Mainline IV at 125 mL/hour

Initial Presentation: Patient in recovery room with infant, pale and shaky, diaphoretic

Miscellaneous: Medication cabinet for medication kit, second IV with blood tubing available if ordered

Chart Contents: Summary of Labor Course

Demonstration items needed in debriefing room: Tamponade device with items for placement, pelvis to demonstrate placement

Scenario Logistics (Running the Scenario)

Expected interventions:

- Fundal massage, extraction of clots
- Administration of medications (methylergonovine, carboprost)
- Order and placement of uterine tamponade device
- Assessment of patient response using clinical exam, VS, laboratory tests

Likely progression:

- Bedside nurse assesses patient, detects hemorrhage, starts uterine massage
- Calls for help
- Help arrives, hand off given to leader
- Roles established for other responders
- Medications given as ordered
- Bleeding continues and vital signs not responding
- Uterine tamponade device placed
- Patient improves

Expected endpoint: Tamponade device in place.

Distracters (if needed): Uncooperative family member

Additional/optional challenges (if needed): Delayed response to tamponade device, massive transfusion protocol activated

Video guidelines (Priorities to capture on video):

- Maternal vital signs
- Bleeding from pelvis
- Team communication
- Administration of medications
- Placement of tamponade device

Actor Roles:

- Family member
- RNs 2-3
- OB physician
- Information liaison

Debriefing Questions

Cognitive:

- What could cause bleeding or what is the differential diagnosis at this time?
- How do the changes in maternal physiology affect the signs and symptoms of hemorrhage?
- Based on this assessment, what are your priorities for patient care OR what is the plan for care?
- What prevented the team from carrying out the priorities for care or your management plan?

Technical:

- What supported or prevented continuous uterine massage?
- What facilitated or delayed medication administration?
- What uterotonic medications have major contraindications?
- Why would a uterine tamponade device be considered at this time?
- What blood loss management strategies are options for this patient?

Behavioral:

- How did communication improve or delay care of the patient?
- How did the communication between the leader and the team member giving report to leader impact patient care?
- What roles are filled and unfilled?
- What strategies can the team use to fill key roles that are not filled?

Scenario Support Materials

Reference List:

- Unit protocols, policies, and procedures
- Current bulletins and monographs from professional organizations, current literature used to guide practice
- Critical Behavior Checklist (below)
- Uterine Metrics List (below)
- Visual aids/cognitive aids: Manufacturer guidelines from uterine tamponade device used on your unit
- Hemorrhage guideline/algorithm

Scenario Support Materials

A. Critical Behaviors Checklist			
Behavior	**Met**	**Unmet**	**Comment**
Detection of hemorrhage			
Call for help, asks for specific help needed			
Uterine massage begins upon detection of boggy uterus, stopped upon physician order			
Handoff given in SBAR format			
Leader announces role to team			
Team roles are assumed			
Uterotonic medications given per policy			
Uterine tamponade device inserted per procedure			
Leader acknowledges team concerns			

B. Uterine Atony Metrics			
Metric Item	Measurement	Measurement	Comment
Time of diagnosis of hemorrhage to administration of first medication	Time Started:	Time Complete:	
Time help paged to time help arrived in room	Time Started:	Time Complete:	
Amount of time uterine massage was stopped unless directed by physician	Time Started:	Time Complete:	
Time from request for tamponade device to completion of insertion	Time Started:	Time Complete:	
Number of thin air or open air commands			
Number of thin air or open air communications			
Number of people in scenario without a role			
Roles not assigned or not filled during scenario			
Number of questions or concerns voiced about the management plan			

Sample Drill #2: In Situ Postpartum Unit Hemorrhage

Scenario Overview

Patient description: 'April March', 36 y.o. G6P4024 at 41w1d. On PPD1, patient called RN because she felt gush of fluid and it hasn't stopped.

Labor course: Admitted for active labor. Vaginal precipitous delivery within 4 hours of start of contractions. Baby's weight 4000g. EBL 500 mL.

History: No significant medical history.

Baseline lab values: WNL

Learning Objectives

Cognitive:

- States major causes of postpartum hemorrhage
- Knowledge of policies and procedures for hemorrhage management

Technical:

- Provide adequate and continuous uterine massage.
- Administer uterotonic medications in correct dose, route and time

Behavioral:

- Communication during hand off is acknowledged by the receiver
- Concerns voiced about the patient or management plan are acknowledged by the team leader
- Team leader assigns roles if not already assigned or key role not filled

Target Trainees: Obstetricians, Postpartum nurses

Anticipated Duration: 20 minutes

Scenario Set-Up

Room configuration: LDR bed with "patient"

Equipment (available but not location in the room):

- IV (1000 mL LR with 20 units oxytocin) with IV pump set up
- Monitor for maternal VS (BP cuff, pulse oximeter)
- Postpartum hemorrhage medication kit
- Hemorrhage Cart

Task trainer preparations: "Patient" in bed

Presets: Patient vitals on assessment: Temp 98.9F BP 85/40, P 130, RR 26, SaO2 88%. Pain 5/10. With correct actions, bleeding resolves and vital signs return to preset levels. If correct actions not taken, vital signs continue to deteriorate and bleeding continues.

Pump: Mainline IV at 125 mL/hour

Initial Presentation:

- Boggy fundus with fundal massage
- Pads weighed (600mL, 500mL, 200mL…etc.)

Miscellaneous: Medication kit, second IV with blood tubing available if ordered

Chart Contents: Summary of Labor Course

Scenario Logistics (Running the Scenario)

Expected interventions:

- MD is leader once they arrive
- Roles clearly defined for RNs, organized per policy

Examples:

- Primary bedside nurse – SBAR, delegate roles to extra RNs, documentation
- 2nd nurse – second IV, meds and hemorrhage cart
- 3rd nurse (PCA) – QBL
- 4th nurse (Tech) – run for blood if needed
- Anesthesia – could start second IV, can start pressors…etc.
- Fundal massage, extraction of clots
- Administration of medications (methylergonovine, carboprost)
- Assessment of patient response using clinical exam, VS, laboratory tests

Likely progression:

- RN checks on patient
- Upon assessment: Pale, diaphoretic and nauseated
- Primary RN calls for help
- Extra RN
- Physicians
- Emergency activation/phones/pagers used
- Follow hemorrhage guideline and use safety checklist

Expected endpoint: Hemorrhage protocol activated, all equipment located, and medication administered correctly.

Distracters (if needed): Baby crying and support person not present

Additional/optional challenges (if needed):

- Hemorrhage cart or other equipment missing or in an unexpected location

Video guidelines (Priorities to capture on video):

- Maternal vital signs
- Team communication
- Administration of medications

Actor Roles:

- Patient
- RNs 2-3
- OB physician

Debriefing Questions

Cognitive:

- What could cause bleeding or what is the differential diagnosis at this time?

- How do the changes in maternal physiology affect the signs and symptoms of hemorrhage?
- Based on this assessment, what are your priorities for patient care OR what is the plan for care?
- What prevented the team from carrying out the priorities for care or your management plan?

Technical:

- What supported or prevented continuous uterine massage?
- What facilitated or delayed medication administration?
- What uterotonic medications have major contraindications?

Behavioral:

- How did communication improve or delay care of the patient?
- How did the communication between the leader and the team member giving report to leader impact patient care?
- What roles are filled and unfilled?
- What strategies can the team use to fill key roles that are not filled?

Scenario Support Materials

Reference List:

- Unit protocols, policies, and procedures
- Current bulletins and monographs from professional organizations, current literature used to guide practice
- Critical Behavior Checklist (below)
- Uterine Metrics List (below)
- Visual aids/cognitive aids: QBL aides
- Hemorrhage guideline/algorithm

Scenario Support Materials

A. Critical Behaviors Checklist			
Behavior	**Met**	**Unmet**	**Comment**
Detection of hemorrhage			
Call for help, asks for specific help needed			
Uterine massage begins upon detection of boggy uterus, stopped upon physician order			
Handoff given in SBAR format			
Leader announces role to team			
Team roles are assumed			
Uterotonic medications given per policy			
Uterine tamponade device inserted per procedure			
Leader acknowledges team concerns			

Scenario Support Materials

B. Uterine Atony Metrics			
Metric Item	Measurement	Measurement	Comment
Time of diagnosis of hemorrhage to administration of first medication	Time Started:	Time Complete:	
Time help paged to time help arrived in room	Time Started:	Time Complete:	
Amount of time uterine massage was stopped unless directed by physician	Time Started:	Time Complete:	
Time from request for tamponade device to completion of insertion	Time Started:	Time Complete:	
Number of thin air or open air commands			
Number of thin air or open air communications			
Number of people in scenario without a role			
Roles not assigned or not filled during scenario			
Number of questions or concerns voiced about the management plan			

Sample Drill #3: In-Situ Labor and Delivery Unit Hemorrhage

Scenario Overview

Patient description: 'Carmela Bella', 28-year-old G3P2012 who was admitted for active labor at 40+1 weeks. Patient is 30 minutes postpartum and just called out that she feels more bleeding and is lightheaded.

Labor course: Uncomplicated spontaneous vaginal delivery after 6 hours in labor. 2nd degree laceration with repair. Placenta was noted to be intact. Infant male 3900 grams. IV 18 gauge in place and running Lactated Ringers with oxytocin 125mL/hr. Measurement of Quantitative Blood Loss (QBL) at delivery was 450mL.

History:

- No significant medical history
- No known drug allergies
- No pregnancy complications

Baseline lab values:
Hemoglobin: 10.8
Hematocrit: 35.6
WBC: 14,000
Platelets: 224,000

Learning Objectives

Cognitive:

States causes of hemorrhage in pregnancy

- Lists changes in maternal physiology that may mask symptoms of hemorrhage
- Demonstrates knowledge of policies and procedures for hemorrhage management, placement of tamponade devices and blood transfusion particularly massive transfusion

Technical:

- Provides adequate and continuous uterine massage
- Initiates OB Rapid Response
- Administers uterotonic medications in correct dose, route and time
- Initiates Massive Transfusion Protocol

Behavioral:

Communication during hand off is acknowledged by the receiver

- Concerns voiced about the patient or management plan are acknowledged by the team leader
- Team leader assigns roles if not already assigned or key role not filled
- Demonstrates teamwork and communication skills during simulation

Target Trainees: Obstetricians, Labor and Delivery Nursing Staff

Anticipated Duration: 20 minutes

Scenario Set-Up

Room configuration: LDR bed with "patient", IV pump with mainline, fetal monitor and patient monitor next to bed

Equipment:

- IV (1000 mL LR with 20 units oxytocin) with IV pump set up
- Monitor for maternal VS (BP cuff, pulse oximeter)
- Postpartum hemorrhage medication kit
- Hemorrhage Cart with appropriate supplies

Task trainer preparations: "Patient" in bed

Presets: Patient vitals on assessment: Temp 99.9F BP 80/40, P 144, RR 28, SaO2 90%. Pain 8/10. With correct actions, bleeding resolves and vital signs return to preset levels. If correct actions not taken, vital signs continue to deteriorate and bleeding continues.

Pump: Mainline IV at 125 mL/hour

Initial Presentation:

- Boggy fundus with fundal massage
- Pads weighed (200mL, 300mL, 200mL…etc.)
- Patient appears to be in and reports an unexpected amount of pain

Miscellaneous: Medication kit, second IV with blood tubing available if ordered

Chart Contents: Summary of Labor Course

Scenario Logistics (Running the Scenario)

Expected interventions:

- Assessment of patient response using clinical exam, VS, laboratory tests
- Fundal massage, extraction of clots
- Administration of medications (oxytocin, methylergonovine)

Likely progression:

- Bedside nurse assesses patient, detects hemorrhage, starts uterine massage
- Calls for help (initiates OB Rapid Response)
- Help arrives, hand off given to leader
- Roles established for other responders
- Ongoing assessment for clots, retained products of conception, uterine tone
- Medications given as ordered
- Bleeding continues and vital signs deteriorate
- Initiate Massive Transfusion Protocol
- Uterine tamponade
- Patient improves

Expected endpoint: Hemorrhage protocol activated, medication administered correctly, uterine tamponade device utilized, pain origin assessed.

Distracters (if needed):

- Patient expressing pain loudly and moving around a lot

Additional/optional challenges (if needed):

- Atony complicated by or in addition to the presence of chorioamnionitis/infect or vaginal hematoma

Video guidelines (Priorities to capture on video):

- Maternal vital signs
- Team communication
- Administration of medications

Actor Roles:

- Patient
- RNs 2-3
- OB physician

Debriefing Questions

Cognitive:

- What could cause bleeding or what is the differential diagnosis at this time?
- How do the changes in maternal physiology affect the signs and symptoms of hemorrhage?
- Based on this assessment, what are the priorities for patient care OR what is the plan for care?
- What prevented the team from carrying out the priorities for care or your management plan?

Technical:

- What supported or prevented continuous uterine massage?
- What facilitated or delayed medication administration?
- What uterotonic medications have major contraindications?
- Why would a uterine tamponade device be considered at this time?
- What blood loss management strategies are options for this patient?

Behavioral:

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Roles not assigned or not filled during scenario			
Number of questions or concerns voiced about the management plan			

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