

Resuscitative Hysterotomy

Section 1: Case Summary

Scenario Title:	Resuscitative Hysterotomy
Keywords:	ob-gyn, resuscitative hysterotomy
Brief Description of Case:	The team receives advance notification from EMS about a 30 year-old female who is visibly pregnant and was in a car accident. Upon arrival to the ED the patient loses pulses and CPR begins. The team must begin ACLS and proceed to resuscitative hysterotomy. After delivery they should begin neonatal resuscitation and continue management of the mother. Early consultation should be made to trauma surgery, NICU, and OB.

Goals and Objectives	
Educational Goal:	To expose learners to a resuscitative hysterotomy (aka perimortem c-section)
Objectives: (Medical and CRM)	<p>Medical Objectives:</p> <ol style="list-style-type: none"> 1. Demonstrate appropriate ACLS/ATLS involving a pregnant patient. 2. Demonstrate appropriate procedural steps for resuscitative hysterotomy 3. Appropriately manage neonatal resuscitation. 4. Demonstrate ability to manage two critically ill patients at once. <p>CRM Objectives:</p> <ol style="list-style-type: none"> 1. Demonstrate ability to lead a code team 2. Communicate effectively with team members. 3. Demonstrate appropriate resource utilization when managing two critically ill patients simultaneously.
EPAs Assessed:	<p>TD 1: Recognizing the unstable/critically ill patient, mobilizing the health care team and supervisor, and initiating basic life support</p> <p>F1: Initiating and assisting in resuscitation of critically ill patients</p> <p>C1: Resuscitating and coordinating care for critically ill patients</p> <p>C2: Resuscitating and coordinating care for critically injured trauma patients</p> <p>C13: Performing advanced procedures</p>

Learners, Setting and Personnel			
Target Learners:	<input type="checkbox"/> Junior Learners	<input checked="" type="checkbox"/> Senior Learners	<input type="checkbox"/> Staff
	<input checked="" type="checkbox"/> Physicians	<input type="checkbox"/> Nurses	<input type="checkbox"/> RTs
	<input checked="" type="checkbox"/> Inter-professional		
	<input type="checkbox"/> Other Learners:		
Location:	<input checked="" type="checkbox"/> Sim Lab	<input checked="" type="checkbox"/> In Situ	<input type="checkbox"/> Other:
Recommended Number of Facilitators:	Instructors: 1		
	Confederates: 1+ (RN, EMS, RT)		
	Sim Techs: 1		



Simulation Scenario Template

Section 5: Scenario Progression

Scenario States, Modifiers and Triggers				
Patient State/Vitals	Patient Status	Learner Actions, Modifiers & Triggers to Move to Next State	Facilitator Notes	
1. Baseline State Rhythm: PEA HR: --- BP: --- RR: --- O ₂ SAT: 75% with CPR T: 36 °C GCS: 3	Unresponsive, pulseless, EMS has started CPR.	<u>Expected Learner Actions</u> <input type="checkbox"/> Lead ACLS protocol <input type="checkbox"/> Uterine displacement <input type="checkbox"/> Monitors (pt + FHR/US) <input type="checkbox"/> O ₂ + airway support (BVM) <input type="checkbox"/> Vocalize plan for resuscitative hysterotomy and NRP <input type="checkbox"/> Consult to trauma, OB, NICU <input type="checkbox"/> Initiate massive transfusion	<u>Modifiers</u> <i>Changes to patient condition based on learner action</i> - RN can suggest consults - RN can suggest calling for blood <u>Triggers</u> <i>For progression to next state</i> - Once all steps complete, progress to phase 2.	Uterine displacement: Manually displace uterus to the left while pt remains on backboard and compressions ongoing U/S shows single live intrauterine pregnancy, large, head down, FHR 80s. FAST +, eFAST neg for ptx.
2. Resuscitative Hysterotomy VS unchanged after 5 mins	Unresponsive, pulseless	<u>Expected Learner Actions</u> <input type="checkbox"/> Perform resuscitative hysterotomy while CPR is ongoing (Note: help should be called for and team should be divided into two, one for mother, one for fetus) <input type="checkbox"/> Another learner to manage mother's airway <input type="checkbox"/> Deliver the baby, begin NRP <input type="checkbox"/> Deliver placenta, pack abdominal cavity, post-partum hemorrhage management	<u>Modifiers</u> - RN can suggest resuscitative hysterotomy - RN can suggest helping with neonatal resuscitation <u>Triggers</u> - CPR >5 mins	Steps for resuscitative hysterotomy detailed in facilitator notes
3. Mother: Rhythm: Asystole HR: 0 BP: RR: bagged/intubated O ₂ sat:	Infant is minimally responsive, gray, begins to cry with stimulation	<u>Expected Learner Actions</u> <input type="checkbox"/> Stimulate infant, warm with blankets, move to warmer, transfer care to NICU team <input type="checkbox"/> Call Ob (if not already done) <input type="checkbox"/> Continue with ACLS protocols for another 2 rounds, then stop resus	<u>Modifiers</u> - None <u>Triggers</u> - RN can suggest calling NICU if not yet involved	



Simulation Scenario Template

Appendix C: Facilitator Cheat Sheet & Debriefing Tips

Include key errors to watch for and common challenges with the case. List issues expected to be part of the debriefing discussion. Supplemental information regarding any relevant pathophysiology, guidelines, or management information that may be reviewed during debriefing should be provided for facilitators to have as a reference.

General Debriefing Plan: Group, Without Video

Medical Objectives:

1. Demonstrates appropriate ACLS/ATLS involving a pregnant patient.
2. Demonstrates appropriate procedural steps for resuscitative hysterotomy
3. Appropriately manages neonatal resuscitation.
4. Demonstrates ability to manage two critically ill patients at once.

CRM Objectives:

1. Demonstrates ability to lead a code team
2. Communicates effectively with team members.
3. Demonstrates appropriate resource utilization when managing two critically ill patients simultaneously.

Sample questions for debriefing:

1. What is the incidence of maternal cardiac arrest? (1 in 30,000)
2. What are the survival rates for resuscitative hysterotomy? Maternal survival 54% neonatal survival 64%
3. How do you perform a resuscitative hysterotomy?

Indications - Maternal arrest + fundus above umbilicus

Procedure - SMACC video by Sara Gray (<https://vimeo.com/187765197>)

4. What is your approach for simultaneously managing two resuscitations?
5. How do you manage utilizing additional services and keeping control of the code?
6. How do you debrief your team after a death or near death in not one, but two patients?

Key Moments:

1. Think of perimortem c-section as resuscitative hysterotomy to save the life of the mother and the fetus if possible.
2. Recognize the challenge of managing two critical patients at once and effectively utilizing your team and delegating appropriately.
3. Walk through the steps of resuscitative hysterotomy.

References

1. Marx, J.A., Hockberger, R.S., Walls, R.M. & Adams J. (2013). *Rosen's emergency medicine: Concepts and clinical practice*. St. Louis: Mosby.
2. Campbell TA, Sanson, TG. (2009). *Cardiac arrest and pregnancy*. J Emerg Trauma Shock. 2(1):34-42.
3. EMDocs website accessed 17 June 2018: www.emdocs.net/core-em-peri-mortem-c-section/
4. Einav S, Kaufman N, Sela HY. (2012). *Maternal cardiac arrest and perimortem caesarean section*. Resuscitation. 83(10):1191-200.

