Training the Next Generation: Integration of Abortion info Clinician Education Teaching Surgical Skills with Simulation Models

D&E Capstone Experience Coupled with an Emergency Scenario

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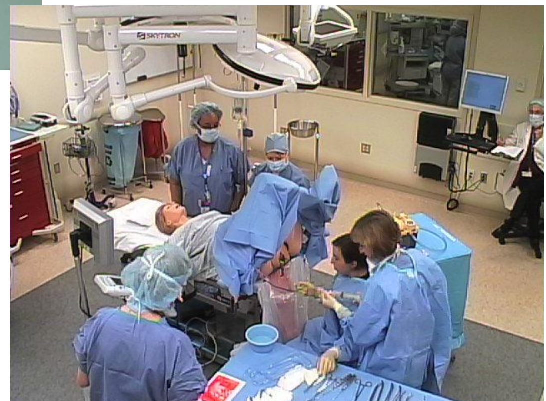
Description: In this scenario, a full L&D is simulated using high fidelity techniques. This includes the full use of a NOELLE model, in stirrups, with a technical team that adjusts her vitals and condition to indicate emergency or hemorrhage. We have created a foam gravid uterus that we fill with packaging peanuts. The residents are given a case (example below) while at the "scrub sink." They are then evaluated from the time they enter the OR suit—everything from introducing themselves to the patient, team interaction, correct use of a time out, antibiotic provision, etc. is monitored and evaluated. The resident then walks through the steps of a second-trimester D&E as the primary surgeon. This acts as a capstone experience and evaluation for upper level residents. An emergency then ensues, usually hemorrhage, which the residents must then diagnose and treat. Each case takes about 6-10 minutes total and we usually do about 6 simulations with 6 residents a year.

Clinical case: Rebecca Ryan is a 29 yo G2P1001 who was diagnosed yesterday at 18+3 weeks with an IUFD. She has been talking with her husband and her obstetrician about her delivery options including expectant management, induction of labor, and D&E. She is obese with a h/o mild asthma. She has had an SVD without complications 2 years ago. This morning she presented to the BWH ED with a temperature of 101.3, a WBC of 19.6, normal coagulation studies, and uterine cramping. Her cramping has resulted in 2 cm of cervical dilation. Due to the evidence of uterine infection, you and your ward attending have decided to proceed with IV antibiotics and an urgent D&E in the Main OR.

Equipment:

- Noelle
- Bed with stirrups
- Fake blood
- u/s
- u/s images
- D&E kit/tubing/cannula
- Foley bulb and syringe (60cc)
- "cytotec"
- Bakri balloon
- Uterus
- Uterine contents
- Suction machine
- D&E kit (with sophers and bierers)
- OSCE checklist
- Test Questions



Strategies for specific learners:

- Junior residents or residents who have opted out of family planning: this turns into a teaching moment, walking the resident through the steps with much more guidance
- Senior residents: They are put in the hot seat and definitely feel the pressure as NOELLE decompensates and the whole team is looking to the resident for management suggestions
- Residents who have opted out of family planning: We have always made our patient an 18 week IUFD with early DIC as a means of avoiding the issue of pregnancy termination, while emphasizing to these ob-gyn residents that a STAT D&E is the best/only option in care and that it is wise to have this skill set.
- The operative emergency could be switched up from hemorrhage—cardiopulmonary arrest for example, depending on what is needed for your trainees.

Additional tips: The sky's the limit provided you have this type of simulation lab!

Learning Objectives:

- Understand the surgical steps of second trimester D&E
- Troubleshoot the differential diagnosis of hemorrhage with D&E
- Be familiar with the treatment options for hemorrhage with D&E
- Demonstrate good communication and professionalism with the surgical team in the setting of crisis

Outline of simulation teaching session:

I. Dilation and Evacuation
   a) Review of clinical points
      a. D&E steps
      b. D&E emergency troubleshoot
   b) Review order of procedure
   c) Practice on NOELLE

BWH D&E HEMORRHAGE STRATUS SIMULATION CLINICAL SCENARIO

Clinical Background (*the resident will read the following paragraph before entering the OR*):

Rebecca Ryan is a 29 yo G2P1001 who was diagnosed yesterday at 18+3 weeks with an IUFD. She has been talking with her husband and her obstetrician about her delivery options including expectant management, induction of labor, and D&E. She is obese with a h/o mild asthma. She has had an SVD without complications 2 years ago. This morning she presented to the BWH ED with a temperature of 101.3, a WBC of 19.6, normal coagulation studies, and uterine cramping. Her cramping has resulted in 2 cm of cervical dilation. Due to the evidence of uterine infection, you and your ward attending have decided to proceed with IV antibiotics and an urgent D&E in the Main OR.

Clinical Scenario:

The resident and attending perform a standard D&E. The attending will monitor the steps performed and coach when necessary. The uterus feels empty and the u/s demonstrates a thin endometrial stripe. (First ultrasound picture displayed here).

Uterine atony develops with brisk bleeding noted (MA and attending comment "that's quite a bit of bleeding).
VS: HR 110, RR20, BP 120/70

The u/s image changes to indicate a thickened stripe. (Second u/s image displayed here)

Attending prompts resident for a DDx list and medical management of atony. The surgical nurse asks for an update and how she can help.

Continued bleeding
VS: HR 128, RR20, BP 100/50
Anesthesiologists asks if she should call for blood or for help
Attending prompts resident for other interventions (foley vs. Bakri vs. transfer), prompt resident for labs that might be desired

Continued bleeding
VS: HR 140, RR22, BP 90/40
Bleeding through catheter of foley vs. Bakri

Scenario Ends when resident calls for transfer to Main OR or IR

Cast of Characters:

1.) Anesthesiologist: Deb Campbell

Professional, congenial, competent. Will alert gynecologists to vital signs, will answer questions, will transfuse/fluid resuscitate, etc. as appropriate when told by the gynecologists as appropriate. May prompt the resident, "would you like me to give any meds, call for blood, etc." "Can we do a surgical pause" etc.

2.) Attending: Alisa Goldberg

Supportive, experienced, calm. Will tell the resident at the start of the case that "they are experienced enough that I am going to mostly just observe." Will prompt the resident to talk them through 1.) the D&E, 2.) the DDx when the brisk bleeding starts, 3.) Medical management of atony, and 4.) other management of atony. May prompt through other aspects of care as desired, "Did we already do a surgical pause?" or "Do you want to update anesthesia…" "… ask anesthesia for fluid recesitation…" etc.

3.) Medical Assistant: Jenn Muller

An assistant with a technical degree and informal ultrasound training. She will perform the u/s throughout the case, observing when the uterus looks empty based on u/s and when it looks to be welling up with blood. When atony develops, will comment, "That sure looks like a lot of bleeding") May assist in OSCE performance checklist.

4.) Nurse/Scrub Tech: Nancy Falconer

Will be in and out of the room sporadically, getting supplies, etc. Will come into the room as the bleeding increases, will ask, "What's going on, is there anything I can help with" and will expect to be filled in by the resident on the new complication. Will get supplies and make telephone calls to IR, Main OR, etc. as needed.

5.) Alternating observers/debriefers: Joan Bengtson and Julianna Schantz-Dunn

Will use videotape, direct observation, and the OSCE checklist to debrief each resident after the scenario

BWH D&E Hemorrhage STRATUS Simulation OSCE Checklist

		PERFORMED	NOT PERFORMED
1	Surgical pause		
2	Check with anesthesia to confirm appropriate level of sedation before starting		
3	Confirms need for cervical block ± vassopresin		
4	Overall, D&E simulated		
5	Demonstrates complete DDx of hemorrhage		
	• Atony		
	• Retained POCs		
	• Perforation		
	• Cervical/Vaginal laceration		
	• DIC		
6	Communicates bleeding/atony to anesthesia		
7	Requests additional help (nursing)		
8	Demonstrates ability to update nurse		
9	Demonstrates/communicates need for fluid resuscitation/blood products to anesthesia & staff		
10	Demonstrates knowledge of medical management of atony		
	• Methergine		
	• Pitocin		
	• Cytotec		
	• Hemabate		
11	Demonstrates conservative interventions for uterine atony		
	• Bimanual message		
	• Foley bulb		
	• Bakri Balloon		
12	Demonstrates need for transfer & transfer options		
	• IR		
	• Main OR (open lap vs. L/s)		

BWH FAMILY PLANNING STRATUS SIMULATION QUESTIONNAIRE

Unique identifier : ________________________

Circle your year : PGY1 PGY2 PGY3 PGY4

Please estimate the number of procedures you have performed:

1st trimester D&E's ________

2nd trimester D&E's ________

Emergent or urgent D&E's ________

How do you feel about the following:

1.) My surgical skills are:	poor	fair	average	good	excellent
2.) I feel confident doing a D&E in pregnancy if necessary:	poor	fair	average	good	excellent
3.) My confidence level in handling surgical variance in vaginal surgery is:	poor	fair	average	good	excellent
4.) My confidence level in handling surgical emergencies in vaginal surgery is:	poor	fair	average	good	excellent

How do you feel about your success with various methods of learning:

1.) Didactic lectures:	poor	fair	average	good	excellent
2.) Simulation workshops/OSCE:	poor	fair	average	good	excellent
3.) Learning by clinical experience	poor	fair	average	good	excellent
4.) A combination of the above:	poor	fair	average	good	excellent