Simulation: Breech Vaginal Delivery

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Target Audience: OB/GYN, Family Medicine Residents

ACGME Competencies Addressed:

- Patient Care
- Medical Knowledge
- Interpersonal and Communication Skills

Learning Objectives*:

- Understand the risk factors for Breech Vaginal Delivery
- Be able to communicate the critical tasks that should be performed when this complication occurs
- Demonstrate the proper technique for basic maneuvers to safely deliver a breech vaginally
- Be able to communicate effectively with the delivery team during a breech vaginal delivery

*See ACOG Breech Vaginal Delivery Simulation Learning Objectives for complete list.
1.0 Example Case Scenarios

CLINICAL SCENARIO
A 39 y/o G5P4004 at 36 weeks presents to triage with the complaint of rupture of membranes. She describes onset of contractions approximately 4 hours ago with increasingly more painful contractions. She also reports a thick brown discharge. She denies any complications with this pregnancy. She reports that her provider checked her in the office on Monday and told her that she was 1 cm dilated and 50% effaced. Her history is otherwise uncomplicated and she has had 4 previous term vaginal deliveries.

CLINICAL SCENARIO
A 26 y/o G3P2002 at 37 weeks presents to the triage room of Labor and Delivery. On exam the fetus is in a breech presentation with the buttocks visible at the introitus without pushing. The fetal heart rate is 150 beats per minute. The estimated fetal weight is 7lbs. The patient states that she has had two vaginal deliveries of 8lb infants and she does not want a cesarean section. Her prenatal course has been uncomplicated.
2.0 Pre-Simulation Briefing/Orientation:

- Do a thorough orientation to the room, equipment and mannequins. This should take approximately 10 minutes.

- Explain that you are using staff actors as nurses who will respond to requests but will not initiate actions.

  *If you are conducting a multidisciplinary simulation, then the providers will work in their normal roles and you will not need staff actors.

- Set the stage for the simulation by doing the following:
  - Discuss what the learning objectives are for the day, i.e. closed loop communication, leadership in a crisis, demonstration of maneuvers to deliver a breech vaginally, etc.

- Read these basic instructions to all participants

  You will be briefed by the simulation staff and then come to the room when requested.

  You may ask questions if you have them, and please remember to:

  1. Treat the scenario as real as possible
  2. Use personal protection equipment (gloves, etc) as needed
  3. Request assistance if needed
  4. Please do not cut the perineum, but indicate if you would make an episiotomy
  5. Ask for medications if you feel that you require them
  6. You may request to move the patient to the OR if you feel this is necessary
3.0 Simulation Setup

Simulators to be used:
The simulator that will be utilized for this will be a birthing mannequin with the ability to simulate a breech vaginal delivery. Some common simulators used for this are the NOELLE, PROMPT, Sophie’s Mum, or SIMMOM birthing mannequins.

For most simulators, a staff member will push the fetus out in the breech position. Some of the simulators (NOELLE) can also be delivered with the assistance of an internal birthing motor.

Room Setup:
The room should be set up similar to a delivery room. If you have the facilities, you may have another room set up as an operating room, though the goal of the scenario is for the resident to perform a breech vaginal delivery.

The simulator is set up on an examination table, gurney, or bed with the lower torso draped.

A delivery table should be available with the basic equipment as listed below.

Additional tools should be available such as Piper Forceps. These should not be visible at the beginning of the simulation, but available if requested.

If video recording is going to be done, then either a staff member will hold this or you can set up a tripod to the side of the bed. Any commercial camcorder or other recording device can be used. Make sure that during the initial briefing you explain that videotaping is for learning purposes only. Decisions on whether or not to retain any recordings should be in compliance with your department’s policies and procedures.

Figures 1 - 4: Examples of Birthing Simulators:

Figure 1: NOELLE birthing mannequin (Gaumard Scientific, FL)
Figure 2. PROMPT birthing trainer (Bristol, UK)

Figure 3. SimMom birthing simulator (Laerdal, NY)
Additional Equipment needed:

- None

Optional Equipment:

- Fetal Monitoring: Fetal heart rate monitors may be used to demonstrate a terminal bradycardia during the breech vaginal delivery. Incorporating this into the training to produce a fetal bradycardia as the fetal legs/buttocks delivers helps add to the realism of the scenario.

- Programmable fetal monitoring simulators are also commercially available.

If you do not have a fetal heart rate simulator other effective options include:

  o Verbalize the FHR to the residents during the scenario

  o Use your own fetal monitor and tap on the ultrasound (the one used to detect fetal heart tones) to recreate a bradycardia (be sure to place gel on the ultrasound monitor to enhance the sound)

  o Use a metronome app from a smart phone to reproduce the fetal heart sounds

Personnel needed:
- Staff to control fetus and maternal mannequin (1)
- Staff to play role of the Nurse (1-2) (unless doing multidisciplinary training)
- Staff to create fetal heart tones (if no fetal heart rate simulator is available)

**Optional**
- Staff to video record (1)
- Staff to play role of patient and patient’s family (mother, sister, husband, or partner) (1-2)
- Staff to play pediatrician (*unless you are doing a multidisciplinary simulation)

### 4.0 Basic Scenario Tips

**Answers to common questions that come up:**

- The staff playing the nurse, patient or family member role can help to increase the realism of the scenario by making comments like “the baby looks really blue” or “is the butt supposed to come first?”.

- It is not necessary for the staff/actor holding the fetus to make the scenario more difficult with a nuchal arm (unless that is one of the objectives)

- Consider enlisting “actors” with some clinical experience. This will allow them to better answer clinical questions posed by learners as well as respond to spontaneous actions of learners that may be difficult to predict.

**Common pitfalls to monitor for:**

- Use plenty of lubrication for the fetus. The mannequins generally come with some silicone lubricant that may work well. Other options: ultrasound gel or commercial vaginal lubrication. Remember that the fetus will not deliver without this and will tear the perineum.
- Make sure to tell the providers to only simulate an episiotomy if they feel that one is necessary and NOT to actually cut the mannequin! (Some mannequins come with a precut episiotomy.)
5.0 Case Flow/Algorithm with branch point and completion criteria:

1) Setup the delivery simulator as described

2) Brief the resident on the initial clinical scenario

Resident enters the patient’s room

The assistant playing the role of the patient or spouse/family informs the resident that the she/patient is having pressure and has to push.

*Give the resident a chance to counsel the patient about breech vaginal delivery before pushing the baby out if they begin to discuss this.

Scenario can move to operating room or stay in labor and delivery room depending on facilities available/location of training

Once set up in appropriate room, the assistant/actor can push the fetal head until the buttocks begins to deliver in the sacrum anterior position and then allow the resident to prepare for delivery of the breech fetus

Resident should recognize the breech presentation and begin maneuvers to deliver the infant

Respond to maneuvers with feedback if they ask questions
Be prepared to have Piper forceps available, but do not provide unless they ask for them

When the resident has completed the delivery, clearly tell them the scenario is over

*Examples of different endpoints you may also use:

- Require resident to utilize piper forceps for delivery
- Require resident to reduce nuchal arms
- If multidisciplinary, may also have pediatrics/nursing perform initial resuscitative efforts for newborn
6.0 Post-Simulation:

- Have the resident (and nursing staff if participating) write their delivery notes/documentation.

- You may use the Breech Vaginal Evaluation Forms (see Section 7.0)

- Gather the resident and/or team together to debrief and review performance.
7.0 Breech Vaginal Delivery Evaluation Form

Provider Name ____________________________ Date ___________________

Training Site ______________________________ Evaluator __________________

Training Level: (Circle One)

PGY-1 / PGY-2 / PGY-3 / PGY-4

1. Assess actual performance during breech vaginal delivery drill:

INITIAL TASKS:

1) Clearly verbalizes diagnosis of breech presentation  Yes  No
2) Performs brief verbal consent explaining risks/benefits to patient/partner regarding breech vaginal delivery  Yes  No
3) Calls for additional obstetric provider within 60 seconds of diagnosis of need for breech vaginal delivery  Yes  No
4) Calls for anesthesia support  Yes  No
5) Calls for personnel to assist in resuscitation of infant (may be pediatrics/nursing/other provider)  Yes  No
6) Suggests moving to the OR  Yes  No
7) Specifies potential additional needs for delivery
   • Towel  Yes  No
   • Piper forceps  Yes  No
8) Allows breech to deliver to level of umbilicus with maternal effort only  Yes  No
9) Delivery of legs:
   - Splints medial thigh, parallel to femur and sweeps laterally to deliver leg  Yes  No
   - Repeats on second leg  Yes  No
10) Places towel on fetal trunk  Yes  No
11) Grasps fetus by sacrum with fingers in groin and applies gentle downward traction until scapula is visible  Yes  No
12) Delivery of arms:
   • At level of scapula, rotates infant so shoulder is anterior and sweeps first arm across the fetal chest to deliver  Yes  No
   • Rotates infant so other shoulder is anterior and then repeats on second arm  Yes  No
13) Re-wraps the entire body of the fetus in the towel for support  Yes  No
ACOG BREECH VAGINAL DELIVERY SIMULATION - FORMATIVE EVALUATION

MAURICEAU-SMELLIE-VEIT MANEUVER (if Piper forceps not utilized)

14) Index and middle finger are applied over maxilla to flex the head while the body rests on palm and forearm
   Yes No

15) Two fingers of the other hand are hooked over neck, grasping shoulder, and gentle downward traction is applied
   Yes No

16) Suprapubic pressure applied by an assistant
   Yes No

PIPER FORCEPS (if utilized)

17) Asks for and recognizes Piper forceps
    Yes No

18) Performs a phantom application prior to placement
    Yes No

19) Applied after the shoulder and arms have been delivered and the head is in the pelvis with chin posterior for assistance in flexion
    Yes No

20) Infant held in towel by an assistant. Not above a horizontal plane
    Yes No

21) Left blade applied first, infant’s body carried toward mother’s right side
    Yes No

22) Operator assumes a seated/kneeling position, left blade held by left hand with handle below mother’s right thigh and beneath the body of infant. Toe to blade guided into the vagina with the operator’s right hand
    Yes No

23) Handle is swept in arc downward and towards the midline while the toe of the blade passes into the pelvis along the side of the infant’s head to the right ear
    Yes No

24) Right blade introduced in same manner
    Yes No

25) Shanks are locked, infant allowed to straddle the forceps
    Yes No

26) Downward traction in the direction of the handles applied until the chin appears at the outlet
    Yes No

27) Handles are elevated with the traction to conform to the curve of the pelvis and preserve head flexion. The body rests on the shanks of the forceps, while neck is splinted by the fingers of the operator’s left hand
    Yes No

28) Extraction is performed with the handles close to the horizontal, Delivering the head with the forceps still in place
    Yes No
ACOG BREECH VAGINAL DELIVERY SIMULATION - FORMATIVE EVALUATION

INAPPROPRIATE ACTIONS:

1) Appears to apply excessive force or traction while attempting delivery

2) Begins to attempt to assist delivery and apply traction before fetus delivers to the level of the umbilicus

3) Fails to keep the fetal head flexed during delivery

OVERALL SKILL LEVEL

Please rate the performance level of this provider based on the following scale (CIRCLE CHOICE):**

<table>
<thead>
<tr>
<th>Novice</th>
<th>Advanced Beginner</th>
<th>Competent</th>
<th>Proficient</th>
<th>Expert</th>
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<tbody>
<tr>
<td>• rigid adherence to taught rules or plans without consideration of unique aspects of the situation</td>
<td>• limited situational awareness</td>
<td>• Able to cope with multiple activities, accumulation of information</td>
<td>• holistic view of situation</td>
<td>• transcends reliance on rules, guidelines, and maxims</td>
</tr>
<tr>
<td>• no exercise of discretionary judgment</td>
<td>• all aspects of work treated separately with equal importance</td>
<td>• some perception of actions in relation to goals</td>
<td>• prioritizes importance of aspects</td>
<td>• intuitive grasp of situation based on deep, tacit understanding</td>
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<td></td>
<td></td>
<td>• demonstrates deliberate planning</td>
<td>• perceives deviations from the normal pattern</td>
<td>• uses “analytical approaches” in new situations or when case becomes more complicated</td>
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<td></td>
<td></td>
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<td>• employs maxims for guidance, able to adapt to the situation at hand</td>
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References:


8.0 Debriefing / Feedback:

1) Communication/Teamwork

- Instructors should meet after the scenario before the debrief to discuss what deficits (if any) were noted that need to be emphasized in the debrief. It may help to make a short list of the most important teaching points that you want to cover.

For Breech Vaginal Delivery, critical teaching points that should be emphasized include the following:

- Verbalizing that there is a breech presentation and calling for help in a timely manner
- Performing counseling regarding vaginal breech delivery and at least considering moving to the operating room, even when the delivery will be completed vaginally.
- Directed communication with check-backs with other team members during the delivery
- Appropriate use of assistants
- Keep the patient/family informed of what is going on in a calm and appropriate manner

2) Medical Care/Technique/Documentation

- Knowledge of standard maneuvers required for breech delivery
- Performance of informed consent explaining risks and benefits of breech delivery, including head entrapment.
- Avoidance of improper maneuvers
- Appropriate progression through maneuvers if initial ones do not result in delivery
- Calling for pediatrics in time for them to be present when delivery occurs
- Documentation after the event
- How would you discuss this complication with the patient?
- What are important things to discuss with regards to risks for subsequent deliveries?

3) Debriefing/Providing Feedback

- Start by asking for a quick summary from the participants, allowing them to vent about the simulation (they will often note their own deficits at this time).
ACOG BREECH VAGINAL DELIVERY SIMULATION - FORMATIVE EVALUATION

- Add factual/didactic information as needed but make sure to include a discussion of teamwork and communication
- You may utilize the Breech Vaginal Delivery Evaluation Form (Section 7.0) as a guide to discuss the technical parts of the procedure and performance.
- If you have time or want to, you may allow the resident to practice maneuvers and/or go through the delivery again after the debriefing.
- Use video if desired. Showing the video all the way through is usually not necessary. Instead, choose what scenes you want to use from the video, i.e. things done well and things that need improvement.

9.0 Hypothesis of multidisciplinary debriefing with adult learners:

The creation of a confidential, non-judgmental "safe zone" – an environment where learners feel “safe” both from causing patient harm and from experiencing personal condemnation during the training course or afterwards – may allow for a more thorough and dispassionate review of errors committed.

The risk of using a more aggressive or confrontational debriefing style is if a learner feels threatened or embarrassed, they may “shut down” or become “closed” to the acquisition of new cognitive, technical, or behavioral information.

Sample debriefing questions/techniques:

- What was the first thing you noticed?
- As things started going wrong what were you thinking?
- Do you think you called early enough for help?
- What did you need the help to do for you?
- At different points in the scenario, stop the tape and ask what is your differential diagnosis right now?
- Review the communication as help came in the room:
  - Ask the secondary responders: "As you entered the room, did you feel you got enough information"
• What are the best ways to make sure you communicate effectively?
  (examples: use names, have them repeat your orders back, use firm tone and intonation)

• What can you do when a conflict arises during a crisis?

• Review the difficulty with multitasking

• Separate medical issues i.e. what meds to give, maneuvers to perform, from systems/communications issues

• How did you make that decision? What are the pros and cons of the action?

Additional Teamwork/Communication Questions

1) How well did the team orient new members to the situation as they arrived? (Situation / Background / Assessment / Recommendation)

2) Did the team use Directed Communication (using names) during the scenario?

3) Did the team have a Shared Mental Model (all members of the team understood what was going on and what should happen next)?

4) Give examples of where the team used Closed Loop Communication

5) Did the team use Patient Friendly Language and Tone during the simulation?