Scenario Delivery Rule Book

Rules for Simulation Scenario Encounter Delivery and Documentation

Simulation-based Assessment Research Group

Note: This document has been edited for clarity from the original document used by the study team so as to be clearer and more useful to others.

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1. **For "in the OR" cases, these drugs are to be available in syringes on top of the anesthesia cart:**
   - Propofol (10 mg/ml) in a 20 ml syringe
   - Etomidate (2 mg/ml) in a 20 ml syringe
   - Succinylcholine (20 mg/ml) in a 10 ml syringe
   - Rocuronium (10 mg/ml) in a 5 ml syringe
   - Fentanyl (50 mcg/ml) in a 5 ml syringe
   - Midazolam (1 mg/ml) in a 2 ml syringe
   - Atropine (0.1 mg/ml) in a 10 ml syringe ("code box")
   - Ephedrine (5 mg/ml) in a 10 ml syringe
   - Phenylephrine (80 mcg/ml) in a 10 ml syringe
   - Lidocaine 2% in 5 ml syringe
2. **For "in the OR" cases, these drugs are to be available in the drawer of the anesthesia cart or otherwise *immediately* available:**
   - Lidocaine 100 mg (10 mg/ml) in "code box"
   - Epinephrine syringe (0.1 mg/ml) in "code box"
   - Epinephrine as an infusion (4 mcg/ml) 250 ml bag
   - Phenylephrine as an infusion (40 mcg/ml) 250 ml bag
   - $CaCl_2$ (100 mg/ml) in "code box"
   - Esmolol (10 mg/ml) in 10 ml vial
   - Metoprolol (1 mg/ml) in 5 ml vial
   - Vasopressin (40 U/ml) in 2 ml vial
   - Neostigmine (1 mg/ml) in vial
   - Glycopyrrolate (0.2 mg/ml) in vial
   - Naloxone (1 ml of 400 mcg/ml) in vial
   - Ondansetron (0.4 mg/ml) in vial
   - Droperidol (2.5 mg/ml in 2 ml) vial
3. **For "out of the OR" cases, drugs to be immediately available (same packages, sizes, and presentations as item #1 above):**
   - Fentanyl
   - Midazolam
   - Naloxone
   - Ephedrine
   - Esmolol
   - Metoprolol
4. **All other drugs must be ordered from the "pharmacy" and will take at least 5 minutes to be delivered to the care location.**
5. **If participants ask for dantrolene or lipid emulsion, they will receive only the drug requested.**
   - Participant must ask for "Local Anesthetic (or LA) toxicity kit or Malignant Hyperthermia (or MH) cart or box" to receive that complete resource.
6. **Handoffs/handovers:**
   - Should last 1.5 – 2 minutes.
   - Confederate will give excuse to leave if the participant tries to keep them in the scenario.
7. **First responders, in all scenarios, cannot enter the scenario before 9 minutes, must be in by 12 minutes.**
8. **Confederates:**
   - Except under special circumstances, there will be two Confederates playing roles in a scenario.
     - Some sites may use a third (scrub tech in the SBO scenario), who can be played by a course participant or Confederate.
       - > *Sites must inform this course participant not to comment during the scenario!*

- Besides the HS and FR, no other course participants are allowed in the simulation room during an active scenario.
  - Course participants can come into the room ***after*** the allotted time for the study scenario has elapsed (e.g., can come into the MH scenario to practice mixing dantrolene after 20 minutes).
- "Voice of God" will never be used to transmit information to participants — such information will be transmitted by a Confederate.
  - Normal clinical facility overhead announcements (e.g., "Code Blue PACU") will be used as appropriate and specified in the scenario.

9. Infusion management:
- Infusions have to spiked, hung, and the infusion started to 'count.'

10. Clinical labs:
- When a Confederate is asked to draw labs, they can go through the motions of drawing the lab and taking a sample out.
- If a participant (HS or FR) draws a venous lab, they have to get a tourniquet, syringe, needle, and go through the motions of drawing blood. They then must hand the syringe to a Confederate, and the labs are sent out of the room. If the participant draws a single stick arterial sample they should prep the artery and go through the motions of drawing arterial blood. They'll be told they have a sample in a few seconds.
- Drawing an ABG: Only a Confederate who has the skill (e.g., surgeon or RT, but not OR nurse) can draw an ABG. Participants can draw an ABG.
- It will take 2 minutes from the time the lab leaves the room for results to be available.
- Lab results are called into the room via telephone (not overhead page).
- Ordering labs: The participant must explicitly order each lab value they want.
  - For example, "ABG" will result in just a blood gas without electrolytes, H/H, etc. If the participant wants other values, the "lab" can be re-called and asked to run those tests, and those results are reported in 2 minutes.

11. CXR results:
- The jpeg image to be used is provided by the scenario author.
- This image is to be displayed to participants on the simulator monitor.
- Image appears in 2 minutes, or according to the scenario script.
- If requested, a radiologist will be available for interpretation via phone conversation.

12. ECG results:
- The jpeg image to be used is provided by the scenario author.
- This image gets displayed to participants on the simulator monitor.
- Image appears in 2 minutes, or according to the scenario script.

13. TEE or TTE. Due to the brief nature of these scenarios and the distraction associated with echo exams, in all scenarios, if an echo is requested, the participant will be told (sometimes after a 2-3 minute delay) that it is unavailable (probe/machine is broken).

14. Clinical equipment that will be immediately available:
- Defibrillator/External pacer
- IV pressure bags

15. The availability of other clinical equipment that might be requested will be at the discretion of the scenario author.

16. Extra peripheral venous access:
- Peripheral IVs will be "started" by an RN or other Confederate.
- If a participant attempts to start their own IV, a Confederate will volunteer to do it for them.
- The Confederate will collect the necessary materials and then go through the motions of starting a peripheral IV.
- Confederates will take 45 seconds, from the start of the process until it is completed, to place a PIV.

17. Central venous access and monitoring:

- If participants ask for a central line, an appropriate Confederate (e.g. RN, not anesthesia tech) will say "I see a vein in the other arm that will take a 16g IV." That Confederate will then go through the motions placing an IV in that arm.
- If participant insists on starting a CV line, they must go through all of the real-world aspects of the procedure: gowning, gloving, prepping, etc. After they have gone through all of the motions to prepare the site for insertion, they will have to wait about 30 – 45 seconds before they are told that the catheter is in the correct site.
- If a participant asks the surgeon to start a line (in the lap trocar scenario, for example), hand a kit to that Confederate, have them pantomime placing the line, and 3 minutes later declare that a central line is started.

18. Arterial catheter placement:

- If not in place at the start of the scenario, an arterial line cannot be started during any scenario.
- The Confederates will stall so as to preclude arterial line placement. For example, the participant will be told that an anesthesia technician needs to come to the room with the materials for the line, but will not show up.

19. Blood products:

- Availability:
  - The scenario author will determine the nature and timing of blood availability.
  - Generally, uncrossed PRBCs or 'trauma blood' will be the only blood products available during these scenarios. It will take 1 minute for trauma blood to be delivered to the room after the blood bank is called.
  - To receive credit for checking blood, if the participant asks a Confederate to assist, it must be a Confederate playing the role of someone who would normally do that.
- Administering blood:
  - To receive credit, the blood has to be spiked, and the roller clamp opened so that the blood is flowing.

20. Boluses of fluid (or blood):

- To receive credit for giving a bolus (or rapid infusion), the participant must use a pressure bag, actively squeeze the bulb on the blood administration set, or actively squeeze the IV bag itself.

21. Code cart:

- The code cart drug drawer or code box will always include the following:
  - Epinephrine
  - Atropine
  - Lidocaine
  - Amiodarone
  - $NaHCO_3$
  - Glucose
  - Insulin
  - $CaCl_2$
  - Vasopressin
- The defibrillator will be immediately available and managed by each site per their custom.
  - Participants will receive pre-study scenario training in the use of the site's specific defibrillator.

22. Cognitive aids:

- Study participants will ***not*** be allowed to bring in their own cognitive aids (smart phones, homemade algorithms, etc.).
- They will be allowed to use cognitive aids provided in specific scenarios.
- MH cart will have the standardized MHAUS treatment algorithm poster.
- Code carts will ***not*** have written ACLS protocols.
- The centers will ***not*** provide algorithms or cognitive aids for responses to hypotension, etc., for use during study scenarios.

23. Drug administration:
- There will be no magic drugs.
- To receive credit for giving a drug, the syringe containing the drug must be obtained, connected to a stopcock (or one-way IV site), and the plunger pushed.
  - 'Plunger pushed' will count as giving the drug.
- If the participant attempts to give magic drugs (e.g., calling it out without doing it), an appropriate Confederate (e.g., RN) will ask, "Would you like me to give [drug]?" If participant agrees, then that Confederate will obtain a syringe of that drug and then asks, "How much would you like me to give?"
- If a participant holds onto a syringe, without administering a drug, an appropriate Confederate will ask, "Do you want to give that medication?"

24. Standard monitor setup:
- Each scenario will specify exactly what waveforms and vital signs data will be displayed at the start of the scenario.
- We will avoid blank zones (i.e., "Arterial Line Pending") on the monitor.
- NIBP will cycle automatically every 2 minutes.
- $EtCO_2$ will only display if mask is on face or the patient is intubated.
- Alarms will be in the OFF position. Participants will be allowed to turn ON the alarms if they choose to do so.

25. Scenario Start time:
- Time T=0 will be defined by each scenario author.

26. Ventilator settings:
- Unless otherwise specified by the scenario author, each scenario will use the same initial ventilator and anesthesia machine settings.
- Standard ventilator settings:
  - SIMV mode
  - Tidal volume of 400 ml
  - Respiratory rate of 10/minute
  - PEEP of 5 cm/H_2O
- Standard anesthesia machine (gas flow) settings:
  - 50% O_2 in air
  - 2 liter flow of each
- Volatile agent to use is at the discretion of scenario author.

27. "Small talk" or extraneous/distracting banter by Confederates:
- Banter will be limited in each scenario and will not be initiated by Confederates except essential niceties as scripted by the scenario author.
- Confederates will respond to collegial discussions initiated by participants but will avoid/ignore case irrelevant discussions (e.g., about sports, weather, news, etc.)
- Confederate clinicians (surgeons/nurses) are portraying a cross-sectional ***sample*** of all possible real-world clinicians and not necessarily the actual or specific clinicians at the local site.

28. Handling participants who do not follow these rules:
- If a participant assumes that they have started a line without going through the proper motions, they will not receive any positive indication that the line has been started (e.g., no arterial line tracing on the monitor). If they ask for an ABG after starting magical arterial line, they will be asked if they want to do a single stick, as no line exists.
- Similarly, if a participant assumes that they have given a magical drug, no effects of that drug will occur, and when appropriate within the context of the script, a Confederate will point out the 'magical thinking.' For example, a Confederate may say, "You have to actually give a drug for it to have any effect."
- Other participant actions and behaviors that deviate from these rules and other expectations will be dealt with as appropriate and dictated by the scenario script via the in room Confederates.
- These types of behaviors will be scored on the Scenario Deviation form as a 'participant related issue.'