Appendix 1: Detailed Scenario Descriptions

Case 1: Jet Ventilation

Participants were called in to help with a patient that had been anesthetized, paralyzed, and could not be ventilated or intubated. The participants were also told that a laryngeal mask airway (LMA) had been placed but still the patient could not be ventilated. At the time of entering the room the patient's vital signs were as follows: HR-76, SpO2-97%, BP- 128/75. Invariably, at this point, all participants recognized the need for an invasive airway. A tray was left off to the side of the room consisting of 14g angiocatheters, 3 & 10 cc syringes, and 7.0mm endotracheal tubes. The jet ventilator was intentionally hidden in the corner of the room and would only be provided if specifically asked for. The majority of the participants would (as previously trained to do), create a make-shift device where they would insert the angiocath into the cricothyroid membrane and attach a 3 cc syringe with the plunger removed. They would then use the adaptor from the endotracheal tube and insert it into the syringe which would allow them to connect it to the circuit.

As the participants were attempting to gain access to the airway, the simulator was programmed to desaturate to an SpO2 of 40% and become bradycardic to 37 in order to increase the sense of urgency within the simulation. When the participants would attempt to use the device they created they encountered high peak airway pressures and a continued inability to ventilate. At this point, the majority of participants would remove the angiocath assuming they were in a false passage and attempt access a second time. Once a second attempt was made to access the airway using this method the scenario was paused so a debrief could be given. Learning objectives are specified in the main text.

Case 2: PACU Ischemia

Participants were called emergently by a nurse confederate to the PACU to assist with patient management. Upon arrival participants encountered a patient screaming of chest pain with ST-depressions on ECG with vital signs as follows: HR-107, BP- 197/83, SpO2-92%. When asked for, participants would be given a chart with the following patient history:

74 year old male with a history of coronary artery disease, hypertension, hyperlipidemia and benign prostatic hypertrophy who is currently status post transurethral resection of the prostate. The anesthetic record included in the chart revealed an uneventful surgery where the patient was given a neuraxial anesthetic with an 18g angiocath in place. Preoperative ECG showed normal sinus rhythm at 72 beats per minute.

Regardless of the interventions undertaken by the participants, the scenario would progress to a STEMI and ultimately the patient would lose consciousness. Shortly thereafter the patient would progress through VT, course Vfib, PEA, and asystole. During the simulation several roadblocks/distractions were given to the group. The defibrillator was intentionally sabotaged prior to the scenario so the power source cable

was plugged into the test defibrillator attachment. Also, during the scenario at improper times the nurse would suggest prolonged pulse checks, bilateral carotid pulse checks, inappropriate defibrillation, and inappropriate medication administration. All of these impedances to proper care were added to test the participant's knowledge of proper ACLS and reinforce proper team leader responsibilities as well as group communication. Ultimately the scenario would end when the patient was in asystole and the team decided to end resuscitative efforts. Full learning objectives are located in the main text.

Case 3: Management of Coronary Stents

For this scenario, a confederate acting as a patient was wheeled to the participants in our conference room. Participants were informed that this individual was the next patient for their operating room and the patient was coming in for placement of a cochlear implant. The team would also be handed a patient chart containing a surgical history, consent forms, site-side verification forms, and a cardiology "clearance". The history contained in the chart is as follows:

> The patient is a 67 year old male with a history of type 2 diabetes mellitus, hyperlipidemia, hypertension and coronary artery disease. The patient had several percutaneous coronary interventions with drug eluting stent placement. The most recent intervention was 9 months prior when a drug eluting stent was placed in the D1 vessel. The patient's medications include aspirin, clopidogrel, simvastatin, metoprolol XL, valsartan, glipizide and fish oil. A stress test in the chart revealed an ejection fraction of 55% with no signs of inducible ischemia.

The following information would be provided by the patient, but only when specifically asked for:

> The patient previously had a cochlear implant placed on the contralateral side without anesthetic complication. The patient has no allergies, adequate preoperative fasting and a Mallampati 1 airway. The patient had not taken any of his medicines for 7 days prior to the operation (including aspirin and clopidogrel) as the surgeons office told him to stop everything. The patient has >4 MET exercise tolerance and he does not endorse any chest pain.

If asked for, the participants would be allowed to call the cardiologist who had provided clearance to discuss the patient. The cardiologist would inform the team that the patient was cleared for surgery on the previous medication regimen. If prodded further, the cardiologist would admit that the surgeon likely could not operate with the patient on anticoagulation and the decision to proceed would need to be made by the anesthesiology team.

Throughout the preoperative evaluation, a confederate playing the surgeon would repeatedly interrupt the process so as to derail/sidetrack the evaluation in order to prevent the team from realizing this was a patient with a drug eluting stent placed <12

months ago presenting for elective surgery off of any anticoagulation. Full learning objectives are found in the main text.

Case 4: Oxygen Pipeline Contamination

Participants were called urgently into the operating room to assist with a breast biopsy originally booked under only local anesthetic given by the surgeon. The surgeon explained to the team that he/she thought he/she could get away with only local but that the patient was refusing to allow him/her to inject claiming she would only do the case under anesthesia. The patient was distraught and screaming, on the table, prepped and draped with the standard monitors already placed. If the team wanted they could perform a preoperative evaluation (either in the room or take the patient back to holding) and the patient would provide the following history:

> The patient is a 34 year old female with no previous medical history, uncomplicated previous breast lumpectomy on the contralateral side, she only takes diazepam PRN, no allergies, adequate preoperative fasting, Mallampati 1 airway and a negative pregnancy test

The patient had been prepped and draped on the wrong side (wire was placed on the L side but the operation was about to happen on the R side). If the team noticed the discrepancy (surgical history said the operation was to be a R side biopsy but the site-side said L) then they were allowed to reprep and drape the correct side if not, the wrong sided operation would commence after the team provided some sedation to the patient. No matter what dose or drug was given originally (unless general anesthesia was induced) the patient would react to incision and the team would be pushed into giving more sedation. At this point, the main supply to the anesthesia machine would be swapped and 100% nitrogen would be piped into the machine instead of oxygen. At this point the patient would become hypoxic and ultimately expire if the team did not open the tank in the back of the machine AND disconnect the machine from the wall or, begin ventilating with a manual resuscitative bag that was open to room air. If the team asked for auxiliary oxygen tanks they were informed that there was a problem with the hospital's oxygen supply and all the tanks were in use. Full learning objectives are located in the main text.

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