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CURRICULUM

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents

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ABSTRACT:

Audience: This simulation curriculum was designed to be applicable to emergency medicine residents of all levels of training. Its educational focus is on leadership and interpersonal skills, and it is easily adaptable for learners from different specialties as well.

Introduction: Training in leadership and communication skills has become a focus in graduate medical education, and is critical to successful navigation of many patient care situations in emergency medicine. These skills are difficult to teach in traditional didactic settings, pushing educators to create new methods for instructing learners in interpersonal skills.

Objectives: This educational intervention was developed to provide physician learners a safe learning environment to practice critical leadership skills, including overcoming team member limitations, navigating power struggles, addressing team morale, and managing disruptive team members.

Methods: This curriculum utilizes simulation scenarios with the introduction of role cards to create unexpected challenges in team dynamics. Four simulation scenarios were designed, using straightforward patient care situations to minimize the cognitive load on learners. Role cards were introduced into each scenario, creating four different communication and teamwork challenges for learners to navigate. The curriculum was implemented at the authors' simulation center with four groups of learners of varied educational levels. Learners were queried regarding their impressions of the simulation curriculum and their self-perceived personal growth.

Length of curriculum: Three hours.

Topics: Leadership skills, communication skills, team dynamics.

USER GUIDE

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Learner Audience:
Interns, Junior Residents, Senior Residents

Length of Curriculum:

- Setup and prebriefing: 10 minutes
- Room preparation: 5 minutes (per case)
- Simulation: 10 minutes (per case)
- Initial debrief: 15 minutes (per case)
- Final debrief: 50 minutes.
- Total time: 3 hours

Topics:
Leadership skills, communication skills, team dynamics.

Objectives:
By the end of the session, participants will be able to:

1. Recognize that team leadership includes effective communication with team members in addition to appropriate medical decision making.
2. Develop insight into personal leadership and communication styles.
3. Identify and overcome team member limitations.
4. Develop and implement strategies to navigate power struggles with other physicians in critical patient care situations.
5. Develop and implement strategies to manage poor team morale.
6. Describe and employ methods to redirect distracting team members.

Brief introduction:
Resident physician training increasingly must provide leadership and communication skills as healthcare systems work to meet team-centered demands of the twenty-first century, including more attention to patient satisfaction, population wellbeing, robust patient-centered medical homes, and interprofessional success.[1,2] Schools and hospital systems may vary in content offered, but most are attempting to provide leadership training more intentionally through certificates, executive/graduate programs, or pathways in leadership opportunities.[3] The question of what to offer, and the pedagogical method through which to offer it, become more central questions in discussing simulation and leader training.

Gabel suggests expanding physician leader training to consider both formal and informal positions and how those impact training experiences.[4] Two central themes in this perspective, regardless of position, are the ability to demonstrate direct and clear communication and the capability to inspire or motivate others. Thus, training that includes communication and team dynamics is critical as physicians may fluctuate between formal, positional roles (dean, executive, medical staff chief) or more informal, influencing roles (care team member, clinic staff). The work of Dine, et al. also supports the importance of team management and communication when understanding leadership among physicians and clinical teams.[5] Berg and Huot suggest that resident leaders find themselves in a myriad of roles,[6] creating a real need for training that simulates communication and team dynamics in a clinical setting.

Simulation as a delivery method in leader development has been credited with "providing context for leadership concepts…[with scenarios]…to encourage interactions between participants that would prepare them for actual leadership challenges…".[7] Simulation in leadership training may also fill a continuing gap in medical education for constructive direct observation and feedback, the quality of which is consistently debated.[8-10]

Problem identification, general and targeted needs assessment:
As one of the Accreditation Council for Graduate Medical Education's (ACGME) six core competencies, interpersonal and communication skills are a critical component of graduate medical education. In its Common Program Requirements, the ACGME writes, "residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals."[11] Self-assessment, mentorship, workshops, and direct observation have been proposed as methods for teaching these critical skills.[12] Given that practicing interpersonal skills requires interaction among team members, simulation is a natural adjunct to traditional teaching methods and has been used with success.[13,14]

Chang, et al. introduced the use of game cards to assign roles to pediatric emergency medicine fellows during an educational intervention aimed at teaching leadership skills.[15] In this endeavor, the authors replicate the game card approach to leadership training, expand the audience to emergency medicine residents, and provide patient scenarios for use in other training centers.

USER GUIDE

Goals of the curriculum:
The purpose of this curriculum is to provide residents with an opportunity to practice managing difficult interpersonal situations and critical leadership skills in a safe environment, followed by guided debriefing to reflect and identify key themes and communication strategies. The difficult situations encountered in the enclosed simulation scenarios include: team member limitations, power struggles, poor team morale, and disruptive team members.

Objectives of the curriculum:
By the end of the session, participants will be able to:

- Recognize that team leadership includes effective communication with team members in addition to appropriate medical decision making.
- Develop insight into personal leadership and communication styles.
- Identify and overcome team member limitations.
- Develop and implement strategies to navigate power struggles with other physicians in critical patient care situations.
- Develop and implement strategies to manage poor team morale.
- Describe and employ methods to redirect distracting team members.

Educational Strategies: (See curriculum chart)
Four simulation cases were designed with simple patient presentations to aid in generalizability and decrease cognitive load on learners, allowing them to focus on team dynamics. In each case, additional communication barriers were introduced in the form of role assignments. These were distributed to participants on notecards. Some roles created barriers that pushed learners to think critically about optimal communication in suboptimal circumstances, while others simulated difficult team dynamics that can arise in patient care settings. Learners were broken into four groups of six and each case was performed simultaneously, with participants rotating rooms after each 30-minute block.

Prebriefing
Before the first case, learners were oriented to the simulation center. Instructors emphasized the confidential and formative nature of the session in an effort to ensure a safe learning environment for optimal participant engagement and learning.[16] Additionally, participants were informed that the focus of the session was interpersonal skills and team dynamics rather than medical decision-making or individual learner performance.

Case Information
Detailed information for each case, including full case scenarios, laboratory data, and radiology studies, are available in supplemental files (see supplemental documents 1-4, full case scenarios). Below are brief synopses of patient presentation, role assignments, and case progression for each scenario. The curriculum chart outlines patient presentations, learner roles, educational concepts, and debriefing questions for each case. Also see: Didactics and Hands-On Curriculum Chart: Table 1: Outline of Leadership and Communication Case Scenarios and Teaching Points

Case 1 – Communication Mayhem
The patient is a debilitated 58-year-old male admitted for pneumonia with concern for sepsis. Antibiotics and intravenous fluids have been administered. Central venous access has been placed. His blood pressure and oxygen saturations have been deteriorating, and the intensive care unit (ICU) team is called to evaluate the patient.

This case requires participants to navigate communication barriers and team member limitations. The designated team leader must wear a blindfold. Other participants either cannot talk or cannot use their hands. Team members can only perform actions when instructed by the team leader. The patient requires intubation and initiation of vasopressors.

Case 2 – Take Me to Your Leaders
A middle-aged male experiences cardiac arrest in the hospital cafeteria, and participants are members of the hospital's code team. The case progresses through several cardiac rhythms, and the patient ultimately experiences return of spontaneous circulation (ROSC).

Initially, all learners are given the role of team leader. Learners must address a power struggle among the team. As the case progresses and learners adapt to the situation, new role cards with instructions are introduced, including: assertively retaking control, abandoning the team, questioning orders, and disagreeing with the team leader.

Case 3 – Negative Nancies
A 62-year-old male presented to the emergency department for headache and confusion. He was initially evaluated by the previous resident, and at check out, the patient was awaiting the results of laboratory and imaging studies. Shortly after check out, the patient returns from the computed tomography (CT) scanner with worsening altered mental status, requiring intubation. The airway management becomes difficult due to body habitus and facial hair, and providers enter a cannot intubate-cannot ventilate situation.

Team member roles in this case are designed to create a pessimistic group attitude. Assigned behaviors include questioning orders, criticizing team member performance, and making pessimistic comments throughout the case.

Case 4 – Flaw and Disorder
The patient is a 72-year-old male with dementia and coronary artery disease admitted to a general medical floor for altered mental status and urinary tract infection. He experiences chest pain, and then becomes unresponsive and pulseless. Participants are members of the code team responding to the patient's room. The case progresses through several pulseless rhythms before the patient develops ROSC.

The participant roles are designed to encourage learners to develop strategies for managing difficult and disruptive team members. These roles include discussing items irrelevant to the case, answering a phone call during the resuscitation, reading back orders incorrectly, and performing tasks prior to them being ordered.

Debriefing
Given the multiple-scenario structure, debriefing occurred both following each case and at the conclusion of the session. The initial debriefing occurred in the patient room, immediately following the simulated patient encounter. Using the Plus-Delta technique,[17] instructors invited the learners to share initial impressions of each case and to identify critical moments from the scenarios. Later, during the more comprehensive debrief, instructors and participants discussed the global themes that arose during the teaching session, using a combination of guided reflection[17] and debriefing with good judgment.[18] In the last minutes of the debriefing session, instructors summarized the main learning points as identified by the group.

Results and tips for successful implementation:
This curriculum was implemented with a group of 24 emergency medicine residents across all years of training in 2015. Participants were sent an electronic survey, garnering 20 responses (83% response rate). The educational session was given average ratings of 4.40/5.00 for presentation and 4.25/5.00 for content. Residents described the session as "unique," "eye opening," and "effective." In addition, the educational model was employed with two groups of chief residents from various specialties, first in 2015 with 9 participants and again in 2016 with 6 participants. After the sessions, participants completed surveys with reflective questions concerning participant adaptability and leadership. Many participants reported developing better understanding of their own leadership skills and adaptability. Other comments suggested an enhanced appreciation of the importance of teamwork and communication. All participants agreed the simulations offered opportunities for personal insight and a heightened awareness of communication and leadership skills that could be translated into the clinical setting.

The authors recommend maintaining groups of four to six residents per room, as fewer residents cannot fulfill all roles and more residents can cause overcrowding and decreased individual participation. Prior to the first scenario, participants should be advised not to share their assigned roles with other learners.

Evaluation and Feedback:
This leadership and communication curriculum has been implemented with three groups of residents, totaling 39 participants. Learner feedback has been overwhelmingly positive, with reports of improved self-reflection and identification of new leadership and communication strategies. Since the initial trial, the patient presentations have been altered slightly to accommodate a broader variety of resident backgrounds, and role cards have been adjusted to minimize exaggerated chaos and subsequently maximize fidelity to healthcare provider behavior in real world patient care situations. The simulation scenarios presented here were utilized with the final group of learners, and no additional changes were suggested by participants.

Associated Content:
Appendix 1. Simulation Details Case 1.
Appendix 2. Simulation Details Case 2.
Appendix 3. Simulation Details Case 3.
Appendix 4. Simulation Details Case 4.
Appendix 5: Curriculum Chart: Outline of Leadership and Communication Case Scenarios and Teaching Points

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DIDACTICS AND HANDS-ON CURRICULUM

Didactics and Hands-On Curriculum Chart: Table 1. Outline of Leadership and Communication Case Scenarios and Teaching Points

Case Title	Communication Mayhem	Take Me to Your Leaders	Negative Nancies	Flaw and Disorder
Patient Scenario	Septic patient	ACLS* megacode	Difficult intubation	ACLS* megacode

Participant Roles/ Instructions	• Leader
	• Cannot speak x 2-3
	• Cannot use hands x 2-3
		• Initially all are team leaders
		• Later:
		  ○ Retake control as leader
		  ○ Walk out; later return and ask questions
		  ○ Question orders
		  ○ Disagree with leader
			• Team leader
			• Question team leader orders
			• Make pessimistic comments
			• Criticize other members' performance
				• Team leader
				• Discuss personal plans x 2
				• Answer phone
				• Read back orders incorrectly
				• Perform tasks before given orders

Teaching Concepts	• Overcoming communication barriers • Recognizing and assisting team members with limitations	• Identifying and navigating a power struggle • Subverting individual interests for the sake of the team	• Exploring the relationship between morale and team success • Discussing how team leaders can improve morale • Identifying ways to manage negative team members	• Managing difficult team members diplomatically • Identifying interventions for disruptive team members
Debriefing Questions	• What hindered effective communication? • How did this affect patient care? • How were communication barriers overcome? • How did the team cope with team member limitations?	• When did the group realize the initial problem? • How did the group navigate this power struggle? • What leadership strategies might be employed when managing a group of established leaders?	• How did the "negative Nancies" impact the patient care? • What strategies can help manage negative team members? Why is that important? • How can leaders build up their teams and what impact will that have?	• What made this case difficult? • How did/could the team leader manage disruptive team members? • Does a particular leadership style function most effectively in this situation?

*ACLS: Advanced Cardiac Life Support

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents

Case Title: Case 1: Communication Mayhem

Case Description & Diagnosis (short synopsis): A 58-year-old male was admitted to the hospital for sepsis secondary to pneumonia. During his hospital stay, the patient develops worsening hypoxia and hypotension, leading to a consult from the medical intensive care unit (MICU) team. Learners are on their MICU rotation and are responding to the consult. The patient requires intubation and initiation of vasopressor therapy. The case is complicated by role cards indicating that the team leader is blindfolded, that half of the team members cannot speak, and that the other half of the team members cannot touch the patient.

Equipment or Props Needed:

- High fidelity simulator
- Electrocardiography monitor
- Pulse oximetry
- Blood pressure cuff
- Code cart with advanced cardiac life support (ACLS) medications
- Intubation equipment (e.g. bag valve mask, oxygen supply, direct laryngoscopy blades, endotracheal tubes, suctioning equipment, capnography, oropharyngeal airways)
- Blindfold

Confederates needed:

- Nurse that has been caring for the patient since his arrival to the stepdown unit

Stimulus Inventory:

#1 Complete blood count (CBC)
#2 Complete metabolic panel (CMP)
#3 Lactate
#4 Electrocardiogram (ECG)
#5 Chest radiograph (CXR)
#6 Role cards

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

Background and brief information: The patient is a 58-year-old male nursing home resident who is currently admitted to a medical stepdown unit for sepsis from pneumonia. He is nonverbal due to a history of stroke.
Initial presentation: He presented to the emergency department with hypotension (79/32), and central venous access was obtained in the right femoral vein. After receiving 30 mL/kg of intravenous (IV) fluids in the emergency department and being started on vancomycin and cefepime, his blood pressure stabilized. After arrival to the stepdown unit, the patient was noted to have a decline in blood pressure and an increase in oxygen requirement. The MICU team was consulted.

How the scenario unfolds: The patient will require intubation and initiation of vasopressors in order for his oxygen saturations and blood pressure to stabilize. In this scenario, the team leader is blindfolded. No interventions can be performed until ordered by the team leader. Half of the remaining team can speak but cannot touch the patient, and the other half of the team can touch the patient but cannot speak.

Critical actions:

1. Stay within the confines of assigned roles.
2. Communicate effectively given team member limitations.
3. Recognize the need for endotracheal intubation and call for equipment.
4. Successfully intubate the patient.
5. Recognize continued hypotension and initiate vasopressor therapy.

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

Case Title: Case 1: Communication Mayhem

Chief Complaint: The patient is a 58-year-old male nursing home resident with a history of ischemic stroke who was admitted from the emergency department overnight for pneumonia with concern for sepsis. Since arriving to the stepdown unit, his blood pressure and oxygenation have been deteriorating. You are rotating in the medical intensive care unit, and your team was called to evaluate the patient.

Vitals: Heart Rate (HR) 125 Blood Pressure (BP) 80/42
Respiratory Rate (RR) 22 Temperature (T) 102.8°F
Oxygen Saturation (O_2Sat) 88% on nonrebreather (NRB)

General Appearance: Diaphoretic. Tachypneic. Toxic-appearing.

Primary Survey:

- **Airway:** Moans to painful stimuli.
- **Breathing:** Tachypneic with shallow respirations. Rales are present in the right lung base.
- **Circulation:** Pulses present throughout. Mottled skin. Cool feet.

History:

- **History of present illness:** No family is available and the patient is nonverbal at baseline due to his underlying neurologic deficits. In the emergency department, the patient required 4L nasal canula to maintain oxygen saturations greater than 90%. Blood pressure on hospital arrival was 79/32, and central venous access was obtained in the right femoral vein. After administration of 30 mL/kg intravenous normal saline, blood pressure improved. Vasopressors have not been started. The patient has been started on vancomycin (dosed by pharmacy) and cefepime 2g every 12 hours.
- **Past medical history:** Hypertension, non-insulin dependent diabetes, prior ischemic stroke.
- **Past surgical history:** None.
- **Patient's medications:** Amlodipine, metformin, aspirin.
- **Allergies:** None.

- **Social history:** Resides in a skilled nursing facility due to deficits from prior ischemic stroke. Does not use tobacco, alcohol, or illicit drugs.
- **Family history:** Unknown.

Secondary Survey/Physical Examination:

- **General appearance:** Diaphoretic. Tachypneic. Toxic-appearing.
- **HEENT:**
  - **Head:** within normal limits.
  - **Eyes:** within normal limits.
  - **Ears:** within normal limits.
  - **Nose:** within normal limits.
  - **Throat:** within normal limits.
- **Neck:** within normal limits.
- **Heart:** Tachycardic, but regular rhythm.
- **Lungs:** Only if asked: Tachypneic. Labored. Shallow respirations. Rales in the right lung base.
- **Abdominal/GI:** Within normal limits.
- **Genitourinary:** Within normal limits.
- **Rectal:** Within normal limits.
- **Extremities:** Slight wasting of the muscles of the right upper and lower extremities, consistent with baseline from prior stroke. Otherwise, within normal limits.
- **Back:** Within normal limits.
- **Neuro:** Only if asked: GCS 8 (with painful stimuli, the patient will open eyes, moan, and withdraw). Decreased movement on the right upper and lower extremities, which is consistent with his baseline from his prior stroke.
- **Skin:** Only if asked: Diaphoretic. Cool, clammy, mottled skin. Central venous catheter in place in the patient's right groin.
- **Lymph:** Within normal limits.
- **Psych:** Unable to assess.

Case 1: Communication Mayhem

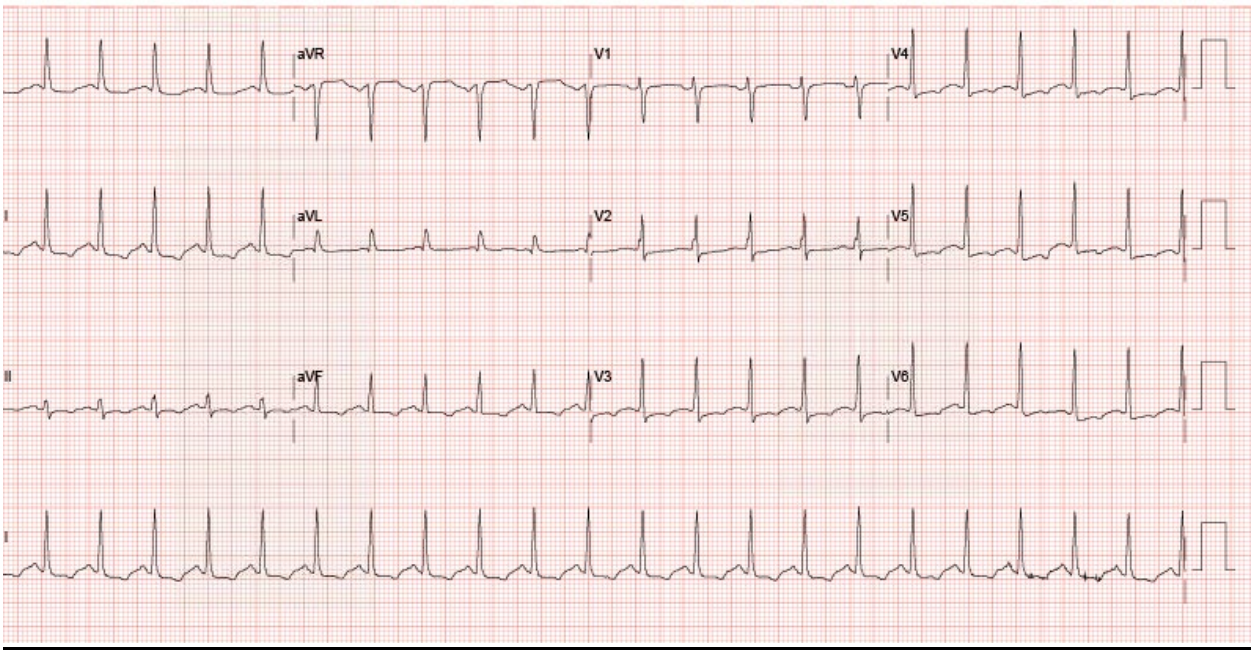
Results:

Complete blood count (CBC)	
White blood count (WBC)	19.2 x1000/mm^3 (6% bands, 82% neutrophils, 8% lymphocytes)
Hemoglobin (Hgb)	9.4 g/dL
Hematocrit (HCT)	29.1%
Platelet (Plt)	324 x1000/mm^3
Complete metabolic panel (CMP)	
Sodium	147 mEq/L
Chloride	104 mEq/L
Potassium	4.1 mEq/L
Bicarbonate (HCO_3)	17 mEq/L
Blood Urea Nitrogen (BUN)	45 mg/dL
Creatine (Cr)	1.4 mg/dL
Glucose	198 mg/dL
Calcium	8.4 mg/dL
Aspartate Aminotransferase (AST)	47 u/L
Alanine Aminotransferase (ALT)	36 u/L
Total Bilirubin (T bili)	1.4 mg/dL
Albumin	2.9 g/dL
Alkaline Phosphate (alk phos)	297 u/L
Lactate	3.3 mEq/L

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

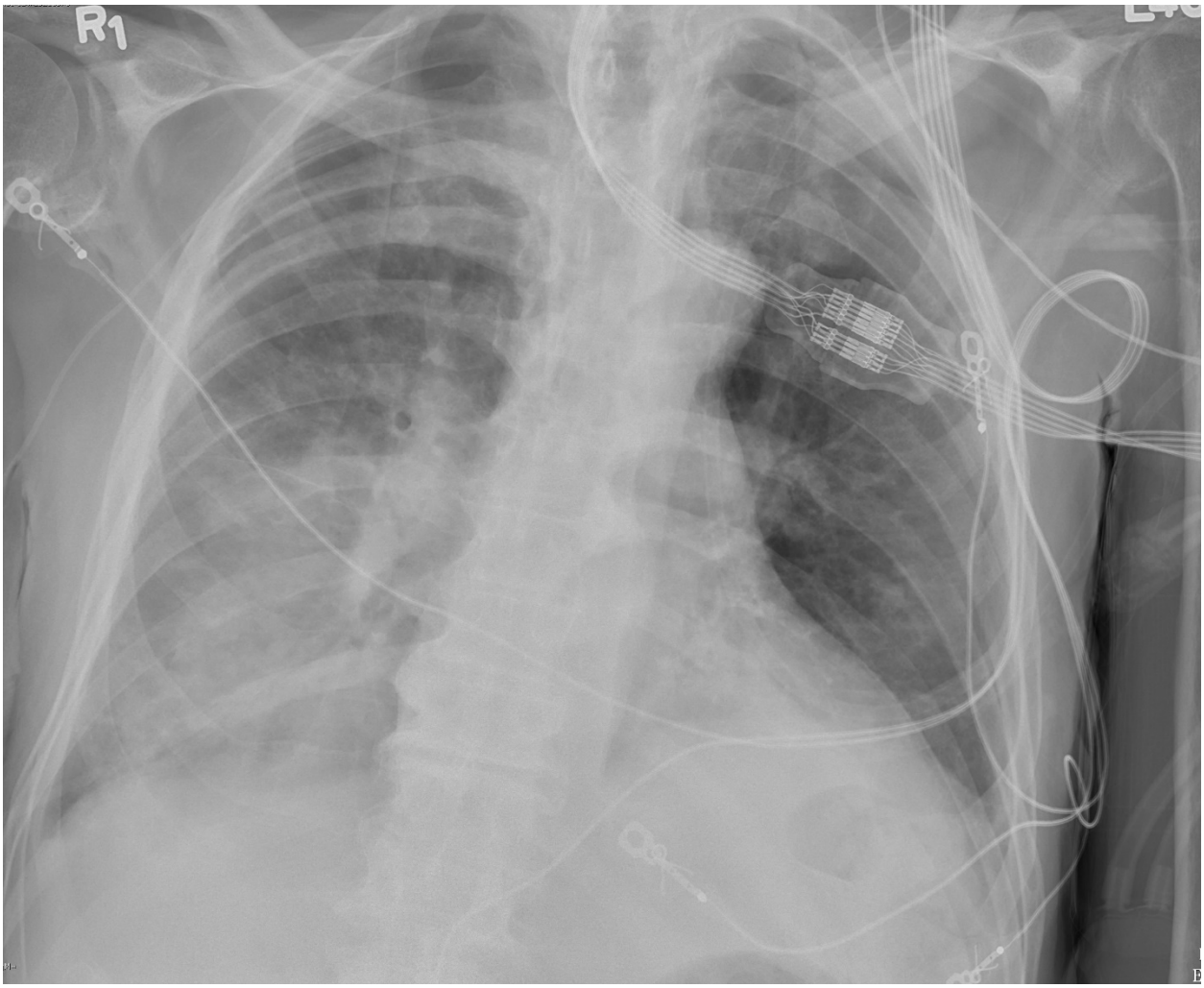
ECG (author's own image)



DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

Chest Radiograph (author's own image)



DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

Role Cards

Team Leader

You will be blindfolded during the resuscitation scenario

Team Member

You must remain mute during the scenario and you cannot perform tasks until instructed by the team leader.

Team Member

You must remain mute during the scenario and you cannot perform tasks until instructed by the team leader.

Team Member

You must remain mute during the scenario and you cannot perform tasks until instructed by the team leader.

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 1: Communication Mayhem

Team Member

You cannot touch the patient and you cannot perform tasks until instructed by the team leader.

Team Member

You cannot touch the patient and you cannot perform tasks until instructed by the team leader.

Team Member

You cannot touch the patient and you cannot perform tasks until instructed by the team leader.

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 1: Communication Mayhem

SIMULATION EVENTS TABLE:

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
0:00 (Baseline)	Participants are given role cards. After the leader is blindfolded, the case may begin.	The patient is diaphoretic and tachypneic, with shallow respirations. He has rales in the right lung base. GSC 8 (with painful stimuli, the patient will open eyes, moan, and withdraw). Oxygen saturation is slowly declining. He is already on continuous cardiac monitoring and continuous pulse oximetry. Blood pressure is set to cycle every 30 minutes unless asked for more frequent measurements.	T 102.8°F HR 125 BP 80/42 RR 22 O_2sat 88% NRB
1:00	Team leader requests admission laboratory and imaging studies.	All stimuli are available for participants to view. Only team members who may speak can provide the information and interpretation to the team leader. If requested, ultrasound is unavailable as the machine is being used in another room.	
4:00	Team leader calls for intubation.	Intubation supplies should be available in the room. The patient's oxygen saturation will decline until he is intubated. If no intubation is performed by 5:00, the patient will develop apnea followed 60 seconds later by pulseless electric activity (PEA) arrest. Intubation and one round of chest compressions and epinephrine will restore a pulse.	If intubated: HR 121 BP 82/48 RR per vent O_2sat 98% If not intubated: HR 129 BP 82/48 RR 28 O_2sat 73% NRB

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 1: Communication Mayhem

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
6:00	Intravenous fluid (IVF) bolus	Patient's respiratory status is unaffected. Blood pressure does not improve. If no fluid bolus is given, the patient's blood pressure slowly declines	If IVF given: HR 121 BP 85/47 RR per vent O_2sat 98% If no IVF given: HR 121 BP 72/35 RR per vent O_2sat 98%
8:00	The team leader calls for initiation of vasopressors.	A selection of vasopressors is available. Ideally, norepinephrine will be chosen. Regardless of vasopressor choice, the patient's blood pressure will stabilize. If no vasopressors are ordered by 10:00, the patient will go into pulseless ventricular tachycardia, but will return to sinus tachycardia with a pulse and persistent hypotension after 2 minutes of appropriate ACLS measures. If vasopressors have still not been started by 14:00 or if ACLS guidelines are not followed, the patient will develop asystole and will not regain a pulse despite appropriate ACLS measures.	After vasopressors: HR 118 BP 95/61 RR per vent O_2sat 98% No vasopressors: HR 135 BP 62/31 RR per vent O_2sat 91%
(Case Completion)	The team leader requests that the patient be moved to the medical intensive care unit.	The case ends.	

Diagnosis:

Septic shock secondary to healthcare-associated pneumonia.

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 1: Communication Mayhem

Disposition:

Transfer to the medical intensive care unit (MICU).

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents
Case 1: Communication Mayhem

Pearls:

- Good communication can help overcome significant team member limitations.
- Recognizing and overcoming team member limitations can help the team function more effectively together.

Other debriefing points/questions:

1. What hindered effective communication?
2. How did this affect the progress of the case?
3. What methods were used to overcome the communication barriers?
4. How did the team cope with limitations on several team members?

DIDACTICS AND HANDS-ON CURRICULUM SIMULATION ASSESSMENT

Case 1: Communication Mayhem

Learner: _____

Assessment Timeline

This timeline is to help observers assess their learners. It allows observer to make notes on when learners performed various tasks, which can help guide debriefing discussion.

Critical Actions	0:00
1. Stay within the confines of assigned roles. 2. Communicate effectively given team member limitations. 3. Recognize the need for endotracheal intubation and call for equipment. 4. Successfully intubate the patient. 5. Recognize continued hypotension and initiate vasopressor therapy.	

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 2: Take Me to Your Leaders

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents

Case Title: Case 2: Take Me to Your Leaders

Case Description & Diagnosis (short synopsis): The patient is a middle-aged male who collapsed in the hospital cafeteria and was found to be pulseless. Participants are members of the code blue team and are responding to a notification about the patient. Initially, all team members are told that they are the team leader. After navigating this power struggle, additional role cards are handed to some participants.

Equipment or Props Needed:

- High fidelity simulator
- Electrocardiography monitor
- Pulse oximetry
- Blood pressure cuff
- Code cart with advanced cardiac life support (ACLS) medications
- Intubation equipment (e.g. bag valve mask, oxygen supply, direct laryngoscopy blades, endotracheal tubes, suctioning equipment, capnography, oropharyngeal airways)
- Defibrillator

Confederates needed:

- None

Stimulus Inventory:

#1 Role cards

Background and brief information: The patient is a male appearing approximately 50-years-old who collapsed while ordering food in the hospital cafeteria. He is not a patient and does not have any friends or family with him. No history can be obtained.

Initial presentation: The patient is found to be pulseless in the hospital cafeteria.

How the scenario unfolds: Team members arrive with a code cart and intubation equipment. The case progresses as an ACLS megacode. The patient will progress through various cardiac

rhythms and will eventually have return of spontaneous circulation. He will be transported to the Emergency Department for additional workup, and the case will conclude at this point.

Critical actions:

1. Navigate the initial power struggle. Identify a team leader and define other team member roles.
2. Manage disruptions caused by the introduction of additional role cards.
3. Perform appropriate ACLS.
4. Request transfer of the patient to the emergency department.

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 2: Take Me to Your Leaders

Case Title: Case 2: Take Me to Your Leaders

Chief Complaint: The patient is a male appearing approximately 50 years of age who collapsed in the hospital cafeteria. He had no friends or family with him to provide additional information. He was found to be pulseless and a code blue was called. You are the code blue team responding to the notification.

Vitals: Heart Rate (HR) N/A Blood Pressure (BP) N/A
Respiratory Rate (RR) 0 Temperature (T) 97.4°F
Oxygen Saturation (O_2Sat) N/A

General Appearance: Pulseless and unresponsive.

Primary Survey:

- **Airway:** Not talking.
- **Breathing:** Not breathing.
- **Circulation:** Pulseless.

History:

- **History of present illness:** Unable to obtain due to patient's clinical status.
- **Past medical history:** Unable to obtain due to patient's clinical status.
- **Past surgical history:** Unable to obtain due to patient's clinical status.
- **Patients medications:** Unable to obtain due to patient's clinical status.
- **Allergies:** Unable to obtain due to patient's clinical status.
- **Social history:** Unable to obtain due to patient's clinical status.
- **Family history:** Unable to obtain due to patient's clinical status.

Secondary Survey/Physical Examination:

- **General appearance:** Pulseless and unresponsive.
- **HEENT:**
    - **Head:** Normocephalic and atraumatic.
    - **Eyes:** Pupils 5mm bilaterally and unreactive.
    - **Ears:** Within normal limits.
    - **Nose:** Within normal limits.

  - **Throat:** Within normal limits.
- **Neck:** Within normal limits.
- **Heart:** Pulseless.
- **Lungs:** Absent breath sounds bilaterally. No spontaneous respirations.
- **Abdominal/GI:** Within normal limits.
- **Genitourinary:** Within normal limits.
- **Rectal:** Within normal limits.
- **Extremities:** Within normal limits.
- **Back:** Within normal limits.
- **Neuro:** Within normal limits.
- **Skin:** Cool. Gray.
- **Lymph:** Within normal limits.
- **Psych:** Unable to assess due to patient's clinical status.

Case 2: Take Me to Your Leaders

Results:

No results available.

Case 2: Take Me to Your Leaders

Role Cards

Team Leader
You cannot touch the patient as long as you are the team leader.

Team Leader
You cannot touch the patient as long as you are the team leader.

Team Leader
You cannot touch the patient as long as you are the team leader.

Team Leader
You cannot touch the patient as long as you are the team leader.

Team Leader
You cannot touch the patient as long as you are the team leader.

Case 2: Take Me to Your Leaders

Team Leader

You cannot touch the patient as long as you are the team leader

Caveat Card #1

Assertively retake control as the code team leader.

Caveat Card #2

Walk out of the room unannounced; later re-enter and ask repeated questions about what has been done.

Caveat Card #3

Begin to question all orders given.

Caveat Card #4

Begin to verbally disagree with the team leader.

Caveat Card #5

May act and function normally and fill code team roles as needed

Caveat Card #6

May act and function normally and fill code team roles as needed

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 2: Take Me to Your Leaders

SIMULATION EVENTS TABLE:

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
0:00 (Baseline)	All participants enter the room acting as team leader.	The patient is in pulseless ventricular tachycardia. Participants arrive with a code cart and intubation equipment.	T 97.4°F HR 0 BP N/A RR 0 O_2sat N/A
00:30	Participants recognize the problem of "too many leaders" and break into defined roles. Chest compressions should be initiated by this point and the patient should be placed on a defibrillator to determine rhythm. IV access should be obtained.	The patient remains in pulseless ventricular tachycardia. After initial defibrillation, the patient will remain in pulseless ventricular tachycardia. The team leader may call for intubation. Intubation equipment should be in the room, but intubation is not a critical action as long as sufficient bag valve mask ventilation is being provided.	HR 0 BP N/A RR 0 O_2sat N/A
02:30	The team leader orders 1 mg epinephrine and amiodarone 300 mg bolus. It is time for a pulse check.	The patient is in ventricular fibrillation. After defibrillation, he will remain in ventricular fibrillation.	HR 0 BP N/A RR 0 O_2sat N/A
04:30	It is time for a pulse check.	The patient is in ventricular fibrillation. After defibrillation, he will be in pulseless electric activity (PEA) arrest. At this point, the additional role cards are introduced.	HR 0 BP N/A RR 0 O_2sat N/A
06:30	A clear team leader should be identified. The team leader orders an additional 1 mg epinephrine and (optionally) another 150	The patient is in PEA arrest.	HR 0 BP N/A RR 0 O_2sat N/A

Case 2: Take Me to Your Leaders

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
	mg amiodarone. It is time for a pulse check.		
08:30	Chest compressions continue. It is time for a pulse check.	The patient has a pulse.	T 97.4°F HR 87 BP 102/69 RR per vent or bagging O_2sat 98% (fraction of inspired oxygen [FiO_2]100%)
(Case Completion)	Team leader requests patient transfer to the emergency department.		

Diagnosis:
Cardiac arrest of undetermined etiology.

Disposition:
The team should request that the patient be transferred to the emergency department for further care.

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents
Case 2: Take Me to Your Leaders

Pearls:

- Leadership struggles or poorly defined team leadership can be detrimental to patient care.
- Although we are all trained to be leaders, allowing someone else to be the team leader and taking another role on the team can lead to a more effective and cohesive patient care team.
- Distractions caused by other team members can pull the team leader's attention away from patient care.

Other debriefing points/questions:

1. When did the group realize the initial problem of "too many leaders?"
2. How did the group navigate this power struggle?
3. What leadership strategies might be employed when managing a group of established leaders?
4. What strategies can a team leader employ to manage disruptive team members?

DIDACTICS AND HANDS-ON CURRICULUM SIMULATION ASSESSMENT

Case 2: Take Me to Your Leaders

Learner: _____

Assessment Timeline

This timeline is to help observers assess their learners. It allows observer to make notes on when learners performed various tasks, which can help guide debriefing discussion.

Critical Actions	0:00
1. Navigate the initial power struggle. Identify a team leader and define other team member roles. 2. Manage disruptions caused by the introduction of additional role cards. 3. Perform appropriate ACLS. 4. Request transfer to the emergency department.	

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 3: Negative Nancies

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents

Case Title: Case 3: Negative Nancies

Case Description & Diagnosis (short synopsis): The patient is a 62-year-old male presenting to the emergency department for a headache and slight confusion. It is shift change, and participants are part of the oncoming care team. The patient is signed out as having a likely subarachnoid hemorrhage, awaiting confirmation on computed tomography (CT) scan. Upon returning from the CT scanner (which confirms the presence of a subarachnoid hemorrhage), the patient is found to have worsening altered mental status requiring intubation. The patient's airway becomes difficult to manage due to obesity and a beard, and participants enter a cannot intubate-cannot ventilate situation. While managing the difficult airway, the team leader must also manage a team of pessimistic coworkers.

Equipment or Props Needed:

- High fidelity simulator capable of simulating a difficult airway
- Electrocardiography monitor
- Pulse oximetry
- Blood pressure cuff
- Code cart with advanced cardiac life support (ACLS) medications
- Intubation equipment (e.g. bag valve mask, oxygen supply, direct laryngoscopy blades, endotracheal tubes, suctioning equipment, capnography, oropharyngeal airways)
- Difficult intubation equipment (e.g. Eschmann tracheal tube introducer – a.k.a. Bougie, fiberoptic intubation equipment)
- Obese suit and/or beard as moulage, if possible.

Confederates needed:

- Previous resident to provide check out.

Stimulus Inventory:

#1 Complete blood count (CBC)
#2 Basic metabolic panel (BMP)
#3 Coagulation Studies

Case 3: Negative Nancies

#4 Computed tomography of the head without intravenous (IV) contrast
#5 Role cards

Background and brief information: The patient is a 62-year-old male who presented to your hospital's emergency department via ambulance approximately 45 minutes ago. He was at home when he developed a sudden headache and experienced brief syncope. Upon arrival at the hospital, he was slightly confused, but was otherwise neurologically intact. He was evaluated by the resident who is now checking out at the end of his/her shift, and his disposition is pending results of laboratory studies and CT head without IV contrast.

Initial presentation: You are assuming care of this patient at check out. Per the report from the resident leaving, the patient had a Glascow coma scale (GCS) of 14 (-1 for confusion) when leaving the department for a CT scan of the head just a moment ago.

How the scenario unfolds: The patient returns from the CT scanner with worsening mental status. GCS is 7, requiring intubation. After use of rapid sequence intubation (RSI) medications, the patient is difficult to bag due to his obesity and his facial hair. The patient is difficult to intubate as well, and participants find themselves in a cannot intubate-cannot ventilate situation. During the intubation attempts, other team members make pessimistic and derogatory comments, and the team leader must manage these comments during a high-stress patient care situation. The case ends when either the patient has been successfully orotracheally intubated or the team leader requests cricothyrotomy equipment.

Critical actions:

1. Manage the team members making negative comments.
2. Recognize need to intubate due to low GCS.
3. Identify factors leading to a difficult airway and modify them as possible (lubrication jelly in facial hair, positive end expiratory pressure (PEEP) valve).
4. Successfully orotracheally intubate or request cricothyrotomy materials.

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 3: Negative Nancies

Case Title: Case 3: Negative Nancies

Chief Complaint: Headache, syncope, and altered mental status

Vitals: Heart Rate (HR) 96 Blood Pressure (BP) 156/92
Respiratory Rate (RR) 18 Temperature (T) 98.8°F
Oxygen Saturation (O_2Sat) 94%

General Appearance: Obtunded.

Primary Survey:

- **Airway:** Moans to painful stimuli.
- **Breathing:** Snoring respirations.
- **Circulation:** Pulses intact throughout.

History:

- **History of present illness:** The patient was in his usual state of health at home until one hour prior to arrival. At that time, he developed a sudden headache and passed out. He was alone when it happened. When he awoke, he called 911. Upon arrival to the emergency department, he was noted to be mildly confused but otherwise examination was within normal limits (GCS 14). The patient denied any associated chest pain, palpitations, dizziness, or shortness of breath to the previous provider. The resident who saw him ordered CBC, BMP, coagulation studies, and CT head without IV contrast. During sign out, the patient was taken to the CT scanner.
- **Past medical history:** Hypertension and non-insulin dependent diabetes.
- **Past surgical history:** None.
- **Patients medications:** Lisinopril, clonidine, glipizide.
- **Allergies:** Penicillin.
- **Social history:** Reported smoking ½ packs of cigarettes daily. Denied alcohol or illicit drug use.
- **Family history:** Hypertension in both parents and an older brother.

Secondary Survey/Physical Examination:

- **General appearance:** Obtunded. Snoring respirations. Obese. Has a beard.

Case 3: Negative Nancies

- **HEENT:**
  - **Head:** Normocephalic and atraumatic.
  - **Eyes:** Pupils 4 mm and reactive bilaterally.
  - **Ears:** Within normal limits.
  - **Nose:** Within normal limits.
  - **Throat:** Within normal limits.
- **Neck:** Thick neck due to adiposity, otherwise within normal limits.
- **Heart:** Regular rate and rhythm, no murmurs, rubs, or gallops.
- **Lungs:** Clear to auscultation bilaterally.
- **Abdominal/GI:** Within normal limits.
- **Genitourinary:** Within normal limits.
- **Rectal:** Within normal limits.
- **Extremities:** Within normal limits.
- **Back:** Within normal limits.
- **Neuro:** Must ask: GCS 7 (Eyes do not open for painful stimuli. Moans to painful stimuli. Withdraws to pain.) No obvious localizing deficits.
- **Skin:** Within normal limits.
- **Lymph:** Within normal limits.
- **Psych:** Unable to assess due to patient's clinical status.

Case 3: Negative Nancies

Results:

Complete blood count (CBC)

White blood count (WBC)	14.3 x1000/mm^3 (79% neutrophils, 14% lymphocytes)
Hemoglobin (Hgb)	13.8 g/dL
Hematocrit (HCT)	39.6%
Platelet (Plt)	198 x1000/mm^3

Basic metabolic panel (BMP)

Sodium	139 mEq/L
Chloride	99 mEq/L
Potassium	5.2 mEq/L
Bicarbonate (HCO_3)	20 mEq/L
Blood Urea Nitrogen (BUN)	387 mg/dL
Creatine (Cr)	2.1 mg/dL
Glucose	187 mg/dL
Calcium	9.3 mg/dL

Coagulation Studies

Prothrombin time (PT):	13.4 seconds
International normalized ratio (INR):	1.1
Partial thromboplastin time (PTT):	32 seconds

Case 3: Negative Nancies

Computed Tomography of the head without intravenous (IV) contrast (author's own image)

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 3: Negative Nancies

Role Cards

Team Leader

Announce yourself as team leader at the beginning of the scenario.

Team Member #1

Intermittently question orders given by team leader.

Team Member #2

Consistently make pessimistic comments throughout the case. (Try to say at least 10 negative comments.)

Team Member #3

Make negative comments about the performance of your team members during the case. (Try to make at least 10 negative/condescending comments.)

Team Member #4

May act and function normally and fill code team roles as needed.

Team Member #5

May act and function normally and fill code team roles as needed.

Team Member #6

May act and function normally and fill code team roles as needed.

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 3: Negative Nancies

SIMULATION EVENTS TABLE:

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
0:00 (Baseline)	The team receives check out from the previous resident.	Patient is not in the room; he is in the CT scanner.	
1:00	The previous resident has left.	The patient returns and is obtunded, as described in the physical examination above.	T 98.8°F HR 96 BP 156/92 RR 18 O_2sat 94%
2:00	The team leader should have placed the patient on a monitor and requested intubation equipment.	Laboratory and imaging studies are available. Point of care glucose is 128, if requested. The patient's breathing is becoming progressively shallower and more sonorous.	 HR 103 BP 156/92 RR 22 O_2sat 90%
4:00	The team leader should have ordered bag-valve-mask ventilation.	The patient will require additional maneuvers (e.g. PEEP valve, oropharyngeal airway, lubrication jelly in beard) to achieve successful bag-valve-mask ventilation.	If successful BVM: HR 95 BP 164/97 RR 18 O_2sat 94% If unsuccessful BVM: HR 108 BP 152/84 RR 26 O_2sat 85%
6:00	The team leader has requested that rapid sequence intubation medications be given.	The operator should enable one or more difficult airway features in the simulator (e.g. tongue edema, enlarged epiglottis, trismus, laryngospasm), depending on	HR 109 BP 149/83 RR 26 O_2sat 84%

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 3: Negative Nancies

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
		the skill level of learners, in order to complicate the endotracheal intubation.	
7:00	Team leader requests use of materials from difficult airway cart.	Patient continues to be difficult to intubate and difficult to ventilate unless appropriate adjunctive measures have been taken.	HR 108 BP 145/82 RR 27 O_2sat 83%
(Case Completion)	The patient is successfully intubated or the team leader calls for cricothyrotomy.	The case ends when (1) the patient is intubated or (2) the team leader recognizes that the patient has a failed airway and calls for cricothyrotomy. Given that the main teaching points for the case are related to communication, not airway management, the patient does not need a definitive airway prior to completion of the case.	If intubated; HR 92 BP 153/90 RR per vent O_2sat 99% If not intubated: HR 111 BP 142/81 RR 29 O_2sat 81%

Diagnosis:
Subarachnoid hemorrhage.

Disposition:
The patient will need to be admitted to an intensive care unit with neurosurgical consultation.

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents
Case 3: Negative Nancies

Pearls:

- Negative and/or derogatory team members can hinder effective patient care.
- Team leaders can intervene to improve team morale.

Other debriefing points:

1. How did the "negative Nancies" impact the progress of the case?
2. What effective management strategies were or could be employed to manage the pessimistic/negative team members? Why is that important?
3. As a leader, in what ways can we edify or build up our team? What impact do you think that would have?

DIDACTICS AND HANDS-ON CURRICULUM SIMULATION ASSESSMENT

Case 3: Negative Nancies

Learner: _____

Assessment Timeline

This timeline is to help observers assess their learners. It allows observer to make notes on when learners performed various tasks, which can help guide debriefing discussion.

Critical Actions	0:00
1. Manage the team members making negative comments. 2. Recognize need to intubate due to low GCS. 3. Identify factors leading to a difficult airway and modify them as possible (lubrication jelly in facial hair, PEEP valve). 4. Successfully orotracheally intubate or request cricothyrotomy materials.	

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents

Case Title: Case 4: Flaw and Disorder

Case Description & Diagnosis (short synopsis): The patient is a 72-year-old male admitted to a medical-surgical (med-surg) floor for altered mental status in the setting of a urinary tract infection. He has a known history of coronary artery disease and develops cardiac arrest while in the hospital. Participants are members of the hospital's code blue team and are responding to the patient's room. Several participants are given tasks that lead to distractions and disruptions in patient care, and the team leader must find a way to effectively manage the disruptive team members.

Equipment or Props Needed:

- High fidelity simulator
- Electrocardiography monitor
- Pulse oximetry
- Blood pressure cuff
- Code cart with advanced cardiac life support (ACLS) medications
- Intubation equipment (e.g. bag valve mask, oxygen supply, direct laryngoscopy blades, endotracheal tubes, suctioning equipment, capnography, oropharyngeal airways)
- Defibrillator
- Cellular phone

Confederates needed:

- Med-Surg nurse who was assigned to him, to give information about his hospital course and past medical history.

Stimulus Inventory:

#1 Complete blood count (CBC)
#2 Basic metabolic panel (BMP)
#3 Urinalysis
#4 Admission Electrocardiogram (ECG)
#5 Admission Chest radiograph (CXR)

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

#6 Role cards

Background and brief information: The patient is a 72-year-old male who was admitted yesterday to a geriatric medical-surgical floor of your hospital for urinary tract infection with altered mental status. He engaged his nursing call light and complained of chest pain. His nurse went to his room to check on him, found him pulseless and unresponsive, and called a code blue. You are the code blue team responding to the patient's room.

Initial presentation: Pulseless and unresponsive.

How the scenario unfolds: The patient will proceed through several ACLS rhythms. Typical ACLS protocol will be followed. The patient will experience return of spontaneous circulation at the completion of the case.

Critical actions:

1. Manage disruptive team members.
2. Perform appropriate ACLS.
3. Request transfer of the patient to the medical intensive care unit.

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

Case Title: Case 4: Flaw and Disorder

Chief Complaint: Code blue.

Vitals: Heart Rate (HR) N/A
Blood Pressure (BP) N/A
Respiratory Rate (RR) 0
Temperature (T) 97.1°F
Oxygen Saturation (O_2Sat) N/A

General Appearance: Pulseless and unresponsive.

Primary Survey:

- **Airway:** Not talking.
- **Breathing:** Not breathing.
- **Circulation:** Pulseless.

History:

- **History of present illness:** Per chart review, the patient presented to the emergency department yesterday for altered mental status. His workup was unremarkable aside from evidence of a urinary tract infection. The patient was admitted to the geriatric medical-surgical floor for antibiotic therapy and continued observation.
- **Past medical history:** Per chart review, dementia, hypertension, hyperlipidemia, coronary artery disease, and non-insulin dependent diabetes.
- **Past surgical history:** Per chart review, two-vessel coronary artery bypass graft (CABG) 3 years ago.
- **Patient's medications:** Per chart review, lisinopril, nifedipine, simvastatin, insulin glargine, insulin lispro, aspirin, donepezil, and now ciprofloxacin.
- **Allergies:** Per chart review, shellfish.
- **Social history:** Per chart review, the patient has prior history of tobacco use (25 pack-years), but does not endorse current tobacco, alcohol, or illicit drug use.
- **Family history:** Per chart review, hypertension in his mother and diabetes in his father.

Secondary Survey/Physical Examination:

- **General appearance:** Pulseless and unresponsive.
- **HEENT:**

  - **Head:** Normocephalic and atraumatic.
  - **Eyes:** Pupils 5mm bilaterally and unreactive.
  - **Ears:** Within normal limits.
  - **Nose:** Within normal limits.
  - **Throat:** Within normal limits.
- **Neck:** Within normal limits.
- **Heart:** Pulseless. Well-healed sternotomy scar evident over anterior chest.
- **Lungs:** Absent breath sounds bilaterally. No spontaneous respirations.
- **Abdominal/GI:** Within normal limits.
- **Genitourinary:** Within normal limits.
- **Rectal:** Within normal limits.
- **Extremities:** Within normal limits.
- **Back:** Within normal limits.
- **Neuro:** Within normal limits.
- **Skin:** Cool. Gray.
- **Lymph:** Within normal limits.
- **Psych:** Unable to assess due to patient's clinical status.

Results:

Complete blood count (CBC)

White blood count (WBC)	12.1 x1000/mm^3 (79% neutrophils, 12% lymphocytes)
Hemoglobin (Hgb)	11.8 g/dL
Hematocrit (HCT)	34.1%
Platelet (Plt)	278 x1000/mm^3

Basic metabolic panel (BMP)

Sodium	141 mEq/L
Chloride	97 mEq/L
Potassium	4.5 mEq/L
Bicarbonate (HCO_3)	22 mEq/L
Blood Urea Nitrogen (BUN)	32 mg/dL
Creatine (Cr)	1.1 mg/dL
Glucose	104 mg/dL
Calcium	9.1 mg/dL

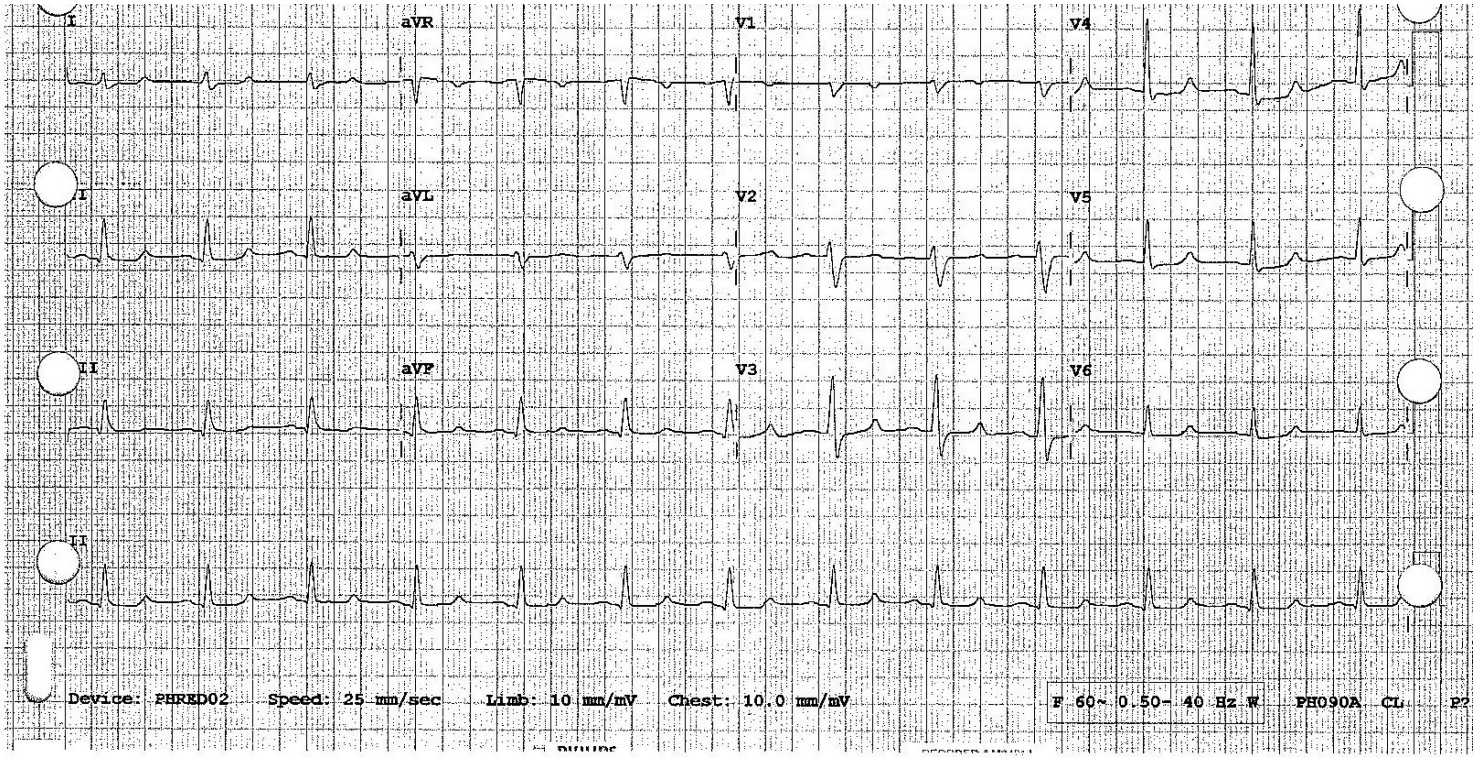
Urinalysis

pH:	6.8
Specific Gravity:	1.021
Protein:	Small
Glucose:	None
Ketones:	20
Blood:	Small
Nitrites:	Positive
Leukocyte Esterase:	Positive
WBC:	49/HPF
RBC:	6/HPF
Epithelial cells:	Few
Bacteria:	Many

DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

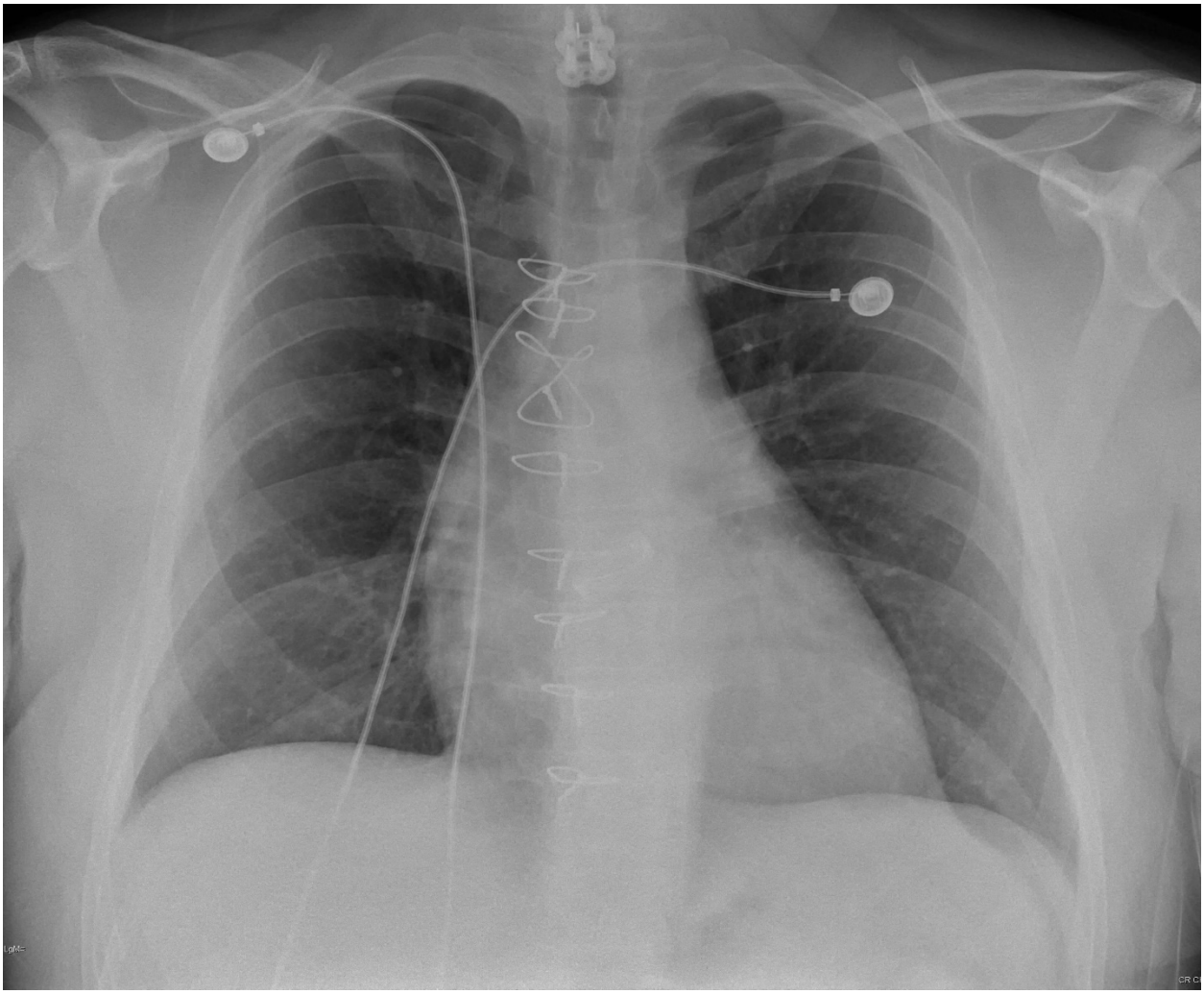
Admission ECG (author's own image)



DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

Admission Chest Radiograph (author's own image)



DIDACTICS AND HANDS-ON CURRICULUM INSTRUCTOR MATERIALS

Case 4: Flaw and Disorder

Role Cards

Team Leader

Identify yourself as the team leader at the beginning of the scenario

Team Member #1

Find the other person with the same card. Begin discussing your weekend plans during the resuscitation.

Team Member #2

Find the other person with the same card. Begin discussing your weekend plans during the resuscitation.

Team Member #3

Pretend to answer a cell phone call from a team member during the case. Loudly describe what is happening with the patient's care.

Team Member #4

Read back several of the team leader's orders incorrectly.

Team Member #5

Try to perform tasks before an order is given

Team Member #6

May act and function normally and fill code team roles as needed

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 4: Flaw and Disorder

SIMULATION EVENTS TABLE:

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
0:00 (Baseline)	The team enters the room.	The patient is in ventricular fibrillation. The nurse is in the room alone performing chest compressions. When members of the team take over for her, she can provide any information that the team leader or other team members ask, including admission laboratory and/or imaging studies.	T 97.1°F HR 0 BP N/A RR 0 O_2sat N/A
00:30	The team leader assigns roles, orders defibrillation, and ensures initiation of appropriate ACLS measures.	The patient remains in ventricular fibrillation. The team leader may call for intubation. Intubation equipment should be in the room, but intubation is not a critical action as long as sufficient bag valve mask ventilation is being provided. If an ultrasound is requested, it is being used in another room and is unavailable.	HR 0 BP N/A RR 0 O_2sat N/A
02:30	The team leader should order defibrillation. The patient should have received 1 mg epinephrine and 300 mg amiodarone. Pulse check.	The patient is in pulseless ventricular tachycardia.	HR 0 BP N/A RR 0 O_2sat N/A
04:30	The team leader should order defibrillation. ACLS continues. It is time for a pulse check.	The patient remains in pulseless ventricular tachycardia.	HR 0 BP N/A RR 0 O_2sat N/A

DIDACTICS AND HANDS-ON CURRICULUM OPERATOR MATERIALS

Case 4: Flaw and Disorder

Minute (State)	Participant action/ Trigger	Patient Status (Simulator response) & Operator Prompts	Monitor Display (Vital Signs)
06:30	The team leader should order defibrillation. ACLS continues. The patient should have received an additional 1 mg epinephrine and (optionally) another 150 mg amiodarone.	The patient remains in pulseless ventricular tachycardia.	HR 0 BP N/A RR 0 O_2sat N/A
08:30	Chest compressions continue. The team leader orders an additional 1 mg epinephrine. It is time for a pulse check.	The patient has a pulse. This can be delayed as necessary if the team leader has not successfully managed the distracting team members and performed appropriate ACLS.	T 97.1°F HR 78 BP 112/74 RR per vent or bagging O_2sat 95% (FiO2 100%)
(Case Completion)	Team leader requests patient transfer to the medical intensive care unit.		

Diagnosis:
Cardiac arrest of undetermined etiology.

Disposition:
The patient will need to be transferred to the medical intensive care unit.

A Simulation-Based Curriculum for the Development of Leadership and Communication Skills for Emergency Medicine Residents
Case 4: Flaw and Disorder

Pearls:

- Distractions can be detrimental to patient care, especially in critical situations.
- Team leaders can employ techniques to minimize distractions and focus team members on patient care tasks.

Other debriefing points:

1. What things made this case difficult?
2. How did the team leader manage disruptive team members? Could anything have been done differently?
3. Did a particular leadership style seem particularly relevant/appropriate?
4. What insights does this provide into working with difficult team members?

DIDACTICS AND HANDS-ON CURRICULUM SIMULATION ASSESSMENT

Case 4: Flaw and Disorder

Learner: _____

Assessment Timeline

This timeline is to help observers assess their learners. It allows observer to make notes on when learners performed various tasks, which can help guide debriefing discussion.

Critical Actions	0:00
1. Manage disruptive team members. 2. Perform appropriate ACLS. 3. Request transfer of the patient to the medical intensive care unit.	