

Interprofessional Team Communication Adult Acute Care Simulation Set-Up and Curriculum Guide

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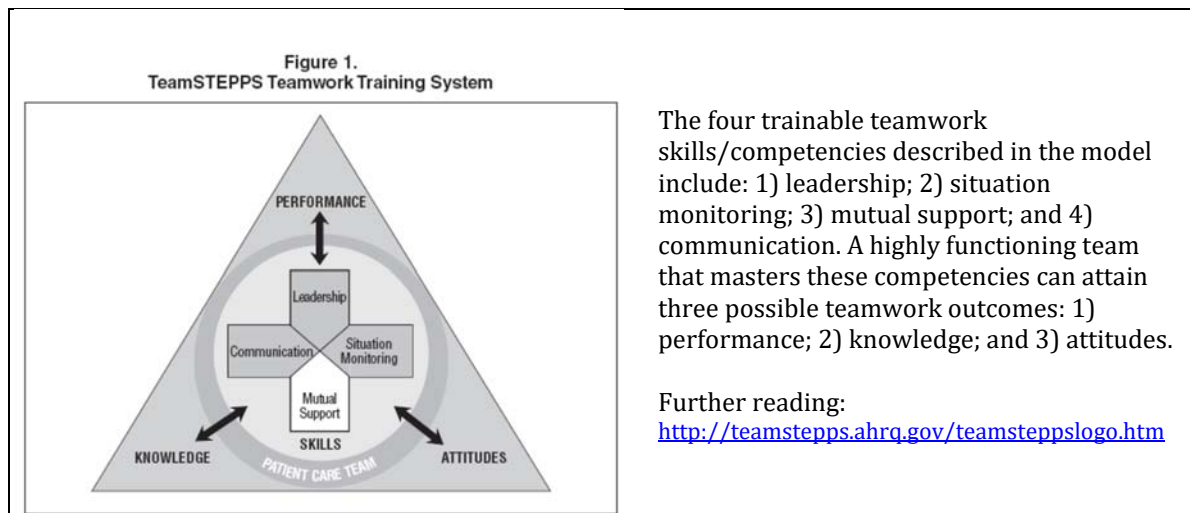
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Getting Started

Purpose: Interprofessional Team Communication Simulation Set-up and Curriculum Guide

The content in this set-up guide was developed by the Macy grant team at the University of Washington, who were funded in 2008 to develop and integrate interprofessional team training into existing curriculum in the Health Sciences schools of Medicine, Nursing, Pharmacy and the Physician Assistant Program.

The instructions in this guide are for **LEAD INSTRUCTORS** setting up interprofessional team training using simulation as the vector by which health sciences students can learn together to develop and improve basic, intermediate and more advanced levels of communication skills. The Macy team used **Team** Strategies and **T**ools to **E**nhance **P**erformance and **P**atient **S**afety (TeamSTEPPS) as a framework for the team communication training (see figure 1).



The content was piloted in 2010 with a group of 50 students and then rolled out to a larger group of 300+ students in 2011.

This guide provides the content and the structure used by the Macy grant team to set-up and run their simulation scenarios.

Organization of content

This guide is organized as follows:

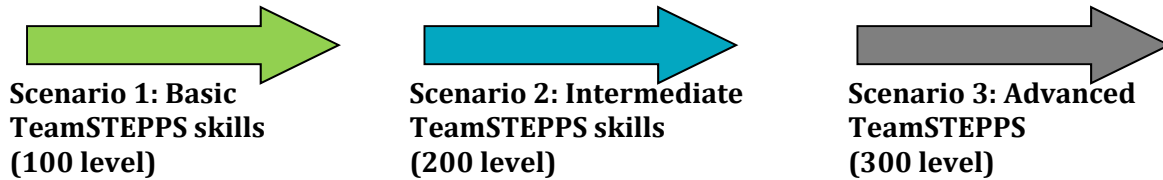
Example Half-Day Simulation Session Agenda: Used by the Macy Grant Team when conducting their team communication training. Depending on group size, simulations can be run simultaneously or as a progressive series of simulations.

Faculty Requirements: It is ideal if at least one of the facilitators in the group has some knowledge and familiarity with TeamSTEPPS, instructional background using simulation, and the clinical knowledge needed to run the scenario. Often the instructors may need to step in and help

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the students with clinical knowledge in order to keep the scenario on track so students can focus on communication skills rather than medical management.

TeamSTEPPS Debriefing Guide: Includes the communication objectives to cover in the simulations scenarios. Ideally, the curriculum is designed to run three scenarios. Each scenario builds on each other and progresses from basic to more advanced level communication skills.



TeamSTEPPS Glossary. Summarizes the most frequently used TeamSTEPPS concepts and terminology. The Macy Grant Team passed out the glossary to students during the simulation training for quick reference.

Simulation Scenarios. The Macy Grant Team developed three simulation scenarios.

1. Clinical Scenario: Dyspnea in a Hospitalized Patient
2. A Postoperative Patient with Tachycardia
3. A Teenager with Asthma

Each simulation scenario section includes the following:

- Overview
- Timeline
- Scenario Participants
- Clinical Overview
- Introduction to Simulator
- Debriefing Tips
- Handoff Sheets (if applicable to scenario)
- Admit History and Physical
- Information for Actors playing the roles of either patient or family member
- Simulation Scenario Requirements and Equipment
- Storyboard
- Data and Results

Example Half-day Agenda

Note: Simulations in this session were run simultaneously with 3 separate instructor teams

Time	Activity	Facilitators	Materials Needed:
7:30–8:00 AM	Students arrive and sign in	Front desk/reception	1. Student packets and nametags
8:00–8:50 AM	Icebreaker: Paper chain (link to ice-breaker) (36 students, 6 per group) - As a team your goal is to create the longest chain made out of paper links in 2 minutes, go! - Quick debrief: What worked? Who emerged as leaders? - Now, same goal but you can't use your dominant hand - How did you work together? - Now, you can use any resources in the room, but you can't talk - Communication and situational awareness? TeamSTEPPS Didactic Presentation Introduce check back, call out, SBAR	TeamSTEPPS facilitator	- Paper - Tape dispensers - Scissors - TeamSTEPPS Powerpoint
8:50–9:00 AM	Explanation of Day, any forms used (eg, observational forms)		1. PPT slides for observational tool
9:00–9:10 AM	<i>Break and transition into 3 groups of 6-12 Students</i>		
9:10–9:50 AM (40 min)	Run Scenario in Groups - Intro (5min) - Content didactic (5min) - Run scenario (15min) - o Group A (6 students) does scenario - o Group B (6 students) observes/has checklist - Debrief (15min)	faculty TBD (pharmacy, medicine, nursing, PA)	- Simulator & student/staff playing role of family member – SVT - SP – CHF (patient) - SP – Asthma (family member) - TeamSTEPPS pocket guides - Clipboards for observers
9:50–9:55 AM	<i>Walk from station 1 to station 2</i>		
9:55–10:35 AM (40 min)	Run Scenario in Groups - Intro (5min) - Content didactic (5min) - Run scenario (15min) - o Group B does scenario - o Group A observes/has checklist - Debrief (15min)	faculty TBD (pharmacy, medicine, nursing, PA)	SAME AS ABOVE
10:35–10:40AM	<i>Walk from station 2 to station 3</i>		
10:40–11:20 AM (40 min)	Run Scenario in Groups - Intro (5min) - Content didactic (5min) - Run scenario (15min) - o 6 student volunteers do scenario - o Other 6 students observes/has checklist - Debrief (15min)	faculty TBD (pharmacy, medicine, nursing, PA)	SAME AS ABOVE
11:20–11:30AM	<i>Transition back to big group</i>		
11:30 AM–12:00PM	Wrap up Goals: - Reflections of students - Descriptions of roles - Debrief as large group	Faculty to lead big debrief	Whiteboard

Faculty Requirements

All faculty should be familiar with the basics of TeamSTEPPS. A narrated slide set is available for review on the collaborate.uw.edu website and a glossary of terms is included. Link to [TeamSTEPPS module](#).

Faculty new to simulation can also review an online module [Introduction to Clinical Simulation](#).

Faculty should also be familiar with the management of the clinical problems presented by the simulation scenario they will facilitate. These are fairly straightforward, and the faculty guide for each scenario includes background information and common issues that arise.

Course Name/Design Group Info

Development Team:	Brenda Zierler, Brian Ross, Karen McDonough, Sara Kim, Linda Vorvick, Peggy Odegard, Sarah Shannon, Sharon Wilson
Intended Audience:	4 th Year Medical Students, 4 th Year Nursing Students, 4 th Year Pharmacy Students, 2 nd Year Physician Assistant Students
Participants:	Each Module requires: • 2 medical students playing roles of residents • A physician assistant playing the role of a medical provider on the team • A nursing student playing the role of a bedside nurse • A nursing student playing the role of a floor nurse available to give assistance • A pharmacy student playing the role of an inpatient pharmacist

Debriefing

LET THE TRAINEES DO MOST OF THE TALKING

You should just be a facilitator. Let them bring up the issues they feel need to be discussed and you finish by filling in what was not discussed.

START with a Clinical Debrief

Start by addressing clinical mistakes or other clinical issues the team brings up. Students will not be able to focus on communication skills if they have major clinical questions or concerns. However, do not spend much time on this (< 5 min). Scenario-specific debriefing tips are included with each scenario.

SPEND THE MAJORITY OF THE TIME on TeamSTEPPS Debrief

Start by asking open ended questions. As participants respond, rephrase their responses back to them as TeamSTEPPS skills that will be covered in that module. If one of the skills is not brought up by the group, you can bring it up briefly at the close of the debrief.

How did it go?

Remember the trainees will be hard on themselves so encourage them to focus initially on what they did well. Most of the feedback trainees receive throughout their training is negative, so the whole tenor of the debrief can be affected and improved by starting with positive feedback.

What did you do well? *Don't let them go to what they did badly, but what they did well first*

What could you do better? *This question will often get you off the hook for telling them what they did badly. When you ask this question the trainees will invariably bring up those management areas that you were going to mention.*

What will you do differently next time? *This will help the trainees focus on really making meaningful but simple changes for the next time.*

Finish by prompting them about any specific TeamSTEPPS skills that did not come out with open ended questions. (see below)

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The examples below* allow the facilitator to draw out from the team the behaviors which they themselves exhibited and observed. The behaviors on the left side of the matrix are positive, and the ones on the right are negative. Usually the team members are able to see what they did and decide if it was “good” or “bad”.

<i>Element</i>	<i>Positive</i>	<i>Negative</i>
Establish the Team	Relaxed, supportive and approachable Creates atmosphere for open communication Encourages input / feedback from others Does not compete with others Polite and friendly Appropriate use of humor	Tense, unapproachable and awkward to relate to Blocks open communication Ignores barriers between team members Competes with other Rude and dismissive Inappropriate use of humor
Closed Loop Communication	Uses name, eye contact, or pointing when making request Repeats the request Reports back to the team leader when request is completed	Makes a request without directing towards a specific team member Ignores to repeat the request Fails to report back to the team leader regarding the status of the request

**Adapted from TeamSTEPPS and British Airways Check-flight Debrief Tool*

TeamSTEPPS Debrief #1 – 100 Level Skills

1. **Discuss the concepts of:**
 - A. Conducting a Debrief
 - B. Leadership
 - making requests
 - expecting cross-checks
 - task prioritization
 - workload balance
2. **Discuss Communications Skills**
 - A. Request
 - B. Cross-check
 - C. Check-back
 - D. Call Out
 - E. SBAR

TeamSTEPPS Debrief:

Ask: How did you do at incorporating the Team STEPPS communication skills into your management of this patient?

1. Did you know who your **leader** was?
 - Someone assuming the leadership role — *Point out* how when someone assumed a leadership role it helped the team plan for the times when team members were no longer able to communicate verbally. If none of the groups had a member who did this, point out how this would have helped.
2. Did you have **clearly defined team roles**?
 - Clearly defined team roles — *Ask* if any of the teams had designated people who agreed to take on certain roles. *Ask* if anyone was standing around wondering what to do because a clearly defined role was lacking.
3. **Task Prioritization**
 - Did the tasks get done in the correct order with emphasis on the most important first?
 - Did the tasks get reassigned if someone was assigned and was unable to complete the task?
4. **Communication** – *Please discuss* these specific communication skills:

Making a **Request**

- Look at the person you are making the request to, point at the person you are making the request to

Cross-checks

- Process of expecting and demanding ‘parroting’ of requests:
 1. Sender initiates the message
 2. Receiver accepts the message and provides feedback
 3. Sender double-checks to ensure that the message was received

Check-backs

- Process of employing closed-looped communication to ensure that information conveyed by the sender is

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understood by the receiver as intended

- Checking back with the leader when the task is completed or their inability to complete the task
- Did you have the opportunity to practice closed-loop communication?

Call-Outs

- Strategy used to communicate important or critical information
 - informs all team members simultaneously during emergent situations
 - helps team members anticipate next steps
 - important to direct responsibility to a specific individual responsible for carrying out the task
- Reporting to the leader or team unrequested information
- Reporting to the leader or team important information that was requested

SBAR: Situation, Background, Assessment, Recommendation

- Often it might be better to start with the recommendation, then B, then A, then repeat R

Situation: What is going on with the patient?

Background: What is the clinical background or context?

Assessment: What I think the problem is?

Recommendation and Request: What would I do to correct it?

TeamSTEPPS Debrief #2 – 200 Level Skills

1. **Discuss the concepts of:**
 - A. Situational Awareness
2. **Discuss Communications Skills**
 - A. Briefs
 - B. Debriefs
 - C. Huddles
 - D. Handoffs
 - E. SBAR

TeamSTEPPS Debrief:

As participants respond, rephrase their responses back to them as TeamSTEPPS skills. If one of the skills is not brought up after each group responds, you can bring it up later.

Ask: How did you do at incorporating the Team STEPPS communication skills into your management of this patient?

1. Situational Awareness — the state of knowing the current conditions affecting the team's work

- Knowing the status of a particular event
- Knowing the status of the team's patients
- Understanding the operational issues affecting the team
- Maintaining mindfulness

Conditions that Undermine Situation Awareness (SA): Failure to-

- a) Share information with the team
- b) Request information from others
- c) Direct information to specific team members
- d) Include patient or family in communication
- e) Utilize resources fully (e.g., status board, automation)

Process of *actively scanning* behaviors and actions to assess elements of the situation or environment

- a) Fosters mutual respect and team accountability
- b) Provides safety net for team and patient
- c) Includes cross monitoring
- d) *Remember, engage the patient whenever possible.*

3. Team Skills

Brief

- Short session (this is not a LONG) prior to the start of – the day, a clinic, a procedure, etc – to discuss team formation; assign essential roles; establish expectations and climate; anticipate outcomes and likely contingencies
- Should address the following questions:
 - Who is on the team?
 - All members understand and agree upon the goals?

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Roles and responsibilities are understood?
What is our plan of care?
Staff and provider's availability throughout the shift?
Workload among team members – balance and prioritized?
Availability of resources?

Debrief

- Informal information exchange session designed to improve team performance and effectiveness; after action review; should follow the plan:
 - “What did you do or what went well”,
 - “What could you have done better?”
 - End with: “What should we do differently next time?”
- Should address the following questions:
 - Communication clear?
 - Roles and responsibilities understood?
 - Situation awareness maintained?
 - Workload distribution equitable?
 - Task assistance requested or offered?
 - Were errors made or avoided? Availability of resources?

Huddle

- Ad hoc planning, often around a single patient or event to establish or reestablish situational awareness; reinforcing plans already in place; and assess the need to adjust the plan. Huddles can frequently happen several times during a critical event.

Hand-Off

- The transfer of information (along with authority and responsibility) during transitions in care across the continuum; to include an opportunity to ask questions, clarify, and confirm. *Examples:*
 - Shift changes
 - Physicians transferring complete responsibility
 - Patient transfers

SBAR: Situation, Background, Assessment, Recommendation

- Often it might be better to start with the recommendation, then B, then A, then repeat R

Situation: What is going on with the patient?

Background: What is the clinical background or context?

Assessment: What I think the problem is?

Recommendation and Request: What would I do to correct it?

TeamSTEPPS/Team Skills Debrief #3 – 300 Level Skills

- **Discuss the concepts of:**
 - A. Mutual support
- **Discuss Communications Skills**
 - A. CUS
 - B. 2-Challenge Rule
 - C. DESC

TeamSTEPPS Debrief:

As participants respond, rephrase their responses back to them as TeamSTEPPS skills that will be covered in the training. If one of the skills is not brought up after each group responds, bring up that skill briefly afterward.

Ask: How did you do at incorporating the Team STEPPS communication skills into your management of this patient?

4. Mutual Support —

- Is the essence of teamwork
- Protects team members from work overload situations that may reduce effectiveness and increase the risk of error

CUS: I am Concerned!
 I am Uncomfortable!
 This is a Safety Issue

2 Challenge Rule:

- Empower any member of the team to "**stop the line**" if he or she senses or discovers an essential safety breach.
- This is an action never to be taken lightly, but it requires immediate cessation of the process and resolution.

When an initial assertion is ignored...

- it is your responsibility to assertively voice concern at least **two times** to ensure it has been heard
- the team member being challenged must acknowledge
- if the outcome is still not acceptable: take a stronger course of action and utilize supervisor or chain of command

DESC-It (*Describe, Express, Suggest, Consequences*)

- A constructive approach for managing and resolving conflict
 - D** Describe the specific situation or behavior; provide concrete data
 - E** Express how the situation makes you feel/what your concerns are
 - S** Suggest other alternatives and seek agreement
 - C** Consequences should be stated in terms of impact on established team goals; strive for consensus

TeamSTEPPS Glossary

Concept	Definition
Brief	Short planning session prior to start to discuss team formation; assign essential roles; establish expectations and climate; anticipate outcomes and likely contingencies.
Huddle	Ad hoc problem solving planning to reestablish situation awareness; reinforcing plans already in place; and assessing the need to adjust the plan.
Debrief:	Informal information exchange session designed to improve team performance and effectiveness; after action review.
Step Process:	A tool for monitoring situations in the delivery of health care. Components of STEP situation monitoring include: 1) <u>Status of the patient (S)</u>: patient history, vital signs, medications, physical exam, plan of care, psychosocial 2) <u>Team members (T)</u>: fatigue, workload, task performance, skill, stress 3) <u>Environment (E)</u>: facility information, administrative information, human resources, triage acuity, equipment 4) <u>Progress toward goal (P)</u>: status of team's patients, established goals of team, tasks/actions of team, plan still appropriate.
Two-Challenge Rule:	When an initial assertion is ignored <u>it is your responsibility to assertively voice the concern at least two times to ensure it has been heard</u> . The team member being challenged must acknowledge. If outcome is still not acceptable, take a stronger course of action or use chain of command.
CUS:	Statement of: I am <u>C</u> oncerned, I am <u>U</u> ncomfortable, This is a <u>S</u> afety Issue!
DESC Script:	Approach to managing and resolving conflict. 1) <u>D</u>escribe the specific situation or behavior; provide concrete data 2) <u>E</u>xpress how the situation makes you feel/what your concerns are 3) <u>S</u>uggest other alternatives and seek agreement 4) <u>C</u>onsequences should be stated in terms of impact on established team goals; strive for consensus
SBAR:	Technique for communicating critical information that requires immediate attention and action concerning a patient's condition: 1) <u>S</u> ituation (what is going on with the patient?), 2) <u>B</u> ackground (what is the clinical background or context?), 3) <u>A</u> ssessment (what do you think the problem is?), 4) <u>R</u> ecommendation and Request (what would I do to correct it?).
Call-Out:	Strategy used to communicate important or critical information. E.g. Team Leader Calls out = "Airway status?", Assessing Clinician Response= "Airway status clear"
Check Back:	Process of employing closed-loop communication to ensure that information conveyed by the sender is understood by the receiver as intended. E.g. Team leader "Give 25 mg Benadryl IV push", Clinician: "25 mg Benadryl IV push", Team Leader "That's correct"
Hand-Off Techniques:	Transfer of information (along with authority and responsibility) during transitions in care across the continuum; to include an opportunity to ask questions, clarify, and confirm.

Clinical Scenario: Dyspnea in a Hospitalized Patient

Overview

Phil Brown is a 72 year old man who passed bright red blood with a bowel movement 12 hours ago. After several more episodes, he came into the Emergency Dept. He was hemodynamically stable, and hematocrit was 24 about 10 hours ago. No active bleeding was seen with anoscopy at that time. He was admitted to the medical floor received IV fluids and 2 units of red cells, and is being prepared for a colonoscopy tomorrow. It is 2300 shift change. The primary medical team has signed out to the cross cover team, and the nurses have just changed shifts. Phil, played by a patient actor, awakes acutely short of breath.

The scenario begins with the handoff from Phil's evening shift nurse(s), played by a faculty member, to the night nurse, played by a nursing student. The student nurse will have the opportunity to clarify and summarize the handoff communication.

When the night nurse(s) assesses Phil, he finds the patient to be acutely dyspneic. After a rapid assessment, the nurse should call the cross-cover intern or PA, communicate his concern, findings, and assessment, and make a recommendation that the patient be evaluated immediately. The cross-cover intern or PA, who has been sitting in the 'team room' with the other resident(s) and pharmacist should inform the rest of the team of the situation and report to the patient's room.

The team then evaluates and manages Phil's dyspnea. On his initial exam, he has loud crackles and difficult to hear heart sounds. A chest x-ray (if requested) is consistent with pulmonary edema. An ECG shows tachycardia. Routine labs show improvement of anemia post-transfusion, and a blood gas shows hypoxia.

If Phil receives diuretics, his symptoms quickly improve. His lungs clear, and an aortic stenosis murmur becomes easily audible if he is re-examined. The examiner has the opportunity to 'callout' the new finding, and the team can then revise their shared mental model.

Unbeknownst to the cross cover team, Phil had a loud murmur on admission. This was not signed out to the cross cover intern. He has unrecognized calcific aortic stenosis (which will be audible to the student using a Ventriroscope) and has developed CHF in the setting of excess volume administration.

The scenario then cuts to 7 am, when the primary intern (played by faculty) arrives back at the hospital, and the cross-cover intern or PA hands off Phil's care and scenario ends.

The focus of the scenario should be on the communication between team members, not the medical management.

Timeline

- 5 minutes** Brief review of the differential diagnosis and initial workup of dyspnea in a hospitalized patient. This clinical review should allay student anxiety about clinical management, and allow them to focus more on team communication.
- 5 minutes** Introduction to the Ventriloscope and the simulation setting
- 15 minutes** Run scenario
- Act 1, Scene 1: Handoff from evening to night nurse(s) and initial assessment
 - Act 2: Team evaluates and manages Phil's dyspnea
 - Act 3: Phil improves following diuretics, and an AS murmur becomes audible
 - Act 4: The cross-cover intern or PA hands Phil's care back to the primary Intern
- 15 minutes** Debrief

Scenario Participants

Medical and/or PA students (maximum 3)

- A.** Intern cross-covering the patient or PA receives the 'sign-out sheet'
- B.** Senior resident(s)

Nursing students (work as a team; maximum 2)

- A.** Primary night nurse
- B.** A second floor nurse

Pharmacy student(s) (work as a team; maximum 2)

- A.** Medical floor pharmacist

Student observers (remaining students not assigned a role)

1 Nursing faculty – provides handoff to the primary night nurse to start the scenario. If things are not flowing smoothly, could also “come back to help out”.

1 Medicine faculty – acts as the primary intern, who receives signout from the cross-cover team the following morning to end scenario realistically.

Clinical Overview

One faculty member should briefly discuss the differential diagnosis, initial evaluation, and initial management of acute dyspnea in the hospital. This should be interactive, and take < 5 minutes. You do not need to cover all the information below – it is included as a refresher.

Example outline:

“Acute shortness of breath is a common problem in hospitalized patients, and it’s the problem you’ll be assessing and managing in this scenario. Say your patient is complaining of dyspnea – what is your initial differential diagnosis, before you have any additional information?”

Major causes of dyspnea in the hospital

Cardiac

- Volume overload
- Ischemia
- Arrhythmia
- Tamponade

Pulmonary: Parenchymal (Abnormal CXR)

- Healthcare associated pneumonia
- Aspiration
- ARDS/Acute Lung Injury
- Transfusion related ALI
- Pneumothorax

Pulmonary: Airflow (Often normal CXR)

- Asthma
- COPD
- Anaphylaxis/hypersensitivity
- Upper airway obstruction (angioedema)
- Lower airways obstruction (mucous plugging)

Pulmonary Vascular (Normal CXR)

- Pulmonary Embolism
- Air embolism

Metabolic

- Sepsis
- Acidosis
- Anemia

“What will your initial evaluation consist of?”

1. Focused history & physical
2. Review recent treatment and procedures
3. Chest radiograph
4. ECG
5. Blood gas
6. Labs: Troponin, BNP, CBC, Chem, Coag indices
7. Consider advanced imaging for PE/DVT

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“Obstructive lung disease, pulmonary edema, healthcare associated pneumonia, anxiety, and pulmonary embolism are the most common reasons for acute dyspnea in the hospital. What would your first steps in treatment be for each of these?”

Obstructive airways disease:

Bronchodilators, steroids

Non-invasive bi-level positive pressure ventilation: Good for COPD, less helpful for asthma

Cardiogenic Pulmonary Edema:

Treat underlying ischemia or rhythm

LMNOP: Lasix, Morphine, Nitrates, Oxygen, Pressure (Bi-PAP)

Health Care Associated Pneumonia

Broad spectrum antibiotics to cover resistant GNR and GPC

Narrow antibiotics based on sputum GS and culture later

Pulmonary embolism

If high suspicion of PE, low risk of bleeding. Can start anti-coagulation prior to definitive imaging

Non-massive PE: Un-fractionated heparin (UFH) or LMWH

Massive PE: ICU Evaluation, UFH, consider tPA

Anxiety

Reassurance

Pharmacologic therapy should probably be withheld until other diagnoses excluded with reasonable certainty

Introduction to Simulator

One faculty member should introduce the students to the simulation scenario and equipment, in some detail.

This introduction should cover:

A Overview of scenario:

"In this scenario, you'll be caring for Phil Brown, a 72 year old man admitted earlier today with a GI bleed, who is now acutely short of breath. Phil is on a medical floor, in a standard hospital room, getting prepped for a colonoscopy in the morning. It is about midnight, shortly after change of shift for the nurses. The medical team is the cross-cover team, who got sign-out on Mr. Brown 3 hours ago."

B Overview of equipment

"Phil is a patient-actor, in a standard hospital bed and a monitor capable of displaying simulated vitals and telemetry. This is the automated blood pressure cuff connected to the monitor. You will need to call out a request for continuous monitoring. If you place Phil on telemetry, O2 Sat and/or automatic blood pressure monitoring, his results will automatically display."

"Phil should be examined using this special stethoscope, called a ventriloscope. It plays the exam findings we would like you to hear and incorporate into your diagnostic thinking. Be sure you hear the findings or ask if none heard. Our patient-actor's physical exam is actually normal, but with this ventriloscope you may detect abnormal findings."

"Use the telephone (or pretend to use) to call the medical team room to come stat to evaluate patient."

"Phil has an IV you can inject medications and draw 'blood' from. Medications are located on this pharmacy cart. Syringes and phlebotomy supplies without needles, and blood tubes are here. If you are asked to draw blood or administer meds, use this IV."

"Respiratory equipment, including nasal cannula and a non-rebreather mask are at the head of the bed."

C Diagnostic testing and results

"Phil had repeat labs drawn just before the scenario start and the night nurse has the results. You can call the lab for add on labs. If you want a blood gas, you should go through the motions of obtaining one without a needle on the ABG syringe. Results will be called out when available. If you want an ECG, ask for one to be done. You will be handed a printout of the ECG. If you want a chest x-ray, request one. You will be notified when the film is available – it will be brought to you."

D Other available data

"The admit H&P is on the chart and available from the night nurse. The cross cover intern or PA will have a sign-out sheet including information on Phil Brown. The night nurse will receive a handoff sheet and current lab results from the evening nurse."

E Medications and administration

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"Immediately available medications are here on this pharmacy cart. You will need to call the pharmacy for other requests. If you need to administer a medication IV, use this IV. If it is an oral medication, it is okay to administer it orally to Phil."

F *Gloves and hand-gel are available*

G *Questions?*

H *Introduce the participants:*

"We will have students participate in the following roles:

- ___ medicine floor intern or PA cross covering the patient.*
- ___ senior resident (R3).*
- ___ night shift nurse(s).*
- ___ hospital pharmacist.*
- ___ non-participating students will be observers and asked to participate in debrief*

Faculty also have roles:

- ___, one of our nursing faculty, will play the evening nurse giving report on the patient*
- ___, one of the PA faculty, will be the primary intern giving sign-out sheet to medical team and receiving report about the patient in the morning to end scenario*
- ___, all faculty will step into scenario to assist with medical content either by request or if needed to guide scenario to completion"*

I *Starting the scenario:*

"The medical team, along with the night pharmacist are in the team room 'across the hall', where they can be called if needed. You may say: 'Medical team, why don't you head across the hall and we will start.' Once the medical team is out of ear-shot, they will be given the sign-out sheet (cross cover) and roles delineated by the medical and pharmacy faculty. The scenario will start outside of Phil's room, with the evening nurse (faculty) handing his care off to the night nurse(s). "

J *Ending the scenario:*

At 7 am, primary intern (played by PA faculty) arrives back to receive report about Phil's care from the cross-cover intern or PA.

K *Remember: Time*

Time is compressed over a shift—Midnight to 0700.

Debriefing Tips

(see TeamSTEPPS debrief for team communication objectives)

What did you think was going on with Phil?

What supports this?

What else were you considering?

Phil develops pulmonary edema due to volume overload secondary to isotonic fluid, blood, and the Fleet's prep he received. He also has unrecognized aortic stenosis which was noted on his admit H&P but not reported to cross-cover team.

The crackles on exam support this diagnosis, as does his chest x-ray and his response to lasix. His murmur becomes easier to hear as his crackles clear, also supporting the diagnosis of valvular heart disease.

Cardiac ischemia is less likely, given his lack of chest pain or pressure, lack of ECG changes of ischemia, and eventually, his normal troponin.

Anemia from recurrent bleeding is a reasonable consideration, but less likely given lab results and the findings of crackles and edema on CXR.

Pulmonary embolism is unlikely given his very recent hospitalization and x-ray findings, and obstructive lung disease is unlikely given no history of smoking or similar symptoms, and no wheezing.

How did your evaluation and management go?

Common management problems include:

- a. Diuretic dosing. Of course, there is no single right answer here, but 5 mg of IV lasix is probably not enough for someone in Phil's situation, and 160 mg is probably too much for someone who is diuretic-naïve.
- b. Thinking Phil is in worse shape than he actually is (i.e. calling for anesthesia when he is on 4 liters of oxygen.) This tends to be particularly true when the students have just performed a simulation involving a resuscitation or intubation. "When you come from a code, you think the next thing is going to be a code, too."
- c. Team may fixate on cardiac ischemia as a cause of his symptoms. Faculty mentors will need to redirect the team if this happens. May ask team to "huddle" to redirect.

Medical Team Handoff Sheet

(for cross-cover intern A pocket)

Patient	Problem list	Medications	Plan
Brown, Phil U1122334 6NE, room 6214	1. Probable lower GI bleed, seems to have stopped 2. Anemia, receiving 2nd of 2 units PRBC 3. Repeat Hct ordered at 2200 after last unit infused	Fleet's prep Pantoprazole Acetaminophen prn	☐ Check Hct results ordered at 2200 – if < 25, reevaluate, repeat in 4 hours and consider transfusion ☐ Check at 0600 to be sure stool has cleared – colonoscopy planned for AM
Wells, Carolyn U9872341 6SE, room 6110	1. CAP, improving 2. Hypertension 3. Multiple sclerosis 4. Hypokalemia, with K of 3.0 today	Levofloxacin Lisinopril Prazosin HCTZ Beta-interferon KCl 120 meq PO today	☐ Check Chem 7 at 2000 – replete K if needed
Mitchell, Stephen U7680989 6NE, room 6252 DNR	1. Hepatorenal syndrome 2. Cirrhosis 3. Hepatic encephalopathy 4. Transplant evaluation	Midodrine Octreotide Lactulose Rifaximin Nadolol Oxycodone prn	Doing poorly, family considering comfort care. If getting worse (more confused, GI bleeding, etc) call attending to discuss.
Jones, Josh U4432567 6NE, room 6264	1. Cystic fibrosis exacerbation 2. New diagnosis of diabetes, likely due to pancreatic insufficiency	Piperacillin-tazo TMP-SMX Inhaled tobramycin Inhaled DNAase Albuterol prn Vitamins ADEK Premeal insulin lispro	Pulmonary status is improving – please FU on any recs from Pulmonary consult team ☐ Check pre-dinner blood sugar If > 180 start insulin glargine 10 units SC qhs

Nursing Handoff Sheet

(for 11-7 RN pocket)

Patient	Problem list	Medications	Plan
Brown, Phil U1122334 6NE, room 6214	1. Probable lower GI bleed, seems to have stopped 2. Anemia, receiving 2nd of 2 units PRBC @1900 3. Repeat Hct ordered at 2200 after last unit infused 4. Colonoscopy prep completed 5. NPO 6. Foley cath in place – output 50 cc evening shift	Fleet's prep @2000 Pantoprazole 40mg IVP given @1600 Acetaminophen prn – none given IV LR 1 liter @ 150 mL/hr – 2 bags evening shift	☐ Administer bowel prep as ordered ☐ Assist to bathroom prn BM ☐ Check at 0600 to be sure stool has cleared colonoscopy planned for AM ☐ Hct 30 post-transfusion @2200. Communicate results to cross-covering medical team.
Wells, Carolyn U9872341 6SE, room 6110	1. CAP, improving 2. Hypertension 3. Multiple sclerosis 4. Hypokalemia, with K of 3.0 today	Levofloxacin Lisinopril Prazosin HCTZ	☐ Chem 7 results on chart by 2000 – based on results, may need replete K. ☐ Administer meds as ordered.
Mitchell, Stephen U7680989 6NE, room 6252 DNR	1. Hepatorenal syndrome 2. Cirrhosis 3. Hepatic encephalopathy 4. Transplant evaluation	Midodrine Octreotide Lactulose Rifaximin Nadolol Oxycodone prn	☐ Doing poorly, family considering comfort care. Provide supportive care for patient and family. ☐ Administer meds as ordered.
Jones, Josh U4432567 6NE, room 6264	1. Cystic fibrosis exacerbation 2. New diagnosis of diabetes, likely due to pancreatic insufficiency	Piperacillin-tazo TMP-SMX Inhaled tobramycin Inhaled DNAase Albuterol prn Vitamins ADEK Premeal insulin lispro	☐ Arrange for diabetes educator to see pt/family. ☐ Blood glucose before dinner. If > 180 start insulin glargine 10 units SC qhs ☐ Order low fat, no sugar diet, calories per diabetic educator recommendations.

Phil Brown: Admit History and Physical

(for desktop computer or hardback chart)

Mr. Brown is a 72 y.o. man with 4 hours of BRBPR (bright red bleeding per rectum). He woke this morning with the urge to defecate, rushed to the bathroom, and passed a large amount of blood. He had 4 or 5 more bloody bowel movements over the next 2 hours before coming into the ED. At the time of initial evaluation, he had had no blood for over an hour. His blood pressure was normal and his first Hct was 28. Anoscopy in the ED was negative for blood, and NG aspirate showed bilious fluid. After 2 liters of IV fluid in ED, his Hct was 24. Chest x-ray normal in ED. He was admitted to the medical floor for further evaluation.

Mr. B denies abdominal pain, nausea, vomiting, chest pain, and lightheadedness. He had no loose stools before today. He has no prior history of GI bleeding or liver disease. He denies hemorrhoids. He has never had a colonoscopy or EGD. He is not anticoagulated, but does report NSAID use 3 or 4x per week. No fevers, chills, change in appetite or weight loss. No recent travel. Drinks city water, denies unusual food, unpasteurized milk or cheese, animal exposure.

PMH:	Knee surgery in 1972 Pneumonia in 1991
Medications:	NKDA Occasional ibuprofen or ASA, no more than 4 times/week
Social history:	Lives with his wife, Eileen. Retired accountant. Likes Mariners, gardening. Nonsmoker, minimal alcohol.
ROS:	Negative
Physical examination:	VS: HR 96 BP 144/66 RR 16 Temp: 37°C O ₂ sat 95% on RA HEENT: + conjunctival pallor; normal oropharynx Heart: RRR, 2-3/6 systolic murmur loudest at the RUSB, possible radiation to carotid. No S3 or S4 Lungs: clear Abdomen: normoactive BT, soft, nontender. No HSM. Rectal exam normal, no stool in vault, anoscopy negative per ED. Extremities: LE edema 1+ ED Lab: Electrolytes normal range CBC with Hgb 8, Hct 24, MCV 91, platelets 136, WBC 8 Stool for enteric pathogens, C. diff pending Iron studies pending ED Chest xray: normal
Assessment:	1. One day history of BRBPR, which has now stopped. He is hemodynamically stable but Hct is 24, necessitating admission for transfusion and further evaluation. Given the acuity and severity, the most likely cause of bleeding is diverticular hemorrhage. Other possibilities are AVMs and ulcers. Infection is unlikely given

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	lack of fever, leukocytosis and exposure. Colon cancer is a possibility. 2. Heart murmur, no prior evaluation
Plan:	1. BRBPR a. Large bore IV b. T&C for 4 units, transfuse 2 units PRBCs and repeat Hct; if > 28 repeat in am OR if clinical evidence of bleeding c. Colonoscopy tomorrow – Fleets prep tonight d. Pantoprazole 40mg IV qd (in case UGI source) 2. Heart murmur a. Outpatient echo 3. Fluids, electrolytes and nutrition a. LR 150 cc/hour b. NPO for colonoscopy prep c. Foley catheter upon admission 4. Prophylaxis a. DVT – ambulatory b. BR privileges with assistance 5. Code status - full

Phil Brown: Information for Actor Portraying Phil

Initial response to any open ended question (delivered in a breathless way):	I'm really short of breath. I was feeling pretty good before I went to sleep at 0930 but when I woke up at 2330 I could barely make it to the bathroom. I sat on the side of the bed for a while but it just keeps getting worse.
Any other symptoms?	NO
What makes it better?	Nothing
What makes it worse?	Doing anything
Anything like this happen before?	No chest pain or chest pressure or shortness of breath before.
What do you think is going on?	I must be having a bad reaction to the blood or medications they gave me.
If asked specifically, you DO:	Have a general sense of fatigue
If asked specifically, YOU DO NOT HAVE:	Any more bloody bowel movements. Last one was at 10 am. Any history of heart problems or heart murmur (but you don't see a doctor much) Chest pain, tightness or pressure with exertion or at rest Fainting Palpitations or a sense that your heart is fluttering Previous waking up at night feeling short of breath Cough Wheezing Coughing up blood Unexplained weight gain
If asked specifically, you also do not have:	Sleep apnea Any history of blood clots or deep vein thrombosis Any history of anemia Any TB exposure or travel outside of Washington State Heartburn or reflux Fever or chills Weight loss Swollen lymph nodes Diabetes, hypertension, or elevated cholesterol (that you know about – you don't see a doctor much)
Personal History	I was born and raised in Seattle, and graduated from the UW. I've been married for 36 years, and I have 3 grown children and 2

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	grandchildren. They all live around here, and I love spending time with the kids. I retired from accounting 5 years ago. I enjoy the Mariners and gardening.
Habits	I was walking around Green Lake every day. I don't smoke, although I did for a few years in my twenties. I have a beer or two on weekends. I don't use any caffeine.
Sexual History	I've been married to my wife, Eileen for 36 years. No other partners.
Family History	My mom died at 65 of congestive heart failure. My dad is 94 and pretty healthy, just getting on in years. I have 3 kids – the oldest has high blood pressure too, but the other two are healthy.
Past Medical History	I'm really pretty healthy, don't see a doctor much. I've had some knee pain and have taken some aspirin or ibuprofen but not much else wrong with me.
Medications:	Aspirin or ibuprofen a couple of times a week for knee pain. The other doctors thought that might have brought on the bleeding.
Allergies:	none
Health Insurance:	Medicare

Simulation Scenario Requirements and Equipment

Simulator:	Patient-actor w/ventriloscope – or high fidelity manikin with lung and heart sound technology Dressed in a hospital gown and pajama bottoms, with a simulated urinary catheter and peripheral IV, sitting up in bed and acting short of breath. Lecat's Ventriloscope (or in place of, high fidelity manikin with lung and heart sound technology) Monitor available if requested to display continuously BP, rhythm strip and O2Sat.
SETTING	Standard hospital equipment: Hospital bed with pillow, sheets, and blanket Bed-side table Blood pressure cuff and ventriloscope stethoscope or stethoscope if manikin Patient ID band ECG electrodes Hand gel Exam gloves
Operational (or pretend equivalent) telephone with posted phone numbers for:	Medical team room (night nurse will call cross-cover intern at this #) Lab (any team member can call for results or to add labs. Must be manned)
Desktop computer with monitor and on- screen icons or printed chart copies of:	History & Physical ED Labs ED CXR
Respiratory equipment	Nasal cannula Non-rebreather mask Oxygen Flow meter Pulse oximeter finger probe
Urinary catheter equipment	Foley catheter Collection tubing and bag IV bag filled with simulated urine (yellow water), connected to collection tubing for release of urine into urine bag if given Lasix to simulate diuresis
IV equipment	IV pole IV infusion line (Y-administration set for blood infusion) with drainage for IV push meds IV bag Lactated Ringers X 2 bags Infused blood bag

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Medications and equipment:	Lasix 20mg/mL Morphine Nitroglycerine paste Diphenhydramine 25mg tabs Aspirin 325mg Syringes without needles Alcohol wipes	1 vial clearly labeled 1 vial (1 mg/ml) tube of hand cream relabeled Tic Tac's Tic Tac's 3 ml X 5; 5 ml X 5; 10 ml X 5 For meds and blood draw
Lab draw equipment	ABG kits x 3 Venipuncture set Blood tubes – purple top, red top	
Diagnostic results available during scenario as ordered on separate sheets:	Blood gases – hypoxia but not deteriorating, repeat values unchanged CBC – Hct 30, Hgb 12 for RN sign-out sheet, Hct 33, Hgb 13 for additional requests Electrolytes – normal values and stable BUN, Creatinine - normal values and stable Glucose - normal values and stable UA - normal values and stable Cardiac enzymes - negative and stable BNP – 550 ng/L (elevated) ED Chest x-ray – negative Repeat chest x-ray – pulmonary edema and cardiomegaly ECG – tachycardia only (no ischemic changes) Anticoagulant studies - normal values and stable Acute Lab printout: CBC, Chem 7, Cardiac enzymes, BNP (high)	

Storyboard

Phil Brown is a 72 year old man who passed bright red blood with a bowel movement 12 hours ago. After several more episodes, he came into the Emergency Room. He was hemodynamically stable, and hematocrit was 24 about 10 hours ago. No active bleeding was seen with anoscopy at that time. He was admitted to the medical floor received IV fluids and 2 units of red cells, and is being prepared for a colonoscopy tomorrow. It is 2300 shift change. The primary medical team has signed out to the cross cover team, and the nurses have just changed shifts. Phil, played by a patient actor, awakes acutely short of breath.

Patient is in hospital bed, head of bed up 45 degrees

IV pole with Y-administration set; LR on one point, used blood bag on other
IV in one arm (hidden line)
In hospital gown, hospital bottoms, foley line out one leg, 50 cc urine in bag
Telemetry electrodes on patient chest for 12 lead ECG

Bedside tray:

Medications listed above
Oxygen nasal cannula and rebreather mask with oxygen flowmeter
Pulse ox probe for finger
Blood drawing equipment and medication administration as listed above

Available patient information:

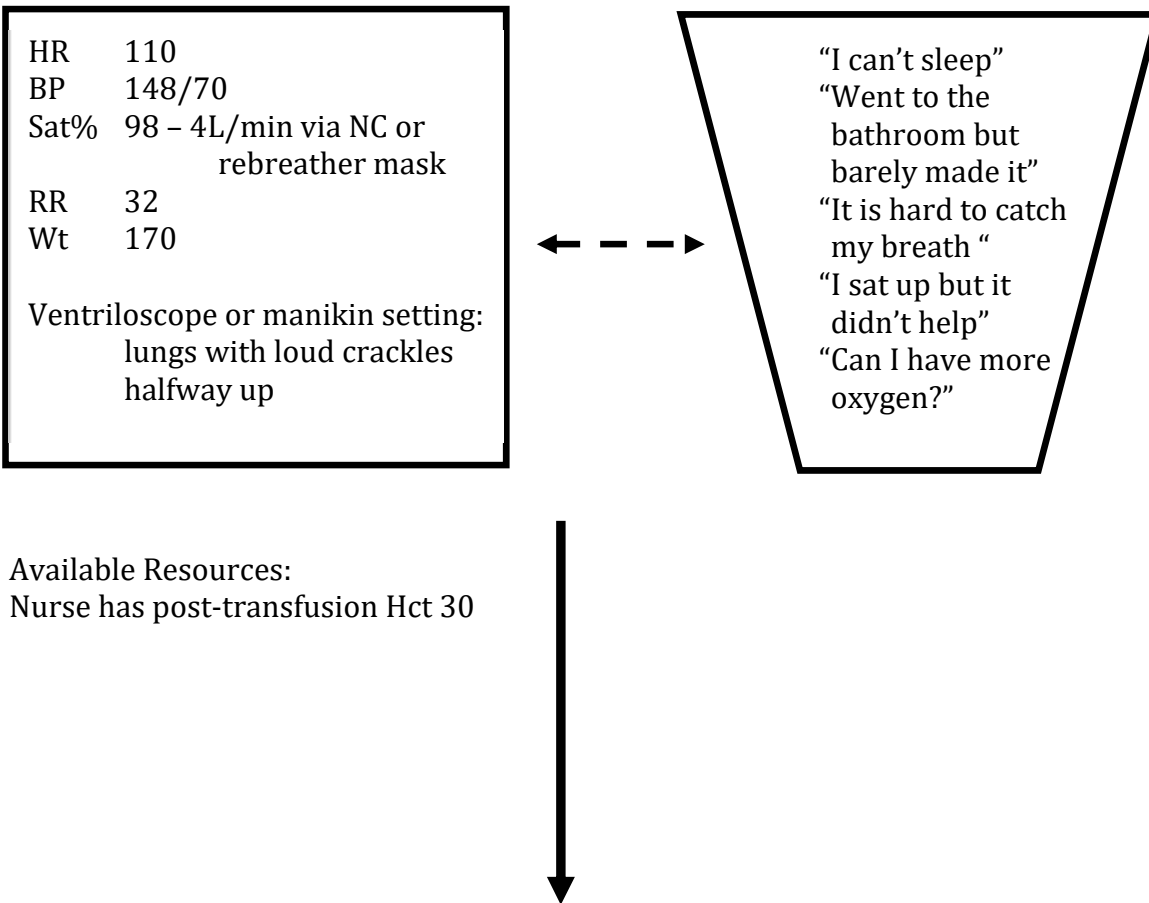
Chart with H&P
ED Chest x-ray
ED lab work

Evening Nurse (Nursing faculty) handoff (sheet) to Night Nurse(s)
Primary intern (PA faculty), sign-out sheet to medical team

*All faculty will step into scenario
to assist with medical content
either by request or if needed to
guide scenario to completion.*

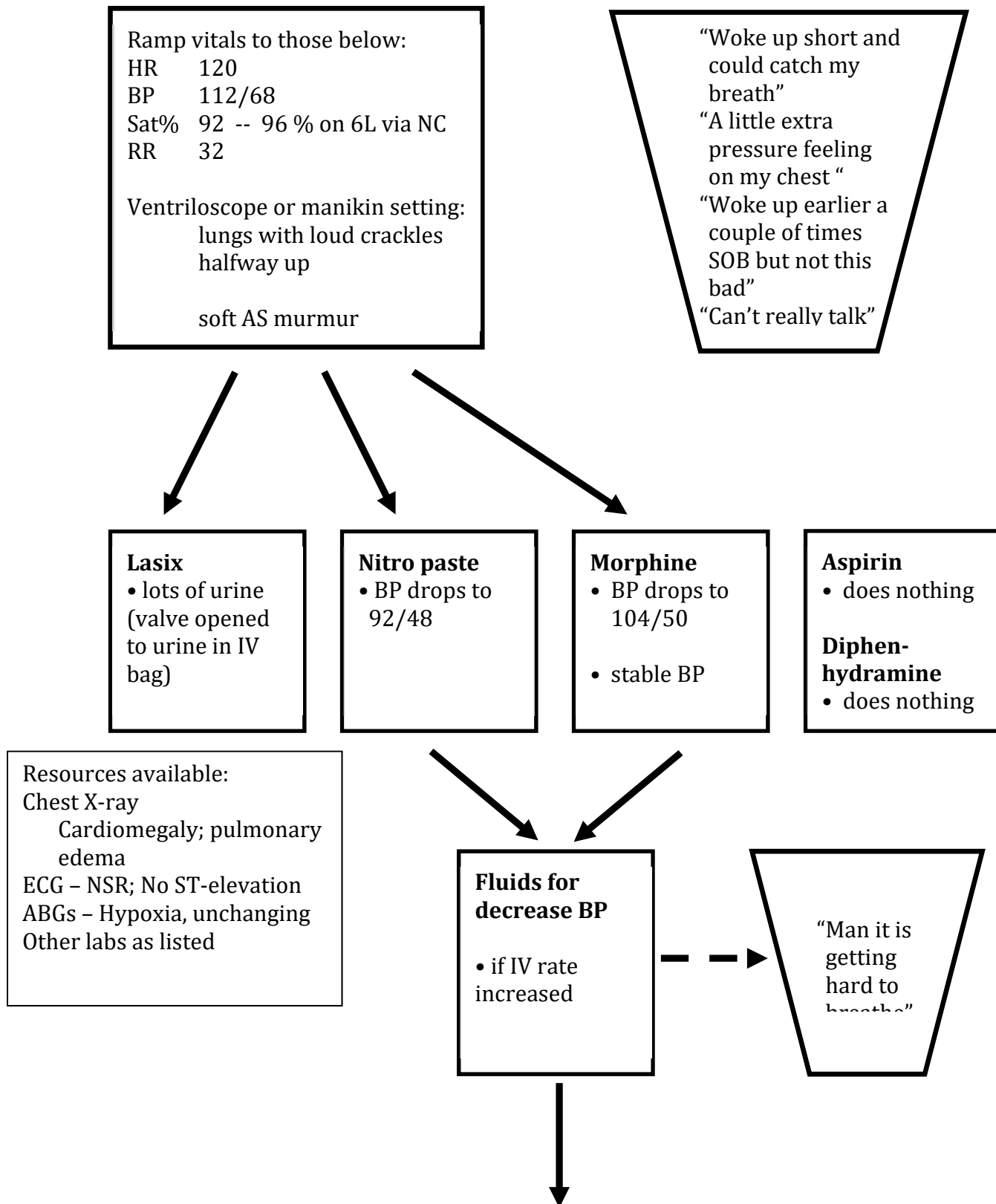
*May suggest team "huddle" to
redirect the scenario.*

Act 1: Patient Assessment by Nurse

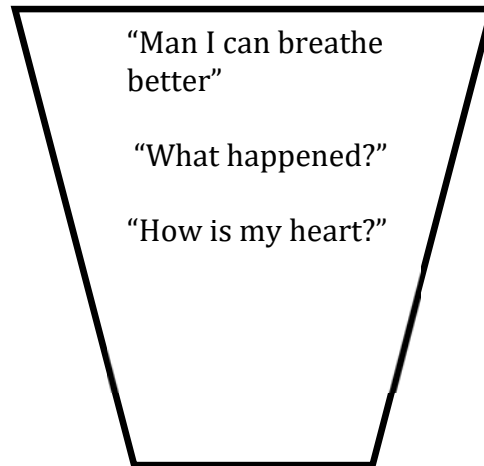
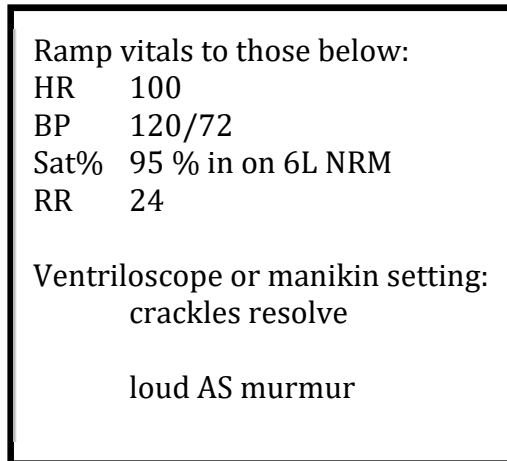


Available Resources:
Nurse has post-transfusion Hct 30

Act 2: Medical Team Assessment



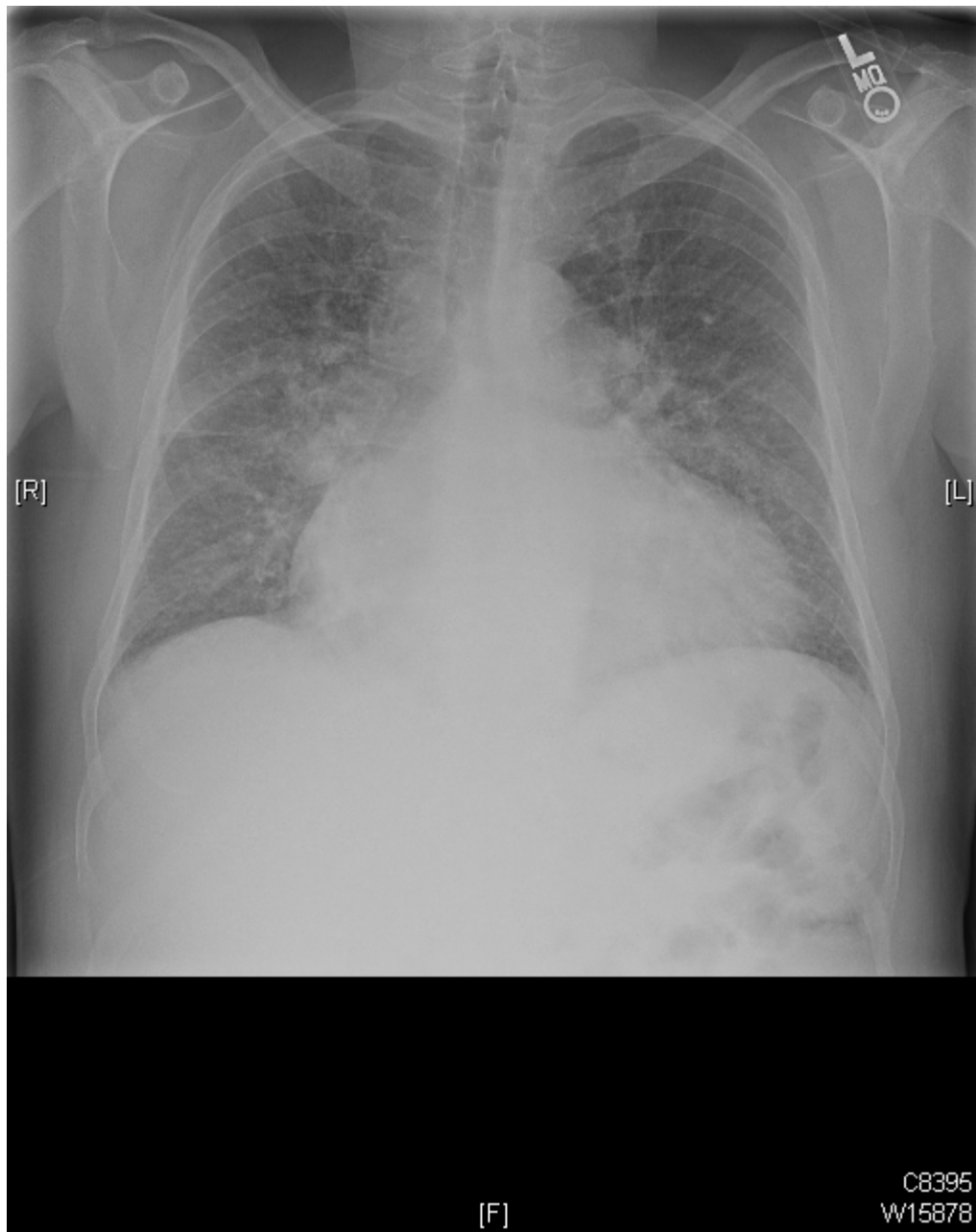
Act 3: Phil Improves



Act 4: The cross-cover intern or PA hands Phil's care back to the primary Intern

Data and Results

Phil Brown

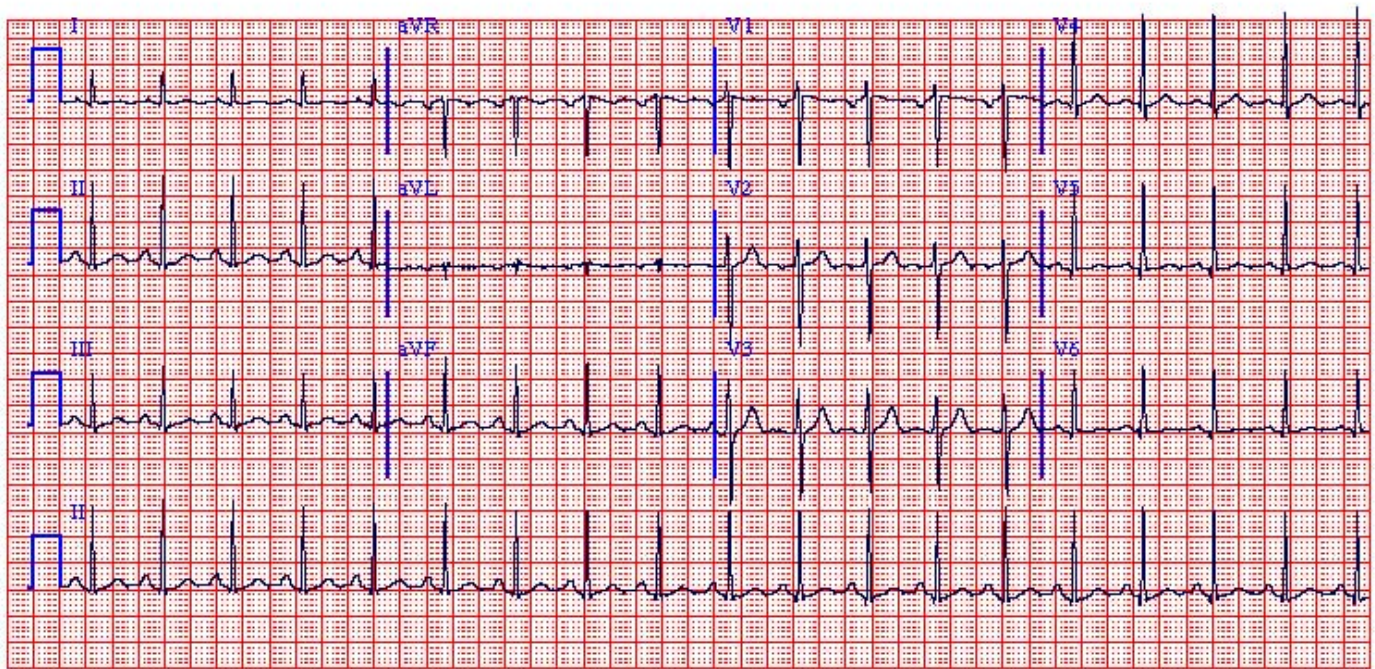


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Case #238

ECG Wave-Maven
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Beth Israel Deaconess Medical Center
<http://ecg.bidmc.harvard.edu>



ECG Wave-Maven Beth Israel Deaconess Medical Center

35 mm/sec, 10 mm/mV

Diagnostic results available during scenario as ordered on separate sheets:

Blood gases – hypoxia but not deteriorating, repeat values unchanged

CBC – Hct 30, Hgb 12 for RN sign-out sheet,

Hct 33, Hgb 13 for additional requests

Electrolytes – normal values and stable

BUN, Creatinine - normal values and stable

Glucose - normal values and stable

UA - normal values and stable

Cardiac enzymes - negative and stable

BNP – 550 ng/L (elevated)

ED Chest x-ray – negative

Repeat chest x-ray – pulmonary edema and cardiomegaly

ECG – tachycardia only (no ischemic changes)

Anticoagulant studies – normal values and stable

Clinical Scenario: A Postoperative Patient with Tachycardia Overview

Paul Smith is a 55-year old man who now is POD #2 after an open colectomy for Stage III colon cancer. Because of his history of coronary artery disease and severe sleep apnea, he spent the first postoperative day in the SICU, cared for by the SICU team. He has done well, apart from one episode of atrial tachycardia, which resolved spontaneously. Because of the tachycardia, he is transferred to the telemetry unit as the surgical team is doing rounds. The junior resident has received a handoff call from the Surgery fellow, but the team does not know Mr. Smith well. They are called by the primary nurse, who tells them that the patient is experiencing a rapid heart rate and hypotension.

As the scenario begins, the charge nurse (faculty) introduces the primary nurse to Mr. Smith and provides a written handoff from the SICU nurse. The primary nurse begins an initial assessment. Before the assessment can be completed, Mr. Smith states that he didn't sleep well the night before, now doesn't feel well and is experiencing "those palpitations I had last night." The bedside monitor reveals supraventricular tachycardia with a heart rate of 185-188 b/m, shortness of breath, and light-headedness. The primary nurse calls the surgical team to relay this information. There is a family member in the room asking a lot of questions and trying to stay with the patient. The nurse obtains another staff member to stay with the family member.

When the team arrives, Mr. Smith is responsive but complains of being light-headed. The heart rate remains in the upper 180s, and his blood pressure is 70/50 mm Hg. The team has a quick huddle to determine: 1) the presence of supraventricular tachycardia vs. ventricular tachycardia; 2) whether the patient is stable or unstable; 3) the correct ACLS guidelines to use; 4) need to call rapid response/code team. The team leader or designee may also need to explain what is happening to the concerned family member at this time.

If Paul receives adenosine, he has 6 seconds of asystole, then reverts back to SVT. The team should debrief that response. If Paul receives a second dose of adenosine, he will deteriorate into VF. The team should debrief and huddle to achieve a shared mental model of VF.

When the team decides to cardiovert Paul, he should receive sedation first (this can be request or call-out). The first cardioversion will be ineffective. The second cardioversion will result in VF. The team should debrief and huddle to achieve a shared mental model of VF.

When Paul is in VF, the team should recognize the need to switch to defibrillation (can be a call-out or request). A code must be called, and roles assigned (call-out or request from the team leader). Paul will need epinephrine/vasopressin (call-out or request). After 2 defibrillations and 2 doses of epinephrine or vasopressin, Paul will convert to a sinus rhythm and the BP will be above 150/90.

The team leader (via request or call-out) will call the SICU fellow to give a handoff (SBAR) and request a transfer to the SICU. The R1 will give the handoff to the fellow, and the primary RN will give a handoff to the receiving RN.

Timeline

- 5 minutes** Overview patient and therapy for tachycardia
- 5 minutes** Introduction to simulator and setting
- 15 minutes** **Run scenario**

Act 1 – Initial evaluation of SVT (5 minutes)

- Handoff to primary RN and RN assesses patient (1 minute)
- Patient develops SVT and is symptomatic. RN recognizes need for oxygen, monitor, BP determination (1 minute)
- RN calls team and performs SBAR, team arrives, quick evaluation and huddle (3 minutes)

Team may review and request additional information about the patient and request/perform diagnostic studies, including ECG and labs. By the end of this act, the team should have a shared mental model of a postoperative patient with unstable SVT. They should realize the need for rapid response/code team to be present.

Act 2 – Management of SVT (4 minutes)

The team will either administer adenosine or perform DC cardioversion. In either case, the patient will remain in SVT, hypotensive, and complaining of shortness of breath. A second attempt of any therapy will result in ventricular fibrillation (VF).

Act 3 – Recognition and management of VF (3 minutes)

The team will manage VF using current ACLS guidelines (note: in 2011, UW med students no longer required to take ACLS). After at least one defibrillation, 2 doses of epinephrine or vasopressin, and possibly one dose of lidocaine or amiodarone, Mr. Smith will return to sinus rhythm with an adequate BP.

Act 4 – Return to sinus rhythm and transfer of care to SICU (2 minutes)

Shared mental model and advanced information sharing. The team should come to the conclusion that Mr. Smith is now in sinus rhythm but should return to the ICU. The team leader calls the SICU fellow and gives a hand-off using SBAR. The primary nurse calls the ICU nurse and gives a handoff using SBAR.

Debrief – 15 minutes

Scenario Participants

Medical students and/or physician assistant students

- A. Senior resident
- B. Surgery team PA
- C. R1
- D. Additional R1 or PA (optional)

Nursing students

- A. Primary nurse
- B. Another floor nurse
- C. Another nurse needed for code

Pharmacy student: Team pharmacist, who assists with meds during code

Student observers: remaining students not assigned a role

Pharmacy faculty: Needed if pharmacy students are not yet in clinical rotations

Nursing faculty: Charge nurse, who starts the scenario & may need to nudge it along

Medicine faculty: Anesthesiologist who responds to call & may need to nudge scenario

Any faculty or staff: A concerned family member present in the room

Clinical Management of Unstable SVT and VT

One faculty member should briefly discuss the initial evaluation and management of tachycardia in a postoperative patient. This should be interactive, and take < 5 minutes.

In this scenario, we'll be managing a 55-year old man who is postop day #2 after a colectomy. He complains of palpitations, shortness of breath, light headedness, and has a heart rate over 180 b/m. What would your initial steps be when you see a patient like this?

Major Causes of Tachycardia

Pulmonary	PE Pneumonia
CV	Ischemia (can be 1° or 2°)
Metabolic	Hypokalemia Hyperkalemia Hypomagnesemia Acidosis Volume depletion
Initial Evaluation	Focused H & P Review immediate clinical events Diagnostics: ECG, CXR Labs: Chem 7, CBC, ABG

The most common reasons for tachycardia in a postoperative patient are undiagnosed anemia, potassium or magnesium imbalance, acidosis, hypovolemia, or pulmonary embolism. What would be your initial steps for each?

Anemia	check H & H, administer oxygen, PC, fluids, transfuse if necessary
Potassium imbalance	check electrolytes, correct with IV potassium
Low magnesium	check electrolytes, replace with IV magnesium
Acidosis	check electrolytes, ABG, consider antidysrhythmics or calcium, correct underlying cause of acidosis
Hypovolemia	check electrolytes, I/O, replace volume with isotonic fluids
Pulmonary Embolism	consider low dose anticoagulation, consider imaging studies followed by either UFH or LMWH and ICU evaluation if PE confirmed

Introduction to Simulator and Scenario

One faculty member should briefly discuss the initial evaluation and management of tachycardia in a postoperative patient. This should be interactive, and take < 5 minutes.

SPEAK LOUD for: 1) team communication 2) recording (if applicable)

A	Overview of scenario <i>"In this scenario, you'll be caring for Paul Smith, a 55-year old man who had an open colectomy for colon cancer 2 days ago. He spend the first postop day in the SICU, because he has a history of coronary artery disease and severe sleep apnea. He did well, apart from an episode of atrial tachycardia which spontaneously resolved. He is transferred to the telemetry unit early in the morning of POD #2, when another patient needed the ICU bed. The floor team does not know the patient, although the R1 received a handoff call from the SICU fellow. The setting is a telemetry unit."</i>
B	Overview of equipment <i>"Mr. Smith is played by SimMan. Breath sounds are audible here and here, using a standard stethoscope. Heart sounds are audible here. The exam may change over the course of the scenario. This is the automated blood pressure cuff that is connected to the monitor. You will need to place it on SimMan and verbally request a blood pressure reading if you want one measured at any time. When you connect the telemetry electrodes here, you will see Mr. Smith's heart rhythm continuously. When you place the oximeter onto Mr. Smith, you will see the oxygen saturation on the monitor."</i> <i>"Medications are located on this pharmacy cart. Syringes, phlebotomy equipment, and lab tubes are here. If you are ask to draw blood, you need to simulate the blood draw. Mr. Smith has an IV with a stopcock located here. If you are asked to administer medications, you will use this stopcock."</i> <i>"Respiratory equipment, including a nasal cannula, non-rebreather mask, and an Ambu bag are at the head of the bed. There is an oxygen flow meter here."</i>
C	Diagnostic testing and results <i>"If labs, CXR, ECG, or ABGs are requested, you should go through the motions of obtaining one. Results (lab slip, CXR results, ECG printout, ABG slip) will be handed to the team leader."</i>
D	Other available data <i>"Mr. Smith's admission H & P and recent labs are available on this clipboard. The R1 and primary nurse have handoff sheets."</i>
E	Medications and other treatment (Although we had syringes with midazolam and morphine) <i>"Immediately available medications are on this cart. You will need to call the pharmacy to request any other STAT medications. If you need to administer a medication, use this IV."</i>

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	<i>"If Mr. Smith requires cardioversion or defibrillation, here is a standard defibrillator, which you should use as you normally would. Verbally call out the desired number of joules, but be sure that the charge never exceeds 20 joules."</i>
F	Questions?
G	Introduce the participants (sometimes it works better to assign code team roles at the beginning of the scenario: Team leader, chest compressions, airway, defibrillator manager, med RN, recorder) <i>"We will have 6 students participate. ___ is the senior resident on the general surgery team, and ___ is the R1 who got a handoff from the SICU fellow. ___ is the full time surgery PA. ___ is the patient's primary nurse on the tele unit, and ___ is another nurse available to help. ___ is the general surgery team pharmacist. Faculty also have roles: ___, one of our nursing faculty, will play the charge nurse, and ___, one of our staff, will play the role of Mr. Smith's daughter. ___, one of our medical faculty, will play the attending."</i> <i>"Observers need to be alert for examples of good communication techniques, or lack of communication techniques during the scenario. Look for examples of the following:</i> • <i>Requests</i> • <i>Cross checks</i> • <i>Check backs</i> • <i>Call outs</i> • <i>SBAR</i> • <i>Briefs</i> • <i>Debriefs</i> • <i>Huddles</i> • <i>Mutual support</i> • <i>CUS</i> • <i>2-Challenge Rule</i> • <i>DESC-It</i>

Debriefing Tips

(see TeamSTEPPS debrief for team communication objectives pages 8-15)

Clinical Debrief

What was going on?

What supports this?

What else were considering?

Paul develops an unstable SVT following a night in the SICU where he also had a self-limiting episode of atrial tachycardia. Presence of shortness of breath, light headedness, and hypotension should point the team to use the ACLS guidelines for unstable SVT. Paul is still responsive, so should receive sedation prior to cardioversion.

Hypoxemia is a possibility, but his oxygen sats are satisfactory when oxygen is administered.

Respiratory acidosis is revealed in an ABG obtained when BMV is in place. He has severe sleep apnea and complained of poor rest the night before. There is no indication that he used his Bi-PAP machine in the SICU, so could have been retaining CO₂. The acidosis improves once he is intubated, and his PaCO₂ normalizes.

It's possible for Paul to be anemic following colectomy, but current Hct is 32%.

How did evaluation & management go?

Common management problems include:

1. Concluding that the patient is in ventricular tachycardia rather than SVT. Examination of the initial ECG should reveal the presence of clearly visible P waves in Leads II, III.
2. Administering adenosine (ACLS guideline for stable SVT) to treat unstable SVT. Current ACLS guidelines recommend synchronized cardioversion.
3. Omitting sedation prior to synchronized cardioversion. The patient is awake and responsive and should be sedated prior to cardioversion.
4. Forgetting to push the 'sync' button on the defibrillator prior to cardioversion each time.
5. Omitting an antidysrhythmic medication when treating ventricular fibrillation.

Medical Team Handoff Sheet

Patient	Problem List	Medications	Plan
Smith, Paul Uxxxxxxx 5NE	1. POD #2 open colectomy 2. Stage II Colon cancer 3. OSA – uses BiPAP at night 4. Diabetes 5. CAD – IMI 1 year ago 6. COPD 7. Allergies: a. PCN →hives b. Bee stings →wheeze c. Morphine, Percocet →nausea	Atenolol 100 mg daily ASA 81 mg daily Lipitor 40 mg daily Lasix 20 mg daily Metformin 1000 mg twice daily Albuterol/atrovent MDI four times daily Advair 1 puff twice daily Epi pen prn (home med)	1. Re-check CBC, chem 7, ECG in am, consider K/Mg protocol 2. Supplemental O2, BiPAP 3. Progressive ambulation and activity 4. Progress diet when bowel activity resumes

Nursing Handoff Sheet

Patient	Problem List	Medications	Plan
Smith, Paul Uxxxxxxx 5NE	1. POD #2 open colectomy 2. Stage II Colon cancer 3. OSA – uses BiPAP at night 4. Diabetes 5. CAD – IMI 1 year ago 6. COPD 7. Allergies: a. PCN →hives b. Bee stings →wheeze d. Morphine, Percocet →nausea	Atenolol 100 mg daily ASA 81 mg daily Lipitor 40 mg daily Lasix 20 mg daily Metformin 1000 mg twice daily Albuterol/atrovent MDI four times daily Advair 1 puff twice daily Epi pen prn (home med)	1. Have family bring in BiPAP 2. Respiratory therapy to evaluate 3. FSBG every 6 hours 4. Order labs, ECG 5. Dangle at side of bed this am, up to chair this pm Monitor for return of bowel function

Surgical Clinic History and Physical for Paul Smith

(For desktop computer or hardback chart)

ID/CC: Mr. Smith is a 55yo male with a history of CAD, COPD, diabetes and severe obstructive sleep apnea scheduled for a laparoscopic partial colectomy with lymph node biopsies for colon cancer. His work-up to date is negative for metastatic disease.

HPI:	3 weeks prior to admission, Mr. S visited his PCP, complaining of abdominal pain and constipation for the past 1-2 weeks and bright red blood in the stool X 2 days. Rectal exam at that visit showed blood, and he was referred for an urgent colonoscopy. This showed a stricture in the distal sigmoid colon. Biopsy revealed adenocarcinoma. An abdominal CT showed an area of thickening and narrowing in the same region, but no clear evidence of metastatic disease. He was referred for partial colectomy and lymph node dissection.
Past Medical History:	1. Coronary artery disease – Inferior MI 1 yr ago but no current chest pain or SOB. Cath at the time of MI showed complete occlusion of RCA, 50% occlusion distal LAD. No intervention. Echo showed EF 52%, with inferior hypokinesis. Otherwise normal. 2. Hyperlipidemia 3. HTN for 15 yrs 4. DM – 5 years. Controlled on metformin, with last HgbA1c of 6.8. 5. Obesity – BMI of 34 6. Severe Obstructive Sleep Apnea, on CPAP 7. COPD, with most recent FEV1 65% predicted. No recent exacerbation. Has never required steroids or intubation.
Past Surgical History:	1. Appy, age 28
Medications:	1. Atenolol 100 mg daily 2. ASA 81 mg daily 3. Lipitor 40 mg qd 4. Lasix 20mg qd 5. Metformin 1000 mg PO bid 6. Albuterol/atrovent MDI qid 7. Advair 1 puff bid 8. Epi pen (home med)
Allergies:	PCN → hives Bee Stings → wheezing Most pain meds – morphine (not morphone), Percocet – maybe nausea?
Social History:	1. Occasional ETOH 2. 30 pack year history, quit smoking after his MI but has been smoking a bit with the stress of his surgery 3. Married with three teenage children

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	4. Exposures: none 5. Diet/Exercise: “Not the best – working on it” 6. Immunizations/Health/Continuity of Care: Up to date on immunizations; sees a PCP but not regularly for his OSA, diabetes, hyperlipidemia (But he actually visited his wife’s primary physician for current problem)
Family History:	Father (alive, 80’s): HTN, Hyperlipidemia Mother (alive, 80’s): DM somewhat controlled Brother (alive, 50’s): Hypertension Sister (alive, 50’s): Healthy
ROS:	CV: + peripheral edema Resp: + dyspnea on exertion with climbing one flight of stairs All others negative except as per HPI – see ROS form
Physical Exam:	Obese but well appearing man in no acute distress VS: 148/88 76 16 97% on RA HEENT: low hanging soft palate, several missing teeth, thick neck. Heart: RRR, normal S1 and S2, no S3 or S4, no murmur Lungs: clear Abd: obese, soft, nontender. No hepatosplenomegaly. Ext: 1+ LE edema
Imaging:	CT Scan of May 27 reviewed with Dr. Jones and radiology attending.
Lab:	Normal tumor markers, Chem 7. Hct 32 with MCV 77; otherwise normal CBC
Assessment:	55-year-old man with multiple stable medical problems and a new diagnosis of colon cancer without obvious metastatic disease. We will attempt a laparoscopic partial colectomy, converting to open if anatomy or respiratory status requires. He and his wife were counseled that this is a higher risk procedure given his medical issues. Consent signed, surgery scheduled for June 1.
Plan:	1. Pre-surgery clinic visit tomorrow 2. Aspirin stopped 5 days ago 3. Pre-op labs: CBC, coags, chem 7, EKG 4. Bowel Prep: Go-Lytely 3L, pre-op enema 5. NPO after midnight 6. OR June 1

Equipment

Simulator:	SimMan with sound system so it can answer questions
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	with IV line, IV bag full Computer with monitor, if requested with on screen icons for: H&P Acute lab sheet CXR EKG – old inferior MI
Room Setting	Mannequin on hospital bed • Mannequin should have an abdominal dressing (Paul Smith had an open colectomy) • Hospital gown • Pillow • Sheets • Blanket At the head of the bed • non-rebreather mask • nasal cannula • suction canister • Yankeur suction tip • stethoscope • Blood pressure cuff • pulse ox sensor Code cart, and a defibrillator on top of the code cart Step stool Bedside Tray Chair for family member BP Cuff Stethoscope Vital Signs Monitor
Respiratory equipment	Nasal cannula (also listed above in Room Setting) Non-Rebreather mask (also listed above in Room Setting) Oxygen source Intubating equipment – mesh bag Ambu Bag Oxygen flow meter
Operational (or pretend equivalent) telephone with posted phone numbers for:	Phone number to lab (person answering needs lab results and needs to know that there are blood tubes that additional labs could be added to)
IV equipment	IV pole IV infusion line IV bag (LR) X 4 ABG kit X2
Medications and equipment:	Syringes: 3 ml X 5; 5 ml X 5; 10 ml X 5 Medications

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	Propofol 20 ml syringes X2 Pentothal 20 ml syringes X2 Succinylcholine 20 ml syringe X2, 10 ml in each Rocuronium 10 ml syringe X1 Fentanyl 5 ml syringe X2 Versed 5 ml syringe X2 Morphine 5 ml syringe (labeled 1 mg/ml) X2 Code Drugs: epi X many vasopressin 40 units X4 lidocaine X many amiodarone: 150 mg X4; 300 mg X2 atropine X many calcium X many
Diagnostic results available during scenario as ordered on separate sheets:	H & P for Mr. Smith Additional Info sheet for standardized patient ECG from the 1st postop day should show an old inferior MI CXR normal 55 yo chest Acute Lab printout: CBC nl, Chem 7 nl with K of 3.4 mEq/L ABG result slips X2 if patient bag-mask ventilated during code if patient intubated during code

Storyboard

Paul Smith is a 55-year old man who now is POD #2 after an open colectomy for Stage III colon cancer. Because of his history of coronary artery disease and severe sleep apnea, he spent the first postoperative day in the SICU, cared for by the SICU team. He has done well, apart from one episode of atrial tachycardia, which resolved spontaneously. Because of the tachycardia, he is transferred to the telemetry unit as the surgical team is doing rounds. The junior resident has received a handoff call from the Surgery fellow, but the team does not know Mr. Smith well. They are called by the primary nurse, who tells them that the patient is experiencing a rapid heart rate and hypotension.

Act #1 – Introduction to Patient

Patient is admitted to telemetry unit and placed on monitor per the unit's standard of care.

Initial vitals (from patient chart, not on monitor yet):

BP 140/76	<i>vitals deteriorate to</i>	BP 82/40
HR 102		HR 185
RR 22		RR 30
Sat 98% RA		Sat 87% RA
T 38.0		

Patient in bed speaking with family member

"Didn't sleep too well last night; woke up a couple of times and felt my heart racing, and felt a little woozy. Can't seem to catch my breath with all this crap I'm coughing up"

Act #2 – Supraventricular Tachycardia

Monitor should automatically show:

Vital Signs:

HR 188

RR 34

Sat 88%

RN or MD will ask for BP, which should show
BP 75/40

Team should be called and have a huddle. When they arrive

(Anxious)

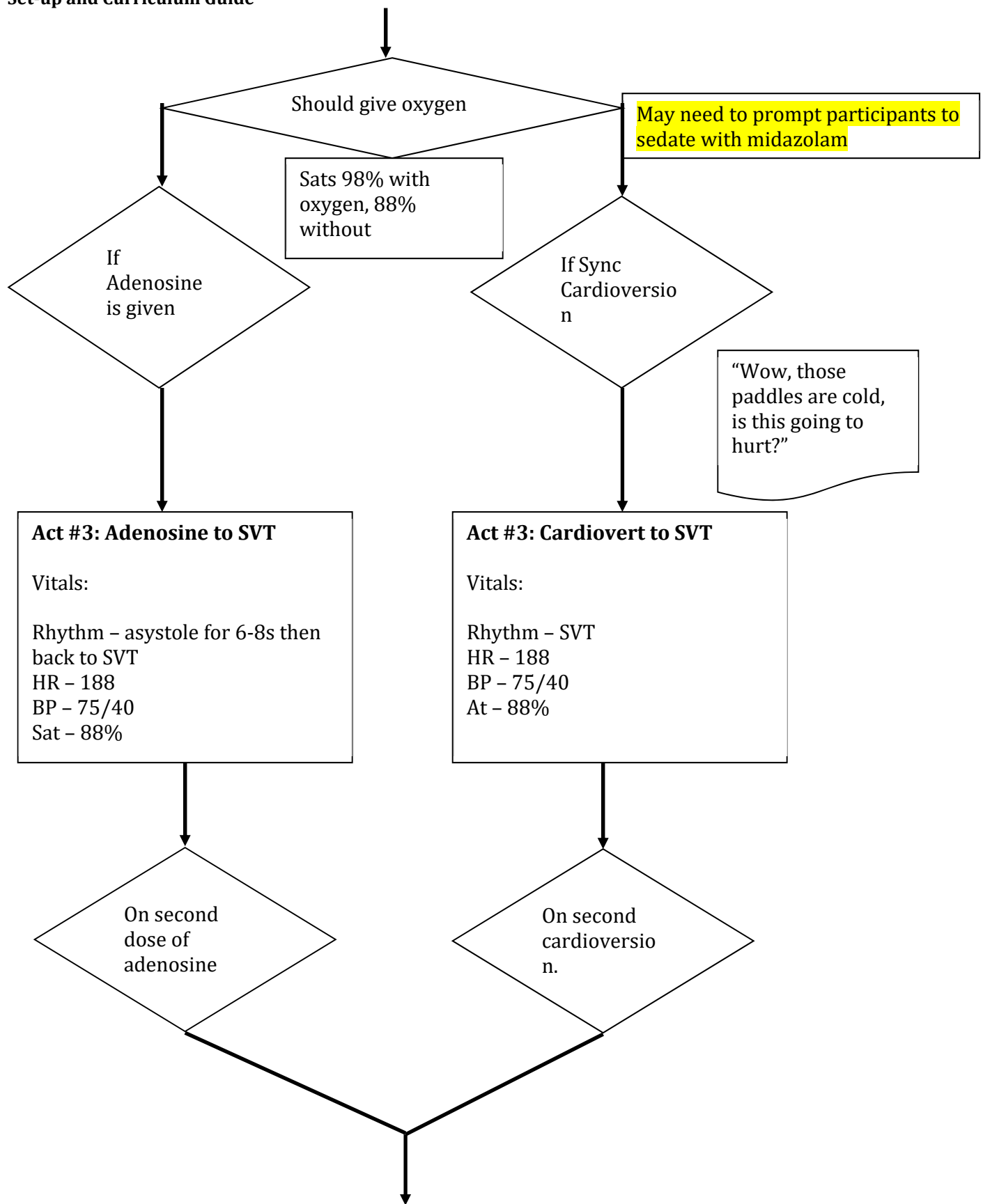
"Holy mackerel, my heart is racing again"

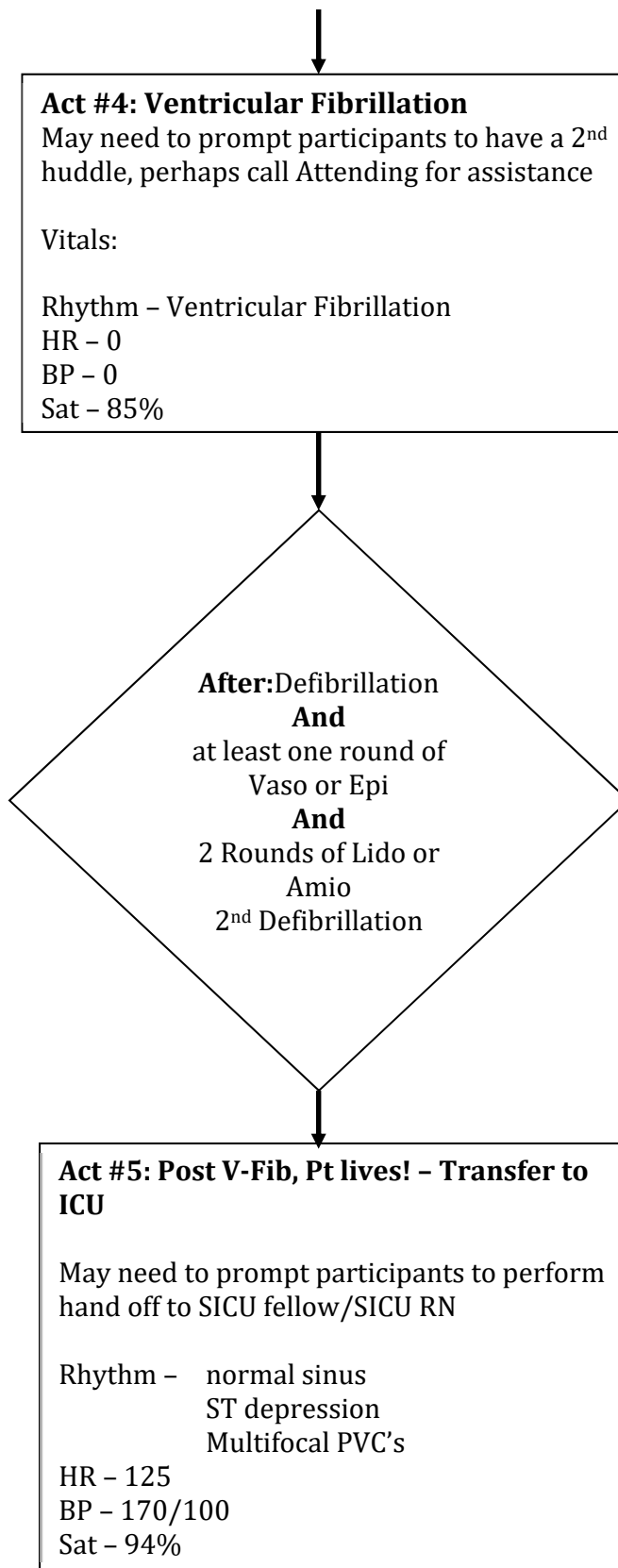
"I don't feel so good, my chest is so heavy..."

"I feel like I'm dying, oh, Jesus"

If the team fails to sync resulting in defibrillation rather than cardioversion, then stay in Act 2 for up to 2 shocks then go to Act 4 Ventricular Fibrillation.

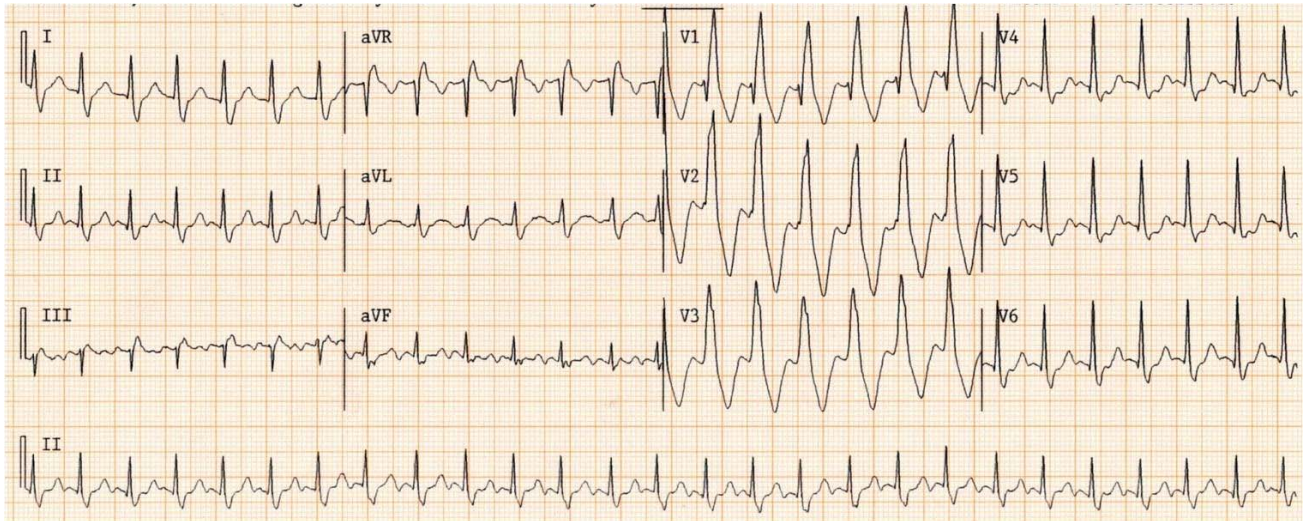
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Data and Results

From <http://en.ecgpedia.org/>



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RADIOMETER ABL800 FLEX

ABL825 C		09:06	9/14/2009
PATIENT REPORT	CODE/Customized - S	Sample #	18330
	195uL		

Identifications

Accession No.
 Patient ID
 Patient Last Name
 Patient First Name
 Sex
 Date of birth
 Patient note
 Physician
 Department
 Department (Pat.)
 Sampler ID
 Approval Note
 Sample age
 Draw time
 ICD9 Code
 Diagnostic Code
 Sample site
 Sample type
 T 37.0 °C
 PEEP
 Operator
 Note

Blood Gas Values

pH	7.230	
pCO ₂	45.0	mmHg
pO ₂	185	mmHg
cHCO ₃ ⁻ (P) _c	20	mmol/L
cBase(B) _c	-4.0	mmol/L

Oximetry Values

Hct _c	36.0	%
ctHb	12.0	g/dL

Electrolyte Values

cNa ⁺	132	meq/L
cK ⁺	3.4	meq/L
cCa ²⁺	1.11	mmol/L

Metabolite Values

cGlu	114	mg/dL
cLac	1.99	mmol/L

Notes

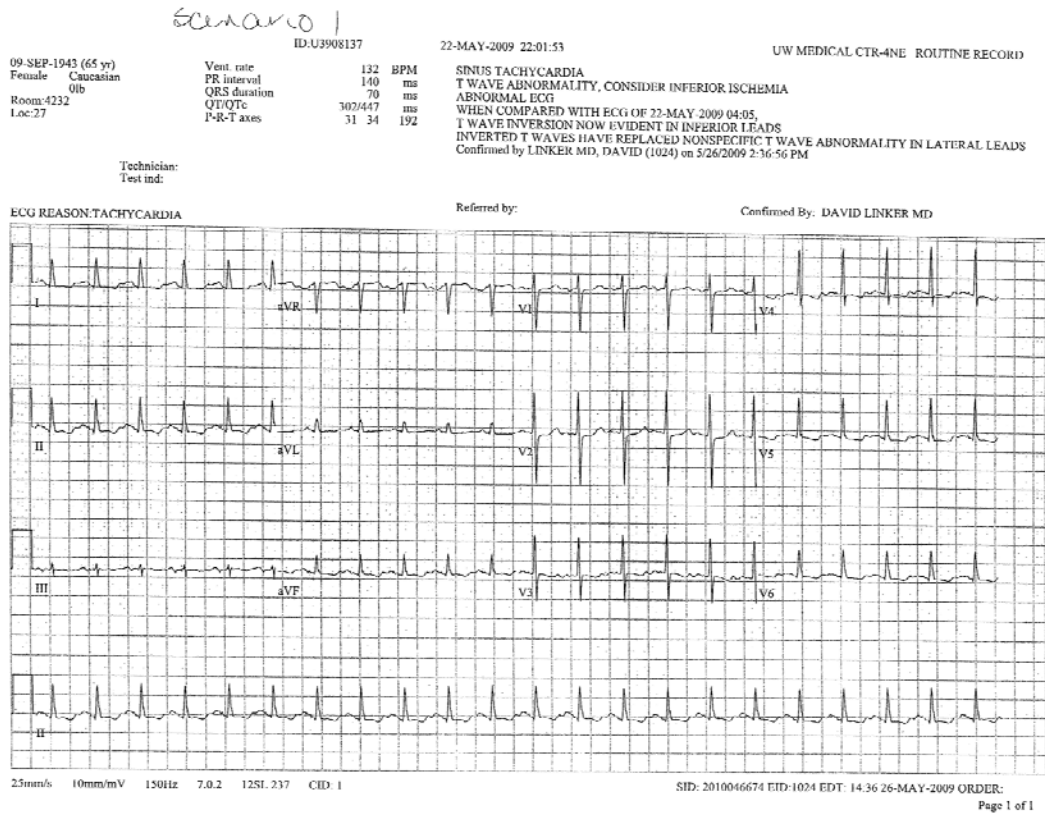
c	Calculated value(s)
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*If Intubated

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Clinical Scenario: A Teenager with Asthma Overview

Micah Stevens is a 16-year old with severe, persistent asthma who walks into the ED with three days of cough, runny nose and one day of wheezing uncontrolled by albuterol MDI. Micah is portrayed by a simulator, voiced by a remote technician.

As the scenario starts, the triage nurse, played by a faculty nurse, announces Micah's arrival in the ER, saying "He doesn't look so good and the attending is seeing an acute MI in room 12 – you guys ought to see him now." The team evaluates and treats the asthma exacerbation, with many opportunities for closed loop communication, information sharing, and providing mutual support.

Unfortunately, even with optimal management, he becomes progressively more tired and develops a respiratory acidosis. He should be intubated, by a faculty member acting as the anesthesia attending, who performs a R mainstem intubation. The simulator loses breath sounds on the left, which must be recognized by the team. The anesthesia attending is initially unwilling to admit the mistake, and must be challenged twice. Ultimately, the error is corrected, Micah is stabilized and his care is handed off to the ICU, an opportunity to practice an interteam handoff.

He lives with his custodial grandmother, portrayed by an actor, who will arrive in the ED after he is intubated. The team must deliver the news of his condition and obtain information from her.

There is some concern about Micah's adherence to therapy. He is a typical teenage male, independent and not willing to be supervised in using his meds. He attends his Pulmonary Clinic visits alone, as his grandmother works. At his last pulmonary clinic visit, his doctor raised concerns about compliance with Advair. The pharmacy student has to explore Micah's grandmother's understanding of his inhaler prescription and use.

The focus of the scenario should be on the communication between team members, not the medical management.

Timeline

5 minutes Brief introduction to clinical problem and overview of management

5 minutes Introduction to simulator and setting

15 min Run scenario

Act 1: Initial evaluation and management (4 minutes)

Option: The PA can first evaluate and then consult the R1.

Act 2: Clinical Deterioration (4 minutes)

Act 3: R Mainstem Intubation (R mainstem) (3-7 minutes)

The ER PA or one of the R1s (participants A, B, C or D) will be asked to check for breath sounds, which are now absent on the L. A team member should challenge the anesthesia attending until corrected.

Act 4: Handoff to ICU (2 minutes)

The ER PA or one of the R1s (participants A, B, C or D) will be called to the phone by the faculty RN to talk to the ICU fellow.

Act 5: Discussion with grandma (5 minutes)

The primary ER nurse (participant E) is asked (via overhead speaker or faculty RN) to go to the waiting area to talk with grandma. The ER PA or one of the R1s (participant A, B, C or D) will also be asked to talk to grandma by faculty RN

The ER pharmacist (participant G) will also be pulled into the discussion with grandmother by the faculty RN, given concerns over medication adherence, which should be explored as allowed by time and the situation.

15 minutes Debrief

Scenario Participants

Student Participants (nametags with name and LARGE LETTERS):

3-4 Medical/Physician Assistant students

- A. R1.
- B. R1.
- C. ER PA (optional)
- D. Additional R1 (optional).

1-2 Nursing students

- E. Primary ER nurse
- F. Another ER nurse

1 Pharmacy student

- G. ER pharmacist

Actor:

Grandmother, Katherine.

Faculty Participants:

A nursing faculty member will act as the ER charge nurse, starting the scenario by calling the ER team into the 'room', saying "I've got a 16 year old kid here with an asthma exacerbation. I got a CXR and called his grandma, and had him use his inhaler. He's not looking too good and the attending is seeing an acute MI in room 12 – you'd better come see him now"

A medicine faculty member acts as the anesthesia attending, intubating the patient when called to do so. He or she is reluctant to admit and correct the mainstem intubation.

Any faculty member can play the X-ray tech, who will 'perform an x-ray' if requested, and pull it up on computer for the team to review.

Clinical Overview of Asthma Exacerbation

One faculty member should briefly discuss the initial evaluation and management of an asthma exacerbation in the ED. This should be interactive, and take < 5 minutes.

"In this scenario, we'll be managing a 16 year old with severe, persistent asthma who presents to the ED with an exacerbation. What would your initial steps be when you see a patient like this?"

- **Place on monitor, obtain IV access, place O2**
- **Begin treatment:**
 - Inhaled bronchodilators:
 - Beta agonist (usually albuterol) via neb or MDI, every 20 minutes x 3
 - Ipratropium probably also helpful
 - Systemic steroids immediately for severe exacerbation, or if there is not a prompt response to bronchodilators for a less severe exacerbation.
- **Assess severity:**
 - Physical exam findings are insensitive for a severe exacerbation, but if present, are very concerning: accessory muscle use, inability to lay flat, diaphoresis. Sometimes wheezing will grow softer as severity worsens, because less air is moving.
 - Check peak expiratory flow. < 40% of personal baseline defines a severe exacerbation
 - An ABG to evaluate for hypercarbia if there is any clinical indication (somnolence, confusion, rapid shallow breathing) OR low PEFr OR failure to respond to bronchodilators
- **Frequent reassessment of response**

"What would indicate the patient needs to be intubated?"

- < 5% of patients over 12 who visit an ER for asthma require intubation; however, shouldn't wait until obvious respiratory failure develops
- Hypoxia despite oxygen therapy
- Hypercarbia
- Rapid shallow breathing and obvious fatigue with a high or even normal CO₂
- Altered mental status
- Cardiac or respiratory arrest

"How would we expect a teenager with severe, persistent asthma to be managed as an outpatient?"

- High dose inhaled steroid
- Inhaled salmeterol
- Inhaled albuterol prn
- +/- montelukast

"In this case, the patient is prescribed Advair (salmeterol-fluticasone + albuterol prn)

Introduction to Simulator and Scenario

One faculty member should introduce the students to the simulation scenario and equipment, in some detail. This introduction should cover:

SPEAK LOUD for: 1) team communication 2) recording (if applicable)

A	Overview of scenario: <i>"In this scenario, you'll be caring for Micah Steven, a 16 year old who walks into the ER with an exacerbation of chronic persistent asthma. The setting is an ER room, with standard ER equipment and medications."</i>
B	Overview of equipment: <i>"Micah is a simulator. Breath sounds are audible here and here, using a standard stethoscope. Heart sounds are audible here. The exam may change over the course of the scenario. This is the automated blood pressure cuff connected to the monitor. You will need to place it on Micah and press "start" and call out a request for a blood pressure if you want one measured at any time. Otherwise, if the cuff is on Micah, a new blood pressure will display every several minutes. If you place Micah on telemetry, his rhythm will also display, and if you place him on an O2 sat monitor sats will display."</i> <i>"Medications are located on this pharmacy cart. Syringes, phlebotomy equipment, and blood tubes are here. If you are asked to draw blood or administer meds, go through the motions, but don't actually puncture anything or push any meds."</i> <i>"Respiratory equipment, including nasal cannula, a nonrebreather mask, and an AmbuBag are at the head of the bed."</i>
C	Diagnostic testing and results <i>"If labs, chest x-ray, ECG or blood gas are requested, you should go through the motions of obtaining one. Results will be called out when available, and displayed on the computer monitor. If you want an ECG, here is the machine. You will be handed a printout of the ECG. If you want a chest x-ray, request one. You will be notified when the film is available – it will be pulled up on the computer monitor."</i>
D	Other available data <i>"The ER triage sheet is on the clipboard in the room. The last pulmonary clinic note is available on the desktop (or in hardback chart)."</i>
E	Medications and administration <i>"Immediately available medications are here on this pharmacy cart. You will need to call the pharmacy to request any other STAT medications – it is important to consult pharmacy for the dose. If you need to administer a medication just go through the motions."</i>
F	Questions?
G	Introduce the participants

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	<i>"We will have 6 students participate. ____ and ____ are interns rotating in the ER. ____ is the full time ER PA. ____ is the patient's ER nurse . ____ is another ER nurse available to help. ____ is one of the ER pharmacist. Three faculty also have roles: ____, one of our nursing faculty, will play the ER charge nurse.</i>
H	Starting the scenario: <i>"Micah has been taken back to a room immediately from the triage desk. Team members are hanging out, waiting for patients to see, when the ER charge nurse approaches them."</i>

Debriefing Tips

(see TeamSTEPPS debrief for team communication objectives)

What did you think was going on with Micah?

What supports this?

What else were you considering?

Micah has inspiratory and expiratory wheezes throughout with increased RR >24. He might need a nebulizer treatment. If the nebulizers' do not work then he might need another drug, steroids and or intubation.

What supports this and what are you considering?

Lungs sounds, CXR and ABGs need to be ordered. Steroids in addition to nebs. If he needs intubation he will need Anesthesia, sedation, post intubation ABGs, CXR. Follow up with Family regarding medication use and compliance.

How did your evaluation and management go?

1. Did Micah respond to the first dose of nebs? if yes great! If not then he needs another dose and or steroids
- If No: he will need more medications and potential intubation -@ intubation time there can be an issue with ET placement and re positioning is needed with repeat CXR and ABGs.
- Family member: Grandma has information about his inhaler use

Common problems include:

1. noncompliance with inhaler use
2. intubation needed due to poor response to steroids and nebs
3. Post intubation ET misplaced and needs repositioning
4. Grandma arrives and wants to stay with Micah even during intubation and staff need to address her.
 - Ask: How did you decide to deal with the Grandma being in the room?

Micah: History and Physical

He just arrived to the ER so no H & P has been taken yet.

ER Triage Sheet

TRIAGE FORM									
Date _____		Patient's name _____				Time of call _____			
Medic Acct # _____		Home/Work phone _____				Physician _____			
Age _____		If a minor, parent's name _____							
Allergies _____									
Date of last OV _____		DX _____		Current medications _____					
Insurance company _____									
Patient complaint _____									
TEMP	Yes ☐	No ☐	_____		Nausea	Yes ☐	No ☐	Vomiting	Yes ☐ No ☐
BLEEDING	Yes ☐	No ☐	Trauma ☐	Diarrhea	Yes ☐	No ☐	How long _____		
	OB ☐	Other ☐	Circle one	Continuous	Intermittent	ABD Distention			
	Controlled ☐	Moderate ☐							
	Hemorrhage ☐	LMP _____	Tetanus Immunization	utd ☐	+5 ☐	+10 ☐	No ☐		
PAIN	Yes ☐	No ☐	Location _____	How long _____	Radiating to _____	Constant ☐	Sharp ☐	Dull ☐	
	Occurs:		Ambulating ☐	Resting ☐	Eating ☐	Relieved by ☐	Worsens _____		
SOB	Yes ☐	No ☐	Frequency _____	How Long _____	Occurs: Amb ☐	Rest ☐	Eat ☐	Worsens _____	
COUGH	Yes ☐	No ☐	Nonproductive ☐	Productive ☐	Color _____	Amount _____	How long _____		
DRAINAGE	Yes ☐	No ☐	Source _____	Color _____	Odor? Yes ☐	No ☐			
URINARY	Yes ☐	No ☐	Burning ☐	Frequency ☐	Amount voided at a time	Normal ☐	Small ☐		
Past medical/surgical history: _____									
Level of consciousness Alert ☐ Dazed ☐ Confused ☐ Semi-conscious ☐ Coma ☐ Other _____									
Nurse's notes _____									
Treatment plan		☐ UC Appt. _____		☐ Non-urgent Appt. _____		☐ Treatment Advised			
		☐ Rx Phoned In		☐ ER visit					
MD Signature					Nurse Signature				

Information for Simulation Tech Voicing Micah

Initial response to any open ended question	(delivered in a breathless way) I have had a cold for a couple of days, but I think it has gotten worse today. Since lunch it has gotten worse and worse, and I can hardly breathe now
Any other symptoms?	No
What makes it better?	Nothing, in fact I don't think my inhalers are working – I used the Advair 3 or 4 times today and it didn't really help at all
What makes it worse?	Walking, talking
Anything like this happen before?	Ya, a couple of times I think, but not this bad
What do you think is going on?	It's my 'friggin' asthma
If asked specifically, you DO:	Have a runny nose, sneezing
If asked specifically, YOU DO NOT HAVE:	Any other medical problems Active, athletic – pick your sport and talk about it
If asked specifically about your inhalers,	You are a bit vague on how you're using them. The Advair should be twice a day, and the albuterol should be the one you use when you're short of breath. You are using the advair not so consistently, and sometimes you're using it rather than the albuterol for acute symptoms (which is exactly the wrong thing to do).
Personal History	I was born and raised in Seattle, go to (your high school). I like to play ___ but haven't been able to for a couple of months 'cause I've been a bit too winded. Me and my sister have been living with my grandma for the last couple years, because my mom's had trouble with drugs. She's doing better now, and we see a lot more of her. Grandma's still working even though she should be retired by now. It's been tough for her to take so much time off to take me to appointments and stuff.
Habits	Don't smoke Don't use drugs – I would never do that with what's happened with my mom Don't drink

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Sexual History	'Whatever'
Family History	My mom is healthy except for the drugs and she's doing a lot better now. My dad is out of the picture. My grandma's healthy and so's my sister
Past Medical History	I'm really pretty healthy, just this asthma thing, been in the hospital maybe 3 times for it. Seems to be worse this last year
Medications:	2 inhalers, advair and albuterol, vague on correct use – see above.
Allergies:	none

Information for Actor Playing Micah's Grandma

Overview: A 16-year old with a history of asthma, Micah, walks into the ED on his way home from school. He has had a cold for a couple of days, and a one day history of wheezing uncontrolled by his inhalers, and increasing shortness of breath.

He becomes progressively more short of breath and is eventually intubated. He has a right mainstem bronchus intubation (meaning the tube has gone in too far, and the left lung didn't get any air for a period of time. This is an undesirable but fairly common event. The clinician listens over both lungs and checks a chest x-ray to ensure the tube is in the right place.) He is then stabilized for transfer to the ICU.

The ER triage nurse called you when Micah first came in. You arrive in the Emergency Room.

At this point, your grandson is clinically stable. 3 clinicians will talk with you:

1. The ER nurse, who will approach you, ensure you are okay and tell you a bit about the situation.
2. The "resident" (played by a 4th year medical student or physician assistant student) who will tell you about Micah's ER course and what to expect. This is a 'delivering serious news' discussion, of the need for intubation, ICU admission, and the right mainstem intubation, which has now been corrected. You are calm but worried, and ask questions about how he has been treated, how he is doing, and what you should expect. You also ask about what can be done to prevent another episode as bad as this.
3. The "pharmacist" (played by a 4th year pharmacy student) who will ask you more about Micah's inhalers and how he was using them. You want to know why his medications didn't abort this attack. The pharmacist is concerned that incorrect use of medications may have contributed (i.e. he may have been using the long acting inhaler (Advair) rather than the short acting 'rescue' inhaler (albuterol) when he felt more short of breath).

Micah is 16, and quite independent. He has been administering his own inhalers for the past 3 years, and becomes annoyed if you ask or remind him about them. You think that he takes them as directed, but come to think of it, you haven't had to pick up a refill on the Advair for a while. You did not notice anything unusual before you left for work this morning – he was out of bed and in the shower

See below for details of Micah's medical history, from his most recent Pediatric Pulmonary Clinic note.

Equipment and Supplies

Simulator:	Laerdal Nursing Kelly or Laerdal 3G • Wearing a hospital gown • Sound system to voice Micah • Fake IV line Vital signs monitor running SimMan software to display telemetry, vital sign						
SETTING	Simulator on a gurney • pillow • sheets • blanket Respiratory equipment at head of gurney (see below)						
Operational (or pretend equivalent) telephone with posted phone numbers for:	Anesthesia Critical care fellow						
Computer with monitor and on- screen icons or printed chart copies of:	Last pulmonary clinic note Acute lab results CXR ECG						
Vital signs equipment	Monitor running SimMan software BP cuff Stethoscope						
Respiratory equipment	Respiratory equipment (at head of gurney) • Oxygen flow meter • Nasal cannulae • Nebulizer device • Air or oxygen source for nebulizer • Nonrebreather mask • AmbuBag • Suction canister • Yankeur suction tip • Intubating equipment bag, to the side						
IV equipment	IV pole IV infusion line IV bag (LR) X 4						
Medications and equipment:	<table> <tr> <td>Saline fish labeled Albuterol</td> <td>3 fish</td> </tr> <tr> <td>Saline fish labeled Atrovent</td> <td>3 fish</td> </tr> <tr> <td>Solumedrol</td> <td>1 amp</td> </tr> </table>	Saline fish labeled Albuterol	3 fish	Saline fish labeled Atrovent	3 fish	Solumedrol	1 amp
Saline fish labeled Albuterol	3 fish						
Saline fish labeled Atrovent	3 fish						
Solumedrol	1 amp						

Interprofessional Team Communication Simulation
Set-up and Curriculum Guide

	Propofol 20 ml syringes X2 Succinylcholine 20 ml syringe X2, 10 ml each Rocuronium 10 ml syringe X1 Fentanyl 5 ml syringe X2 Versed 5 ml syringe X2
Lab draw equipment	ABG kit X 2 Syringes: 3 ml X 5; 5 ml X 5; 10 ml X 5
Diagnostic results available during scenario as ordered on separate sheets:	Paper copies of: • ECG showing sinus tachycardia • CXR a.) hyperexpanded 16 yo cxr b.) showing R lung collapse in case R mainstem not addressed • Acute Lab printout: CBC nl, Chem 7 nl • ABG result slips X2 Very mild respiratory acidosis and normal paO₂ More severe respiratory acidosis

Pediatric Pulmonary Clinic Note

(For desktop computer or paper)

Pediatric Pulmonary Clinic Note, March 2

This is an overdue follow-up visit for Micah, a 16 year old with severe persistent asthma. Since last seen in December 2010, he has done somewhat better. He has been seen in the ED once, in January, with an asthma exacerbation in the setting of a URI. He was treated with IV solumedrol, nebulizers, and discharged with a steroid burst. He has had no ER visits or steroid treatment since that time.

Over the course of the last year, he has had 3 ER visits and 5 courses of prednisone. He should be seen monthly, but has not showed for the last couple and didn't reschedule. He was brought to the clinic and signed in by his grandma, who has custody, but she had to return to work before he was seen.

He has been a bit more limited in his activity. He's no longer playing soccer because he feels too short of breath. Missed last scheduled pulmonary function tests in October, and hasn't rescheduled.

Using high dose Advair, prescribed bid, but he seems to be using it once on most days. Uses albuterol almost every day, sometimes more than once.

PMHx: Asthma, diagnosed at age 7.
Appendectomy, 2007

Meds: Advair (salmeterol-fluticasone) 250 mcg bid
Albuterol inhaler as needed

Social Hx: Lives with grandma, Katherine, who works as an administrative assistant at his school. Her work schedule makes it tough to attend appointments with him – she usually signs him in and returns to work. 10th grade, doing 'okay' in school. No longer playing soccer but enjoys chess. Hopes to attend college. Insurance coverage is Medicaid.

Physical examination:

Overweight teenager, looks pretty well.

Height 175 cm Weight 95 kg BMI 31 BP 124/76 HR 78 O2 sat 97%

Heart: RRR, normal S1 and S2, no S3 or S4

Lungs: scattered expiratory wheezing, better after a puff of albuterol. Good air movement.

Abdomen: normal

Extremities: no edema

Assessment: Micah is a 16 year old with severe, persistent asthma and multiple exacerbations over the past year. He's done better in some ways over the past few months, with fewer ED visits and steroid bursts. However, he is no longer able to play soccer and has some wheezing today on exam. I'm worried about his compliance, given a missed appointment, missed PFTs, and lack of clarity on how he uses his inhalers.

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Plan:

1. Reeducated Micah on inhaler use today. Will contact grandma and see if we can schedule his next appt at a time she will be able to attend.
2. Return to clinic in 2-3 weeks for recheck
3. Schedule PFTs
4. If unimproved with more consistent use of Advair, may need to change MDIs OR add oral monteleukast.
5. Due for Pneumovax at next visit. Consider DEXA.
6. Will consider nutrition referral.

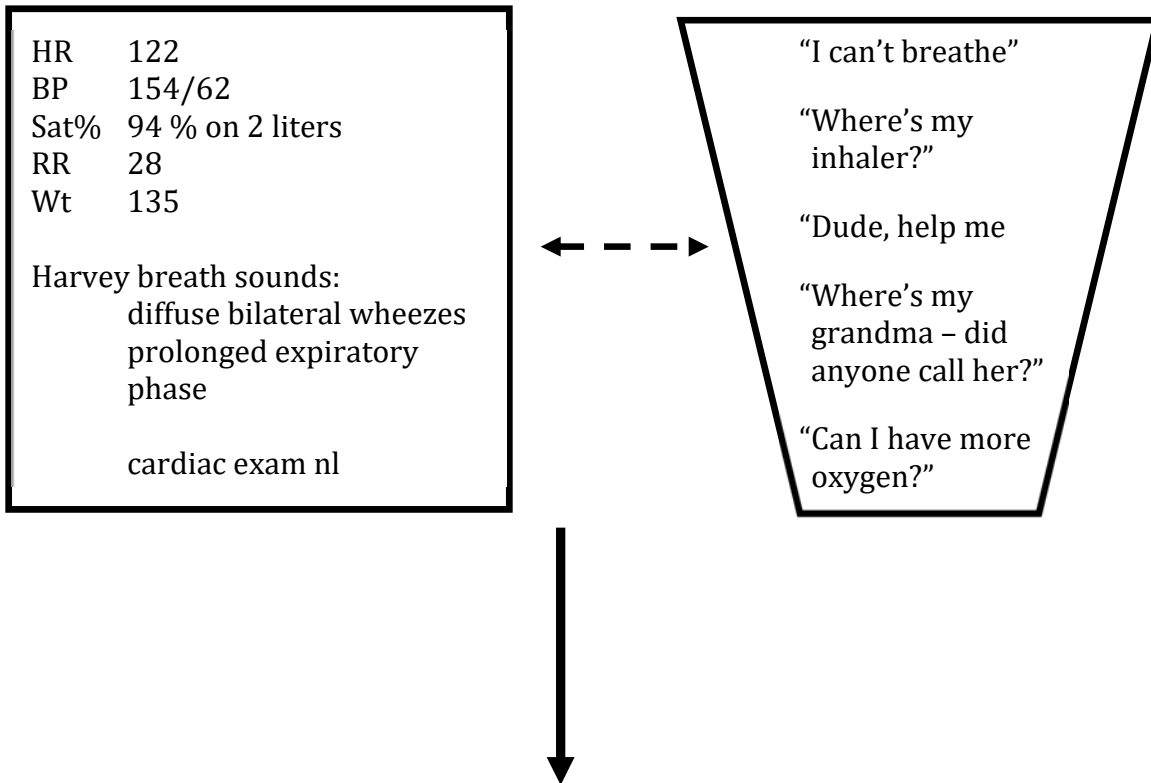
Storyboard

Micah is a 16 year old with a long history of asthma. He had had no prior intubations but 3 ER visits in the past year and 5 courses of oral steroids. He presents to the ED with increasing wheezing and dyspnea since this morning with accompanying cough and rhinorrhea. He used his inhaler (although possibly the wrong one) multiple times during the school day and with only temporary improvement. On his way home from school he began to feel much worse and now presents for evaluation. He is immediately triaged back to a room and placed on 2 liters of oxygen. The ED team (2 residents – one identified in advance as a team leader, 2 nurses, and the Ed pharmacist) walk into the room to assume his care.

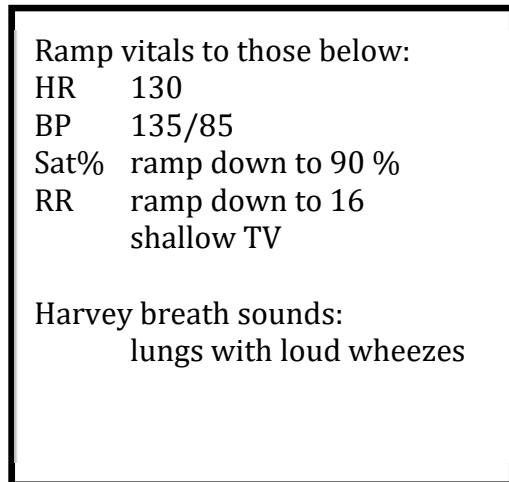
Harvey is in hospital bed:

patient with nasal prongs on – O₂ running at 2 liters
IV pole with infusion set – LR running

Act 1: Initial Assessment in ED



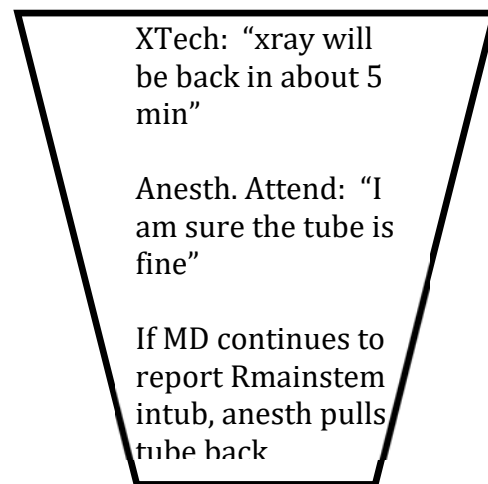
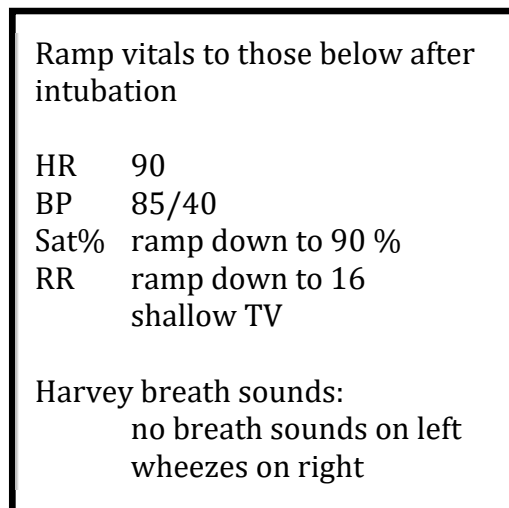
Act 2: Clinical Deterioration



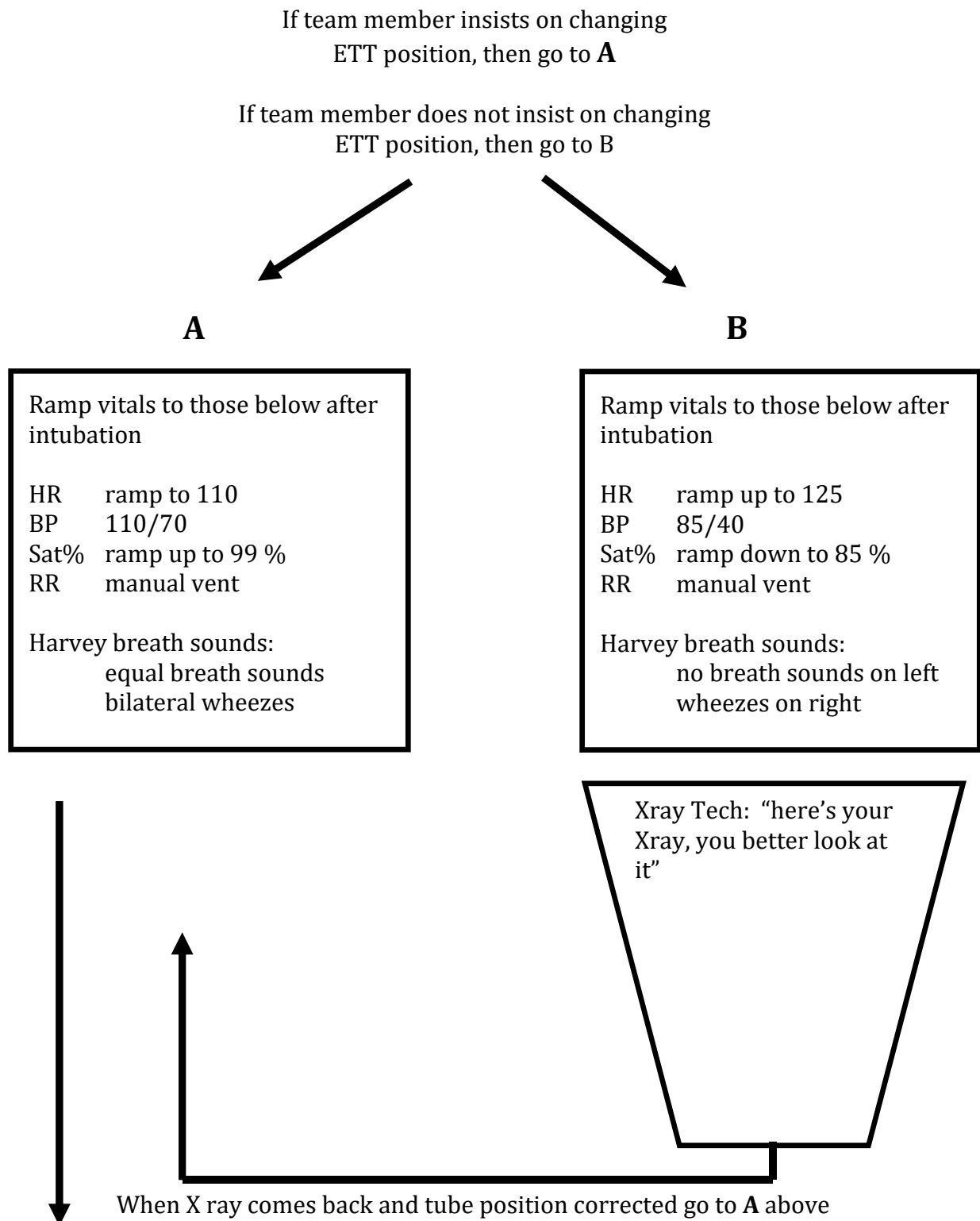
If team asks for CPAP or BiPAP, machine should be presented to them, but Micah should become agitated, reporting he can't stand the machine and insistent they take it off him.

Act 3: Intubation:

Anesthesia attending (faculty actor) arrives promptly and performs RSI. Do not need to demonstrate steps – simply announce that it is done. R main stem intubation. Breath sounds will disappear on the left.



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Act 4: Handoff to ICU – R₁ in ED to R₁ in the ICU

Ramp vitals to those below:

HR 100

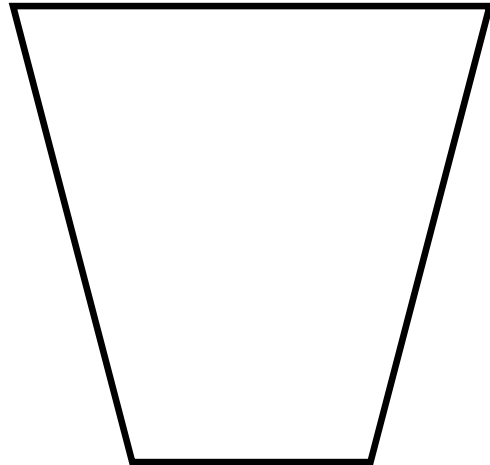
BP 110/70

Sat% 99% on 100% BMV

RR manual vent

Harvey breath sounds:

mild wheezes bilat



If patient not sedated for
continued intubation go to
below



When patient sedated for
continued intubation go back
to above

Ramp vitals to those below:

HR ramp 145

BP 150/795

Sat% 99% on 100% BMV

RR manual vent

Breath sounds:

severe wheezes bilat

Act 5: Conversation with grandparent, who arrives in ED

Scene: both R1's and teams present – including pharmacist

Fairly reasonable grandma comes in to ED ICU, is quite upset/worried that her grandson is being transferred to the ICU intubated.

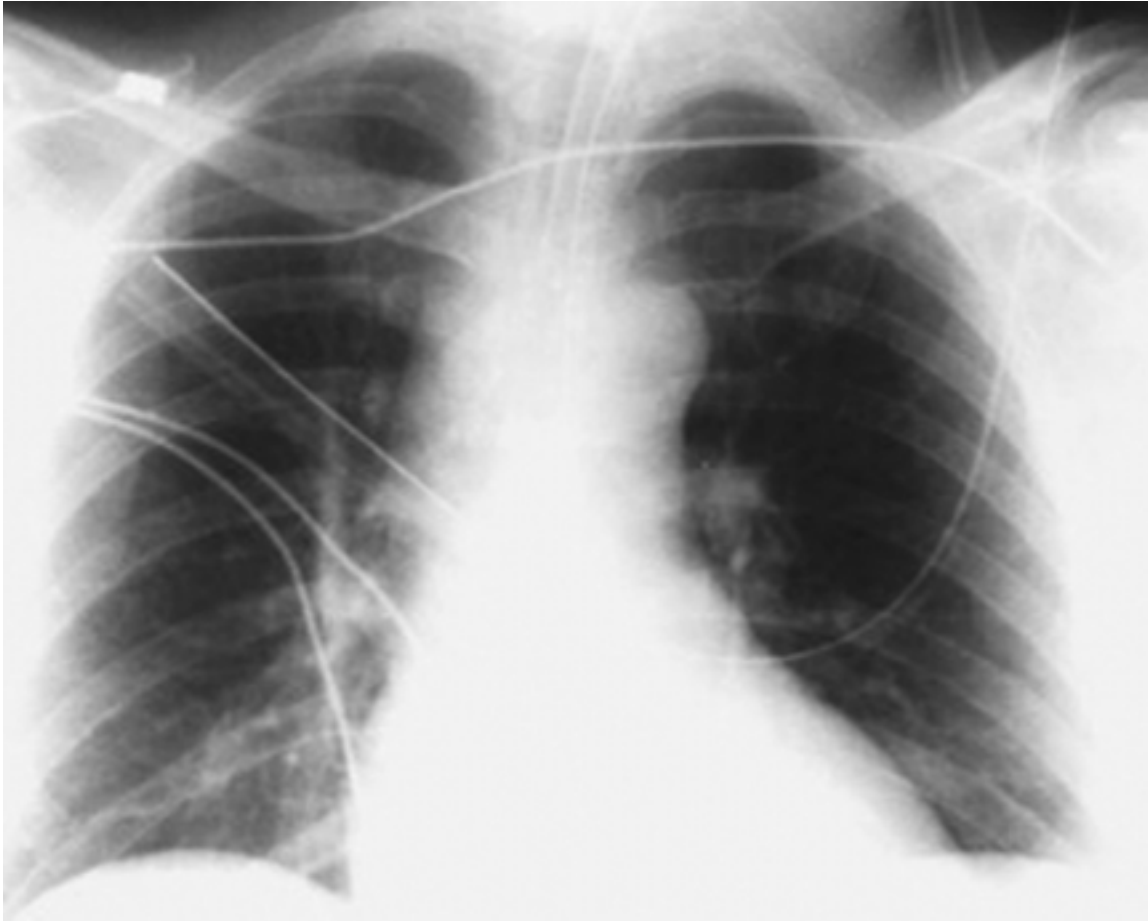
She has many questions about why the inhaler did not prevent this hospitalization.

Pharmacist noted that Micah was unclear which inhaler he was to use for acute symptoms.

Micah's grandmother needs education on asthma treatments to optimize therapy.

Patient Labs and Studies





Arterial Blood Gas #1

ED Admission

ph: 7.46

pCO₂: 31 torr

pO₂: 85 torr

HCO₃: 21.0 mmol/L

HCT: 40 %

Hgb: 13 g/dL

cNa⁺ 141 meq/L

cK⁺ 4.9 meq/L

cCa²⁺ 1.08 meq/L

cGlu 110 mg/dL

Arterial Blood Gas #2

After intubation FIO₂ 1.0

ph: 7.32

pCO₂: 50 torr

pO₂: 92 torr

HCO₃: 22.0 mmol/L

HCT: 39 %

Hgb: 13 g/dL

cNa⁺ 138 meq/L

cK⁺ 4.5 meq/L

cCa²⁺ 1.08 meq/L

cGlu 105 mg/dL

Arterial Blood Gas #3

After adjustment of ET tube to correct R mainstem intubation

ph: 7.4

pCO₂: 37 torr

pO₂: 365 torr

HCO₃: 24.0 mmol/L

HCT: 39 %

Hgb: 13 g/dL

cNa⁺ 138 meq/L

cK⁺ 4.5 meq/L

cCa²⁺ 1.08 meq/L

cGlu 105 mg/dL