Team Training for Critical Care

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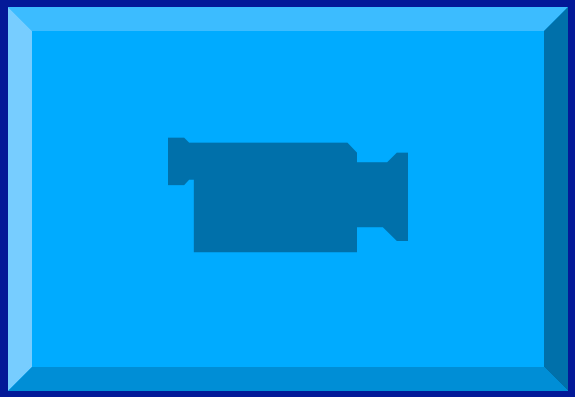
Good or Bad?



Introduction

- Goals
  - Reduce medical errors
    - IOM report
  - Improve patient outcomes
  - Maximize resource utilization
  - Simulation an ideal tool

Team Training

- A foreign concept in medicine
  - The doctor is in charge
  - The doctor is infallible
  - Shame and blame
  - Little or no exposure to role crossover during educational/formative years
- Recommended by IOM to follow example set by aviation industry

Team Training

- What is a team?
  - Group of individuals
  - Each assigned specific roles or functions
  - Interact dynamically, interdependently and towards a common goal
  - Make decisions
  - Often function under high workload conditions

Shared Mental Model

- Knowledge and mechanisms used to describe, explain and predict events
- Used by teams to achieve and agree upon goals in safest possible manner
- Coordinates without the need to communicate overtly

Ergonomics 2000 43(8):1052-1075

CRM

- Crew Resource Management
  - Aviation industry
- Crisis Resource Management
  - Adapting to healthcare
- Adaptation of shared mental model

CRM

- Encompasses:
  - Team training sessions
  - Simulation exercises
  - Interactive group debriefings
  - Measurements of participant performance

Core Components of Effective Team Work

- The "Big Five"
  - Team leadership
  - Mutual performance monitoring
  - Backup behavior
  - Adaptability
  - Team orientation

Salas et al Small Group Research 2005 36(5):555-599

Team Training and CRM

- Leader
- Members
- Communication
- Global assessment
- Resources and support structures

Anesthesiology Clin 2007; 25:283-300

Team Training and CRM

- Leader
  - Stands back, organizes and always grasps the "big picture"
- Member
  - Best suited for specific tasks
  - Centralizes communication

Anesthesiology Clin 2007; 25:283-300

Team Training and CRM

- Communication
  - Address by name
  - Make eye contact
  - Close the loop
- Global assessment
  - Leaders constantly step back and avoid fixating on individual acts
  - Always challenge assumptions

Anesthesiology Clin 2007; 25:283-300

Team Training and CRM

- Resources and support structures
  - Constantly assess the available resources

Anesthesiology Clin 2007; 25:283-300

HRO

- High Reliability Organizations
  - Institutions repeatedly delivering care and positive outcomes with minimal errors
    - Individuals work together in high-stakes situations
    - Great potential for error and disastrous results
- Health care in US a far cry from an HRO

Anesthesiology Clin 2007; 25:283-300

How do We Create HRO's in Health Care?

- Vision
  - Leaders need to create long term plans improving the culture of safety
- Plan and prepare
  - Identify and develop training and implementation goals

How do We Create HRO's in Health Care?

- Train and implement behaviors/expectations
  - Simulation extremely well suited to this endeavor
- Constant evaluation and feedback
- Generate expectations
  - Culture of safety must be team based

What is needed to create a culture of safety?

1. Overcome structural barriers
2. Make safety a leadership priority
3. Overcome physician skepticism
4. Conceive of defect-free performance
   - high goals
   - Practice: patients v. simulators

Summary Recommendations for ICU Safety*

- **Improve teamwork**
- Improve care processes by reducing complexity and creating independent checks
- **Enhanced training and supervision**
- **Automate processes to increase reliability and monitor performance checklists, debriefing, test**

*Pronovost, Ann Int Med 2004

Background

- Instruction around treatment of disease states is poorly standardized
- "See one, do one, teach one" model is still the most widely used teaching method
  - Apprentice model teacher specific
  - Diversity of attending physician approach
- Program lack mechanisms for qualified faculty to teach, observe and evaluate medical knowledge
- Trainee performance rarely formally assessed
  - (model doesn't allow for it) non-standardized

Why Simulation?

- How adults learn
- Lessons learned from other industries
- Safe, mistake-forgiving environment
- Nightmare driven education (proactive)
- **Team training: <u>Team is pt. care unit</u>**
- Feedback and debriefing (reflective)
- Reproducible, standardized, objective
- Credentialing & licensure

Critical Care Simulation

- Focus on human factors
  - Reduce errors
- Allows learners to develop necessary competencies
  - Practice without risk
  - Standardized curriculum
  - Efficient teaching

Critical Care Simulation

- Team members:
  - Physicians
  - Nurses
  - RT
  - PA/NP
  - Pharmacy
  - Nutrition, PT/OT…..

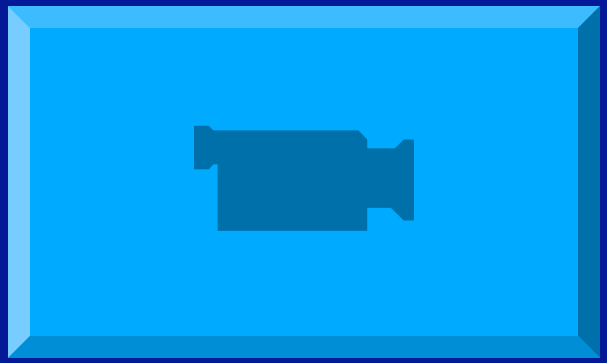
Critical Care Simulation

- Generating a scenario
  - Identify the targeted learners
  - Identify the goals of each session
  - Briefing
  - Simulation encounter/session
  - Debriefing
    - Possibly the most important component

Debriefing

- How did you perform?
- Who was the leader?
- How would you change performance in future?
- Were you happy with workload distribution?
- How was communication?
- Were matters prioritized correctly?

If all goes well…



Baystate Medical Center

SIMULATION CENTER

Goldberg Surgical Skills Laboratory

An American College of Surgeons Accredited Level I Education Institute

Topic: ***Respiratory Failure secondary to ARDS***

Facilitator: _____

Learners

- audience which is actively participating in (receiving) the educational process -

1.
2.
3.
4.

Goals

- broad, generalized statements of what students will be able to learn in the session -

Objectives

- specific, measurable instructions/skills/behaviors that describe the steps learners need to take to achieve the stated goals -

1.
2.
3.
4.
5. Global team objectives (group objectives) – if applicable
   - leadership & member roles, problem solving, communication, situational awareness, resource utilization, adaptability -
   a.
   b.
   c.

Synopsis of Simulated Experience

- background information, descriptions & prompts for implementation of an educational experience directed toward achieving stated objectives -

Embedded Potential Pitfalls (Optional)

- positive or negative prompts which may be anticipated and included in order to assist the educator(s) with delivery of stated objectives -

Simulator and Room Set-up, Supplies, and Educator Notes

- details for simulator & room set-up, required materials & supplies, and embedded educator preparation/notes specific for training experience -

Discussion

Your Patient

- 24 Year old male
- Victim of stabbing
- Found on ground unresponsive for unknown time
- Tox screen positive for opiates
- Required thoracotomy to control bleeding

Currently:

- Post operative day 2, exploratory left thoracotomy
- Extubated on Post operative day 1
- Combative, sedated on intermittent lorazepam

Past Medical History

- Poly substance abuse
- Surgeries: Hardware noted in thoracic spine on x ray
- Medications: Unknown
- Allergies: Unknown

Current Medications

- Fentanyl intermittently
- Famotidine 20mg every 12 hours
- Enoxaparin 30mg every 12 hours

The nurse calls you because the patient's O_2 sat is dropping.

Available Studies

- CBC
- Lytes BUN/creat
- Coagulation
- ABG
- CXR
- EKG
- Urinalysis
- Lactate

CBC

- WBC 10.2
- Hgb 7.9g
- Hct 25.1%
- Plts 97K

Chemistries

- Na 143
- K 3.8
- Cl 105
- HCO_3 21
- BUN 17
- Creat 1.4
- Ca 8.8
- Mg 2.5
- Phos 3.2

Coags

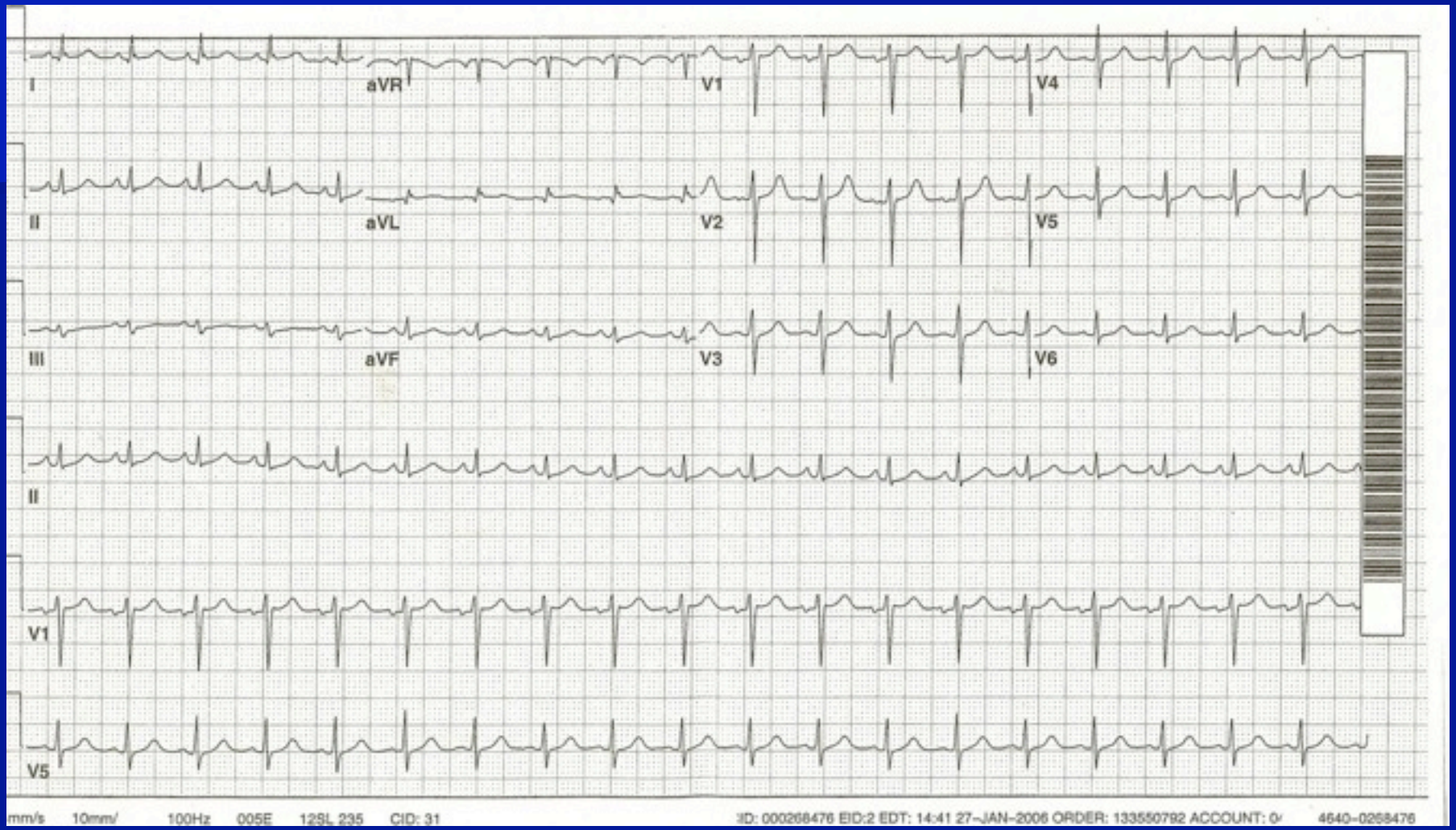
- PT 12.4 seconds
- PTT 39.6 seconds
- INR 1.3

Lactate

- Lactate 2.4

Urinalysis

- sent


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
V1
V5
mm/s 10mm/ 100Hz 005E 12SL 235 CID: 31
3D: 000268476 EID:2 EDT: 14:41 27-JAN-2006 ORDER: 133550792 ACCOUNT: 0
4640-0268476

ABG

- 7.38/ 37/ 43/ 21

- Back to studies

Repeat after vent change

- 7.31/ 51/ 53/ 21

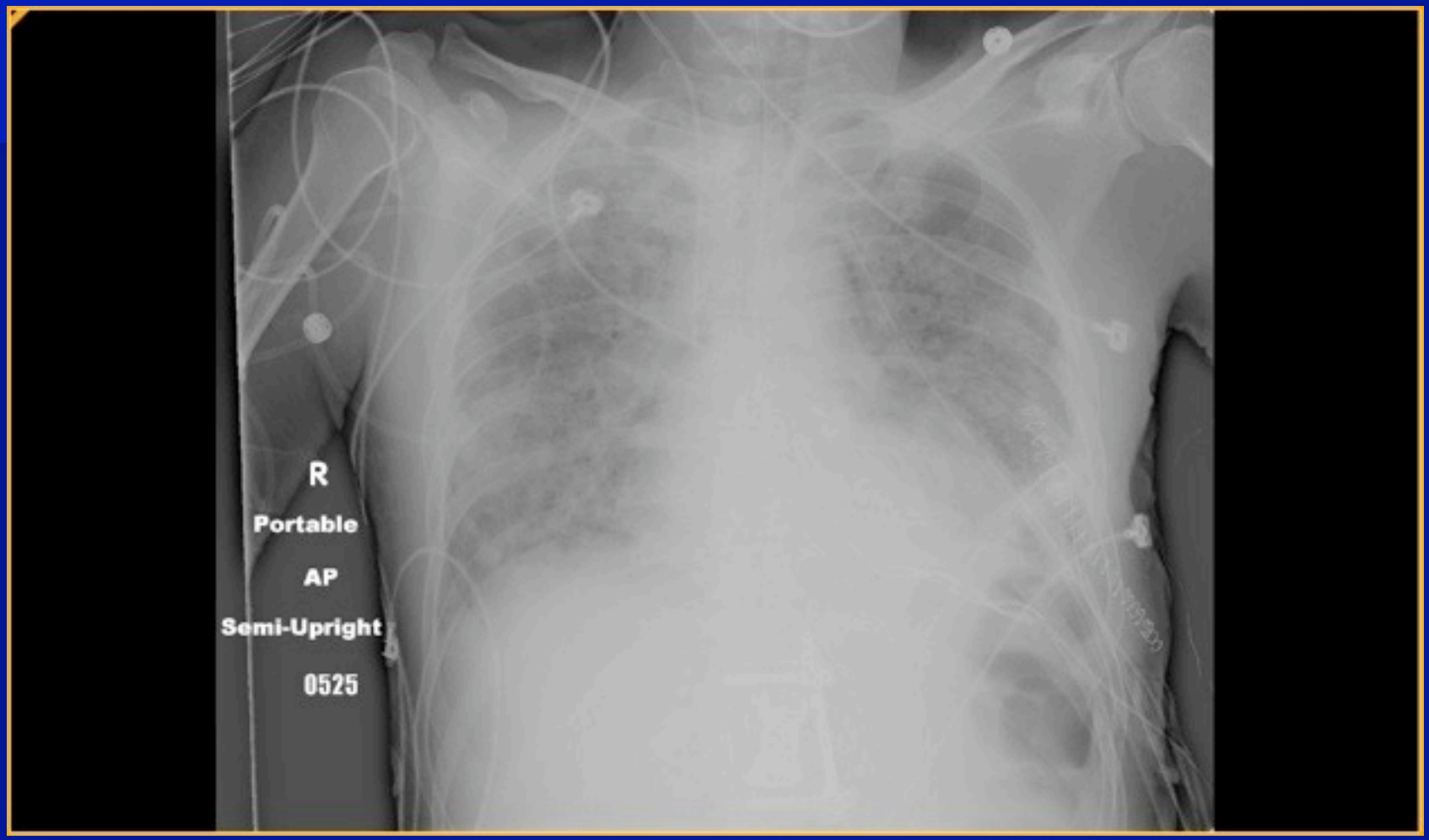
- Back to studies

later

- 7.27/ 56/ 61/ 21

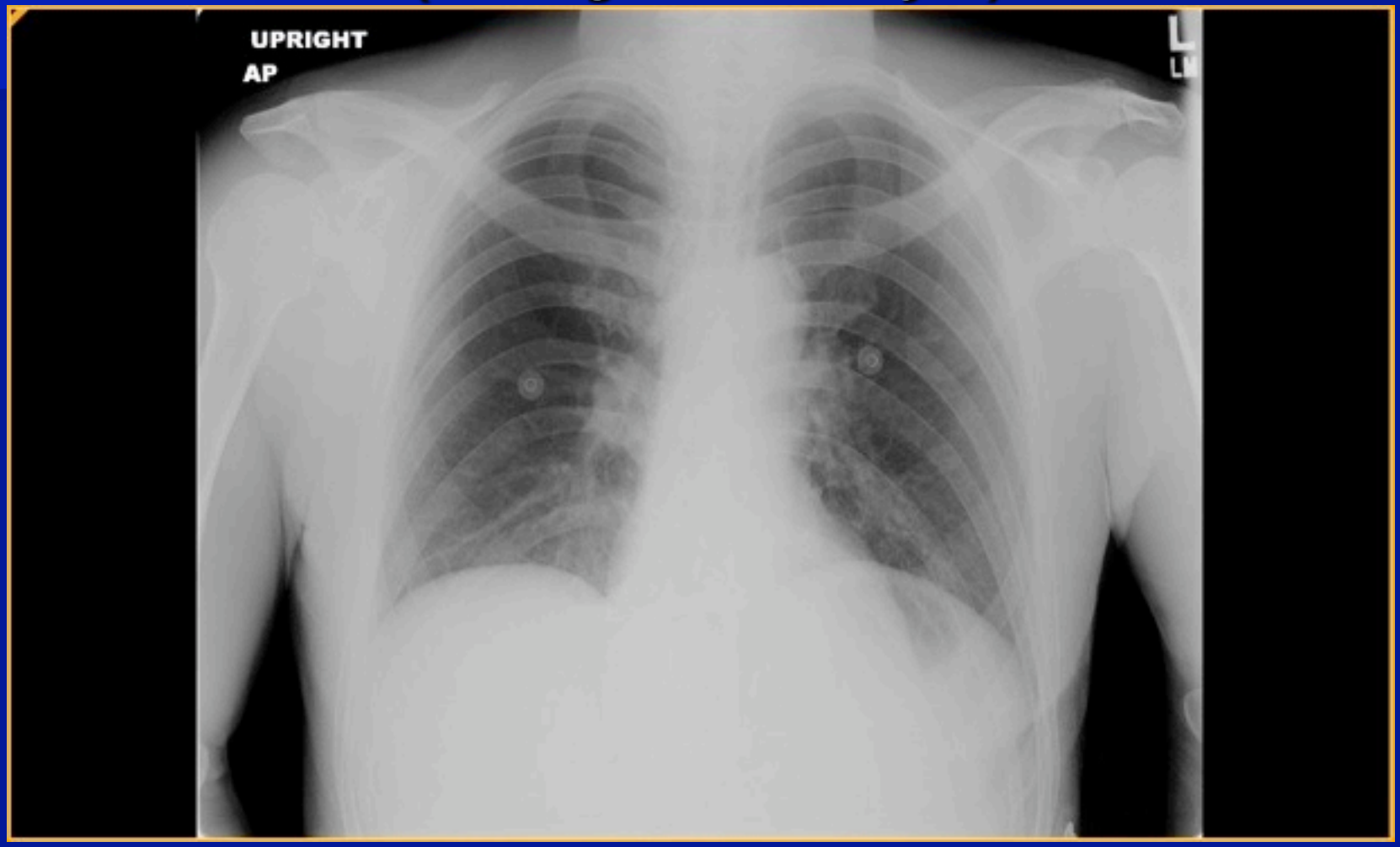
- Back to studies

Currently



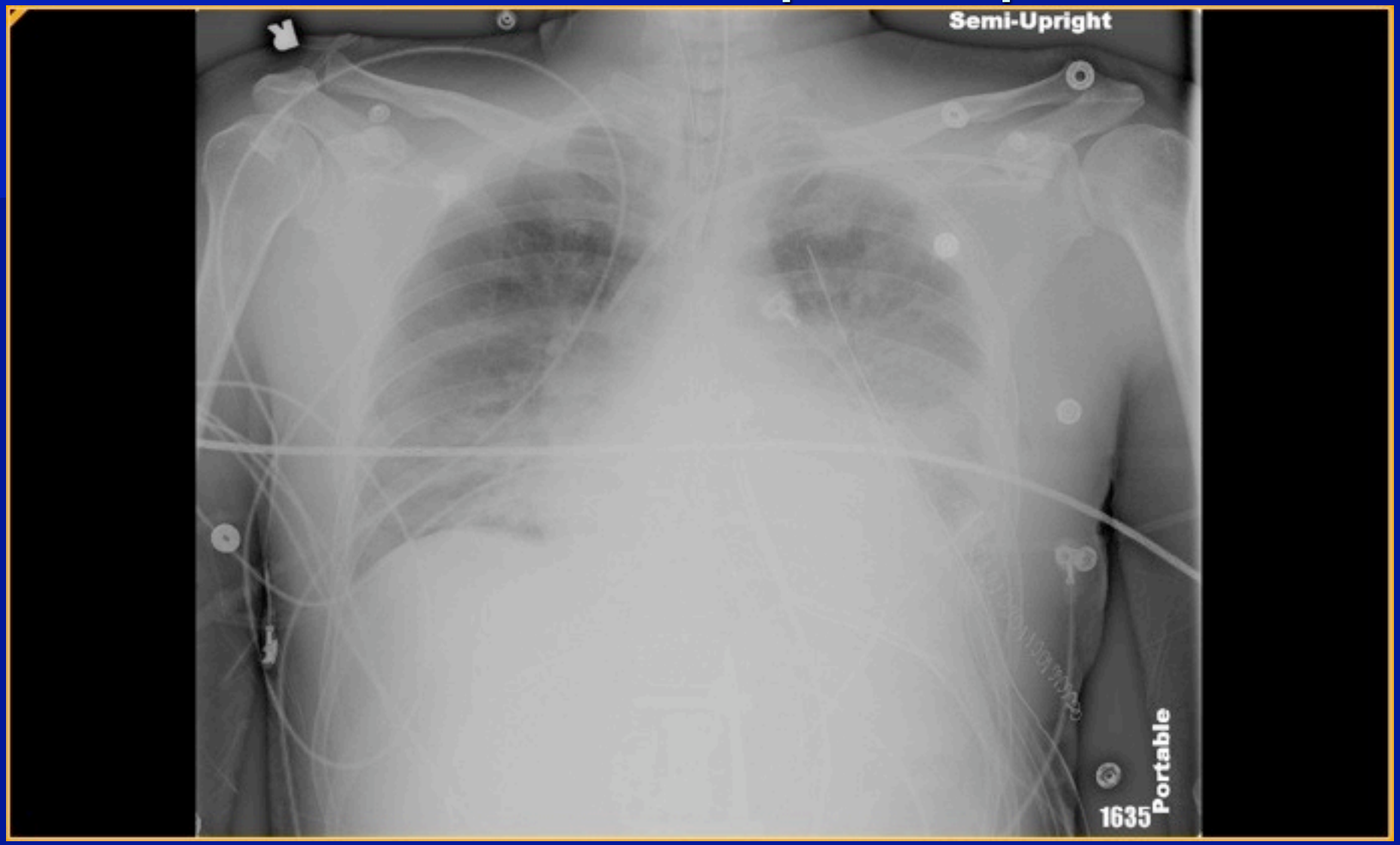
- Pre op studies post op

Taken 2 weeks ago
(a cough while in jail)



- Current Studies Post op

Immediate post op



- Pre op studies current

Follow up