# Pearls/Pitfalls: Older Adults in the ED

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# Agenda

- Intro to geriatrics
  - Definitions
- General approach to older adults
- Cases of Scary CC


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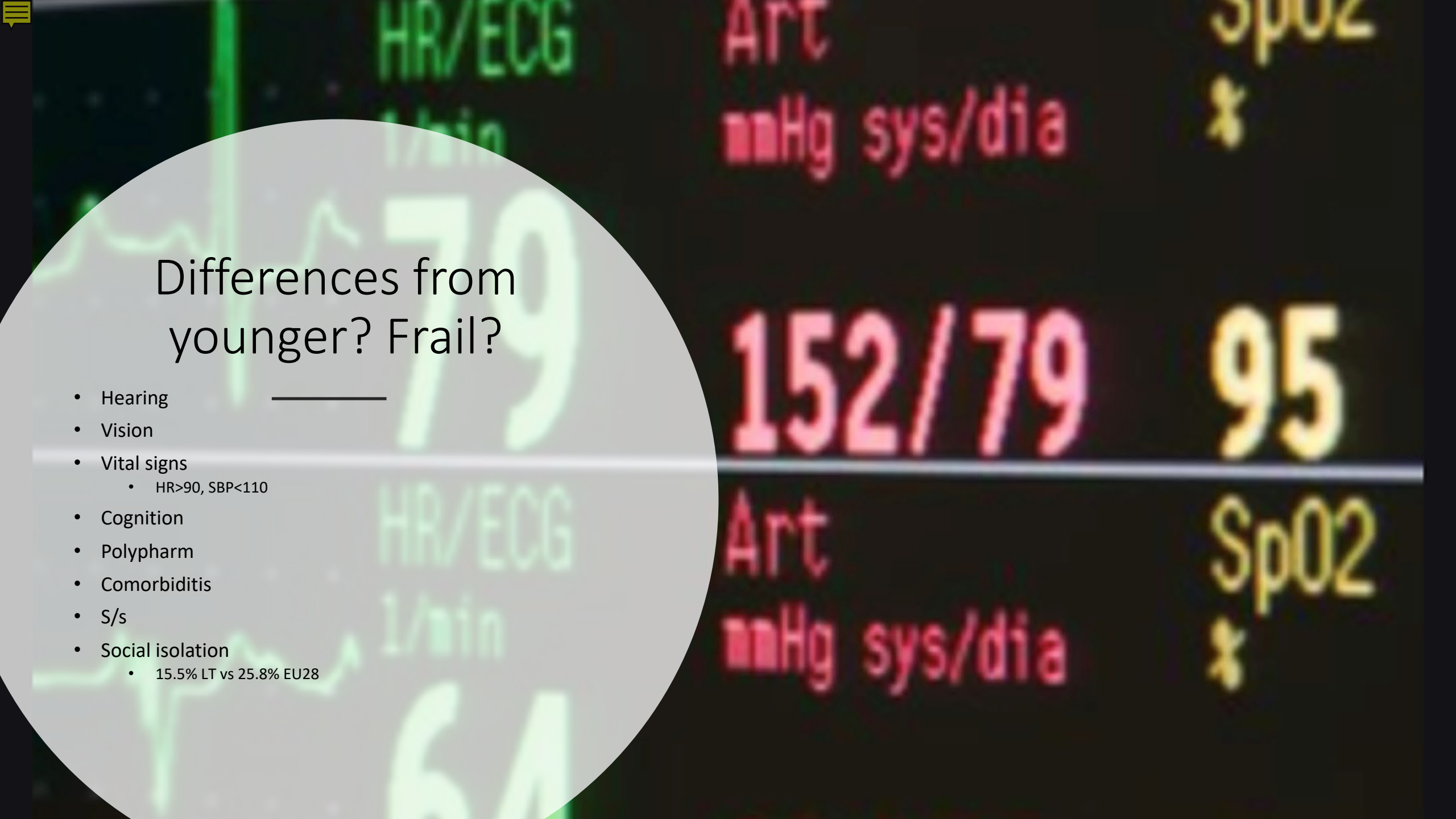
# What is “older”?

- >=65
- Any age with hx of MCI/dementia




# Differences from younger? Frail?

- Hearing
- Vision
- Vital signs
  - HR>90, SBP<110
- Cognition
- Polypharm
- Comorbiditis
- S/s
- Social isolation
  - 15.5% LT vs 25.8% EU28

# General Approach

- See them 1st
- Sit
- Hearing/visual aids
- Re-orient
- Address pain
- Toileting!
- PO!!!!
- Caregiver/Collateral
- Nutritional status
- Changes in MS (acute vs chronic)

# Scary CC

- Abd pain
- CP
- PNA
- Trauma

# Case

- 80F presents to ED w 3months of diarrhea, 3 episodes of watery stool per day.  Came today because its worsening and she is now in diapers due to incontinence.  Had colonoscopy 1 month ago which did not provide etiology of diarrhea
- PE:
- Abd: distended but no sig ttp

# Abdominal Pain

- #1 CC in ED for Geri (1)
  - Case fatality 5%
  - ED recidivism 10%
  - 30% need procedure/OR

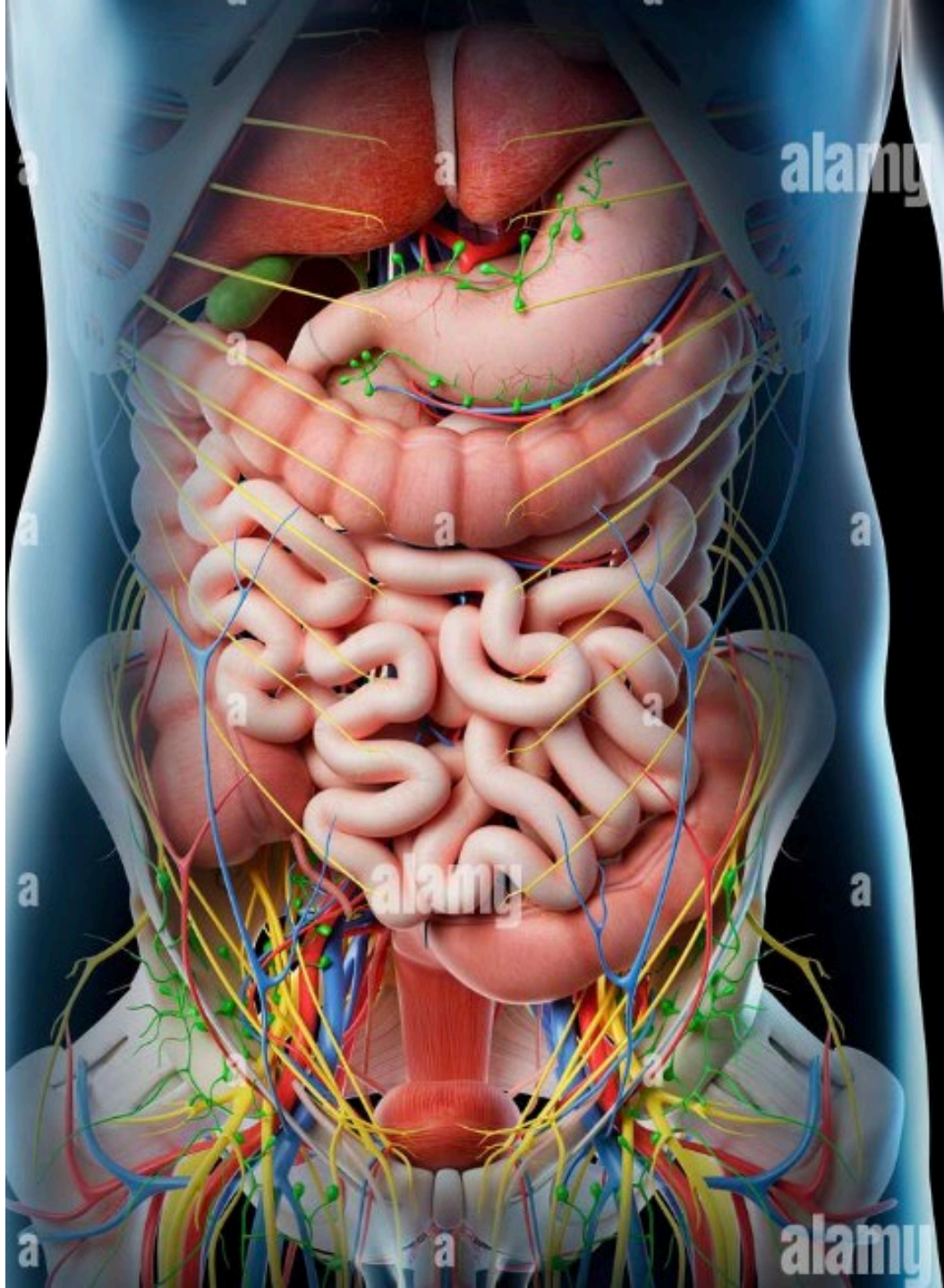
# Abdominal Pathologies

- **PUD:**
  - 35% report no abdominal pain.
  - Even when complicated (perf or bleed) 50% don't have PUD sx (2)
  - Most common presentation is melena

- **Appy**:
  - 10% in older adults, but perforation rate 50-70% (compared to 20%)
  - Uncomplicated appy has 4-8% mortality (vs <1% in younger) (4)
  - 25% have no right lower quadrant pain. (3)
    - Likely med effect 9lots of their meds have anti-inflammatory effect)

- **Ruptured AAA:**
  - <50% classic combination of hypotension, abdominal pain, and palpable abdominal mass (5)
  - Frequent CC: flank pain (most common misdiagnosis: renal colic)

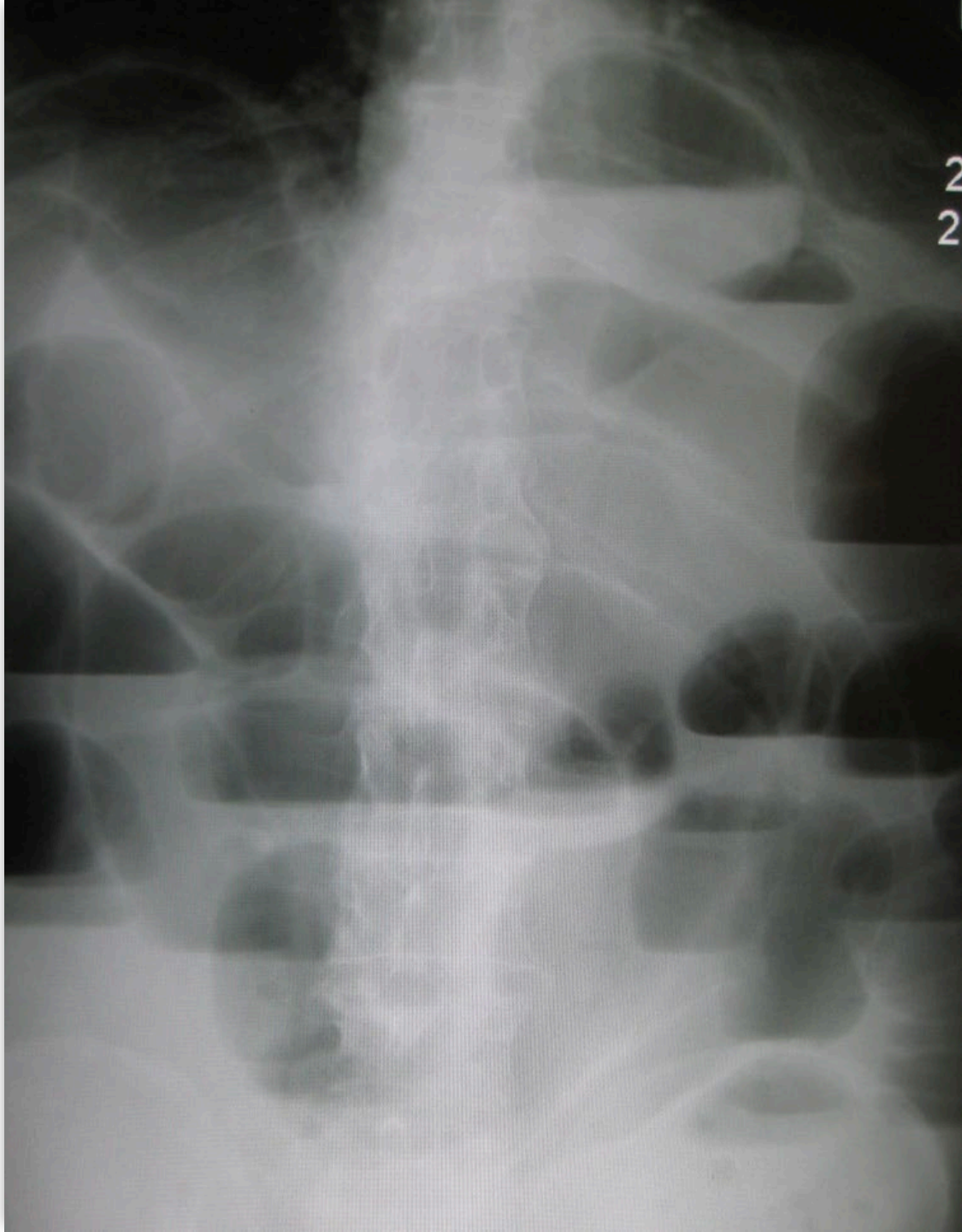
- **Chole**:
  - Most common abd surgical emergency in elderly (6)
  - Higher risk of cholangitis, perf,et
  - Why? Atherosclerotic weakining fo GB wall, age related dilation of CBD
  - Malaise or AMS is common complaint
  - Charcot triad (fever, RUQ, jaundice) less common (7),
    - 9% in >80 vs 29% in <65 (8)



# More Belly Aches

- Pancreatitis:
  - 1/3 are geri patients (1)
  - More mortality (9.6% vs 0.5%) (1)
  - Pain absent 25%, vomiting absent 60% (2)

- Bowel Obstruction
  - SBO incidence 400 -480 per 100,000 vs 30-40 per 100k (3)
  - LBO more common in elderly
    - Insidious onset
    - Volvulus (sigmoid>cecal)
      - Decreased gut motility, more neuro comorbidities
  - Acute surgical abdomen: WBC normal in 30%



# Case

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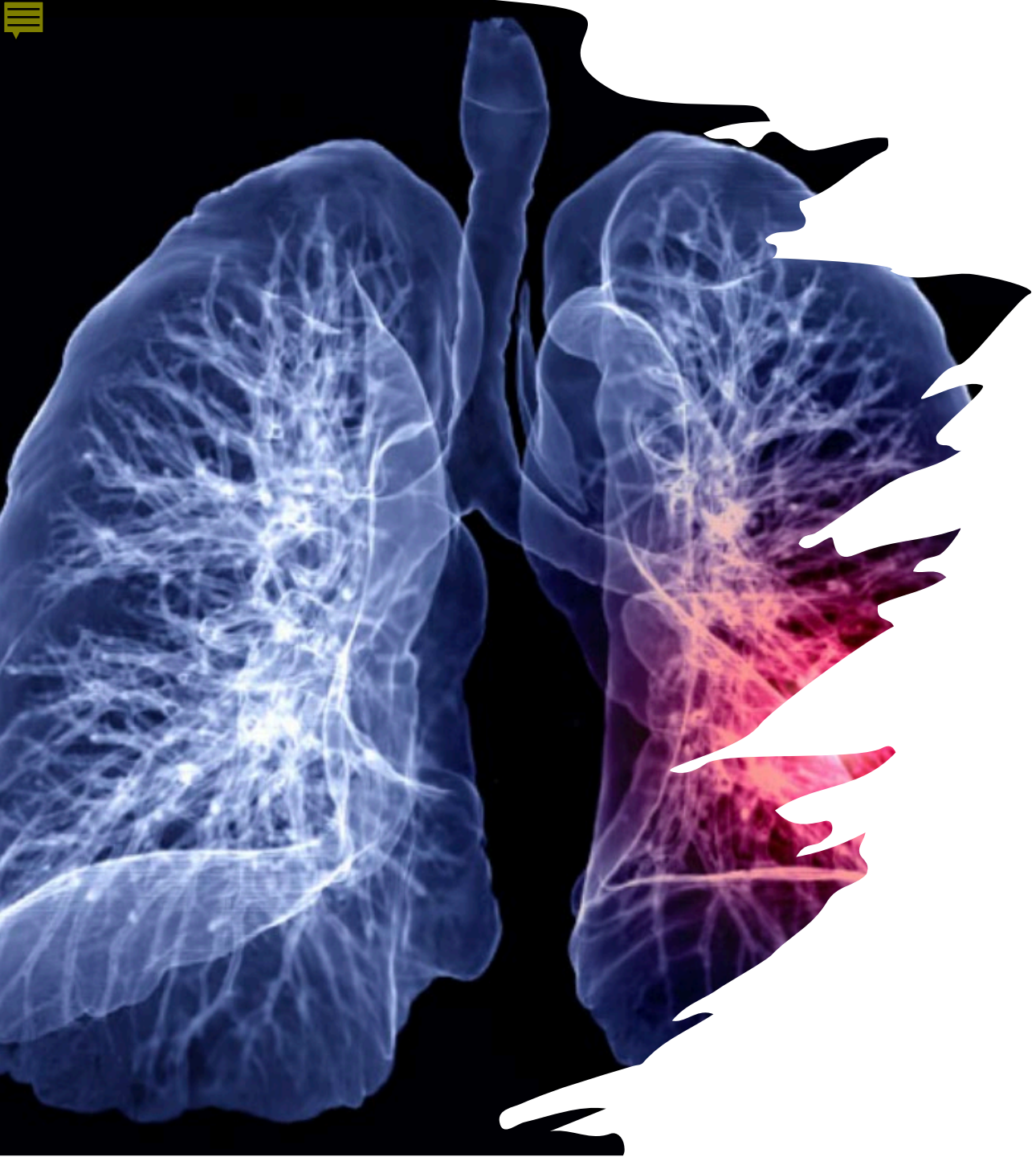
- PE:
- Abd: distended but no sig ttp
- CT results: LBO

# Case

- 83F PMHx HTN, DM2, p/w epigastric discomfort and fatigue. No CP/SOB, no fevers, no n/v.
- PE: normal vitals
- Abd: soft nttp

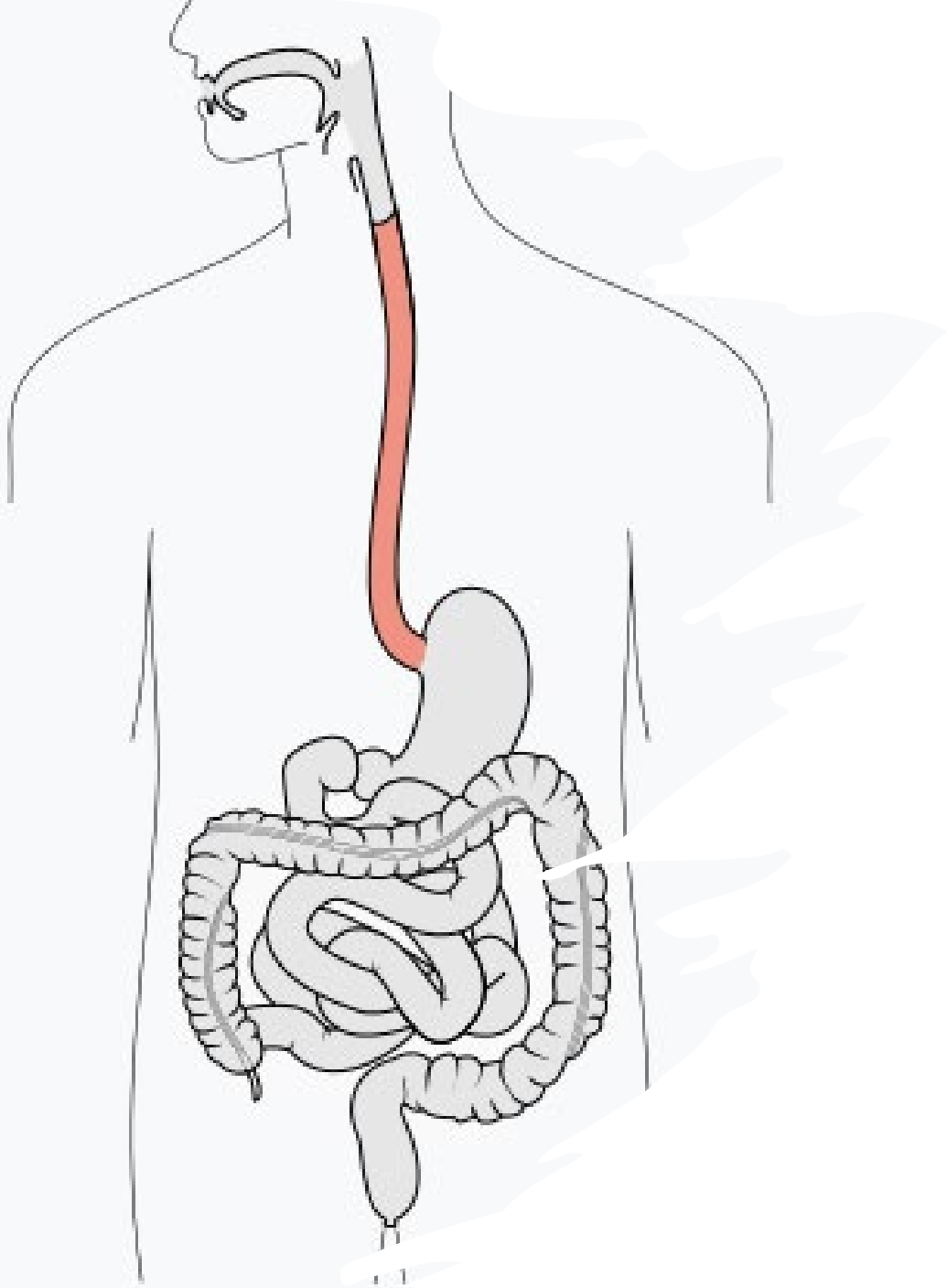
# AMI and CP

- 1/3 of all ACS and 60% of deaths is from over 75yo (2)
  - Risk of death Inc by 70% with each decade! (1)
- <50% of patients 65 years old to 75 years old have CP!!!
- <40% over 85 have chest pain!!!! (1)
- Sx:
- shortness of breath (49%),
  - diaphoresis (26%),
  - nausea and vomiting (24%),
  - syncope (19%), and
  - delirium (5%).
- EKG and trop non diagnostic



# PE and CP

- Incidence increases with age (1)
- Age>70 independent RF for death (2)
- PE: less likely to have SOB and pleuritic CP (3)
  - Dyspnea 66% vs 76% (<70yo)
  - CP 35% vs 46% (<70yo)
- Less DVTs and lower HR when >80 (compared with 65-79) (4)
- Specificity of ddimer drops significantly with age, to less than 5% over 80 years old.



# Non-CP CP

- Esophageal perforation
  - Most are in their 60s (1)
  - Iatrogenic vs malignant
  - SUPER morbid (up to 20% mortality (2))

# Case

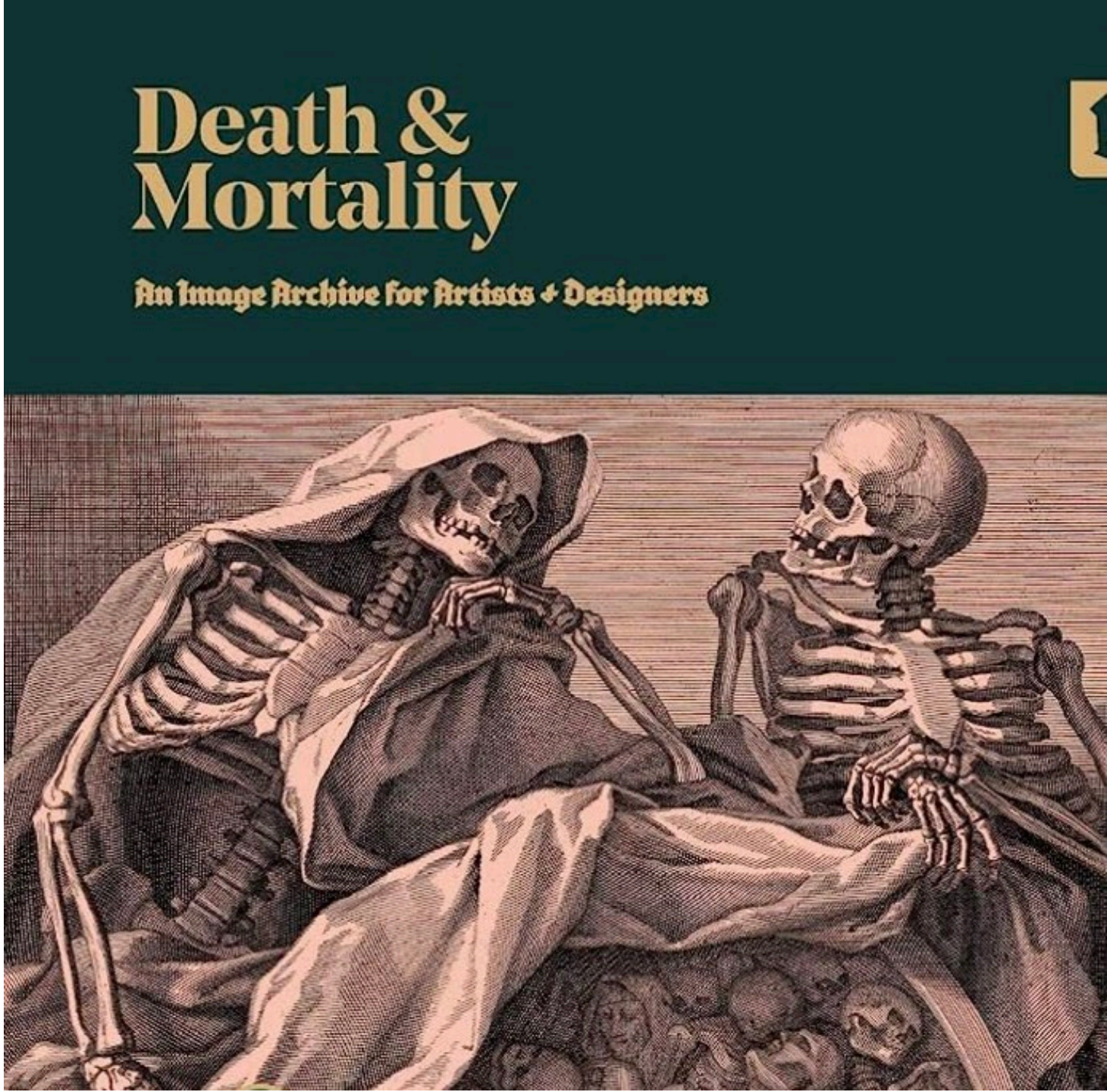
- 93M PMHx Alzheimers dementia, HTN, HL, recent visit in the ED 2 days ago after falls and throwing things and sent home with doxycycline for pneumonia, presents today for altered mental status. Patient lives at home with son and caregiver. Son states that “thankfully” father slept all day but that he seems very withdrawn and has a flat affect. He also still having fevers to 38.3.

- PMHx: HTN, HL, Alzheimers,
- Social: past smoker

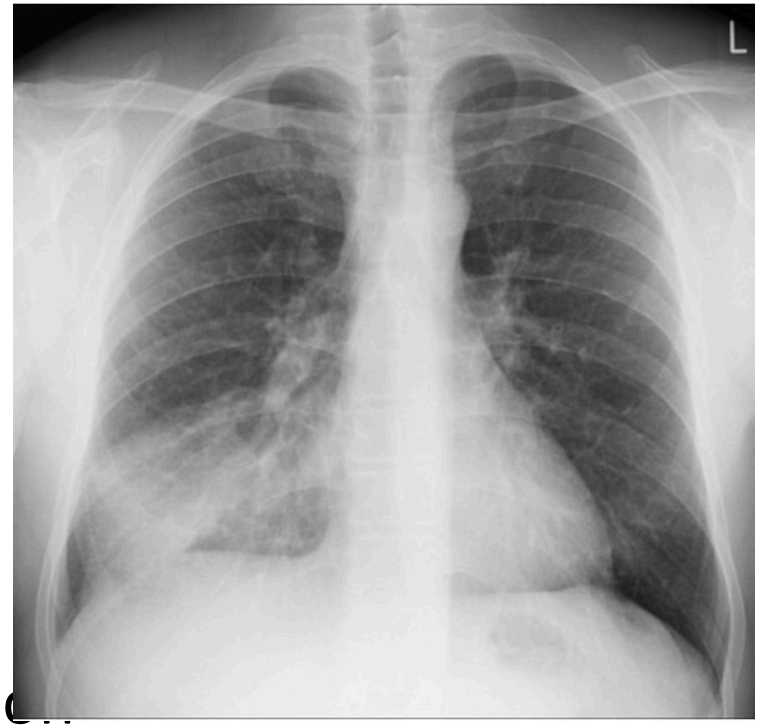
- PE: 120/57, 79, 38.0, 16, 97%,
- Axo to baseline,
- +crackles on lung exam

Poll: 30-day Mortality for community-acquired pneumonia in older adults

A. 1%
B. 5%
C. 10%
D. 25%



# Pneumonia




- PreCOVID 8th leading cause of death in US (now COVID is 3rd)
  - 12.4/100k
- 1.5million ED visits (CDC)
- Incidence/prevalence is 4x higher
- Older adults frequently require hospital or ICU admissio
- 30-day mortality rate for community-acquired pneumonia is 10% among older adults
- HAP is also real
  - 17/1000 (>70) vs 2/1000 (in <60)

File TM, Jr., Marrie TJ. Burden of community-acquired pneumonia in North American adults. Postgraduate medicine 2010;122:130-41.
Janssens JP, Krause KH. Pneumonia in the very old. Lancet Infect Dis. 2004 Feb;4(2):112-24. doi: 10.1016/S1473-3099(04)00931-4. PMID: 14871636.
Ruhnke GW, Coca-Perraillon M, Kitch BT, Cutler DM. Marked reduction in 30-day mortality among elderly patients with community-acquired pneumonia. *American journal of medicine.* 2011;124:171-8 e1.
Marrie TJ, Huang JQ. Epidemiology of community-acquired pneumonia in Edmonton, Alberta: an emergency department-based study. *Canadian respiratory journal.* 2005;12:139-42.
Nagaratnam, N., Nagaratnam, K., Cheuk, G. (2017). Pneumonia in Geriatric Patients. In: Geriatric Diseases. Springer, Cham. https://doi.org/10.1007/978-3-319-32700-6_10-1

# Pneumonia & Older adults Pearls

- Less robust immune response
  - Less cilia
- Fever response may be blunted
  - VA study less than 35% w PNA had fever+cough
- Tachycardia may be blunted by beta blockers
- BP normal is NOT normal
- 20% don't have cough as a sx!
- Altered mental status may be initial presentation (DELIRIUM = acute confusional state)
  - Acute onset
  - inattention
  - Disorganized thinking
  - Altered level of consciousness
- Procalcitonin? CRP?

# CURB-65: a decision tool

| | | |
|---|---|---|
| Confusion | No 0 | **Yes +1** |
| BUN > 19 mg/dL (> 7 mmol/L) | **No 0** | Yes +1 |
| Respiratory Rate ≥ 30 | **No 0** | Yes +1 |
| Systolic BP < 90 mmHg or Diastolic BP ≤ 60 mmHg | **No 0** | Yes +1 |
| Age ≥ 65 | No 0 | **Yes +1** |

**2 points**

Moderate risk group: 6.8% 30-day mortality.

Consider inpatient treatment or outpatient with close followup.

Lim W, van der Eerden MM, Laing R, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax*. 2003;58(5):377-382. doi:10.1136/thorax.58.5.377

# Antibiotics

- Treatment for CAP depends on
  1. Severity of illness (location of treatment)
  2. Likely pathogens
  3. Risk factors for abx resistance
  4. Medical co-morbidities

| Pneumonia Type | Predisposing Exposures | Antibiotic Treatment |
|---|---|---|
| **Community acquired pneumonia (CAP)** | Pneumonia contracted outside of the hospital | Patients with no comorbidities: amoxicillin OR doxycycline for 5d<br><br>Patients with co-morbidities:<br>amoxicillin+ doxycycline OR levofloxacin for 5d<br><br>Immunocompetent INPATIENT: CTX+doxy<br>ICU: CTX+Azithromycin +/-Vanc |
| **Hospital-acquired pneumonia (HAP)** | Occurs ≥ 48 hours after hospital admission | Empiric coverage for S.aureus (if no risk factor for MRSA, prescribe antibiotic with activity against MSSA) plus coverage for Pseudomonas/other gram-negative bacilli (e.g. vancomycin + 4$^{th}$ generation cephalosporin, carbapenem or piperacillin- tazobactam)<br><br>Consider dual coverage for Pseudomonas if resistance expected |
| **Ventilator-associated pneumonia (VAP)** | Occurs ≥ 48hrs after intubation/mechanical ventilation | Empiric coverage for S.aureus (choose coverage depending on need to cover for MRSA vs MSSA) plus coverage for Pseudomonas/other gram-negative bacilli (e.g. vancomycin + 4$^{th}$ generation cephalosporin, carbapenem or piperacillin-tazobactam)<br><br>Consider dual coverage for Pseudomonas if resistance expected |


Mandell LA, Wunderink RG, Anzueto A, et al. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clinical infectious diseases*. 2007;44 Suppl 2:S27-72.
American Thoracic S, Infectious Diseases Society of A. Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *American journal of respiratory and critical care medicine.* 2005;171:388-416.
Loeb M, Carusone SC, Goeree R, et al. Effect of a clinical pathway to reduce hospitalizations in nursing home residents with pneumonia: a randomized controlled trial. *JAMA*. 2006;295:2503-10.
Fine MJ, Auble TE, Yealy DM, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med.* 1997;336:243-50.
Lim WS, van der Eerden MM, Laing R, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax.* 2003;58:377-82.
Givens JL, Jones RN, Shaffer ML, Kiely DK, Mitchell SL. Survival and comfort after treatment of pneumonia in advanced dementia. *Archives of internal medicine.* 2010;170:1102-7

# Antibiotics in older adults

- Oral abx similar in efficacy to IV
- Use amox+doxy rather than levofloxacin
  - Renal, tendons
- Advanced dementia: clarify goals of care as antimicrobial tx modestly prolongs survival with no comfort benefit identified

# Case

- 69F, stage iv breast ca, walking, “mechanical” fall over curb, no LOC, GCS 15, no thinners
- PE: ABCD intact, axo3, no neck ttp, ?hematoma

# Falls are BAD if >75yo

- 30.6% of all falls resulting in a fracture
- 23.6% resulting in mild traumatic brain injury.[19,20]
- 1.67 times more likely to be hospitalized
- 3.82 times the in-hospital mortality compared to younger patients

# GLF injuries

## ICH

3-5% SDH, no AC, GCS15, no LOC

## Ribs

Each rib fx Inc mortality by 19% and PNA by 27%

2x mortality vs younger w same injury

## Hips

3x mortality than those without hip fx (in every death category)

Inpatient mortality is 4% and over 12mth 20-25%

## Necks

>50% are from GLF

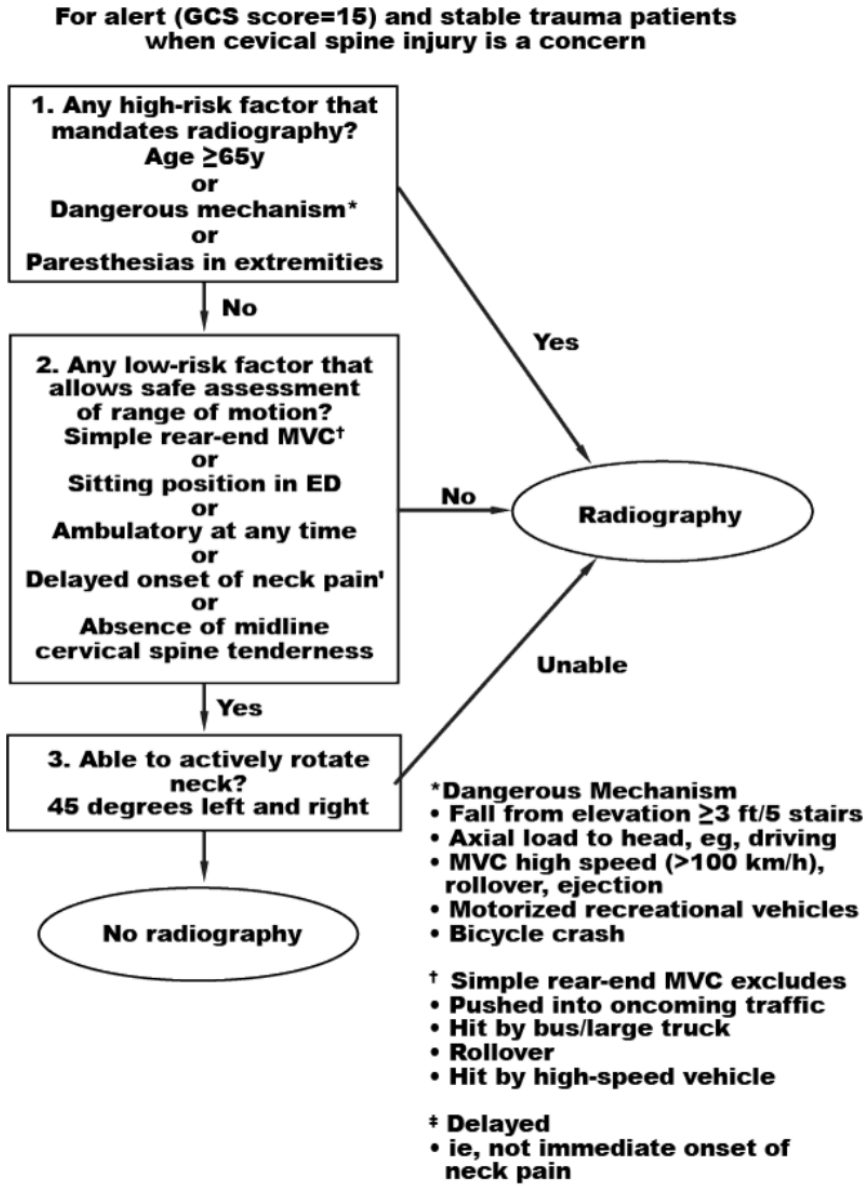
60% are C1/C2

Only 45% have ttp, 21% no neck pain, 3% ASX

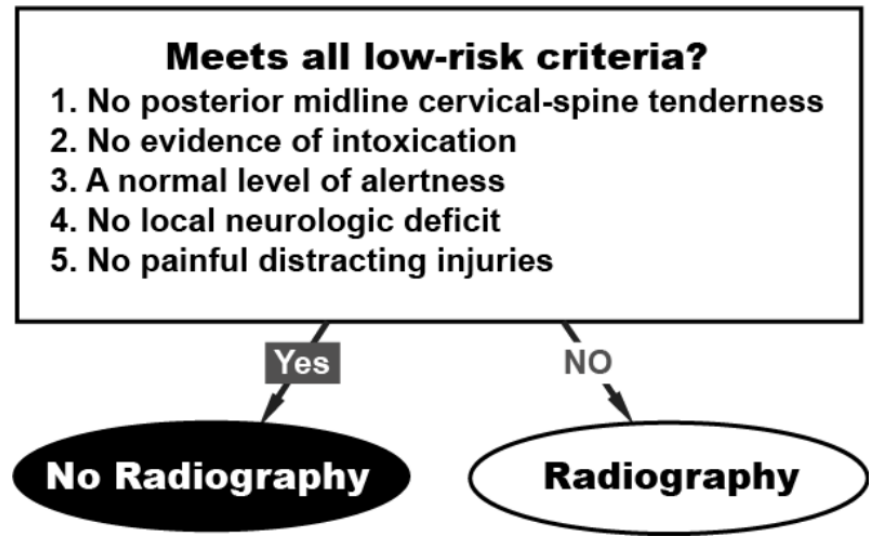
## Literally any bone

Over 75, 1/3 break something

## Canadian Cervical Spine Rule

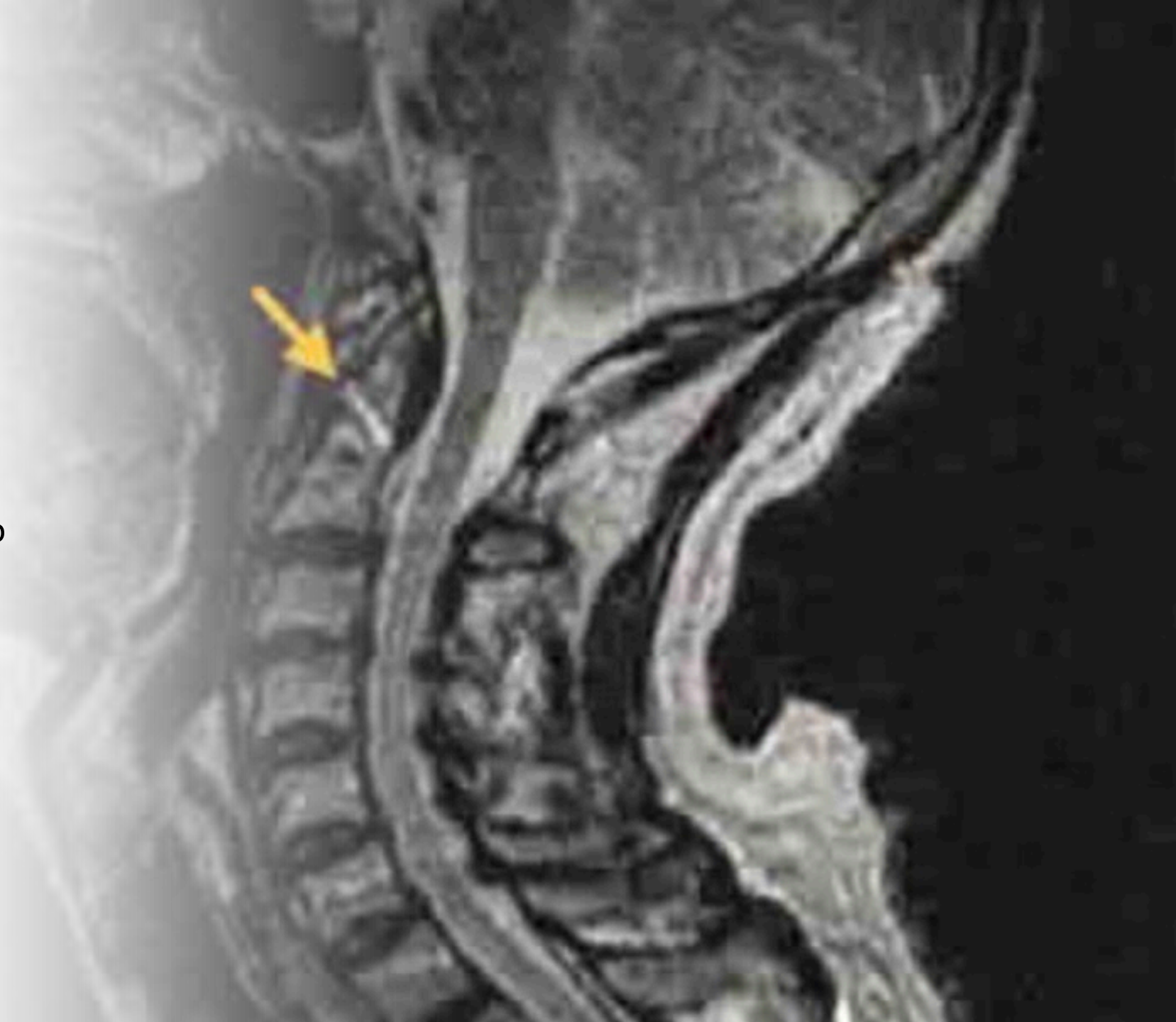


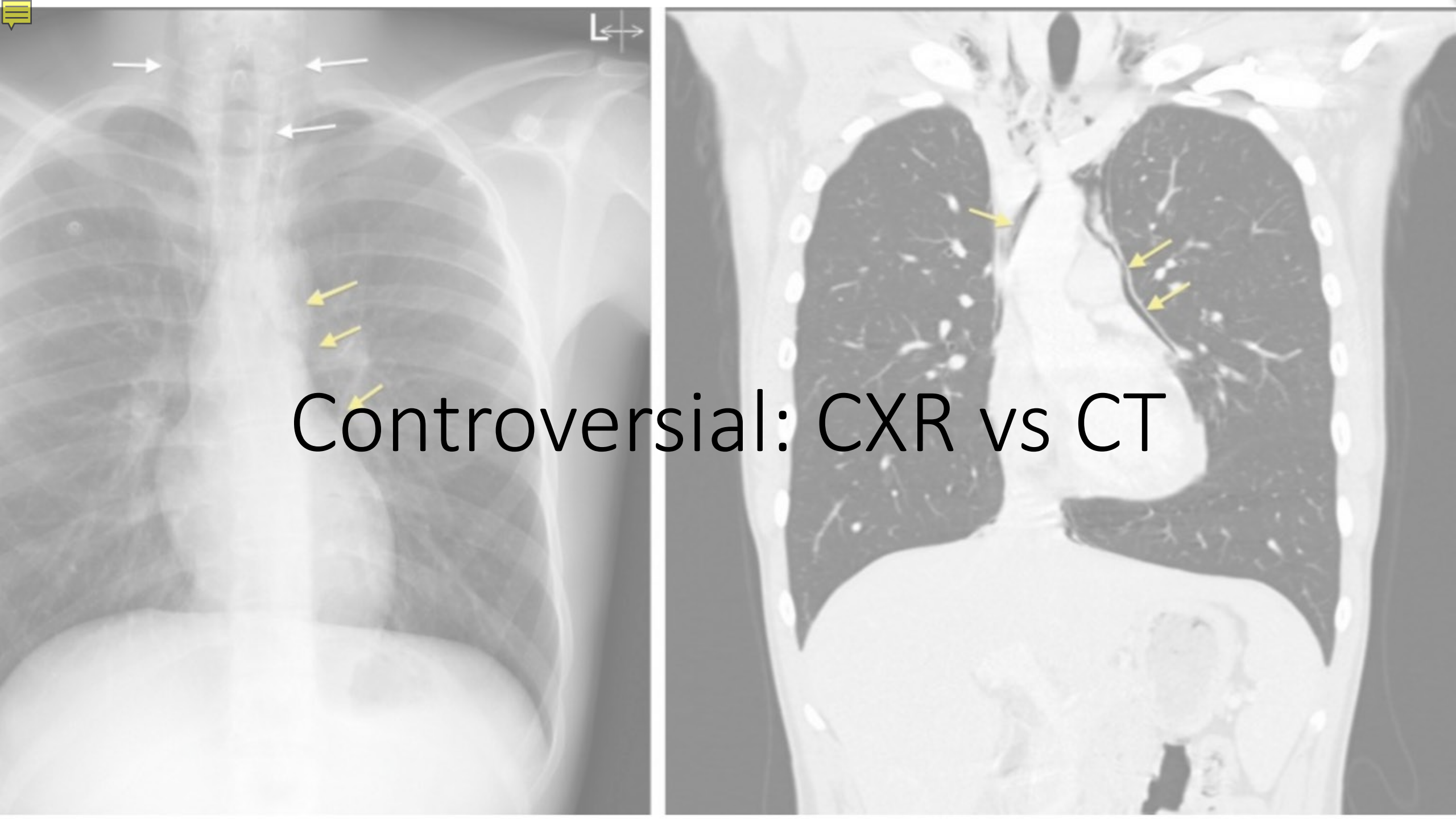

## NEXUS Low Risk Criteria



# Modified NEXUS

- Add
  - Any change in baseline mental status
  - Any evidence of trauma to the head/face
    - If yes, can’t clear via NEXUS





# Controversial: CXR vs CT

# NEXUS Chest CT

## Clinically Major Thoracic Injuries

| | | |
|---|---|---|
| Abnormal chest X-ray<br>CXR showing any thoracic injury (including clavicle fracture) or widened mediastinum | **No** | Yes |
| Distracting injury | **No** | Yes |
| Chest wall, sternum, thoracic spine, or scapular tenderness | **No** | Yes |

## All Thoracic Injuries

| | | |
|---|---|---|
| Rapid deceleration mechanism<br>Fall from >20 feet/6.1 m or MVA at >40 mph/64.4 km/hr with sudden deceleration. | **No** | Yes |

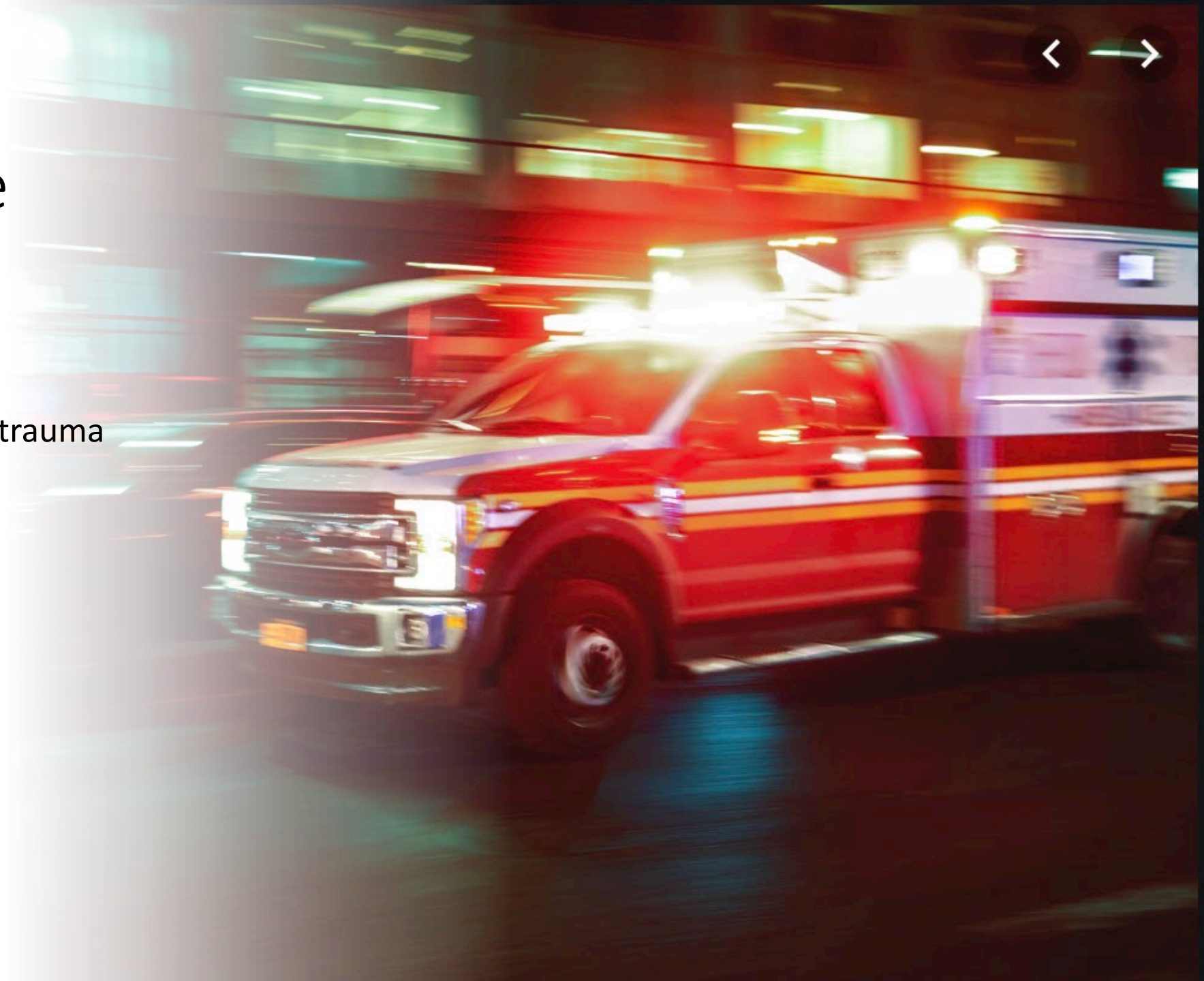
All MAJOR AND MINOR criteria are ABSENT - no Chest CT by NEXUS Chest.

Major injury: 99.2% sensitive, 31.7% specific
Major or minor injury: 90.7% sensitive, 37.9% specific

**Copy Results** **Next Steps**

# US EMS Triage

- 20-50% undertriaged
- 34% less likely to die in a trauma center



# Geriatric-Specific Triage Criteria Are More Sensitive Than Standard Adult Criteria in Identifying Need for Trauma Center Care in Injured Older Adults

Brian Ichwan, BS; Subrahmanyam Darbha, MS; Manish N. Shah, MD, MPH; Laura Thompson, MD, MPH; David C. Evans, MD; Creagh T. Boulger, MD; Jeffrey M. Caterino, MD, MPH*

*Corresponding Author. E-mail: jeffrey.caterino@osumc.edu.

**Table 1.** Differences between Ohio's 2009 geriatric trauma triage criteria and adult trauma triage criteria for EMS providers.[23]

| Geriatric Triage Criteria (Age ≥70 Years)* | Corresponding Adult Triage Criteria |
|---|---|
| **Physiologic** | |
| Systolic blood pressure less than 100 mm Hg, or absent radial pulse with carotid pulse present | Systolic blood pressure less than 90 mm Hg, or absent radial pulse with carotid pulse present |
| GCS score ≤14 in trauma patient with a known or suspected traumatic brain injury | GCS score ≤13 |
| **Anatomic** | |
| Fracture of 1 proximal long bone sustained from motor vehicle crash | Fractures of 2 or more proximal long bones |
| Injury sustained in 2 or more body regions | No corresponding adult criteria |
| **Cause of injury** | |
| Pedestrian struck by motor vehicle | No corresponding adult criteria |
| Fall from any height, including standing falls, with evidence of a traumatic brain injury* | No corresponding adult criteria |

*Traumatic brain injury is defined as decrease in level of consciousness from baseline, unequal pupils, blurred vision, severe or persistent headache, nausea or vomiting, or change in neurologic status.[23]

# Summary

- Use empathy in care for geriatric patients
- Atypical presentations of CC are typical
- Abd pain can be serious
- PNA is more deadly
- GLFs are not B9