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Geriatric Trauma

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Objectives

At the conclusion of this presentation the participant will be able to:

- List the most common mechanisms of injury in the elderly
- Discuss four physiological changes that make the elderly trauma patient vulnerable to complications
- Identify three factors that increase the likelihood of geriatric ground level falls
- Describe issues with pain control in the elderly
- Describe the process for rapid reversal of anticoagulants in head injured patients
- Discuss the importance of aligning goals of care
- Discuss safe discharge in the elderly population

Causes of Death – Top 10

Age 55 - 64 years

1. Malignant Neoplasms
2. Heart Disease
3. **Unintentional injuries**
4. Chronic lower respiratory disease
5. Diabetes Mellitus
6. Chronic Liver disease and cirrhosis
7. Cerebrovascular diseases
8. Suicide
9. Kidney Disease
10. Septicemia

Age 65 and over

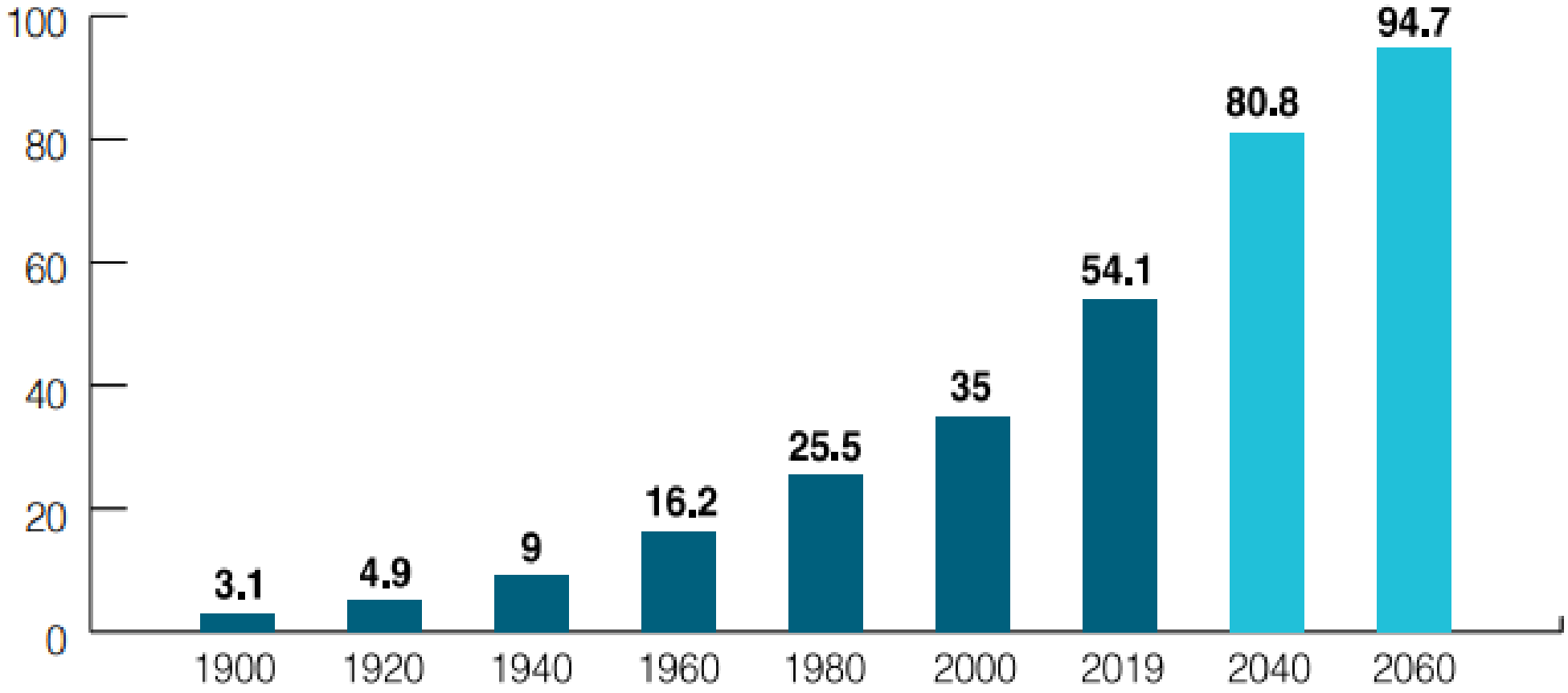
1. Heart Disease
2. Malignant neoplasms
3. Chronic lower respiratory diseases
4. Cerebrovascular diseases
5. Alzheimer's disease
6. Diabetes mellitus
7. **Unintentional injuries**
8. Kidney Disease
9. Influenza and Pneumonia
10. Parkinson's Disease

Heron, J., 2021

Epidemiology

- Average American life span has increased by over 31.5 years in the past century
  - 1900's = 47.3 year old
  - 2019 = 78.8 years old
- Percent US population age >=65
  - Since 1900, quadrupled from 4.1% to 16% in 2019
  - Since 2009, increased by 14.4 million or 36%
  - 2019 = 54.1 million, 16% of the population
  - By 2040 = expected to be 21.6%

Number of Persons Age 65 and Older, 1900 - 2060 (numbers in millions)



Note: Increments in years are uneven. Lighter bars (2040 and 2060) indicate projections.

Source: U.S. Census Bureau, Population Estimates and Projections

Demographics and Trauma

2005

- 18% of trauma victims were aged 65 years or older

2015

- 30% of trauma victims were aged 65 years or older

The mortality rate for the geriatric trauma population is significantly higher than the younger trauma population

What is Geriatric?

Age ≥ 65 (young-old, 65-74)
Age ≥ 75 (middle-old, 75-85)
Age ≥ 85 (oldest Old)
Centenarians (100 +)

Physiologic age is more important than chronologic age.

Most Common Mechanisms of Unintentional Injury

1. Falls
2. Motor vehicle crash
3. Pedestrian vs vehicle
4. Thermal injuries
5. Elder abuse

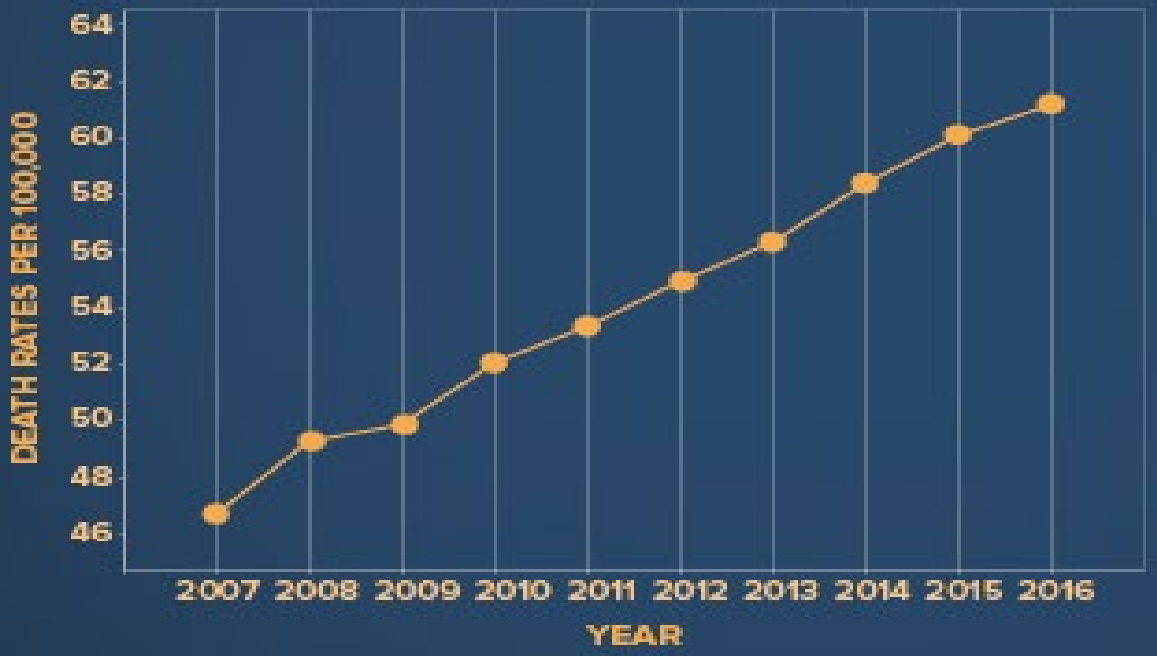
Falls

- Anticipate seven fall deaths every hour by 2030.
- Each year about 3 million older adults will be treated in ED for injuries related to a fall.
- In the next 30 minutes, an older adult will die from injuries sustained in a fall.
- One out of four people 65 and older fall each year.

Fall Death Rates in the U.S.

INCREASED 30%

FROM 2007 TO 2016 FOR OLDER ADULTS



If rates continue to rise, we can anticipate

7 FALL DEATHS

EVERY HOUR

BY 2030

Learn more at www.cdc.gov/HomeandRecreationalSafety.

CDC

Common Causes of Geriatric Falls

Syncope/ Positive loss of Consciousness	Near-Syncope/Vasodilation/ Positional Change
Seizures	Blood Pressure Medications (beta-blockers, calcium channel blockers)
Dysrhythmias	Dehydration, diuretics
Acute Coronary Syndrome	Hemorrhage (GI bleed, AAA)
Hypoglycemia	Hot bath/Shower
Pulmonary Embolism	Sepsis Anemia

Common Causes of Geriatric Falls

Non-syncopal/Mechanical	Conditions
Deconditioned	Lower Body weakness
Decreased Vision	Vitamin D deficiency
Unsafe home conditions (poor lighting, loose rugs)	Foot pain/poor footwear
ETOH	Broken/uneven steps
Sedating Medications	Throw Rugs or clutter in home
Neurologic Disease (CVA, Parkinson's disease)	Gait & balance

Risk Factors in Falls

Intrinsic

- Advanced age
- History of previous falls
- Muscle weakness
- Gait/Balance problems
- Vision problems
- Postural hypotension
- Chronic conditions (arthritis, stroke, dementia, etc.)
- Fear of falling

Extrinsic

- Lack of stair handrails
- Poor stair design
- Lack of bathroom grab bars
- Dim light or glare
- Obstacles & tripping hazards
- Slippery or uneven surfaces
- Psychoactive medication
- Improper use of assistive devices

Medications Most Likely to Cause Falls

Anticonvulsants	Antidepressants	Antipsychotics	Benzodiazepines
Opioids	Sedative-hypnotics	Anticholinergics	Antihistamines

RECOMMEND
STOP: any medications if able
SWITCH: to an alternative medication that may be safer
REDUCE: medications to the lowest effective dose

Clinical Work-Up Post Geriatric Fall

- Determine frequency of falls
- EKG
- Orthostatic vital signs
- Consider Zio patch
- Safe discharge plan
- Evaluation by PT/OT
- Bone health referral

Evidenced-Based Fall Assessment Tool

- Screen
- Prevent
- Assess
- Intervene
- Follow-up


FRIENDS

Motor Vehicle Crashes

2nd most common cause of unintentional injury in the elderly

Older adults (>65):

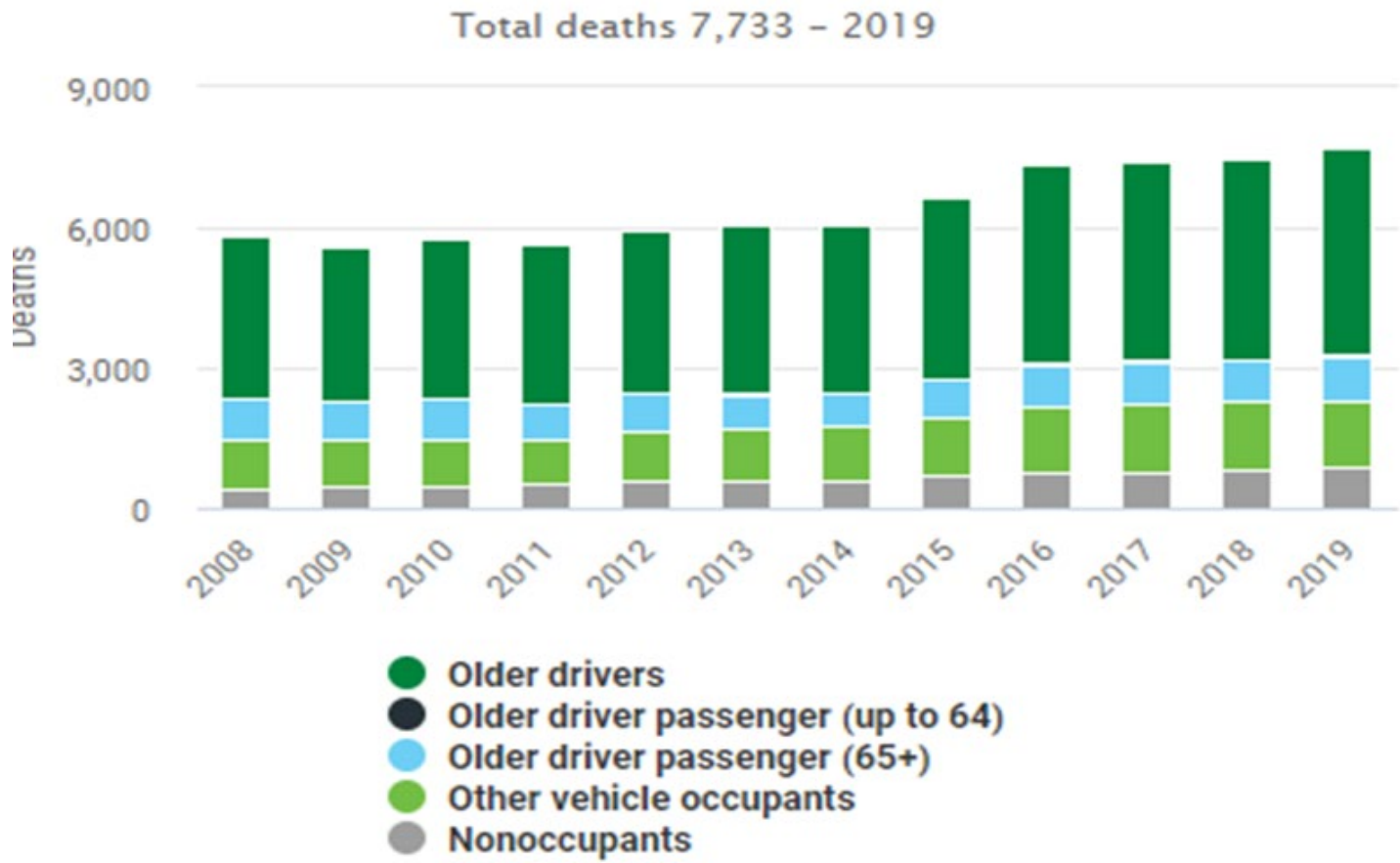
- 60% increase in drivers since 2000
- 20 fatalities daily
- 700 injured daily

How Do Crashes Involving Older Drivers Differ From Crashes of Other Drivers?

- In 2019, multiple vehicle crashes at intersections were 40% in drivers 80 years and older, compared to 20% for drivers ages 16-59
- Failure to yield right-of-way
- Failure to look both ways or not seeing

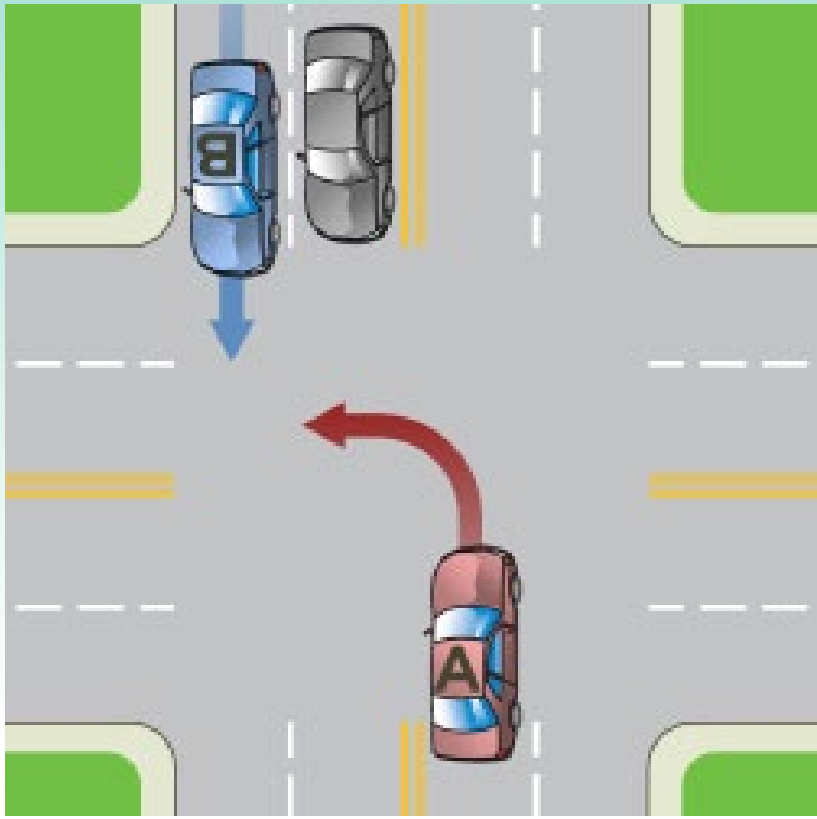
Insurance Institute for Highway Safety, 2021

Deaths in traffic crashes involving drivers 65 and older, 2008–2019



Why These Common Patterns?

- Older adults were half as likely to execute secondary glances than middle-aged drivers in intersections.
- Tend to look in front of vehicle rather than sides
- Increased difficulties with large head movements, psychomotor coordination, multitasking, scanning complex intersections; vision



ICBC.com

Increased Effort of Self Protection

- Decrease daily driving
- Avoid driving at night
- Avoid driving at peak hours
- Avoid driving on freeways
- Drive at lower speeds
- Drive larger vehicles
- Carry fewer passengers

Next Most Common Mechanisms of Injury

Pedestrian

- 26% of deaths at a crosswalk
- Females > males
- 80% at night
- Lowest on Tuesday and peak on Saturdays

Burns

- 25% of all burn deaths occur in ages > 65
- Elderly have the highest fatality rate among burns

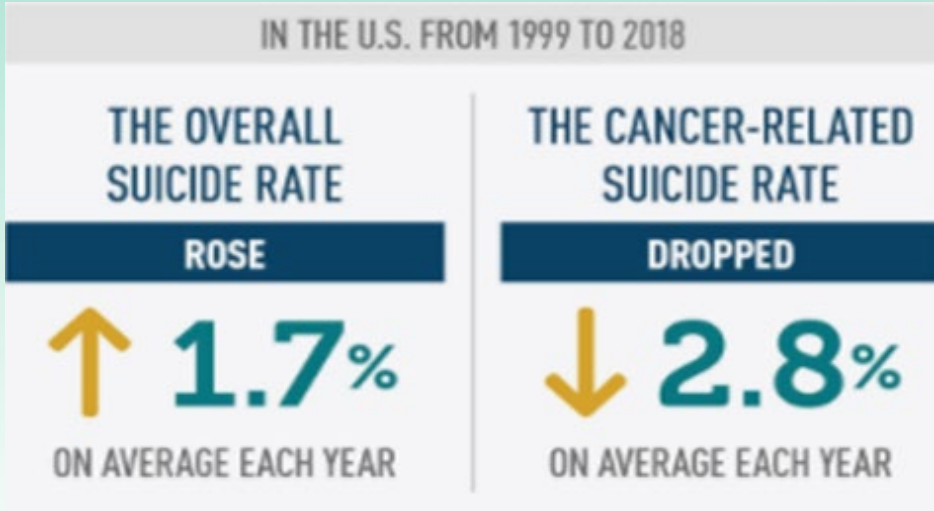
Intentional Elderly Trauma

Elder Maltreatment

- Classified as: physical, sexual, emotional, neglect, abandonment, and financial
- Often a caregiver
- Frequently underreported
- Frequently undiagnosed
- True incidence unknown

Suicide: Preventable Tragedy

- Males aged 65 years and older have highest rate of suicide in the U.S.
- 1 per 4 attempts by older adults successful
- 1 per 200 attempts by younger adults successful
- Risk Factors



National Council on Aging, 2021

National Cancer Institute

Co-morbidities

Older adults

- 80% with at least one comorbidity
- 50% with at least two co-morbidities

Worst outcomes noted with:

- Chronic Heart Disease
- Cancer/blood disorders

Unique Anatomic and Physiologic Considerations

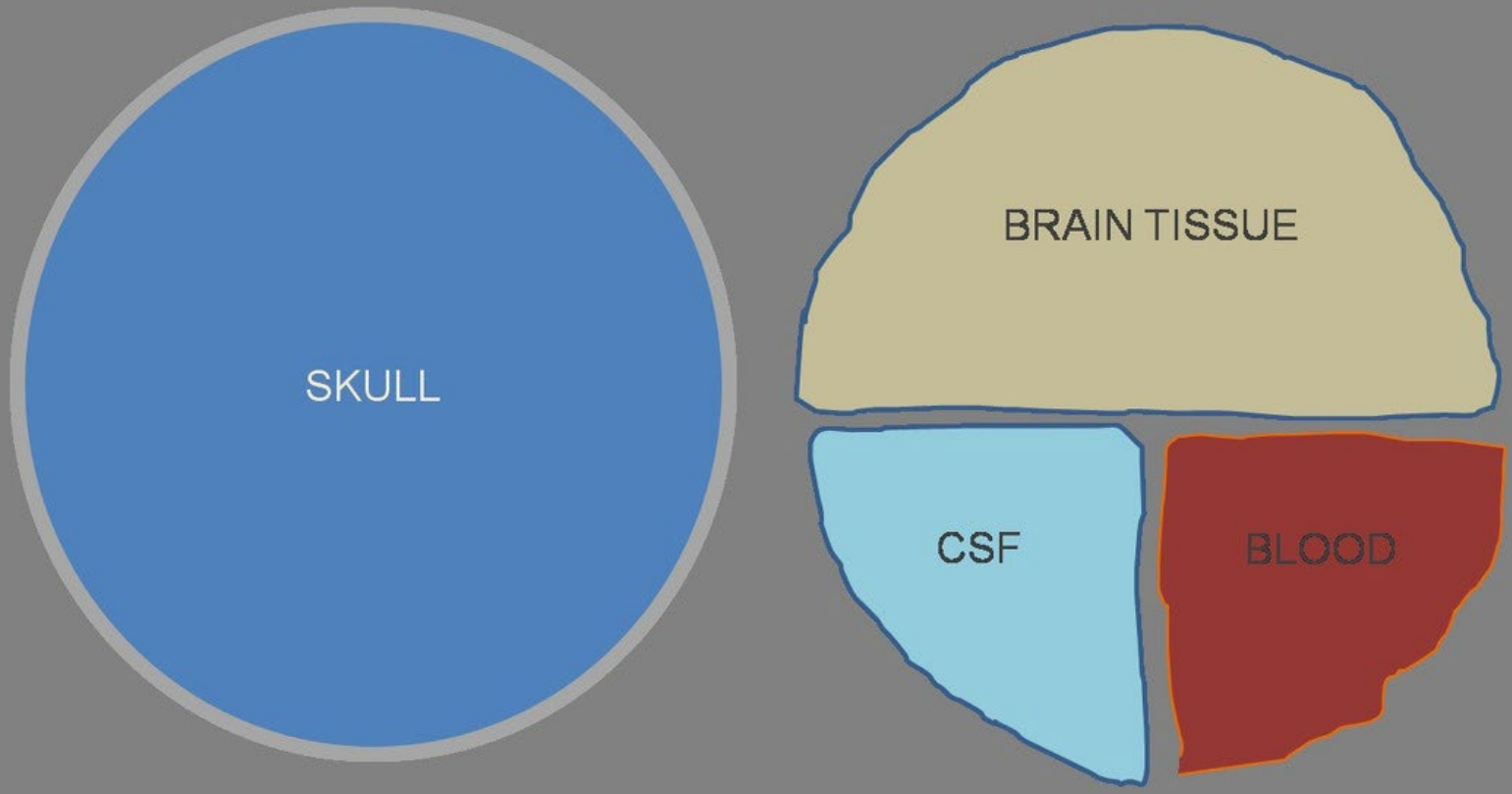
- Brain Atrophy/Cognition
- Pulmonary Capacity
- Renal/Genitourinary
- Gastrointestinal
- Musculoskeletal/Skin
- Endocrine
- Cardiac

Neurologic Considerations

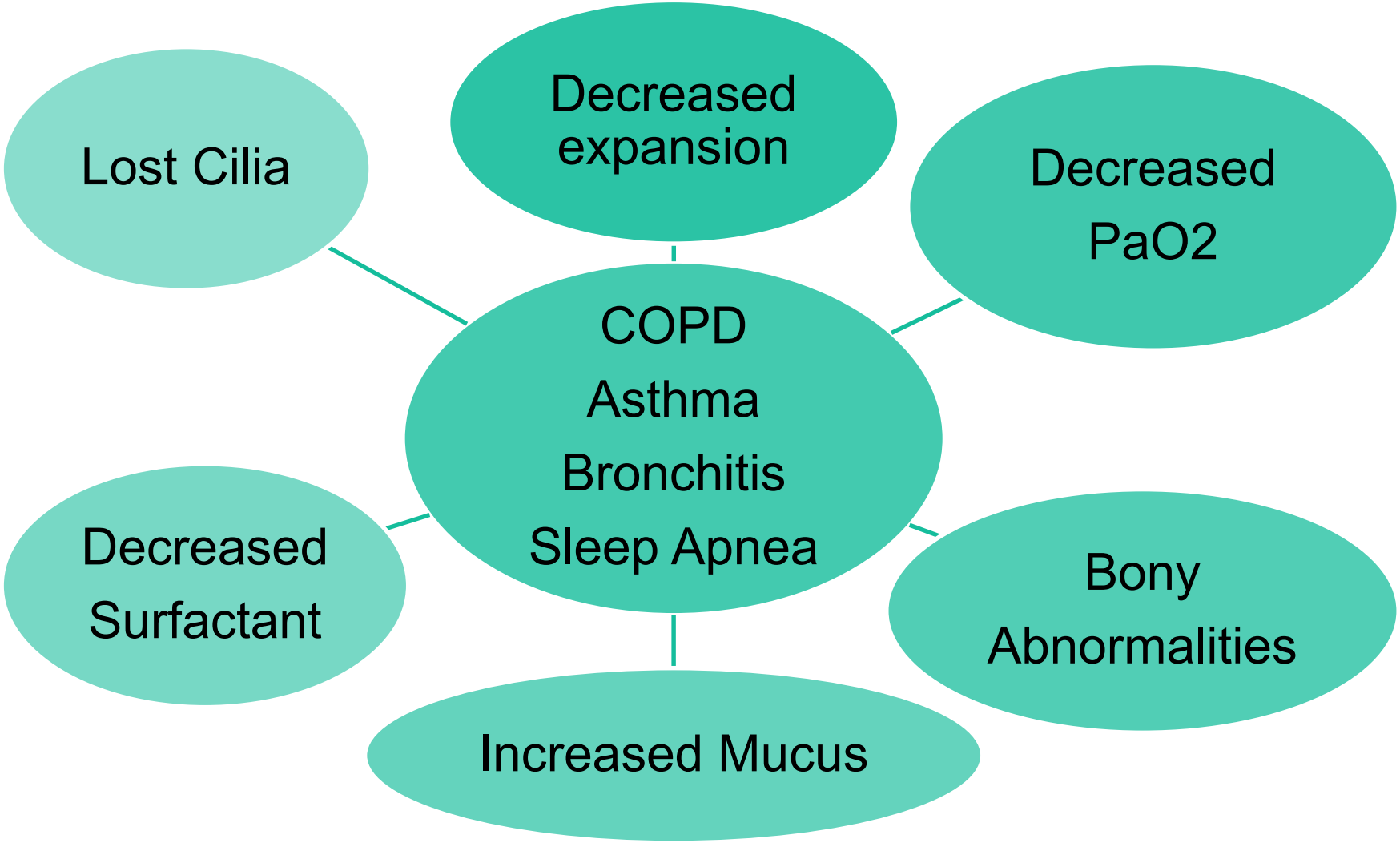
- Declining:
  - Perceptual motor skills
  - Concept formation
  - Complex memory tasks
  - Quick decision tasks
  - Slower reflex times
- Alters response to:
  - Drugs
  - Pain
  - Environment

Neurologic Considerations

Parenchymal Volume of the Elderly Patient: Monro-Kellie Hypothesis



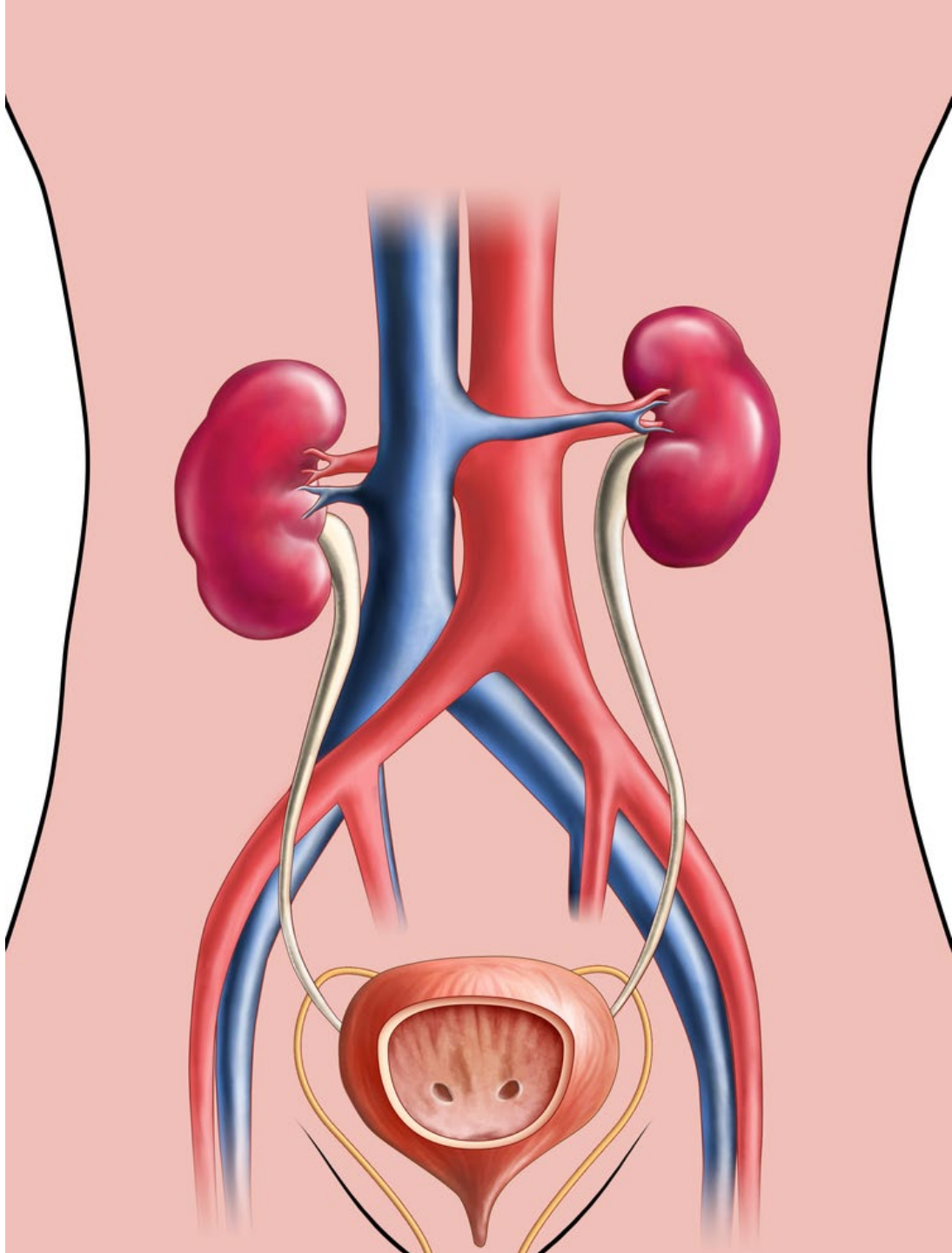
Pulmonary Considerations



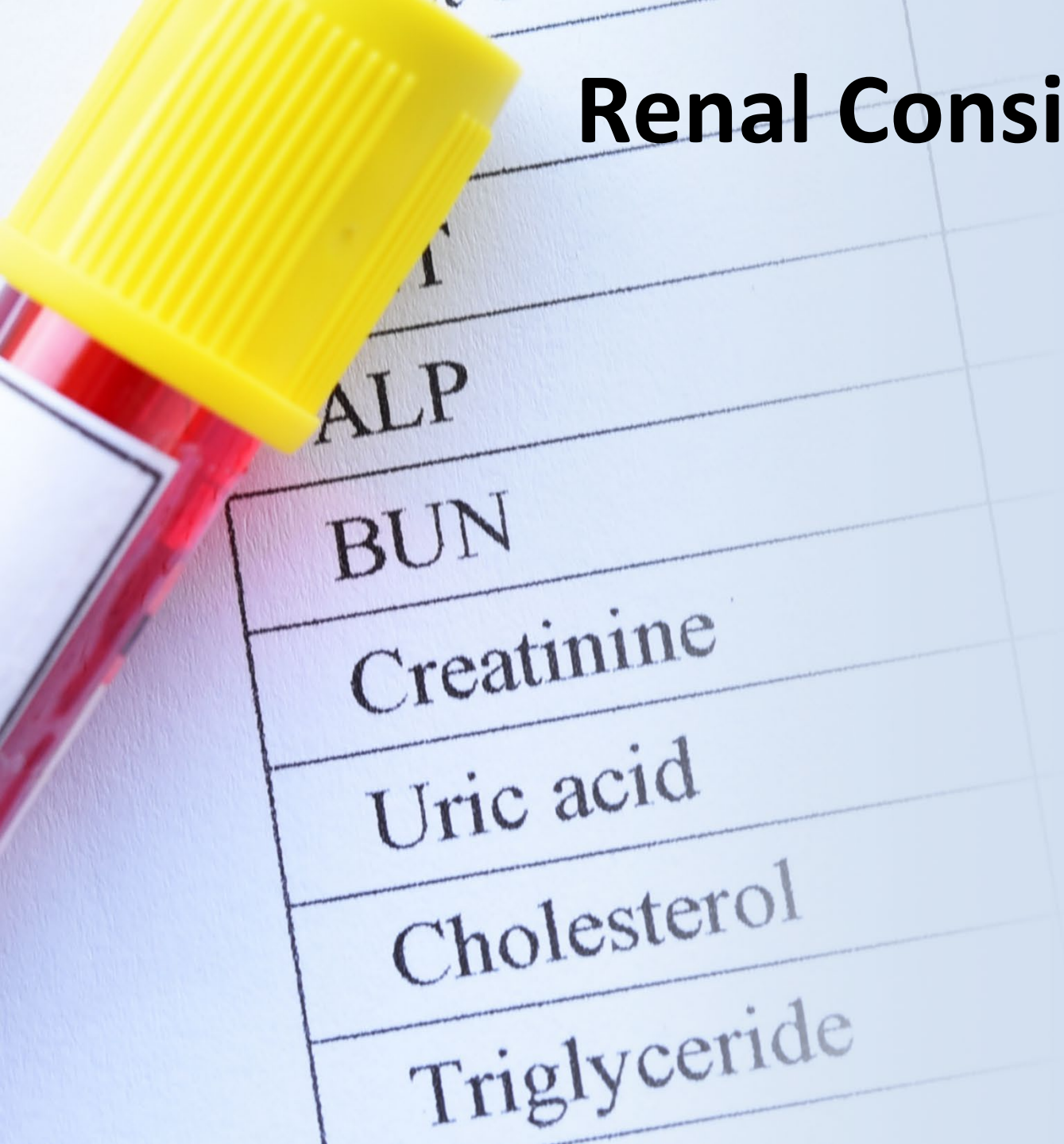
Renal Considerations

- Renal blood flow decreases 10% per decade
- Steady decline in functioning nephrons leads to:

  Reduced ability to filter & clear drugs



Renal Considerations



Caution

Even with normal kidneys:

- hypotension
- hypovolemia
- acute kidney injury from IV contrast
- pharmaceuticals (ACE, NSAIDS, etc.)
- rhabdomyolysis

Causes of Hospital Acquired Renal Failure

1. Surgery
2. Hypotension
3. Contrast Induced Nephropathy

GI Considerations

- Slowing peristalsis
- Laxative dependence
- Proton Pump Inhibitors (PPIs) and H2 Blockers
  - Decrease gastric acid
- Pernicious anemia
  - Common in elderly

Musculoskeletal Considerations

- ↓ muscle fibers
- ↑ connective tissue
- ↓ bone mass

Endocrine Considerations

- Increase in glucose tolerance
- Hypothyroidism
- Menopause

- Continue supplements
- Monitor glucose

Cardiovascular Considerations

Primary Concern:

- Limited cardiac reserve
- Unable to increase O2 delivery to meet demands

In the Presence of:

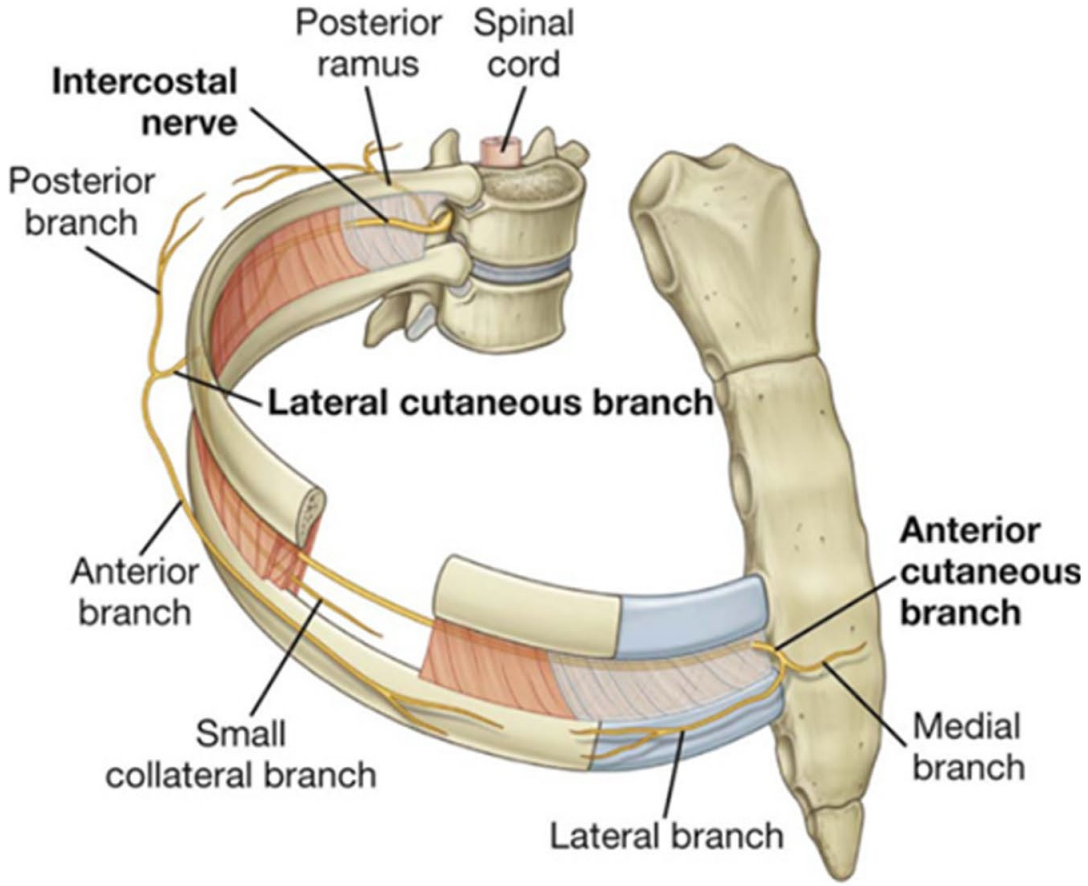
- Previous MI
- Heart Failure
- Beta blockers
- Bradyarrhythmias
- Loss of atrial kick

More CV Considerations

- Multiple medications
- Electrical Therapies
- Previous vascular surgery
- IVC filter

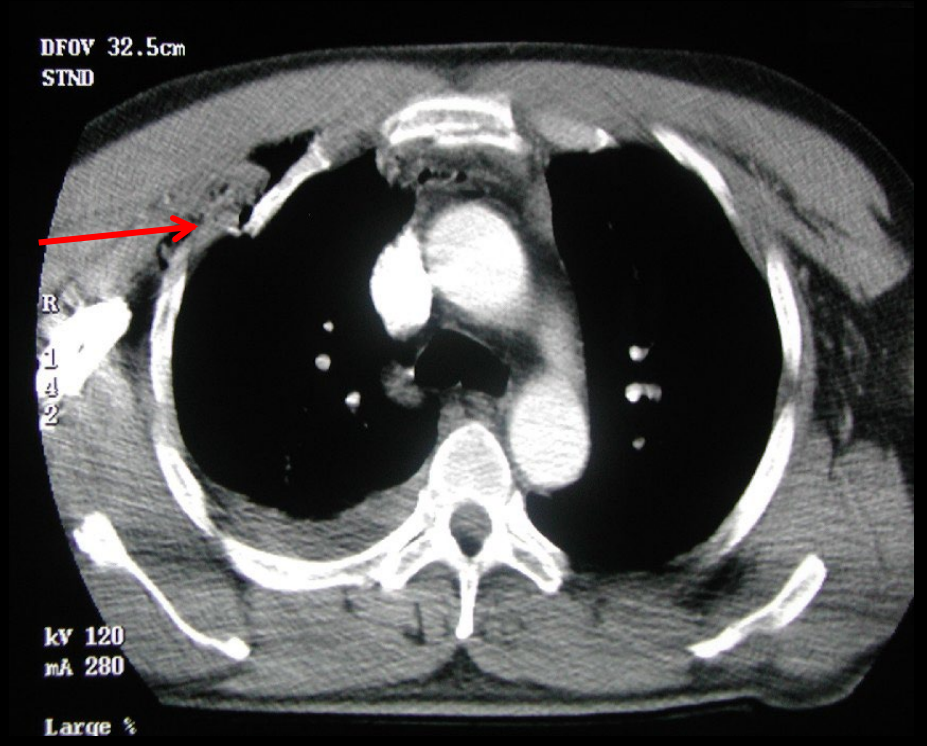
Common Injuries

- Rib Fractures
- Hip Fractures
- Cervical-spine
- Head Injury



Rib Fractures

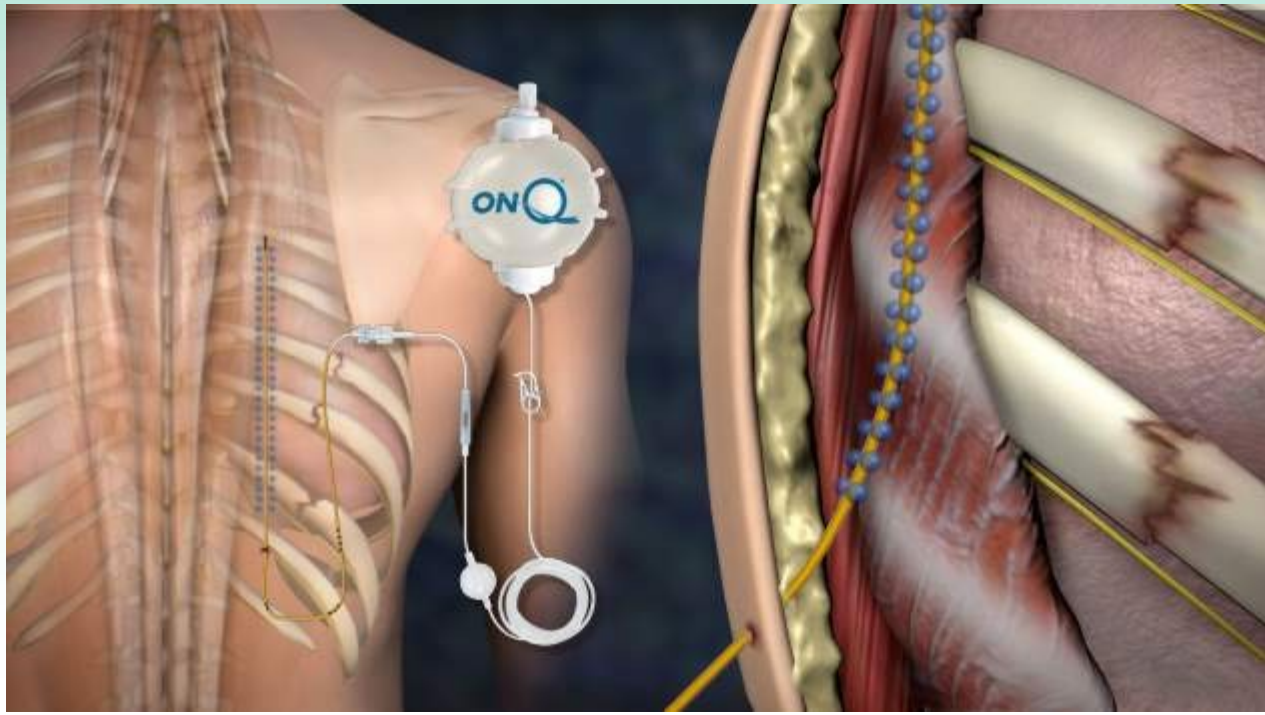
Most Common Injury in Elderly Blunt Trauma	
Advanced Age	Doubles risk of death
Three or more rib fractures	Doubles risk of death
Cardiopulmonary Disease (ex. CHF)	About 2.5 increased risk of death
Development of Pneumonia	Increases risk of death by over 5 times



Rib Fracture Care

"The Odds Ratio of Death Decreases by 40% with Adequate Pain Control"

- Pain block
- Minimize opioid dosage
- PRN muscle relaxers
- Aggressive pulmonary hygiene
- Out of bed for all meals if not contraindicated



Courtesy of Dr. Michael Truitt, Methodist Dallas Medical Center

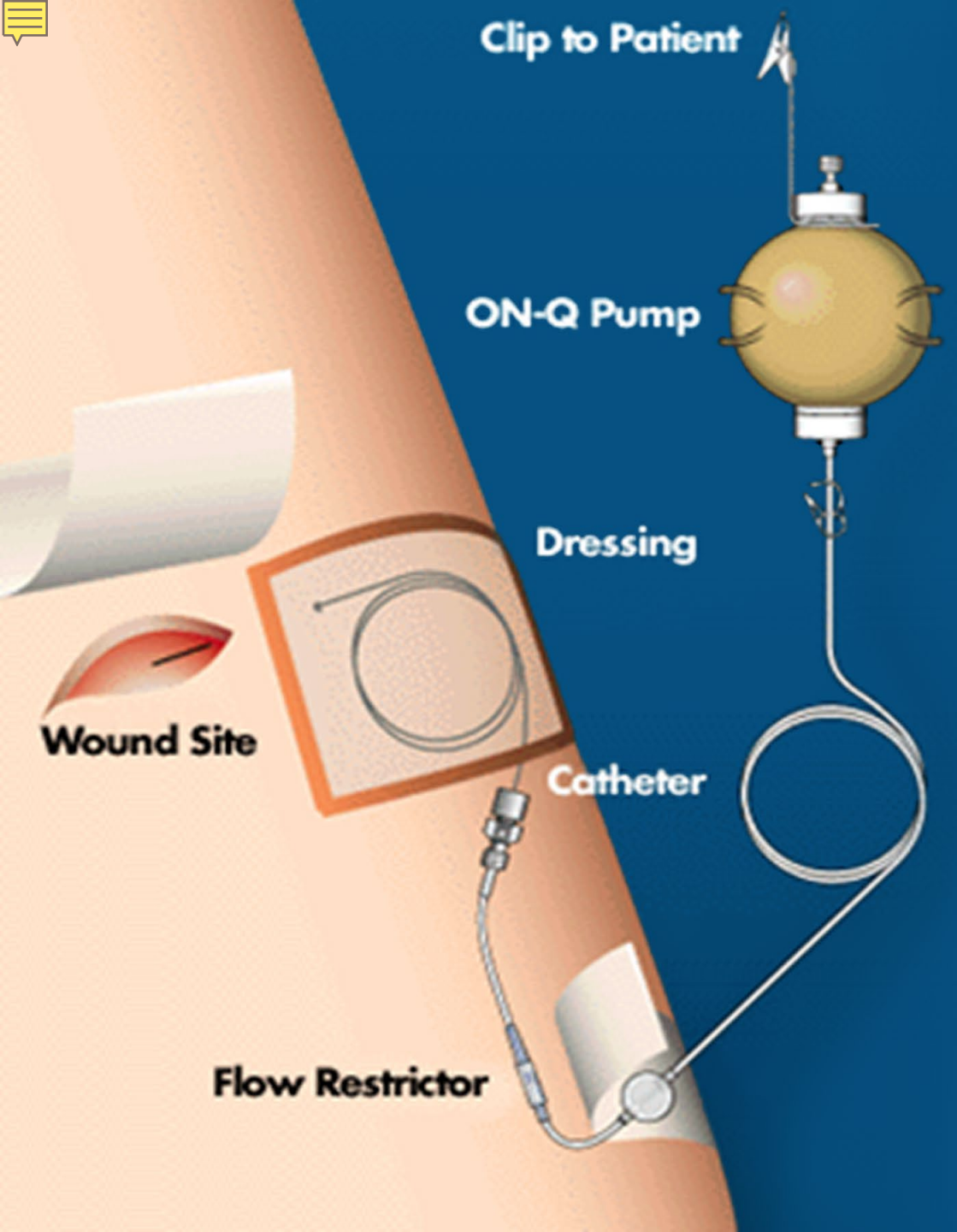
Intervention for Isolated Rib Fractures

In nonelderly patient:

- Isolated rib fx with minor mechanism: discharge
- Isolated rib fx with major mechanism: observe

Isolated rib fx in elderly

- Trauma consultation
- Observe or admit
- Pain control
- Incentive spirometry

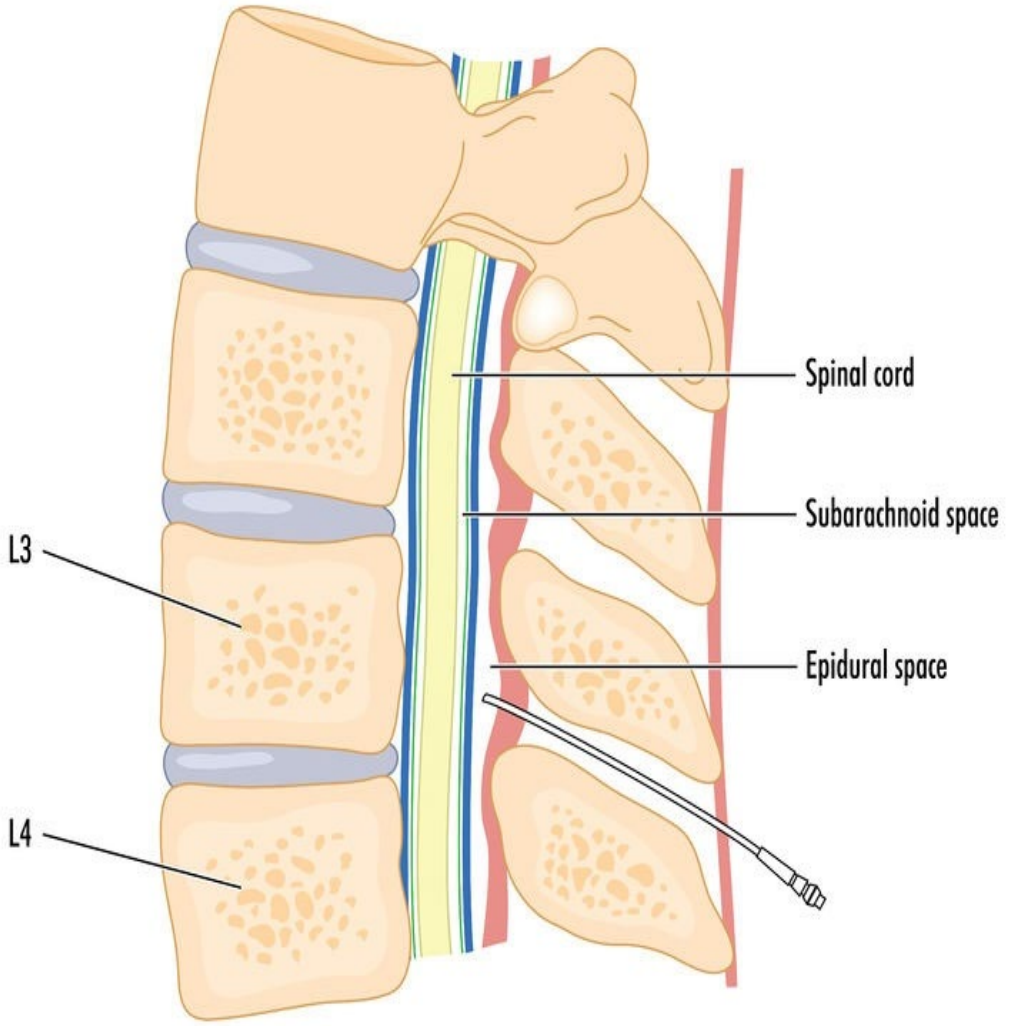


Continuous Peripheral Nerve Block or Epidural

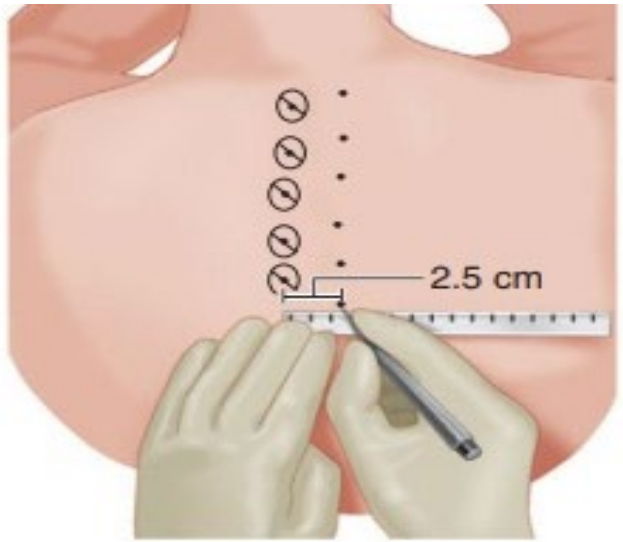
- Superior pain relief than narcotics alone
- Management for pain control with rib fractures includes:
  - Epidural
  - Paravertebral Block
  - Serratus Block
  - Erector Spinae

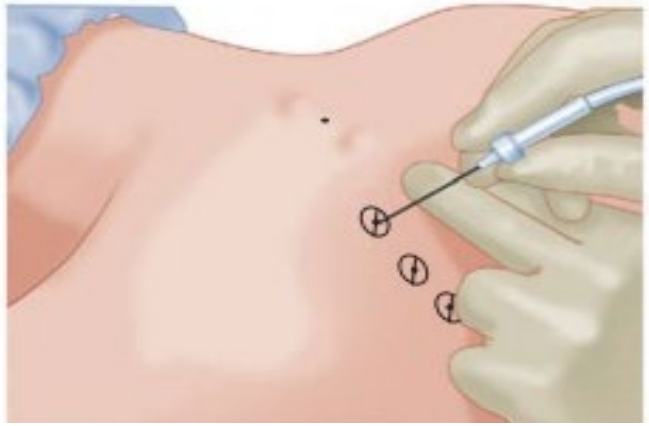
Epidural

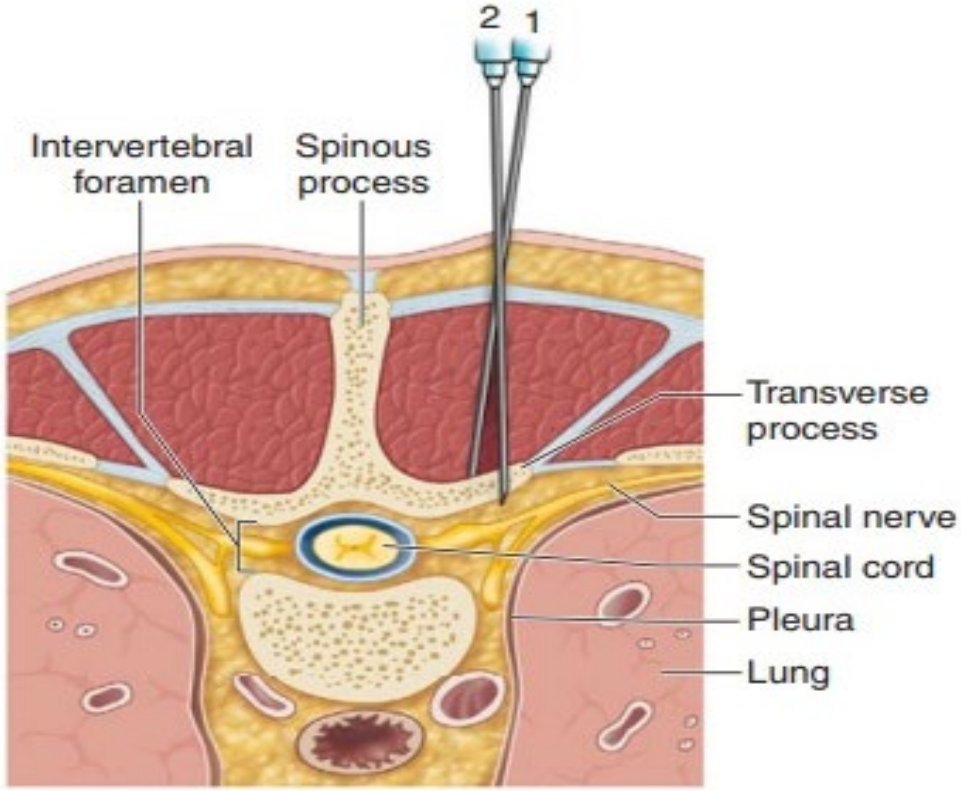
- Receives ongoing medication through catheter inserted in epidural space tunneled through the skin
- Inserted into the area between dura mater (a membrane) and the vertebral wall, containing fat and small blood vessels
- Stops nerves in spinal cord from sensing pain



Para-Vertebral Block



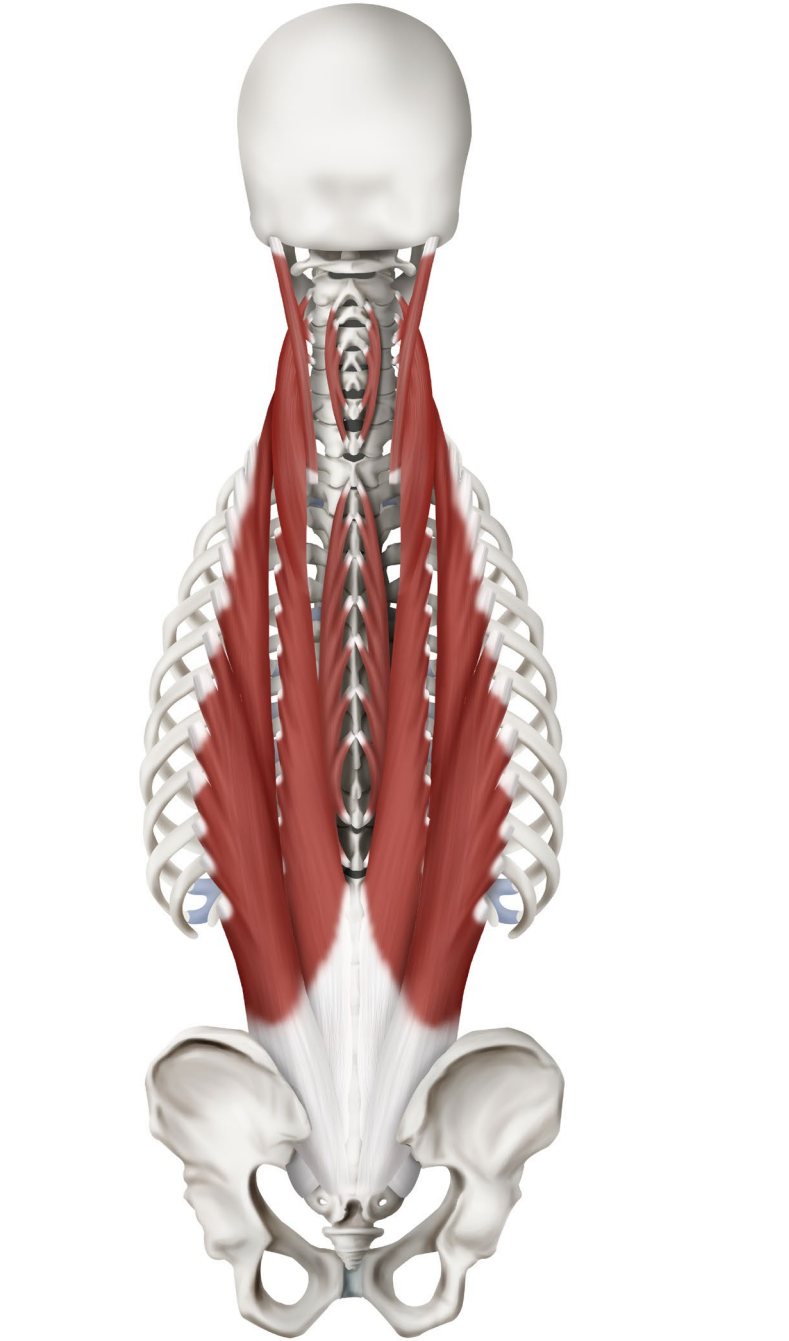




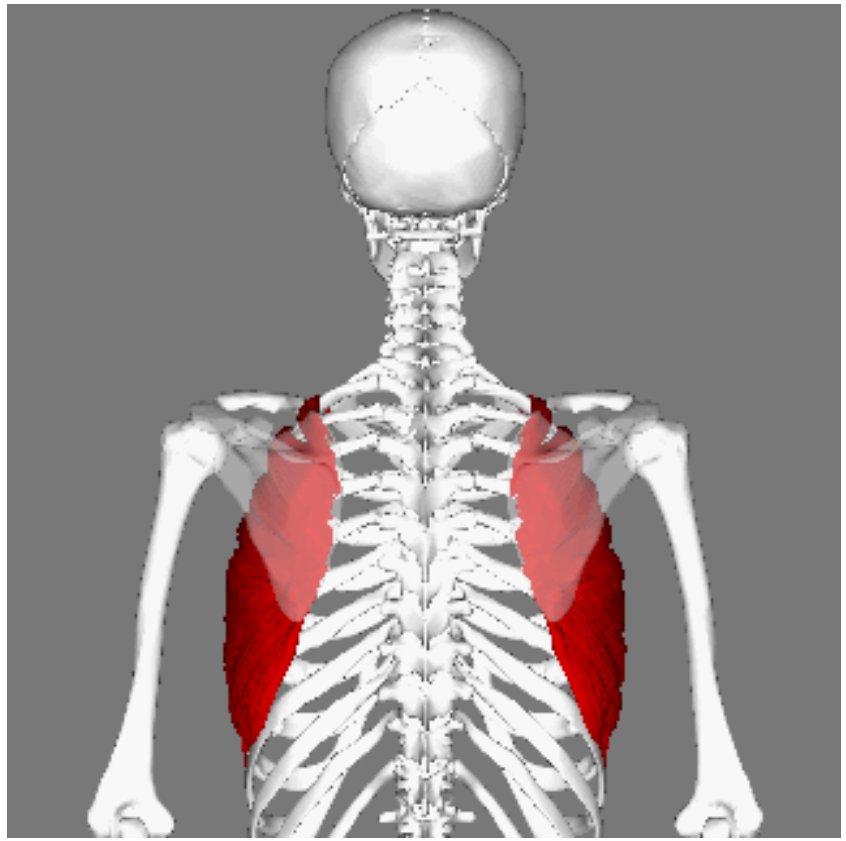
Paravertebral anatomy and traditional approach. Contact transverse process (1), then redirect the needle caudally (2) and advance 1 cm.

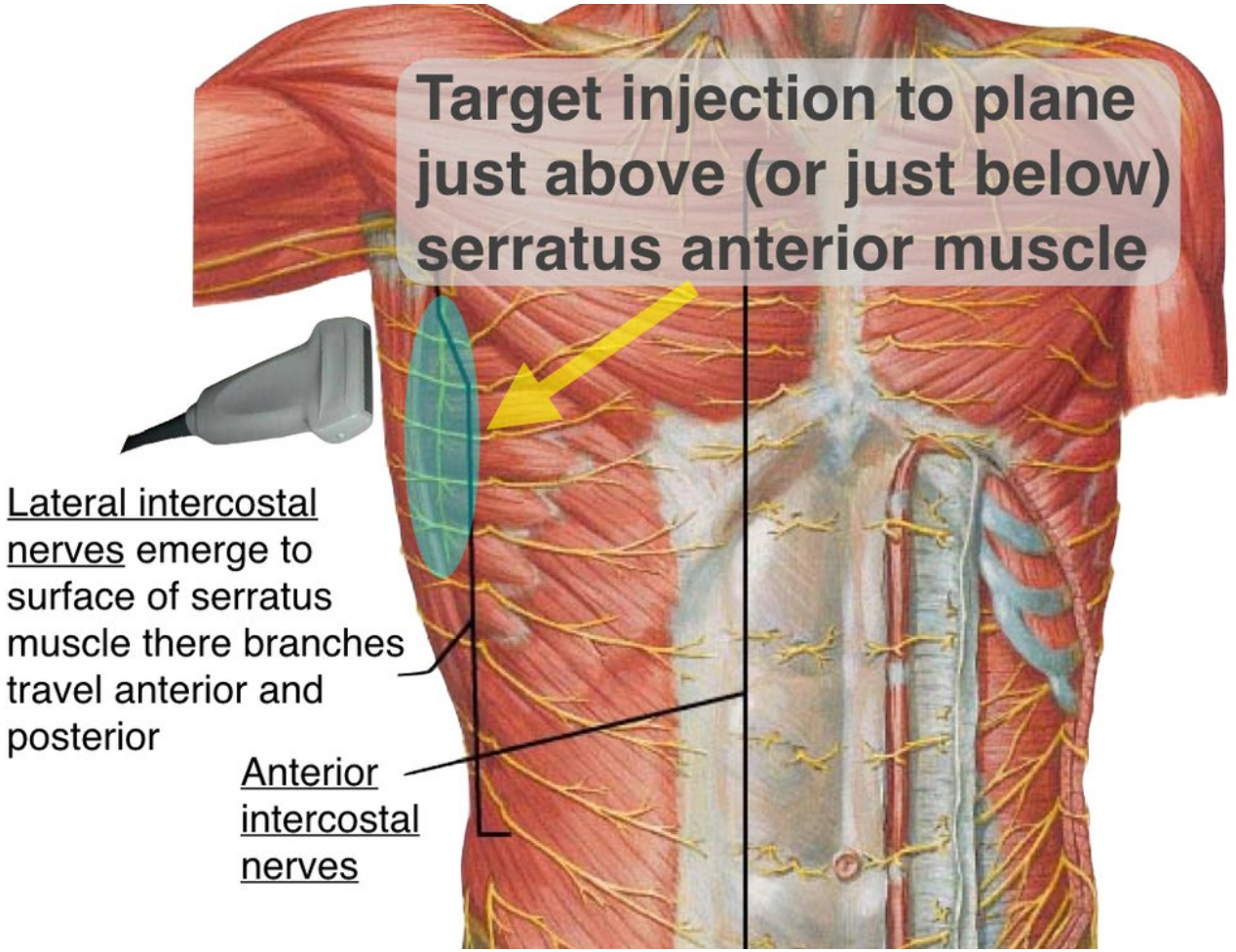
Erector Spinae

- Local anesthetic injected in erector spinae
- Into the group of muscles & tendons that run length of spine on left and right side from sacrum and hips to base of skull
- Work at origin of spinal nerves



Serratus Block





By Anatomography CC BY-SA 2.1 jp, commons.wikimedia.org

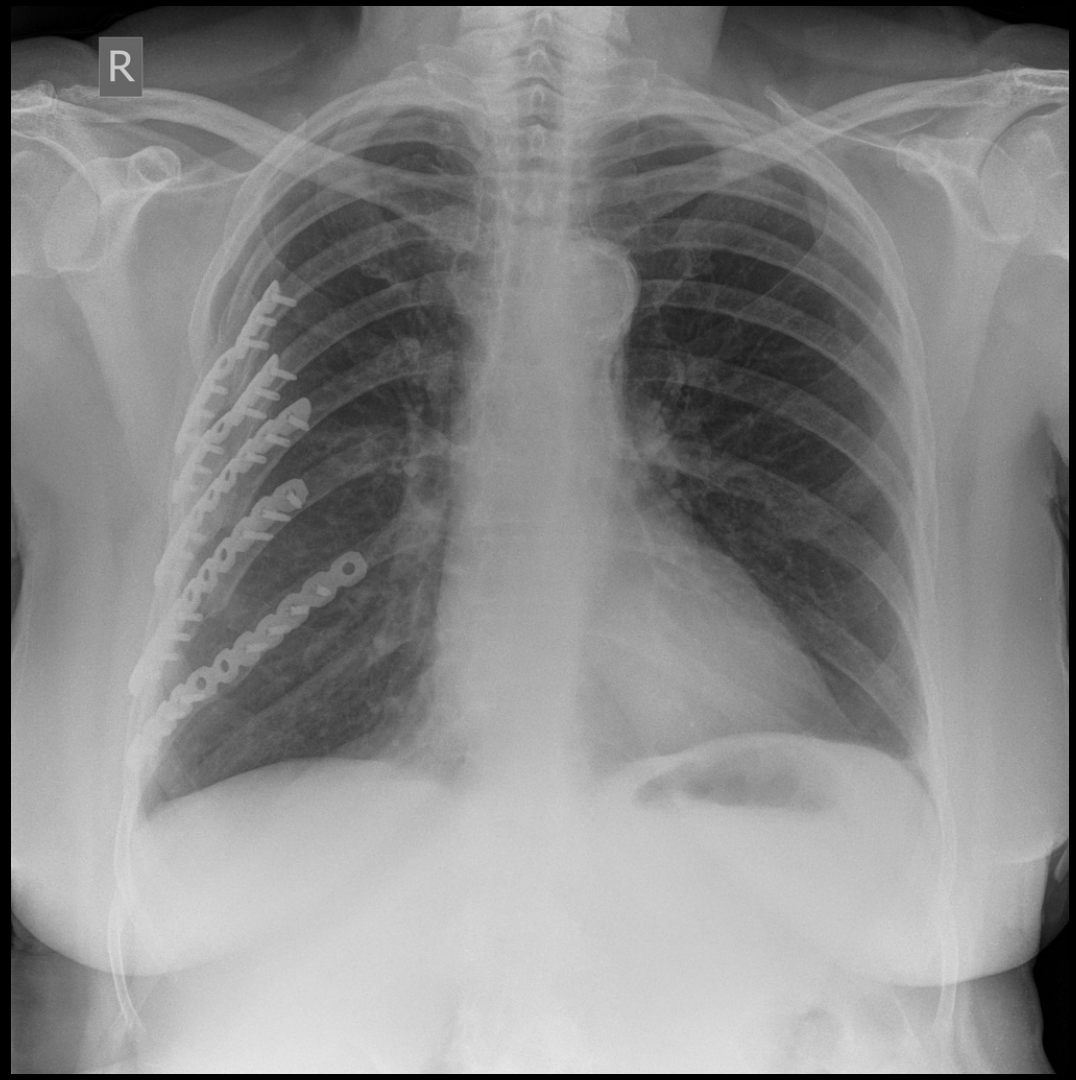
highlandultrasound.com/rib-fractures

Operative Rib Fixation

Limited number of surgeons perform surgical rib fixation.

Benefits:
- Faster return of lung function
- Fewer complications
- Shorter vent/ICU/hosp LOS

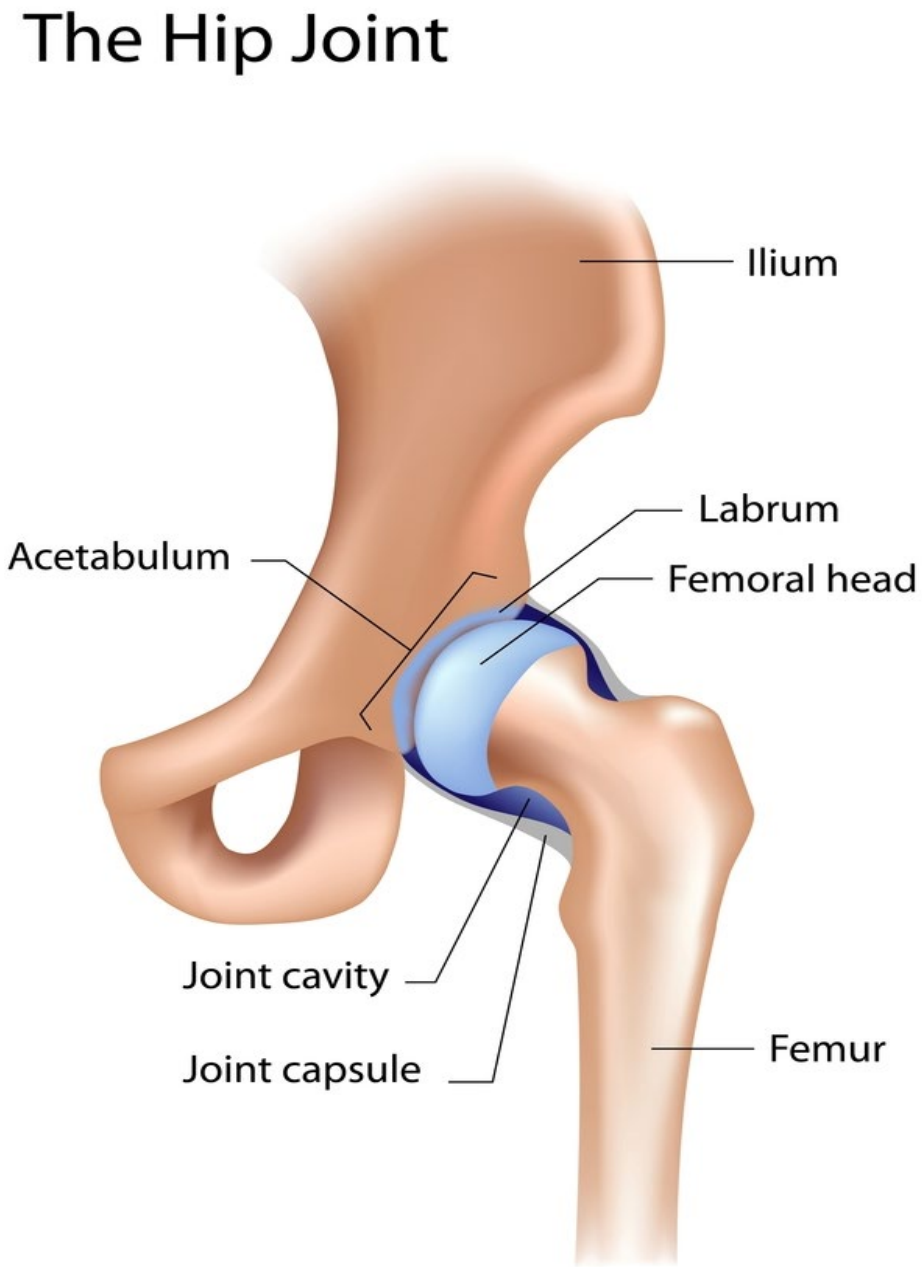
Indicated:
- Flail chest and respiratory failure without pulmonary contusion (early fixation)
- Symptomatic mal- and non-unions (later fixation)
- Further research needed



Bickle, 2021

Hip Fractures

- Epidemiology
- Types
  - Prognosis varies by location
- Assessment
- Management



Epidemiology of Hip Fractures

- Common worldwide and predicted to surpass 6 million by the year 2050
- Increase risk of morbidity and mortality in the older adult
- Higher risk for hemorrhage
- About 61% of patients with hip fractures experience delirium

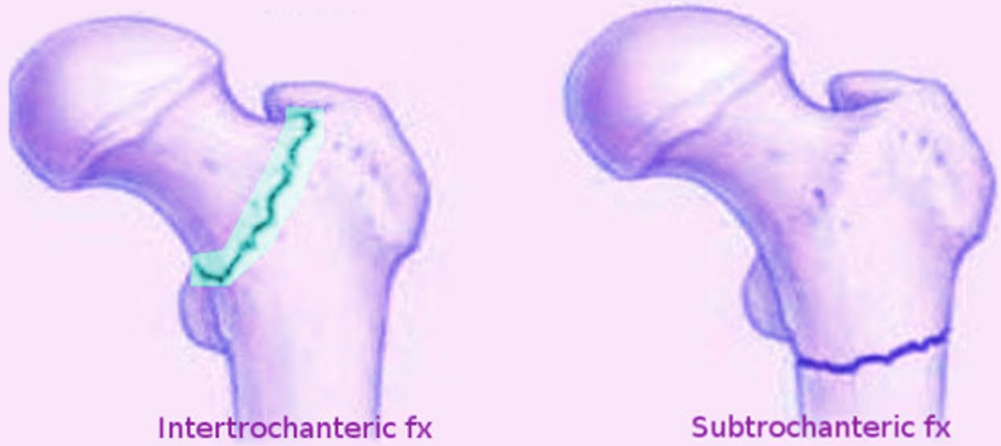
Typical Clinical Presentation

- History of ground level fall
- Pain in the groin area/hip
- Inability to bear weight
- On physical exam, shortened leg
- Pain on axial loading and motion

Abdrabou, Radiopaedia

Intertrochanteric Fracture

- Extracapsular Fracture Type
  - Intertrochanteric
  - Subtrochanteric
    - (nail and rods for repair)
- Good supply of blood
- Large amount of cancellous bone
- Require proper reduction and fixation to heal well
  - Can easily displace

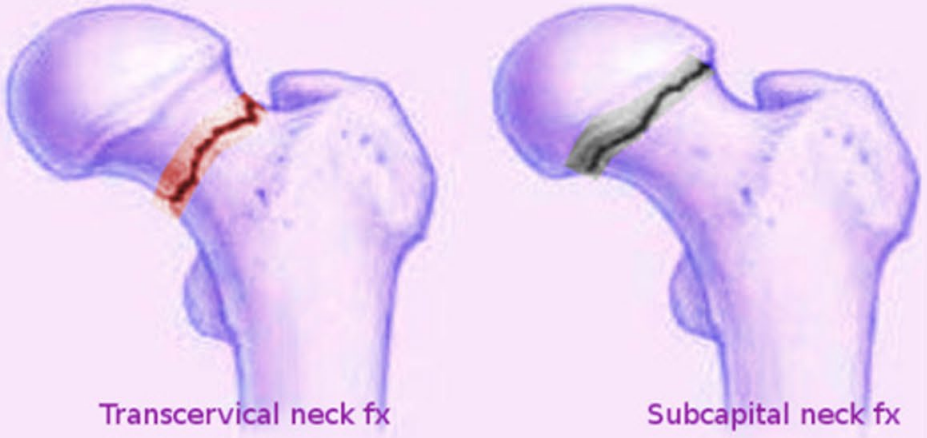


https://www.ncbi.nlm.nih.gov/books/NBK53823

Femoral Neck Fracture

- Intracapsular Fracture
  - Femoral neck and head
- Minimal cancellous bone
- Poor blood supply

  (easily disrupted by injury)
- High complication rate
  - Avascular necrosis
  - Degenerative changes



https://www.ncbi.nlm.nih.gov/books/NBK53823

Assessment of Hip Fractures

- Type and Screen or Type and Crossmatch due to high risk for bleeding
- Assess cognitive function: poor cognitive function can hinder recovery
- Identify cause of fall (syncopal, cardiac, etc.)
- Assess for additional traumatic injuries

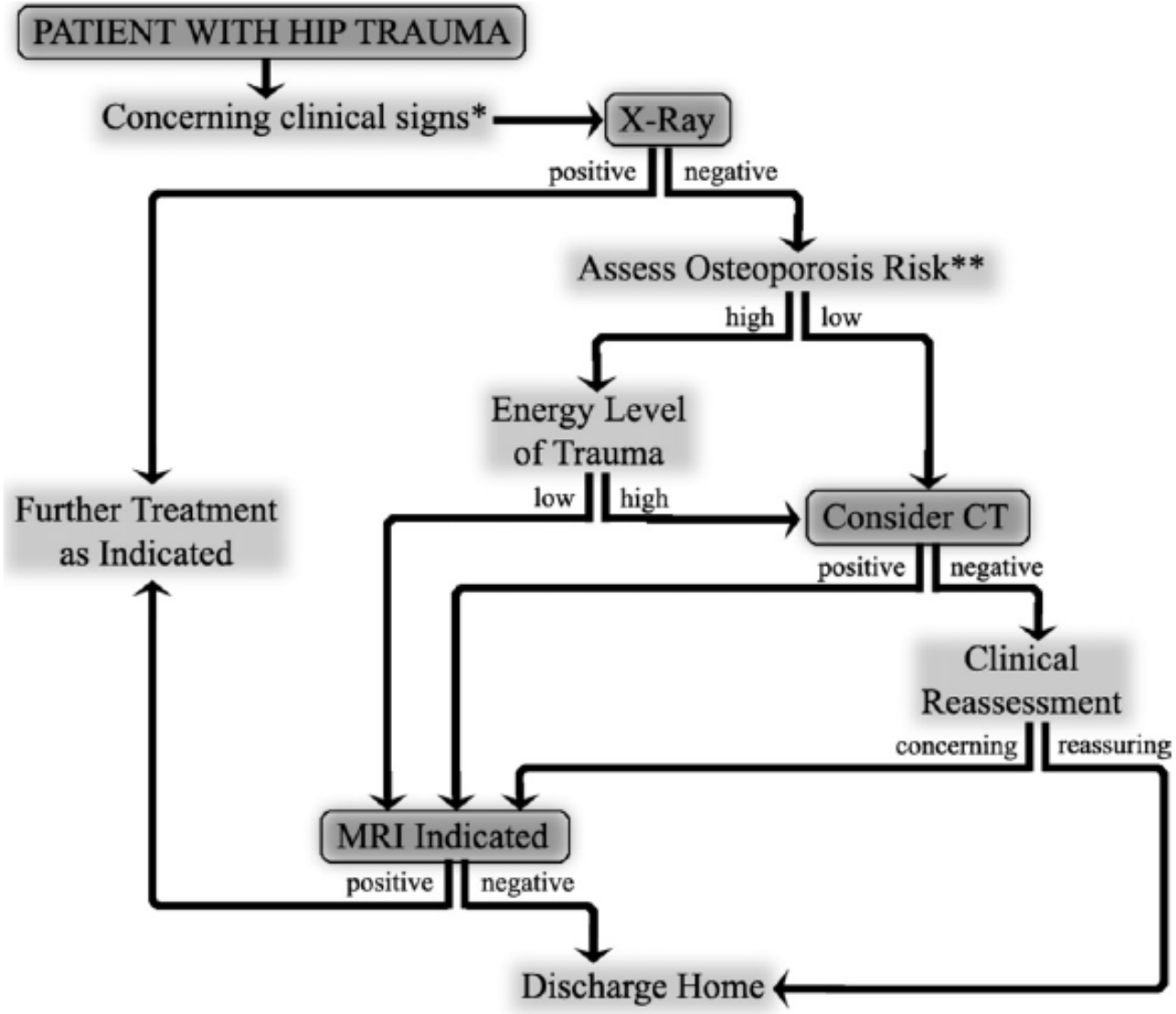
Imaging for Hip Fractures

- X-ray Film radiographs
- Computed Tomography (CT)
- Magnetic Resonance Imaging (MRI)

Management of Hip Fractures

- Pain management
  - Regional nerve blocks
- Orthopedic surgeon consult
- Timely operative repair
- Continue B-blocker if home medication
- Osteoporosis treatment

Algorithm for Work Up in ED of Hip Pain Patient



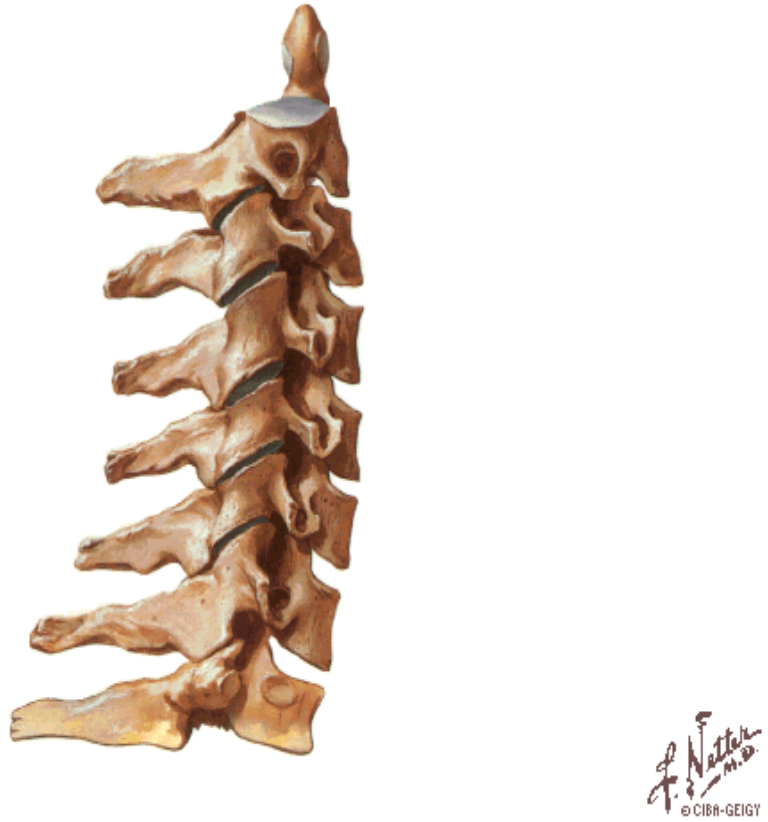
Low energy

+

Osteoporosis Calls for MRI

Cervical Spine Injuries

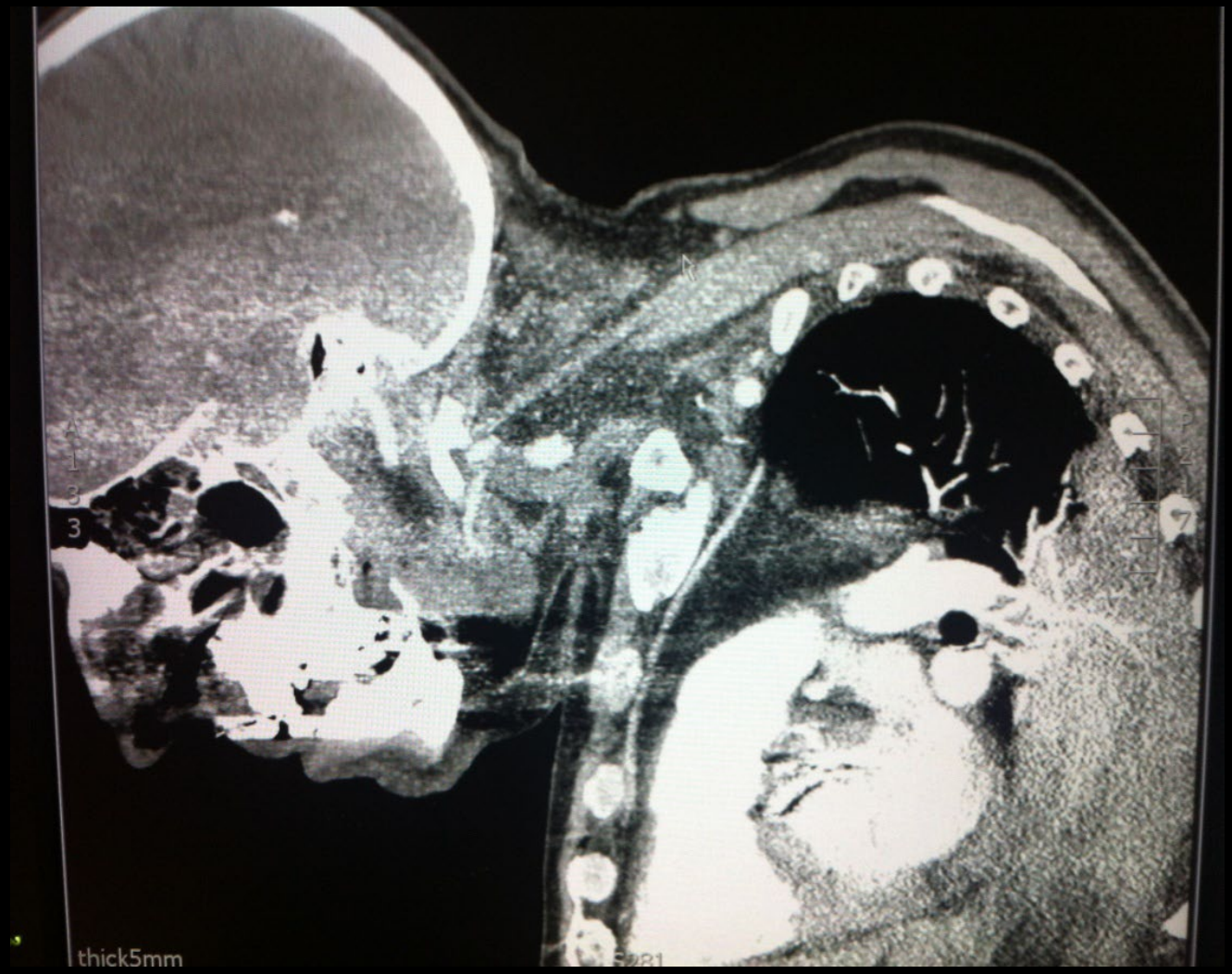
- Prevalence in the elderly: 2.6% to 4.7%
- Low impact mechanisms such as falls from standing account for greater than 60% of these cervical injuries.
- Most common injured part of the spinal column



Unique Situations Impacting Care

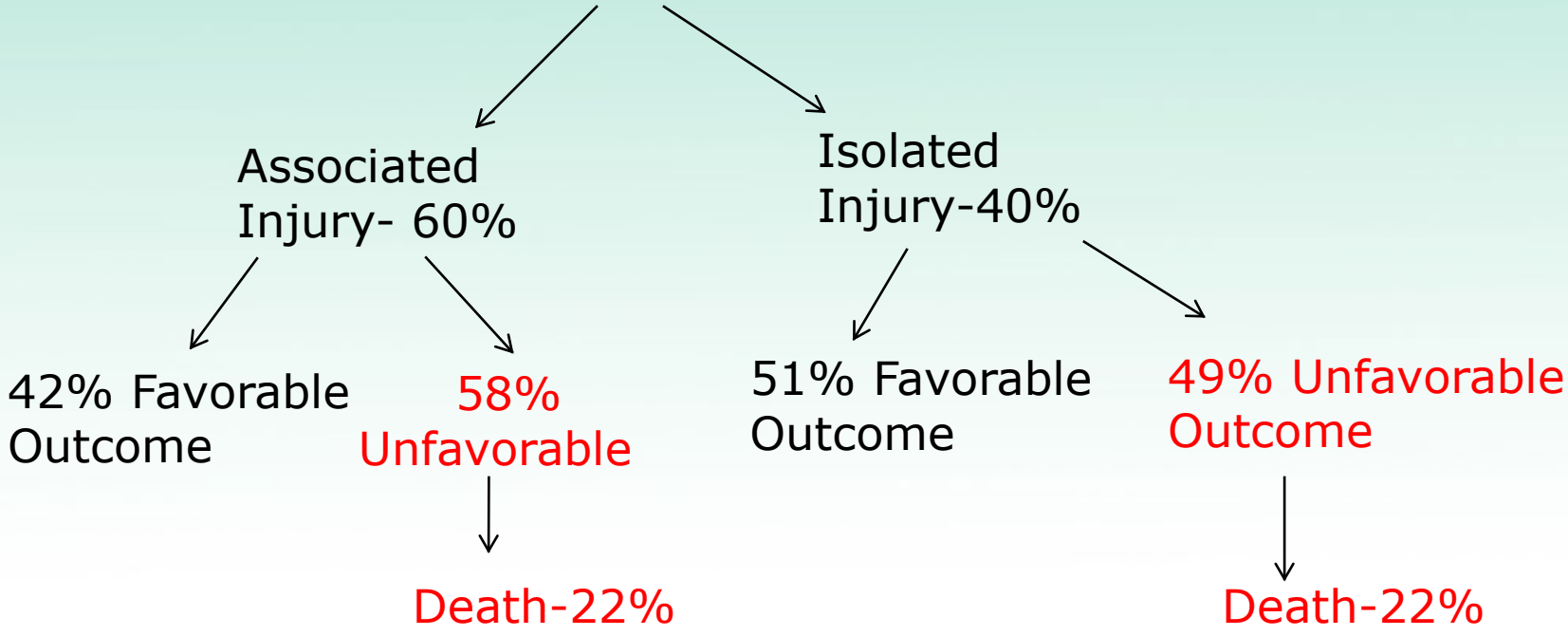
- Head Injury
  - On anticoagulants/ platelet inhibitors
- C Spine Injury
  - Diagnostic & treatment challenges
- Blunt Chest Injury
  - Pain control

Chin-On-Chest Deformity: Trauma Patient with Ankylosing Spondylitis: The IMPOSSIBLE AIRWAY



Low Impact Isolated Cervical Spine Injuries (LISCI) in Elderly

138 elderly patients with LICSI and no Spinal Cord Injury



Compression Fractures

Flexion Injuries

Teardrop Fracture

Compression Fracture

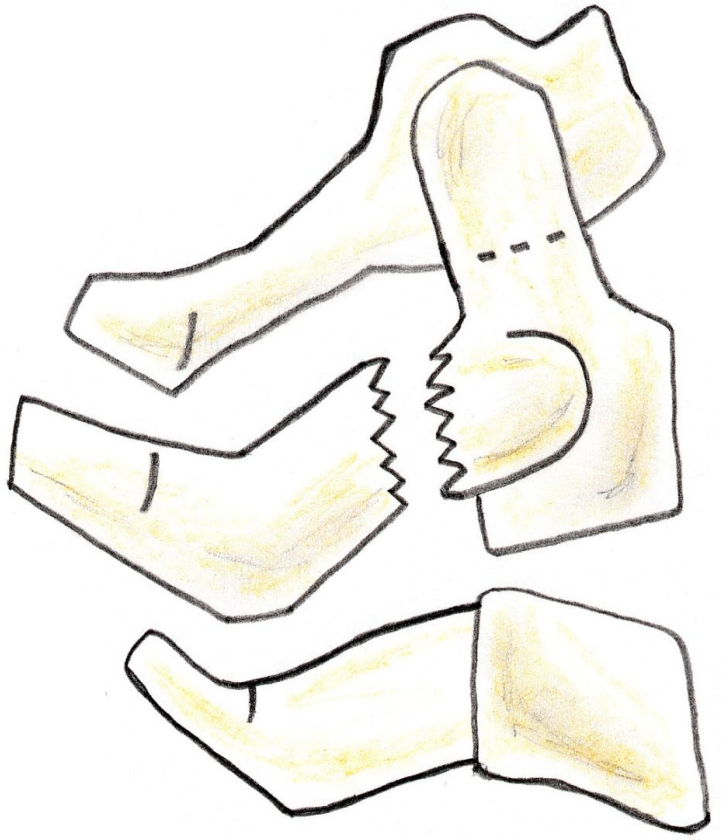
Flexion Injuries

Anterior Subluxation

Extension Injuries

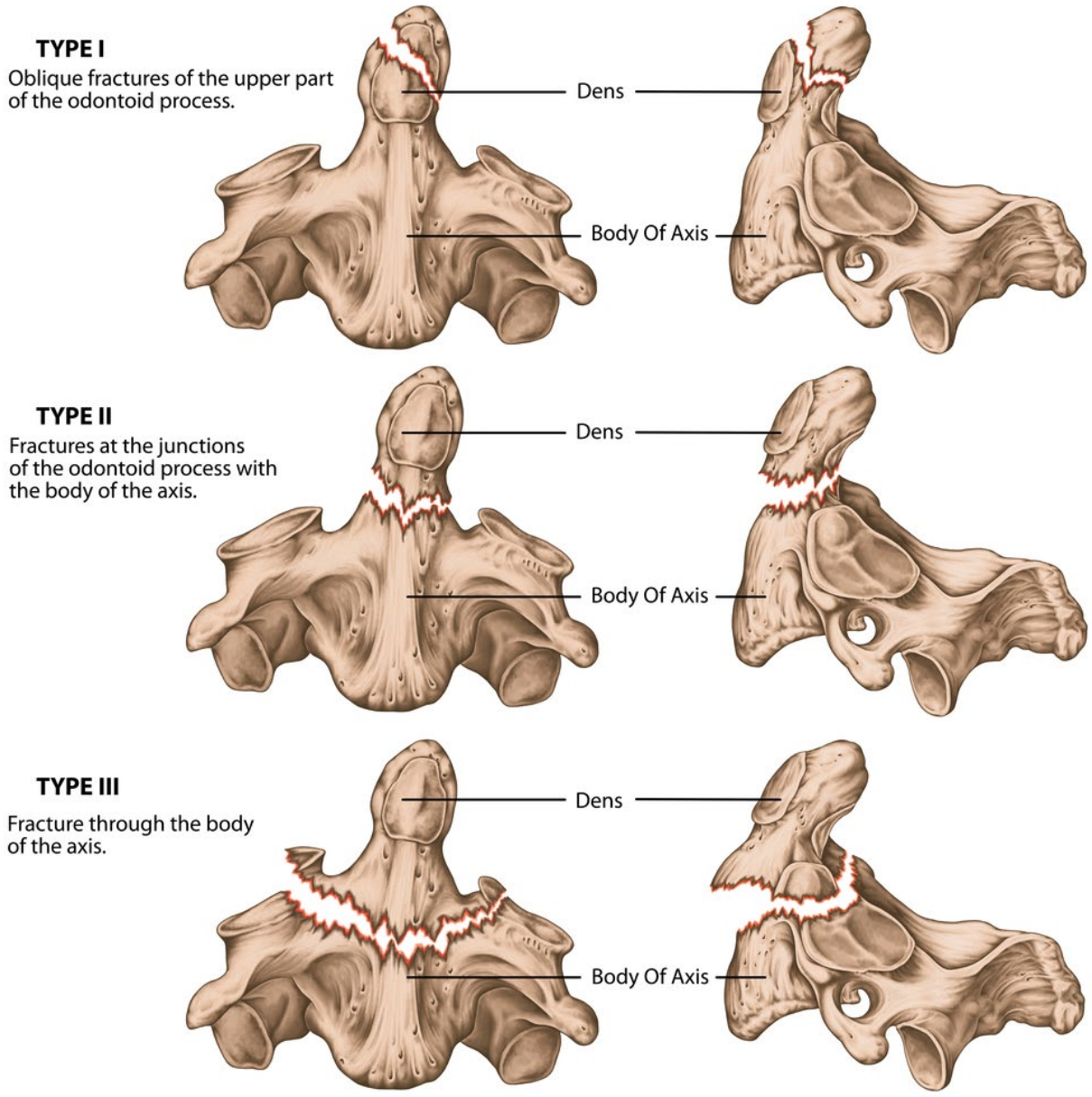
Hangman Fracture

- Name derived from the typical fracture that occurs with hanging
- Commonly caused by motor vehicle collisions and entails bilateral fractures through the pedicles of C2 due to hyperextension



Odontoid Fractures

- Most common cervical spine fracture in the elderly
- Comorbidities and ubiquitous presence of degenerative changes in the C-spine predispose the elderly to complications and poorer outcomes.



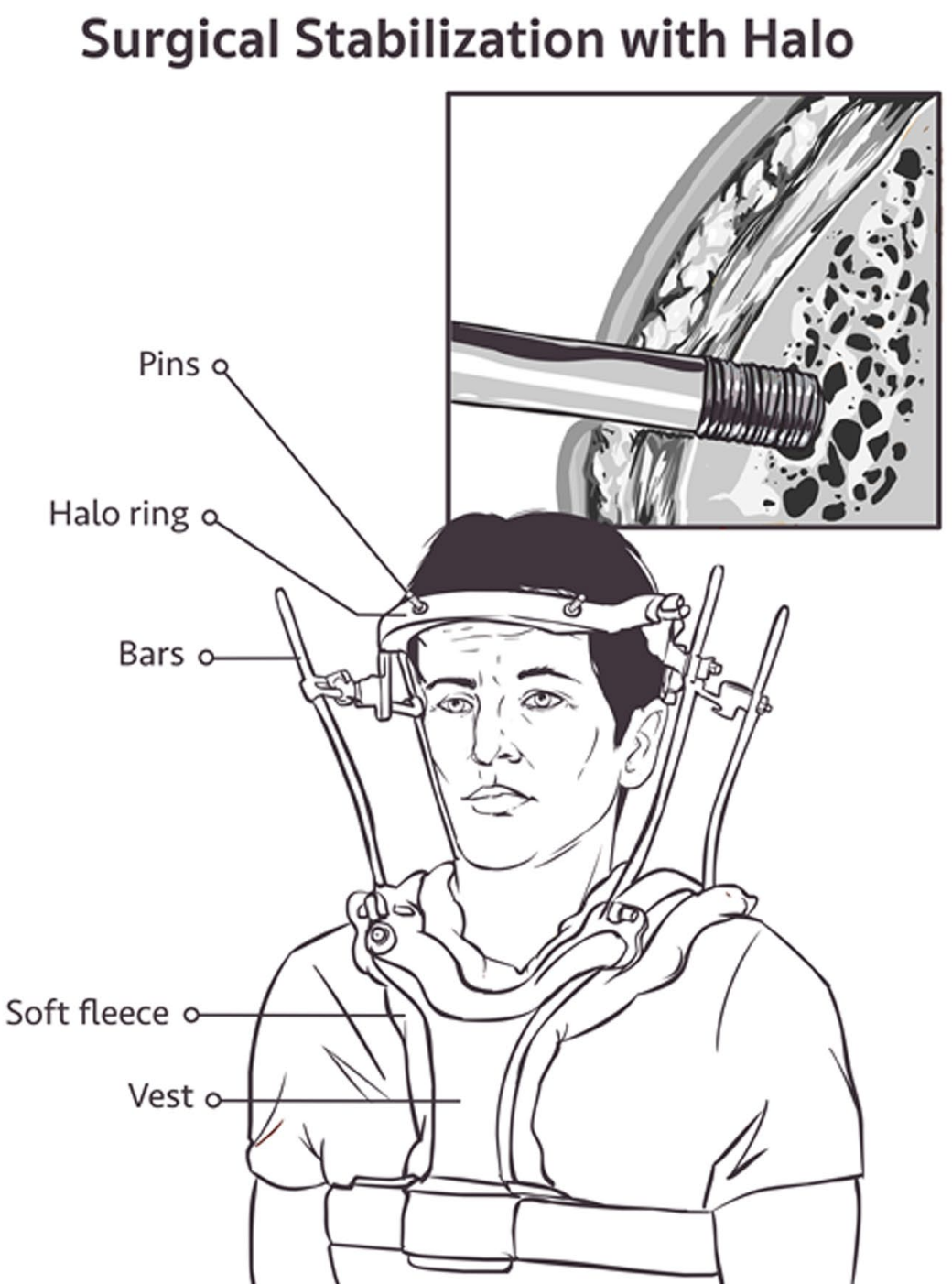
89 Year Old Female With Odontoid Fracture

Cervical Collars

- Assess for pressure ulcers
- Dysphagia (SLP eval)
- Minimize delirium
- Hydration, hydration, hydration
- 1:1 feeds

Halo Vest

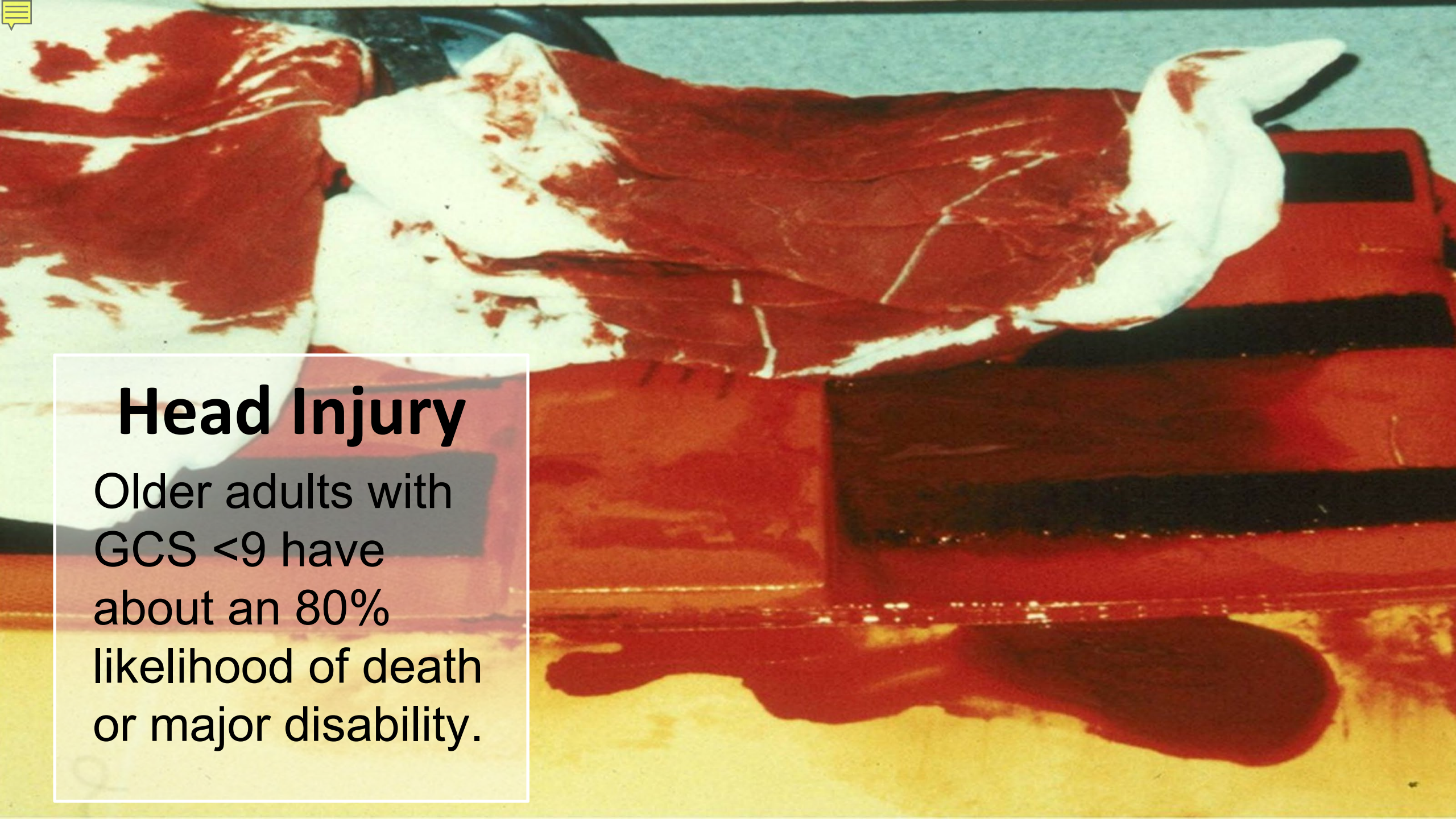
- Designed to provide immobilization of cervical and upper thoracic spine
- Associated with increased complications and death in the elderly



Sensory Considerations

Decreased:

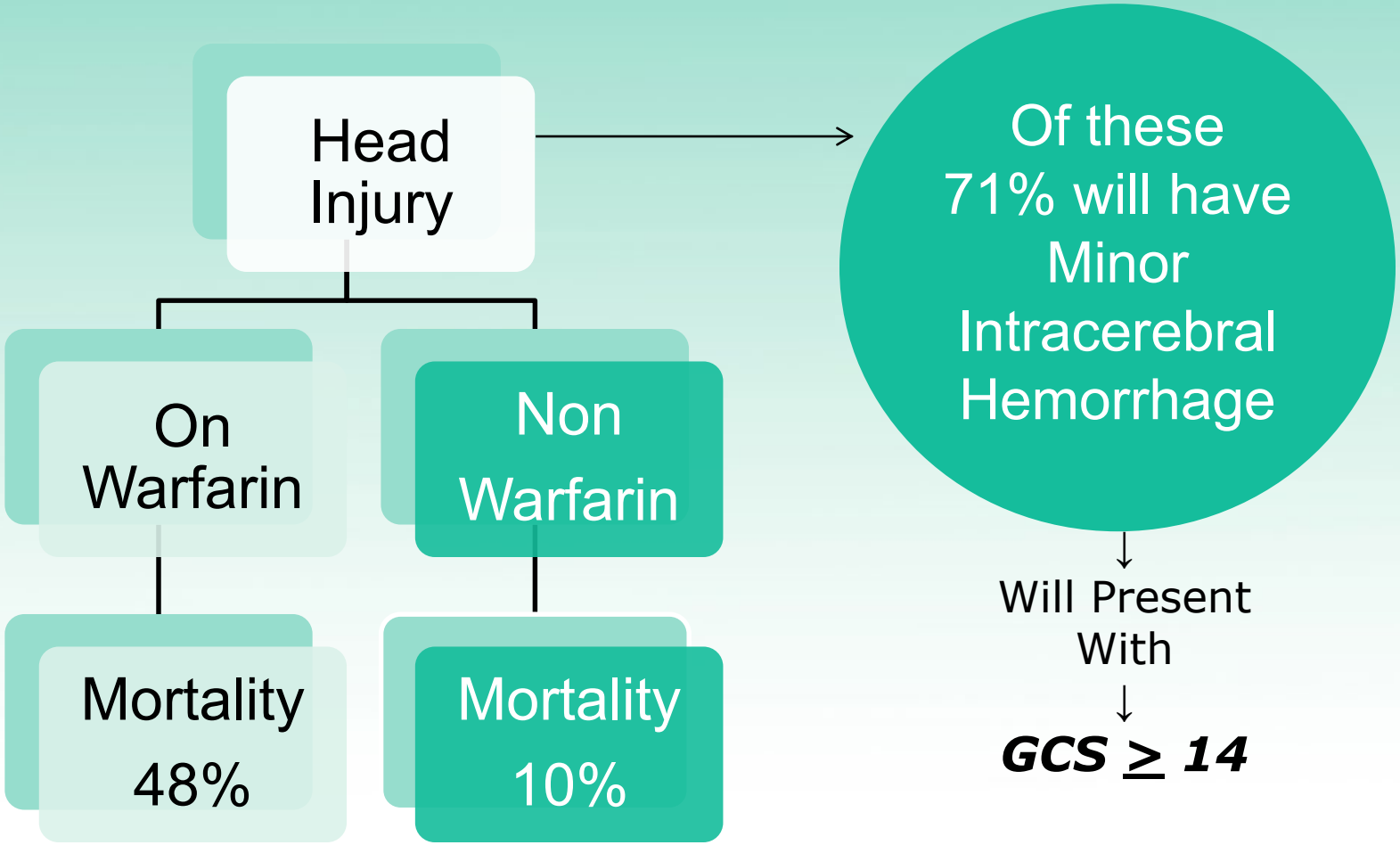
- Hearing
- Vision
- Taste
- Smell
- Tactile sensation



Head Injury

Older adults with GCS <9 have about an 80% likelihood of death or major disability.

Pre Rapid-Reversal Era



Principles of Warfarin Rapid Reversal in Head Injured Patients

1st Principle: recognition of the high-risk patient

Any patient with **known or *suspected*** TBI while on warfarin is considered AT RISK regardless of GCS

If GCS ≤ 13 → Trauma Activation

If GCS ≥ 14 → Stat ED consult

2nd Principle: is rapid reversal of elevated INR

This provides higher priority to immediate INR and CT Scan

Emergency reversal of anticoagulation from warfarin for life-threatening hemorrhage in adults: Suggested approaches based upon available resources

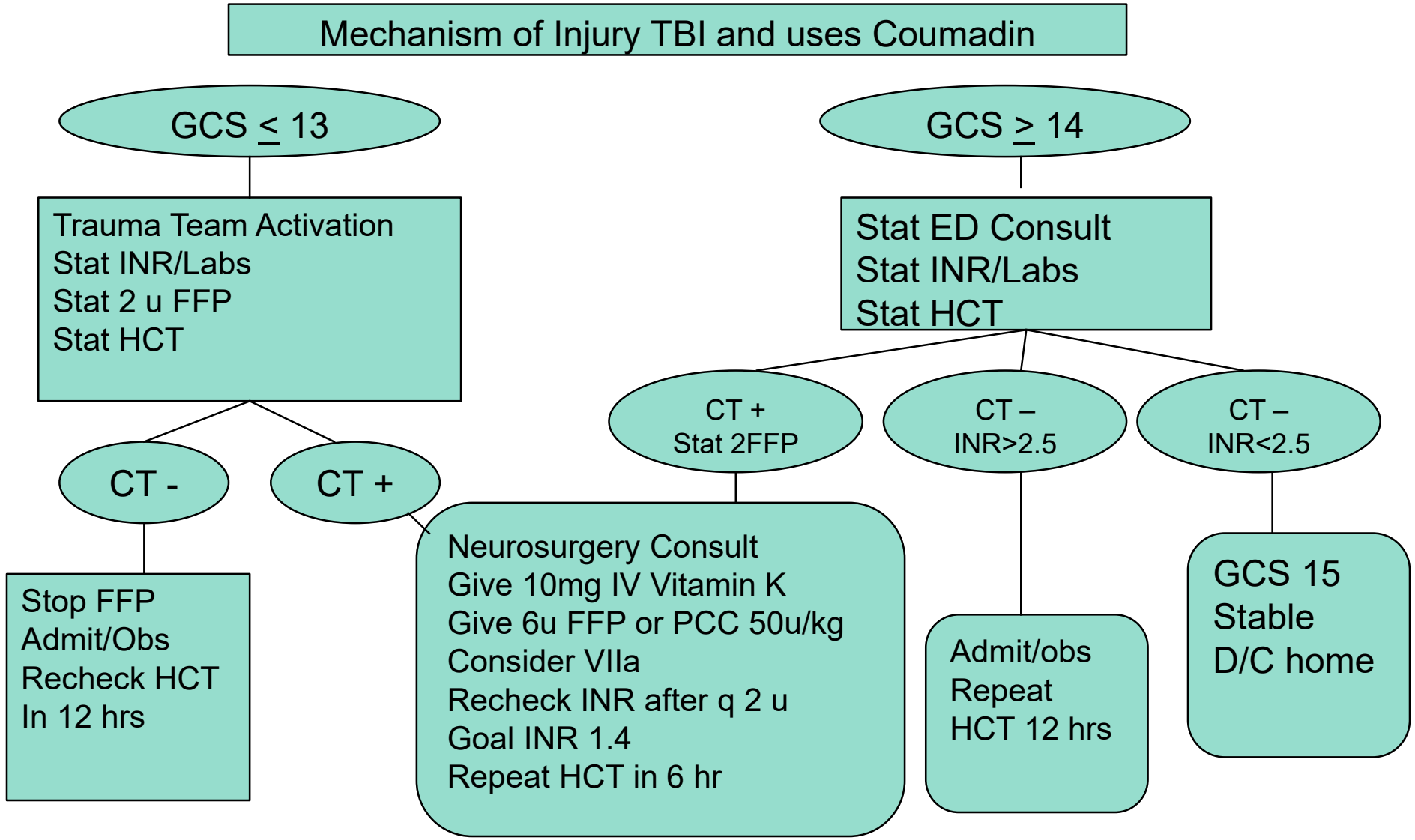
A. If 4-factor prothrombin complex concentrate (4F PCC) is available (preferred approach):
1. Give 4F PCC* 1500 to 2000 units¶ IV over 10 minutes. Check INR 15 minutes after completion of the infusion. If INR is not ≤1.5, give additional 4F PCC (refer to topic or drug reference for details).
2. Give vitamin K 10 mg IV over 10 to 20 minutes.
B. If 3-factor prothrombin complex concentrate (3F PCC) is available but 4F PCC is not available:
1. Give 3F PCC* 1500 to 2000 units¶ IV over 10 minutes. Check INR 15 minutes after completion of the infusion. If INR is not ≤1.5, give additional 3F PCC (refer to topic or drug reference for details).
2. Give Factor VIIa 20 mcg/kg IV **OR** give FFP 2 units IV by rapid infusion. Factor VIIa may be preferred if volume overload is a concern.
3. Give vitamin K 10 mg IV over 10 to 20 minutes.
C. If neither 3F PCC nor 4F PCC is available:
1. Give FFP 2 units IV by rapid infusion. Check INR 15 minutes after completion of infusion. If INR ≥1.5, administer 2 additional units of FFP IV rapid infusion. Repeat process until INR ≤1.5. May wish to administer loop diuretic between FFP infusions if volume overload is a concern.
2. Give vitamin K 10 mg IV over 10 to 20 minutes.

Reversal Products

Prothrombin Complex Concentrate (PCC)

- Promising new product from Europe
- Contains:
  - Vitamin K-dependent coagulation factors II, VII, IX, and X
- Advantages over FFP:
  - Faster correction
  - No volume overload
  - More complete correction

Sample Warfarin Reversal Guideline for TBI



Clopidogrel (Plavix)

Action:

- Inhibits platelet aggregation
- This action is irreversible.
- Long half life (totally clears in 33 hours)

To counteract:

- Repeated platelets required
- But the infused platelets are inhibited by remaining drug
- Requires repeated platelets to get meaningful clot formation

Dabigatran (Pradaxa)

- Oral direct thrombin inhibitor
- Half life is 12-17 hours
- Praxbind is reversal agent
- The recommended dose of PRAXBIND is 5 g, provided as two separate vials each containing 2.5 g/50 mL idarucizumab

Factor 10a Inhibitor Reversal

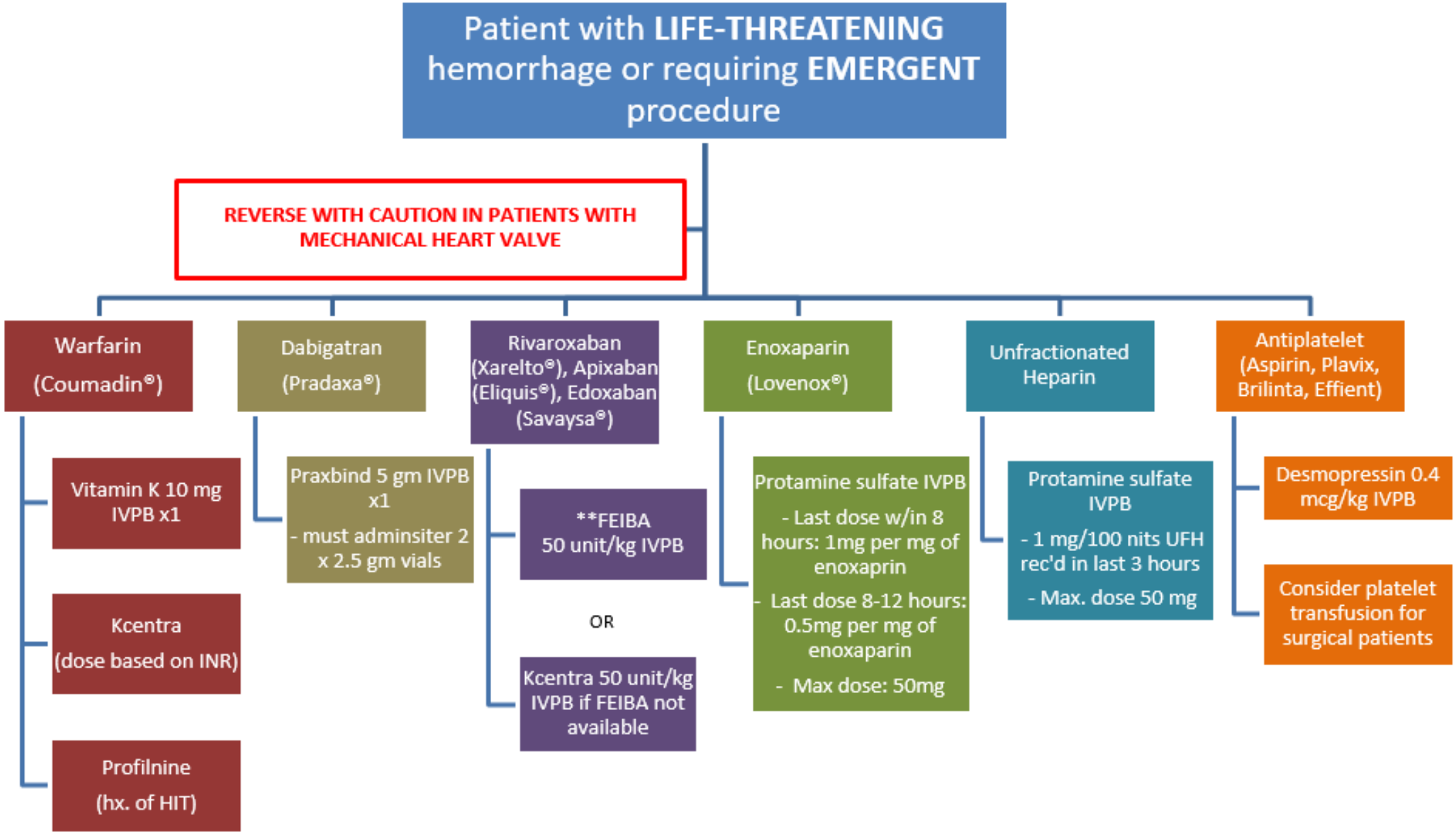
Xarelto (rivaroxaban)

Eliquis (apixaban)

Arixtra (fondaparinux)

Savaysa (edoxaban)

Bevyxxa (betrixaban)


Patient with LIFE-THREATENING hemorrhage or requiring EMERGENT procedure
REVERSE WITH CAUTION IN PATIENTS WITH MECHANICAL HEART VALVE
Warfarin (Coumadin®)
Vitamin K 10 mg IVPB x1
Kcentra (dose based on INR)
Profilnine (hx. of HIT)
Dabigatran (Pradaxa®)
Praxbind 5 gm IVPB x1
- must adminsiter 2 x 2.5 gm vials
Rivaroxaban (Xarelto®), Apixaban (Eliquis®), Edoxaban (Savaysa®)
**FEIBA 50 unit/kg IVPB
OR
Kcentra 50 unit/kg IVPB if FEIBA not available
Enoxaparin (Lovenox®)
Protamine sulfate IVPB
- Last dose w/in 8 hours: 1mg per mg of enoxaprin
- Last dose 8-12 hours: 0.5mg per mg of enoxaparin
- Max dose: 50mg
Unfractionated Heparin
Protamine sulfate IVPB
- 1 mg/100 nits UFH rec'd in last 3 hours
- Max. dose 50 mg
Antiplatelet (Aspirin, Plavix, Brilinta, Effient)
Desmopressin 0.4 mcg/kg IVPB
Consider platelet transfusion for surgical patients

Pharmacology and Older Adults

According to the American Geriatric Society (AGS):

- 90% used at least 1 prescription drug
- 66% used 3 or more

Pharmaceutical Considerations in Trauma

- Start Low and Go Slow with everything
- BEERS criteria – drugs to avoid
- Available from the American Geriatrics Society
- Common side effects:
  - Constipation
  - Balance issues
  - Postural hypotension

BEERs Criteria

Attempt to communicate with the patient's immediate family and physician.
Document the patient's complete medical list, including over the counter and complementary/alternative medication.
Use Beers Criteria in decision making about pharmacotherapy.
Discontinue nonessential medications in coordination with PCP/hospitalists.
Continue medications with withdrawal potential, including selective serotonin reuptake inhibitors (SSRIS), tricyclic antidepressants, benzodiazepines, antipsychotics, monoamine oxidase inhibitors (MAOIs), Beta-blockers, clonidine, statins and corticosteroids.
Adjust doses of medications for renal function based on glomerular filtration rate.

Crystalloid Resuscitation in Elderly

ED volume replacement of ≥ 1.5 L

- Independent risk factor for mortality

Caution:

- High-volume resuscitations are associated with particularly high mortality in the elderly trauma patient.

Age as Criteria for Trauma Activation?

- Under triage often lethal
- Injuries often occult
- Initial vital signs unreliable
- Error attributing confusion/pain to pre-existing disease
- Small margin of error
- Increasingly age is being added as a criterion by individual trauma centers

Guidelines for Acute Pain Management

- Thorough assessment of pain
  - History and Physical
  - Self report using appropriate scale for individual
- Schedule:
  - Opioid & NSAID's pain meds around the clock
- Select least invasive and safest route
- Multi-modality therapy now the norm
  - Options: PCA, epidural, and peripheral nerve block

Pain Management

Medication	Benefit	Risks	Misc.
NSAIDS	-preferred over opioids -beneficial for patients without heart or renal issues	-interfere with blood disorders, heart problems, renal problems, or interact with other medications (ASA, SSIRs, BP medications) -increased risk for GI toxicity, peptic ulcers	-Commonly used to treat musculoskeletal pain -Limit IV-NSAID (Toradol) therapy to < 5 days
Adjuvant Analgesics	-medications not used to treat pain but side effects help with pain (SSRIs over TCAs)	-TCAs can cause risks with loss of equilibrium, increased falls & injuries, hypotension, problems with sleep, and even arrythmias	-The elder patient is 73% more likely to have a TCA prescribed over an SSRI
Opioids	-opioids such as morphine, oxycodone, fentanyl, methadone can be used for acute and chronic pain	-Constipation, nausea, GI complications, respiratory depression, increased falls, sleep disturbances, delirium -benzodiazepines and opioids together can increase respiratory depression -misuse and addiction is concerning	-avoid consuming opioids and alcohol together, can increase respiratory depression -Avoid use of: Methadone Propoxyphene Meperidine Due to toxicity of metabolites

Pain Management

EAST Guidelines 2016

New guidelines recommend:

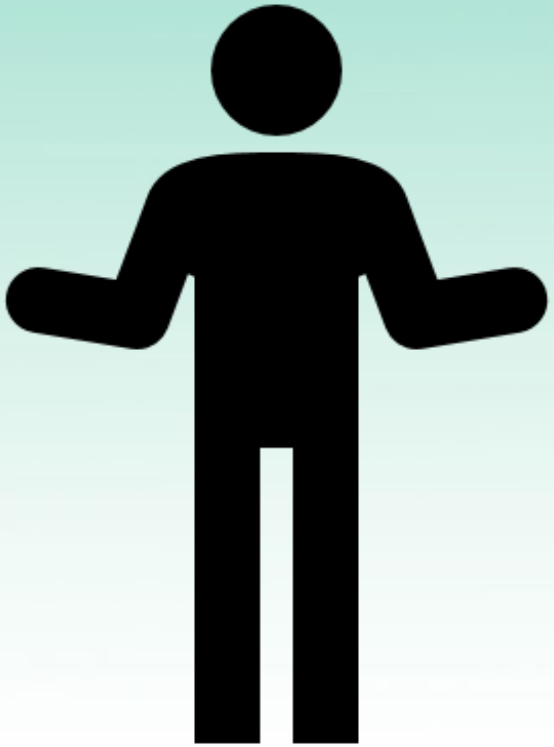
- Epidural analgesia in combination with other methods of analgesia vs. use of opioids alone
- Preferred for severe blunt thoracic trauma
- New guidelines place strong emphasis on patient preferences and values.
- Some studies show limited usefulness of epidural anesthesia in trauma.

What Matters Most

Patient's preferences and priorities regarding treatment options (including operative and non-operative alternatives)
Post-injury risks of complications, mortality, and temporary/permanent functional decline
Advance directives or living will and how these will affect initial care and life-sustaining preferences inclusive of: mechanical ventilation, cardiopulmonary resuscitation, hemodialysis, blood transfusion, permanent enteral feeding, and transitions to comfort care
Identify DPOAH
Hold family meeting within 72 hours of admission to discuss goals of care

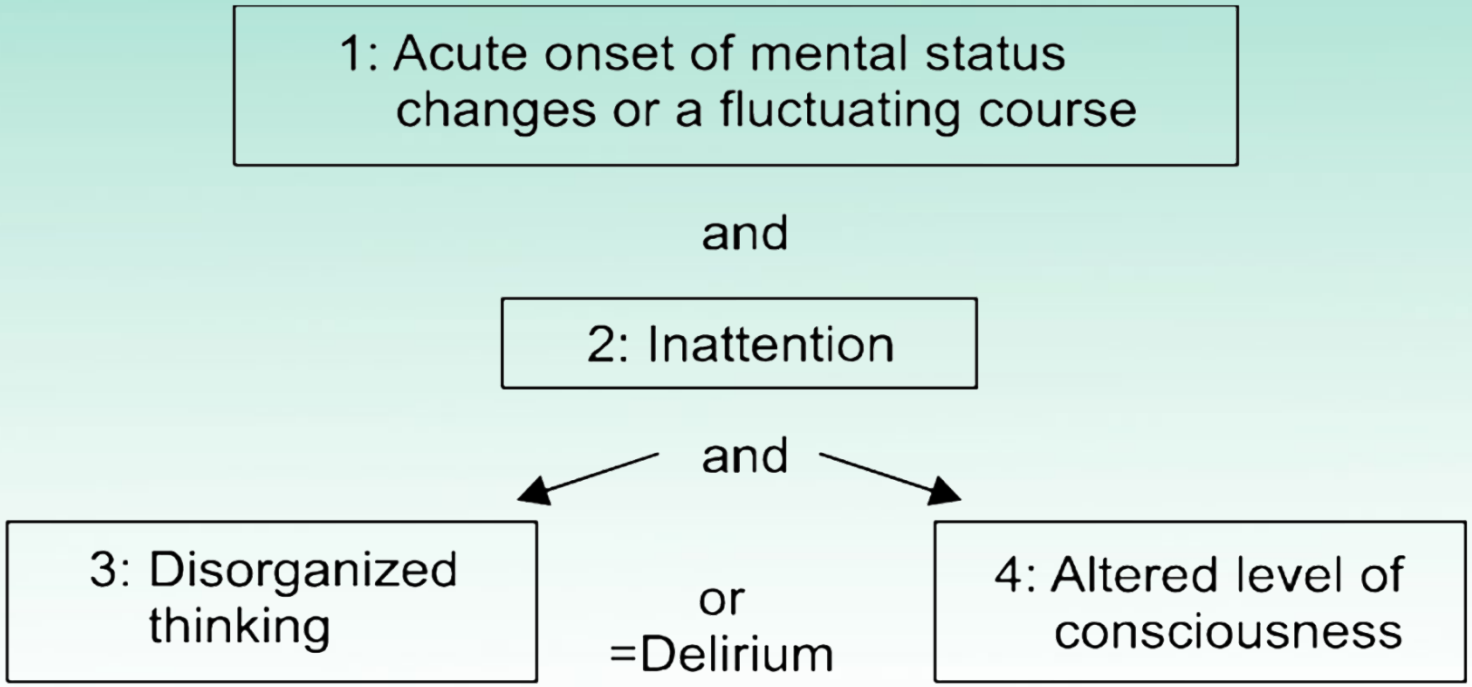
Common Cognitive Findings- Mentation

- Dementia
- Delirium



What is the difference?

Delirium


1: Acute onset of mental status changes or a fluctuating course
and
2: Inattention
and
3: Disorganized thinking
or
=Delirium
4: Altered level of consciousness

Delirium Risk Factors

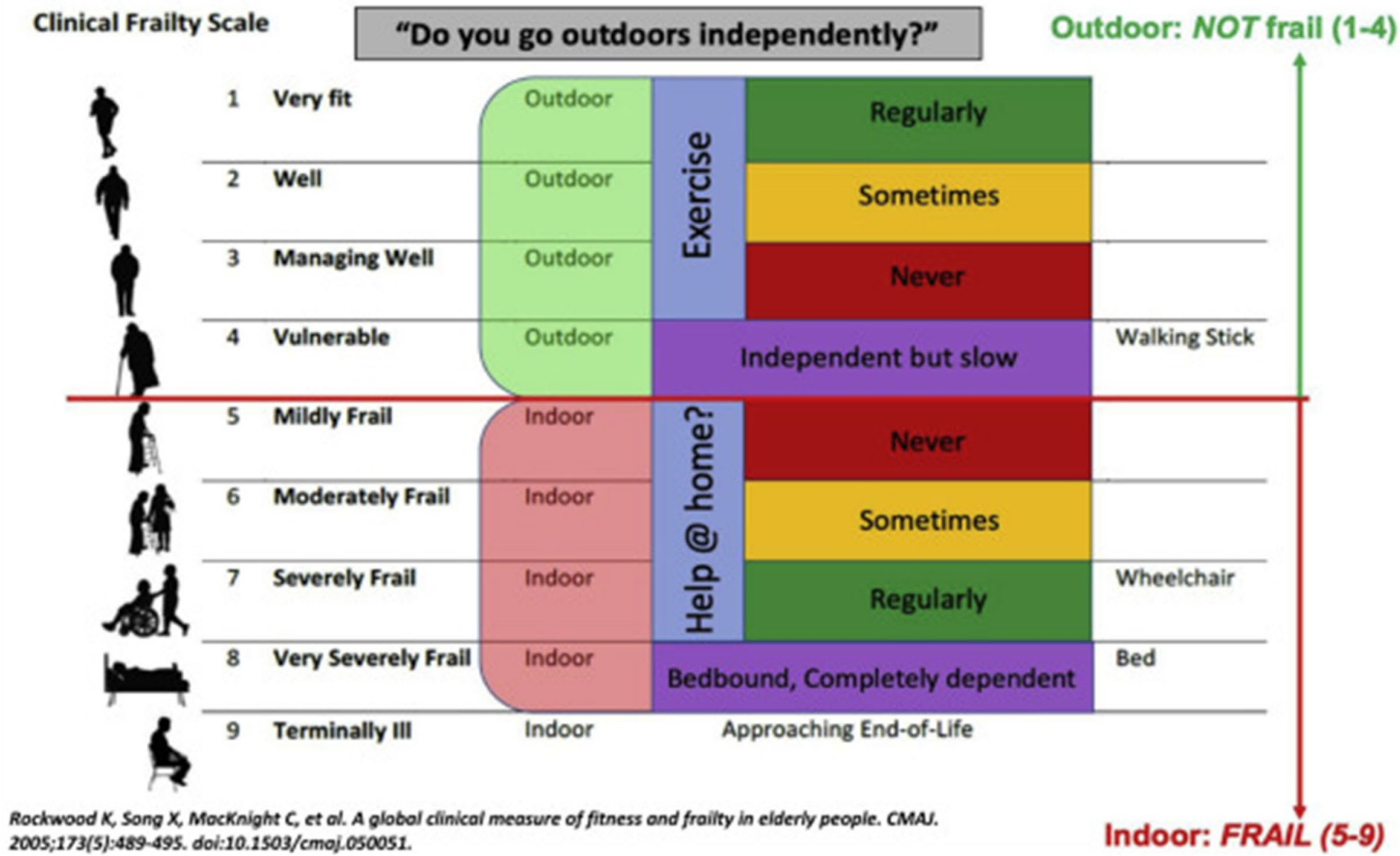
- Cognitive impairment and dementia
- Depression
- Alcohol use
- Polypharmacy and psychotropic medications
- Poor nutrition
- Hearing and Vision Impairment

Delirium Interventions

- Cognition
- Sleep
- Mobility
- Vision
- Hearing
- Dehydration
- Observation

FRAIL Scale

☐	**Fatigue**	Does the patient fatigue easily?
☐	**Resistance**	Can the patient walk up one flight of stairs?
☐	**Ambulation**	Can the patient walk one block?
☐	**Illnesses**	Does the patient have multiple (>5) illnesses?
☐	**Loss of Weight**	Has the patient lost more than 5% of her/his body weight in the past 6 months to a year?



Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people. CMAJ. 2005;173(5):489-495. doi:10.1503/cmaj.050051.

Collaboration

- PT/OT
- Respiratory Therapy
- RNs
- Nurse Tech
- Care Managers
- MSW
- Trauma Team
- ICU Team
- Neuropsych
- Patient
- Family

Assessment on Day 1 of Hospitalization

Home environment, social support, and possible needs for medical equipment and/or home services
Patient acceptance/denial of nursing home or SNF placement
Discharge Diagnosis
Medications and clear dosing instructions and possible reactions
Documentation of reconciliation between out and inpatient medications
Directions for wound care if applicable
Instructions for diet (nutrition plan) and mobility
Needs for physical and occupational therapy
Contact information for the patient's continuity physician or clinic
Establish an appointment for follow up with continuity physician and other specialty physicians
Clear documentation of incidental findings that mandate a follow-up
Documentation of follow-up appointment/telephone contact with surgeon 6 weeks after surgery
Documentation of pending lab tests or diagnostics

Case Study

- 76 year old male, fell 6-8 feet from ladder while cleaning leaves from gutters
- Witnessed by neighbor who found him lying on back, moaning in pain

Pre-Hospital

- He did not recognize his neighbor, who related that he is a widower with out-of-state children.
- BP 180/75
- Pulse 120 and irregular
- Respirations 28 with wheezing
- Pulse ox 89% prior to application of O2
- GCS 14-15

ED Physical Exam

- Left frontal contusion, odor of alcohol
- Tenderness to palpation left lateral chest with crepitus, equal breath sounds and bilateral wheezing, heart sounds distant

Physical Exam

- Abd ok, pelvis stable, no blood at the meatus and good rectal tone
- Pain,swelling and ecchymosis left wrist, upper arm, shoulder and left proximal thigh with shortening and internal rotation

Vital Signs

- BP 118/60
- P120 irregular
- R 28 with audible wheezing
- T 36 c (96.8f)
- Pulse ox 92% on 100% O2

Neuro Status

- PERLA, oriented only to person, speech slurred, obeys inconsistently
- GCS 13-14

Additional Info

- He is on Glucophage (Metformin)
- Metoprolol (Lopressor)
- Warfarin (Coumadin)
- Alupent (metaproterinol) inhaler tucked in a half-empty cigarette pack

Labs

- ABG: 7.30 50 180 19 94% NRB
- H&H: 33.5 11.2
- WBC: 12,500
- LYTES: OK
- GLUCOSE: 275
- BAC: 0.125
- INR 1.2

X-rays

- Rib fractures 7,8,9
- Wide mediastinum, torturous aorta
- C-spine multiple degenerative changes difficult to interpret
- Comminuted intratrochanteric femur fracture and Colles fracture
- CT head, neck, and abdomen ok

Summary

- The elderly are not able to compensate as quickly or as efficiently as a younger adult.
- Co-morbidities in the elderly trauma patient can have deleterious effects on their outcome.
- They will be us…