Battered, Broken, and Burned: Recognizing Injuries in Suspected Older Adult (Elder) Abuse

Collateral Damage: Elder Abuse and the Opioid Epidemic in Rural Virginia Virtual Conference

Breakout Session

June 11, 2021

1:40 p.m. to 2:45 p.m.

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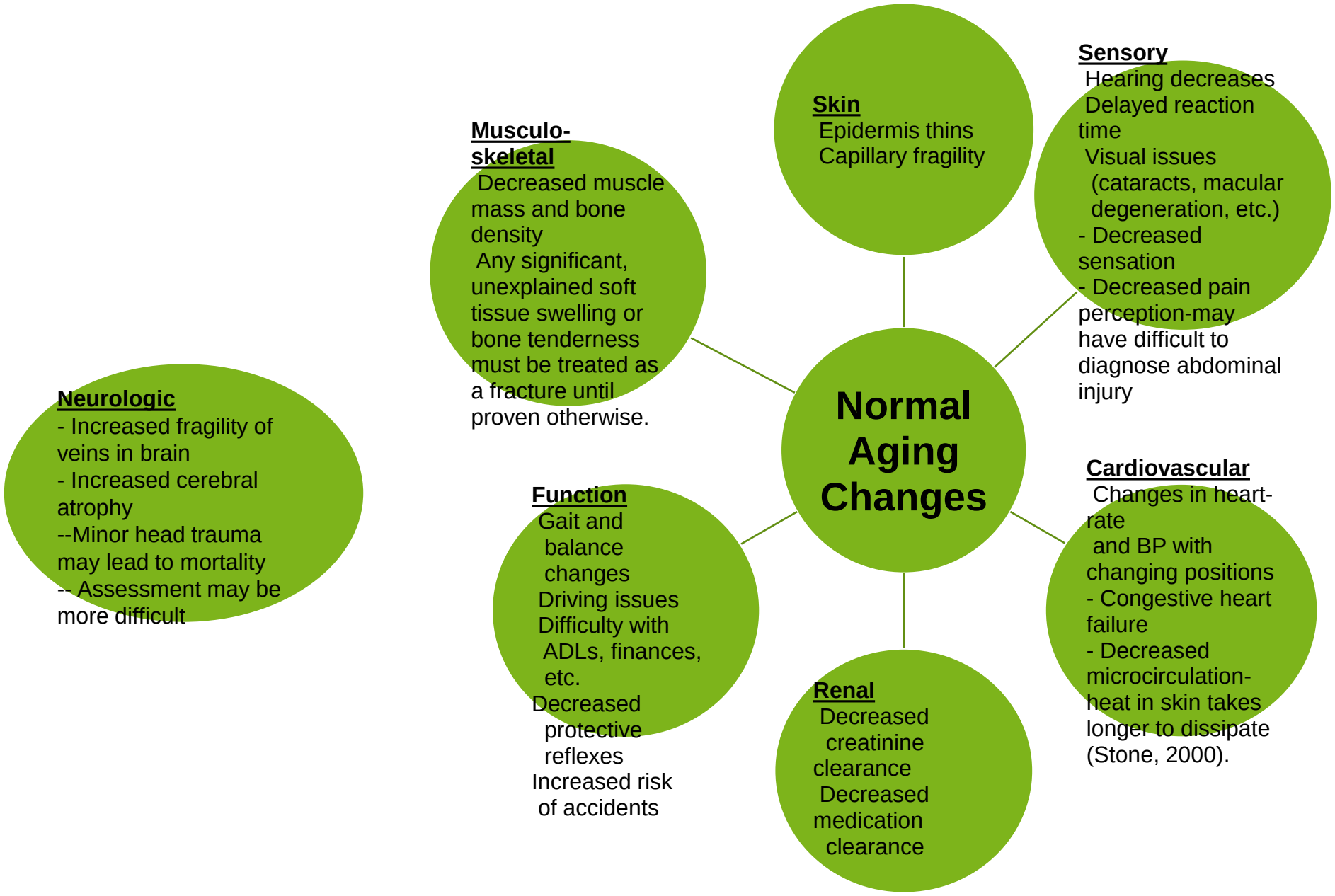
OBJECTIVES:

- Discuss considerations in the evaluation of suspected older adult abuse.
- Identify injuries/findings concerning for older adult abuse.
- Describe characteristics of burns and fractures in the suspected older adult abuse case.

DISCLAIMER:

- Images will be graphic.

Aging Changes...


Normal Aging Changes
Skin
Epidermis thins
Capillary fragility
Sensory
Hearing decreases
Delayed reaction time
Visual issues (cataracts, macular degeneration, etc.)
- Decreased sensation
- Decreased pain perception-may have difficult to diagnose abdominal injury
Musculo-skeletal
Decreased muscle mass and bone density
Any significant, unexplained soft tissue swelling or bone tenderness must be treated as a fracture until proven otherwise.
Neurologic
- Increased fragility of veins in brain
- Increased cerebral atrophy
--Minor head trauma may lead to mortality
-- Assessment may be more difficult
Function
Gait and balance changes
Driving issues
Difficulty with ADLs, finances, etc.
Decreased protective reflexes
Increased risk of accidents
Cardiovascular
Changes in heart-rate and BP with changing positions
- Congestive heart failure
- Decreased microcirculation-heat in skin takes longer to dissipate (Stone, 2000).
Renal
Decreased creatinine clearance
Decreased medication clearance

Definitions...

Definition-Elder abuse:

- "Any knowing, intentional, or negligent act by a caregiver or any other person that causes harm or a serious risk of harm to an older adult" (NCEA, n.d.).
- May occur in any setting (e.g., home, community or facility).
- Involves a relationship where there is an expectation of trust, and/or when an older person is targeted based on age or disability (NCEA, 2014).
  - Caretaker
  - Spouse
  - Dating partner…

Definition-Elder abuse (cont.):

- May include:
  - Physical, sexual, neglect (including self), financial, and emotional.
- May involve instilling fear or threats.
- Age varies from state to state.

Definition-Elder Sexual Abuse:

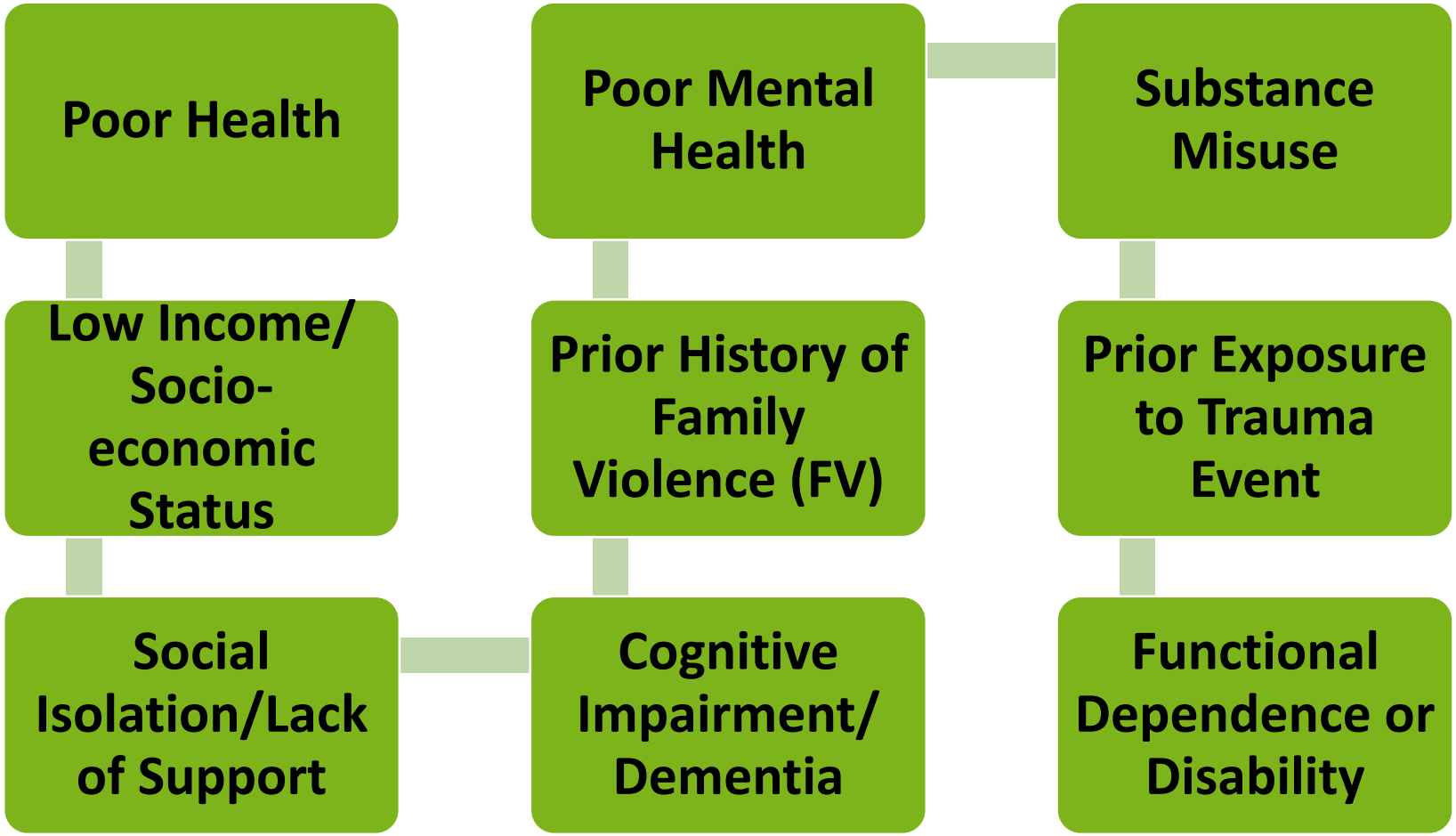
- “Non-consenting sexual contact of any kind” (NCEA, n.d.).
- Includes acts in which the older adult is unable to understand the act (or acts) or is unable to communicate consent.

Older Adult Abuse:

- Each year, 5-10% of community dwelling older adults are abused (Acierno et al., 2010; Dong et al., 2013; Fredriksen-Goldsen, 2011).
- ? 1/24 cases of elder abuse reported to authorities (UTR, 2011).
- Medical visit may be the only time the older adult leaves the home!


Risk Factors...

Potential Risk Factors for Older Adult Abuse- *Victim*:



Acierno et al., 2010; Amstadter et al., 2011; Laumann et al., 2008; Pillemer et al., 2015.

Potential Risk Factors for Older Adult Abuse-*Offender*:

- **Prior History of FV**
- **Caretaker Stress**
- **Mental Illness**
- **Substance Misuse**
- **Financial Dependence on Older Adult**

Acierno et al., 2010; Amstadter et al., 2011; Laumann et al., 2008; Pillemer et al., 2015.

Complaints, Behaviors, Characteristics/ Lab Findings...

Complaints/Behaviors Suspicious for Older Adult Abuse:

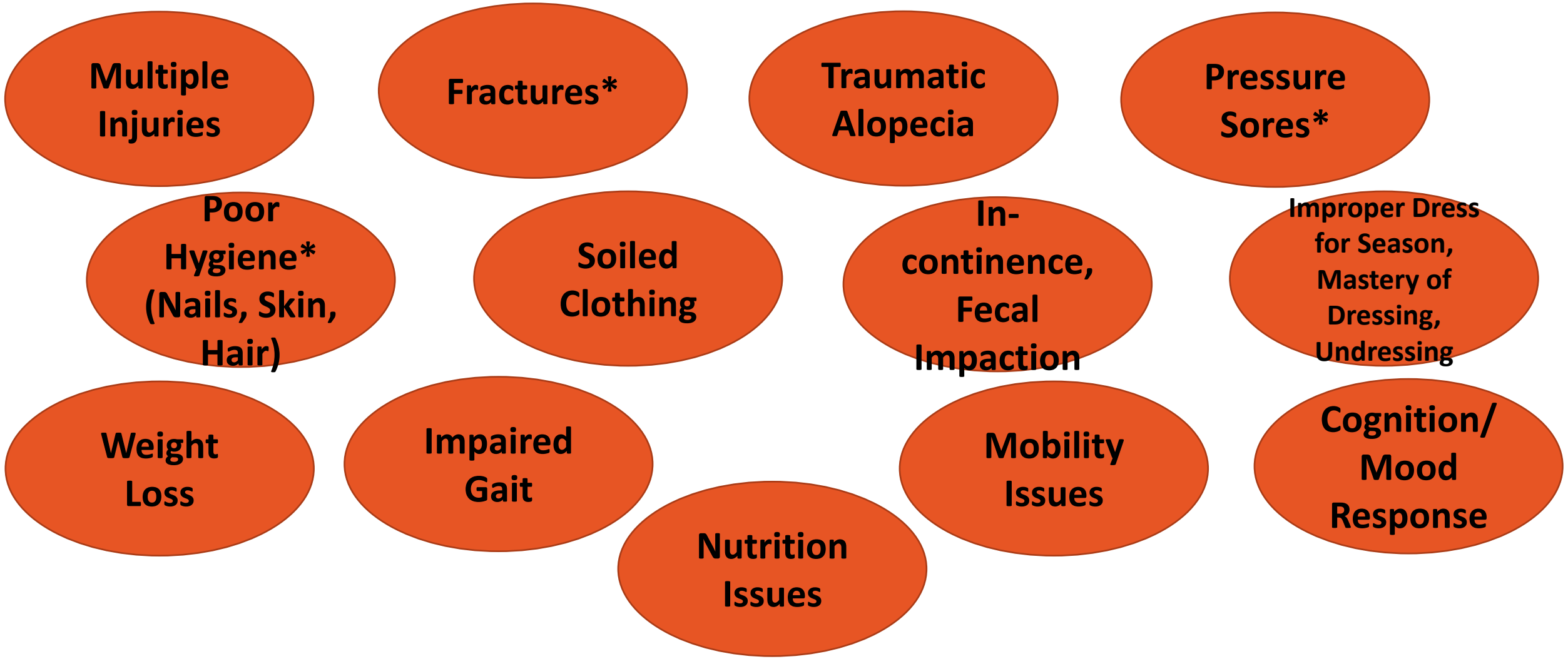
- **Complaint of Abuse by the Patient**
- **Unresolved Medical Issues Despite Appropriate Plan of Care**
- **Improper Medication Use***
- **ETOH/Drug Abuse by Patient or Caregiver**
- **Depression**
- **Anxiety**
- **Cognitive/Mental Health Issues***

* Potential markers of abuse and neglect in elderly (Dyer et al., 2003; Pearsall, 2005; Collins, 2006; Wiglesworth, 2009).

Complaints/Behaviors Suspicious for Older Adult Abuse (cont.):

- Physical Findings Inconsistent with History
- Financial Exploitation *
- Restraints*
- Delay in Seeking Care for Illness/Injury
- Frequent ED Visits
- Fear by Elder of Caregiver
- Overbearing Caregiver who Refuses to Leave Patient Alone
- Dehydration, Under-nutrition*, Weight Loss, Muscle Wasting

Physical Characteristics Suspicious for Elder Abuse:



Lab Findings Concerning for Possible Older Adult Abuse/Neglect:

- Anemia
- Dehydration*
- Malnutrition
  - Cachexia, weight loss, electrolyte abnormalities
- Hypo/hyperthermia
- Rhabdomyolysis (Muscle tissue breakdown)→ Myoglobin (protein) released into blood→ Kidney Injury
- Undetectable drug levels
  - Diversion of controlled drugs
- Increased drug levels (OD, Poisoning)…

Lofaso & Rosen, 2014; * Potential markers of abuse and neglect in elderly (Dyer et al., 2003; Pearsall, 2005; Collins, 2006; Wiglesworth, 2009

Injury Patterns-Elder Abuse:

- Rosen et al., 2020 Study:
  - Abuser:
    - Spouse/companion: 17/100
    - Male: 71/100
    - Grandchild: 18/100
  - Living situation:
    - Community dwelling with abuser: 65/100

Injury Patterns-Elder Abuse (cont.):

- Rosen et al., 2020 Study (cont.):
  - Types of physical abuse/mechanism:
    - Blunt assault with hand/fist: 62/100
    - Push/shove, fall during altercation: 23/100
    - Strangulation/suffocation: 12/100
    - Multiple mechanisms: 36/100
  - Injuries:
    - 22/100 did not sustain physical injury.
    - 78/78 sustained bruising.
    - 67/78 maxillofacial/dental/neck injured.
  - 9-1-1:
    - Victim called 9-1-1: 58/100

Physical Characteristics Suspicious for Older Adult Abuse (cont.):

- No pathognomonic signs of elder abuse identified in research to date.
- Many of findings are similar to child abuse & IPV (IPV-Ziminski et al., 2013).
- Bruising*
  - Unusual areas (Inner thighs, arms, axillae, torso, soles of feet/palms, abdomen, buttocks, scalp).
  - Most of research in elder abuse has been in area of bruising.
    - Accidental bruising typically occurs on extremities (90%).
  - Bruising common in physically abused older adults. Suspicious for abuse:
    - Bruises greater than 5cm.
    - Bruises on face, side of right arm, back of torso (Wiglesworth et al., 2009).

* Potential markers of abuse and neglect in elderly (Dyer et al., 2003; Pearsall, 2005; Collins, 2006; Wiglesworth, 2009).

Physical Characteristics Suspicious for Older Adult Abuse (cont.):

- Abrasions*.
- Lacerations*.
- Burns* (may leave recognizable pattern).
- Patterned or bruises (or wounds) in various stages of healing.
- Injury to eye, nose or mouth (Collins, 2006).
- Abrasions or scars (circumferential) to ankle, wrist or axillae (Quinn & Tonnita, 1997).
  - Scars-change in pigmentation!
- Neck abrasions, contusions.
- Head, neck, and upper extremity injuries (Rosen et al., 2016; Murphy et al, 2013; Rosen et al., 2016).

Physical Characteristics Suspicious for Elder Abuse-Sexual Assault*:

- Bruising on thighs, buttocks, face, neck, breasts…
- Difficulty walking/sitting
- Stained or bloody underclothing
- Pain/itching genitals
- Presence of STD, HIV
- Human bitemarks
- Anogenital injury:
  - Bruising, bleeding, tear…
- Patterned injury…

Sorting It All Out…

Belief that Abuse Occurs and Recurs!

Recognize Own Limitations-Seek Experts

Hx of Event Change Over Time?

History Plausible to Reported Mechanism of Injury?

Injuries Suspicious for Elder Abuse?
Bruises on More Protected Areas of Body? Fractures-Mal-aligned?

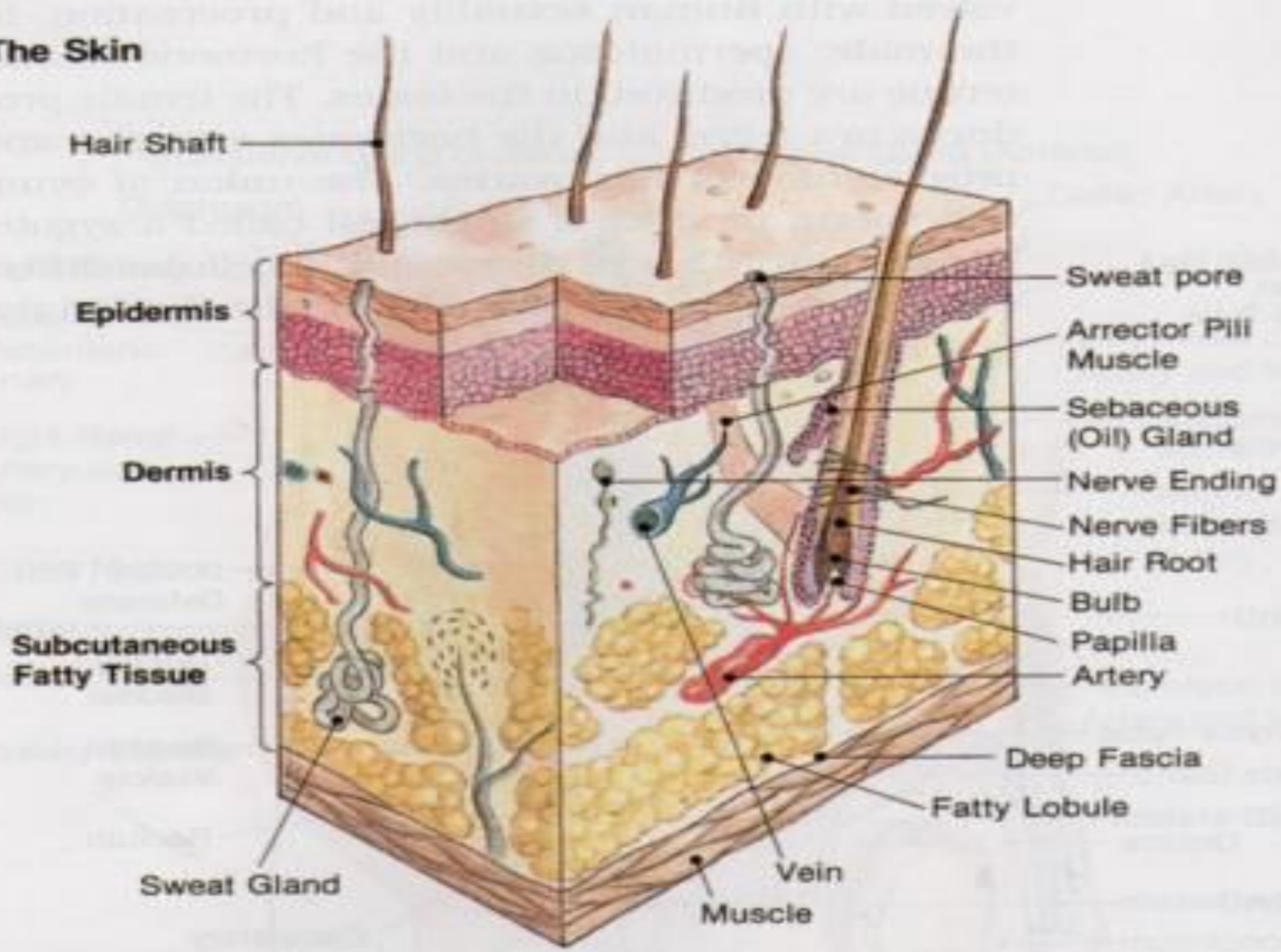
Medical History? Baseline Functional Ability? Meds?

Mimic of Abuse? Variant of Normal?

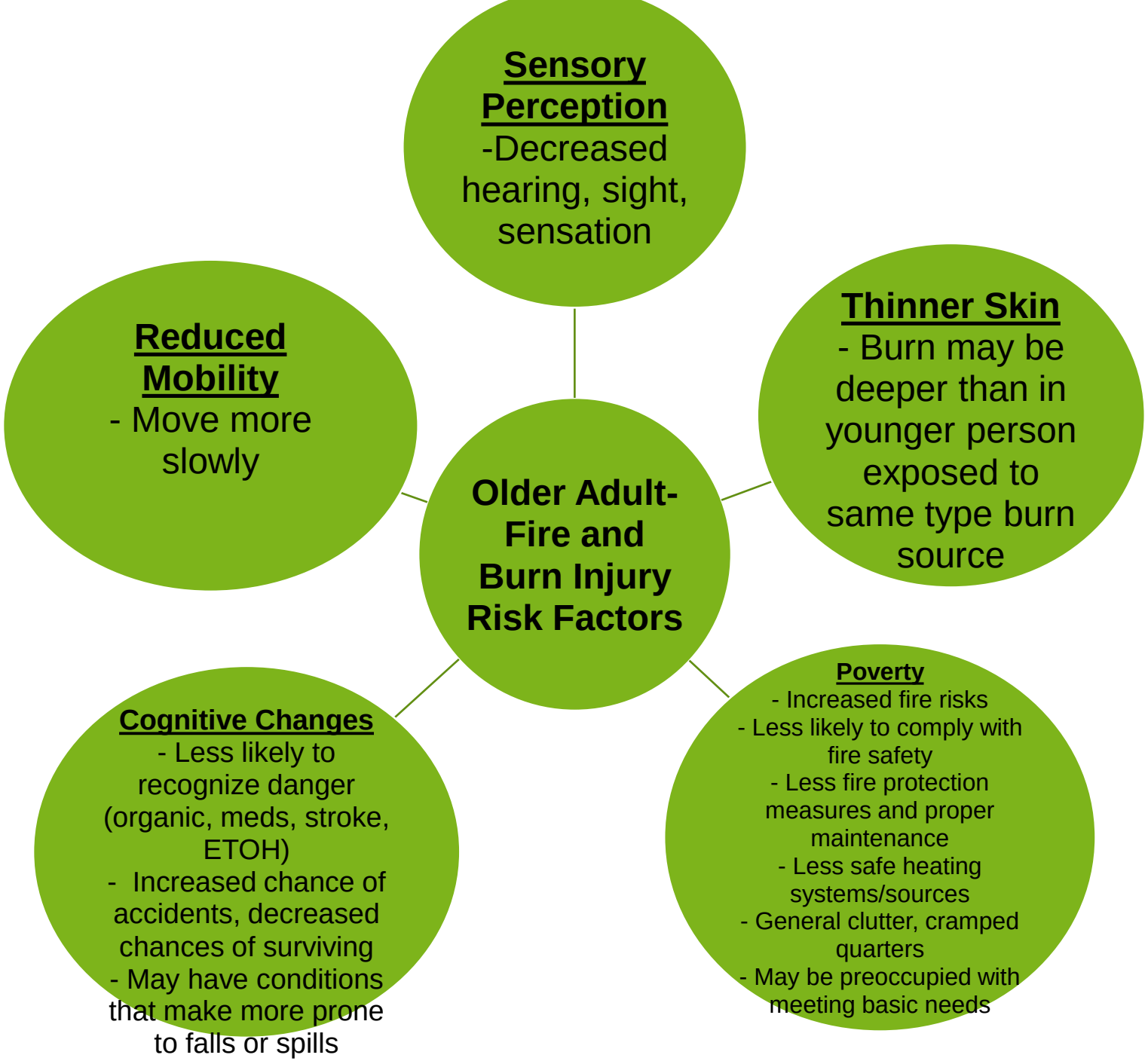
Delay in Seeking Care?

Burn Considerations in Older Adult, Injury and Research...

The Skin


Hair Shaft
Epidermis
Dermis
Subcutaneous Fatty Tissue
Sweat Gland
Sweat pore
Arrector Pili Muscle
Sebaceous (Oil) Gland
Nerve Ending
Nerve Fibers
Hair Root
Bulb
Papilla
Artery
Deep Fascia
Fatty Lobule
Vein
Muscle

ABA Fire and Burn Safety (ABAFBS) Older Adults Educator's Guide



Time and Temperature Relationship to Severe Burns

Water temperature Time for a third degree burn to occur

155° F	68° C	1 second
148° F	64° C	2 seconds
140° F	60° C	5 seconds
133° F	56° C	15 seconds
127° F	52° C	1 minute
124° F	51° C	3 minutes
120° F	48°C	5 minutes
100° F	37° C	safe temperature for bathing

Moritz & Herriques, 1947

Fire, Burn Death & Injury in Older Adults:

- Greater than 500,000 people receive medical treatment for burn injuries in the U.S. and Canada annually (ABASIPEG).
- Greater than 1,200 adults, aged 65 years and older die each year in the U.S. as a result of fire.
- Greater than 25% of all fire deaths, and 1/3rd of all residential fire deaths occur in adults, 65 and older.
- Leading cause of death is careless smoking.
- Leading cause of injuries is cooking related.
- May be seriously injured as a result of scalds, electrical and chemical injuries.

(ABAFBS)

Fire, Burn Death & Injury in Older Adults:

- More likely (and so are children) to require hospitalization with a burn (Bessey et al., 2006).
- Burn may be intentional or unintentional (non-accidental or accidental).
- May have other injuries beyond the presenting burn.
  - 16% (148 subjects) of Parkland Burn Center study group sustained blunt or penetrating trauma (stab wounds, fractures, closed head injury)(Purdue & Hunt, 1990).

http://ameriburn.org/wp-content/uploads/2017/05/burncenterreferralcriteria.pdf
MSN.com - Hotmail, Outlo... | Prevention Resources – Am... | Burn Center Referral Criteri... | ameriburn.org
File Edit Go to Favorites Help

Courtesy of the

American Burn Association

Advanced Burn Life Support (ABLS)

Learn more about the ABA and ABLS at **www.ameriburn.org**

Burn Center Referral Criteria

A burn center may treat adults, children, or both.

Burn injuries that should be referred to a burn center include:

1. Partial thickness burns greater than 10% total body surface area (TBSA).
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
3. Third degree burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.

Severity Determination

First Degree (*Partial Thickness*)
Superficial, red, sometimes painful. **Epidermis**

Second Degree (*Partial Thickness*)
Skin may be red, blistered, swollen. Very painful. **Dermis**

Third Degree (*Full Thickness*)
Whitish, charred or translucent, no pin prick sensation in burned area. **Subcutaneous Tissue**

Percentage Total Body Surface Area (TBSA)

8.50 x 11.00 in

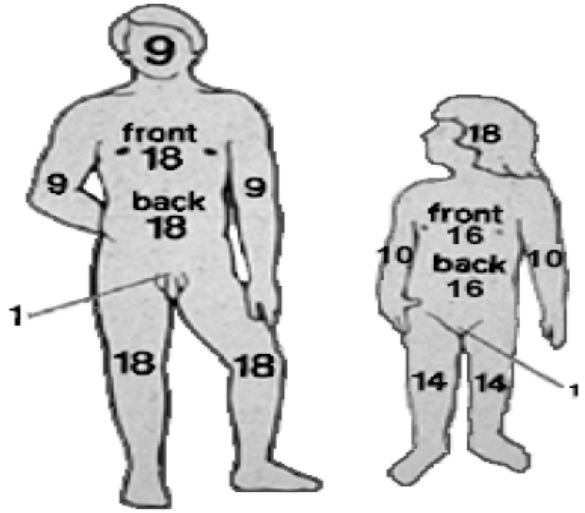
surface area (TBSA).

2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
3. Third degree burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
9. Burned children in hospitals without qualified personnel or equipment for the care of children.
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention.

Excerpted from Guidelines for the Operation of Burn Centers (pp. 79-86), Resources for Optimal Care of the Injured Patient 2006, Committee on Trauma, American College of Surgeons

Third Degree (*Full Thickness*)
Whitish, charred or translucent, no pin prick sensation in burned area.

Percentage Total Body Surface Area (TBSA)



http://ameriburn.org/wp-content/uploads/2017/05/burncenterreferralcriteria.pdf

Assault (Abuse), Neglect and Burned Adults:

- Krob et al., 1986 study:
  - Descriptive, retrospective study over a two-year period, n = 423 (total), subset n = 41 (9.7%)- identified as assault victims.
  - Smaller TBSA burned when compared to other burn victims in study.
  - Similar age and sex distribution of victims.
    - Age range: 15-82 years (avg. 37 years).
  - Higher percentage of Black victims (85%).
  - Higher number of scald injuries (60%).
  - 29 of cases, domestic dispute reported. →

Assault (Abuse), Neglect and Burned Adults (cont.):

- Krob et al., 1986 study (cont.):
  - Females reported to have inflicted burn(s) in 23 cases (56%).
    - 22/23 cases, burn(s) caused by hot liquids or chemicals.
  - Genital and facial burns more common in this subset.
  - Most common site of injury: Anterior trunk, upper extremity.
  - Average length of stay (LOS) was 19 days.
  - 25 of victims required one or more operative procedures.
  - Four victims died.

Assault (Abuse), Neglect and Burned Adults (cont.):

- Bowden et al., 1988 study:
  - Retrospective review, n = 1152, acute burns, treated at Univ. of Michigan Burn Center, over 5.5y period.
  - Identified 26 (2%) adult patients with suspected abuse (8 cases) and neglect/improper supervision (18 cases).
    - 12F, and 14M, average age 42 years (range 19-91yo), and average TBSA 18%
    - 7 (27%) died from injury.
    - All were either were very old, physically or mentally challenged. →

Assault (Abuse), Neglect and Burned Adults (cont.):

- Bowden et al., 1988 study (cont.):
  - 23/26 sustained burn(s) in a healthcare facility or institution.
    - 15-Flame injury.
    - 11-Scalds.
      - 10 Bathing accidents.
      - 1 Pulled hot liquid on foot reportedly.
    - 1-Frostbite. →

Burn Patterns in Older Adult Abuse:

- Burn patterns similar to those seen in child abuse burns (Bowden et al, 1998).
  - Immersion (bilateral or glove and stocking type pattern) with no splash marks, uniform in depth with clear lines of demarcation (burned and unburned skin).
    - May also have splash marks if able to struggle *(Greenbaum et al., 2004)*.
    - Flexion pattern with flexed area spared of burn.
    - Burn involving buttocks and genitals.

Nursing Home Patients and Accidental Burns:

- Trier & Spaabaek (1987) study:
  - Retrospective, epidemiological study, n = 39, over 6 year period (1980-1985), median age 80yo
  - Nursing home patients admitted with accidental burns.
  - Accounted for 20% of all patients over age of 69yo admitted with burns.
  - 2/3rds suffered burns of 15% or less of TBSA.

→

Nursing Home Patients and Accidental Burns (cont.):

- Trier & Spaabaek (1987) study (cont.):
  - Mortality rate: 64%.
  - Burned in single-person accidents, most often in own living room, alone (74%).
  - 85% involved smoking.
  - Highest incidence on Saturdays, Sundays and holidays.
  - Six cases, smoke detectors were activated = 5 were fatal!
  - Co-morbidities included: Hemiplegia, dementia, neurological diseases…
  - Additional patients excluded from study:
    - Four scalds or contact burns.
    - Two burns R/t suicide attempts.

Morbidity and Mortality (M & M) with Burn Injury in Older Adults:

- Increased M & M with burn injuries.
- Aged 65y and older compared to 15y and younger, more likely to have:
  - Flame burns, burns to 20% or more of total body surface area (TBSA), inhalation injury, respiratory failure, death.
- Initial presentation typically with more underlying complex medical issues

(Bessey et al., 2006)

Morbidity and Mortality with Burn Injury in Older Adults (cont.):

- Lumenta et al., 2007 study:
  - Prospective study, admitted burn patients from 1990-2003- to analyze certain factors (age, gender, TBSA, inhalation injury, premorbid conditions, burn scores) and their impact on hemodynamic and respiratory complication and M & M.
  - Subset of patients (total n=265) with diabetes mellitus (DM) and > 30% TBSA burns were reviewed to determine whether increased morbidity and mortality (began tight glucose control 2002).
    - No significant influence found.
    - Increased length of stay with comorbid conditions (CV disease, alcoholism).
    - 16% of sample 65 years and older (range 65-100yo, average age 76.5y).
    - Mean TBSA burned was 17.1%.
    - 81 fatalities (30.6%).
    - 4 (1.5%)homicidal.
    - Hot water burns-82 cases (30.9%).
    - Flame burns-173 cases (65.3%).

Likelihood of Death from Burn Injuries:

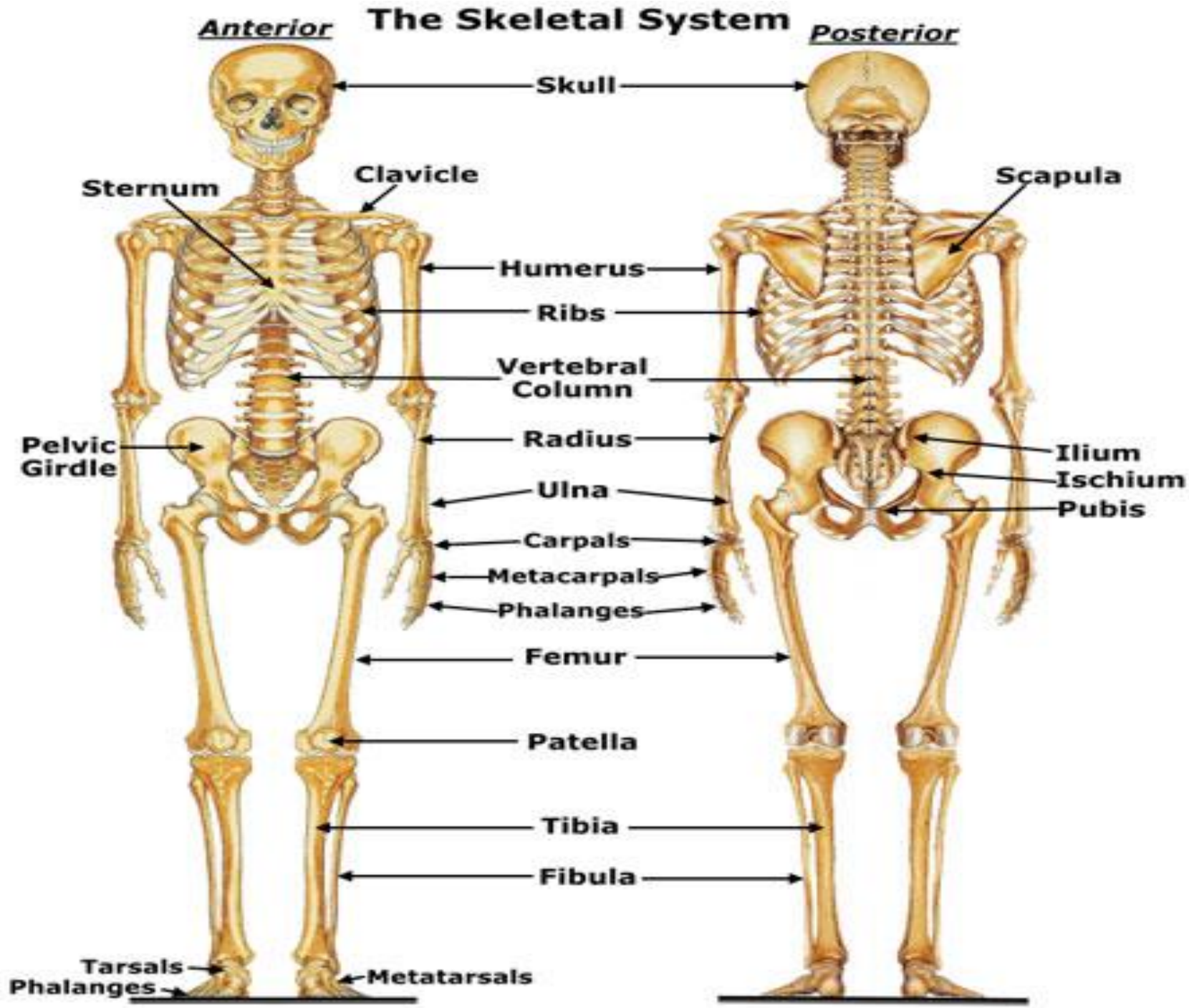
- Ryan et al., 1998 study:
  - Retrospective review of records, n=1665, all acute burn injuries to MGH (1990-1994) to determine probability of mortality, and has it changed since 1984 (did decrease between 1974-1984); tested prospectively on n = 530 burn injury patients (1995-1996).
    - Prospective group:
      - Mean age 21±20y (range 1mo-99yo).
      - Mean burn size 14±20% of TBSA.
      - 1598 (96%) lived to discharge.
      - Mean LOS was 21±29 days (based on burn size). →

Likelihood of Death from Burn Injuries (cont.):

- Ryan et al., 1998 study (cont.):
  - Risk factors for death identified:
    - Age more than 60yo.
    - Greater than 40% TBSA burned.
    - Presence of inhalation injury (fire in closed space, soot below level of vocal cords, elevated carboxyhemoglobin level on admission).
    - Mortality: 0.3% with no risk factors; 3% with one risk factor; 33% with two risk factors; 90% with three risk factors.
      - Rule applicable to all patients younger than 90yo.
  - Prospective study:
    - Results similar to retrospective.
  - ? No large improvement in mortality rate.
  - Efforts must focus on prevention, field care, early transfer for burn care.

Fractures…

Fractures in Older Adults...


The Skeletal System
Anterior
Posterior
Skull
Clavicle
Sternum
Scapula
Humerus
Ribs
Vertebral Column
Radius
Pelvic Girdle
Ilium
Ischium
Pubis
Ulna
Carpals
Metacarpals
Phalanges
Femur
Patella
Tibia
Fibula
Tarsals
Phalanges
Metatarsals

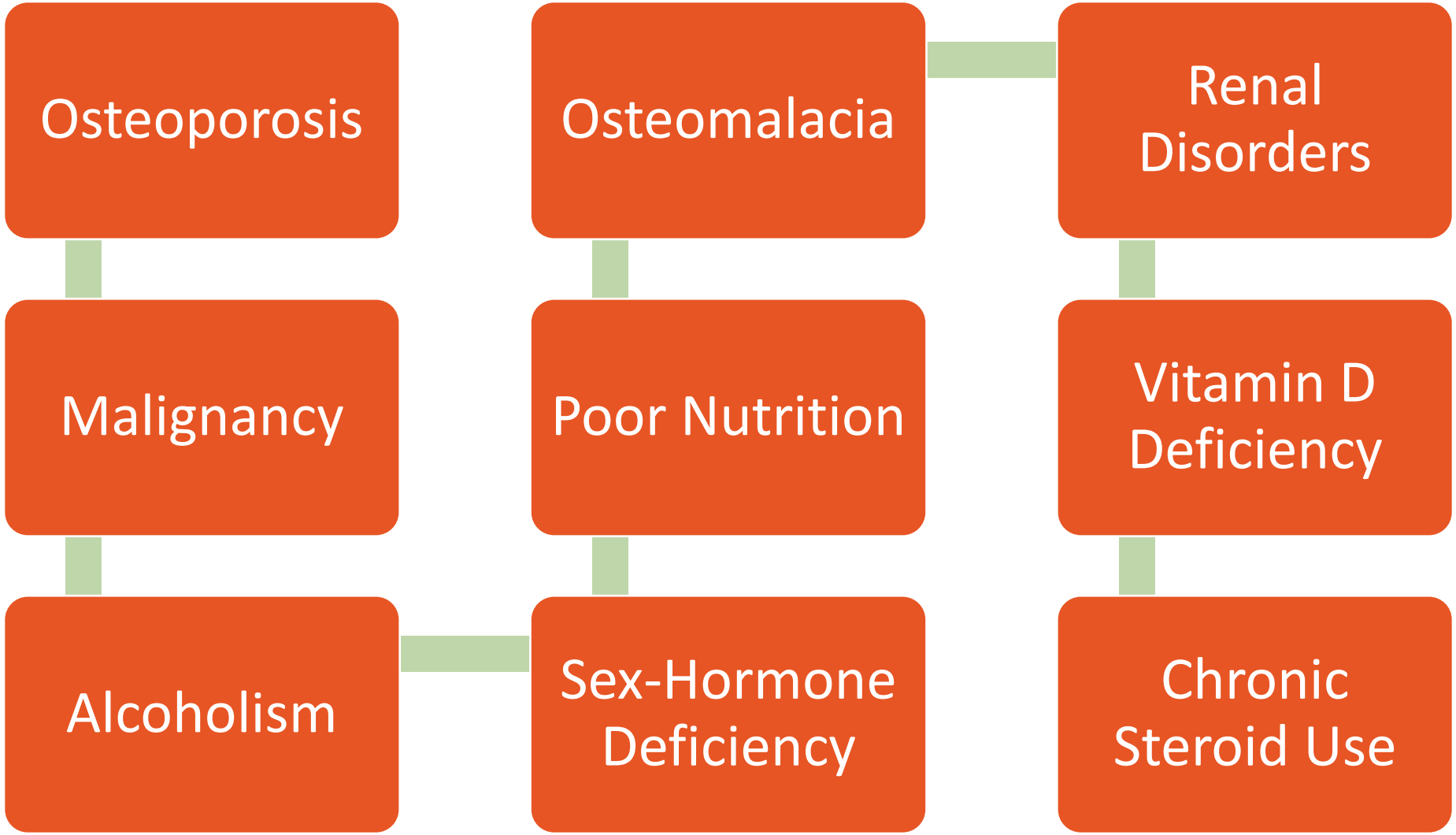
Older Adult Abuse and Fractures:

- Fractures in older adult population:
  - Not uncommon.
  - Potential marker of abuse.
    - Co-occurring fractures.
    - High-energy fractures despite low-energy mechanism (Rosen et al, 2016; Wong et al., 2017).
  - Often difficult to determine cause.
  - May be accidental or non-accidental.
    - History of event may be inaccurate as reported.
      - Rosen et al., 2016 study, “significant percentage of patients suffering from elder abuse…” were initially reported to have fallen.
        →

Older Adult Abuse and Fractures (cont.):

- Fractures in older adult population (cont.):
  - Wrist fracture common in older adults who fall.
  - Alcoholics→ Multiple Falls→ Arm, Leg, Rib Fractures
  - Older adult females with osteoporosis susceptible to vertebral fractures, hip fractures.
    - May be spontaneous. →

Age-Related Changes and Fractures:



Older Adult Abuse and Fractures (cont.):

- Fractures in older adult population (cont.):
  - Fractures present with other forensic markers should increase suspicion for abuse.
  - Fractures of back, head and face in conjunction with other injuries, or health problems should raise suspicion for abuse (Gironda et al., 2016).
    - Health issues may mask markers of abuse and neglect.
  - Long bone fractures with a rotational component (spiral) without mechanism to explain is concerning for abuse (Dyer et al., 2003).
  - Rib/thoracic fractures may occur with blunt-force to the chest.

Older Adult Abuse and Fractures (cont.):

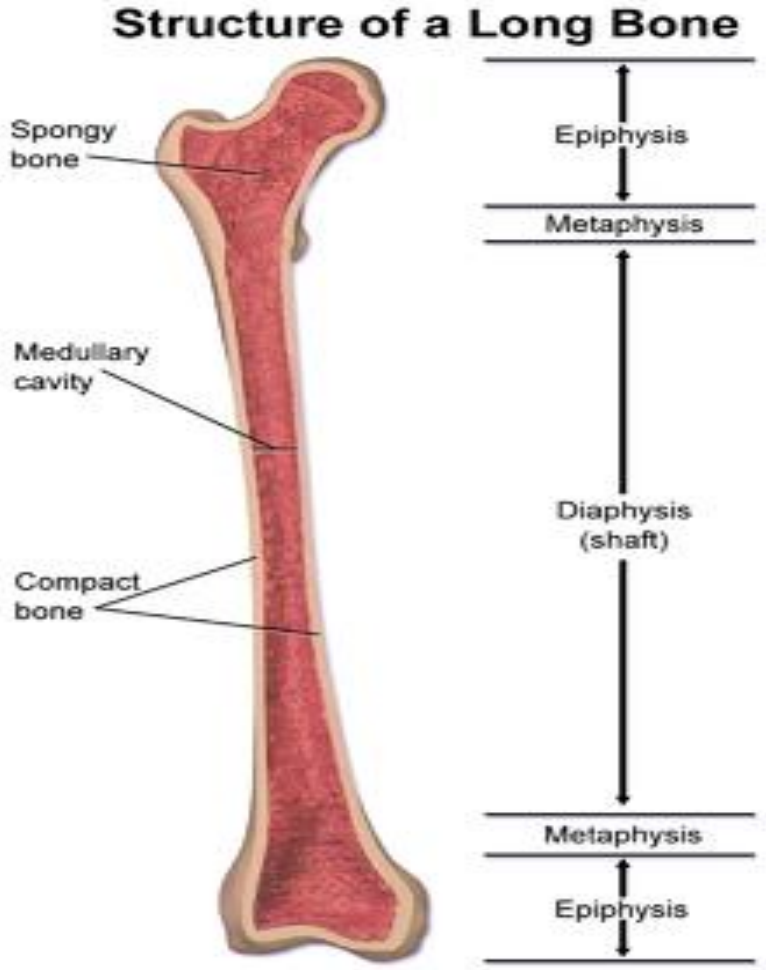
- Older adults with elder abuse and fractures, increased likelihood to have correlate of abuse:
  - Over age 80.
  - Dementia.
  - Seeking ED care.
  - Only one visit to healthcare facility in previous three years.
  - Fracture non-fall related.
  - Head or face fracture (Gironda et al., 2016).

Older Adult Abuse and Radiological Imaging Findings:

- Little is known in the radiology literature regarding older adult abuse, as compared to child abuse literature and radiologic findings.
- Many of same imaging findings used to identify child abuse are present in older adult abuse cases (Wong et al., 2017).
- Must ascertain whether injury is consistent with mechanism of injury (MOI) provided (X-ray orders should state any history known).
- Chronic bony injuries may be ignored and felt to be related to old age.
  - Must consider all of the possibilities, as to cause, as with physical skin injuries.

Older Adult Abuse and Radiological Imaging Findings (cont.):

- Radiographic Findings Possibly Suggestive of Elder Abuse:
  - **Injuries not consistent with (c/w) reported MOI.**
  - **Injuries in various stages of healing, especially maxillofacial area and upper extremities** (Wong et al, 2017).
    - 2/3rd of injuries to maxillofacial area and upper extremities (Murphy et al., 2013).
  - **Injury patterns not usually seen in accidental injury (i.e. ulnar diaphysis fracture-usually a defensive injury) (Wong et al., 2017).**



Case Study...

Role of the Healthcare Provider:

- Documentation (both written and photographic).
  - History of the event.
    - Use the patient's terminology.
  - Complaints/medical problems/diagnoses (by MDs).
  - Home environment (food, shelter, supplies, etc.) as appropriate.
  - Hx of prior violence.
  - Prior injuries and history of event (s).
  - Description of threats or other emotional abuse.
  - Injuries

Interview Considerations in the Older Adult Population:

- Similar questions regarding event history as with other adults.
- Age may impact ability to describe the incident, current symptoms, and ability to understand exam procedure.
- Sudden awareness of “vulnerability and mortality as a result of the assault” (Commission on the Standardization of the Collection of Evidence in Sexual Assault Investigations, 1998 as cited in Hammer, Moynihan and Pagliaro, 2006)…

Role of the Healthcare Provider (cont.):

(Documentation cont.):

- Improper care of medical problems, untreated injuries, poor hygiene, delay in seeking care.
- Depression or other mental illness.
  - Should consider suicide (and homicide) risk.
- Cognitive impairment and extent.
  - Older adults with dementia "can reliability report emotional event in their lives" (Wiglesworth & Mosqueda, 2009, p. 1)
- Drug or ETOH abuse.
- Relationship with caregivers.
  - Who are they?
  - What do they report happened?

Role of the Healthcare Provider:

- Full head-to-toe physical examination (PE).
  - May need assistance with holding legs during pelvic exam, smaller speculum may be required.
  - Full skin assessment:
    - Should be careful not to assume an injury is accidental without considering all possibilities as to cause.

Role of the Healthcare Provider (cont.):

- Labs may include as ordered by MD and as appropriate:
  - Chemistry Panel: Malnutrition, electrolyte imbalances, dehydration, kidney function, alcohol abuse, nutritional status…
  - Complete Blood Cell Count with differential (CBC w/diff): Anemia, malnutrition…
  - Prothrombin and partial thromboplastin time: Coagulopathy…
  - Thyroid function tests…to r/o hyperthyroidism if weight loss…
  - Urine as appropriate…
  - Medication levels…to evaluation whether therapeutic level…

Role of the Healthcare Provider (cont.):

- Imaging studies as ordered by MD.
  - Assist in confirming suspicions of mistreatment with history of event and PE. May include chest X-ray and imaging of any area in which injury is suspected.
  - Skeletal survey may be indicated:
    - Multiple injury sites.
    - Patient has cognitive issues.
    - Strong suspicion for abuse (Chen & Koval, 2002).

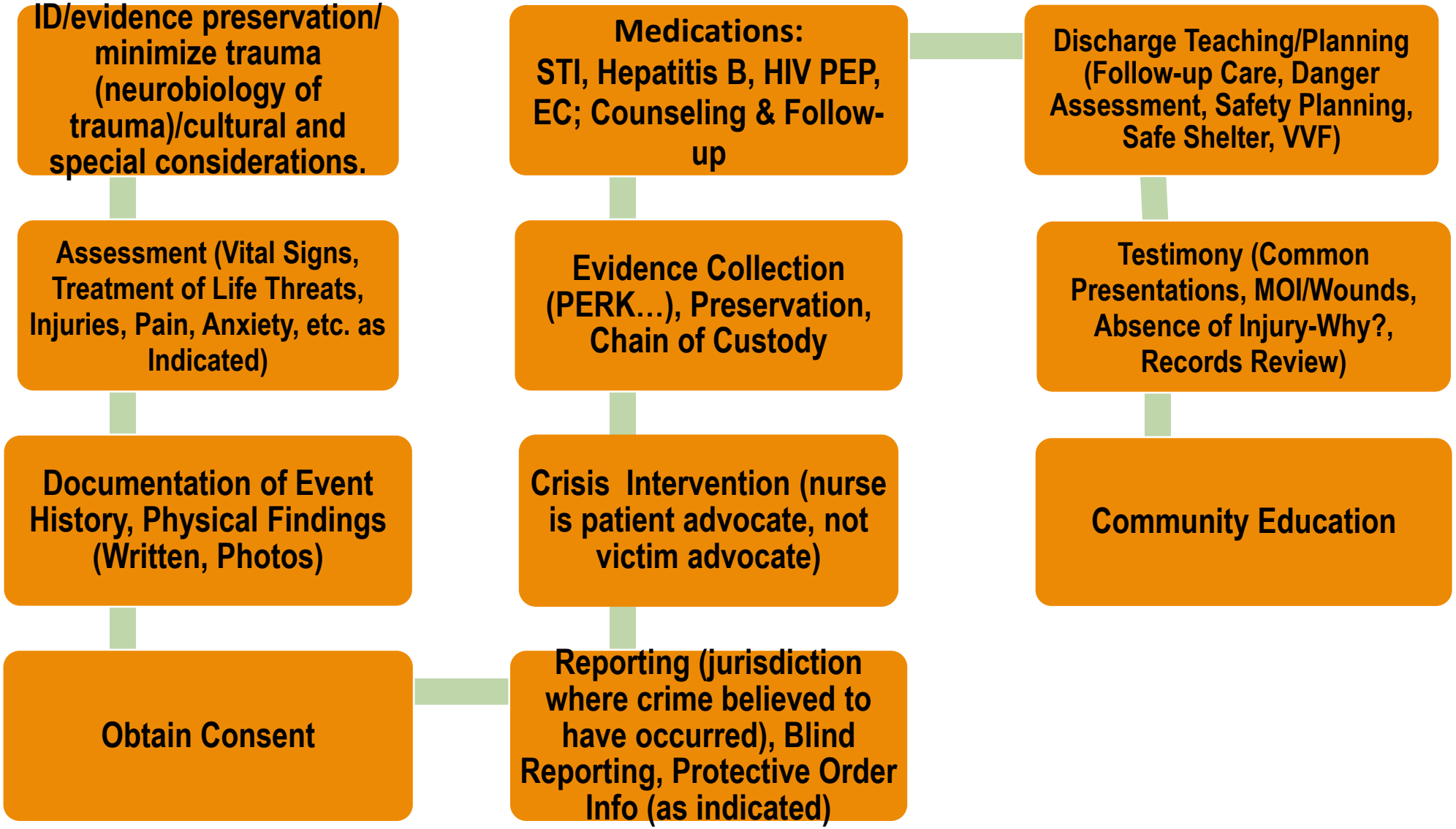
Role of the Healthcare Provider (cont.):

- Reporting to APS or social services agency (and as required by licensing authorities) as per state law.
  - Ideally care should be coordinated through a multidisciplinary team (MDT).
- Assessment of Danger:
  - Is the patient in imminent danger of harm, or with medical issues receiving serious inattention?
  - Has the caregiver threatened to kill patient or self?
  - Are there weapons in the home?
  - Has the caregiver hurt pets?????
  - Has abuse increased in severity or frequency recently?

Role of the Healthcare Provider (cont.):

- Should not return home if in potential danger until issues of mistreatment are addressed.
- May need to be hospitalized.
  - Older victims more likely to require admission after assault.
  - ? Release to care of reliable friend or family member.
  - ? Shelter.
- Assist with resources (League of Older Americans (LOA) Agency on Aging, Social Services…)
- Education to other providers responsible for assisting older adults.
- Prevention:
  - American Burn Association Resources.

Role of the Forensic Nurse in Caring for Patients with Complaint of Violence:



STD, HIV, Hepatitis B and Emergency Contraception (included as an FYI) Resources:

STD:

https://www.cdc.gov/std/tg2015/tg-2015-print.pdf

NPEP:

https://www.cdc.gov/hiv/pdf/programresources/cdc-hiv-npep-guidelines.pdf

Emergency Contraception (for incapacitated adults):

http://ec.princeton.edu/questions/ec-review.pdf

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