

Forensic Markers: Discerning Between Accidental and Abusive Injuries

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Elder Mistreatment: Prevention and Detection

At the end of this presentation the participant will :

1. Understand the meaning of “forensic markers” and how the concept applies to diagnosing elder mistreatment
2. How to distinguish between injuries due to abuse vs those due to innocent causes
3. Know what and how to document the injuries using the Geri IDT

Normal & Common Changes

Musculoskeletal

Integument

Renal

Etc

Understanding the functional status of the older adult helps to understand the *risk & context* for abuse or neglect

Contextual Factors

- **Functional** issues
 - ADLs and IADLs
 - Need for assistance
- **Social** complexities
 - Family conflict
 - Caregivers, paid and unpaid
- Questions about **cognition**
 - Capacity to make decisions
 - Dementia

Forensic Markers of Abuse

It's often hard to distinguish between an injury due to abuse and one due to an innocent cause.

**“Of course they have a _____,
they're old!”**

- Pressure sore
- Fracture
- Bruise

Bruises in Older Adults

Accidental (n = 101)

- 90% on extremities
- 10% mostly on trunk
- Not on neck, ears, soles, genitalia, buttocks
- 25% remembered cause
- If suspicious-looking, had reasonable explanation

Inflicted (n = 67)

- More likely on head, face neck, chest, abdomen, palms, soles, buttocks
- On multiple planes; patterns
- Larger (>5 cm); deeper; took longer to resolve
- 90% remembered cause of at least one bruise

Mosqueda L, Burnight K, Liao S. The life cycle of bruises in older adults. JAGS. 2005.

Wiglesworth A, Austin R, Corona M, et al. Bruising as a marker of physical elder abuse. JAGS. 2009.

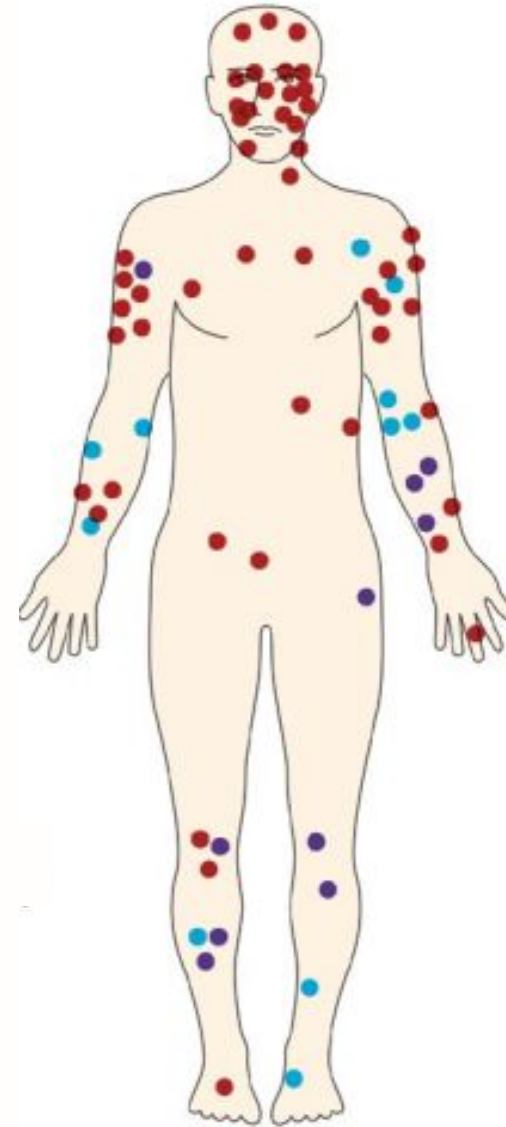
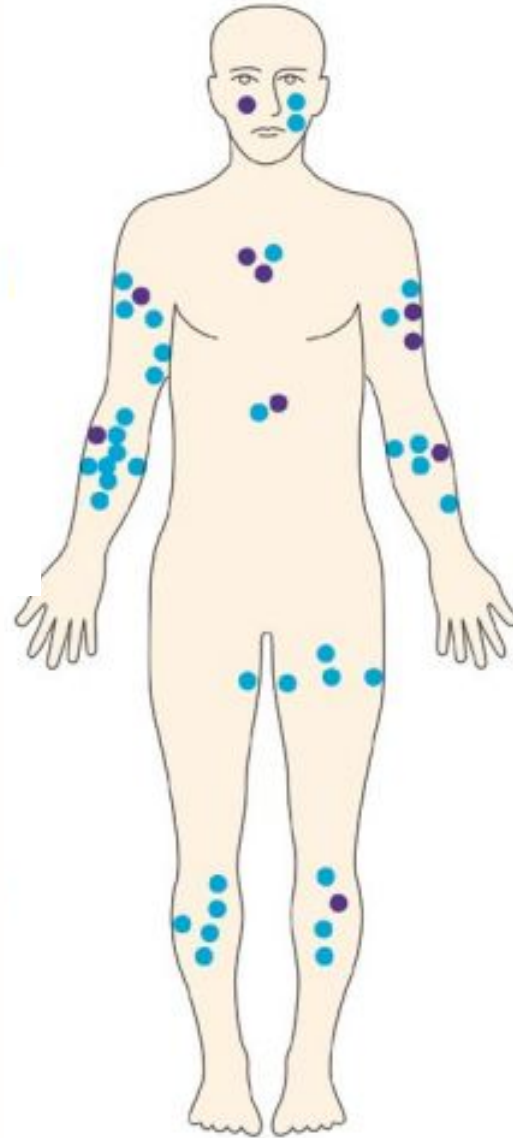
Accidental

Inflicted

Anterior

**ORIGIN OF BRUISE
(as reported by elder)**

- Unknown
- Accidental
- Inflicted



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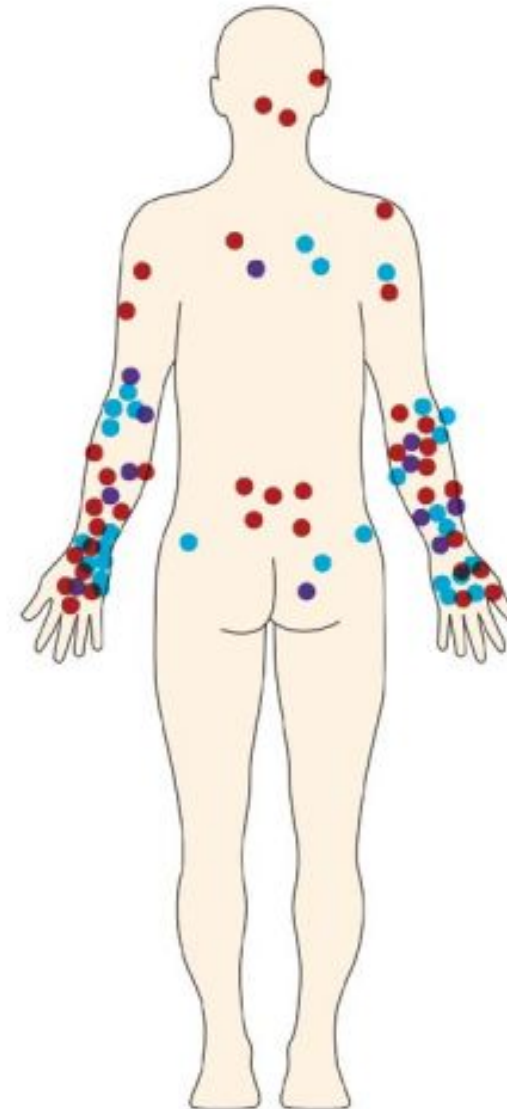
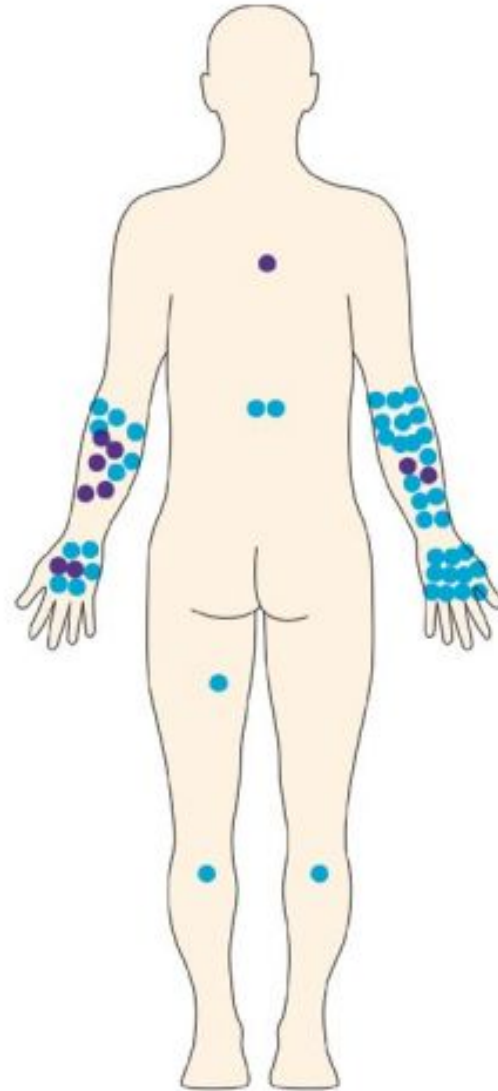
Accidental

Inflicted

Posterior

**ORIGIN OF BRUISE
(as reported by elder)**

- Unknown
- Accidental
- Inflicted



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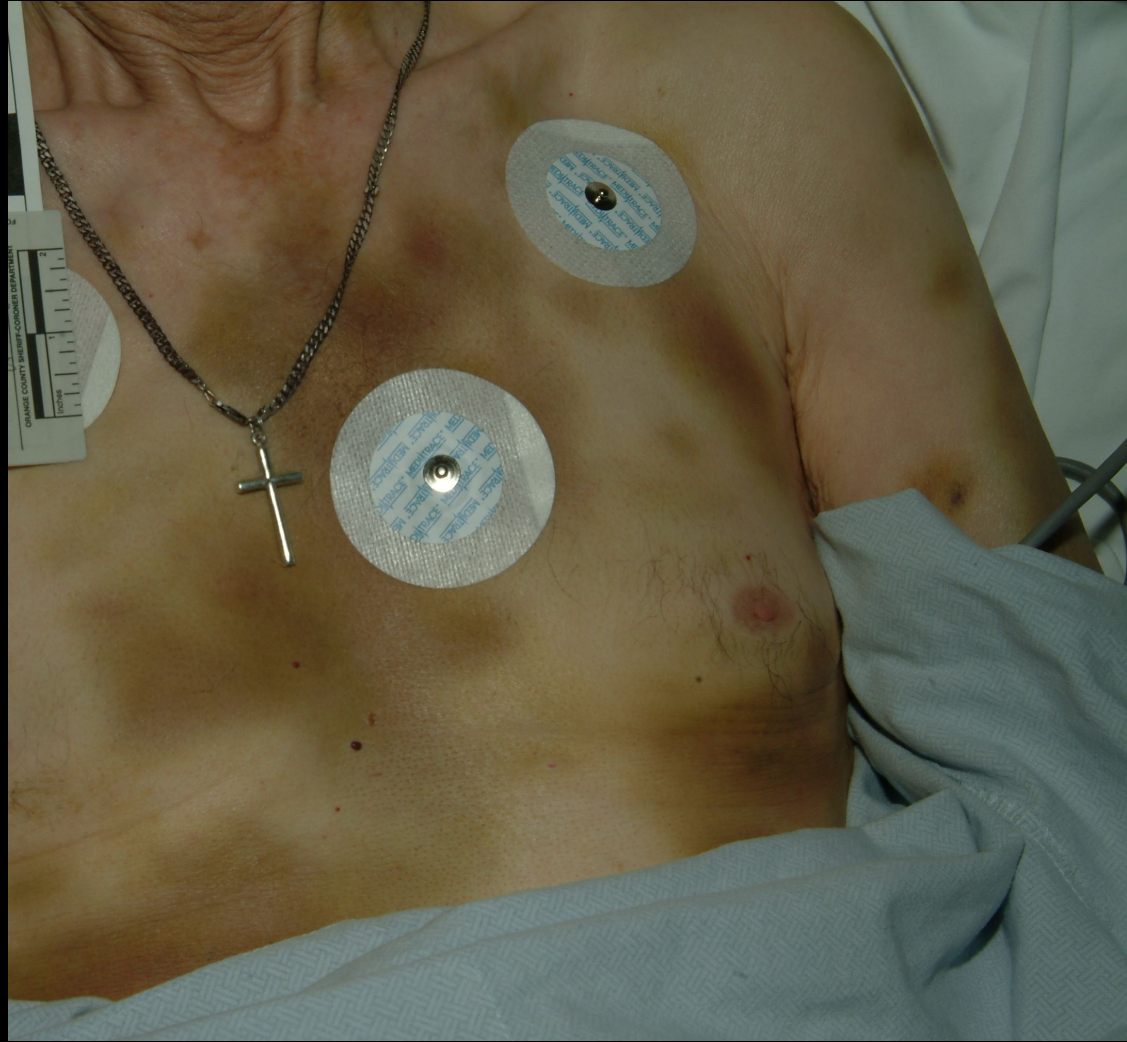
Warning

The following images of bruising may be disturbing to some people.









Injury Pattern Study

Injury pattern comparison:

Injuries of physical
abuse victims as
proven in court

VS.

Injuries of people in ED
for unintentional fall

- 22% of people who were physically abused ***did not*** have any visible injuries but they had pain, most commonly in torso, face, neck areas and upper extremities

Rosen T, LoFaso VM, Bloemen EM, et al. Identifying Injury Patterns Associated With Physical Elder Abuse: Analysis of Legally Adjudicated Cases. *Ann Emerg Med.* 2020

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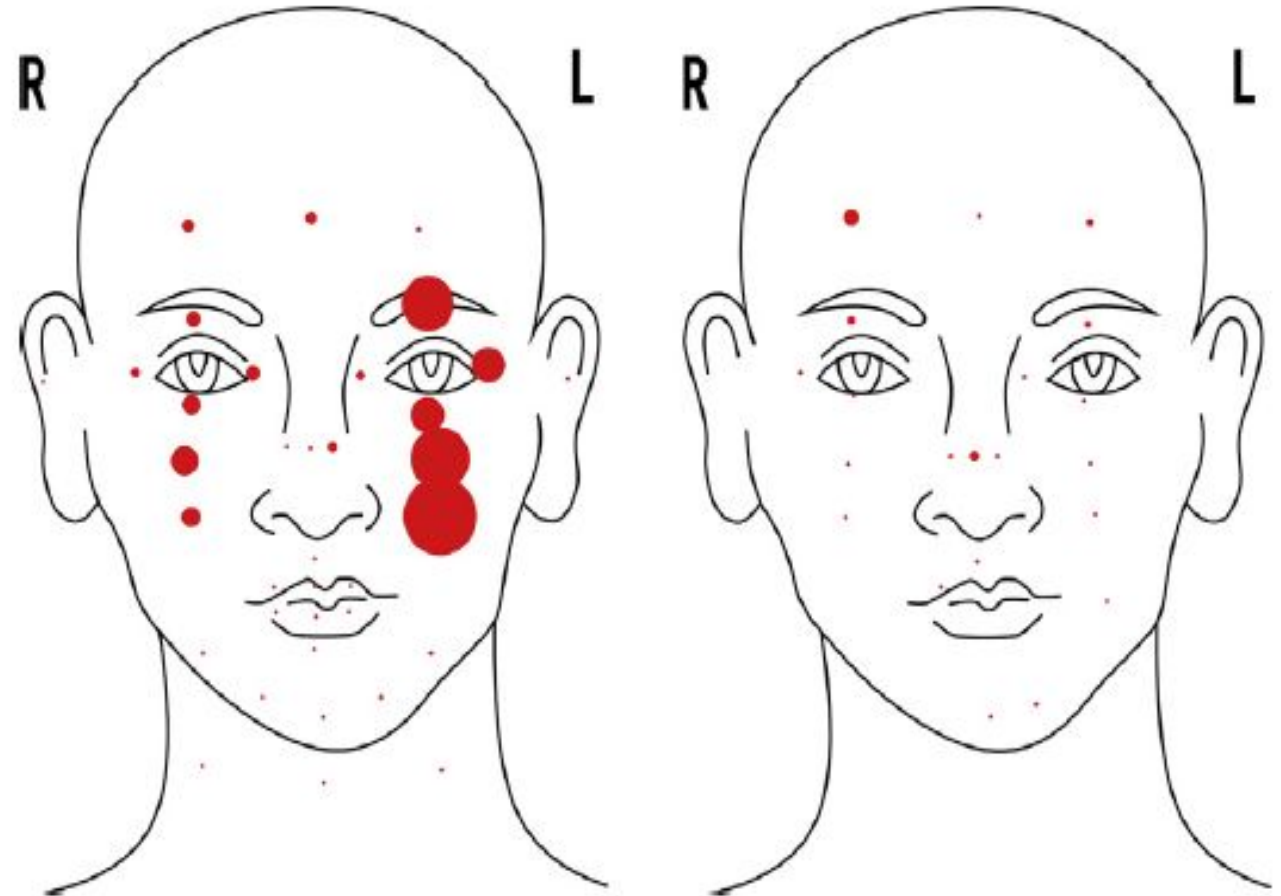
More injuries on left side of face (more assailants right-handed)

Neck injuries 6x more likely in assault (typically protected during a fall)

Ear injuries in assaults, but not in falls

Physical Abuse

Unintentional Fall

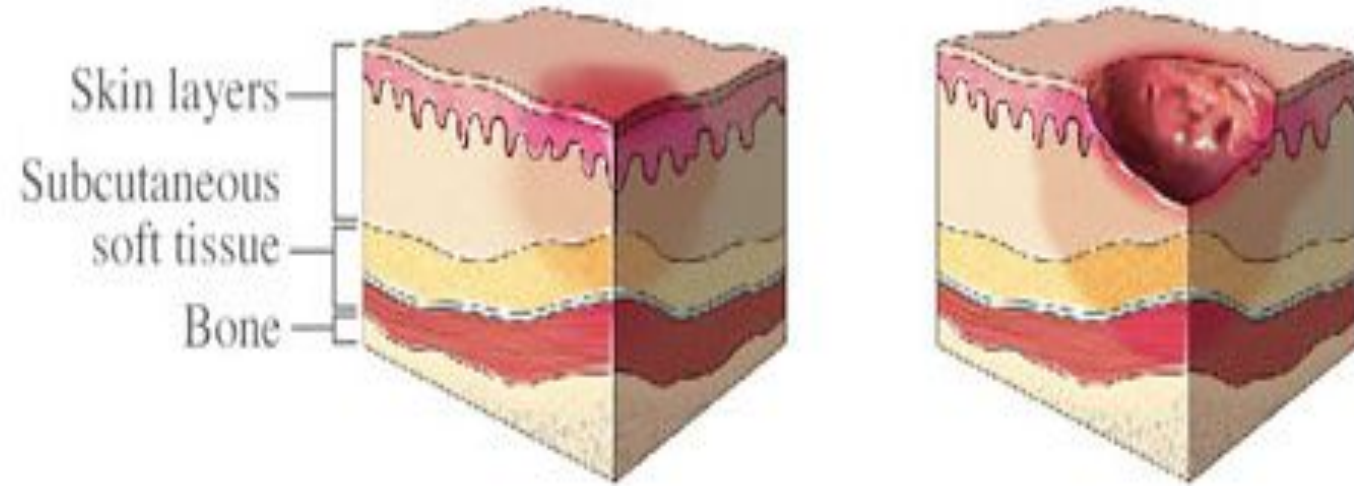


Rosen T, LoFaso VM, Bloemen EM, et al. Identifying Injury Patterns Associated With Physical Elder Abuse: Analysis of Legally Adjudicated Cases. *Ann Emerg Med.* 2020

Pressure Sores

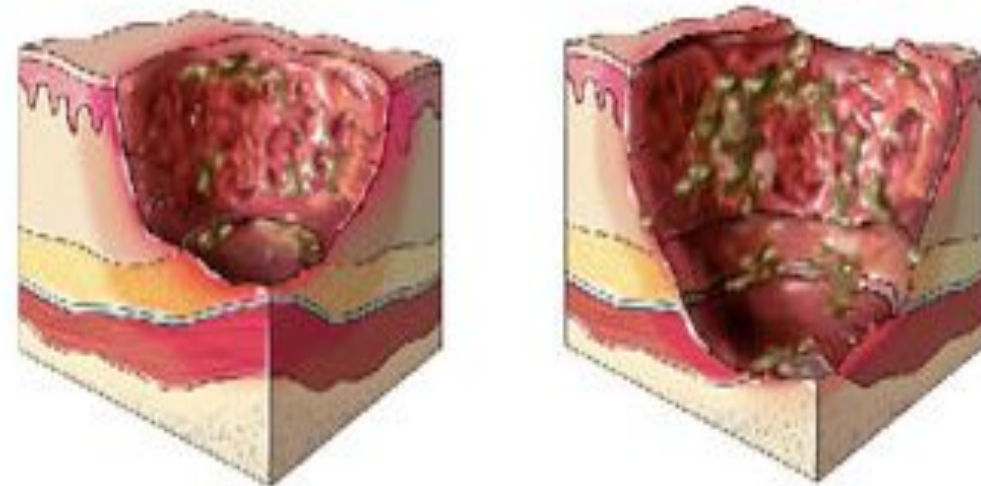
Stage 1

Stage 2



Stage 3

Stage 4



Warning

The following images of pressure sores may be disturbing to some people.

Decubitus ulcer – Stage II



Was this from abuse/neglect?



Other potential forensic markers

- Burns
- Contractures
- Lacerations + Abrasions
- Fractures
- Subdural hematomas
- Behavioral changes

Geriatric Injury Documentation Tool

To assist clinicians to document physical findings in injured older adults

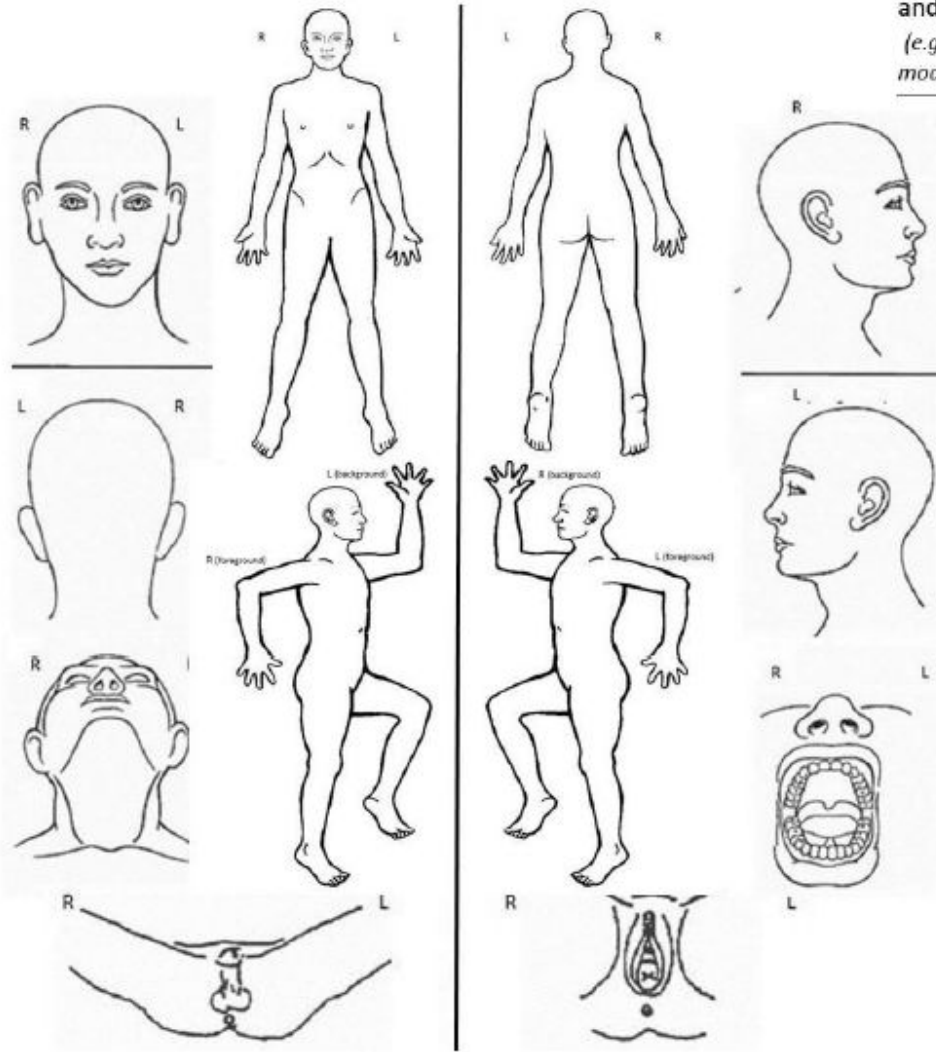
IDT does 2 things:

- Makes it easier to document physical findings
- Reminds you what to look for and document

Kogan AC, Rosen T, Navarro A, Homeier D, Chennapan K, Mosqueda L. Developing the Geriatric Injury Documentation Tool (Geri-IDT) to Improve Documentation of Physical Findings in Injured Older Adults. J Gen Intern Med. 2019

Conduct a complete head-to-toe physical examination and describe in detail all physical findings on the patient, even those that you do not consider clinically significant or related to their presenting complaint. Please note all areas **where pain or tenderness is present** if there is no visible evidence of injury.

Please number each finding indicated on the body diagram and describe the physical characteristics:
 (e.g. 1=5cm jagged laceration, with redness and swelling, soiled dressing, moderate odor)



- Finding 1:
- Finding 2:
- Finding 3:
- Finding 4:
- Finding 5:
- Finding 6:
- Finding 7:
- Finding 8:
- Finding 9:
- Finding 10:

Patient's Name: _____
 MRN: _____ DOB: ____/____/____

Clinician's name (print): _____
 Signature: _____ Date: ____/____/____

Medication Misuse and Laboratory Markers

Medication Misuse

- Overdosing or under dosing of prescription medication
 - Withholding pain medication
 - Overdosing to induce sedation
- Failing to follow health care instructions for monitoring drug level or dosing adjustments
 - Blood thinners
 - Insulin

LoFaso VM, Rosen T. Medical and laboratory indicators of elder abuse and neglect. Clin Geriatr Med. 2014

Laboratory Findings

- Dehydration
- Malnutrition
- Rhabdomyolysis



Laboratory Findings (cont.)

- **Infections**

- STI
- Aspiration pneumonia
- Infected pressure injuries

- **Toxicology**

- ETOH
- Cannabis
- Amphetamines
- Narcotics
- Sedatives/Hypnotics



Case Study