If you are experiencing any technical issues with the audio for this session, please let us know in the feedback box.

If you have technical difficulties during the webinar, contact Danielle McLean, who is providing technical support for this webinar. Her email address is dmclean@ovcttac.org.

Today’s session will be recorded and made available on the training website.

If you have questions, type them in the feedback box. We will address as many as possible throughout the webinar.
TODAY’S WEBINAR

Improving Emergency Department Identification of Elder Abuse: Findings from Forensic Research

Tony Rosen, M.D., M.P.H.
Instructor in Medicine
Division of Emergency Medicine
Weill Cornell Medical College
ELDER JUSTICE INITIATIVE

• The **mission** is to support and coordinate the Department of Justice’s enforcement and programmatic efforts to combat elder abuse, neglect, and financial fraud and scams that target older adults.

• The Initiative does so by—
  • Promoting justice for older adults.
  • Helping older victims and their families.
  • Enhancing state and local efforts through training and resources.
  • Supporting, organizing, and presenting research to improve elder abuse policy and practice.
Introducing

Anthony E. Rosen, M.D., M.P.H., is an instructor of medicine at the Weill Cornell Medical College and a practicing emergency physician at New York-Presbyterian Hospital.
Improving Emergency Department Identification of Elder Abuse: Findings from Forensic Research

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Instructor in Medicine
Division of Emergency Medicine
Weill Cornell Medical College

Discussion with:
Sidney M. Stahl, Ph.D.
USDOJ Research Consultant
No financial conflicts of interest to disclose.
ELDER ABUSE

• Common and has serious consequences
  • 10% experience abuse or neglect each year
  • Victimization increases risk of mortality, emergency department presentation, hospitalization, nursing home placement, depression

• Under-recognized and under-reported
  • As few as 1 in 24 cases identified
IDENTIFYING ELDER ABUSE

ED AN IMPORTANT OPPORTUNITY

• Evaluation by health care provider may be only time abused older adult leaves the home

• Abuse victim less likely to see a primary care provider, more likely to present to an ED
  • *EDs typically manage acute injuries and illnesses*
IDENTIFYING ELDER ABUSE

HEALTH CARE AN IMPORTANT OPPORTUNITY

• Evaluation by health care provider may be only time abused older adult leaves the home

• Abuse victim less likely to see a primary care provider, more likely to present to an ED
  - EDs/hospitals typically manage acute injuries and illnesses

ED may be an ideal opportunity to identify and intervene

• Varied disciplines observing a patient
• Evaluation typically prolonged
• Resources available 24/7

BUT...
IDENTIFYING ELDER ABUSE IN THE ED

BARRIERS/DISINCENTIVES

ED providers seldom identify or report

- Lack of time to conduct a thorough evaluation
- Lack of awareness or inadequate training
- Fear and distrust of the legal system
- Denial by patient him/herself
- Ambiguities surrounding decisionmaking capacity in victimized older adults
- Absence of a protocol for a streamlined response

Difficulty distinguishing abuse from accidental trauma or illness

CHALLENGES IN ELDER ABUSE FORENSICS
THE BATTERED-CHILD SYNDROME

C. Henry Kempe, M.D., Denver, Frederic N. Silverman, M.D., Cincinnati, Brandt F. Steele, M.D., William Droegemueller, M.D., and Henry K. Silver, M.D., Denver

Professor and Chairman (Dr. Kempe) and Professor of Pediatrics (Dr. Silver), Department of Pediatrics; Associate Professor of Psychiatry (Dr. Steele), and Assistant Resident in Obstetrics and Gynecology (Dr. Droegemueller), University of Colorado School of Medicine; and Director, Division of Roentgenology, Children’s Hospital (Dr. Silverman).

Abstract—The battered-child syndrome, a clinical condition in young children who have received serious physical abuse, is a frequent cause of permanent injury or death. The syndrome should be considered in any child exhibiting evidence of fracture of any bone, subdural hematomas, failure to thrive, soft tissue swellings or skin bruising, in any child who dies suddenly, or where the degree and type of injury is at variance with the history given regarding the occurrence of the trauma. Psychiatric factors are probably of prime importance in the pathogenesis of the disorder, but knowledge of these factors is limited. Physicians have a duty and responsibility to the child to ensure a full evaluation of the problem and to guarantee that no expected repetition of trauma takes place.

- Bruising of ears, cheeks, buttocks, palms, soles, neck, genitals
- Bruising not over bony prominences
- Bruising in children too young to ambulate
- Metaphyseal fracture
- Multiple posterior rib fractures
- Spinous process fractures
- Burn with immersion pattern
- Subdural hematoma
- Retinal hemorrhages
ELDER ABUSE VS. CHILD ABUSE

CONFIDENTLY IDENTIFYING ELDER ABUSE IS HARDER

• Physiologic changes in aging
• Common medications
• Varied functional status

MUCH LESS EVIDENCE TO ASSIST IN ELDER ABUSE FORENSICS

More than 1,000 peer-reviewed articles systematically examining child abuse-related injuries vs.

Distinguishing abuse from accidental trauma or illness
OBJECTIVE

To identify *injury patterns* associated with physical elder abuse
IMPROVING IDENTIFICATION OF ABUSE

METHODOLOGIC CHALLENGE
Identifying definitive instances of elder abuse to study in detail

SOLUTION
• Comprehensive analysis of legal files from highly adjudicated physical elder abuse cases in which the presence of abuse is indisputable
  • Focus on photographs of injuries, medical records

Brooklyn District Attorney
Elder Abuse Unit
Case-control study comparing injury patterns, physical findings, forensic biomarkers, and photographic evidence from Physical elder abuse victims to Geriatric patients presenting to the Emergency Department after accidental fall
Developed and evaluated a standardized protocol for photographing injuries by non-photographers in the acute care setting.

Table: Body Positioning to Photograph Injuries on the Arm

<table>
<thead>
<tr>
<th>Diagram</th>
<th>Region of the Arm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Radial / Anteromedial Surface</td>
</tr>
<tr>
<td></td>
<td>Dorsal / Lateral Surface</td>
</tr>
<tr>
<td></td>
<td>Ulnar / Posterior lateral Surface</td>
</tr>
<tr>
<td></td>
<td>Volar / Medial Surface</td>
</tr>
<tr>
<td></td>
<td>Elbow</td>
</tr>
</tbody>
</table>
PHOTOGRAPHY PROTOCOL

General Principles

- Include identifiable information
- Use a ruler & color guide
- 90° angle to the injury
- Hold the ruler 1-2” off the skin
- Cover the patient as much as possible

Figure: Photos Required for Each Injury

<table>
<thead>
<tr>
<th>x4 4 photos of each injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1: Distance photo with ruler</td>
</tr>
<tr>
<td>#2: Distance photo without ruler</td>
</tr>
<tr>
<td>#3: Close-up photo with ruler</td>
</tr>
<tr>
<td>#4: Close-up photo without ruler</td>
</tr>
</tbody>
</table>

Super-close-ups for small injuries

- Use Zoom function to place injury in majority of viewfinder.
- Document zoom setting used.
- Take photographs with (#5) and without (#6) the ruler.
PHOTOGRAPHY PROTOCOL

Appropriate body positioning for 8 body regions

- Skull/Brain
- Maxillofacial/Dental/Neck
- Arms
- Hands
- Legs
- Feet
- Chest/Abdomen/Back
- Pelvis/Buttocks
<table>
<thead>
<tr>
<th>Diagram</th>
<th>Description</th>
<th>Injury Location(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Diagram" /></td>
<td>Have the subject sit with their arm at their side and relaxed. Stand in front of the subject facing them with your shoulders parallel to theirs, and position yourself directly in front of the injured arm.</td>
<td>Radial/anterolateral surface</td>
</tr>
<tr>
<td><img src="image2" alt="Diagram" /></td>
<td>Have the subject sit with their arm at their side and relaxed. Stand directly to the side of the subject, so that their shoulders and your shoulders are perpendicular.</td>
<td>Dorsal/lateral surface</td>
</tr>
<tr>
<td><img src="image3" alt="Diagram" /></td>
<td>Have the subject sit with their arm at their side and relaxed. Stand behind the subject facing the back of their head with your shoulders parallel to theirs, and position yourself directly behind the injured arm.</td>
<td>Ulnar/posterolateral surface</td>
</tr>
<tr>
<td><img src="image4" alt="Diagram" /></td>
<td>Move to stand across the bed from the subject’s injured arm. Stand so that their shoulders and your shoulders are perpendicular. Have the other RA stand directly in front of and to the side of the injured arm. Have the subject hold their arm straight out, thumb up, and place their hand in the other RA’s hand.</td>
<td>Volar/medial surface</td>
</tr>
<tr>
<td><img src="image5" alt="Diagram" /></td>
<td>Have the subject take their hand with the injured arm and place it on their opposite shoulder. Stand directly in front of the subject.</td>
<td>Elbow</td>
</tr>
</tbody>
</table>
PHOTOGRAPHY PROTOCOL

#1 Distance Photo With Ruler

#2 Distance Photo Without Ruler

#3 Close-Up Photo With Ruler

#4 Close-Up Photo Without Ruler
OVERCOMING METHODOLOGIC ISSUES
CLASSIFICATION SYSTEM

Developed a comprehensive classification system/taxonomy to describe geriatric injuries.

INJURY TYPES
- Bruise
- Hematoma / Swelling
- Abrasion
- Laceration
- Fracture
- Dislocation
- Burn
- Decubitus Ulceration
- Skin Tear
- Puncture/Stab Wound
- Bite
- Traumatic Alopecia
- Traumatic Tooth Loss
- Other

1. Determine type of injury

CHARACTERISTICS FOR ALL INJURIES
- Body region(s)
- Precise location(s)
- Mechanism (per patient)
- Implement (per patient)
- Mechanism (per caregiver/family/other)
- Interval between injury and evaluation (per patient)
- Interval between injury and evaluation (per caregiver/family/other)

2. Assign values to each of the characteristics common to all geriatric injuries

CRITICAL ADDITIONAL CHARACTERISTICS
8-12 characteristics relevant for description of specific injury types

3. Assign values to additional characteristics relevant for specific injuries

Skin Tear
- Additional Characteristics
  - Maximum length (cm)
  - Maximum width (cm)
  - Flap tissue loss
  - Flap color

Flap Tissue Loss
- Options for Skin Tear
  - No skin loss
  - Partial flap loss
  - Total flap loss
  - Not specified

This is the ISTAF Skin Tear Classification System from:

Flap Color
- Options for Skin Tear
  - Pale, dusky, or darkened
  - Not pale, dusky, or darkened
  - Not specified

RESEARCH UPDATE/PRELIMINARY FINDINGS

- Have examined 100 cases of physical elder abuse, enrolled 300 fall victims in NYP/WCMC ED

Table 1: Characteristics of injuries of physical elder abuse victims vs. matched geriatric accidental fall victims presenting to an urban ED

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<td>75</td>
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<td>0.009</td>
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<tr>
<td>Abrasion</td>
<td>32</td>
<td>51</td>
<td>0.03</td>
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<tr>
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Physical elder abuse victims were more likely to have injuries in the:

- **Left peri-orbital area** (20% vs. 7%, \( p=0.04 \))
  Supports existing literature examining younger adult assault victims, which has found that left-sided facial injuries are more frequent after assault than right-sided, likely because most assailants are right-handed

- **Ulnar forearm** (10% vs. 2%, \( p=0.06 \))
  Confirms previous research and the hypothesis that this pattern of injury may occur when a victim defends him/herself from an abuser

- **Neck** (9% vs. 0%, \( p=0.01 \))
  Confirms our finding in examination of National Trauma Databank
FOCUS ON PRECISE LOCATIONS

- **Ulnar forearm** (10% vs. 2%, p=0.06)
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- **Neck** (9% vs. 0%, p=0.01)
  Confirms our finding in examination of National Trauma Databank

*May represent potentially pathognomonic injury patterns*
PRELIMINARY CONCLUSIONS

• Specific, clinically identifiable differences may exist between unintentional injuries and those from physical elder abuse
  • Bruising and injuries on the maxillofacial/dental/neck region, particularly the left peri-orbit, more common in abuse
  • Injuries to the ulnar forearm and neck occurred in abuse but very seldom in accidental injury
LIMITATIONS

• Information in legal case files not intended for research often incomplete, with photographs and/or medical records missing

• Focusing on highly adjudicated cases elucidates characteristics only of elder abuse victims that have been identified

• Comparison group of ED fall victims may differ significantly from cases in unmeasured ways

• Patterns in elder abuse injury in a single urban area may not be generalizable
FUTURE RESEARCH/NEXT STEPS

• Prospectively enroll and comprehensively evaluate victims of physical elder abuse to test our injury pattern findings

• Derive and validate a clinical prediction rule to assist busy clinical providers in identifying physical elder abuse
Play a critical role in the detection of child abuse in the ED, but imaging correlates of elder abuse have not been described.

Qualitative Interview Research: Diagnostic Radiology Perspectives

- Few radiologists reported receiving any formal or informal training in elder abuse detection.
- Even experienced radiologists reported *never* having received a request from a referring physician to assess images for evidence suggestive of elder abuse.

Believe imaging correlates of elder abuse likely exist

Table 2: Radiographic Findings Potentially Suggestive of Elder Abuse, Per Radiologists

<table>
<thead>
<tr>
<th>Upper/posterior/multiple rib fractures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple subdural hematomas (particularly of different ages)</td>
</tr>
<tr>
<td>Skull fracture</td>
</tr>
<tr>
<td>Small bowel hematomas</td>
</tr>
<tr>
<td>Injuries in multiple stages of healing</td>
</tr>
<tr>
<td>Injuries inconsistent with mechanism</td>
</tr>
<tr>
<td>Multiple fractures and head trauma</td>
</tr>
<tr>
<td>Spiral fracture</td>
</tr>
<tr>
<td>Brain volume loss secondary to malnutrition</td>
</tr>
<tr>
<td>Decubitus ulcers</td>
</tr>
</tbody>
</table>
Reviewing case where victim reported being struck by cane and alleged abuser reported “he fell”

Ulna does not anatomically support the wrist, so you wouldn’t expect distal or mid-shaft ulnar fractures after a FOOSH

This supports our research that ulnar forearm injured in physical elder abuse but not unintentional falls


## IDENTIFYING ELDER ABUSE

### Physical Signs Suspicious for Potential Elder Abuse

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Physical Abuse</td>
</tr>
<tr>
<td>Sexual Abuse</td>
</tr>
<tr>
<td>Neglect</td>
</tr>
</tbody>
</table>
## POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

### PHYSICAL ABUSE

- Bruising in atypical locations
- Patterned injuries
- Wrist or ankle lesions or scars
- Burns
- Multiple fractures or bruises of different ages
- Traumatic alopecia or scalp hematomas
- Subconjunctival, vitreous, or retinal ophthalmic hemorrhages
- Intraoral soft tissue injuries

Some “falls” are actually abuse
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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  • Burns
  • Multiple fractures or bruises of different ages
  • Traumatic alopecia or scalp hematomas
  • Subconjunctival, vitreous, or retinal ophthalmic hemorrhages
  • Intraoral soft tissue injuries

• *Not over bony prominences*
• *On lateral arms, back, face, ears, or neck*

Atypical bruising of the chest in a case of substantiated abuse
Photo courtesy of: Center of Excellence on Elder Abuse and Neglect, University of California, Irvine, CA

Bruising on ear in abused elderly woman
## POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

### PHYSICAL ABUSE

- Bruising in atypical locations
- **Patterned injuries**
- Wrist or ankle lesions or scars
- Burns
- Multiple fractures or bruises of different ages
- Traumatic alopecia or scalp hematomas
- Subconjunctival, vitreous, or retinal ophthalmic hemorrhages
- Intraoral soft tissue injuries

**Bite marks**

**Injury consistent with the shape of a belt buckle, fingertip, or other object**

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*Photo courtesy of: L. Gibbs, MD, Orange, CA*
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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*Suggesting restraint*

Ligature mark created by wire used as restraint

Pattern bruising on lower leg from a ligature
Photo courtesy of: L. Gibbs, MD, Orange, CA.

knowing what to look for
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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Particularly stocking/glove pattern suggesting forced immersion or cigarette pattern

Burn injuries on the back and buttocks from scalding water
Photo courtesy of: Center of Excellence on Elder Abuse and Neglect, University of California, Irvine, CA

70-year-old burned by cigarette
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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Contusions at varying stages of healing on his chest and arms as well as a linear patterned injury across left anterior chest

Photo courtesy of D. C. Homeier
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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*knowing what to look for*
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

SEXUAL ABUSE

- Genital, rectal, or oral trauma
- Evidence of sexually transmitted disease
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

SEXUAL ABUSE

- Genital, rectal, or oral trauma
- Evidence of sexually transmitted disease

Including erythema, bruising, lacerations

Bruises on bilateral inner thighs of nursing home resident suggestive of sexual abuse
Photo courtesy of D.C. Homeier
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

SEXUAL ABUSE

- Genital, rectal, or oral trauma
- Evidence of sexually transmitted disease

Elder Sexual Abuse: Preliminary Findings
Holly Ramsey-Klawnik, PhD

ABSTRACT. Twenty-eight cases of suspected elder sexual abuse were identified and described by elder protective service workers. All the victims were female, and 71% experienced significant limitations in capacity for independent functioning and self-protection.
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

NEGLECT

• Cachexia/malnutrition
• Dehydration
• Pressure sores/decubitus ulcers
• Poor body hygiene, unchanged diaper
• Dirty, severely worn clothing
• Elongated toenails
• Poor oral hygiene
## POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

### NEGLECT

- **Cachexia/malnutrition**
- Dehydration
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*Muscle wasting, temporal wasting, sunken eyes*
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

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_Dry mucous membranes, sunken eyes, skin tenting, severe constipation/fecal impaction_
POTENTIALLY SUSPICIOUS PHYSICAL SIGNS

NEGLECT

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• Dehydration
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Knowing what to look for

Case of elder abuse neglect showing MASD and ulcers in the sacrum, buttocks, and thighs
Photo courtesy of L. Gibbs, MD, Orange, CA.

Heel pressure ulcer likely due to restraint evidenced by circumferential ankle bruising
Photo courtesy of D.C. Homeier

Pressure sores in neglected patient
Photo courtesy of D.C. Homeier
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Sacral decubitus ulcer embedded with feces in a case of elder neglect.
Photo courtesy of: Center of Excellence on Elder Abuse and Neglect, University of California, Irvine, CA
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*Elongated toenails in neglect victim.*

Photo courtesy of: D.C. Homester
NEGLECT

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- Dehydration
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- Poor oral hygiene

Poor dentition in a substantiated case of dependent adult neglect.

Photo courtesy of: L. Gibbs, MD, Orange, CA
NOVEL INTERVENTION

Designing the first-of-its-kind, ED-based, multidisciplinary team

Consultation service available 24/7 to assess, treat, and ensure the safety of elder abuse/neglect victims, while also collecting evidence, when appropriate, and working closely with the authorities.

Weill Cornell Medicine
Vulnerable Elder Protection Team

Increase identification and reporting and decrease burden on ED providers similar to existing child protection teams
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- American Geriatrics Society
- Emergency Medicine Foundation
- Society of Academic Emergency Medicine
- New York City Elder Abuse Center
- Weill Cornell Division of Emergency Medicine
- Weill Cornell Division of Geriatrics and Palliative Medicine

Thank you! Any questions?
Questions & Helpful Links

Suggestions can be emailed to

elder.justice@usdoj.gov