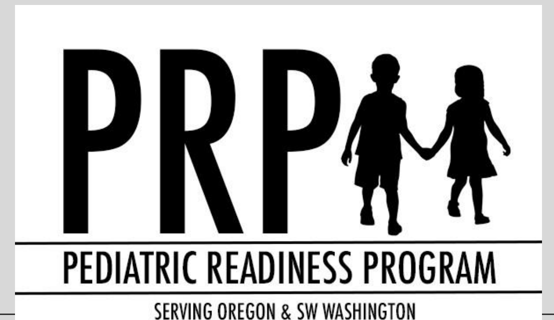
EMERGENCY DEPARTMENT TOP 10: *CHILD ABUSE*

Heather McKeag Swan, MD, FAAP

CARES NW/Randall Children's Hospital

Pediatric Readiness Program Education Session

- This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Legacy Health and Oregon Emergency Medical Services for Children.
- Legacy Health designates this live activity for a maximum of 1.0 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



Objectives

- Identify cases presenting to the emergency department with concerns for abuse
- Feel more comfortable in the evaluation of specific abuse related concerns in the emergency department setting

CME Disclosure

- None of the planners and faculty for this educational activity have relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, reselling, or distributing healthcare products used by or on patients.

Randall Children's Hospital ED → CARES NW

January thru July 2023: 502 children

Patient w child abuse concerns in RCH ED

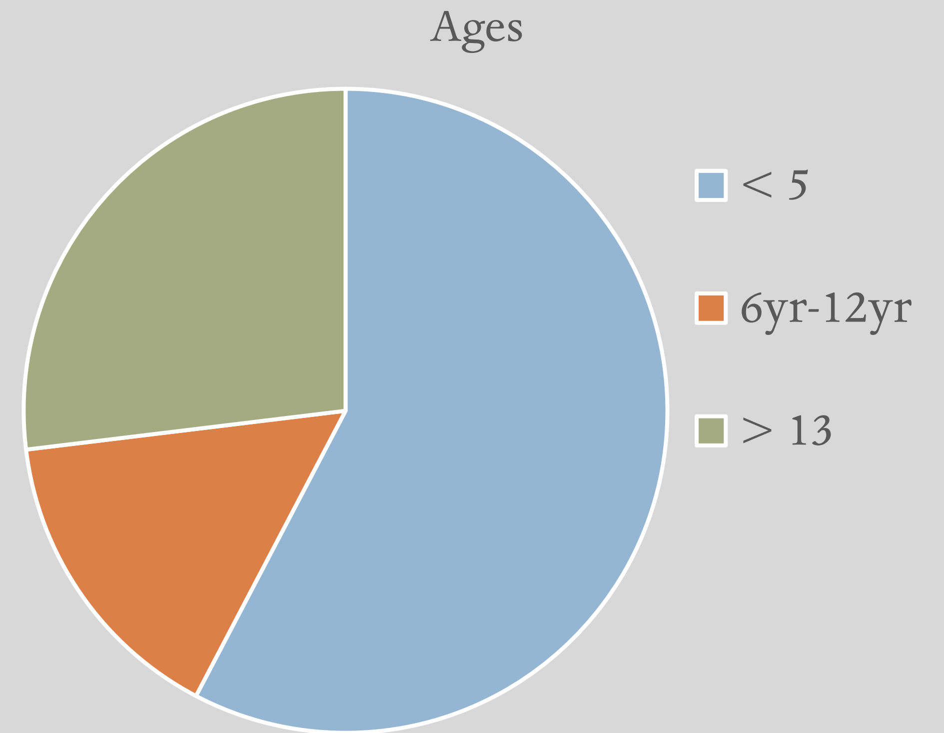
- Call CAS: Safety plan, social history
- Exam and testing/imaging per RCH ED MD
- Call CARES MD as needed

Next day coordination

- CARES Intake: Communication with ODHS/LEA/family
  - Scheduling for full evaluation at CARES NW
  - Referral to child's local Child Advocacy Center
  - Referral to CARES Family Support Team
- CARES MD
  - Lab follow up
  - Documentation of concerns

Snapshot: First 14 days of August

Drug exposed child	8	
Physical abuse	6	
Sexual abuse	12	
Total	*26*	
	SA SANE	*5*
	SA Non-urgent	*1*
	SA parental concern	*6*



Karly’s Law

- OR state law requiring all children with injuries concerning for child abuse be seen by the Designated Medical Provider (DMP) within 48 hours.
  - CARES NW
  - Randall Children’s Hospital ED, after hours or when CARES unavailable
  - PHOTOS!

TOP 10:

Child Abuse cases seen in the ED

- Bruising
- Fractures
- Burns
- Sentinel injuries
- Sexual assault/forensic evidence collection
- Sexual abuse/non-urgent or historical
- Parental concern for sexual abuse
- Drug exposure
- Dirty kid/chaos/domestic violence
- Medical child abuse

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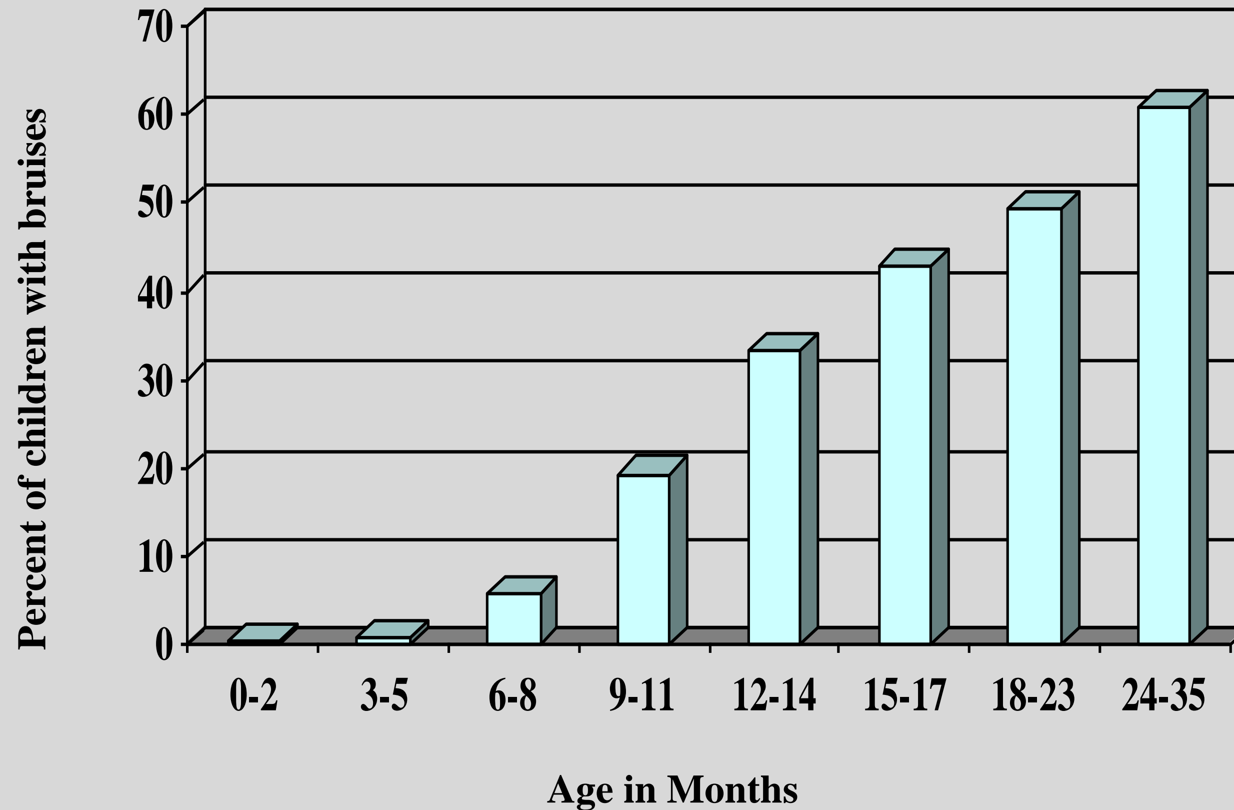
"Those who don't cruise rarely bruise"



Sugar, et al. "Bruises in infants and toddlers" Archives of Pediatrics and Adolescent Medicine. 1999; 153: 399-404.

Patterns of bruising in preschool children—a longitudinal study

Alison M Kemp,[1] Frank Dunstan,[1] Diane Nuttall,[1] M Hamilton,[2] Peter Collins,[2] Sabine Maguire[1]

Developmental stage	Age range	Bruising percentage
Pre-mobile	0-11 mo	6.7%
Early Mobile	4-18 mo	45.6%
Walking	10-70 mo	78.8%

Work up

- CBC, Coags
- CMP, lipase/amylase, UA for those under 6 years
- Skeletal survey for those under 2 years
- Further bleeding work up with +family history of bleeding diathesis in rare cases

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Fractures

CLINICAL REPORT

Evaluating Children With Fractures for Child Physical Abuse

Emalee G. Flaherty, MD, Jeannette M. Perez-Rossello, MD, Michael A. Levine, MD, William L. Hennrikus, MD, and the AMERICAN ACADEMY OF PEDIATRICS COMMITTEE ON CHILD ABUSE AND NEGLECT, SECTION ON RADIOLOGY, SECTION ON ENDOCRINOLOGY, and SECTION ON ORTHOPAEDICS, and the SOCIETY FOR PEDIATRIC RADIOLOGY

abstract

FREE

Fractures are common injuries caused by child abuse. Although the consequences of failing to diagnose an abusive injury in a child can be grave, incorrectly diagnosing child abuse in a child whose frac-

Age and developmental stage of patient

History provided to explain injury

Work up:

- CBC, CMP, UA, amylase/lipase
- Vit D 25OH, PTH, Phos
- Skeletal survey for children under 2 years

Radiologic findings in infants & toddlers

High Specificity	Moderate Specificity	Low Specificity
• CML • Rib (posteromedial) • Scapula • Spinous process • Sternal	• Multiple fractures • Various ages/stages of healing • Digital • Complex skull	• Subpereiosteal new bone formation • Clavicle • Long bone shaft • Linear skull

Skull fractures

Skeletal survey yields in low vs. high risk pediatric patients with skull fractures

Reena Isaac[a,*], Christopher Greeley[a], Mark Marinello[b], Bruce E. Herman[c], Terra N. Frazier[d], Christopher L. Carroll[e], Veronica Armijo-Garcia[f], Matthew Musick[a], Kerri Weeks[g], Suzanne B. Haney[h], Ming Wang[i,1], Kent P. Hymel[j], for the Pediatric Brain Injury Research Network Investigators

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[f] *University of Texas Health Sciences Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78229, USA*
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Skull fractures

- Common fracture in childhood

- Simple skull fracture: isolated, unilateral, linear, parietal
- Description of accidental trauma that is developmentally consistent with child
- No altered mental status, respiratory compromise, skin findings concerning for abuse
- Intracranial findings no deeper than the cortical brain

- Yield for skeletal survey < 1%

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Burns

- Pattern
- Developmental stage of child

- Work up:
  - UDS
  - Skeletal survey under 2yrs
  - CBC, CMP, lipase/amylase, UA under 6yrs

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Sentinel Injuries in Infants Evaluated for Child Physical Abuse

Lynn K. Sheets, Matthew E. Leach, Ian J. Koszewski, Ashley M. Lessmeier, Melodee Nugent and Pippa Simpson

Pediatrics 2013;131;701; originally published online March 11, 2013;
DOI: 10.1542/peds.2012-2780

- 200 abused infants: 27.5% previous injury
- 100 intermediate concern for abuse: 8% previously injury
- 101 nonabused: zero previously injury
- Sentinel injuries:
  - Bruising
  - Intraoral injury
  - Fracture

Medical provider knew about these injuries 42% of the time

Analysis of Missed Cases of Abusive Head Trauma

Carole Jenny, MD, MBA
Lt Col Kent P. Hymel, MD, USAF, MC
Alene Ritzen, MD, JD
Steven E. Reinert, MS
Thomas C. Hay, DO

Context Abusive head trauma (AHT) is a dangerous form of child abuse that can be difficult to diagnose in young children.

Objectives To determine how frequently AHT was previously missed by physicians in a group of abused children with head injuries and to determine factors associated with the unrecognized diagnosis.

Design Retrospective chart review of cases of head trauma presenting between January 1, 1990, and December 31, 1995

JAMA, 1999

- 31.2% seen by provider and misdiagnosed
- 27.8% reinjured following misdiagnosis

- Who was missed?
  - Young/infants
  - White
  - Two parent families

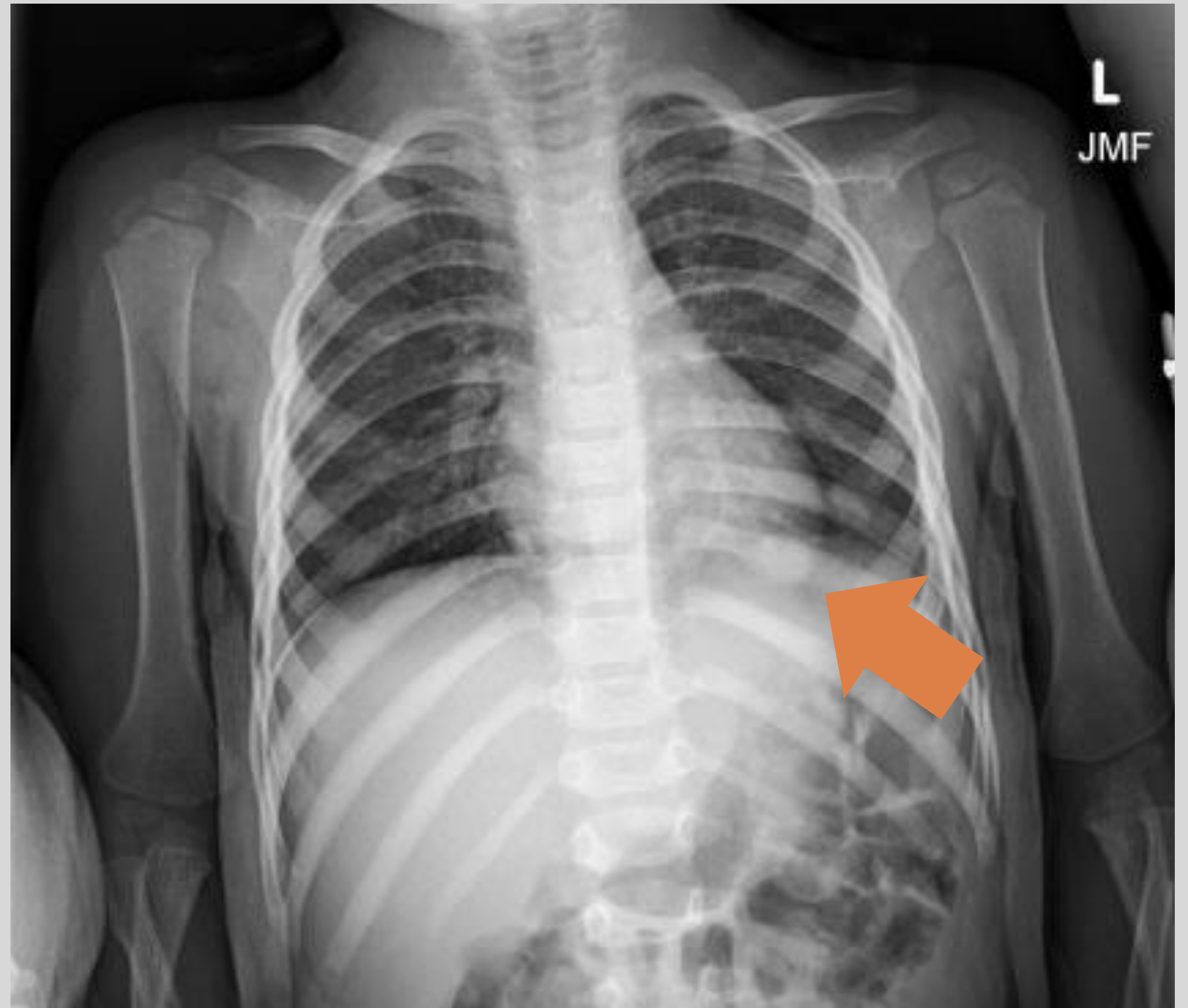
16-month-old fall in bathtub

- Acute injuries:
  - SDH
  - Liver injury
  - Bruising
  - SS neg
  - UDS + THC

Prior ED visits:

- 3/9/22 urgent care, oral thrush
- 3/21/22 ED, upper respiratory infection
- 4/13/22 ED, oral thrush
- 5/3/33 urgent care, otitis media, croup
- 5/6/22 urgent care, otitis media, croup
- 5/8/22 ED, respiratory concerns, fell from grandma's arms a few days prior
- 6/6/22 urgent care, diaper rash
- 7/25/22 ED, left without being seen
- 7/26/22 ED, teething pain
- 8/5/22 ED, fever and COVID + contact
- 9/7/22 ED, brought in my ambulance for facial swelling after eating churro, left without being seen by provider
- 11/23/22 ED cough, left without being seen
- 12/9/22 ED cough, mother concerned due to brother trying to drown this patient in bath
- 2/15/23 ED hand, foot, mouth disease
- 3/8/23 ED vomiting and diarrhea
- 3/20/23 ED upper respiratory infection

Follow up imaging



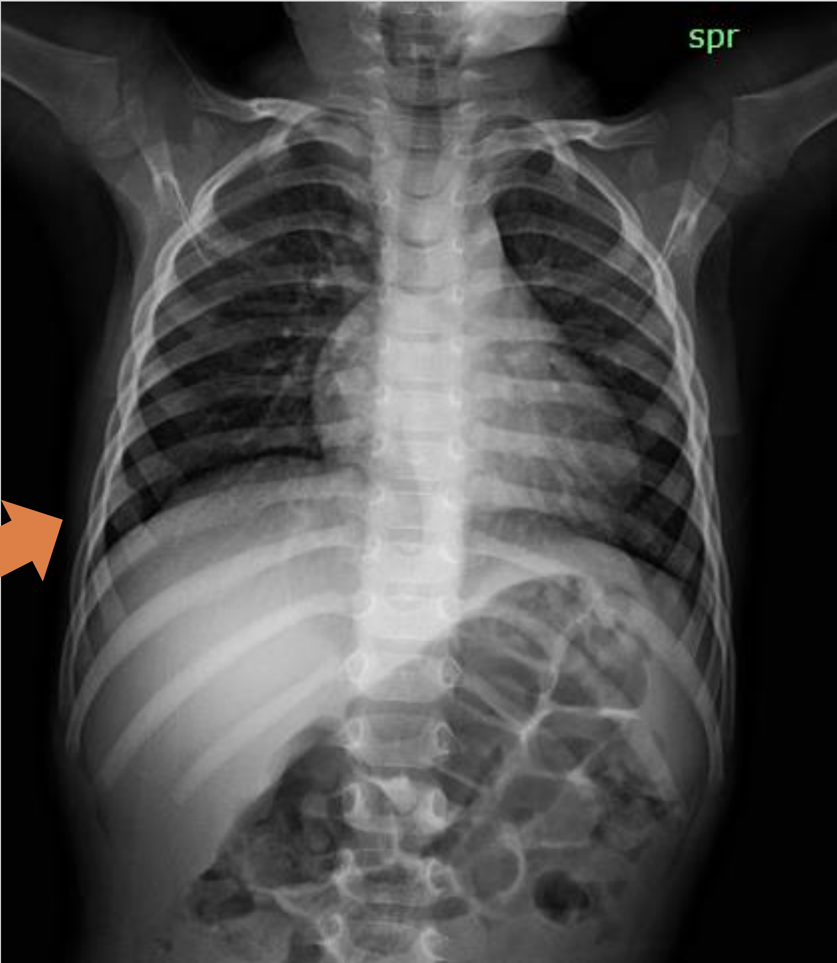
Her 2-year-old brother

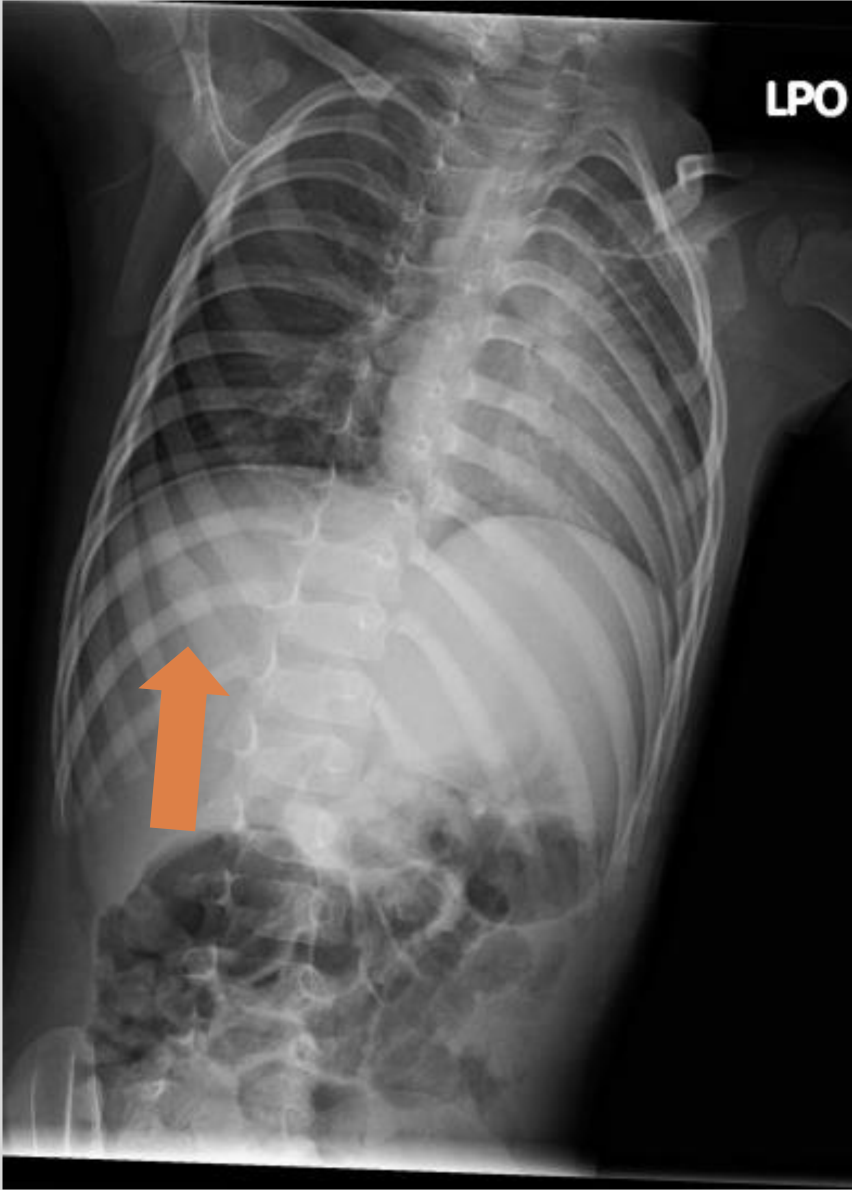
- Bruising
- Elevated ALT
- UDS neg
- SS neg

Prior ED visits:

- Scabies at 2 months of life
- COVID + at 4 months of life
- RSV at 8 months of life
- Gastroenteritis at 10 mo
- Scabies at 11 mo
- Allergic reaction to cinnamon, 11 mo
- Viral gastroenteritis, 12 mo
- URI, 13 mo
- Hand, foot , mouth and cellulitis 14 mo
- Bilateral otitis media, 17 mo
- Concern for allergic reaction, 19 mo
- Closed head injury, 20 mo
- Vomiting, 2 years old
- URI, 2 yrs

Follow up imaging





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Sexual Assault

- Evidence Collection in Oregon
  - Pubertal >12years: 120 hours
  - Prepubertal <12years: 72 hours
  - Assailant must be over 11 years of age
  - SANE RN
- Photo documentation of GU area
- Minimal facts interview

Sexual Assault

- Post exposure testing
  - Urine NAAT for GC/CT/Trich
  - Serum HIV/Syphilis/Hep B/C
  - Urine pregnancy in post-pubertal
  - HSV PCR if lesions present
  - Urine drug screening if exposure in the home or drug facilitate assault
- Prophylaxis (post-pubertal kids)
  - Ceftriaxone/Doxy/Flagyl
  - Plan B
- HIV prophylaxis
  - Consider in all body fluid exposures from adults
  - Managed and followed by OHSU ID department
- Hepatitis B vaccination consideration if patient unvaccinated

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Care of the Adolescent After an Acute Sexual Assault

James E. Crawford-Jakubiak, MD, FAAP,[a] Elizabeth M. Alderman, MD, FAAP, SAHM,[b] John M. Leventhal, MD, FAAP,[c] COMMITTEE ON CHILD ABUSE AND NEGLECT, COMMITTEE ON ADOLESCENCE

15-year-old, acute sexual assault

- Runaway/homeless for past 9 months
- Sexually assaulted by 61-year-old male
- A lot of physical pain since assault, significant mental health instability

- SANE in ED, referral to CARES
- Seen in clinic 1 week later
- Narrative of assault, was able to talk about physical pain during exam
- Able to feel ok by end of evaluation

- Returned to ED 2 days later searching for acute mental health resources. Ongoing support from family support team and engagement in counseling soon.

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Non-urgent sexual abuse

New disclosure of abuse outside of window for evidence collection

- Often no current symptoms
- Crisis for the family, but not a medical emergency
- Offer basic GU exam, but can also defer to CARES for outpatient exam
- Report to ODHS, CAS assessment, safety plan
- CARES to see next available (~ 2 weeks)

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“Red privates”

- Caregiver concern for sexual abuse **without a disclosure**

- What is not definitive sexual abuse:
  - Behavioral changes
  - Vulvovaginitis/diaper rash
  - Size of the vaginal opening

- CAS can meet with family or provide CARES number as a resource
- Encourage family to report to ODHS if they are not reassured

Clinical Report—The Evaluation of Sexual Behaviors in Children

abstract

Nancy D. Kellogg, MD, THE COMMITTEE ON CHILD ABUSE AND NEGLECT

TABLE 1 Examples of Sexual Behaviors in Children 2 to 6 Years of Age

Normal, Common Behaviors	Less Common Normal Behaviors[a]	Uncommon Behaviors in Normal Children[b]	Rarely Normal[c]
• Touching/masturbating genitals in public/private	• Rubbing body against others	• Asking peer/adult to engage in specific sexual act(s)	• Any sexual behaviors that involve children who are 4 or more years apart
• Viewing/touching peer or new sibling genitals	• Trying to insert tongue in mouth while kissing	• Inserting objects into genitals	• A variety of sexual behaviors displayed on a daily basis
• Showing genitals to peers	• Touching peer/adult genitals	• Explicitly imitating intercourse	• Sexual behavior that results in emotional distress or physical pain
• Standing/sitting too close	• Crude mimicking of movements associated with sexual acts	• Touching animal genitals	• Sexual behaviors associated with other physically aggressive behavior
• Trying to view peer/adult nudity	• Sexual behaviors that are occasionally, but persistently, disruptive to others	• Sexual behaviors that are frequently disruptive to others	• Sexual behaviors that involve coercion
• Behaviors are transient, few, and distractable	• Behaviors are transient and moderately responsive to distraction	• Behaviors are persistent and resistant to parental distraction	• Behaviors are persistent and child becomes angry if distracted

[a] Assessment of situational factors (family nudity, child care, new sibling, etc) contributing to behavior is recommended.
[b] Assessment of situational factors and family characteristics (violence, abuse, neglect) is recommended.
[c] Assessment of all family and environmental factors and report to child protective services is recommended.

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Drug Exposed Child

- Neonatal Drug Screen

Name

U Drug Panel Neonatal/Drug Endangered Child

- Head to toe exam
- CAS, ODHS, Safety plan

Fentanyl

- Recently added to Neo/DEC order
- Automatic confirmation for FENTANYL
- If negative, CARES will add on confirmatory testing for NORFENTANYL which is a send out

18 mo runover by car

Ref Range & Units	
Amphetamine/Methamphetamine HS Scn Urine <=49 ng/mL	**Presumptive Det !**
Benzodiazepines HS Scn Urine <=49 ng/mL	**Presumptive Det !**
Buprenorphine Scn Urine <=4 ng/mL	Not Detected
Cocaine Metabolite HS Scn Urine <=49 ng/mL	Not Detected
Fentanyl/Norfentanyl Scn Urine <=5 ng/dL	**Presumptive Det !**
Heroin Metabolite HS Scn Urine <=9 ng/mL	Not Detected
Marijuana Metabolites HS Scn Urine <=19 ng/mL	Not Detected
Methadone HS Scn Urine <=49 ng/mL	Not Detected
Hydrocodone/Morphine HS Scn Urine <=49 ng/mL	Not Detected
Oxycodone/Oxymorphone HS Scn Urine <=49 ng/mL	Not Detected
Drug Test Disclaimer	Disclaimer

Comment: Results given are PRESUMPTIVE and are to be interpreted with caution. R
results will follow.

Ref Range & Units	
U Amphetamine Lvl <=24 ng/mL	**26 ^**
U Methamphetamine Lvl <=24 ng/mL	**110 ^**
U Amph Method Interp	Confirmatory technique: GC/MS

Comment: The performance characteristics of this test were validated by Legacy Laboratory Servic
or cleared this test. The results are not intended to be used as the sole means for clinical di
Clinical Laboratory Improvement Amendments (CLIA) to perform high-complexity testing.

Resulting Agency: CENTRAL LAB

Ref Range & Units	
U AH Alprazolam Lvl <=29 ng/mL	Not Detected
U Lorazepam Lvl <=29 ng/mL	Not Detected
U Nordiazepam Lvl <=29 ng/mL	Not Detected
U Oxazepam Lvl <=29 ng/mL	Not Detected
U Temazepam Lvl <=29 ng/mL	Not Detected
U 7-A Clonazepam Lvl <=29 ng/mL	Not Detected
U Benzo Method Interp	Confirmatory technique: LC/MS/MS

Comment: The performance characteristics of this test were validated by Legacy Laboratory Services
or cleared this test. The results are not intended to be used as the sole means for clinical diag
Clinical Laboratory Improvement Amendments (CLIA) to perform high-complexity testing.

Resulting Agency: CENTRAL LAB

Ref Range & Units	
U Fentanyl Lvl <=2 ng/mL	Not Detected
U Fentanyl Method Interp	Confirmatory technique: GC/MS. Norfentanyl is not currently include necessarily rule out Fentanyl exposu

Comment: The performance characteristics of this test were validated by Legacy Laboratory S
or cleared this test. The results are not intended to be used as the sole means for clinic
Clinical Laboratory Improvement Amendments (CLIA) to perform high-complexity testing.

Resulting Agency: CENTRAL LAB

7mo with eye injury

Ref Range & Units	
Amphetamine/Methamphetamine HS Scn Urine <=49 ng/mL	Presumptive Det !
Benzodiazepines HS Scn Urine <=49 ng/mL	Not Detected
Buprenorphine Scn Urine <=4 ng/mL	Not Detected
Cocaine Metabolite HS Scn Urine <=49 ng/mL	Not Detected
Fentanyl/Norfentanyl Scn Urine <=5 ng/dL	Presumptive Det !
Heroin Metabolite HS Scn Urine <=9 ng/mL	Not Detected
Marijuana Metabolites HS Scn Urine <=19 ng/mL	Not Detected
Methadone HS Scn Urine <=49 ng/mL	Not Detected
Hydrocodone/Morphine HS Scn Urine <=49 ng/mL	Not Detected
Oxycodone/Oxymorphone HS Scn Urine <=49 ng/mL	Not Detected
Drug Test Disclaimer	Disclaimer

Comment: Results given are PRESUMPTIVE and are to be interpreted with caution. Resu
results will follow.

Ref Range & Units	
U Amphetamine Lvl <=24 ng/mL	25 ^
U Methamphetamine Lvl <=24 ng/mL	71 ^
U Amph Method Interp	Confirmatory technique: GC/MS

Comment: The performance characteristics of this test were validated by Legacy Laboratory Servic
or cleared this test. The results are not intended to be used as the sole means for clinical di
Clinical Laboratory Improvement Amendments (CLIA) to perform high-complexity testing.

Resulting Agency	CENTRAL LAB

Ref Range & Units	
U Fentanyl Lvl <=2 ng/mL	Not Detected
U Fentanyl Method Interp	Confirmatory technique: GC/MS. Norfentanyl is not currently included in this test. necessarily rule out Fentanyl exposure.

Norfentanyl, Urn, Quant 2.8 ng/mL
Performed By: ARUP Laboratories

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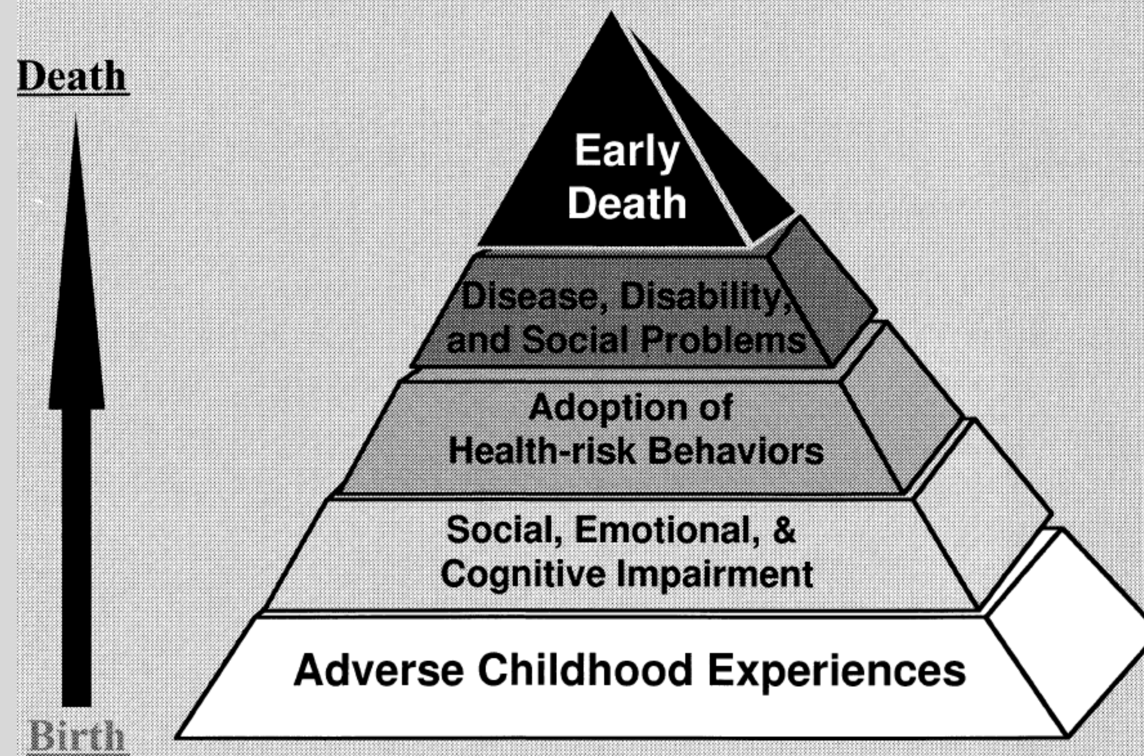
Intimate Partner Violence: Role of the Pediatrician

Jonathan Thackeray, MD, FAAP,[a] Nina Livingston, MD, FAAP,[b] Maya I. Ragavan, MD, MPH, FAAP,[c]
Judy Schaechter, MD, MBA, FAAP,[d] Eric Sigel, MD, FAAP,[e] COUNCIL ON CHILD ABUSE AND NEGLECT, COUNCIL ON INJURY, VIOLENCE, AND POISON PREVENTION



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cares northwest

Protecting children, healing lives.

Kaiser Permanente
OHSU Doernbecher Children's Hospital
Providence Children's Health
Randall Children's Hospital at Legacy Emanuel

hmckeag@lhs.org

CARES: 503-276-9000

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