

EMSC Connects

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Emergency Medical Services for Children
Utah Bureau of EMS and Preparedness

Special points of interest:

- Child maltreatment
- Sentinel Injuries
- Burn abuse

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A Word From Our Program Manager

Child Maltreatment is defined as the physical, sexual, emotional abuse or neglect of a child or adolescent by an adult, according to the Children's Safety Network. This topic defies my comprehension and stabs me in the heart. As with other newsletters, I did some research on the topic. Not only was I tearful just thinking about it, I cried as I read the statistics.

So how does this affect you? According to the HHS Child Maltreatment report "nearly every state has a law mandating certain professionals (medical, educational, law enforcement, etc.) and institutions (schools, hospitals, etc.) to inform a CPS agency of suspected

child abuse and neglect. The categories of professionals and institutions vary by state." Utah is one of 19 states that require all individuals to inform Child

Protective Services of suspected child abuse and neglect.

The information in this newsletter will help you understand your vital role in providing care for these most vulnerable patients. We hope you find the information timely and valuable. Thank you so much for the work you do; your dedication and professionalism make a difference every single day.



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The Doc Spot

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Sentinel Injuries: What we need to know in order to prevent a bad future

Child abuse is a sadly common problem in our society. We lose approximately 1,500 children a year nationally to the largely preventable cause of child abuse or neglect. Often, children who are killed at the hands of a caregiver had warning signs present that if recognized, could have led to an intervention that potentially could have saved their life. It is often difficult for us to understand how someone could harm a helpless infant but it is important to recognize, people who hurt the babies or children in their care do not intend on causing harm. They may be frustrated or overwhelmed or angry about something else and the infant is the one who is hurt during the outburst. No matter why the abuse happens, it is especially important for healthcare providers to suspend judgment and provide care to the child while recognizing we may not have all the information at the outset about who did what, who knew what and who "should have" done

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something. Non-offending caregivers report feeling judged and treated differently than other families who are dealing with trauma. This is often due to the sheer frustration we feel at the senseless injuries in an otherwise healthy child.

Sentinel injuries are injuries that occur in infants that serve as a critical “early warning system” that they are being mishandled. If they are identified early, they can tell us that someone that is caring for the child may be headed down a path of increasing frustration that may ultimately result in permanent or serious injury, or even death without an intervention. Sentinel injuries include:

- ◆ Bruises in pre-ambulatory infants
- ◆ Oral injuries
- ◆ Ear injuries
- ◆ Subconjunctival hemorrhages

These injuries are all injuries that are visible without special medical training or tools which make them especially valuable to people who recognize them and how serious they can be. Sentinel injuries may be seen by a caregiver such as a parent or babysitter or other family member; they may also be seen by a medical professional during an evaluation of the child for a reason unrelated to the finding such as during a well child check or during an ED visit for some other reason. Because these findings may be relatively “minor”, a caregiver or healthcare provider may actually downplay their significance. This results in a missed opportunity to protect the child from further injury.

A recent study done in Milwaukee found that of 200 infants found definitely to be victims of abuse, 28% had a previous sentinel injury in their history while NONE of 101 non-abused infants had a previous injury. Of the patients with sentinel injuries, two-thirds were less than 3 months of age and 95% were less than 7 months of age. Sadly, nearly half (42%) of these injuries were seen by a medical provider.

Bruises

Cutaneous injuries are perhaps the easiest sentinel injury to identify. These may be bruises or petechiae and can occur on any surface of the body. There have been multiple studies looking at what is “normal” in infants and young children. One of the most important papers was Dr. Naomi Sugar’s paper in 1999 that led to the key phrase that everyone should remember: “Those who don’t cruise, rarely bruise.” In this study, the researchers evaluated all children <36 months of age who were seen in a busy pediatric clinic for any reason and looked for bruises anywhere on their body. They found that bruises were very rare in infants and directly related to the ability of a baby to move around under their own power. Specifically,

- ◆ Only 0.6% of infants <6 months of age had a bruise
- ◆ 1.7% of infants <9 months of age had a bruise
- ◆ 17.8% of infants who could cruise (that is, get up on two feet and “walk” holding onto something) had a bruise
- ◆ 51.9% of walkers had a bruise

Thinking about this, it makes sense. Infants less than 6 months of age don’t really move around that much and when they do, there is little that they can do to hurt themselves. As they start developing the skills to roll, crawl and walk, things get a little more dicey. Sometimes parents report that a sibling hit an infant with a toy and caused the bruise. While this may happen on occasion, it is important to remember that the population studied certainly had children with siblings who might do ill-advised things like hitting the baby with a toy and the number of bruises was exceedingly small. At least a modicum of suspicion is warranted when bruising is seen on an infant.

Another study looking at bruising in infants and toddlers was the “TEN-4 Study” done at Northwestern in Chicago. In that study, patients less than 48 months of age that were admitted

In 2012, U.S. state and local child protective services (CPS) received an estimated 3.4 million referrals of children being abused or neglected.

-CPS estimated that 686,000 children (9.2 per 1,000) were victims of maltreatment. -Of the child victims, 78% were victims of neglect; 18% of physical abuse; 9% of sexual abuse; and 11% were victims of other types of maltreatment, including emotional and threatened abuse, parent’s drug/alcohol abuse, or lack of supervision.

-CPS reports of child maltreatment may underestimate the true occurrence. A non-CPS study estimated that 1 in 4 U.S. children experience some form of child maltreatment in their lifetimes.

-The total lifetime economic burden resulting from new cases of fatal and nonfatal child maltreatment in the United States is approximately \$124 billion.

<http://www.cdc.gov/violenceprevention/childmaltreatment/datasources.html>

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to the intensive care unit for trauma had a complete skin exam looking for bruising. The researchers found abuse patients were significantly more likely to have bruising in the so called “TEN-4” pattern. Bruises on the Torso, Ear, Neck, or anywhere on the body if the patient was less than 4 months of age are suggestive of a pattern of injuries concerning for abuse. Bruising found on “soft parts” of the body, as opposed to over bony surfaces is inherently more concerning.

Finally, in a large multi-center study published in 2014 found that in infants less than 6 months of age with apparently isolated bruising on exam were often found to have additional, more serious injuries. Nearly a quarter were found to have a fracture on skeletal survey, another quarter was found to have a head injury on CT or MRI and 3% were found to have an abdominal injury.

Bruises may not be a “serious” injury in that they may not need medical intervention or treatment but it is especially important to understand that bruising may be a warning sign of mishandling of a baby that can lead to a serious injury or death.

Oral injuries

Oral injuries may be more challenging to identify because infants cannot follow directions and open their mouth for us to examine them. Healthcare providers often don’t want to force a baby’s mouth open because it will upset them to pry it open. However, the frenula are important indicators of a child’s well-being. There are three frenula in the mouth: the upper labial, the lower labial and the lingual. Of note, the word frena, frenula and frenulum are all used interchangeably. Mobile children often sustain accidental injuries to their frenula. In fact, many a pediatrician (and mom!) hold their breath when they see small children running around with a sucker or some other thing hanging out of their mouth! In mobile children, running with something in the mouth and falling onto it can cause serious intra-oral injuries including tears of any of the three frenula, not to mention dental injuries or posterior pharyngeal or sublingual perforations or hematomas. A mobile child “face planting” can also cause a frenula tear, especially of the upper frenula. When the upper lip is shoved up, the frenula can tear resulting in a fair amount of blood mixed with saliva. Caregivers will know something has happened because of the obvious mess on the child! In an infant, however, they aren’t mobile and they aren’t running with things in their mouth. Oral injuries in non-mobile infants are related to: force feeding injuries or suffocation/smothering. When an adult shoves a bottle or pacifier or spoon in a baby’s mouth, there is often a reflexive tongue thrust which can result in the laceration of the frenula at the lip or under the tongue. If an adult holds their hand over a baby’s mouth to try and quiet them, the baby may move their face to get away from the obstruction and this force can cause tears in the upper frenula.

Frenula tears bleed and a caregiver present when they occur would know that there is an injury, even if they can’t identify the specific location of the injury. They can be difficult to identify on exam because the inside of both upper and lower lips needs to be thoroughly examined. To inspect under the tongue is even more challenging. Sometimes the easiest way to see the sublingual space is when the baby is screaming. Once a frenula tear begins to heal, which can happen in a matter of days, it may look like a small, isolated spot of thrush. This is granulation tissue. It is important to remember, thrush is rarely isolated to a single location in the oropharynx. For this reason, “thrush” that is only on the inner surface of the upper or lower lip or under the tongue should be viewed with caution. If a caregiver suggests that the infant tore their own frenula with their fingernail, this is not a plausible mechanism.

Ear Injuries

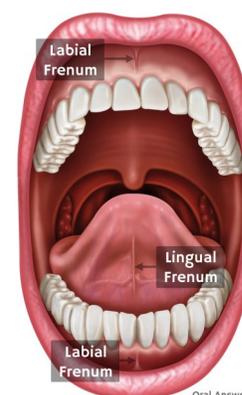
The ear is in a relatively protected location on the body in that if one falls, the temple or the shoulder is more likely to be bruised or injured than the ear as the ear is in a “protected triangle” of protuberances. It is possible to accidentally injure the ear of course, such as when something hits the ear directly or when a child falls onto something that breaks the “protected triangle”. However, in a non-mobile infant, bruises on the ear are especially concerning. Even in mobile infants and toddlers, bruises on the ear should be considered suspicious, especially if the bruises are bilateral or on more than one surface. Children that are pinched or pulled by



Inflicted bruises often occur on areas a person would instinctively protect



Shin bruises on a toddler learning to walk tend to be accidental



Oral Answers



The Doc Spot –continued

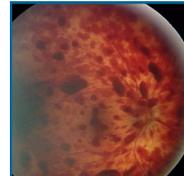
the ears can have very painful pinnae injuries; some so severe they result in “cauliflower ear”, a potentially permanently disfiguring finding. A thorough examination of the ear should include looking behind the ear as bruises may be present on the back of the ear or on the mastoid behind the ear.

Eye Injuries

Subconjunctival hemorrhages are the result of bleeding under the thin layer of tissue covering the globe. Subconjunctival hemorrhages can occur due to direct trauma to the eye such as a slap or poke (not likely from a baby poking themselves in the eye, however), or from a smothering, suffocation or strangulation event. It is NOT supported in the medical literature that coughing, vomiting, constipation or crying in infants actually causes subconjunctival hemorrhages unless the patient has documented pertussis. Abuse must be considered if an infant presents with subconjunctival hemorrhages outside of the newborn period.



Normal Retinal Exam



Retinal Hemorrhage

Evaluation

The evaluation of a sentinel injury starts with a good history. A good trauma history includes rich detail. If there is a reported fall, one must ask the height of the fall, the landing surface, the position before and after the fall, the response of the infant and the response of the caregiver after the fall, any other fall components such as an additional crush event or rolling event (like down the stairs). It is important to know the developmental capacity of the child and who the caregivers of the child include. It is important to note that mobile children may have unwitnessed trauma events and it is legitimate to have “no history” from a caregiver. It is critical that healthcare providers not try to improve the story telling of the caregiver by changing the words or phrasing in their documentation of the trauma history. Doing so leads to the allegation of a so called “changing history” when in fact it is the healthcare provider who is changing the history. It is also important to note that sometimes a caregiver really will remember a new detail of the event once multiple people start asking questions about what happened. This does not mean they are necessarily lying.

If a child is less than 2 years of age, a skeletal survey is a necessary part of the evaluation and must be done based on the American College of Radiology’s guidelines (Google : ACR Skeletal Survey). Failing to follow this guideline unnecessarily exposes the infant to radiation without the benefit of a diagnostic radiographic study. If the child is less than 6 months of age or has possible neurological symptoms, a CT scan is often indicated.

Documentation is critical. It must be noted who provided the history and then, using their words, thoroughly describe the events that occurred. Pictures are also helpful. In today’s era of digital photography, there is no excuse for photos that aren’t in focus. If a photo doesn’t show what it is intended to show, take another. Remember to start big and work to small. What this means is, taking a close up of a bruise that is only a field of skin with a bruise in the center does not help the reviewer understand where on the body it is or the size or its relationship to bony surfaces. Take a fully zoomed out view, followed by a closer in shot with an identifying landmark in the photo and finally, a photo with a size standard. It is good practice to take a photo with a name and date identifier on the first picture and the last picture of the series, or a name and date identifier in every photo. Digital photos are admissible into evidence IF the person who took the photos can attest that they are a true and accurate representation of the findings you are attempting to depict in the photo. Therefore, it is ESSENTIAL that the person who took the photos or who was responsible for having the photos taken is able to testify to this.

Finally it is the healthcare provider’s duty to remember that they are a mandated reporter of child abuse. Mandated reporting states any person who has **reason to believe** that a child has been subjected to abuse or neglect is required to report. It is not necessary that you have the final answer when you make this report. It also does not mean you are accusing a specific person or that a child will be removed from their parent. In Utah, a mandated report can be made to either law enforcement or DCFS, or both. Failing to report suspected abuse is a crime and, more importantly, can leave a child in harm’s way, possibly resulting in further injury or death. To make a report to UT DCFS, call 1-855-323-3237.

Conclusion

Abuse is a frightening thing to think about in any child, but especially in an infant. No one wants to think that a parent or caregiver

The Doc Spot –continued

could hurt a baby. It can be hard to imagine how someone could do this, but failing to recognize, *and* act on the signs that may be visible on the infant can lead to much greater harm to the child. A sentinel injury really is the canary sign warning us of things to come without intervention. Paying attention during a physical exam that is done for any reason can yield critical, and potentially lifesaving clues.

For more information, go to <https://www2.aap.org/sections/childabuseneglect/policies.cfm> or <https://www.childwelfare.gov/pubpdfs/whatiscan.pdf>

Expert Input

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University of Utah Health Care Burn Center
Community Outreach / Disaster Coordinator



Child Abuse: A Burning Issue

Each year 40,000 children are hospitalized from burns, and about 10 percent of burn center admissions are the direct result of child abuse. When compared to accidentally burned children, abused children are significantly younger, have longer hospital stays, and a higher mortality rate. The burn-injured child is almost always under the age of 10, with the majority being under the age of two. Although general awareness of child abuse is increasing, deliberate abuse by burning can often go unrecognized.

Scald burns are the most common form of abuse and are most frequently caused by tap water. Because young children have thinner skin than adults this can lead to deep burns. These occurrences are often related to the care provider's inability to understand a child's developmental needs and capabilities. Perhaps they are unable to control the crying, or stop a child from soiling his or her clothes during the toilet training period. In this second example the child may be immersed in scalding water for cleaning or punishment. However, many times the injury can be the result of an accident that could have been prevented.

Inflicted burns are usually manifested by characteristic patterns of injury, which must be correlated with a given history. These patterns and history are primary indicators of inflicted burns versus accidental ones.

Common Signs of abuse by burning

- ◆ An unrelated adult may bring the child in for treatment.
- ◆ There may be a delay in seeking medical attention.
- ◆ The injury may have a clearly demarcated edge without splash marks sometimes with areas of sparing on both buttocks consistent with a child being held down against the bottom of the tub.
- ◆ There may be other injuries present such as bruises, fractures or healed burns.
- ◆ The story given by the caretaker may not match the child's age and level of development.
- ◆ The story given by the child may seem rehearsed or memorized, and the injury account is often related word for word to each person who asks.
- ◆ The caretaker may have a lack of empathy or be angry and resentful.
- ◆ Blame may be placed on the victim or others.
- ◆ The caretaker may say that there were no witnesses to the incident, including the caretaker.
- ◆ The story given initially about the incident often changes subtly over time with new information added, or some information deleted.

At the University of Utah Health Care Burn Center (UUHC BC) we contact Safe and Healthy Families (SHF), which is located at Primary Children's Medical Center for every pediatric admission two years and younger. This allows SHF the

You can reach Safe and Healthy Families 24/7

- 1) Intake 801-662-3606 (9-5, M-F)
- 2) Nurse pager 801-267-2269
- 3) Physician 801-662-1000 (after hours, ask for the SHF physician to be paged for you)

Expert Input –continued

opportunity to become involved in the child's care and ensures that not only the mechanism of injury is considered, but also other safety issues that may require discussion and documentation. In addition this helps to facilitate conversation with the Division of Child and Family Services (DCFS) when necessary. SHF is also consulted on older children when there is a concern regarding the etiology or mechanism of injury, or signs of abuse are noted.

In cases of suspected abuse it is important to document clearly and objectively, this documentation may often include photographs of the injury on admission. It is also essential to remain objective until all facts are gathered, which is sometimes hard to do. It is not our job to judge, it is however, our job to be a patient advocate and ensure that the child is returned to a safe environment.

If you have questions regarding any burn injury our team is always happy to help provide advice and assistance.

References:

Burn Injuries in Child Abuse

www.missingkids.com/en_US/documents/burn_injuries.pdf

Gary FP, Hunt JL, Prescott PR. Child abuse by burning— An index of suspicion. *Journal of Trauma* 28(2):221–224, 1988.



Utah Law: 62A-4a-403

When any person including persons licensed under Title 58, Chapter 67, Utah Medical Practice Act, or Title 58, Chapter 31b, Nurse Practice Act, has reason to believe that a child has been subjected to incest, molestation, sexual exploitation, sexual abuse, physical abuse, or neglect, or who observes a child being subjected to conditions or circumstances which would reasonably result in sexual abuse, physical abuse, or neglect, **he shall immediately notify the nearest peace officer, law enforcement agency, or office of the division.** (Division of Child and Family Services or DFS).

News From National



The EMSC Website is Going "Mobi!"

The EMSC National Resource Center is pleased to announce that December 22 was the launch date for the new EMSC mobi (mobile-friendly) website. The url will remain the same: www.emscnrc.org, so have no worries about finding us.

The primary navigation won't change either! Whether searching for EMSC resources, webinars, or the latest program news, it will all be there. What will change is the layout. Utilizing responsive design technology, the new site allows for an easier reading and navigation experience from your mobile and tablet devices, minimizing the amount of panning and scrolling needed to view each page.

Early next year, the National Pediatric Readiness Project (Peds Ready) [website](#) will transition to the mobi platform as well.

Did You Know 2015 State and Territory SnapShot Data is Available for Viewing/Download?

The [EMSC State and Territory SnapShot Data Tool](#) is an online tool that allows users to view and filter results from the 2015 EMSC State and Territory Partnership SnapShot Self-Assessment. It can be used to compare data between states/territories and regions in order to identify trends and perhaps contact managers in other states to learn from them and develop collaborative projects.

This interactive tool can display data by assessment question, region, or by comparison of states/territories. The entire dataset is also available for download.



January 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1  Happy New Year	2
3	4 EGR	5	6	7 PGR	8	9
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24	25	26	27	28 PGR	29	30
31						

Pediatric Education Around the State

Pediatric Grand Rounds (PGR) are educational/CME offerings webcast weekly (Sept-May) you can watch live or archived presentations. It is geared towards hospital personnel. But will certify as BEMSP CME Access at <https://intermountainhealthcare.org/locations/primary-childrens-hospital/for-referring-physicians/pediatric-grand-rounds/>

Jan 7 "Elephants, Genomes, and Cancer: Lessons Learned from Pediatric Oncology" Joshua Schiffman MD

Jan 14 "What's Under Your Skin? Improving Care in Utah for Children with Soft Tissue Injuries" Eric Coon MD

Jan 21 "The Utah Mandate, Screening for Congenital CMV" Albert Park MD, James Bale Jr MD, Stephanie McVicar AuD, CCC-A

Jan 28 "Celiac Disease Update" Linda Book MD, Raza Patel MD, Anna Ermarth MD

EMS Grand Rounds (EGR) This offering alternates with Trauma Grand Rounds every other month, it is geared towards EMS. Live viewings qualify for CME credit.

Jan 4 1400-1600 MST "Sticks and stones may break my bones, but EMS may help me." Hilary Hewes MD

There are 2 ways to watch

1. Live real time viewing via the internet at: www.emsgrandrounds.com
If you would like to receive CME for viewing this presentation live, email Zach Robinson (Zachary.robinson@hsc.utah.edu)
2. Delayed viewing at your personal convenience, a week after the presentation at: www.emsgrandrounds.com

Upcoming Peds Classes, 2015

For PEPP and PALS classes throughout the state contact Andy Ostler Aostler@utah.gov

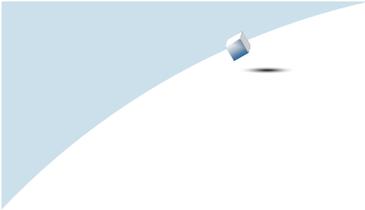
For PALS and ENPC classes in Filmore, Delta and MVH contact Kris Shields at shields57@gmail.com

Save the Date

April 13-14, 2016 [Zero Fatalities Safety Summit](#) scholarships are available for EMS but you must act quickly.

June 16-18, 2016 EMSC Coordinators Retreat





Emergency Medical Services for Children

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Follow us on the web
<http://health.utah.gov/ems/emsc/>
and on Twitter: EMSCUtah

The Emergency Medical Services for Children (EMSC) Program aims to ensure that emergency medical care for the ill and injured child or adolescent is well integrated into an emergency medical service system. We work to ensure that the system is backed by optimal resources and that the entire spectrum of emergency services (prevention, acute care, and rehabilitation) is provided to children and adolescents, no matter where they live, attend school or travel.

Did You Know?

HRSA Released EMSC Targeted Issue Funding Opportunity; Applications Due February 29

The Health Resources and Services Administration (HRSA) recently released the guidance for the EMSC Targeted Issues (TI) program funding opportunity.

TI grants support projects to improve the quality of pediatric care delivered in emergency care settings across the continuum of emergency care through the implementation of pediatric emergency care research and innovative cross-cutting projects. Two categories of grants will be funded. A single Category I award will support leadership for and implementation of a multi-site pediatric prehospital EMS Research Node Consortium. Four Category II awards will support investigator-initiated projects to improve the quality of pediatric emergency care in the prehospital and/or hospital emergency care settings through innovative approaches.

A Technical Assistance call for this funding opportunity will occur at 1:00 pm (Eastern) on Thursday, December 17, 2015. Call information is as follows:

Call number: 1-866-917-4660

Code: 68594605

The web link for the call is: <https://hrsa.connectsolutions.com/tigrantfoacall>

The call will be archived and available at <http://www.hrsa.gov/grants/>. Additional information about Targeted Issues can be found in the funding opportunity announcement and on the EMSC National Resource Center (NRC) website.

The closing date for applications is **February 29, 2016**.

