



# Pediatric Trauma in Agriculture

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## Training Objectives

- Define pediatrics and common associated injuries
- Review trauma center criteria
- Review differences – adult vs. peds
- Goals
- Treatment/Transport

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## Common roadblocks



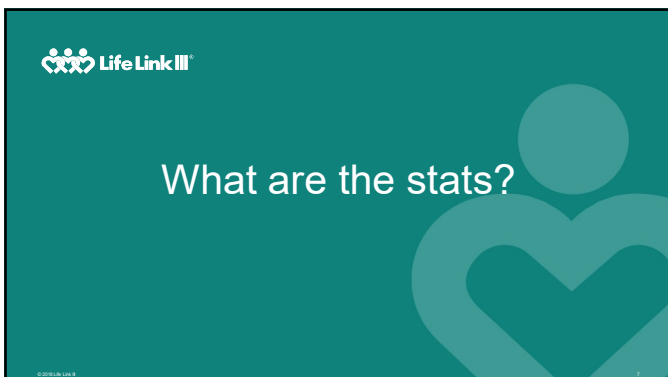
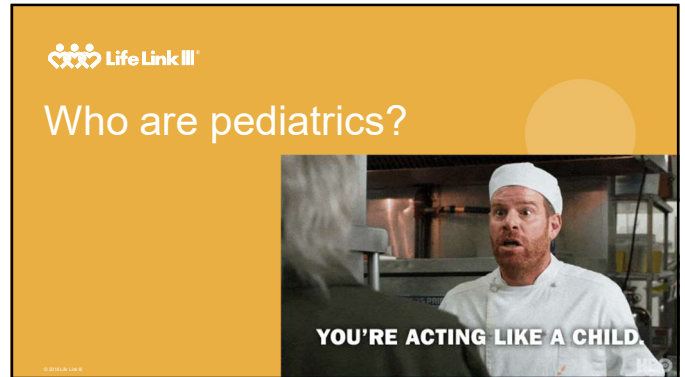
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## Common roadblocks

- Language barrier
- Lack of situation awareness
- Tradition – “My parents said I could”
- Conventional vs. modern farming
- Religious beliefs
- Location



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## Farm Related Trauma

In a recent study, 1% of the pediatric trauma cases occurred in an agricultural setting, but of those cases, farm accidents resulted in 5% longer length of stay versus non-farm accidents.

More severe and require more clinical management.

Children injured on farms are hospitalized 14x the rate of children injured in non-farm related accidents.

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## Farm Related Trauma

Median age 10 years versus 4 years in non-farm injuries (studies < 18 years old)

Multiple anatomic injuries twice as common on farms

Soft tissue injuries, concussions, upper extremity fractures most common.

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## Farm Related Trauma

Required helicopter transport 4x as often compared to other injuries at home.

Higher likelihood of longer length of stay

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## Trauma Center Criteria



### Pediatric Trauma Activation Criteria < 15 years of age (Upon notification or realization that any of the following conditions exist)

#### Level 1 Activation - Patient Presenting with

##### Physiologic Criteria

- Altered level of consciousness: GCS ≤ 8
- Deterioration of GCS by 2 in transport
- Respiratory distress/failure
  - All intubated patients (include those intubated at another facility who are now stable from a respiratory standpoint)
  - Inappropriate age-related tachypnea or bradypnea (see table)
  - Persistent cyanosis or persistent low oxygen saturation (below 90%)
- Shock/deteriorated perfusion
  - Inappropriate age-related tachycardia, hypotension, or evidence of compromised perfusion (see table)
  - Traumatic amputations
  - All patients receiving blood products or 40 mg/kg or more of crystalloid to maintain vital signs

##### Anatomic Criteria

- Compromised/unstable airway including signs of facial trauma, airway burns, inhalation injury, or strangling
- Arterial bleeding/uncontrolled bleeding
- Cardiac or major vascular injuries
- Significant thoracic trauma (e.g. flail chest, open chest wound)

##### Mechanism of Injury

- Penetrating wounds to the head, neck, or torso
- Traumatic proximal amputations

Upgraded to a Level 1 based on physician discretion

#### Level 2 Activation - Patient Presenting with

##### Physiologic Criteria

- GCS ≤ 14 and ≥ 14
- LOC < 5 minutes
- Patients intubated at another facility and now stable from a respiratory standpoint

##### Anatomic Criteria

- Severe burns (i.e. > 15% TBSA) and including electrocution
- Combination trauma with burns
- Severe orthopedic and crush injuries, pelvic/limb, unstable pelvic fracture
- Traumatic paralytic

##### Mechanism of Injury

- Falls ≥ 10 feet or 3x times the height of the child
- Ejection from auto
- Vehicle vs. pedestrian or bicyclist thrown, run over, or significant collision

Upgraded to a Level 2 based on physician discretion

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## Pediatric Trauma Centers in Wisconsin

### Level I

Children's Wisconsin - Milwaukee Hospital

American Family Children's Hospital – UW-Madison

### Level II

Marshfield Medical Center - Marshfield



## Common culprits





### Blunt force trauma

Blunt force (96%) is the leading cause of emergency medical care in the farm setting.

Common causes include animal kicks and falls, but not all falls are created equal!

## Blunt force trauma causes

Animal kicks  
Falls  
Machinery

## Hay holes



## Hay holes

Present with different injury patterns than other types of falls.

**Skull fracture: 73%**

Facial fracture: 27%

**Intracranial hemorrhage: 53%**

Non craniofacial injuries: 12%

## Altered mental status



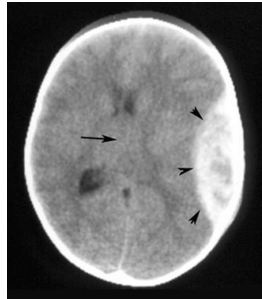
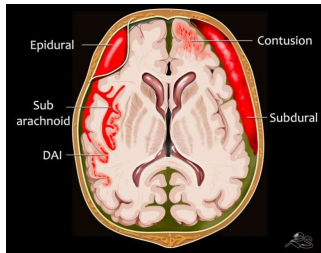
Patients will sometimes present with altered mental status.

Altered patients will be confused and should not be considered a good historian.

Consult with family to establish baseline.

Anticipate changes!

## Intracranial hemorrhage



## Greenstick fractures

Suspect higher force

More likely with malnutrition

Commonly found  $\leq 10$  years of age.

Most common in FOOSH (fall on outstretched hand)

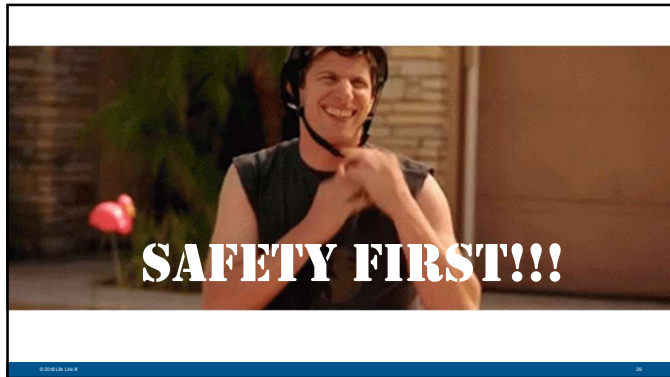



## Greenstick fracture



What can we do to help?





 LifeLink III

## What can we do to help?

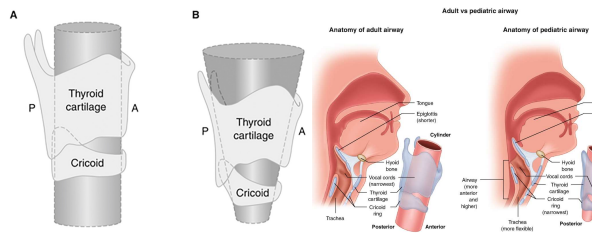
- Scene safety – control emotions.
- Assess patient – determine need for additional resources early!
- Stop the bleed!
- Patient packaging
- Eliminate scene times if possible

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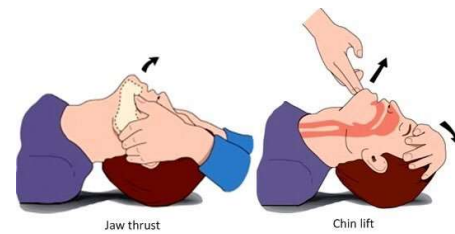




## What's the difference??



## Open the airway



## STOP THE BLEED!



STABLE  
Non-emergent

URGENT  
Moderate injury

EMERGENT  
Severe injury

## Splinting

Allow affected extremity to remain in position of comfort.

Inspect to see if circulation is intact.

Immobilize extremity to avoid further trauma.



## Maintain spinal immobilization



It might be best to keep the patient where they're found until ambulance arrives.

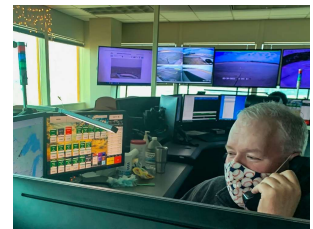
Ensure that patient remains calm and still.

## Ground or air?



## Methods for Requesting Service

- County Dispatcher
- One Call Process
- OneLink™ Mobile Application



## Sending the Most Appropriate Ship



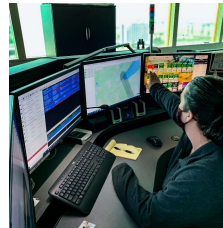
**ONE CALL DOES IT ALL**  
**1.800.328.1377**

To contact the most appropriate aircraft for patient transport, call the Life Link III Communication Center.

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## What is One Call?



"One Call Does It All" means that a call to our Communications Center will start the process of finding the most appropriate helicopter to your scene

In the event Life Link III is *not* the most appropriate helicopter, we will contact the next service to see if they can assist

This also means if Life Link III turns a flight down for weather or any other reason, we'll automatically check with another service

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## Air Medical Response Considerations



Patient clinical status



Critical MOI / NOI



Difficult access situations



Time and distance factors



Local EMS availability limitations



Make the call, no charge for cancelling

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Questions?

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## References

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