



Utah EMSC Pediatric Protocol Guidelines





What is EMSC ?

Every state in the USA has an EMSC program.

Federal grant jointly administered by:

- Health Resources and Services Administration's (HRSA)
- Maternal and Child Health Bureau (MCHB)
- National Highway Traffic Safety Administration (NHTSA)

Utah Emergency Medical Services for Children Staff

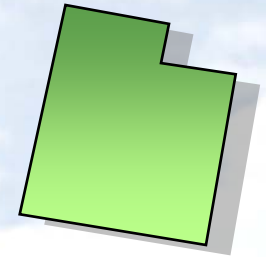
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- Dr. Kathleen Adelgais MPH, EMSC Medical Director
- Gina Holley RN, EMSC Pediatric Clinical Consultant Nurse
- Susan Garcia RN, EMT-IA EMSC Pediatric Preparedness Nurse
- Andy Ostler PM, Lead EMSC Course Coordinator
- Shauna Hatton-Ward, EMSC Family Representative
- Stephen Brooks EMT-I, Assistant Lead EMSC Course Coordinator
- 40 EMSC Coordinators: Teach pediatric education to EMS Providers statewide.
- Jenny Allred, Support Services

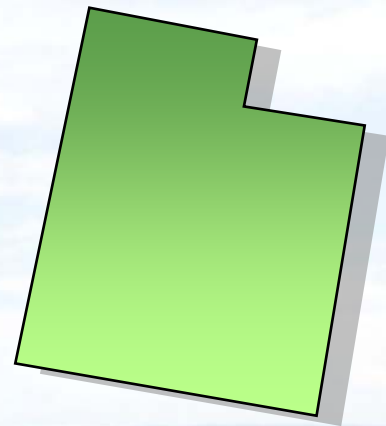
National Performance Measures: Utah's Status



- ✓ Pediatric Representation on EMS Board: Met
- ✓ Pediatric CME Requirements for BLS & ALS Providers : Met
- ✓ Hospitals Recognized for Pediatric Emergencies: Met
- ✓ Advisory Committee: Met
- ✓ State Funded Full time FTE: Met
- ✓ Pediatric Transfer Agreement and Guidelines: Met
- Pediatric equipment on ambulances: In Process
- Integrated into EMS statutes and regulations: In Process
- On-line & Off-line Medical Direction: In Process

Performance Measures Progress: Pediatric On-Line Medical Direction

Utah is one of only 3 states in the country that did not meet the ALS 2007 goal for this measure



Performance Measures Progress: Pediatric On-Line Medical Direction

- 53% of BLS services feel they have on-line pediatric medical direction at the scene of an emergency
- 36% of ALS services feel they have on-line pediatric medical direction at the scene of an emergency

Performance Measures Progress: Pediatric On-Line Medical Direction

2011 Goal

90% of EMS agencies will have on-line pediatric medical direction at the scene of an emergency for ALS and BLS providers.



“I don’t think they (ED staff) have an idea of what we can do in the field. When I call them for a chest pain and ask for things they flat out refuse me. They won’t actually let us do what we are capable of doing and treat the patient.”

“We just don’t go to a house and here is the problem right away- we have to figure out their problem- sometimes we have to get them out of the mud onto a backboard. They don’t understand the pre pre medical care... There is a lot of stuff we have to do before we can even serve our patients.”



EMS & ED Integration Plan

- Disseminate test, training, and booklet to every ED in the state
- Educate EMS Agencies about resources and training being provided to the ED
- Educate ED staff providing on-line medical direction on the EMSC off-line pediatric protocols: Protocol of the week webcasts
- EMSC Pediatric RN will establish contacts with every ED in the state to serve as pediatric quality improvement liaison

Performance Measures Progress: Pediatric Off-Line Medical Direction

- 42% of BLS services report they have off-line medical direction at the scene of an emergency
- 67% of ALS services report they have off-line medical direction at the scene of an emergency

Performance Measures Progress: Pediatric Off-Line Medical Direction

2011 Goal

90% of EMS agencies will have off-line pediatric medical direction at the scene of an emergency for ALS and BLS providers.



EMSC Off-line Pediatric Protocol Guidelines

EMSC Advisory Committee Recommendation

EMS Providers (**EMS & ED Integration Project**):

“Protocol driven is quality assurance, quality improvement system.”

“With having a protocol you don’t have that connection (to on-line). If you have the protocol you can treat it instead of having to wait.”

EMSC National Performance Measure / Grant requirement

Protocol Development

- Process initiated in November 2007
 - Reviewed examples of EMS protocols
 - National Association of EMS Physicians (NAEMSP)
 - Kentucky
 - Maryland
 - Washington DC
 - Discussed groupings of *routine* protocols and addition of *innovative* protocols
- List of protocols generated

Protocol Development

- Jan 2008: Presented to EMSC Advisory Committee
- Team of pediatric physicians, pediatric nurses, EMS providers recruited to develop protocols
- Resources:
 - Examples from other states
 - EMS Scope of Practice booklet
- Feb 2008-Nov 2008: Biweekly meetings to develop protocols

Protocol Team

- Kathleen Adelgais, MD
MPH
- Lorin Browne, DO
- Susan Garcia RN
- EMT-IA
- Kris Hansen RN
- Shauna Hatton-Ward
- Amanda Hoehler, MD
- Gina Holley RN
- Roni Lane, MD
- Nancy Mecham
APRN, FNP, CEN
- Pamela Moore RN
- Andy Ostler EMT-P
- Steven Rogers, MD
- Ruth Seed RN
- Kimberly Statler, MD
MPH
- Peter Taillac, MD

Guidelines on Protocol Development



- KISS principle
- Utah EMS provider scope of practice
- Keep in accordance with NAEMSP Model Pediatric Protocols
- Be evidence-based (when possible)
- Be innovative
 - Use of nebulized epinephrine
 - Use of intranasal medications

Summary of Protocols

- 7 major categories
 - Medical (10)
 - Trauma (6)
 - Children with Special Health Care Needs (5)
 - Special Care (8)
 - Respiratory (4)
 - Cardiac (4)
 - Preparedness protocols (4)

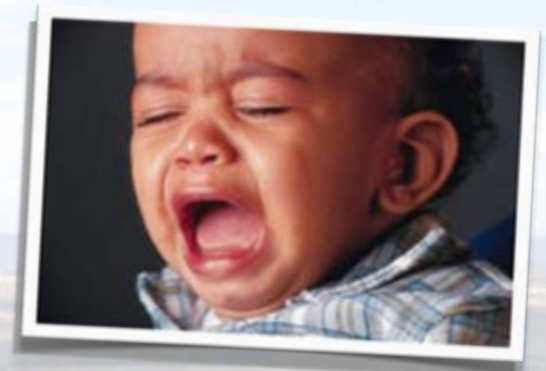
Medical



- Altered Mental Status
- *Apparent Life Threatening Event (ALTE)*
- Fever
- Hyperglycemia
- Hypoglycemia
- Hyperthermia
- Hypothermia
- *Non-Traumatic Shock/Sepsis*
- *Pain Management*
- *Seizure*
- Toxic Exposure

Pain Treatment

- Pain is common and often under-treated
 - In Utah, 6% of pediatric patients receive pain medications
- Barriers include lack of pain assessment tools, lack of offline medical direction, need for IV placement
- Guideline is meant to be flexible based on the resources available to the agency
 - Intranasal, intravenous,
 - intramuscular,
 - doses possible



Apparent Life-Threatening Event

- ALTE specific to children
- Common reason for EMS calls (up to 10%)
 - Idea of ALTE is new to most EMS providers
 - Cause of ALTE is varied (abuse, seizures, respiratory disorders, gastroesophageal reflux)
 - Presentation can be vague
- Identified as an area for education and improvement within our EMS system



Non-Traumatic Shock and Sepsis

- PCMC has initiated a hospital-wide program to improve recognition and treatment
- Protocol developed with similar guidelines in place
 - Vital sign criteria for shock and sepsis based on national standards
 - Rapid initiation of IV/IO and fluid administration
- Goal: To improve recognition and treatment of hypotension from sepsis in pre-hospital setting



Trauma

- Blunt Trauma
- Burn
- Penetrating Trauma
- Spinal Immobilization
- Submersion Victim
- *Moderate to Severe Closed Head Injury (TBI)*

Traumatic Brain Injury (TBI)

- Leading cause of morbidity and mortality among pediatric trauma patients
- Pre-hospital care significantly impacts outcome of patients with TBI
- Utah TBI guidelines are evidence-based



Traumatic Brain Injury (TBI)

- Goal: To improve recognition and treatment of hypotension and hypoxia in these patients
- Research
 - Identify barriers to following the protocol
 - Evaluate impact of protocol on TBI outcomes



CSHCN

- Child With Special Health Care Needs
General Assessment
- Feeding Tube
- Internal Pacemaker and Defibrillator
- Tracheostomy
- Ventilator/BIPAP

Respiratory and Cardiac

- Anaphylaxis
- Bronchospasm
- Respiratory Failure & Impending Failure
- Upper Airway Obstruction
- Asystole & PEA
- Bradycardia
- Tachyarrhythmia with Pulse
- VF and Pulseless VT

Special Care Protocols

- Assessment and Transport of the Neonate
- Behavioral Emergencies
- Do Not Resuscitate
- Family Centered Care
- Immunocompromised Children
- Non-Accidental Trauma
- Safe Infants Act
- Sudden Infant Death Syndrome (SIDS)

Preparedness Protocols

- Developed by Susan Garcia, RN EMT-IA
 - Mass Casualty Incident
 - Nerve Agents
 - Radioactive Agents
 - Vesicants Chemical Exposure
- Will be essential in guiding the Utah Pediatric Strike Team
- First pediatric-specific statewide guidelines for these areas ever developed



Icons

- Several icons created to visually remind providers key points





- Ask additional questions



- Obtain blood pressure



- Contact Medical Control



- Provide detailed documentation



- Wear protective gloves and mask



- Follow Biohazard protocols



- Give medications



- Be mindful of Family Centered Care



- Arrange for rotor or fixed wing transport



- Provide warming measures



- Contact Poison Control



- Provide medications via nebulizer

Protocol Example

Pain Management

Defined: Pain is often a result of either trauma or other noxious stimuli and often requires treatment in addition to the underlying cause.

Clinical Presentation: Patients in pain can present in significant distress often leading to crying or significant agitation, hyperventilation, and tachycardia.

Basic Life Support Box

BLS

1. Refer to General Pediatric Assessment Guidelines
2. Maintain airway, administer 10-15 lpm of oxygen if signs of respiratory distress
 - a. If respirations are ineffective, begin BVM ventilation
3. Immobilize any obvious injuries to alleviate any ongoing pain
4. Place in position of comfort. If there are signs of multi-system trauma, follow **Spinal Immobilization** protocol as indicated.
5. Transport for medical evaluation

Advanced Life Support Box

ALS

1. Follow BLS procedures
2. Place on cardio-respiratory monitor and continuous pulse oximetry
3. Consider intubation if necessary
4. Initiate IV/IO access as needed
5. Initiate treatment for underlying cause of pain
6. Assess patient's pain using either Wong-Baker Faces scale (ages 3-8 years) or numerical scale (ages 8-18 years)
7. Administer morphine or fentanyl for a pain scale of greater than or equal to 3 on the faces scale or 4 on numerical scale.
8. After intervention, reassess mental status and for signs of respiratory depression
 - a. If respiratory depression, administer naloxone.
9. Call for medical control if additional doses are required.
10. Transport for medical evaluation in position of comfort.



Key Points/Considerations

1. Treatment of pain can lead to an alteration of mental status or respiratory depression so should be limited to those where head trauma is not suspected.
2. Obtain complete history and do comprehensive physical exam.
3. Family-centered care can often assist in alleviating pain and anxiety in a distressed child.



Wong-Baker FACES Pain Rating Scale



From Hockenberry MJ, Wilson D: Wong's essentials of pediatric nursing, ed. 8, St. Louis, 2008, Mosby. Used with permission. Copyright Mosby

Medication/Treatments Table

Medication	Dose	Route	Max dose	EMT-Basic	EMT-I	EMT-IA	Paramedic
Morphine	0.1 mg/kg	IV/IM/IO	4 mg		ST	ST	ST
Fentanyl	2 mcg/kg	IN	100 mcg		ST	ST	ST
	1mcg/kg	IV/IO	75 mcg		ST	ST	ST
Naloxone	0.1 mg/kg		2 mg		ST	ST	ST

DO: Direct order from on line medical control
ST: Standing Order

EMS Medical Directors

- Designed to assist agency Medical Directors with medic training and protocol development
- Will be updated by EMSC regularly and updates distributed out to agency Medical Directors

EMS Medical Directors

- Protocols are *Guidelines*, not requirements
- They may be utilized as is, or modified to meet a specific agencies needs

EMS Medical Directors

- Feedback welcome!
- Please let EMSC know how these guidelines work for your agency or how they can be improved

Off-Line Protocols Rollout

Stage 1: Gain support from EMS Committee, EMS Agency Medical Directors, and ED Directors. Distribute EMS scope of practice booklets to EDs statewide. (January / February)

Stage 2: Post final protocols on EMSC website for download. Protocols are final and should be used. Print and distribute protocols to EMS agencies and EDs. Provide EMS agency recognition for protocol support. (March / April)

Off-Line Protocols Rollout

Stage 3: Educate protocol users on science behind each protocol using Protocol of the Week Web broadcasts. Audience EMS providers and ED staff providing on-line medical direction. (July).

Stage 4: Educate EMS providers on protocols using case studies. EMSC Coordinators conduct case study sessions statewide (September)



Thank You!

Questions?

