

## Quality Measures for Pediatric Prehospital Evidence-Based Guidelines

### AIRWAY MANAGEMENT

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
System Issues	% of providers that have received hands-on airway training (+/- simulation) within the past 2 years	Process	Safe
Assessment	Respiratory rate and oxygen saturation are both measured and documented	Process	Timely
Monitoring	% of patients with an advanced airway (supraglottic device or endotracheal tube) who have waveform capnography used for both initial confirmation and continuous monitoring	Process	Effective Safe
Airway Maneuvers	% of patients that were managed upon arrival to the ED using: <ul style="list-style-type: none"> <li>• Bag-valve mask</li> <li>• Supraglottic device</li> <li>• Endotracheal intubation</li> </ul>	Process	Safe Effective
Airway Maneuvers	% of intubated patients with an endotracheal tube in the proper position upon ED arrival	Outcome	Safe Effective Timely
General	Survival upon ED arrival	Outcome	Effective Patient-centered

### ALLERGIC REACTIONS

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Treatment	% of patients that receive epinephrine (any route) for anaphylaxis; subgroups will also be quantified based on route/device: <ul style="list-style-type: none"> <li>• % that receive IM epinephrine</li> <li>• % that receive IM epinephrine with an auto-injector</li> <li>• % that receive subcutaneous epinephrine</li> <li>• % that receive IV/IO epinephrine</li> </ul>	Process	Timely Safe Patient-centered Effective
Treatment	% of patients that receive epinephrine for anaphylaxis within 10 minutes of on-scene arrival	Process	Effective Timely
Treatment	% of patients who receive IM epinephrine in the anterolateral thigh	Process	Effective Patient-centered
Treatment	% of patients who receive the appropriate weight-based dose for epinephrine in the setting of anaphylaxis	Process	Safe Patient-centered Effective
Treatment	Presence of epinephrine auto-injectors in 2 dosing formats (0.15 mg and 0.3 mg) for use by both BLS and ALS providers in the EMS system	Structural	Safe
Outcome	% of patients that require airway management (beyond oxygen) in the prehospital setting or ED	Outcome	Effective

### ASTHMA (Respiratory distress with bronchospasm >= 2 years old)

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Treatment	Time to administration of beta-agonist (albuterol) after provider arrival on scene	Process	Timely
Treatment	% of patients that receive steroids	Process	Effective
Risk assessment	% of patients with documented pulse oximetry reading	Process	Safe
Treatment	Time to administration of ipratropium after provider arrival on scene	Process	Timely Effective

Outcome	% of patients who had respiratory failure (received bag-mask ventilation, BiPAP, CPAP, supraglottic airway, or intubation)	Outcome	Effective Safe
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#### **BRONCHIOLITIS (Respiratory distress <2 years old)**

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Risk assessment	% of patients with documented pulse oximetry reading	Process	Safe
Treatment	% of patients who receive a beta-agonist (Target: 0%)	Process	Efficient
Treatment	% of patients that receive steroids (Target: 0%)	Process	Efficient
Outcome	% of patients who had respiratory failure (received bag-mask ventilation, BiPAP, CPAP, supraglottic airway, or intubation)	Outcome	Effective

#### **CROUP (May be difficult to differentiate from other causes of respiratory distress based on record)**

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Treatment	% of patients that received inhaled epinephrine	Process	Effective
Treatment	% of patients that receive steroids	Process	Effective
Outcome	% of patients who had respiratory failure (received bag-mask ventilation, BiPAP, CPAP, supraglottic airway, or intubation)	Outcome	Effective

#### **PAIN**

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Risk assessment	% of patients with a potentially traumatic chief complaint who have a documented pain score, with results stratified by age: -0-3 years -4-12 years ->12 years	Process	Patient-centered Equitable
Risk assessment	% of patients with a potentially traumatic chief complaint who had a subsequently documented lower pain score after receiving an opiate	Outcome	Effective
Treatment	% of patients with a potentially traumatic chief complaint who receive an opiate (morphine or fentanyl), with results stratified by: -Pain score documentation (yes/no) -Pain score ( $\geq 4$ or $< 4$ ) -Age -Transport time (scene to hospital) -Presence of IV/IO (yes/no)	Process	Effective Patient-centered Equitable
Treatment	% of patients that receive IN fentanyl	Process	Patient-centered
Treatment	% of patients that received a weight-appropriate dose of fentanyl (1 mcg/kg +/- 20%) or morphine (0.1 mg/kg +/- 20%) based on prehospital weight	Process	Safe
Risk assessment	% of patients that received an opiate <b>AND</b> also had one of the following relative contraindications: -GCS<15 -SBP<5 <sup>th</sup> % of age -SpO <sub>2</sub> <90%	Process	Safe

#### **SEIZURES**

CATEGORY	MEASURE	TYPE	IOM DOMAIN(S)
Treatment	% of IN/IM administration of 1 <sup>st</sup> dose of benzodiazepine for those that received a benzodiazepine	Process	Effective
Treatment	Time to administration of benzodiazepine	Process	Timely
Risk assessment	% of patients who had blood glucose checked	Process	Safe

Treatment	% of patients with glucose <60 mg/dL who also received IV/IO dextrose or IM glucagon	Process	Effective
Outcome	% of patients who had respiratory failure (received bag-mask ventilation, BiPAP, CPAP, supraglottic airway, or intubation)	Outcome	Safe
Treatment	% of patients that received a weight-appropriate dose of IN/IM midazolam (0.2 mg/kg +/- 20%) or IV/IO benzodiazepine (0.1 mg/kg +/- 20%) based on prehospital weight	Process	Safe
Treatment	% of patients that received more than 2 doses of a benzodiazepine	Process	Safe

### **SHOCK**

<b>CATEGORY</b>	<b>MEASURE</b>	<b>TYPE</b>	<b>IOM DOMAIN(S)</b>
Recognition	% of patients who have full vital signs (HR, RR, BP, T, O2 sat) documented	Process	Equitable Patient-centered Safe
Recognition	Presence of a decision support tool (e.g. laminated card, phone or tablet-based app) to identify patients in shock based on vital signs and history-based risk factors	Structural	Effective Efficient Equitable Patient-centered
Recognition	% of patients with suspected shock for whom advanced notification to the hospital was provided	Process	Efficient Patient-centered
Treatment	Mean time from abnormal vital signs to initiation of a fluid bolus	Process	Timely Effective
Treatment	% of patients who receive pressors for ongoing hypotension after receiving 60 ml/kg of isotonic fluid for shock	Process	Effective
Outcome	Survival upon hospital admission	Outcome	Effective Patient-centered

### **SPINAL CARE**

<b>CATEGORY</b>	<b>MEASURE</b>	<b>TYPE</b>	<b>IOM DOMAIN(S)</b>
Risk Assessment	% of patients with high risk mechanisms of injury and signs/symptoms for cervical spine injury that are placed in a cervical collar	Process	Safe
Risk Assessment	% of patients without known trauma who have a cervical collar placed	Process	Patient-centered
Management	% of trauma patients who are transported on a long backboard	Process	Safe Patient-centered
General	% of patients who undergo cervical spine imaging	Process	Safe Patient-centered Efficient
General	% of patients with a cervical spine injury or unstable cervical fracture who had a C-collar placed in the field	Outcome	Effective Patient-centered