



# **National EMS Quality Alliance**

## **Pediatrics-03 Measure Package**

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## Pediatrics-03: Documentation of Estimated Weight in Kilograms

Pediatrics-03 is classified as a pediatrics measure in the EMS Compass 2.0 Measure Set, but its intent is deeply rooted in safety. There is significant published literature that attributes pediatric medication errors to errors in converting pounds to kilograms while dosing a medication. With pounds and kilograms commonly being confused, leading to pediatric medication errors, Pediatrics-03 is important for measuring a clinical documentation process that can lead to better patient outcomes. The intent of Pediatrics-03 is to determine if the weight of EMS pediatric patients is being documented in kilograms.

The denominator for Pediatrics-03 includes EMS responses for patients less than 18 years of age who receive a weight-based medication during the EMS response. The TEP discussed this inclusion criteria at great length, even considering developing a measure that would assess documentation of weight in kilograms for all pediatric patients, regardless if a weight-based medication was administered. However, after much discussion, it was determined to leave weight-based medication in the inclusion criteria so the true intent of the measure, which is to reduce medication errors, will not get lost. During the re-specification project, the inclusion criteria was also expanded so EMS responses for patients up to 18 years of age are measured, rather than limiting it to patients less than 15 years of age. The decision to expand the age range of the inclusion criteria was made to ensure the process of documenting weight in kilograms is encouraged for all pediatric patients.

The numerator for Pediatrics-03 was not changed during the measure re-specification project. EMS professionals can meet the performance for Pediatrics-03 in one of two ways – documenting the patient weight in kilograms or documenting a length-based weight.

Pediatric patients make up approximately 5-10% of patients taken care of by EMS. Critical pediatric patients make up < 1 percent of these patients. The accurate dosing of many medications to pediatric patients requires calculation based on the patient's weight in kilograms. In these rare high stress situations, the likelihood of making a medication error on a pediatric patient is high even when the weight is measured and documented appropriately. Measuring this specific population will drive regions/systems to consider how they are performing this critical task and how they can improve. This will, in turn, lead to an EMS system that will have higher likelihood of providing the correct dose to a patient thereby improving the safety of medication administration.

### Pediatrics-03: Documentation of Estimated Weight in Kilograms

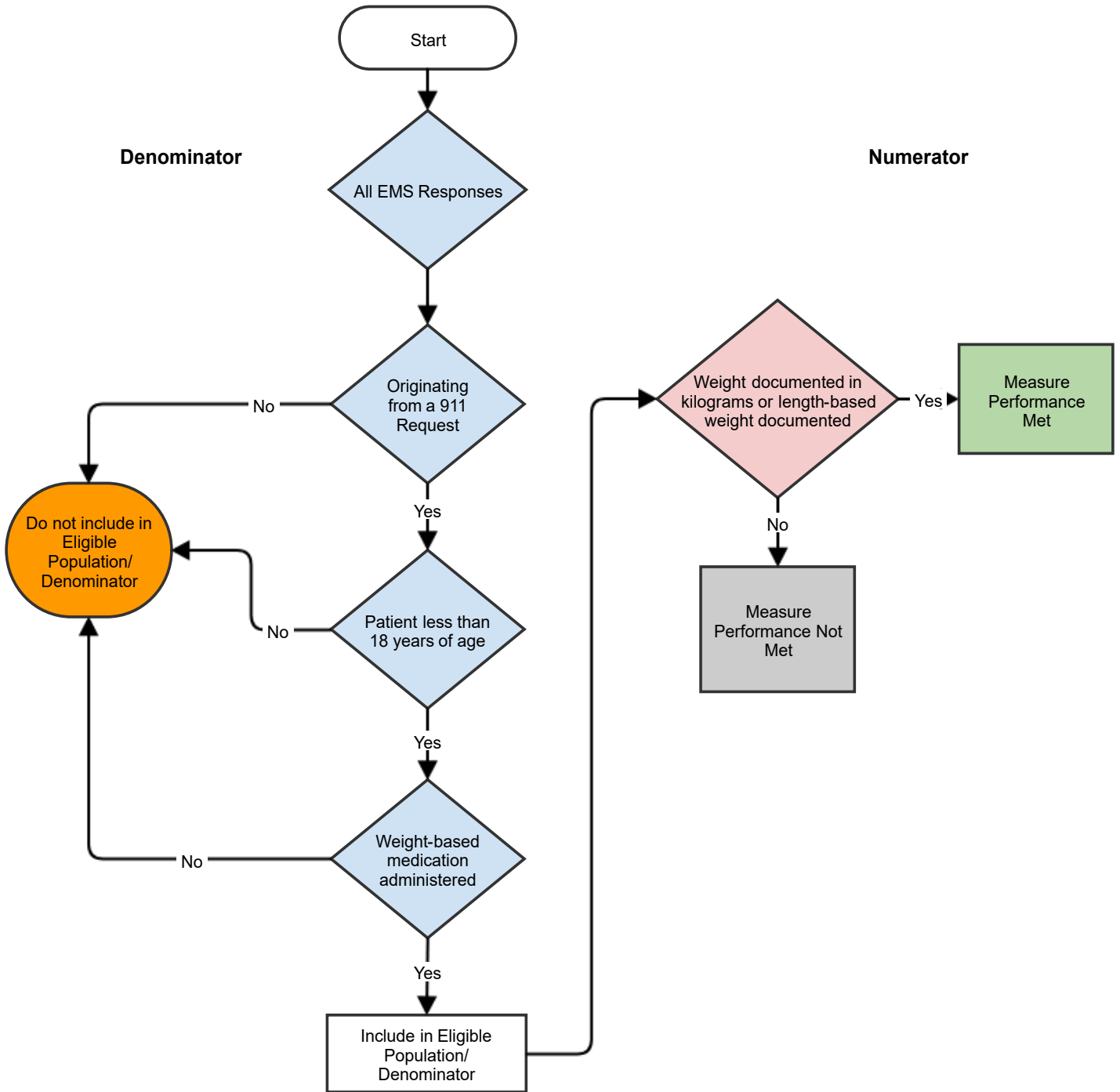
**Measure Score Interpretation:** For this measure, a higher score indicates better quality.

<b>Measure Description</b>	
Percentage of EMS responses originating from a 911 request for patients less than 18 years of age who received a weight-based medication and had a documented weight in kilograms or length-based weight estimate documented during the EMS response.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	EMS responses originating from a 911 request for patients in which a weight value was documented in kilograms or a length-based weight was documented during the EMS response.
<b>Denominator Statement</b>	All EMS responses originating from a 911 request for patients less than 18 years of age who received a weight-based medication during the EMS response.
<b>Denominator Exclusions</b>	None
<b>Denominator Exceptions</b>	None
<b>Supporting Guidance &amp; Other Evidence</b>	<p>The following evidence statements are quoted verbatim from the referenced clinical guidelines and other references that also apply to pre-hospital care:</p> <p>Joint policy statement- guidelines for care of children in the emergency department, 2008:<sup>1</sup></p> <p><b>4. GUIDELINES TO IMPROVE PEDIATRIC PATIENT SAFETY IN THE ED</b></p> <p>The delivery of pediatric care should reflect an awareness of unique pediatric patient safety concerns and should include the following policies or practices:</p> <p>a. Children should be weighed in kg, with the exception of children requiring emergent stabilization, and the weight should be recorded in a prominent place on the medical record, such as with the vital signs.</p> <p>i. For children requiring resuscitation or emergency stabilization, a standard method for estimating weight in kg should be used (eg, length-based system).”</p> <p>The Joint Commission offers the following suggested actions to prevent pediatric medication errors and their related adverse events in pediatric care settings:</p>

	<p>Since patient weight is used to calculate most dosing (either as weight-based dosing, body surface area calculation, or other age-appropriate dose determination), all pediatric patients should be weighed in kilograms at the time of admission (including outpatient and ambulatory clinics) or within four hours of admission in an emergency situation. Kilograms should be the standard nomenclature for weight on prescriptions, medical records and staff communications.</p>
<b>Measure Importance</b>	
<b>Rationale</b>	<p>Pediatric medications require weight based on dosing and several calculations are often required to ensure that the correct dose is administered. It is common pharmaceutical practice to list medication doses in mg/kg, thus weighing pediatric patients in pounds may lead to two errors;</p> <ol style="list-style-type: none"> <li>1. Other clinicians may see the patient’s weight in pounds and assume that the weight is documented in kilograms, leading to a potential overdose of medication.</li> <li>2. Errors in conversion from pounds to kilograms may lead to under dosing or overdosing.</li> </ol> <p>Making it common practice to weigh pediatric patients in kilograms will eliminate the need for assumptions on how weight is documented and eliminate the need for converting weight in order to calculate medication doses. The elimination of the conversion calculation will remove a potential source for potential medication error.<sup>ii</sup></p>
<b>Opportunity for Improvement</b>	<p>A 2009 analysis of 479 medication errors involving wrong weights discovered that over 25% were due to “confusion between pounds and kilograms.”<sup>iii</sup></p>
<b>Measure Designation</b>	
<b>Measure purpose</b>	<ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/> Quality Improvement</li> <li>• <input type="checkbox"/> Accountability</li> <li>• <input type="checkbox"/> MOC</li> </ul>
<b>Type of measure</b>	<ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/> Process</li> <li>• <input type="checkbox"/> Outcome</li> <li>• <input type="checkbox"/> Structure</li> <li>• <input type="checkbox"/> Efficiency</li> </ul>
<b>National Quality Strategy/Priority/CMS Measure Domain</b>	<ul style="list-style-type: none"> <li>• <input type="checkbox"/> Clinical Process-Effectiveness</li> <li>• <input checked="" type="checkbox"/> Patient Safety</li> <li>• <input type="checkbox"/> Patient Experience</li> <li>• <input type="checkbox"/> Care Coordination</li> <li>• <input type="checkbox"/> Efficiency: Overuse</li> <li>• <input type="checkbox"/> Efficiency: Cost</li> <li>• <input type="checkbox"/> Population &amp; Community Health</li> </ul>

<b>CMS Meaningful Measure Domain</b>	<ul style="list-style-type: none"> <li>• <input type="checkbox"/> Medication Management</li> <li>• <input type="checkbox"/> Admissions and Readmissions to Hospitals</li> <li>• <input type="checkbox"/> Transfer of Health Information and Interoperability</li> <li>• <input type="checkbox"/> Preventative Care</li> <li>• <input type="checkbox"/> Management of Chronic Conditions</li> <li>• <input type="checkbox"/> Prevention, Treatment, and Management of Mental Health</li> <li>• <input type="checkbox"/> Prevention and Treatment of Opioid and Substance</li> <li>• <input type="checkbox"/> Risk Adjusted Mortality</li> <li>• <input type="checkbox"/> Equity of Care</li> <li>• <input type="checkbox"/> Community Engagement</li> <li>• <input type="checkbox"/> Appropriate Use of Healthcare</li> <li>• <input type="checkbox"/> Patient-focused Episode of Care</li> <li>• <input type="checkbox"/> Risk-Adjusted Total Cost of Care</li> <li>• <input type="checkbox"/> Healthcare-associated infections</li> <li>• <input checked="" type="checkbox"/> Preventable Healthcare Harm</li> <li>• <input type="checkbox"/> Care is Personalized and Aligned with Patient’s Goals</li> <li>• <input type="checkbox"/> End of Life Care according to Preferences</li> <li>• <input type="checkbox"/> Patient’s Experience of Care</li> <li>• <input type="checkbox"/> Patient Reported Functional Outcomes</li> </ul>
<b>Level of measurement</b>	<ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/> Individual EMS Professional</li> <li>• <input checked="" type="checkbox"/> EMS Agencies</li> </ul>
<b>Care setting</b>	<ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/> Pre-Hospital Care</li> </ul>
<b>Data source</b>	<ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/> Electronic Patient Care Record (eCPR) data</li> <li>• <input type="checkbox"/> Administrative Data/Claims (inpatient, outpatient or multiple-source claims)</li> <li>• <input checked="" type="checkbox"/> Paper medical record/Chart abstracted</li> <li>• <input checked="" type="checkbox"/> Registry</li> </ul>

# Clinical Quality Measure Flow for Pediatrics-03 Documentation of Estimated Weight in Kilograms



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<sup>i</sup> Commission, TJ (2008) Preventing pediatric medication errors: Sentinel Event Alert. Accessed March 12, 2019: [http://www.jointcommission.org/assets/1/18/sea\\_39.pdf](http://www.jointcommission.org/assets/1/18/sea_39.pdf).

<sup>ii</sup> Authority PPS, (2009) Medication errors, significance of accurate patient weights.