National EMS Quality Alliance

2021 Pediatrics-03b Measure Package

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Pediatrics-03b: Documentation of Estimated Weight in Kilograms

Pediatrics-03b is classified as a pediatrics measure in the NEMSQA 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-03b is important for measuring a clinical documentation process that can lead to better patient outcomes. The intent of Pediatrics-03b is to determine if the weight of EMS pediatric patients is being documented in kilograms.

The denominator for Pediatrics-03b 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.

Patients who receive non-weight based medications have been identified as an exception for this measure. It is still encouraged to document estimated weight in kilograms for these patients; but, patients receiving a non-weight based medication for whom weight is not documented in kilograms will be removed from the denominator (excepted).

The numerator for Pediatrics-03b 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, he 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-03b: Documentation of Estimated Weight in Kilograms

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

Measure Description	
Percentage of EMS responses originating from a 911 request for patients less than 18 years of age who received a medication and had a documented weight in kilograms or length-based weight estimate documented during the EMS response.	
Measure Components	
Initial Population	All EMS responses originating from a 911 request for patients less than 18 years of age who received a medication during the EMS response
Denominator Statement	Equals initial population.
Denominator Exclusions	None
Denominator Exceptions	EMS responses for patients who received non-weight-based medications (e.g., inhaled, topical).
Numerator Statement	EMS responses for patients in which a weight value was documented in kilograms or a length-based weight was documented during the EMS response
Supporting Guidance & Other Evidence	The following evidence statements are quoted verbatim from the referenced policy statement: The Joint Commission: Preventing Pediatric Medication Errors: Sentinel Event Alert: 2008:[i] 4. GUIDELINES TO IMPROVE PEDIATRIC PATIENT SAFETY IN THE ED The delivery of pediatric care should reflect an awareness of unique pediatric patient safety concerns and should include the following policies or practices: 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. i. For children requiring resuscitation or emergency stabilization, a standard method for estimating weight in kg should be used (eg, length-based system)." The Joint Commission offers the following suggested actions to prevent pediatric medication errors and their related adverse events in pediatric care settings: 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.
Measure Importance	
Rationale	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; 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. 2. Errors in conversion from pounds to kilograms may lead to under dosing or overdosing. 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.[ii]
Measure Designation	
Measure purpose	- ☒ Quality Improvement - ☐ Accountability - ☐ MOC
Type of measure	- ☒ Process - ☐ Outcome - ☐ Structure - ☐ Efficiency
National Quality Strategy/Priority/CMS Measure Domain	- ☐ Clinical Process-Effectiveness - ☒ Patient Safety - ☐ Patient Experience - ☐ Care Coordination - ☐ Efficiency: Overuse - ☐ Efficiency: Cost - ☐ Population & Community Health
CMS Meaningful Measure Domain	- ☐ Medication Management - ☐ Admissions and Readmissions to Hospitals - ☐ Transfer of Health Information and Interoperability

	- ☐ Preventative Care - ☐ Management of Chronic Conditions - ☐ Prevention, Treatment, and Management of Mental Health - ☐ Prevention and Treatment of Opioid and Substance - ☐ Risk Adjusted Mortality - ☐ Equity of Care - ☐ Community Engagement - ☐ Appropriate Use of Healthcare - ☐ Patient-focused Episode of Care - ☐ Risk-Adjusted Total Cost of Care - ☐ Healthcare-associated infections - ☒ Preventable Healthcare Harm - ☐ Care is Personalized and Aligned with Patient's Goals - ☐ End of Life Care according to Preferences - ☐ Patient's Experience of Care - ☐ Patient Reported Functional Outcomes
Level of measurement	- ☒ Individual EMS Professional - ☒ EMS Agency
Care setting	- ☒ Pre-Hospital Care
Data source	- ☒ Electronic Patient Care Record (eCPR) data - ☐ Administrative Data/Claims (inpatient, outpatient or multiple-source claims) - ☒ Paper medical record/Chart abstracted - ☒ Registry

NEMSIS Pseudocode: Pediatrics-03b: Documentation of Estimated Weight in Kilograms

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

Measure Description	
Percentage of EMS responses originating from a 911 request for patients less than 18 years of age who received a medication and had a documented weight in kilograms or length-based weight estimate documented during the EMS response.	
Measure Components	
Initial Population	((ePatient.15 Age is less than 18 and ePatient.16 Age Units is 2516009 ("Years")) or (ePatient.15 Age is not null and ePatient.16 Age Units is in (2516001 ("Days"), 2516003 ("Hours"), 2516005 ("Minutes"), 2516007 ("Months")))) and eMedications.03 Medication Administered is not null and eResponse.05 Type of Service Requested is (2205001 ("Emergency Response (Primary Response Area)"), 2205003 ("Emergency Response (Intercept)"), 2205009 ("Emergency Response (Mutual Aid)")))
Denominator	Equals Initial Population
Denominator Exclusions	N/A
Denominator Exception	eMedication.04 Medication Administered Route is in (9927009 ("Inhalation"), 9927049 ("Topical"))
Numerator	eExam.01 Estimated Body Weight in Kilograms is not null or eExam.02 Length Based Tape Measure not null

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

[ii] Authority PPS, (2009) Medication errors, significance of accurate patient weights.