National EMS Quality Alliance

Pediatrics-02 Measure Package

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Pediatrics-02: Administration of Beta Agonist for Pediatric Asthma

Asthma is a common disease among both children and adults, and a common reason for EMS calls. With EMS being utilized so often for pediatric asthma exacerbation, the TEP felt strongly about continuing to include this measure in the measure set. There is strong evidence demonstrating the benefits of albuterol administration to patients with an acute asthma exacerbation in the Emergency Department setting based on patient centered outcomes. There is also evidence to support that it can be administered safely and effectively by EMS. There are also national guidelines that support this measure. The intent of this measure is to determine if pediatric patients experiencing asthma exacerbation are receiving a beta agonist.

The denominator for Pediatrics-02 includes EMS responses for patients 2-18 years of age with a primary or secondary impression of asthma. The reason why patients less than 2 years of age are not part of the inclusion criteria The rationale for this exclusion is to exclude patients with wheezing form other etiologies such as bronchiolitis in which the evidence dose not support routine use of beta- agonists . The inclusion criteria for age has also been changed to include patients up to 18 years of age, as the evidence continues to support administering beta agonist medications to this age group. The TEP felt it important to include the entire pediatric population in the measure, rather than creating an upper-limit of 15 years of age in the inclusion criteria.

Two substantive changes were made to the numerator of Pediatrics-02 during the measure re-specification process. In order to meet quality standards for the measure, not only does a beta agonist have to be administered, but it must be an aerosolized beta agonist; and the beta agonist must be administered by an EMS professional. There was meaningful discussion among the members of the TEP in order to get to these changes. TEP members felt requiring that beta agonist medication be administered by an EMS professional makes Pediatrics-02 a true quality measure, as improvement can be driven by the EMS providers themselves.]

Every State and Region will have variation with regard to availability of Advanced Life Support, Basic Life Support and First Responders as well as protocols for care of pediatric patients with asthma. In considering this measure, the TEP envisioned a patient-centric stance – in other words – it doesn't matter who is responding, or, if BLS can not administer albuterol in a particular state or region, if the patient is not receiving this important, possibly life-saving medication in the course of their EMS care, there might be an opportunity to make system changes to address this lack of care.

Pediatrics-02: Administration of Beta Agonist for Pediatric Asthma

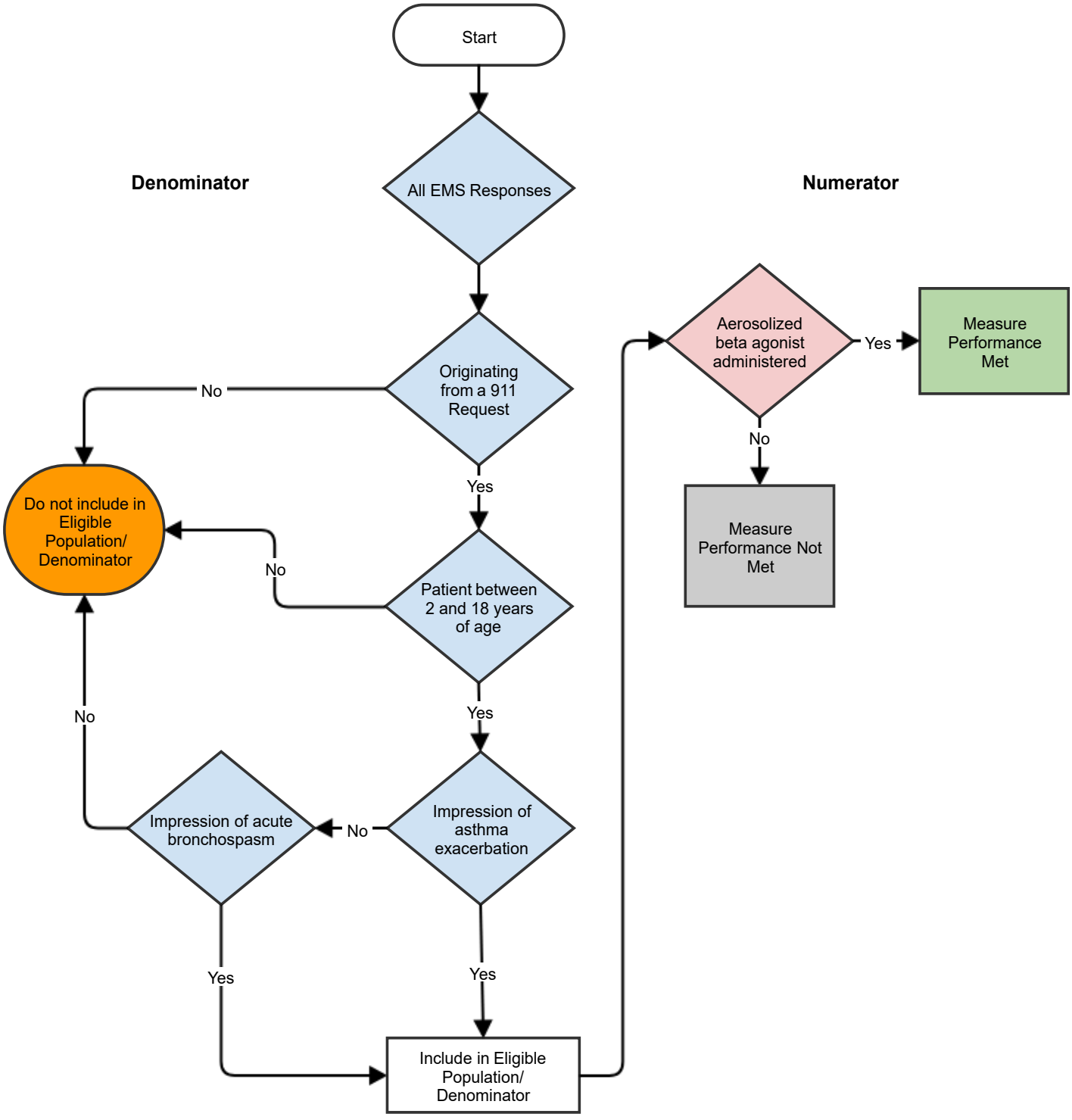
Measure Score Interpretation: For this measure, a higher score indicates better quality.

Measure Description	
Percentage of EMS responses originating from a 911 request for patients 2-18 years of age with a diagnosis of asthma who had an aerosolized beta agonist administered.	
Measure Components	
Numerator Statement	EMS responses originating from a 911 request for patients who had an aerosolized beta agonist administered by an EMS professional during the EMS response. Beta agonist medications may include: • Albuterol • Levalbuterol • Metaproterenol
Denominator Statement	All EMS responses originating from a 911 request for patients 2-18 years of age with a primary or secondary impression of asthma exacerbation or acute bronchospasm.
Denominator Exclusions	None
Denominator Exceptions	None
Supporting Guidance & Other Evidence	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other statements: A Model Protocol for Emergency Medical Services Management of Asthma Exacerbations:[i] For patients with prior diagnosis of asthma or prior use of an inhaled asthma medication and who are experiencing an acute exacerbation, the workgroup recommends that EMS personnel, consistent with their scope of practice, should: • Transport all patients to the appropriate medical facility (e.g., hospital emergency department). • Provide oxygen • Provide inhaled bronchodilators, such as albuterol and ipratropium • Consider systemic corticosteroids in more severe exacerbations and when transport times are prolonged.
Measure Importance	
Rationale	Asthma is a very common disease among both children and adults. In fact, according to the Centers for Disease Control and Prevention, 1 in 13 individuals have asthma[ii], and asthma is the leading chronic disease in children.[iii]

	Of all the EMS calls that occur on an annual basis, approximately 10% are pediatric transports, and 14% of these pediatric transports are attributed to patients in respiratory distress. Because asthma is a common cause for respiratory distress in children, guidelines have been established in most states to administer beta-agonists and other medications to prehospital patients having an asthma exacerbation.[iv]
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 • ☐ Hospital/ED
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

Clinical Quality Measure Flow for Pediatrics-02
Administration of Beta Agonist for Pediatric Asthma



NEMSIS Pseudocode: Pediatrics-02: Administration of Beta Agonist for Pediatric Asthma

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

Measure Components	
Numerator Pseudocode	eMedication.03 Medication Given is in (435 (“Albuterol”), 7688 (“metaproterenol”), 214199 (“Albuterol/Ipratropium”), 237159 (“Levalbuterol”), 487066 (“levalbuterol tartrate”), 1154062 (“Albuterol Inhalant Product”), 1163444 (“Levalbuterol Inhalant Product”), 1649559 (“Albuterol Dry Powder Inhaler”), 1165719 (“metaproterenol Inhalant Product”), 2108209 (“Levalbuterol Inhalation Solution”), 2108252 (“metaproterenol Inhalation Solution”))
Denominator Pseudocode	((ePatient.15 Age is greater than or equal to 2 and ePatient.15 Age is less than or equal to 18 and ePatient.16 Age Units is 2516009 ("Years")) or (ePatient.15 Age is greater than or equal to 24 and ePatient.16 Age Units is 2516007 ("Months"))) and (eSituation.11 Provider's Primary Impression matches /^(J45)|(J98.01$)/ ("Asthma…" or "Acute Bronchospasm") or eSituation.12 Provider's Secondary Impressions matches /^(J45)\|(J98.01$)/ ("Asthma…" or "Acute Bronchospasm")) and eResponse.05 Type of Service Requested is 2205001 ("911 Response (Scene)")

[i]Camargo, C.A. (2006) A Model Protocol for Emergency Medical Services Management of Asthma Exacerbations, *Prehospital Emergency Care*, 10:4, 418-429.

[ii] CDC.gov. (2019). CDC – Asthma. Accessed May 8, 2019 at: http: http://www.cdc.gov/asthma/default.htm.

[iii] CDC.gov (2018). Asthma | Healthy Schools | CDC. Accessed May 8, 2019 at: http://www.cdc.gov/healthyschools/asthma

[iv] Nassif, A., Ostermayer, K., Hoang, K.B., Claiborne, M.K., Camp, E.A., Shah, M.I., (2018) Implementation of a Prehospital Protocol for Change For Asthmatic Children. *Prehospital Emergency Care*, 22:4, 457-465.