National EMS Quality Alliance
EMS Compass 2.0
Pediatrics-02 Measure Package
Disclaimer

EMS Performance Measures (Measures) and related data specifications developed by the National EMS Quality Alliance (NEMSQA) are intended to facilitate quality improvement activities by EMS professionals.

These measures are intended to assist EMS professionals in enhancing quality of care. These Measures are not clinical guidelines and do not establish a standard of medical care and have not been tested for all potential applications. NEMSQA encourages testing and evaluation of its Measures.

Measures are subject to review and may be revised or rescinded at any time by NEMSQA. The measures may not be altered without prior written approval from NEMSQA. The measures, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes (e.g., use by health care providers in connection with their practices). Commercial use is defined as the sale, license, or distribution of the measures for commercial gain, or incorporation of the measures into a product or service that is sold, licensed, or distributed for commercial gain. Commercial uses of the measures require a license agreement between the user and NEMSQA. Neither NEMSQA nor its members shall be responsible for any use of the measures.

THESE MEASURES AND SPECIFICATIONS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND.

©2019 National EMS Quality Alliance. All rights reserved.

Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary coding sets should obtain all necessary licenses from the owners of these code sets. NEMSQA and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. ICD-10 copyright 2019 International Health Terminology Standards Development Organization.

CPT® is a registered trademark of the American Medical Association and is copyright 2019. CPT® codes contained in the Measure specifications are copyright 2004-2019 American Medical Association
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.

<table>
<thead>
<tr>
<th>Measure Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

## 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 |  |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator Statement</td>
<td>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.</td>
</tr>
<tr>
<td>Denominator Exclusions</td>
<td>None</td>
</tr>
<tr>
<td>Denominator Exceptions</td>
<td>None</td>
</tr>
</tbody>
</table>

## 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:

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, and asthma is the leading chronic disease in children.
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.

<table>
<thead>
<tr>
<th>Measure Designation</th>
</tr>
</thead>
</table>
| 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  

<table>
<thead>
<tr>
<th>Care setting</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ EMS Agency</td>
<td>☒ Electronic Patient Care Record (eCPR) data</td>
</tr>
<tr>
<td>☐ Hospital/ED</td>
<td>☐ Administrative Data/Claims (inpatient, outpatient or multiple-source claims)</td>
</tr>
<tr>
<td>☒ Pre-Hospital Care</td>
<td>☒ Paper medical record/Chart abstracted</td>
</tr>
<tr>
<td>☒ Pre-Hospital Care</td>
<td>☒ Registry</td>
</tr>
</tbody>
</table>
Clinical Quality Measure Flow for Pediatrics-02
Administration of Beta Agonist for Pediatric Asthma

Start

Denominator

All EMS Responses

Originating from a 911 Request

Patient between 2 and 18 years of age

Impression of acute bronchospasm

Impression of asthma exacerbation

Do not include in Eligible Population/Denominator

Yes

Yes

Yes

Yes

Include in Eligible Population/Denominator

No

No

No

No

Aerosolized beta agonist administered

Measure Performance Met

Measure Performance Not Met

NEMSQA EMS Compass 2.0 Measure Set
© 2019 National EMS Quality Alliance. All rights reserved.
# NEMSIS Pseudocode: Pediatrics-02: Administration of Beta Agonist for Pediatric Asthma

<table>
<thead>
<tr>
<th>Measure Components</th>
<th>Pseudocode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator</strong></td>
<td>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”))</td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>(ePatient.15 Age is greater than 2 and ePatient.15 Age is less than or equal to 15 and ePatient.16 Age Units is 2516009 (“Years”)) and (eSituation.11 Provider's Primary Impression matches /^(J45)(J98.01$)/ (&quot;Asthma…&quot; or &quot;Acute Bronchospasm&quot;) or eSituation.12 Provider's Secondary Impressions matches /^(J45)(J98.01$)/ (&quot;Asthma…&quot; or &quot;Acute Bronchospasm&quot;) ) and eResponse.05 Type of Service Requested is 2205001 (&quot;911 Response (Scene&quot;)</td>
</tr>
</tbody>
</table>

