2023 NEW National EMS Quality Alliance Measure Set: Tools for EMS to Operationalize Evidence Based Care

Michael Redlener, MD, FAEMS
President of the Board

Jeffrey L Jarvis, MD, MS, EMT-P
Chair, Measure Development Committee
Outline

• What is NEMSQA?
• Measure Development Process
• What is Measure Endorsement?
• 2021-2023 Measure Endorsement Cycle
• Overview of the New Measures
• Resources
• What’s next
What We Do

• Provide measurable ways for EMS systems to pursue improvement, improve patient outcomes and provider safety.

• Collaboratively develop and test evidence-based quality measures.
Why It Matters

• Focus on measuring what matters and provide the tools to make that happen at a local and national level.
  • Operationalize treatment guidelines and best practices.
  • Providing the best care to patients and the best service to their communities.
  • Identify successes and areas for growth.
  • Provide a path that puts data to use in a meaningful way to help EMS providers better serve patients and communities.
NEMSQA History

2017
Established with assistance from NHTSA to continue EMS Measure Development initiative

2018
Board of Trustees Established
EMS-based organizations became steering committee or stakeholder members

2019
Established as its own 501(c)(6) nonprofit entity
Released National EMS Measure Set (Compass 2.0)

2020
COVID...
Rollout of National EMS Measure Set
Florida F.A.I.R Project

2021
Updated Membership Structure
Started EMS Quality Improvement Partnership

2022
Lights and Siren Collaborative
Field Triage Guideline Measure Development with American College of Surgeons
Completed F.A.I.R. Project

2023
Release Endorsed Measure Set
Airway EBG Measure Development
Develop new measures from PGC EBG Systematic Review
## Current NEMSQA Measures

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoglycemia-01</td>
<td>Treatment Administered for Hypoglycemia</td>
</tr>
<tr>
<td>Respiratory-01</td>
<td>Respiratory Assessment</td>
</tr>
<tr>
<td>previously Pediatrics-01</td>
<td></td>
</tr>
<tr>
<td>Asthma-01</td>
<td>Administration of Beta Agonist for Asthma</td>
</tr>
<tr>
<td>previously Pediatrics-02</td>
<td></td>
</tr>
<tr>
<td>Pediatrics-03b</td>
<td>Documentation of Estimated Weight in Kilograms</td>
</tr>
<tr>
<td>Seizure-02</td>
<td>Patients with Status Epilepticus Receiving Intervention</td>
</tr>
<tr>
<td>Stroke-01</td>
<td>Suspected Stroke Receiving Prehospital Stroke Assessment</td>
</tr>
<tr>
<td>Trauma-01</td>
<td>Injured Patients Assessed for Pain</td>
</tr>
<tr>
<td>Trauma-03</td>
<td>Effectiveness of Pain Management for Injured Patients</td>
</tr>
<tr>
<td>Trauma-04</td>
<td>Trauma Patients Transported to a Trauma Center</td>
</tr>
<tr>
<td>Safety-01</td>
<td>No Lights or Sirens During Response to Scene</td>
</tr>
<tr>
<td>Safety-02</td>
<td>No Lights or Sirens During Transport</td>
</tr>
</tbody>
</table>
Measure Development Work

• Florida DOH F.A.I.R. Measure Development
  – 56 Measure including stratifications

• Guidelines for Field Triage of Injured Patients
  Update Measure Development

• NASEMSO Prehospital Airway Management
  EBG Measure Development (in progress)
Measure Development Process

1. Receive New Measure Topic
2. Conduct Environmental Scan
3. New Measure Concepts
4. Initiate Measure Concept Prioritization Process
5. Existing Measures
6. Measure Concept Evaluation Survey
7. Assess Feasibility Resources and Throughput Capabilities
8. Determine Development Capacity
9. Delphi Prioritization Survey
10. Present Prioritized Themes to BCT
11. BCT Approval for Development

Guidelines and Rationale
- Guideline Summaries
- RateScale Summaries

Specification
- Identify Data Elements
- Create Draft Measure Specifications
- Author Pseudocodes
- Committee Approval

Testing
- Select Public Comments
- Conduct Reliability Testing
- Respecify requirements, if necessary

Committee Approval
- NEMSQA Board Approval
Measure Endorsement

• Evaluate measures developed/published by other organizations
• Consider for ‘endorsement’ of measure as opposed to internally developed measures.
• Avoids ‘re-inventing wheel’
Criteria for Measure Evaluation

Clinical Value/Impact

• Does the measure evaluate an outcome or process that is clinically important to EMS patients.
  – Addresses a specific national health goal/priority for EMS
  – Affects large numbers of patients and/or has a very substantial impact for smaller populations
  – Focuses on a leading cause of morbidity or mortality
  – High resource use (current and/or future)
  – Severity of illness
  – Patient/Societal consequences

Evidence

• Internal assessment of evidence
  – Guideline recommendation has strong evidence (Level I or Level III (Harm) or equivalent)
  – Guideline recommendation has moderate evidence (Level 2a or equivalent)
  – Guideline recommendation has low evidence (Level 2b or equivalent)
  – Guideline recommendation has very low evidence or is based on consensus opinion (Level III or equivalent)
Criteria for Measure Evaluation

**Feasibility**

- Evaluates if the measure is feasible using standard fields available in the National Emergency Medical Services Information System (NEMSIS) or another national, state or local data source.

**Face Validity:**

- Determines whether a measure has consensus-based **face validity**.
  - Reviewers agree the measure will provide an accurate reflection of quality and will be able to be used to distinguish good and poor quality.
Criteria for Measure Evaluation

Technical Work and Implementation
• Evaluates the level of effort required to create pseudocode and implement the measure into clinical practice.

Ease of Endorsement*
• Likelihood of agreement with measure steward within 3 months

*unique to this endorsement cycle
2021-2023 NEMSQA Measure Endorsement Cycle

Summer 2021
Scoping review/environmental scan for existing, published EMS measures from federal agencies, national and state organizations
Identified 174 EMS measures.

Fall 2021
Round 1 measure review to remove duplicates of existing NEMSQA and not feasible for development, merge similar measure concepts.
Identified 38 unique measures for endorsement consideration.

Winter 2022
Round 2 measure review - consensus based rating/grading of measures measures on criteria for measure endorsement.
Identified 26 “A” graded measures.

Summer 2022
Round 3 measure review - prioritization survey of “A” graded measures

Fall 2022
Review of reliability testing data for Florida FAIR measures
Final recommendations to BOD of 11 measures.

February 2023
Final Board approval of 10 measures.

2023
Executed agreement with measure steward

2023
Published Measures
## Grading Criteria

<table>
<thead>
<tr>
<th>Grade</th>
<th>Clinical Value/Impact</th>
<th>Ease of Endorsement</th>
<th>Technical Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>High</td>
<td>High</td>
<td>Pseudocode &amp; Testing Completed or minimal work needed</td>
</tr>
<tr>
<td>B</td>
<td>High</td>
<td>Moderate/Low</td>
<td>No pseudocode or moderate work needed</td>
</tr>
<tr>
<td>C</td>
<td>Moderate/Low</td>
<td>Moderate/Low</td>
<td>No pseudocode and complicated work</td>
</tr>
</tbody>
</table>
# New NEMSQA Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway-01</td>
<td>Successful First Advanced Airway Placement without Hypotension or Hypoxia</td>
</tr>
<tr>
<td>Airway-05</td>
<td>Adequate Oxygen Saturation Achieved Before Intubation Procedure</td>
</tr>
<tr>
<td>Airway-18</td>
<td>Waveform Capnography Airway Device Monitoring</td>
</tr>
<tr>
<td>Respiratory-02</td>
<td>Oxygen Administration for Hypoxia</td>
</tr>
<tr>
<td>Safety-04</td>
<td>Pediatric Restraint Device Used During Transport</td>
</tr>
<tr>
<td>Syncope-01</td>
<td>ECG Performed for Syncope Patients</td>
</tr>
<tr>
<td>TBI-01</td>
<td>TBI: Clinical Assessments for Patients with Traumatic Brain Injury (oxygen level, ETCO2, and SBP)</td>
</tr>
<tr>
<td>Trauma-08</td>
<td>Documentation of GCS, SBP, and Respiratory</td>
</tr>
<tr>
<td>Trauma-14</td>
<td>Trauma Call Rate</td>
</tr>
<tr>
<td>TTR-01</td>
<td>Vital Signs Documented (non-transported)</td>
</tr>
</tbody>
</table>
Criteria for All Measures

- EMS responses originating from a 911 request for patients
- Measures stratified by age
  - Less than or equal to 18 years of age
  - Greater than 18 years of age
Airway-01: Successful First Advanced Airway Placement without Hypoxia or Hypotension

**Numerator**
- Patients without peri-intubation hypoxia or hypotension

**Denominator**
- First advanced airway procedures with SPO2 and SBP documented greater than 5 minutes and between 0-5 minutes before advanced airway procedure

All advanced airways
- Supraglottic airway
- Endotracheal Intubation
Airway-05: Adequate oxygenation before endotracheal intubation

Numerator
- Patients with SPO2 >93% between 0-5 minutes prior to intubation attempt

Denominator
- Patients with intubation attempted.
  - *Exclude:* Intubation or cardiac arrest prior to EMS arrival
Airway-18: Waveform Capnography Airway Device Monitoring

Numerator
• Capnography used for tube placement and monitoring

Denominator
• Patients with successful advanced airway procedures
• Exclude: None
Respiratory-02: Oxygen Administration for Hypoxia

**Numerator**
- Hypoxic patients with that received oxygen

**Denominator**
- Patients with hypoxia
  - Exclude: Less than 24 hours of age
Syncope-01: ECG Performed for Syncope Patients

Numerator
- Syncope patients with 12-lead or greater

Denominator
- Patients with syncope
TTR-01: Vital Signs Documented

**Numerator**
- Basic vitals documented (SBP, DBP, SPO2, RR, GCS, AVPU)

**Denominator**
- Patients not transported by EMS
- Exclude: Cardiac arrest prior to arrival
Safety-04: Pediatric Restraint Device Used During Transport

Numerator
- Restrained in car seat during transport

Denominator
- Transported patients < 8 years old
- Exclude: >= 8y/o, immobilized, severe trauma, active airway management, cardiac arrest

Note: 911 and interfacility transports included for this measure
Trauma-08: Documented GCS, SBP, RR

Numerator

- Trauma patients with documented GCS, RR, SBP

Denominator

- Patients with trauma
Trauma-14: Trauma Call Rate

**Numerator**
- Transports with prearrival trauma alert initiated

**Denominator**
- Patients meeting step 1 or 2 trauma criteria
TBI-01: Clinical Assessments for Patients with TBI

Numerator: • Documented SPO2, ETCO2, & SBP

Denominator: • Patients with suspected traumatic brain injuries
# NEMSQA Measure Technical Documents

NEMSIS Pseudocode: Measure worksheets with guidance for mapping measures/data to the National Emergency Medical Services Information System (NEMSIS) registry.

## 2022 NEMSQA Psuedocode Interim Update.pdf

## 2021 NEMSQA Psuedocode Update.pdf

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Description</th>
<th>Type</th>
<th>National Quality Strategy Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoglycemia-01</td>
<td>NEMSQA-Hypoglycemia-01 Updated 2021</td>
<td>Process</td>
<td>Clinical Process – Effectiveness</td>
</tr>
<tr>
<td>Asthma-01 previously Pediatrics-02</td>
<td>NEMSQA-Asthma-01 Updated 2021</td>
<td>Process</td>
<td>Clinical Process – Effectiveness</td>
</tr>
<tr>
<td>Pediatrics-03b</td>
<td>NEMSQA-Pediatrics-03b Updated 2021</td>
<td>Process</td>
<td>Patient Safety</td>
</tr>
<tr>
<td>Seizure-02</td>
<td>NEMSQA-Seizure-02 Updated 2021</td>
<td>Process</td>
<td>Clinical Process – Effectiveness</td>
</tr>
<tr>
<td>Stroke-01</td>
<td>NEMSQA-Stroke-01 Updated 2021</td>
<td>Process</td>
<td>Clinical Process – Effectiveness</td>
</tr>
<tr>
<td>Trauma-01</td>
<td>NEMSQA-Trauma-01 Updated 2021</td>
<td>Process</td>
<td>Patient Experience</td>
</tr>
</tbody>
</table>

[www.nemsqa.org/nemsqa-measure-technical-documents](http://www.nemsqa.org/nemsqa-measure-technical-documents)
What’s Next in Measure Development

• Prioritize evidence-based guidelines for measure development
  – Collaboration with Pre-hospital Guidelines Consortium
• Future measure endorsement cycles will include call for submission of measures for endorsement.
Questions
Get Involved

• Become a member: https://nemsqa.org/nemsqa-membership-application
  – Organization
  – EMS Agency
  – Individual
  – Corporate Partner

• Follow us:
  Facebook: @NEMSQA https://www.facebook.com/NEMSQA
  Twitter: @Quality EMS https://twitter.com/QualityEms
  LinkedIn: https://www.linkedin.com/company/nemsqa/
  Instagram: @nemsqa https://www.instagram.com/nemsqa/

• Contact us: Sheree Murphy, Executive Director: smurphy@nemsqa.org