

Vital Focus: Enhancing Care for Non-Transport Patients

Presenters:

Steve Andrews, MD, EMT-P, FAEMS

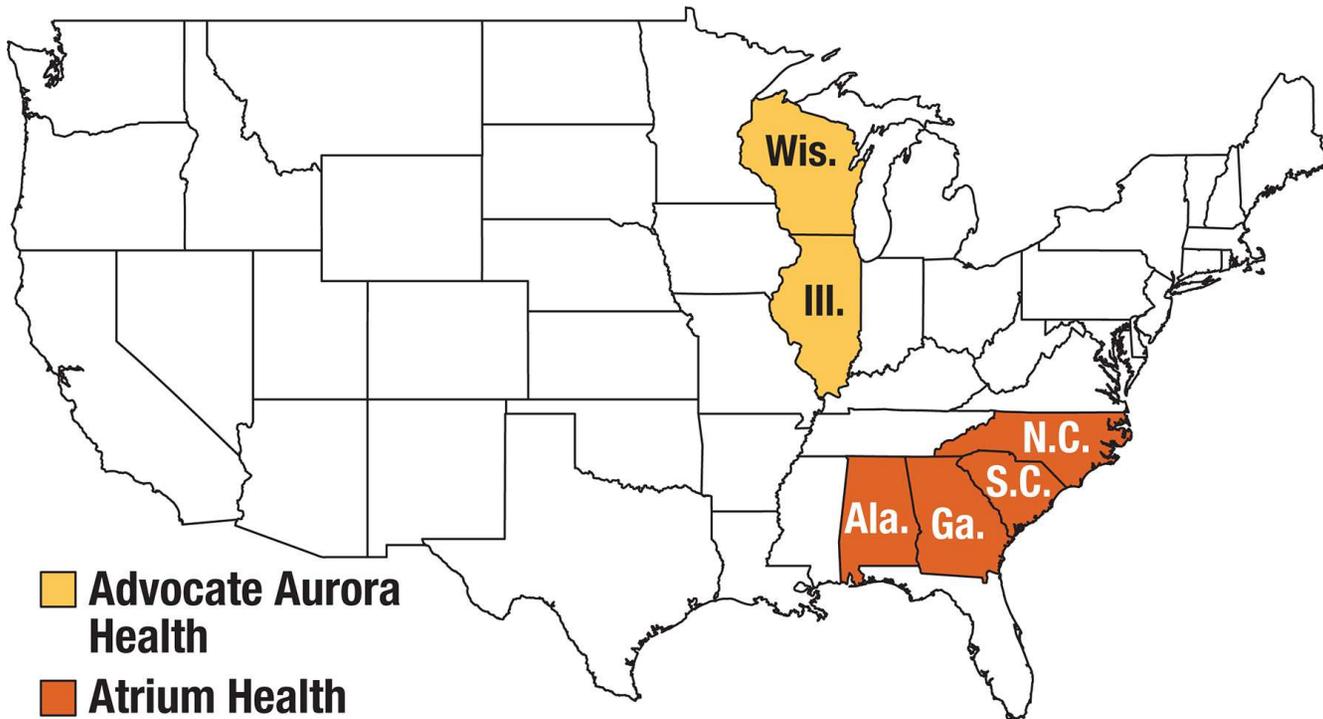
Karen Barker, Ed.D., RN, EMT-P

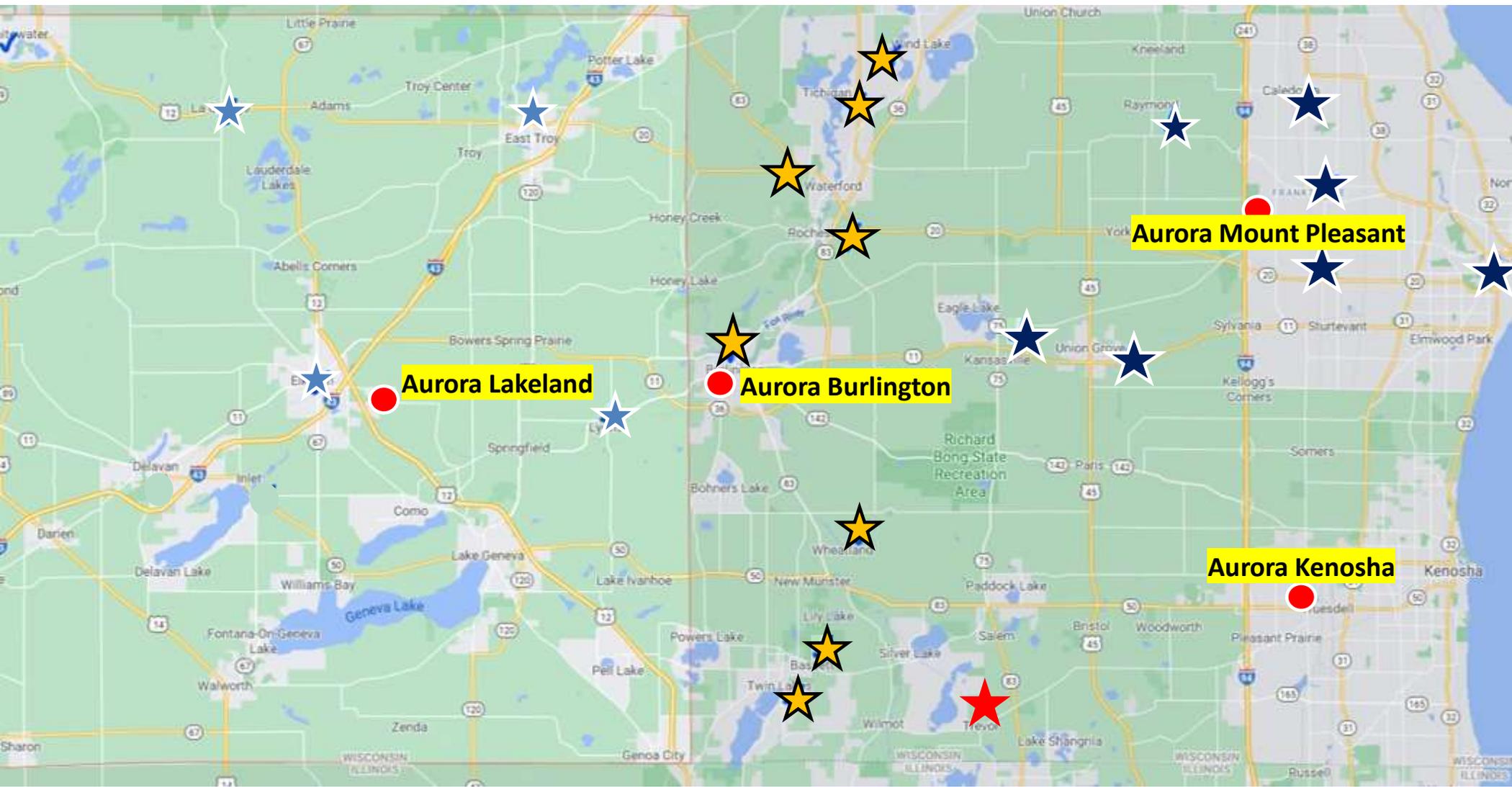
Aurora South Wisconsin EMS



TTR-01: Vital Signs Assessment for Non-Transport

Advocate Health





EMS Tri-County Area

 Aurora Health Care

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EMS Medical Directors



Andrew Aswegan,
MD, FACEP, FAEMS



Donald Keen, MD, MPH,
FAEMS, LTC, EMT-P



Reena Underiner, MD



Steve Andrews, MD,
FAEMS, EMT-P

Why Does It Matter?

Systematic review of 67 non transport articles. "Within 24 h-48 h after non-conveyance, 2.5%-6.1% of the patients have EMS representations, and 4.6-19.0% present themselves at the ED. Mortality rates vary from 0.2%-3.5% after 24 h, up to 0.3%-6.1% after 72 h"

Ebben RHA, et al. A patient-safety and professional perspective on non-conveyance in ambulance care: a systematic review. Scand J Trauma Resusc Emerg Med. 2017 Jul 17;25(1):71.

Systematic review of non-transportation rates and outcomes for older people who have fallen. Up to 49% of non-transported people who have fallen had unplanned health-care contact within 28 days of the initial incident.

Mikolaizak AS et al. Systematic review of non-transportation rates and outcomes for older people who have fallen after ambulance service call-out. Australas J Ageing. 2013 Sep;32(3):147-57.

2019 data from the National EMS Information System registry. Compared non-transport rates for children (<18 y/o), adults (18-60 y/o) and elderly (>60 y/o). There were 21,931,490 EMS activations, including 1,403,454 pediatric 911 responses. 30% of pediatric 911 responses resulted in non-transport. Non-transport was less likely for adults (19%, OR 0.54 [0.54, 0.55]) and elderly patients (13%, OR 0.35 [0.35, 0.36])

Ward, C et al. (2021). National Characteristics of Non-Transported Children by Emergency Medical Services in the United States. Prehospital Emergency Care, 26(4), 537-546.

Vital Signs Obtained in Pediatric non transports based on 2019 ESO Collaborative Data
Incomplete 49,056 (48.3%)
Complete 52,429 (51.7%)

Johnson, K.E. et al. (2024). Factors associated with caregiver decision not to transport pediatric patients assessed by Emergency Medical Services (EMS). International Journal of Paramedicine. (6), 83-97.

Aurora South Wisconsin Project Team:

Dr. Steve Andrews | Dr. Andrew Aswegan | Dr. Donald Keen

Karen Barker | Michael Mackesey | Amy Moczynski | Robert Swenarski



TTR-01: Vital Signs Assessed ***Vital Focus: Enhancing Care for*** ***Non-Transport Patients***

Measure Description

TTR-01: Vital Signs Assessed

Percentage of EMS responses originating from a 911 request for patients not transported by EMS during which a basic set of vital signs is documented.



Vital Focus: Enhancing Care for Non-Transport Patients

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Quality Improvement and Safety Course
2023-24 Cohort



AIM

Increase the percentage of complete vital sign documentation for non-transported patients in EMS responses originating from 911 requests from the current 42% to at least 85% by August 1, 2024.

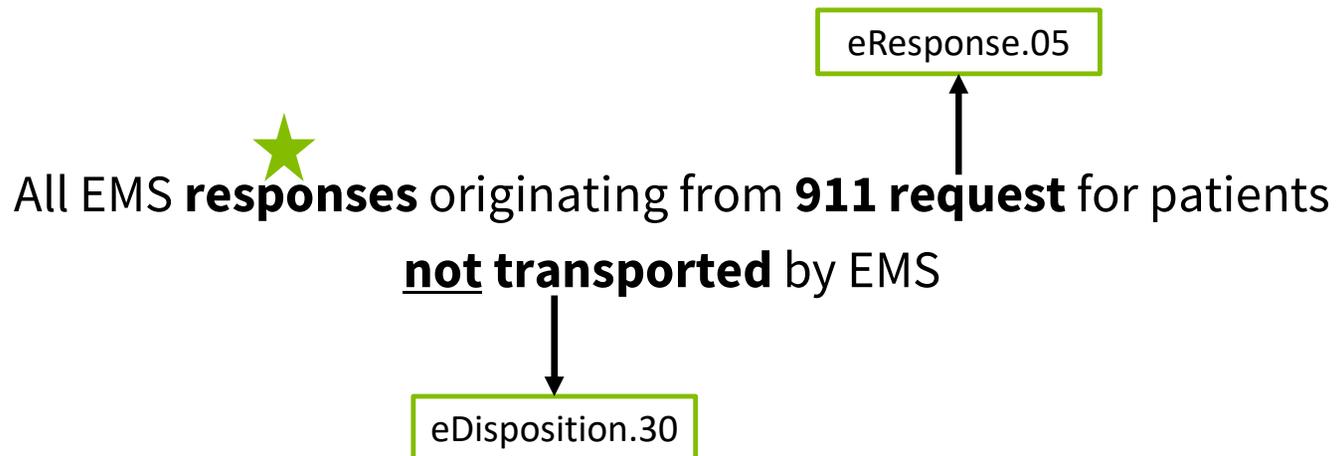
BACKGROUND

Aurora South WI EMS acknowledges the significance of the NEMSQA TTR-01 measure, Vital Signs Documented (non-transported), in enhancing patient care. A thorough assessment of vital signs, including GCS or AVPU, is essential for identifying potential health concerns and providing patients with accurate advice. This process includes addressing any issues related to abnormal vitals and determining the necessity for further evaluation and treatment. Documenting a GCS or AVPU score is particularly important in assessing a patient's ability to make informed decisions, especially when they are refusing medical care. Call review has shown that agencies under our medical direction, responding to 911 calls, often do not document a complete set of vital signs for non-transport patients. To ensure comprehensive documentation and compliance, Aurora South WI EMS has emphasized the importance of obtaining and documenting a full set of vital signs for all non-transports.

TTR-01

Who's in?

(Inclusion Criteria - Denominator)



eResponse .05

Type of service requested

- 911 Response (Scene)
- Emergency Response (Intercept)
- Emergency Response (Primary Response Area)
- Intercept

eDisposition

.12, .28, .30

- Treated, Released (AMA)
- Treated, Released (per protocol)
- Treated, Transported by Law Enforcement
- Treated, transported by private vehicle
- Canceled on Scene (no patient contact)
- Evaluated, not treatment/transport required
- Patient Evaluated and Care Provided
- Patient Evaluated and Refused Care
- Patient Evaluated; No Care Required
- Refused Eval/Care (w/o transport)

Measure Denominator Exclusion Criteria

EMS responses for patients in cardiac arrest prior to EMS arrival

TTR-01

What counts?
(Numerator)

EMS **responses** resulting in non-transport during which a **basic set of vital signs is documented:**

- GCS (.23) or AVPU (.26)
- SBP-initial (.06)
- DBP-initial (.07)
- Heart rate (.10)
- Pulse oximetry (.12)
- Respiratory rate (.14)

eVitals

TTR-01

What counts?
(Numerator)

EMS **responses** resulting in non-transport during which a **basic set of vital signs is documented in:**

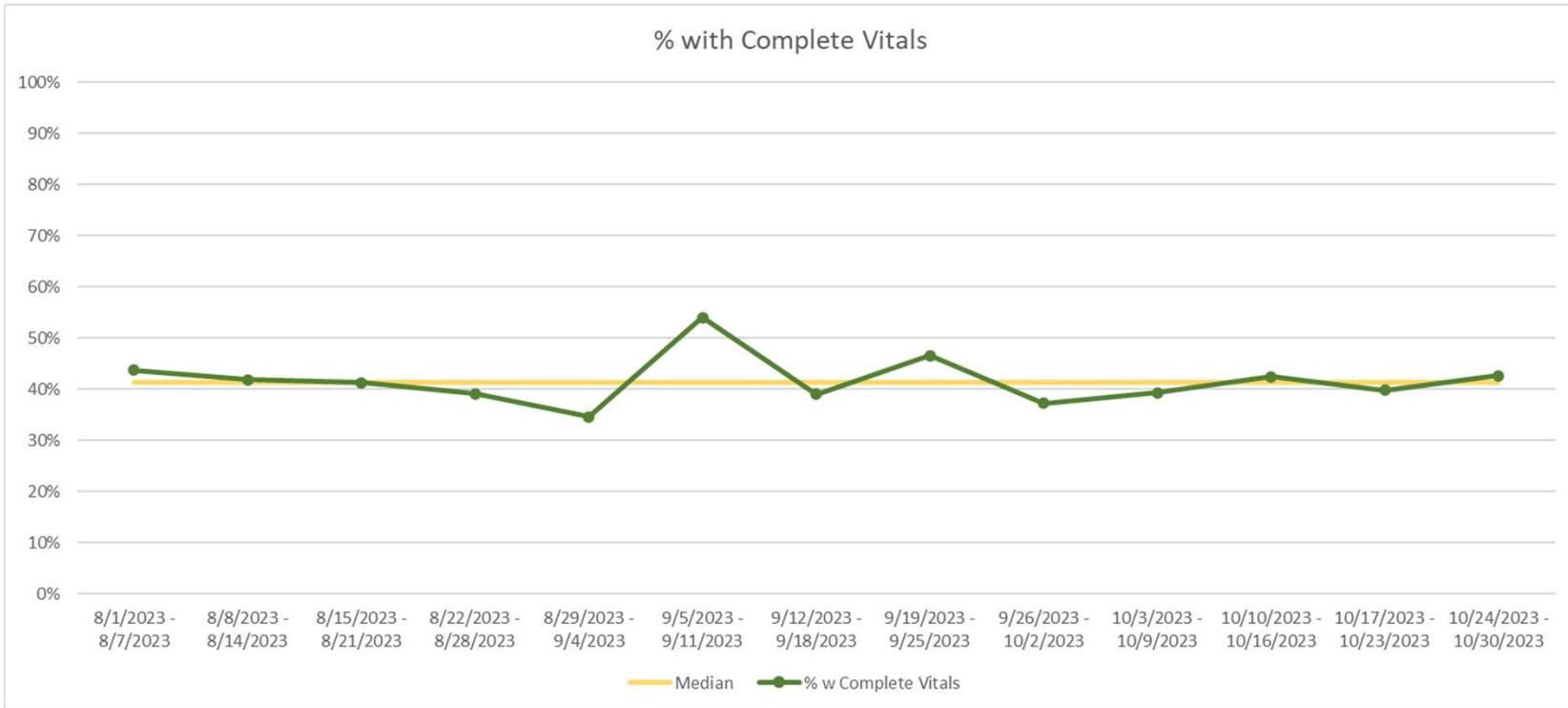
eVitals

- Not Applicable
- Not Recorded
- Exam Finding Not Present
- Refused
- Unable to Complete

Denominator Stratification



Initial Data August 1 – October 31, 2023



Results: Only 40% of non-transport patients had documentation of a complete set of vital signs

DRIVERS & CHANGE THEORIES

**Culture of
“Patient
Definition”**

Overcoming the mentality
that a lift assist doesn't
need an assessment

Talk to EMS providers on how culture can be improved

Ask EMS providers about what drives this mentality

Add definition of “a patient” to pre-hospital guidelines

**Define: “Patient
Contact”**

Providers don't believe
patient needs care

Complete data analysis – “dirty 30”

Post/provider performance feedback

Update guidelines – communicate clearly

**Calls from
patients who
fall**

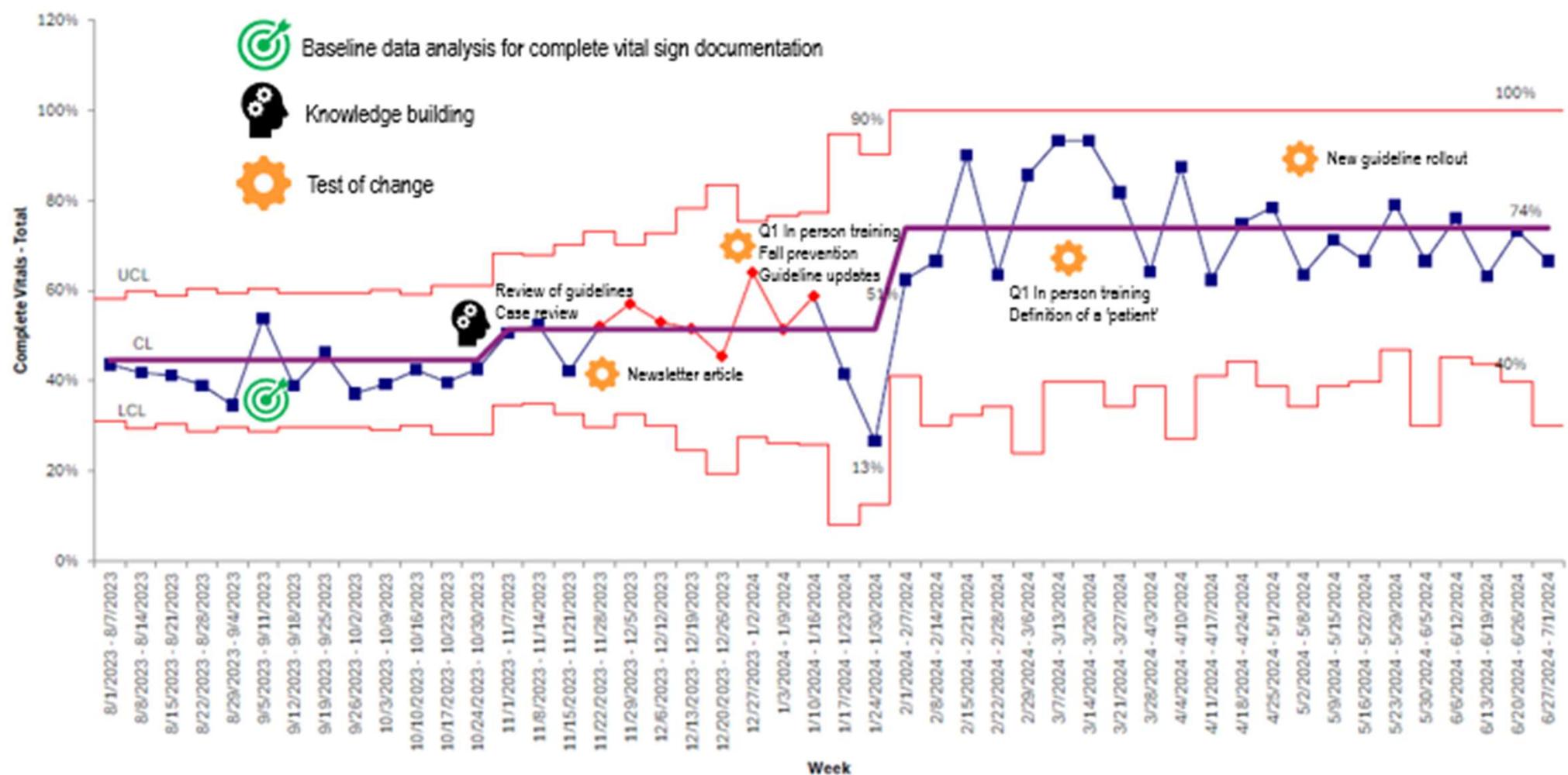
Hazards at home

Provide specific education to providers

Create fall prevention kits with HHS

Provide providers with fall prevention kits to deploy in at-risk homes

Complete Vitals p Chart



P Chart: The primary measure was the total weekly number of documented vital signs, analyzed with a PDSA annotated p-chart. The project period ran from August 2023 through June 2024

TESTS OF CHANGE





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RESULTS

At the onset of this project, there was no existing monitoring tool to track whether a complete set of vital signs was documented for non-transport patients in our EMS system. An initial retrospective review conducted from August 2023 to October 2023 revealed that approximately **40%** of non-transport patients had documentation of a complete set of vital signs (GCS or AVPU, SBP, DBP, HR, RR, SpO2). During this period, there were 514 EMS responses resulting in non-transport.

Following initial education and awareness training, a run chart analysis from November 2023 through January 2024 indicated a nearly 10% increase in the documentation of complete vital signs. Pre-hospital guidelines were updated to include the definition of “a patient,” and new guidelines were introduced for Patient Refusal of Care or Transport, Patient Consent for Care and Transport, and No Injury or Illness/Lift Assist. The project also implemented fall prevention kits, in-person training on the new guidelines, and discussions with EMS crews to emphasize that a lift assist or no injury/illness incident still requires an assessment.

A run chart from February 2024 through June 2024 showed a significant increase in the documentation of complete vital signs, rising from 52% to 74%. Additionally, there was a noted decrease in the number of non-transport incidents from the start of the project. While we did not meet our goal of 85%, we saw dramatic improvement.



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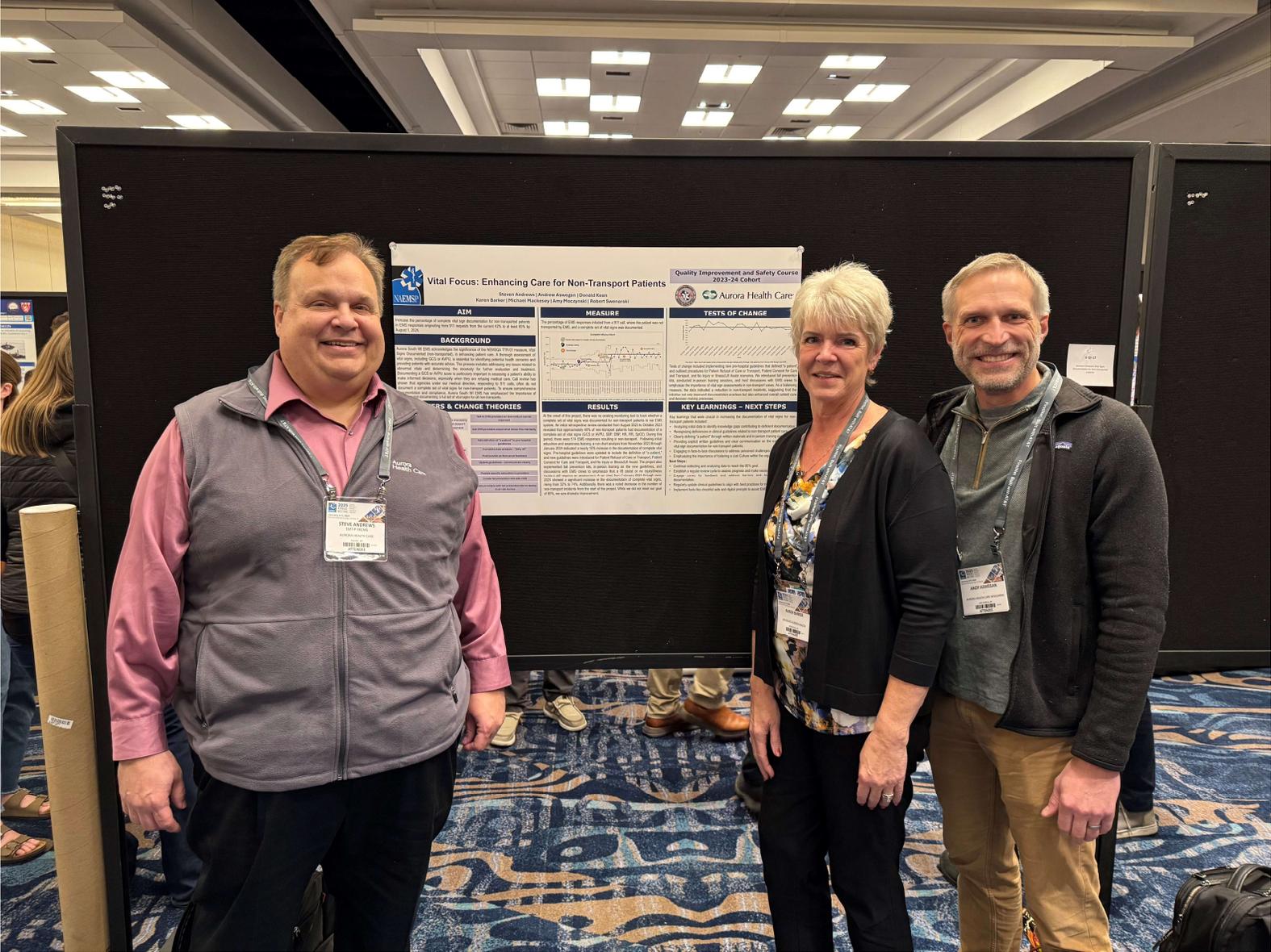
KEY LEARNINGS – NEXT STEPS

Key learnings that were crucial in increasing the documentation of vital signs for non-transport patients included:

- Analyzing initial data to identify knowledge gaps contributing to deficient documentation.
- Recognizing deficiencies in clinical guidelines related to non-transport patient care.
- Clearly defining "a patient" through written materials and in-person training sessions.
- Providing explicit written guidelines and clear communication on the expectations for vital sign documentation for non-transport patients.
- Engaging in face-to-face discussions to address perceived challenges
- Emphasizing the importance of fostering a Just Culture within the organization.

Next Steps:

- Continue collecting and analyzing data to reach the 85% goal.
- Establish a regular review cycle to assess progress and make necessary adjustments.
- Engage crews for feedback and address barriers and knowledge gaps in documentation.
- Regularly update clinical guidelines to align with best practices for non-transport care.
- Implement tools like checklist aids and digital prompts to assist EMS providers.



Vital Focus: Enhancing Care for Non-Transport Patients
 Steven Anderson, Andrew Albrecht | Donald Cook
 Karen Barker | Michael Mackosky | Amy Moczymski | Robert Sawczak

AIM
 Reduce the percentage of patients with high blood sugar at discharge. A DME response targeting hemoglobin A1c from the current 42% to at least 55% by August 2024.

MEASURE
 The percentage of DME responses that have a DTU tag, where the patient was not transferred to UH, are complete and of high quality.

TESTS OF CHANGE
 Tests of change include interventions to improve patient education, provider education, and patient support. We tested the impact of these interventions on patient education, provider education, and patient support. We tested the impact of these interventions on patient education, provider education, and patient support.

RESULTS
 As the result of this project, there was an increase in the number of DME responses that were complete and of high quality. There was also an increase in the number of DME responses that were complete and of high quality.

KEY LEARNINGS - NEXT STEPS
 Key learnings include the importance of patient education, provider education, and patient support. Next steps include continuing to improve patient education, provider education, and patient support.

STEVE ANDERSON
 VITAL FOCUS
 DONALD COOK
 2023-24

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 VITAL FOCUS
 DONALD COOK
 2023-24

Measure Technical Details

TTR-01: Vital Signs Documented

Percentage of EMS responses originating from a 911 request for patients not transported by EMS during which a basic set of vital signs is documented

NEMSQA MEASURE SET

TTR-01



TBD

Higher= Better Quality

Individual EMS Professional
EMS Agency

Clinical Process- Effectiveness
Patient Safety

SCORE

SCORE INTERPRETATION

LEVEL OF MEASUREMENT

NATIONAL QUALITY
STRATEGY DOMAIN

MEASURE PURPOSE

QUALITY
IMPROVEMENT

MEASURE TYPE

PROCESS
EFFICIENCY

@QUALITYEMS

NEMSQA.ORG

TTR-01

Who's in?
(Inclusion Criteria)

All EMS **responses** originating from **911 request** for patients
not transported by EMS



NEMSIS Data Dictionary
Version 3.5.0

Overview
Summary & Sample Element Page

Dataset Grouping
EMSDataset
DEMDataset
StateDataset

EMSDataset Sections
eAirway
eArrest
eCrew
eCustomConfiguration
eCustomResults
eDevice
eDispatch
eDisposition
eExam
eHistory
eInjury
eLabs
eMedications
eNarrative
eOther
eOutcome
ePatient



NEMSIS

Data Dictionary

NHTSA v3.5.0
Build 230317 Critical Patch 4

EMS Data Standard

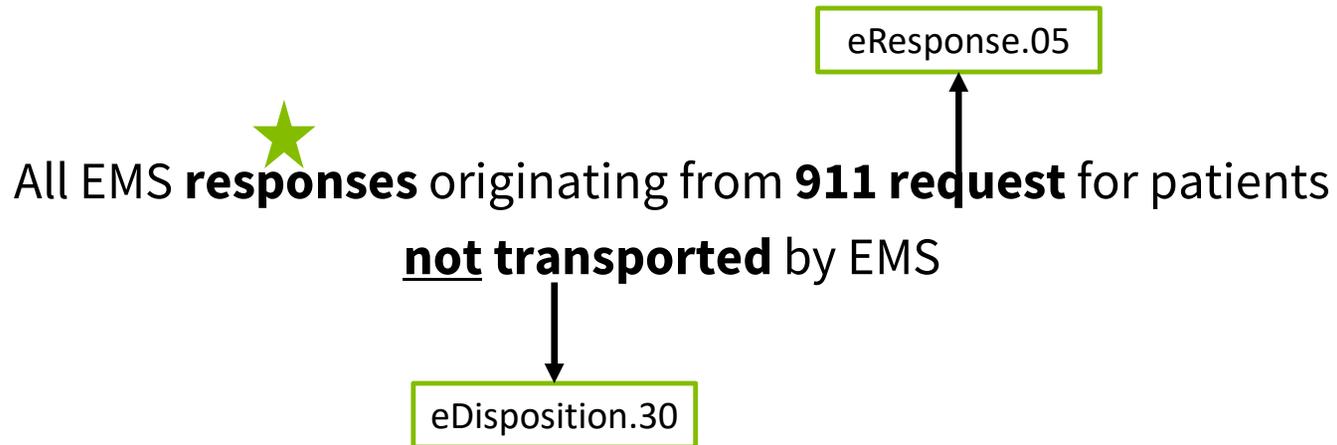
Version Date: March 17, 2023

Funded by
National Highway Traffic Safety Administration (NHTSA)
Office of Emergency Medical Services



TTR-01

Who's in? (Inclusion Criteria)



| | |
|---------------------------|--|
| Initial Population | <p>eResponse.05 Type of Service Requested is in (2205001 (“Emergency Response (Primary Response Area)”), 2205003 (“Emergency Response (Intercept)”), 2205009 (“Emergency Response (Mutual Aid)”))</p> <p>and</p> <p>eDisposition.30 Transport Disposition is in (4230009 (“Patient refused Transport”), 4230013 (“No Transport”))</p> |
|---------------------------|--|

Measure Denominator Exclusion Criteria

eArrest.01

EMS responses for patients in cardiac arrest prior to EMS arrival

| | |
|--|---|
| <p>Denominator Exclusion Criteria</p> | <p>eArrest.01 Cardiac Arrest is 3301003 (“Yes, Prior to Any EMS Arrival (includes Transport EMS & Medical First Responders)”)</p> |
|--|---|

TTR-01

What counts?
(Numerator)

eVitals.xx

EMS **responses** during which a **basic set of vital signs** (SBP, DBP, heart rate, pulse oximetry, respiratory rate, and GCS or AVPU) is documented

[eVitals.06 SBP \(Systolic Blood Pressure\)](#)
[eVitals.07 DBP \(Diastolic Blood Pressure\)](#)
[eVitals.10 Heart Rate](#)
[eVitals.12 Pulse Oximetry](#)
[eVitals.14 Respiratory Rate](#)
EITHER:
[eVitals.23 Total Glasgow Coma Score](#)
[eVitals.26 Level of Responsiveness \(AVPU\)](#)

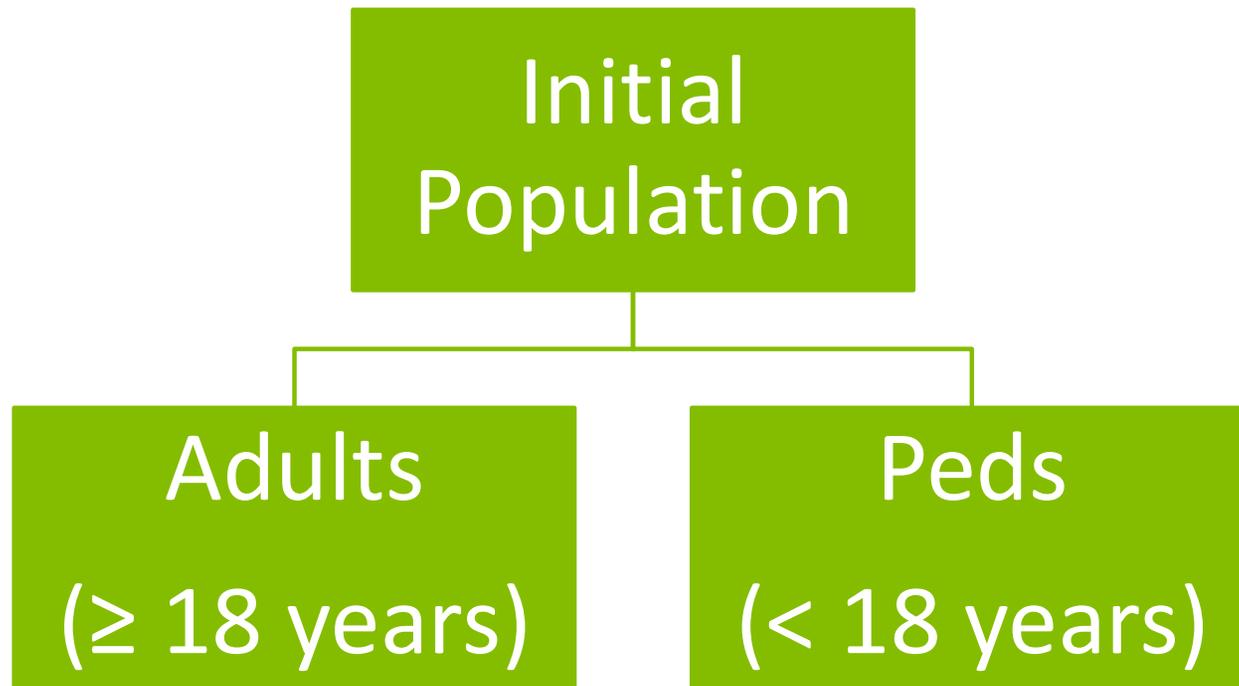
Numerator

is not in
(
Null,
7701001 (“Not Applicable”),
7701003 (“Not Recorded”),
8801005 (“Exam Finding Not Present”),
8801019 (“Refused”),
8801023 (“Unable to Complete”))

Breaking it down

- Looking at overall performance is great but let's take things one step further.

Denominator Stratification



Denominator Stratification

| | |
|--------------------|---|
| Adults Only | ePatient.15 Age is greater than or equal to 18 AND ePatient.16 Age Units is 2516009 ("Years")) |
| Peds Only | 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")))) |

Resources

www.nemsqa.org/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](#)

| Measure ID | Description | Type | National Quality Strategy Domain |
|--|--|---------|----------------------------------|
| Hypoglycemia-01 | NEMSQA-Hypoglycemia-01_Updated_2021 | Process | Clinical Process – Effectiveness |
| Respiratory-01 previously Pediatrics-01 | NEMSQA-Respiratory-01_Updated_2021 | Process | Clinical Process – Effectiveness |
| Asthma-01 previously Pediatrics-02 | NEMSQA - Asthma-01_Updated_2021 | Process | Clinical Process – Effectiveness |
| Pediatrics-03b | NEMSQA - Pediatrics-03b_Updated_2021 | Process | Patient Safety |
| Seizure-02 | NEMSQA - Seizure-02_Updated_2021 | Process | Clinical Process – Effectiveness |
| Stroke-01 | NEMSQA - Stroke-01_Updated_2021 | Process | Clinical Process – Effectiveness |
| Trauma-01 | NEMSQA - Trauma-01_Updated_2021 | Process | Patient Experience |
| Trauma-03 | NEMSQA-Trauma-03_Updated_2021 | Outcome | Patient Experience |

Users are required to [create a FREE user profile](#) to access the technical specifications in order to facilitate communication of updates to the measures.

Q&A