

# Defining a Suite of Performance Measures for EMS in Rural Settings: North Dakota Rural EMS Counts Project

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## INTRODUCTION

Prehospital care and patient health outcomes for rural populations are variable with noted disparities between urban and rural EMS responses.

The complexities and resource constraints of providing prehospital care in rural settings necessitate performance measures specifically relevant to these unique environments.

**OBJECTIVE:** To define a suite of performance measures relevant to EMS organizations delivering care in rural areas.

## METHODS

### STUDY SETTING

- One of four Medicare Rural Hospital Flexibility grants awarded September 2019.
- Goal was to define a suite of performance measures for rural EMS.
- Collaboration between the Center for Rural Health, North Dakota EMS Association, the North Dakota Division of EMS and ESO.

### LITERATURE REVIEW

- PubMed database was searched for all existing EMS performance measures.
- Additional relevant documents were identified from national organizations including NHTSA, NAEMSO, and NEMSQA.
- Two reviewers assessed eligibility and a third reviewer resolved disagreements.
- All performance measures were collated and duplicate measures were removed.

### MODIFIED DELPHI

- 37 subject matter experts were recruited from ND and nationally to identify and prioritize rural EMS performance measures using snowball sampling.
- Participants rated existing measures and suggested additional measures in a three-round electronic process.
- Measures with at least 80% consensus moved to the measure development conference.

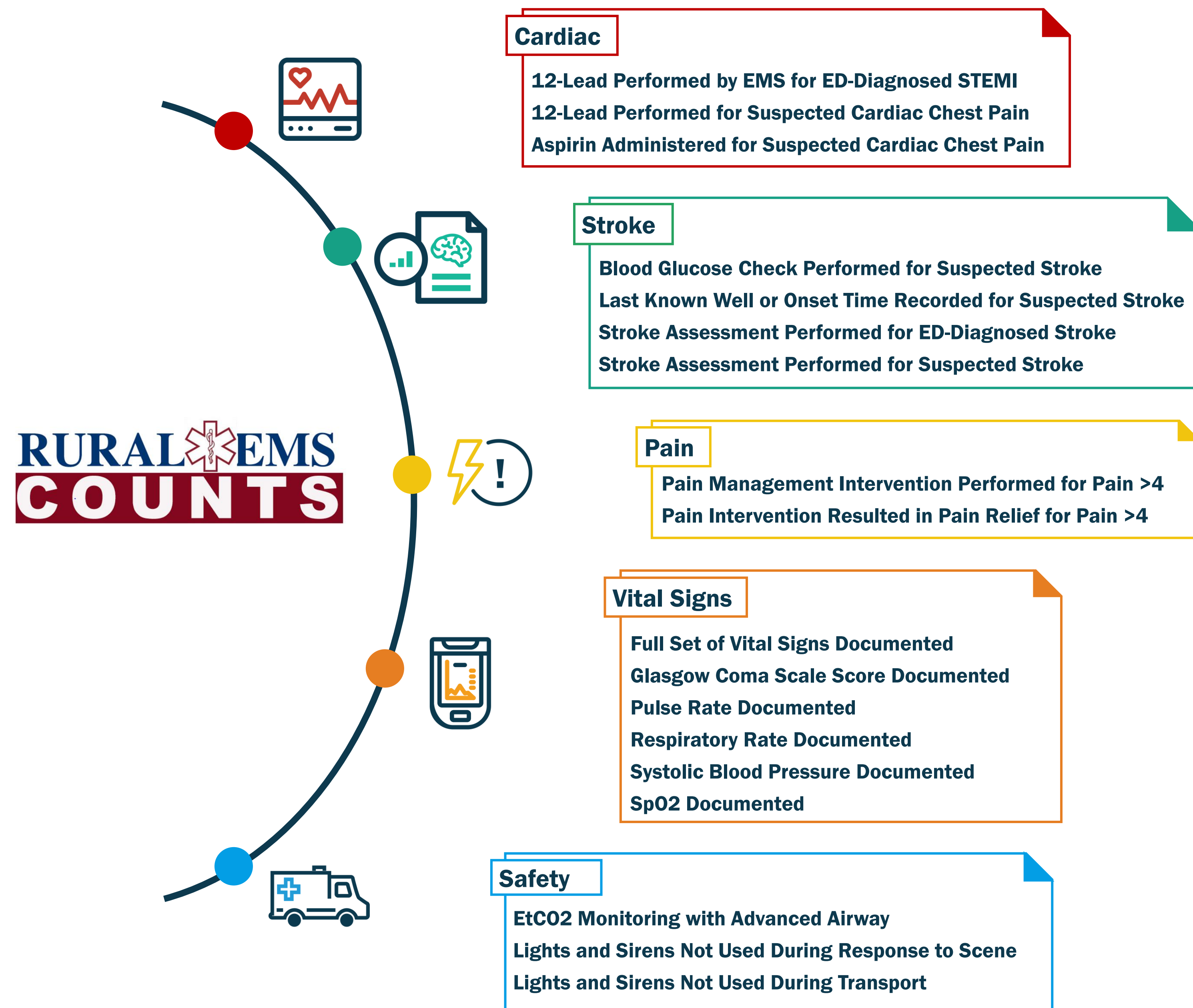
### MEASURE DEVELOPMENT

- In-person event moved to videoconference due to COVID-19 pandemic
- 12 subject matter experts, not included in the Delphi, prioritized 5 topic areas for performance improvement.
- Standardized operational definitions were created for all measures meeting at least 80% consensus.
- Steering committee electronically ranked five areas for prioritization.

## RESULTS

Figure 1

Prioritized Rural EMS Performance Measures from Consensus Measure Development Conference



## PERFORMANCE MEASURES

152 measures were identified through the systematic review across 14 topic areas: airway management, anaphylaxis, asthma/bronchoconstriction, cardiac, cardiac arrest, congestive heart failure/pulmonary edema, global, hypoglycemia, obstetrics/gynecology/neonate/pediatric, pain management, safety, seizures, stroke/transient ischemic attack (TIA), and trauma.

In Round 1 of the Delphi, participants submitted 82 measures.

In total 182 measures met at least 80% consensus for relevance in rural settings and standardized definitions were created.

From the 182 measures, the steering committee prioritized five topic areas and 18 measures for dissemination via the ND state platform (Figure 1).

## DISSEMINATION

Benchmarking at the state and national level was provided through the 2022 ND Rural EMS Counts Index.

Toolkits and checklists for quality improvement were also developed and are available via the project website.

## CONCLUSION

State and regional leadership may find value in using local data to prioritize measures from the suite of 182 measures covering 14 categories. While some measures apply to nearly all EMS encounters (e.g., lights and siren use), other events are low frequency and high criticality (e.g., stroke care). For these measures standardized definitions allow for data collaboratives and learning partnerships to pool resources for quality improvement in low-volume settings.

2022 ND Rural EMS Counts Index

Use your phone's camera to scan for national and state benchmarks

[ndemsa.org/Rural-EMS-Counts](http://ndemsa.org/Rural-EMS-Counts)

## DEDICATION:

In memory of Dr. Heidi Lako-Adamson and Ken Reed whose contributions to this project were essential.