Research Process and Scoring Information

The Measure Development Lifecycle Process adopted by NEMSQA in February 2019 requires thoroughly researching each measure concept to ensure it is supported by strong guidelines and rationale. The candidate EMS Compass measures were researched during their initial measure development. However, because several years had passed, it was important to the NEMSQA Measure Development Committee (MDC) to conduct additional research to assess the degree to which each of the measures remain evidence-based and identify any new evidence, guidelines or existing quality measures relevant to each measure.

Before starting any re-specification efforts, staff and committee members reviewed guidelines and published literature. Methodical literature searches were conducted using PubMed review of guideline databases and existing relevant quality measures. NEMSQA staff conducted initial reviews of literature and guidelines to determine which were applicable to the measure concepts, then passed them on to committee members for review and scoring.

Two committee members were responsible for reviewing the literature and guidelines for each measure. Assigning two reviewers per measure helped ensure objectivity in measure review. The scoring guidance used was similar to that used in the original EMS Compass measure development project, but with some additions. This strenuous guidance not only helps ensure that measure concepts are relevant and supported by EMS practice, but also helps determine how strong the evidence is to support each measure. Scoring guidance can be found in *Appendix A.*

Once reviews and scoring were completed, it was determined that the majority of the EMS Compass measures are supported by Level II or Level III rationale. Much discussion about these results took place, including debate on whether NEMSQA should publish measures not backed by Level I rationale. However, after taking a critical look at the measure concepts, it was determined that the lack of Level I rationale should not be an impediment to measure use by the EMS Community. Rather, the measures themselves represent current standards of care, and conducting randomized controlled trials on patients to test many of these clinical processes would raise ethical concerns. While the final measures are not backed by Level I evidence and Level A guidelines, they are clinically important, and have evidence to support them. Final scoring sheet can be found in *Appendix B.*

Appendix A: Research Review Scoring Guidance

Evidence Review		
	Clinical Measure	Operational Measure
Level I	Evidence obtained from adequately powered properly designed randomized controlled trials (RCTs) on live human participants, or systematic reviews or meta-analyses that contain ONLY RTCs. No pilot studies are to be included here.	Published academic studies with strong statistical evidence supports the measure. Lean / Six-sigma project developed process measure with strong statistical evidence of outcome improvement.
Level II	Evidence obtained from adequately powered non-randomized studies with a comparison group of live human participants, or systematic reviews / meta-analyses of non-random studies with a comparison group.	Published academic studies with moderate statistical evidence supports the measure. Lean / Six-sigma project developed process measure with moderate statistical evidence of outcome improvement.
Level III	Evidence from studies with no randomization and no comparison group, simulation / mankind studies and animal studies.	No current evidence exists to support the measure, however one or more of the following situations exist: (1) industry practice has driven wide-spread measure adoption (2) Other related industry practice has driven wide-spread measure adoption applicable to the industry (3) Benchmarking of the metric would be of significant benefit.
Exclusion of Measure	Opinion articles, editorials, epidemiological reports, surveys, or articles not reporting primary studies.	Opinion articles, editorials, reports, surveys, or articles not reporting primary studies.

Guideline Review	
Level A	Includes 1 or more Level I Evidence Review sources. High-degree of clinical certainty.
Level B	Includes 2 or more Level II Evidence Review Sources. Moderate clinical certainty.
Level C	Based on Level III Evidence Review sources or no adequate published literature.

Direction of Evidence	
Green	Direction of evidence and guidelines are supportive for the use of this intervention/measure.
Yellow	Direction of evidence and guidelines are neutral for the use of this intervention/measure.
Red	Direction of evidence and guidelines oppose the use of this intervention/measure.
White	Direction of results not yet evaluated.

Appendix B: Final Research Scoring Sheet

Measure ID	Measure Title	Measure Description	Evidence Review	Guideline Review	Documented Practice Gap	Direction of Evidence
Hypoglycemia-01	Treatment Administered for Hypoglycemia	Percentage of EMS responses originating from a 911 request for patients who received treatment to correct their hypoglycemia.	Level III	Level C	No	Green
Pediatrics-01	Pediatric Respiratory Assessment	Percentage of EMS responses originating from a 911 request for patients less than 18 years old with primary or secondary impression of respiratory distress who had a respiratory assessment.	Level III	Level B	No	Green
Pediatrics-02	Administration of Beta Agonist for Pediatric Asthma	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.	level II	Level B	No	Green
Pediatrics-03	Documentation of Estimated Weight in Kilograms	Percentage of EMS responses originating from a 911 request for patients less than 18 years of age who received a weight-based medication and had a documented weight in kilograms or length-based weight estimate documented during the EMS response.	Level III	Level C	Yes	Green
Seizure-02	Patient with Status Epilepticus Receiving Intervention	Percentage of EMS responses originating from a 911 request for patients with status epilepticus who received benzodiazepine aimed at terminating their status seizure during the EMS response.	Level II	Level B	No	Green
Stroke-01	Suspected Stroke Receiving Prehospital Stroke Assessment	Percentage of EMS responses originating from a 911 request for patients suffering from a suspected stroke who had a stroke assessment performed during the EMS response.	Level III	Level B	No	Green
Trauma-01	Injured Patients Assessed for Pain	Percentage of EMS responses originating from a 911 request for patients with injury who were assessed for pain.	Level II	Level B	Yes	Green
Trauma-03	Effectiveness of Pain Management for Injured Patients	Percentage of EMS transports originating from a 911 request for patients whose pain score was lowered during the EMS encounter.	Level II	Level B	Yes	Green
Trauma-04	Trauma Patients Transported to a Trauma Center	Percentage of EMS responses originating from a 911 request for patients who meet CDC criteria for trauma and are transported to a trauma center.	Level I	Level A	Yes	Green
Safety-01	Use of Lights and Sirens During Response to Scene	Percentage of EMS responses originating from a 911 request in which lights and sirens were not used during response.	Level II	Level B	Yes	Green
Safety-02	Use of Lights and Sirens During Transport	Percentage of EMS transports originating from a 911 request during which lights and sirens were not used during patient transport.	Level II	Level B	Yes	Green