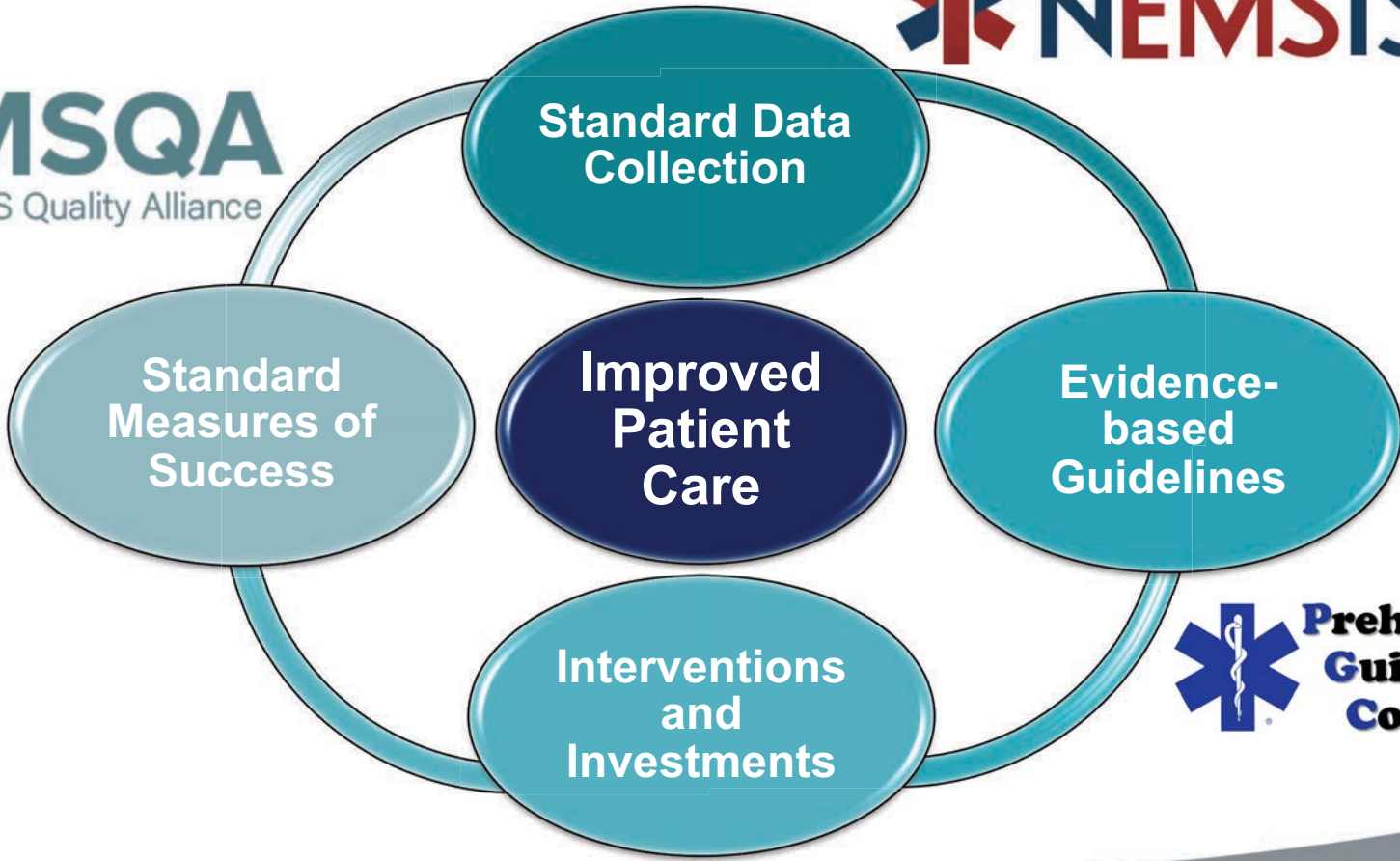


EMS Focus

A Collaborative Federal Webinar Series

Developing National EMS Performance Measures and Using Them to Improve Care



Today

- ▶ Using Measurement to Improve
- ▶ National EMS Quality Alliance
- ▶ Developing and Testing the NEMSQA Measures
- ▶ Questions

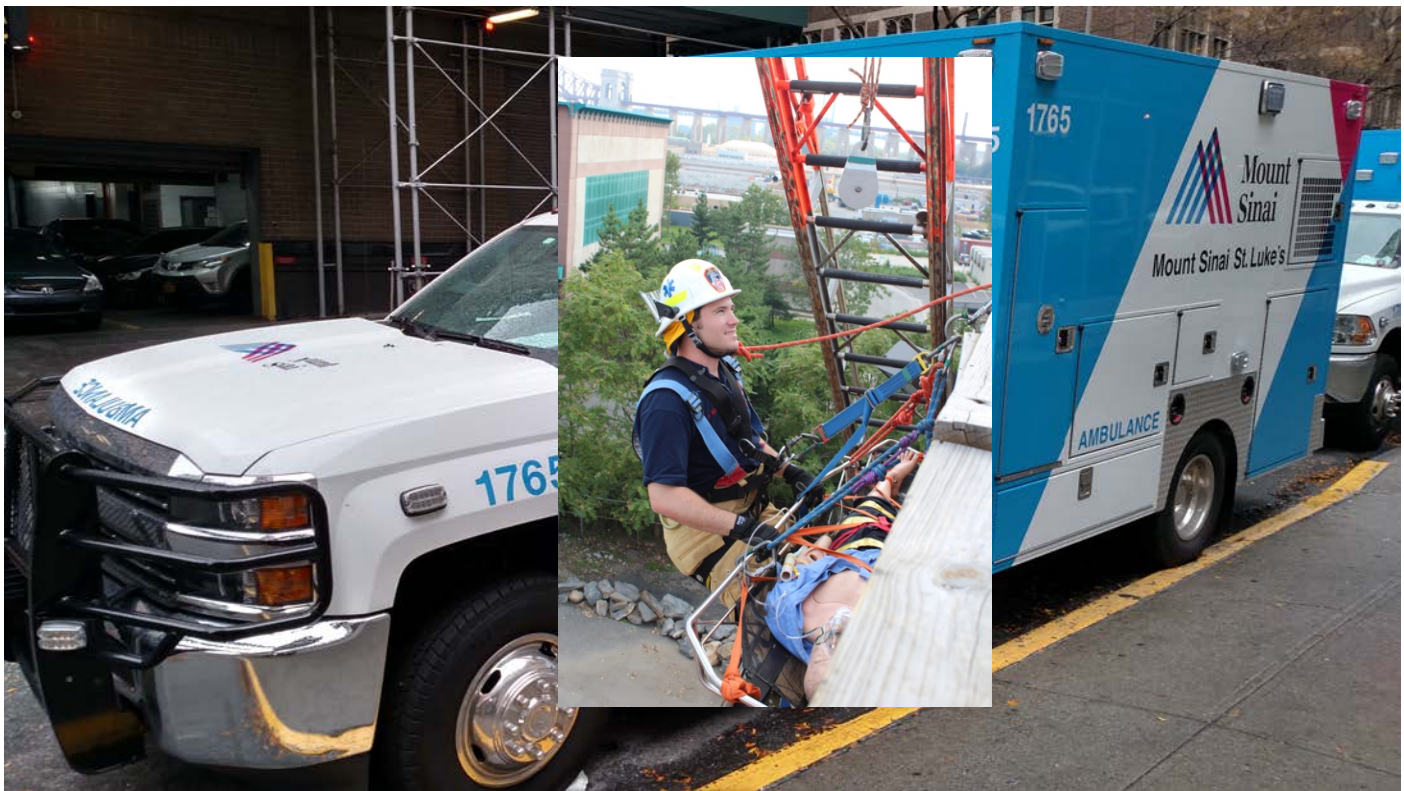
Today's Speakers

- ▶ **Michael Redlener, MD, FAEMS**
 - ▷ Vice President of the Board, National EMS Quality Alliance
 - ▷ Medical Director for EMS Quality, Mount Sinai Hospital System

- ▶ **Jeff Jarvis, MD, MS, EMT-P, FAEMS**
 - ▷ Member, NEMSQA Steering Committee
 - ▷ Medical Director for Williamson County EMS and Marble Falls Area EMS

- ▶ **Brooke Burton, NRP, FACPE**
 - ▷ Member, NEMSQA Board
 - ▷ Division Chief of Quality, Falck – Alameda

- ▶ **Max Sevareid, MPH**
 - ▷ EMS Specialist, NHTSA Office of EMS



Carbon Hill Volunteer Rescue Squad Patient Care Narrative

DEPARTMENT/UNIT CARBON HILL VOL RESCUE SQUAD	UNIT # 340	ADDRESS 12345					
INCIDENT LOCATION	INCIDENT TYPE						
PATIENT LOCATION	TIME	DATE					
PATIENT AGE	SEX	DOB					
CHIEF COMPLAINT	<input type="checkbox"/> Pt. Status: Stable <input type="checkbox"/> Unknown <input type="checkbox"/> Degrade W/O <input type="checkbox"/> Lethal						
ALLERGIES	<input type="checkbox"/> Pt. Status: Stable <input type="checkbox"/> Unknown <input type="checkbox"/> Lethal						
MEDICAL HISTORY	<input type="checkbox"/> Pt. Status: Stable <input type="checkbox"/> Unknown <input type="checkbox"/> Critical <input type="checkbox"/> COPD <input type="checkbox"/> Blood Failure <input type="checkbox"/>						
Patient Signs	LOC	SPRCH	GRS	COLO	RESP	PULSE	PERF
	Alert	Coherent	Normal	Normal	Normal	Normal	Reactive L/R
Medical Conditions	Abdominal Pain	Palpitations	Cardiac Arrest	Chest Pain	Conc	Eye Browing	Stroke
	AKLS	Cardiac Chest Pain	Fx (Distal)	Pelvic (DD)	Seizure	Scoliosis	Splenic Rupture
	Aspiration	Cardiac Dysrhythmias	Head Trauma	Edema/Wo	Spinal	Strabismus	Swallow
	Asphyxiation	Peri-Orbital Edema	Hypertension	Fract Dislocation	Agitated	Blindness	Diabetic
	Burns	Childbirth	Hypoglycemia	Seizures	Electrolyte	Imbalance	Generalized
	Cardiac Arrest	Compartment Syndrome	Hypotension	Shock	Generalized	Posterior	Corneal
TIME	BY	BY	BY	BY	BY	BY	BY
MEDICATIONS NAME / DOSE / QTY / RATE / OTHER							
SIGNS & SYMPTOMS NAME / DOSE / QTY / RATE / OTHER							
REFERENCE TO TREATMENT / INQUIRY This is to certify that I am rendering Treatment / Transport and have been informed of the risks of doing so.							
Signature	Date/Time	Signature	Date/Time	Signature	Date/Time	Signature	Date/Time
Crew Member #1	DOB/Last 4	Crew Member #1	DOB/Last 4	Crew Member #1	DOB/Last 4	Crew Member #1	DOB/Last 4
Crew Member #2	DOB/Last 4	Crew Member #2	DOB/Last 4	Crew Member #2	DOB/Last 4	Crew Member #2	DOB/Last 4



911: YOU CANT MAKE THIS STUFF UP

GO HOME STRETCHER, YOU'RE DRUNK

EMERGENCY MEDICAL SERVICES PERFORMANCE MEASURES

RECOMMENDED ATTRIBUTES AND
INDICATORS FOR SYSTEM AND SERVICE
PERFORMANCE

December 2009



MISSION:
LIFELINE



California EMS System Core Quality Measures Data Year 2014



CARES
Cardiac Arrest Registry
to Enhance Survival

EVIDENCE-BASED PERFORMANCE MEASURES FOR EMERGENCY MEDICAL
SERVICES SYSTEMS: A MODEL FOR EXPANDED EMS BENCHMARKING
A STATEMENT DEVELOPED BY THE 2007 CONSORTIUM U.S. METROPOLITAN MUNICIPALITIES'
EMS MEDICAL DIRECTORS (APPENDIX)

J. Brent Myers, MD, MPH, Corey M. Slovis, MD, Marc Eckstein, MD, MPH,
Jeffrey M. Goodloe, MD, S. Marshal Isaacs, MD, James R. Loflin, MD,
C. Crawford Mechem, MD, Neal J. Richmond, MD, Paul E. Pepe, MD, MPH

Myers et al. EVIDENCE-BASED EMS

145

TABLE 2. Numbers-Needed-to-Treat (NNT) by Clinical Scenario

Clinical Area	Elements	NNT	Harm Avoided
ST-Segment Elevation Myocardial Infarction (STEMI)	Aspirin 12-lead electrocardiograph (ECG), direct transport to percutaneous cardiac intervention (PCI) interval from ECG to balloon < 90 minutes ^{66,67}	15	Either a stroke, 2nd myocardial infarction, or a death
Seizure	Administration of benzodiazepine for status epilepticus ⁶⁸	4	Persistent seizure activity
Pulmonary edema	Noninvasive positive pressure ventilation (NIPPV) ⁶⁹	6	Need for an endotracheal intubation
Trauma	Patients with an Injury Severity Score (ISS) = 15 to trauma center ⁷⁷	11	1 death
Trauma	Patients over 65 years of age with ISS > 21 to trauma center ⁶⁹	3	1 death
Cardiac arrest	Defibrillator to the scene < 5 minutes rather than < 8 minutes ¹⁵	8	1 death



EMS COMPASS

- ▶ Measure set originally developed by the National Association of State EMS Officials and funded by the National Highway Traffic Safety Administration (NHTSA)
- ▶ Fourteen (14) candidate measures released in 2016
- ▶ Six clinical measure categories included in measure set, including: pediatrics, stroke, trauma and safety
- ▶ Measure specifications, NEMESIS pseudocode, and ePCR vendor readiness released with project deliverables
- ▶ Candidate measures implemented by EMS agencies and NEMESIS for testing and QI purposes

NEMSQA & EMS Compass 2.0

- ▶ In 2017, NHTSA awarded the American College of Emergency Physicians (ACEP) a contract to continue the EMS Performance Measures initiative
 - ▷ Contract requirements included forming a sustainable organization focused on EMS Quality Measurement and reviewing and revising the EMS Compass candidate measures
 - ▷ In 2018, the National EMS Quality Alliance (NEMSQA) was formed as an entity under the NHTSA contract
 - ▷ NEMSQA released re-specified EMS Compass measure set and became a stand-alone 501(c)(6) corporation in September 2019

NEMSQA

National EMS Quality Alliance

EMS COMPASS

Improving Systems of Care Through Meaningful Measures



Vision

Improving patient outcomes through the collaborative development of quality measures for EMS and health systems of care.

Mission

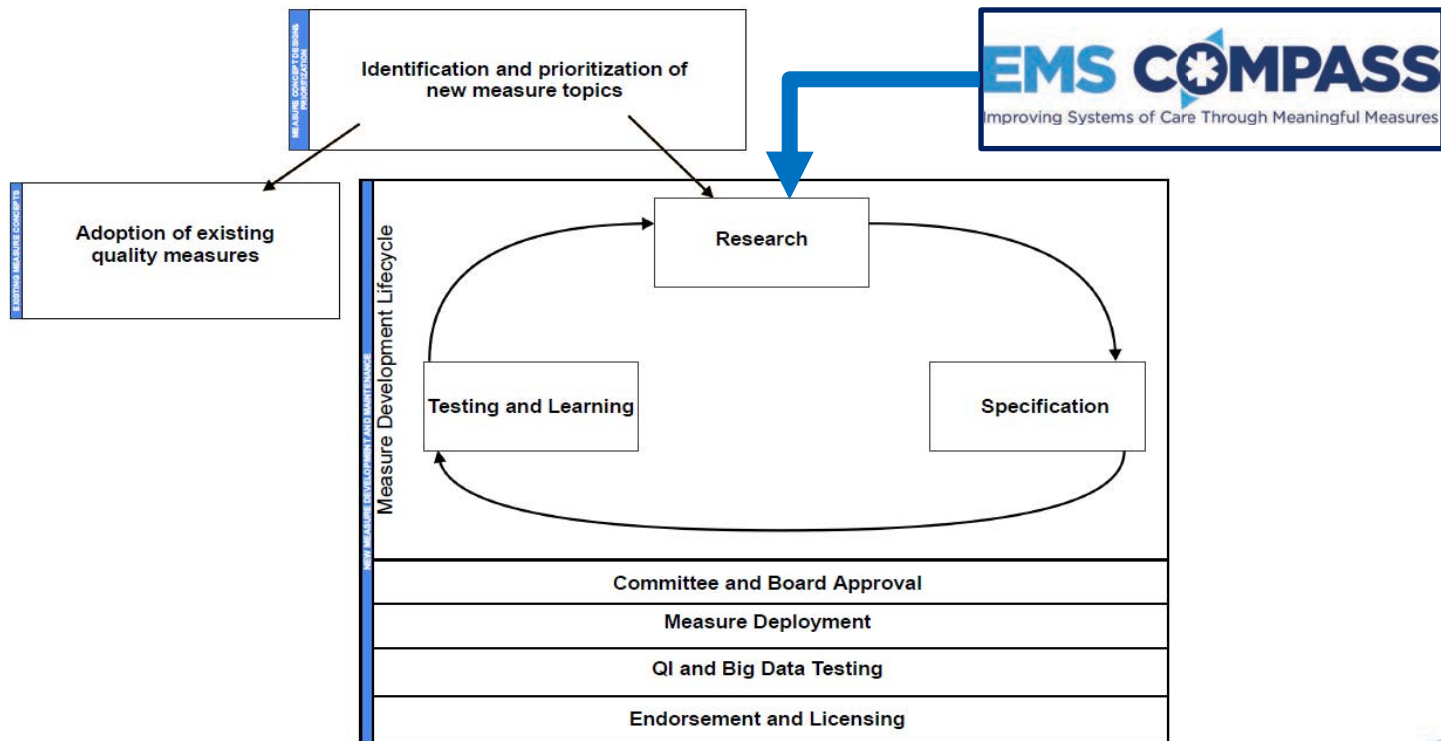
NEMSQA will develop and endorse evidence-based quality measures for EMS and healthcare partners that improve the experience and outcomes of patients and care providers.

NEMSQA Steering Committee



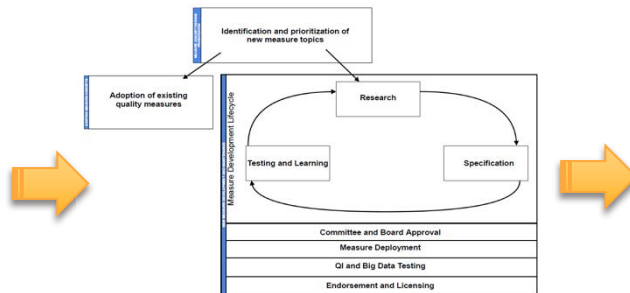
- Academy of International Mobile Healthcare Integration
- Air and Surface Transport Nurses Association
- Air Medical Physician Association
- American Academy of Emergency Medicine
- American Academy of Pediatrics
- American College of Cardiology
- American College of Surgeons Committee on Trauma
- American Heart Association
- American Society for Testing and Materials (ASTM F-30 EMS)
- Association of Critical Care Transport
- Commission on Accreditation of Ambulance Services
- Commission on Accreditation of Medical Transport Systems
- Commission on Accreditation for Pre-Hospital Continuing Education
- Commission on Accreditation of Ambulance Services
- Committee on Accreditation of Educational Programs for the EMS Professions
- Emergency Nurses Association
- EMS for Children Innovation & Improvement Center
- International Trauma Life Support
- National Association for Search and Rescue
- National Association of EMS Educators
- National Collegiate EMS Foundation
- National EMS Pilots Association
- National Registry of EMTs
- The Paramedic Foundation

NEMSQA Approach to Measure Development



Contents

EMS Compass Bundle	Page
Hypoglycemia	2
Medication Error	3
Pediatric Respiratory	4
Seizure	5
Stroke	6
Trauma	7
Trauma Pain	8
Vehicle Operations Safety	9



Measure ID	Description
Hypoglycemia-01	Treatment Administered for Hypoglycemia
Pediatrics-01	Pediatric Respiratory Assessment
Pediatrics-02	Administration of Beta Agonist for Pediatric Asthma
Pediatrics-03	Documentation of Estimated Weight in Kilograms
Seizure-02	Patient with Status Epilepticus Receiving Intervention
Stroke-01	Suspected Stroke Receiving Prehospital Stroke Assessment
Trauma-01	Injured Patients Assessed for Pain
Trauma-03	Effectiveness of Pain Management for Injured Patients
Trauma-04	Trauma Patients Transported to a Trauma Center
Safety-01	Use of Lights and Sirens During Response to Scene
Safety-02	Use of Lights and Sirens During Transport

NEMSQA's 11 Measures



Measure ID	Description
Hypoglycemia-01	Treatment Administered for Hypoglycemia
Pediatrics-01	Pediatric Respiratory Assessment
Pediatrics-02	Administration of Beta Agonist for Pediatric Asthma
Pediatrics-03	Documentation of Estimated Weight in Kilograms
Seizure-02	Patients with Status Epilepticus Receiving Intervention
Stroke-01	Suspected Stroke Receiving Prehospital Stroke Assessment
Trauma-01	Injured Patients Assessed for Pain
Trauma-03	Effectiveness of Pain Management for Injured Patients
Trauma-04	Trauma Patients Transported to a Trauma Center
Safety-01	Use of Lights and Sirens During Response to Scene
Safety-02	Use of Lights and Sirens During Transport



Why are there Fewer Measures?

Seizure-01	Retired from measure set during clinical evidence review. Evidence no longer supports measure.					
Seizure-02	Patients receiving EMS intervention (e.g. benzodiazepine) aimed at terminating their status seizure.	EMS responses originating from a 911 request for patients who received benzodiazepine aimed at terminating their status seizure during the EMS response.	Patients with ongoing status seizure activity (also known as status epilepticus, defined as seizing for 5 minutes or more or two or more status seizures in a 5-minutes period without regaining consciousness) originating from a 911 request	All EMS responses originating from a 911 request for patients with a primary or secondary impression of status epilepticus.	None	None
Stroke-01	Number of suspected stroke patients who had a stroke assessment performed (CPSS, LAMS, etc.)	EMS responses originating from a 911 request for patients who had a stroke assessment performed on scene during the EMS Response.	Patients with a provider impression of stroke originating from a 911 request	All EMS responses originating from a 911 request for patients with a primary or secondary impression of stroke.	None	None
Stroke-08	Retired from measure set due to data feasibility issues.					
Trauma-01	Patients with pain scale value present	EMS transports originating from a 911 request for patients with any	Patients with injury originating from a 911 request	All EMS transports originating from a 911 request for	None	None

Why are there Updated Measures?

Measure ID	Previous Numerator	Updated Numerator	Previous Denominator	Updated Denominator	Previous Denominator Exclusions	Updated Denominator Exclusions
Hypoglycemia-01	Patients receiving treatment intended to correct hypoglycemia (food, administration of oral glucose, dextrose, or glucagon)	EMS responses originating from a 911 request for patients receiving treatment to correct their hypoglycemia during the EMS response.	Patients identified as being hypoglycemic with a blood sugar of <60mg/dl originating from a 911 request	All EMS responses originating from a 911 request for patients with hypoglycemia and a GCS of <15 or an AVPU of <A or patients with a primary or secondary impression of altered mental status and a blood glucose level of <60.	None	Patients less than 24 hours of age
Pediatrics-01	Pediatric patients with	EMS responses originating from	Patients <15 years AND	All EMS responses	None	None

nemsqa.org/completed-quality-measures/

- **Measure Specification Table:** A quick-reference table that includes broad-view measure specifications (i.e., numerator and denominator criteria) for each measure.
- **Measure Worksheets:** Detailed reference sheets for each measure, which include specifications, clinical guidelines, and rationale.
- **Measure Worksheets with NEMSIS Pseudocode:** Measure worksheets with guidance for mapping measures/data to the National Emergency Medical Services Information System (NEMSIS) registry.
- **Clinical Quality Measure Flows:** Graphical flowcharts demonstrating measure logic and the data collection process for each measure.
- **Project Summary with Measure Narratives:** An overview of the EMS Compass 2.0 project and narratives for each measure, which include systems implications.
- **Frequently Asked Questions:** Answers to commonly asked questions surrounding EMS Compass 2.0, measures, and quality.
- **Change Log:** A reference table that documents changes made in the EMS Compass 2.0 measures during the re-specification project. This table can be helpful for entities who were using the original EMS Compass 2.0 measures.

To download all EMS Compass 2.0 measure information resources at once, [click here](#).

ie: Stroke-01: Suspected Stroke Patient Receiving Prehospital Stroke Assessment

	eVitals.29 Stroke Scale Score is not null
or	eVitals.30 Stroke Scale Type is not null
(eSituation.11 Provider's Primary Impression matches /^(I60) (I61) (I63) (G45) (G46)/ ("Nontraumatic subarachnoid hemorrhage...," "Nontraumatic intracerebral hemorrhage...," "Cerebral infarction..." "Transient cerebral ischemic attacks..." or "Vascular syndromes of brain in cerebrovascular diseases...")
or	eSituation.12 Provider's Secondary Impressions matches /^(I60) (I61) (I63) (G45) (G46)/ ("Nontraumatic subarachnoid hemorrhage...," "Nontraumatic intracerebral hemorrhage...," "Cerebral infarction..." "Transient cerebral ischemic attacks..." or "Vascular syndromes of brain in cerebrovascular diseases...")
)	
and	eResponse.05 Type of Service Requested is 2205001 ("911 Response (Scene)")
or	eVitals.23 Total Glasgow Coma Score is less than or equal to 9 eVitals.26 Level of responsiveness (AVPU) is 3326007 ("Unresponsive")



Rollout and Familiarization

- ▶ Re-specified EMS Compass Measure Set available at nemsqa.org
- ▶ Measures being implemented by multiple NEMSQA partners
- ▶ Annual maintenance (re-specifications) - Next review Fall 2020
- ▶ Ensure most evidence-based, feasible, valid, and reliable measures are in use







Benchmarking

Pediatrics-03: Documentation of Estimated Weight in Kilograms

Measure Score Interpretation: For this measure, a higher score indicates better quality.

Measure Description	
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.	
Measure Components	
Numerator Statement	EMS responses originating from a 911 request for patients in which a weight value was documented in kilograms or a length-based weight was documented during the EMS response.
Denominator Statement	All EMS responses originating from a 911 request for patients less than 18 years of age who received a weight-based medication during the EMS response.
Denominator Exclusions	None
Denominator Exceptions	None

Screenshot

Pediatrics 0-3

Weight value in kilograms or length-based weight documented

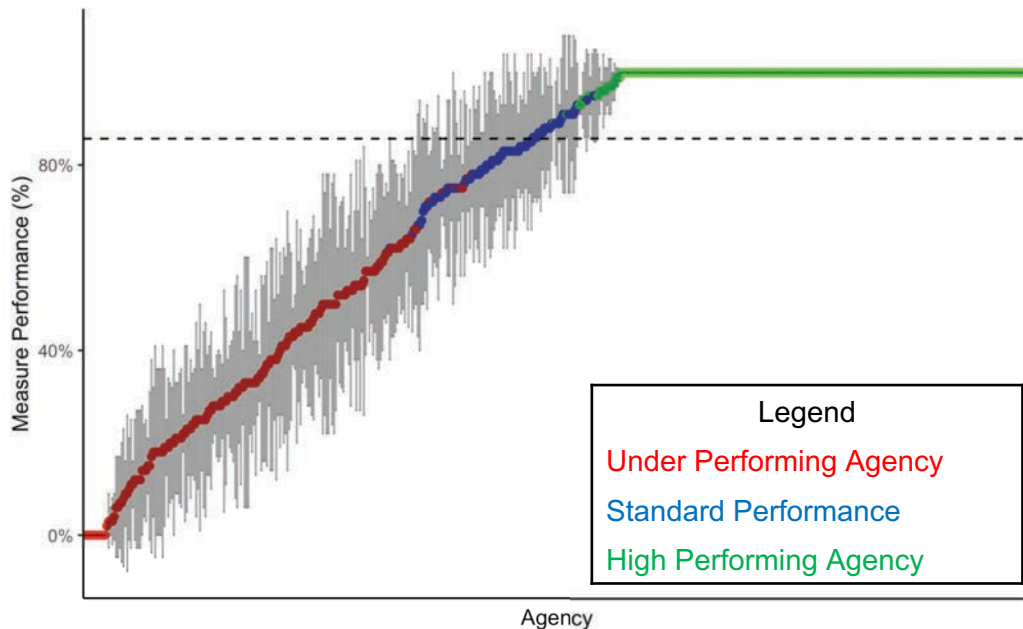
911 response +

Age <18 +

Received weight-based medication

Measure Pediatrics 0-3

Measure Performance	
Agencies	917
Patients	36,343
Min	0%
Q10	0%
Q25	39%
Median	86%
Q75	100%
Q90	100%
Max	100%
Mean	69%



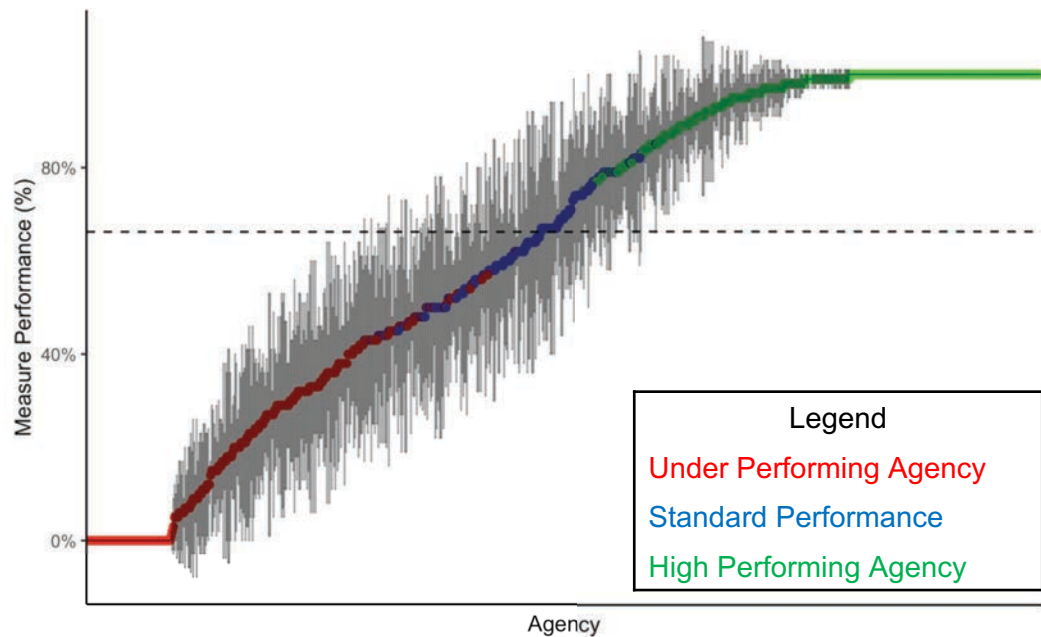
Stroke 0-1

Stroke screen documented

911 response +
Impression = Stroke or TIA

Measure Stroke 0-1

Measure Performance	
Agencies	1,152
Patients	77,799
Min	0%
Q10	0%
Q25	29%
Median	66%
Q75	99%
Q90	100%
Max	100%
Mean	60%



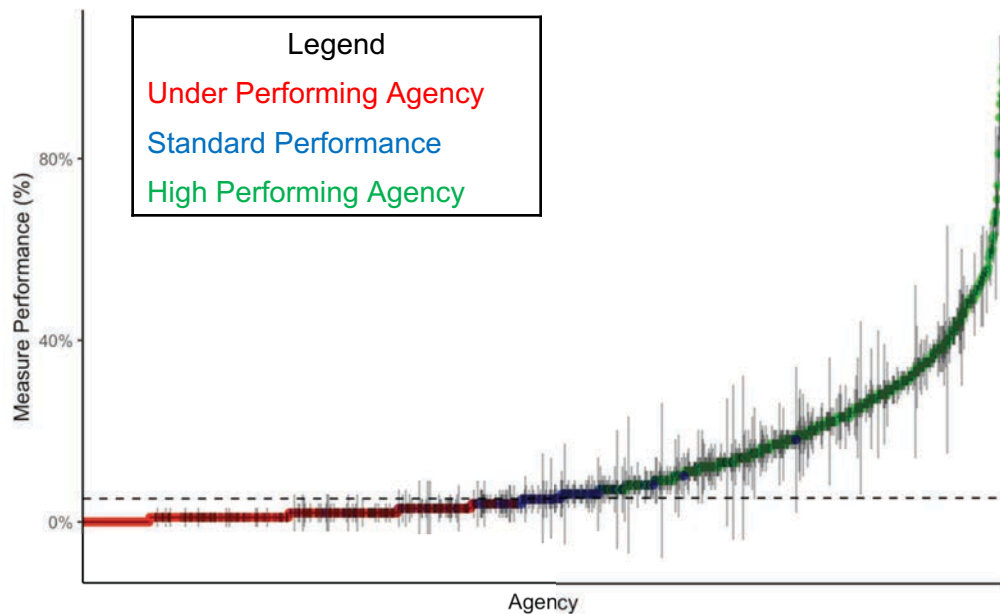
Safety 0-1

No lights & sirens used

911 response to scene

Measure Safety 0-1

Measure Performance	
Agencies	1,241
Patients	6,771,593
Min	0%
Q10	0.6%
Q25	2%
Median	5%
Q75	17%
Q90	34%
Max	100%
Mean	13%



IHI Model for Improvement

What are we trying to accomplish?

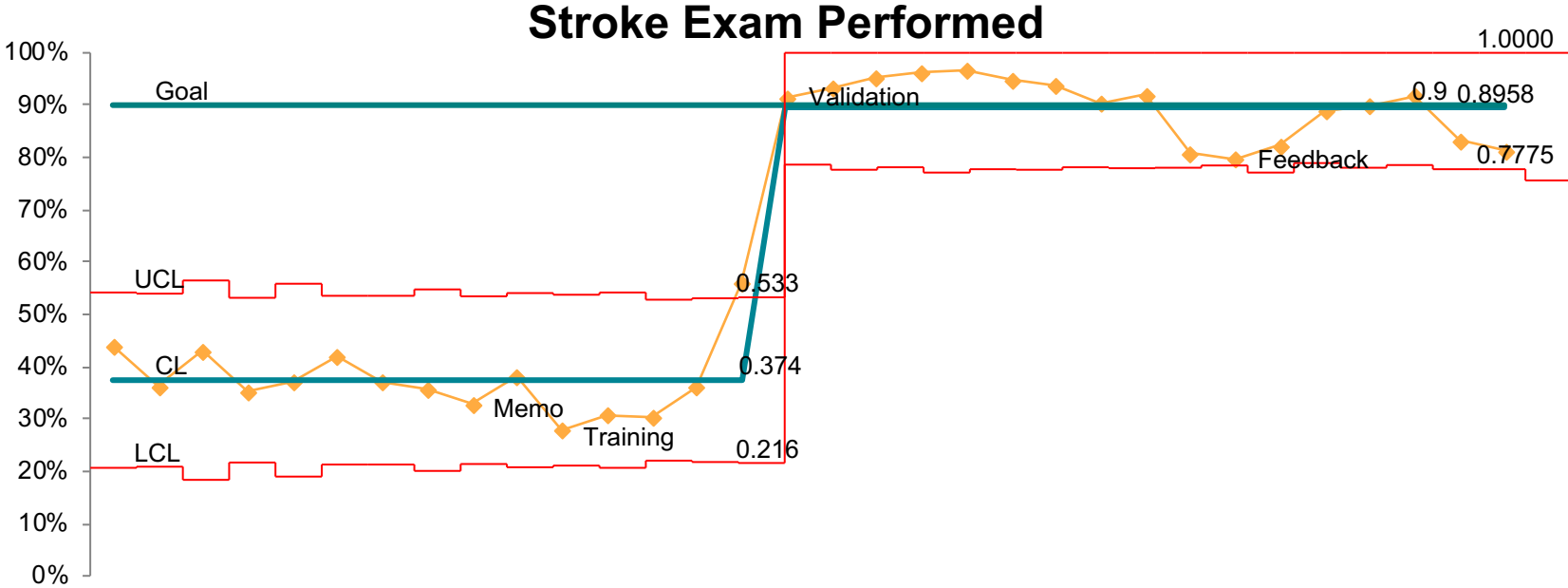
How will we know that a change is an improvement?

What changes can we make that will result in improvement?



Developed by Associates in Process Improvement

Use Data to Evaluate Areas of Improvement



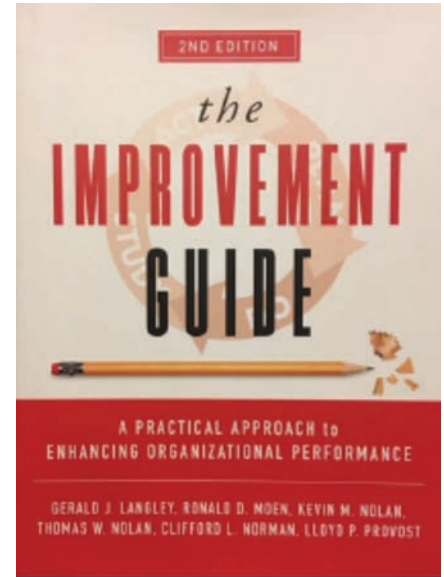
Additional Training for Quality Improvement

▶ NAEMSP

- ▷ Quality Improvement Preconference
- ▷ Year-long Quality Improvement Course
- ▷ naemsp.org/career-development/ems-quality-and-safety-course/

▶ Institute for Healthcare Improvement

- ▷ Open School
- ▷ Harvard EdX
- ▷ ihi.org/education/IHIOpenSchool/Pages/default.aspx



Future NEMSQA Activities

▶ Measure Development

- ▶ NEMSQA will develop future measures to improve care and outcomes in the EMS Community
- ▶ Periodic surveys will be distributed to collect measure concepts (i.e.: Call for Measure Concepts)
- ▶ Grants and contracts will be sought that will allow NEMSQA to develop meaningful measures for the EMS Community

▶ Partnerships and Improvements

- ▶ Recommendations to NEMSIS
- ▶ Collaboration with technical vendors (i.e., Data Vendors, e-CPR vendors)
- ▶ Future benchmarking capabilities

Interested in NEMSQA?

▶ Non-Member Participation

- ▶ Measures and technical resources available for download at www.nemsqa.org
- ▶ Follow NEMSQA on social media
 - Facebook.com/nemsqa
 - @NEMSQA_EMS
- ▶ Call for Measure Concept and Public Comment Surveys distributed to the general public and posted to the NEMSQA website

▶ Join NEMSQA

- ▶ Alliance membership opportunities start at \$2,500 for organizations with a primary focus or interest in quality EMS patient care
- ▶ New opportunities for corporations to become involved in NEMSQA
- ▶ Becoming a member or corporate sponsor provides opportunities to become involved in NEMSQA activities

Questions?

Please submit questions through the webinar platform

- ▶ Learn more about NEMSQA:

- ▷ nemsqa.org
- ▷ nemsqa.org/completed-quality-measures/

- ▶ For more on EMS Data:

- ▷ ems.gov/emsdata.html

- ▶ Speakers' contact info

- ▷ Dr. Michael Redlener: michael.redlener@mountsinai.org  [@mredlener](https://twitter.com/mredlener)
- ▷ Dr. Jeff Jarvis: jjarvis@wilco.org  [@drjeffjarvis](https://twitter.com/drjeffjarvis)
- ▷ Brooke Burton: brooke.burton@falck.com
- ▷ Max Severeid: max.severeid@dot.gov

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