

National EMS Quality Alliance

2021 Trauma-04 Measure Package

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National EMS Quality Alliance

Trauma-04: Trauma Patients Transported to the Trauma Center

Trauma-04 was designed using CDC guidelines for Field Triage of Trauma Patients. Along with the CDC guidelines, published literature clearly supports this measure, as patients who receive appropriate trauma care often have better outcomes. As this measure was being re-specified, the TEP discussed many concerns with the pragmatic implementation of this measure – including the availability of trauma centers in rural communities and whether the measure should focus on transporting patients to the appropriate level of trauma center. While there are many possible variations and stratifications of this measure, the TEP ultimately decided to stay with the intent of the original EMS Compass candidate measure, which is measuring if patients with trauma are being transported to a trauma center.

During the re-specification process, the TEP closely reviewed the CDC Guidelines for Field Triage, which were used to build the denominator for this measure. Originally, in the EMS Compass candidate measures, Step 1, 2, and 3 criteria were part of the denominator inclusion criteria. But, after reviewing the guidelines again, the TEP decided to remove Step 3 from the denominator for the re-specified measure, as Steps 1 and 2 identify the most seriously injured patients. The experts determined that limiting the denominator to **Steps 1 and 2** will satisfy the intent of the measure without running the risk of over transporting patients to trauma centers who may not need the care of such a facility.

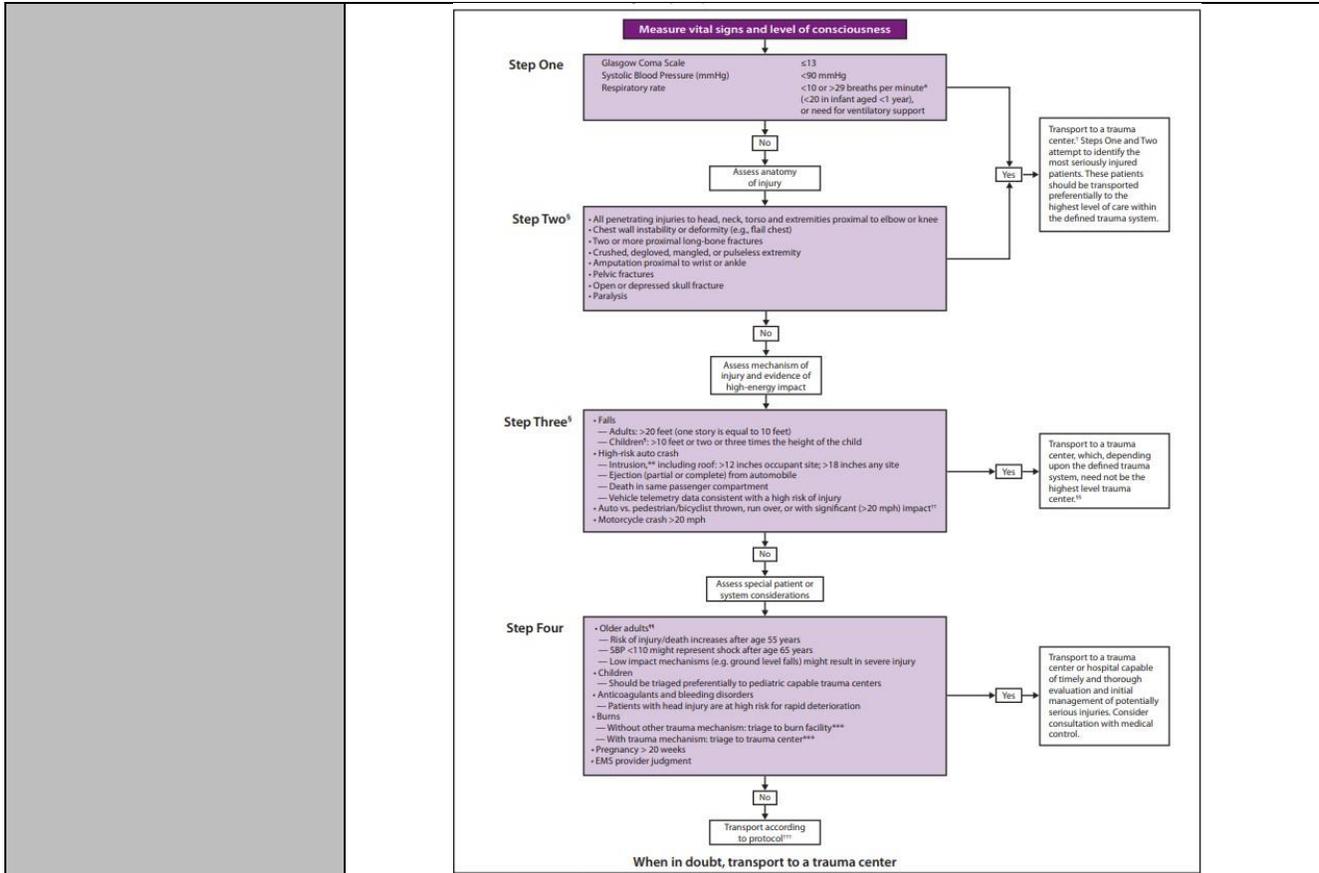
As stated above, much discussion was had about the numerator of Trauma-04. While everyone on the TEP agreed that transporting a trauma center is the best course of treatment for certain patients, it was noted that trauma centers are not always available or well-defined. The TEP discussed many different options for the numerator for Trauma-04, including transporting patient with trauma to the nearest hospital and transporting patients to a specific level of trauma center. However, the final measure has been specified to require the patient to be transported to a trauma center.

The TEP understands concerns about limited access to trauma centers in certain communities and concerns that some hospitals labeled as trauma centers may not be as equipped as others. But, as measurement is used to drive change, the TEP hopes data collected from Trauma-04 will help drive change in the availability and standards of trauma centers across the nation.

Trauma-04: Trauma Patients Transported to a Trauma Center

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

Measure Description	
Percentage of EMS transports originating from a 911 request for patients who meet CDC criteria for trauma and are transported to a trauma center.	
Measure Components	
Initial Population	All EMS transports originating from a 911 request for patients who meet 2011 CDC Step 1 or 2 criteria for trauma
Denominator Statement	<p>Population 1: EMS transports in the initial population</p> <p>Population 2: EMS transports in the initial population for patients greater than or equal to 18 years of age</p> <p>Population 3: EMS transports in the initial population for patients less than 18 years of age</p>
Denominator Exclusions	None
Denominator Exceptions	None
Numerator Statement	<p>Numerator for Populations 1-3 (Calculate 3 Rates):</p> <p>EMS transports for patients transported to a trauma center</p>
Supporting Guidance & Other Evidence	<p>The following evidence statement is quoted verbatim from the referenced clinical guideline:</p> <p>Centers for Disease Control and Prevention: Guidelines for Field Triage of Injured Patients:¹</p>



Measure Importance

Rationale

Victims of severe violent injuries involving trauma not only see a slight improvement in survival rates if they receive treatment in a trauma center, but they also benefit from less complications and shorter lengths of stay.ⁱⁱ

A study on the effect of trauma center care on mortality published in 2006 found that one-year survival rates among patients with traumatic injuries were significantly higher when patients received care in trauma centers as opposed to non-trauma centers. This same study showed a 25% decrease in mortality for severely injured adult patients who received care at Level I trauma centers.ⁱⁱⁱ

Measure Designation

Measure purpose	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Quality Improvement • <input checked="" type="checkbox"/> Accountability • <input type="checkbox"/> MOC
Type of measure	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Process • <input type="checkbox"/> Outcome • <input type="checkbox"/> Structure • <input type="checkbox"/> Efficiency

National Quality Strategy/Priority/CMS Measure Domain	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Clinical Process-Effectiveness • <input type="checkbox"/> Patient Safety • <input type="checkbox"/> Patient Experience • <input type="checkbox"/> Care Coordination • <input type="checkbox"/> Efficiency: Overuse • <input type="checkbox"/> Efficiency: Cost • <input type="checkbox"/> Population & Community Health
CMS Meaningful Measure Domain	<ul style="list-style-type: none"> • <input type="checkbox"/> Medication Management • <input type="checkbox"/> Admissions and Readmissions to Hospitals • <input type="checkbox"/> Transfer of Health Information and Interoperability • <input type="checkbox"/> Preventative Care • <input type="checkbox"/> Management of Chronic Conditions • <input type="checkbox"/> Prevention, Treatment, and Management of Mental Health • <input type="checkbox"/> Prevention and Treatment of Opioid and Substance • <input type="checkbox"/> Risk Adjusted Mortality • <input type="checkbox"/> Equity of Care • <input type="checkbox"/> Community Engagement • <input type="checkbox"/> Appropriate Use of Healthcare • <input type="checkbox"/> Patient-focused Episode of Care • <input type="checkbox"/> Risk-Adjusted Total Cost of Care • <input type="checkbox"/> Healthcare-associated infections • <input type="checkbox"/> Preventable Healthcare Harm • <input checked="" type="checkbox"/> Care is Personalized and Aligned with Patient’s Goals • <input type="checkbox"/> End of Life Care according to Preferences • <input type="checkbox"/> Patient’s Experience of Care • <input type="checkbox"/> Patient Reported Functional Outcomes
Level of measurement	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Individual EMS Professional • <input checked="" type="checkbox"/> EMS Agency
Care setting	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Pre-Hospital Care
Data source	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Electronic Patient Care Record (eCPR) data • <input type="checkbox"/> Administrative Data/Claims (inpatient, outpatient or multiple-source claims) • <input checked="" type="checkbox"/> Paper medical record/Chart abstracted • <input checked="" type="checkbox"/> Registry

NEMSIS Pseudocode: Trauma-04: Trauma Patients Transferred to Trauma Center

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

Measure Description	
Percentage of EMS transports originating from a 911 request for patients who meet CDC criteria for trauma and are transported to a trauma center.	
Measure Components	
Initial Population	<p>(((eSituation.02 Possible Injury is 9922005 ("Yes") and first (eVitals.27 Pain Scale Score where e.Vitals.01 Date/Time Vital Signs Taken is not null sorted by eVitals.01 Date/Time Vital Signs Taken) is greater than 0) and eInjury.03 Trauma Triage Criteria (Steps 1 and 2) is in (2903001 ("Amputation proximal to wrist or ankle"), 3903003 ("Crushed, degloved, mangled, or pulseless extremity"), 2903005 ("Chest wall instability or deformity (e.g., flail chest), 2903007 ("Glasgow Coma Score <=13"), 2903009 ("Open or depressed skull fracture"), 2903011 ("Paralysis"), 2903013 ("Pelvic fractures"), 2903015 ("All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee"), 2903017 ("Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support), 2903019 ("Systolic Blood Pressure <90 mmHg"), 2903021 ("Two or more proximal long-bone fractures")) and (eResponse.05 Type of Service Requested is in (2205001 ("Emergency Response (Primary Response Area)"), 2205003 ("Emergency Response (Intercept)"), 2205009 ("Emergency Response (Mutual Aid)")) and (</p>

	<p>eDisposition.28 Patient Evaluation/Care is 4228001 (“Patient Evaluated and Care Provided”)</p> <p>and eDisposition.30 Transport Disposition is in (4230001 (“Transport by This EMS Unit (This Crew Only)”), 4230003 (“Transport by This EMS Unit, with a Member of Another Crew”), 4230007 (“Transport by Another EMS Unit, with a Member of this Crew”))))</p>
Denominator	<p>Population 1: Equals Initial Population</p> <p>Population 2: (Initial Population and (ePatient.15 Age is greater than or equal to 18 and ePatient.16 Age Units is 2516009 (“Years”))</p> <p>Population 3: (Initial Population and (ePatient.15 Age is greater than or equal to 2 and ePatient.15 Age is less than 18 and ePatient.16 Age Units is 2516009 (“Years”)) or (ePatient.15 Age is greater than or equal to 24 and ePatient.16 Age Units is 2516007 (“Months”))))</p>
Denominator Exclusions	None
Numerator Pseudocode	<p>Numerator logic for Populations 1-3 (Calculate three separate rates)</p> <p>eDisposition.23 Hospital Capability is in (9908021 (“Trauma Center Level 1”), 9908023 (“Trauma Center Level 2”), 9908025 (“Trauma Center Level 3”),</p>

	9908027 (“Trauma Center Level 4”), 9908029 (“Trauma Center Level 5”))
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ⁱ Sasser, S.M., Hunt, R.C., Faul, M., Sugerman, D., Pearson, W.S., Dulski, T., Wald, M.M., Jurkovich, G.J., Newgard, C.D., Lerner, E.B., Cooper, A., Wang, S.C., Henry, M.C., Salomone, J.P., Galli, R.L. (2011) Guidelines for Field Triage of Injured Patients: Recommendations of the National Expert Panel on Field Triage, 2011. MMWR Morb Mortal Wkly Rep; 61(RR01), 1- 20.

ⁱⁱ Baez, A.A., Lane, P.L., Sorondo, B., Nituica, C. (2006) Receiving Care Facility and Outcome Differences for Victims of Severe Violent injuries, Prehospital Emergency Care, 10:2, 220-223

ⁱⁱⁱ MacKenzie, E.J., Rivara, F.P., Jurkovich, G.J., Nathens, A.B., Frey, K.P., Egleston, B.L., Salkever, D.S., Scharfstein, D.O., (2006) A National Evaluation of the Effect of Trauma-Center Care on Mortality, The New England Journal of Medicine, 354:4, 366-378.