Trauma Outcome Measures

The National Quality Forum approach

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Terms you may have heard

- Never Events
- Patient Bill of Rights
- Serious Reportable Events
- CLABSI
- Central Line Bundle
- "The Centers for Medicare & Medicaid Services started in October 2008 to withhold reimbursement for 10 health care–acquired conditions (HACs) that align with the "never event" concept."

Trauma Outcome Measures: NQF approach

Topics

- History of the National Quality Forum
- NQF process
- Committee findings
- So What?

History of the National Quality Forum

- Established in 1999 by the Clinton White House
  - VP Al Gore facilitated the planning committee
  - Function(s)
    - Implement a comprehensive plan for measurement and reporting
    - Identify core metrics for measurement and reporting
    - Promote the development of the core measures
- 2003-first 30 Safe Practices published
- 2006-Updated 30 Safe Practices published
- 2009-Updated 30 Safe Practices published
- 2013-controversial issue around skin prep

History of the National Quality Forum

Department of Justice
Office of Public Affairs
FOR IMMEDIATE RELEASE
Thursday, January 9, 2014

CareFusion to Pay the Government $40.1 Million to Resolve Allegations That Include More Than $11 Million in Kickbacks to One Doctor

NQF Response

"The reference to this specific type of skin preparation was removed from the draft Safe Practices report after an NQF ad hoc review did not find sufficient evidence to support one skin preparation over another."

National Quality Forum: A Unique Role

Established in 1999, NQF is a nonprofit, nonpartisan, membership-based organization that brings together public- and private-sector stakeholders to reach consensus on healthcare performance measurement. The goal is to make healthcare in the U.S. better, safer, and more affordable.

Mission: To lead national collaboration to improve health and healthcare quality through measurement

- An Essential Forum
- Gold Standard for Quality Measurement
- Leadership in Quality

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NQF-Trauma Outcomes Committee charge

- Convene a multistakeholder committee to guide and provide input and direction on the environmental scan for measures/concepts and to identify measurement gaps
- Develop a measurement framework informed by the environmental scan
  - *Accountability*
  - *Attribution*
  - *Risk adjustment*
- Develop a written report summarizing the finalized environmental scan, the measurement framework, and committee discussion

Research Questions

- What measures or measure concepts are currently in use for trauma outcomes?
- What are the measurement gaps related to trauma?
- What are the key concepts to define population-based trauma care outcomes?
- What frameworks exist related to trauma care?
- What are the key considerations related to shared accountability, attribution, and risk adjustment in developing a trauma outcomes framework?

Environmental Scan Overview

- The environmental scan will identify:
  - Measures and measure concepts
  - Gaps in measurement
- Identify peer-reviewed journals, effective interventions, tools, and conceptual frameworks related to trauma outcomes
- Information sources:
  - PubMed
    - » Medline
  - Academic Search Complete
  - Grey Literature (i.e., academic or policy literature that is not commercially published)
    - » Government publications (e.g., federal or state agency reports, rules and regulations, etc.)
    - » Reports or publications from foundations, associations, or nonprofit groups
    - » Conference papers, abstracts, or proceedings
    - » Key informant interviews

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NQF Trauma Outcomes-Definitions

- **Measure** – an assessment tool that aggregates data to assess the structure, processes, and outcomes of care within and between entities: (typically specifies a numerator [what/how/when]), denominator [who/where/when], and exclusions [not]).
- **Measure concept** – a description of existing or potential assessment tool or instrument that includes the planned target and population.

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NQF Trauma Outcomes-Definitions

- **Trauma** – severe blunt, blast, or penetrating injury primarily caused by automobile crashes, gunshots, knife wounds, falls, battery, or burns and ranges in severity
  - Very mild (contusions and abrasions)
  - Severe life and limb threats
- *Does not include*
  - Psychological trauma (i.e., neglect, physical abuse, substance abuse etc.)
  - Secondary trauma, compassion fatigue, or vicarious traumatization

Trauma Outcome Committee structure

- 25 voting members
  - Physicians (19)
    - 9 trauma surgeons
      - 4 Chief of Trauma
      - Medical Director for TQIP
    - 1 Pediatric surgeon (who also does trauma)
    - 1 Plastic surgeon (now state Medicaid medical director)
    - 1 Neurosurgeon
    - 1 Orthopedic Surgeon
    - 1 Neuroradiologist (Quality/Safety Officer for health group)
    - 1 Pediatrician
    - 4 Emergency Medicine
  - Psychologist (2-trauma survivor and an Administrator)
  - Nurses (2)
  - Attorney

Trauma Outcome Committee structure

- Federal Liaisons (Non-voting committee representatives)
  - Centers for Medicare and Medicaid Services (CMS)
    - Nina Heggs
    - David Jefferson
  - HHS Office of the Assistant Secretary for Preparedness and Response (ASPR)
    - Brendan Carr
    - Jessica Couillard
- Project Staff
  - John Bernot, MD, Vice President, Quality Measurement Initiatives
  - Andrew Lyzenga, MPP, Senior Director
  - Jean-Luc Tilly, Senior Project Manager
  - Christy Skipper, MS, Project Manager

Timeline of NQF Trauma Outcomes Committee

Project Timeline

Web Meeting #2	September 11, 2018 at 1:00-3:00pm ET
Draft Environmental Scan Report	October 2018
Final Environmental Scan Report	October 2018
In-Person Meeting in Washington, DC	**October 15, 2018** at 8:00am-5:00pm ET
Web Meeting #3	November 5, 2018 at 3:00-5:00pm ET
Web Meeting #4	November 29, 2018 at 2:00-4:00pm ET
Web Meeting #5	December 20, 2018 at 3:00-5:00pm ET
Web Meeting #6	January 23, 2019 at 12:00-2:00pm ET
30-Day Comment Period	February 4 – March 6, 2019
Web Meeting #7	March 18, 2019 at 2:00-4:00pm ET
Draft Report	March 22, 2019
Final Report	May 22, 2019

NQF Trauma Outcomes Committee-meetings

- Conference calls held 6 times over 7 months
- One in-person meeting
- Each meeting ended with an opportunity for public comment

- Draft report of committee was made public on January 23rd and report was available for comment.
- Meeting in March to address public comments and to finalize a draft version of our findings.

From Process to Findings

Population Based Trauma Quality Framework

Domain	Subdomain
Access to trauma services	System capacity Availability of services Timeliness of services Resource matching
Trauma clinical care	Acute care Post-acute care Longitudinal care
Cost and resource use	Individual Provider System Societal
Prevention of trauma	Intentional -Assault, self harm, other Unintentional -MVC, Firearm, Fall, Fire/burn, other General/Undetermined

The conceptual framework is intended to facilitate systematic identification and prioritization of measure gaps and to help guide efforts to fill those gaps through measure development and endorsement.

Domains of Trauma Care

Access to Trauma Care

- "The ability of populations to obtain needed healthcare services in a timely manner"
- The Committee acknowledged that geography cannot be changed, but believed that metrics could be developed to overcome the challenges of geography.
- Additional concepts centered on delays in transfers to the appropriate trauma center and a measure of compliance to the CDC field triage criteria for trauma.
- Future measure development should also consider the role that medical insurance plays in patient access to rehabilitation services and patient outcomes.

Domains of Trauma Care

Access to Trauma Care

	Description	Subdomain
1	The proportion of population who meet CDC field triage guidelines but did not go to a trauma center	Resource Matching
2	The proportion of population who meet CDC field trauma triage step 1 (physiologic) or step 2 (anatomic) criteria who are transported to the highest level of care in the trauma system	Resource Matching
3	Percent of patients greater than 55 who meet CDC field trauma triage criteria who are primarily transported to a trauma center	Resource Matching
4	Trauma centers per million population (based on needs assessment – "right-sizing")	Availability of Services
5	Specialty providers within a given radius of patients based on urbanicity or rurality (adults, geriatric, and pediatric)	Availability of Services
6	Percent of population in a region within one hour of a level 1 trauma center (by ground and/or air) (adults, geriatric, and pediatric)	Availability of Services
7	Percent of population in a region within a 10-minute EMS on scene response time	Timeliness of Services
8	Transport to the appropriate trauma center (for adults and pediatric patients)	Timeliness of Services
9	Inter-hospital transfer rate to level I/II trauma center among seriously injured patients (e.g., ISS >= 16, head AIS >= 3) in a region (under triage)	Resource Matching
10	Proportion of trauma patients in a region that are discharged from a trauma center within 24 hours and proportion of trauma patients in a region that were not seen in the OR/ICU within 24 hours (overtriage)	Resource Matching

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Domains of Trauma Care

Access to Trauma Care

11	The proportion of trauma patients who needed rehabilitation services that were transferred to an appropriate site for rehabilitation (adults and pediatric)	Availability of Services
12	Average time to operating room for patients requiring immediate surgical intervention across a region	Timeliness of Services
13	Average proportion of time on trauma diversion across a region	Timeliness of Services
14	Average time to transfer for patients requiring trauma center care within a region	Timeliness of Services
15	Hospital length of stay prior to discharge to acute rehabilitation	Availability of Services
16	Number of acute rehabilitation beds divided by the number of trauma patients in a region	Availability of Services

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Domains of Trauma Care
Trauma Clinical Care

- Committee wanted to emphasize the importance of achieving greater integration of pre-hospital and hospital care, and therefore combined the pre-hospital and in-hospital phases of treatment into a single subdomain (acute care).
- Post acute care would be measures of rehab services outcomes.
- The longitudinal care subdomain is intended to include measures assessing functional outcomes, return to normal activities, care coordination and transitions of care.
- The Committee's approach to measuring long-term outcomes of traumatic injuries focused on whether patients were able to return to their previous level of function and access to rehabilitation services.

Domains of Trauma Care
Trauma Clinical Care

#	Description	Subdomain
1	Rate of patients by severity of injury returning to previous level of function within a time period (e.g., 6 months, 1 year)	Longitudinal
2	Population-based mortality rate from injury	Acute
3	Injury rates by specific injury (e.g., spinal cord, traumatic brain injury)	Acute
4	Length of stay at post-acute care facility	Post-Acute
5	Case fatality rate	Acute
6	Percent of patients receiving one year follow-up for functional status and/or quality of life	Post-Acute
7	Percent of trauma patients with a need for rehabilitation after discharge from a trauma center who are transferred to an appropriate rehabilitation facility	Post-Acute
8	Percent of trauma patients whose condition improved after EMS care	Acute
9	Injury-based mortality (regional)	Acute
10	Out-of-hospital deaths/deaths in the field	Acute
11	Trauma-informed care delivery	Longitudinal
12	Percent of trauma patients with post-traumatic stress disorder and other psychiatric needs	Longitudinal
13	Hemorrhage control	Acute
14	Use of tourniquets	Acute

Domains of Trauma Care
Cost and Resource Use

- The Committee considered concepts addressing the costs of trauma care at the individual, provider, system, and societal level.
- Concepts prioritized by the Committee include adjusted cost of care with aggregated severity, costs to a hospital in sustaining a trauma program, the total cost of injury care over the population, or the cost of injury care per capita, and the cost of disease-specific utilization of services.
- Concepts such as the costs of informal caregiving for those with the most severe injuries, lost productivity and wages, and loss of potential future income.
- In order to demonstrate the need for and support for regionalized trauma care systems, the Committee noted that measure concepts in this domain should be paired with outcomes in order to determine the cost effectiveness of care.

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Domains of Trauma Care
Cost and Resource Use

#	Description	Subdomain
1	Cost per year of lives saved	Societal
2	Cost and how many lives were saved (stratified based on severity of trauma)	Individual
3	Cost of care per trauma patient for care at a rehabilitation center at local/regional/state level	System
4	Total societal (healthcare, lost wages, etc.) costs per trauma patient at a local, regional, or state level	Societal
5	Work days missed following trauma care due to physical health or mental health issues	Individual
7	Averted costs of dependency and disability	Societal
8	Trauma readmission stratified by type of trauma	System
9	Individual cost of care per trauma patient (by region)	Individual
10	Cost effectiveness of transport (air vs ground)	System
11	Adherence to organ donation best practices and measurement of outcomes	System

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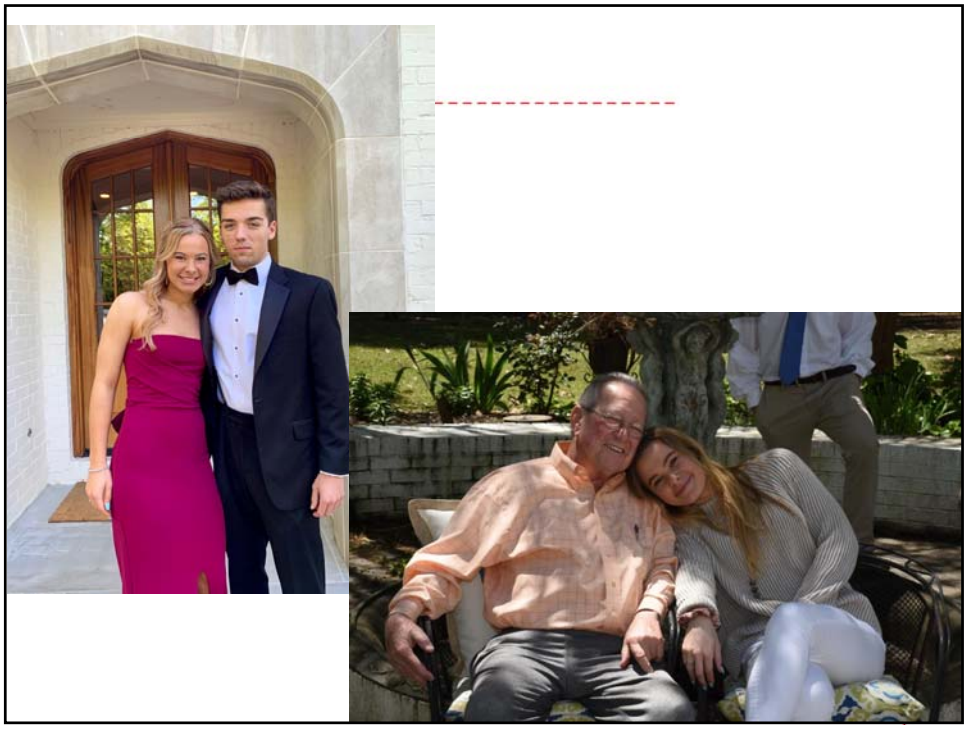
Domains of Trauma Care
Prevention of Trauma

- The Committee recognized the importance of efforts to prevent traumatic events from happening in the first place and agreed that prevention merited its own domain of measurement.
- The Committee emphasized that a broad range of activities can influence trauma prevention, including clinical screenings and interventions for individuals, community and public health initiatives pursued through education, legislation, regulation, and enforcement, as well as design and engineering—
- In addition to population-based outcomes, the Committee stated that processes closely linked to outcomes are important to consider.

Domains of Trauma Care
Prevention of Trauma

#	Description	Subdomain
1	Injury hospital admissions rates for population reflect prevention	General
2	Population-level unintentional injury rate	Unintentional
3	Population-level intentional injury rate	Intentional
4	Death by firearm	Unintentional (Firearm) / Intentional (Assault) / Intentional (Self-Harm)
5	Unintentional firearm injury in children	Unintentional (Firearm)
6	Disability by firearm injury	Unintentional (Firearm) / Intentional (Assault) / Intentional (Self-Harm)
7	Head injury by firearm	Unintentional (Firearm) / Intentional (Assault) / Intentional (Self-Harm)
8	Highway design	Unintentional (Motor Vehicle)



Cross Cutting Themes and Recommendations
Shared Accountability and Attribution

- Trauma care is well suited to shared accountability approaches, given the distribution of responsibility across various groups and the importance of system-wide planning and coordination to ensure the optimal use of resources and capabilities.
- The scan did not identify any measures that assess population-level outcomes for regional trauma systems.
- Two measures that may serve as a model for use in evaluating regional trauma systems
  - Community Viral Load (HIV tx effectiveness)-
  - Resuscitation Outcomes Consortium (ROC)-survival for community cardiac arrests

Cross Cutting Themes and Recommendations
Shared Accountability and Attribution

- No standard way of defining regional trauma networks and attributing patients to those networks for measurement purposes.
- The Committee recommended advancing models of attribution that promote improved planning and coordination within regional trauma networks in order to promote shared accountability across relevant stakeholders and accelerate quality improvement in trauma care.
- Committee advocated evaluating under- or over-triage at the regional level

Cross Cutting Themes and Recommendations
Cross-cutting domains

- Committee reiterated the central place of Equity within the fundamental components of an effective framework through which to analyze trauma outcomes
- Committee also emphasized the importance of measures that are sensitive to specific subpopulations such as pediatric and geriatric patients, in particular around triage.
- The imperative to develop pediatric-specific measures was also highlighted in public comments
- Consideration must also be given to measures that address differences in care and availability of services for patients in rural areas

NQF-Trauma Outcomes Committee conclusion

The Committee developed a comprehensive measurement framework for measuring trauma outcomes and identifying measures and measurement gaps for this area. Although some of the concepts address processes of care, and others could be difficult to implement, they provide a starting point for the measurement developer community, researchers, clinicians, and EMS providers to come together to capture trauma outcomes.

NQF Trauma Outcomes-Now What

NQF Measure Incubator®

The NQF Measure Incubator® is an innovative effort that facilitates efficient measure development and testing through collaboration and partnership. It addresses important aspects of care for which quality measures are underdeveloped or non-existent.

NQF is the only consensus-based healthcare organization in the nation as defined by the Office of Management and Budget. This status allows the federal government to rely on NQF-defined measures or healthcare practices as the best, evidence-based approaches to improving care. The federal government, states, and private-sector organizations use NQF's endorsed measures, which must meet rigorous criteria, to evaluate performance and share information with patients and their families.

Questions?