NATIONAL QUALITY FORUM
Driving measurable health improvements together

Meeting Summary

Attribution for Critical Illness and Injury - Web Meeting 3

The National Quality Forum (NQF) convened a web meeting for the Attribution for Critical Illness and Injury Committee on March 25, 2021.

Welcome, Introductions, and Review of Web Meeting Objectives

Dr. Nicolette Mehas, NQF Senior Director, welcomed the participants to the web meeting and thanked the Committee members for volunteering to help build out the use case scenarios. Opening remarks were given by co-chairs, Dr. Brendan Carr, and Ms. Carol Raphael. Both co-chairs echoed Dr. Mehas and expressed their appreciation for the Committee members and their help with finalizing the use cases. Dr. Mehas introduced the project consultants, Jesse Pines and Taroon Amin, and NQF staff members. Dr. Mehas also conducted attendance of the Committee members and invited the federal liaisons and Centers for Medicare & Medicaid (CMS) representatives to introduce themselves.

Web Meeting 2 Recap and Progress Update

Udara Perera, NQF Senior Manager, gave a brief overview of Web Meeting 2. During Web Meeting 2 the Committee members discussed measures that can be used at a federal level for mass casualty emergencies, the granularity of defining a population, and how it may not be consistent across systems. The Committee also discussed whether the intent of attribution is to hold entities accountable, and how to improve attribution models, and provide further incentives. During the meeting, findings from the Environmental Scan were also discussed and feedback was received from the Committee members on how to further improve the Environmental Scan. Draft 1 of the Environmental Scan is currently out for public commenting until March 29. The project team also solicited volunteers to assist with building out the use case scenarios. The project team also informed the Committee members of their plan to conduct Key Informant Interviews.

Key Informant Interviews (KII) Update

Ms. Perera informed the Committee members of the purpose of the Key Informant Interviews. The purpose of interviews is to identify major schools of thoughts, additional existing knowledge and literature gaps, and issues of debate central to the development of population/geographic-based attribution approaches for measuring health outcomes resulting from emergency care sensitive conditions (ESCSs)/national emergencies. The KIIs will supplement information that the project team has gathered from the web meetings and the Environmental Scan. NQF will conduct nine 60-minute key informant interviews that will be held between 3/15 and early April. So far, one interview has been conducted with a frontline clinician who is currently working amid the COVID-19 pandemic.

Ms. Perera gave a breakdown of the interview questions and stakeholder groups which includes one patient/consumer group, two experts on developing measurement attribution models, one expert in high-acuity ECSCs, including providers, researchers, and/or representatives from healthcare facilities, two front-line clinicians to COVID-19 or other public health crises, one transport medicine/emergency

response provider, one health insurance provider and one Federal, State/local agency staff that designs, implements, or evaluates emergency preparedness programs.

Use Case Scenario Discussion

Dr. Mehas began the discussion by sharing an overview of the purpose of the use cases. The final report will include at least five use cases of high-acuity ECSCs in situations of pandemics, natural disasters, mass violence, or other national emergencies to illustrate what to consider in developing an attribution approach for measuring quality of care related to health outcomes. The use cases will be vetted against potential attribution approaches to identify consistent attribution elements across each scenario, consider pros and cons of various approaches to attribution, and anticipate challenges of certain attribution models and solutions to address them. The use cases will also represent various emergency scenarios that require team-based approaches to care.

The use cases were built around scenarios that include a motor vehicle accident (MVA), bombing, fire, chemical event, nuclear event, and high-consequence infectious disease. For each of the scenarios the project team, using findings from the Environmental Scan and discussion from the previous web meetings, created attribution elements/themes to guide the discussion. The themes include:

- Goal of the Attribution Methodology and Entities Involved
- Defining the Population/Geographic Regions
- Attribution Timing
- Data Availability and Capture
- Patient Role in Care Decisions
- Team-Based Attribution
- Healthcare System Readiness
- Aspirational Approaches
- Unintended Consequences

Dr. Mehas briefly introduced a table of entities involved in public health emergencies, goals of response for each entity, and potential process and outcome metrics that NQF staff drafted after reviewing the use case scenarios. Dr. Mehas encouraged the Committee to consider these entities (EMS agencies, police and fire, local hospitals, specialized facilities, local clinics, and government) and their roles in response when discussing the use case scenarios.

Use Case #1: Trauma

Dr. Mehas introduced Use Case 1: Trauma (MVA). This use case is about a 45-year-old father and his 12-year-old son who are involved in a head on collision while driving back from an overnight camping trip. Local EMS evaluated the child and found bilateral facial fractures and a compromised airway. An LMA was placed, and the patient was stabilized on scene and transferred by air-medical transport to the closest level one trauma center, which is across the state line. Local EMS evaluated the father and found an open tibial fracture, torso abrasions, and left arm laceration. The patient was hemodynamically stable. He was transferred by ground to the local community hospital. The following day the father developed peritonitis and was transferred to a level one trauma center across state lines for repair of intestinal injuries. His tibial fixation repair wound became infected, requiring debridement and skin graft by a second orthopedic surgeon once at the trauma center. The patient ultimately recovered and was transferred to an inpatient rehabilitation facility in his community.

Committee discussants started the conversation and provided the attribution framework for the first trauma scenario. The Committee members reviewed the entities that should be held accountable and addressed the measures and complexities involved. The entities include the local government, police,

fire, and emergency medical services (EMS). The priority quality measures provided from an EMS perspective included survival to emergency department admission and survival to hospital admission. A Committee member suggested dividing the measures into two categories: process and outcome. Potential process measures include, the speed of handoff, the speed of diagnosis and the speed of applying the appropriate testing, while the outcome measures include survival and functional abilities such as post-accident and post care. Other Committee members agreed with the entities suggested and measures that were provided by the group.

A Committee member suggested that attribution cases of this complexity are three-dimensional. The first assumption in this trauma case is figuring out what geographical entity would be represented. This assumption leads to three important dimensional questions. The first question explores what entity and sub-entities are involved. This is important because if the first set of entities involved are different in various scenarios, the outcomes will also be different. For instance, local EMS being the initial entity in one scenario would result in the attribution differing from if the hospital is the entity in another scenario. The second question focuses on the time course of the outcome that is being measured. Is the outcome the measure that attribution is being developed for looking at initial survival, survival at thirty days, or 6-month morbidity, for example? The third question focuses on the conditionality of the population that will be included for measurement.

The co-chairs followed up with a question relating to incentivization for performance for EMS organizations. A Committee member expressed that there are no performance metrics that assess how patients are cared for during emergency transport.

A Committee member presented a scenario that involves a rural hospital coordinating with EMS, to represent how attribution and the entities that would be held accountable in a trauma scenario may differ. The Committee member suggested that if the use case involved a rural hospital, EMS responders would take the patient directly to the local trauma center as opposed to the rural hospital. However, if the rural hospital owned the EMS, the hospital would still be responsible because of the services provided by their EMS system, even though they did not have the patient in their emergency department. The hospital would be responsible for transport from the site of the accident to the trauma center so the hospital along with their EMS would be responsible for the attribution of care.

A Committee member proposed a goal of vertical, horizontal, and longitudinal aligned incentives. Vertical alignment involves alignment of provider granularity, doctors, hospitals, and the healthcare system. This type of alignment may be less relevant to the use cases and goals of this project since it is more focused on providers within the same system. Horizontal alignment, which could be more relevant, includes multiple providers caring for a single patient with multiple issues. This alignment requires each of the clinicians to have aligned incentives around the outcome of the patient's care. Longitudinal alignment, which is often less discussed, involves the start and stop time of attribution.

The co-chairs concluded the trauma discussion by stating that the goal should be to figure out what entity is responsible for creating and convening common intent to ensure that performance is improved in the future for similar cases. Going forward, Dr. Mehas encouraged the Committee to also focus on data questions such as data collection, data sharing networks, and what data currently exists for attribution. Committee members also suggested further discussing prospective versus retrospective attribution and the conflict between crisis and accountability measurement.

Use Case #2: Bombing

Committee discussants introduced Use Case 2: Bombing. This use case is about four patients who were injured because of a pipe bomb being detonated in a trash can at a university homecoming event in north central Illinois. The area is served by Fire Department EMS, and this city has one Level II trauma enter (X Hospital). The nearest Level I trauma center is 25 minutes by ground (Y Hospital). Specialty

services are in-state 60 miles east (Illinois), or out-of-state 45 minutes north (Wisconsin). Patient 1 is collected by a Fire Department ambulance crew and rushed to the local Level II trauma center. He is bleeding in his abdomen and requires an emergent operation. He is transferred to Hospital Y trauma center later in day 1. He has one additional follow-up surgery at the Level I trauma center before being transferred to the burn center in Wisconsin. Patient 2 is a 14-year-old girl who is Patient 1's daughter. She has abrasions and some shrapnel embedded in her face, as well as some bleeding near her right ear. She is awake when collected by a Fire Department ambulance and transported to the Level I trauma center (Hospital Y). Due to her small stature, and loss of consciousness she is thought to be a younger child and is immediately brought to a resuscitation bay.

Patient 3 is an 18-year-old male who suffered a laceration to his left arm. A bystander with "Stop the Bleed" training placed a tourniquet on his left upper arm, and he was assisted by a friend to a car where he is taken to Hospital X. Upon arrival the patient is taken back to a resuscitation bay, but quickly moved to another room to accommodate Patient 2. Patient 3 remains stable initially, but serial assessments by nursing staff reveal hypotension. The patient develops shortness of breath and upon further evaluation the patient is found to have a wound in his left axilla and a developing tension pneumothorax. He is resuscitated, a chest tube is placed to water seal, and his left arm laceration is explored. The tourniquet is released after 90 minutes. Patient 4 is a 67-year-old male with a history of Atrial fibrillation on Coumadin. He has blunt trauma to the right upper quadrant of his abdomen. He was hypotensive at the scene and transported by a mutual aid ambulance to Hospital X. On arrival to hospital X, he was intubated and, resuscitated with blood products (2 units of blood and 2 units of fresh-frozen plasma), and stabilized by emergency physicians; he then was airlifted to Level 1 trauma center across state lines.

The entities that are involved in this scenario are local authorities (fire, EMS, and police) civilian responders, local level II, and in-state level I trauma center, outside specialty, skilled nursing facility, and an inter-facility transport system. A Committee member posed the question, who should be incentivized and what players should be involved? She also stated that all the hospitals should be held accountable for all patients even if they were not treated by the hospital and at the conclusion of the mass casualty event it can be determined whether it was appropriate or inappropriate for patients to be transported or not to be transported to a specific hospital. Dr. Mehas asked if considering a prospective model, how could it be determined which hospitals should be included based on geography? The Committee member shared that in this scenario hospital X, Y and the EMS should be included in the attribution.

A Committee member suggested breaking the scenario down into "buckets". The first one includes the responsibilities and attribution at the scene, and the second bucket includes the receiving of the patients at the hospitals. A Committee member emphasized the involvement of civilians in emergencies and mass casualty events and asked whether the responsibility of training civilians in first aid skills should be placed in the hands of the local healthcare community and if so, what incentives would be provided to accomplish this task. Another Committee member also agreed but stated that mass casualty incidents are becoming more common and how patients are triaged is dependent on whether the event occurs in a rural or urban environment. The Committee member also stated that state regulations for EMS triaging of scenes for mass casualty incidents should have some responsibility for more rapid involvement in the direction of the triage, regardless of whether the site is in a rural or urban area.

The Committee discussed that mass casualty incidents that involve accountability differ from specific trauma scenarios, so it may be somewhat unfair to measure how hospitals respond during crisis since there is not a system that currently exists that responds to every scenario. A Committee member suggested that entities should be measured in a way that is not viewed as punitive; they should be incentivized to be prepared and allocate resources appropriately to respond to mass casualty incidents. Another Committee member agreed but also suggested that if measurement is being conducted based

on past mass casualty incidents, a system should be developed that incentivizes the creation of the system for optimal response before the mass casualty incident occurs.

The discussion concluded with the Committee members debating whether incentivization and accountability should be linked to structure and process measures and the creation of a delivery system that functions before a mass casualty incident occurs versus creating an accountability structure at this time that is linked to actual outcomes.

Use Case #3: High Consequence Infectious Disease

Dr. Mehas introduced Use Case 3: High Consequence Infectious Disease. The use case involves a man aged 45 years (patient 1) who went to his doctor in a small, rural town, with a fever, initially 100.1°F (38.4°C). He was treated with possible sinusitis and returned home. The next day the fever increased to 102.9°F (39.4°C), abdominal pain, and headache. He went to the closest ED at a hospital (hospital A, critical access hospital) in a neighboring town. Again, he was treated with possible sinusitis and discharged.

On March 28, the man returned to the same ED by ambulance with persistent fever (101.4°F [38.6°C]), abdominal pain, and new onset diarrhea. During the exam it was identified that the man had recently returned to the United States from Liberia 7 days earlier after attending a conference with his company. Reports out of Liberia state that an Ebola outbreak was just identified. He was placed in a private room under standard, droplet and contact precautions and was tested for Ebola. The test confirmed the patient had the Ebola Virus. Results were sent off to the state health department and the Centers for Disease Control and Prevention (CDC) was notified that the patient attended a conference where it is likely the virus was contracted. The case continues to reflect contract tracing and containment efforts, various other individuals getting the virus, and the transportation of patients to facilities based on availability and ability to treat patients with Ebola virus.

The entities involved in this scenario include a community physician, hospital A Emergency Department at the Critical Access Hospital visit 1, Hospital A Emergency Department at the Critical Access Hospital visit 2, Hospital B, Hospital C, Ambulance service, the State Health Department, the CDC and the Biocontainment Units within each hospital.

A Committee discussant emphasized that the virus will more than likely be identified by the community health center network, who should be recognized as the backbone of response, as opposed to the community physician. The Committee member mentioned that local health departments were not included as an entity, but should be. Dr. Mehas asked the Committee what quality measures would be suitable for use in this type of scenario (e.g., infectious disease outbreak, pandemic) to assess the care provided and coordinated by the entities mentioned (e.g., community health center network, health department). The Committee members suggested both process measures to ensure that all protocols are being followed and to prevent the transfer of the disease and well as outcome measures should be used. They also suggested using the Centers for Disease Control and Prevention framework of identify, isolate, and inform potential measures for this case.

Member and Public Comment

Dr. Mehas opened the web meeting to allow for public and member comment. No comments were offered.

Next Steps

Dr. Mehas presented the next steps. The Committee will convene for Web Meeting #4 on April 20, 2021, 1:00 pm – 3:00 pm ET. During the meeting, the Committee will discuss the following items:

- Public Comments on Environmental Scan Report
- Themes from KIIs

Adjourn

Dr. Mehas concluded the meeting by thanking the Committee members, NQF staff, and CMS partners.