NATIONAL QUALITY FORUM

Electronic Health Record (EHR) Data Quality Best Practices for Increased Scientific Acceptability

Orientation Web Meeting

November 13, 2019

Agenda

- Welcome, Introductions, and Review of Meeting Objectives
- Overview of NQF
- Project Overview
- Roles and Responsibilities
- Environmental Scan Strategy and Findings To Date
- SharePoint Overview
- Opportunity for Public Comment
- Next Steps

Welcome and Introductions

NQF Project Staff

- Kathryn Goodwin, MS, Senior Project Manager
- Jean-Luc Tilly, MPA, Senior Project Manager
- Ameera Chaudhry, MS, Project Analyst
- Christopher Millet, NQF Consultant

Technical Expert Panel Roster

- JohnMarc Alban, MS, RN, CPHIMS
- Zahid Butt, MD FACG
- Cynthia Cullen, MS, MBA, PMP
- John Derr, RPh
- Karen Dorsey, MD, PhD
- Zabrina Gonzaga, RN
- Angela Kennedy, DC, MBA
- Joseph Kunisch, PhD, RN-BC, CPHQ
- James Langabeer, PhD, MBA
- Jamie Lehner, MBA, CAPM
- Michael Lieberman, MD, MS
- Jacob Lynch, RN-BC
- Jana Malinowski
- James Mcclay, MD, MS, FACEP
- Shelly Nash, DO
- Shea Polancich, PhD, RN
- Stan Rankins, MSIT
- Mike Sacca

Federal Liaisons

- Albert Taylor, MD
- David Kendrick, MD, MPH

Meeting Objectives

Meeting Objectives

- Provide a brief orientation to the National Quality Forum
- Review roles, Technical Expert Panel charge, project objectives, and activities
- Review timeline of project
- Review Environmental Scan findings to date

Overview of the National Quality Forum

The National Quality Forum (NQF)

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.

NQF Mission


Board of Directors
Standing Committees
8 Membership Councils
Measure Applications Partnership (MAP)
National Quality Partners (NQP)
Standing committees for clinical measures and information technology
Neutral Convener
Standard Setting Organization
1 Build Consensus
2 Endorse National Consensus Standards
3 Education and Outreach

Activities in Multiple Measurement Areas

- **Performance Measure Endorsement**
  - *500+ NQF-endorsed measures across multiple clinical areas*
  - *14 empaneled standing expert committees*
- **Measure Applications Partnership (MAP)**
  - *Provides input to HHS on selecting measures for 20+ federal programs, Medicaid, and health exchanges*
- **National Quality Partners**
  - *Convenes stakeholders around critical health and healthcare topics*
  - *Spurs action on patient safety, early elective deliveries, and other issues*
- **Measurement Science**
  - *Convenes private and public sector leaders to reach consensus on complex issues in healthcare performance measurement such as attribution, alignment, sociodemographic status (SDS) adjustment*

Project Overview

Project Objectives

Over an 18-month period, we will:

- Identify the causes, nature, and extent of EHR data quality issues (including but not limited to data completeness, accuracy, comparability, and validation);
- Discuss and assess the impact that poor EHR data quality has on scientific acceptability (i.e., reliability and validity), use and usability, and feasibility; and
- Make recommendations to HHS for best practices in assessing and improving EHR data quality to improve the reliability and validity, use and usability, and feasibility of eCQMs and increase the scientific acceptability and likelihood for NQF endorsement.

Project Activities

Environmental Scan:

- Identify how developers assess EHR data quality prior to developing, testing, and implementing eCQMs
- Present existing approaches and guidance used to mitigate data quality challenges
- Establish what data is needed to support the development and testing of eCQMs

Project Activities

Final Report:

- Present the TEP's appraisal of the nature, causes, and extent of EHR data quality issues
- Identify best practices in improving EHR data quality to improve the reliability and validity, use and usability, and feasibility of eCQMs
- Assess NQF's eCQM evaluation criteria
- Recommend structural changes to EHR data flow to promote EHR data retrieval and facilitate measure implementation and reporting
- Identify future research areas of research and a glossary of terms related to EHR and eCQMs

Project Timeline

Meeting	Date/Time
TEP Web Meeting 2	December 12, 2019, 11:00 am – 1:00 pm ET
TEP Web Meeting 3	March 31, 2020, 1:30 pm – 3:30 pm ET
TEP Web Meeting 4	April 29, 2020, 1:00 – 3:00 pm ET
Final Environmental Scan Report	May 19, 2019
TEP Web Meeting 5	June 11, 2020, 11:00 am – 1:00 pm ET
TEP Web Meeting 6	September 9, 2020, 11:00 am – 1:00 pm ET
TEP Web Meeting 7	November 10, 2020, 1:30 pm – 3:30 pm ET
Final TEP Findings and Recommendations Report	December 24, 2020

Roles and Responsibilities

Role of the Technical Expert Panel (TEP)

- Serve as experts working with NQF staff to achieve goals of the project
- Review meeting materials and participate in all meetings and web meetings
- Guide and provide input on:
  - *Environmental Scan*
  - *Development of recommendations to improve EHR data quality and assess NQF's eCQM evaluation criteria within the CDP*

Role of the Co-chairs

- Facilitate TEP meetings and participate as TEP members
- Guide and keep the TEP discussions relevant to project scope without hindering critical discussion/input
- Assist NQF in anticipating questions and identifying additional information that may be useful to the TEP
- Work with NQF staff to achieve project goals

Role of NQF Staff

NQF project staff will work with the TEP to achieve the goals of the project and includes:

- Organize and staff TEP meetings and conference calls
- Ensure communication among all project participants
- Prepare materials for TEP review
- Maintain documentation of project activities
- Facilitate necessary communication and collaboration between different NQF projects and external stakeholders
- Publish project reports

NQF Members and the Public at Large

NQF membership and the public will engage in the work by:

- Reviewing the draft reports and providing feedback to NQF and the TEP
- Participating in web meetings during opportunities for public comment

Environmental Scan Strategy

Research Questions

- How do measure developers currently assess EHR data quality prior to developing, testing, and implementing eCQMs?
- What are the approaches currently used to mitigate data quality challenges? How do the approaches vary based on the specific data quality issue (i.e., validity, lack of structured data)?
- What data are needed to support development and testing of eCQMs?
- What are the structural and organizational attributes of institutions that have successfully implemented eCQMs supported by EHRs with validated data quality?
- How have data quality issues impeded endorsement of eCQMs submitted to NQF's Consensus Development Process?
- What guidance have standard-setting bodies already promulgated to help mitigate EHR data quality issues?

Literature Review

Information Sources

- PubMed
- 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*
- Measures Inventory
  - *NQF*

Keywords

- EHR data quality
- Reliability
- Validity
- eMeasure Data Quality
- eCQM Data Quality
- Electronic Clinical Quality Measure Data Quality
- "Electronic Health Record"+ "Data Quality" + "Structured Fields"
- "EHR"+ Data Quality + Feasibility
- EHR Data Quality + Reliability
- Certified EHR Technology
- Certified EHR Data Quality
- Common Data Sets
- Data Quality + Validity + Electronic Health Record
- Data Quality +Reliability+ Electronic Health Record

TEP Discussion

- Are the research questions sufficient to inform an analysis of EHR data quality?
- Are there other key words to include in the search?
- Do you know of any reports or work underway that we should review?

Environmental Scan Findings To Date

Literature Review: Assessing EHR Data Quality

- Several competing frameworks for assessing data quality
- Consistent quality constructs include:
  - *Completeness*
  - *Correctness*
  - *Concordance*
  - *Plausibility*
- Other quality constructs include:
  - *Uniformity*
  - *Time pattern*
  - *Granularity*
  - *Structuredness*

Literature Review: Approaches to Mitigate Data Quality Issues

Wide array of strategies used to identify and mitigate data quality issues

- Gold standard: paper records, reconciliation with patient input, capture from multiple sources within the EHR
- Data element agreement
- Data element presence
- Data source agreement
- Distribution comparison
- Validity check: assess for clinical plausibility of data
- Log review: data entry logs to assess timeliness
- Statistical methods to impute missing data

Literature Review: Approaches to Mitigate Data Quality Issues

Key Example

- Blood transfusion dataset:
  - *Validated EHR data against annual blood bank report*
  - *Checked for clinical plausibility by verifying hemoglobin increased after transfer*
  - *Recoded diagnoses using a uniform reference table*
  - *Concordance between two different hospitals, other databases*
  - *Concordance with expectations from literature*
- Creation of composite death index
  - *Combined EHR data, Social Security Death Index, commercial data*

Literature Review: Approaches to Mitigate Data Quality Issues

Key Example

Diagnosis documentation for patients with multiple chronic conditions:

- 70% of diagnoses in the EHR were verified by comparison with a gold standard
- Gold standard was the best predictor of outcomes
- Combining data from different EHR locations was equivalent to gold standard performance
  - *Problem lists*
  - *Encounter diagnosis*
  - *Medical history*
  - *Medication lists*

Literature Review: Approaches to Mitigate Data Quality Issues

Other Examples:

- One article described a validation strategy leveraging the strengths of a stakeholder workgroup to guide the development and testing process for eCQMs. The stakeholders identified threats to feasibility, reliability, and validity: for example, identifying errors in the measure logic evident in initial results generated at a test site.
- A few articles described natural language processing programs. Authors described a manual abstraction and comparison approach for dealing with identified discrepancies.
- Another article described the importance of automated tooling programs that detect data quality issues and the role of such programs in improving standards implementation and adoption, as well as identifying and resolving barriers to clinical document exchange.

Literature Review: Data Needed to Support Development and Testing of eCQMs

- Common data quality terminology is needed to establish a universal understanding of the strengths and limitations of EHR data for quality improvement.
- Hospital EHR systems should include data as searchable data elements rather than free text to better implement eCQMs.

Literature Review: Approaches to Successfully Implement eCQMS

- Tailored approach to integrate with clinical care, revise workflows, and restructure data elements.

Literature Review: Guidance From Standard-Setting Bodies

- Literature emphasized the need and importance of regulatory bodies and accrediting organizations in setting standards for the quality of EHR data used for measurement.

SharePoint Overview

Public Comment

Next Steps

Next Steps

Future Meeting Objectives
Web Meeting 2 – Review and discuss the environmental scan results to date
Web Meeting 3 – Review final environmental scan results and public comments on the draft scan report
Web Meeting 4 – Identify potential best practices to promote data quality
Web Meeting 5 – Prioritize best practices, identify roles of standard-setting organizations on promote EHR data quality
Web Meeting 6 – Assess NQF's eCQM evaluation criteria and evaluation processes and recommend improvements
Web Meeting 7 – Review and respond to public comments on draft recommendations report

Project Contact Information

- Email: ehrdataquality@qualityforum.org
- NQF phone: 202-783-1300
- Project page: http://www.qualityforum.org/EHR_Data_Quality.aspx
- SharePoint: http://share.qualityforum.org/Projects/EHRDataQualityBestPracticesIncreasedScientificAcceptability/SitePages/Home.aspx

Questions?

Thank you.