NATIONAL QUALITY FORUM

Interoperability Web Meeting #2: *Environmental Scan Results*

January 4, 2017

Agenda

- Recap: Environmental Scan Methodology
- Systematic Literature Review
  - *Methodology*
  - *Results*
- Major Themes of Systematic Literature Review
- Existing Measure Review Methodology
- Relationship of Environmental Scan to Measure Framework
- Next Steps

Environmental Scan Methodology

Environmental Scan Overview

- This Environmental scan will assist in the development of a measurement framework to address the extent to which interoperability is occurring and how interoperability impacts key priorities and outcomes, as well as supporting a learning health system.
- The scan will identify key drivers and concepts to measure interoperability:
  - *(1) where the majority of providers across the care continuum and individuals can send, receive, find and use essential health information;*
  - *(2) to expand the settings across which interoperable health-related information should flow, including non-health care settings, EMS and public health*
  - *(3) the ways in which interoperability supports a learning health system*

Research Questions

- How can a measurement framework be developed that addresses populations and settings beyond hospital and physicians?
- How can a measurement framework be created to develop new quality measures that evaluate the impact of interoperability?
- How can a measurement framework be created that incorporates existing quality measures which identify key processes and outcomes of interoperability in a logical, unifying and strategic way?
- What implementation strategy will provide system-generated data to populate existing and new quality measures that can be enhanced through interoperable data exchange?

Literature Review

- Identify existing terms and issues applicable to interoperability through literature and ideas to facilitate what should be included in the measure framework and how to clarify it through specific domains
- Information sources:
  - *Comments and ideas generated by respondents to the ONC Request for Information (RFI) on potential measures of interoperability.*
  - *Reports issued from AHRQ, ASPE, and future reports/deliverables to the ONC that will provide information on different facets of interoperability and its benefits within both Health Information Organizations (HIOs) and Health Information Exchanges (HIEs).*
  - *Published studies by researchers who have examined the utilities and benefits of both health IT and HIEs on outcomes of care. The focus will be on the use of interoperability and how it has affected clinical processes and outcomes.*

Domains of Information

Key Components of Interoperability	Potential Information
Measures of Interoperability beyond the health care continuum (i.e., interactions with social services and human service providers)	Data "pushed" by systems to public health registries; electronic immunization reporting; electronic care transitions in long-term/post-acute care settings; secondary uses of clinical data to identify public health events.
Interoperability Enabled Processes/Interoperability Sensitive Outcomes	Data integration across multiple sources; utility of the information exchanged; readmission prevention; medication reconciliation; patient use of combined data; create efficiencies in care; provide data for comparative effectiveness research and improve specific functionality (such as clinical decision support systems) within EHRs; quality of care measures enhanced by robust data provided through an interoperable network.
System-Generated/Reported Data Sources for Interoperability Measures	Electronic medication orders received or retrieved; audit logs; electronic lab results received or retrieved; imaging reports received or retrieved; electronic ED visit reports received or retrieved; number of direct transactions; number of ENS notifications sent; number of closed-loop referrals; number of clinical documents opened; facility characteristics; healthcare claims.
Existing Measures of Interoperability/Interoperability Sensitive Outcomes	ED visits; hospital readmissions; number of clinic visits; number of inpatient hospitalizations; frequency of electronic communication between providers; transactional volume per Meaningful Use providers; total patients searched in a query portal; ENS admission reason; ENS discharge reason; implementation of single sign-on service.

Systematic Literature Review Methodology

Systematic Literature Review Structure

- **Timeframe:** Articles 2005 and newer
- **Key Words Used:** patient data, healthcare data ownership, healthcare data standardization, data interoperability, healthcare data sharing, healthcare data linkage, healthcare data systems, integrated healthcare systems, shared healthcare repositories, care continuum, physician networks, information systems, electronic medication and laboratory reporting, electronic notification services, electronic communication, hospital, community care
- **Scoring Method:**
  - *Each article was scored by combining the results of 5 criteria (Each criteria score ranging from 0-2)*
  - *If the criterion was completely satisfied, the article received a score of 2 for that criterion; semi-satisfactory results insulted in a score of 1; and dissatisfactory results incurred a score of 0.*
  - *Articles receiving a total score below 7 were excluded from the study*

Systematic Literature Review Criteria

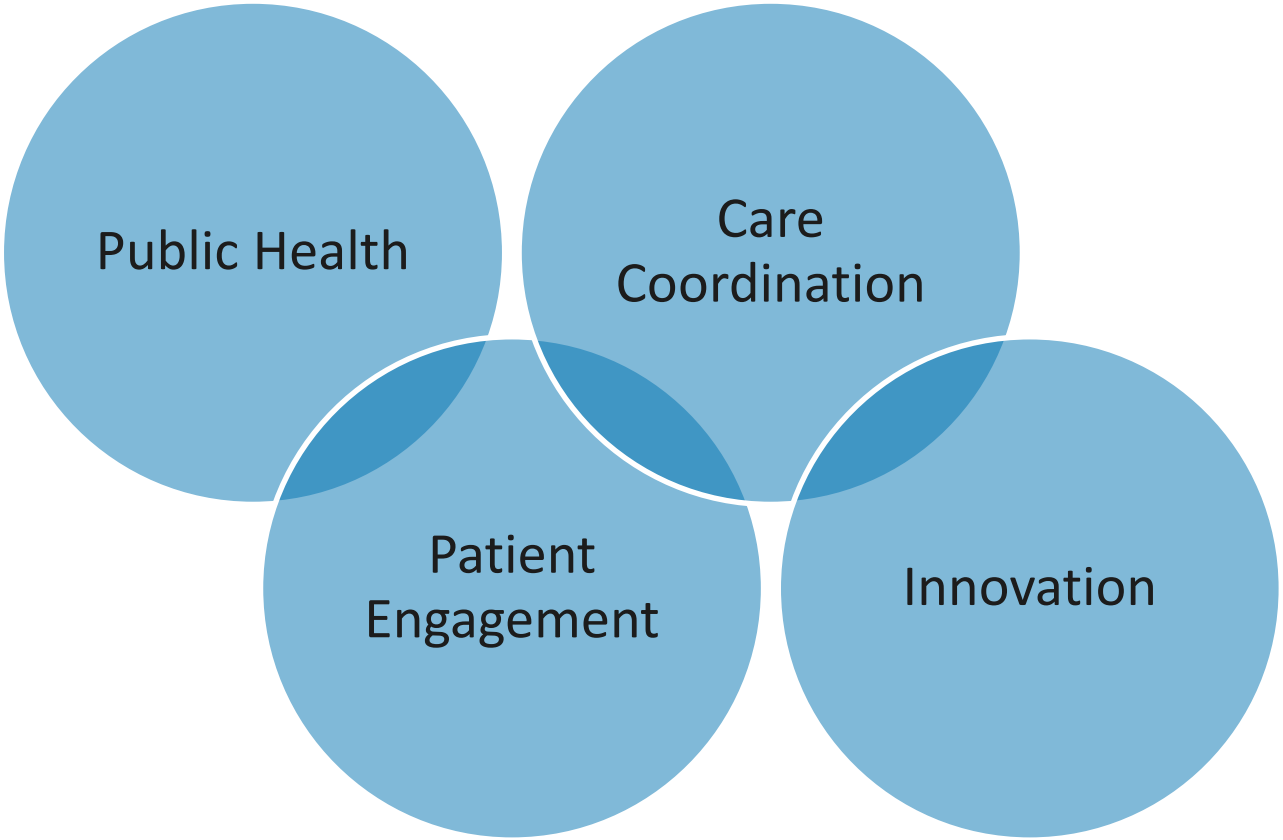
1. The content of the paper falls into one of the domains of information.
2. The results were proven in a scientific manner (i.e., statistical analysis, case study, interviews with experts, etc.).
3. The study helps address one of the research questions.
4. The paper has a well-articulated scientific method and well-defined research scope.
5. The goals of the study were satisfied with published results.

Systematic Literature Review Results

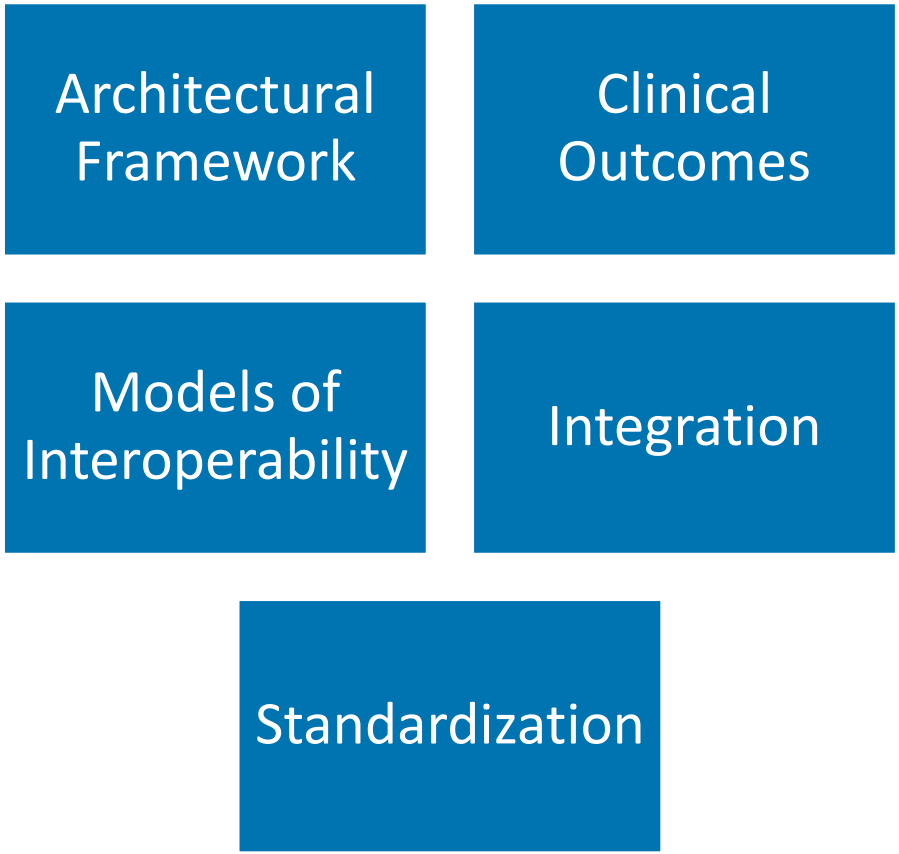
- NQF reviewed over 417 references
  - *412 titles and abstracts from the electronic search*
  - *Series of interoperability use cases provided by the Health Information Technology (IT) Policy Committee*
  - *Two systematic reviews conducted by AHRQ and the RAND Corporation*
  - *One report developed by the National Academy of Medicine*
  - *One report developed by Clinovations Government + Health for HHS*
- From this, we identified 65 papers that scored a 7 or above

Systematic Literature Review Results

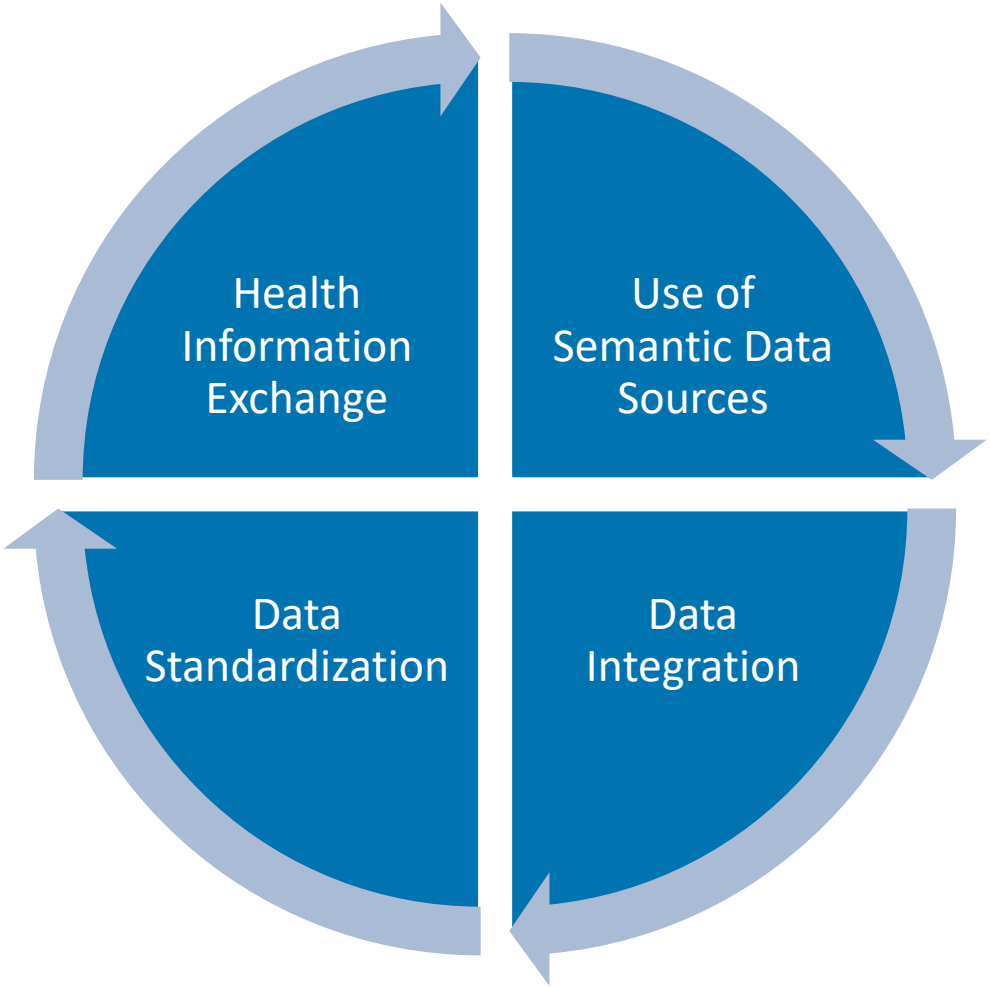
Measures of Interoperability beyond the health care continuum



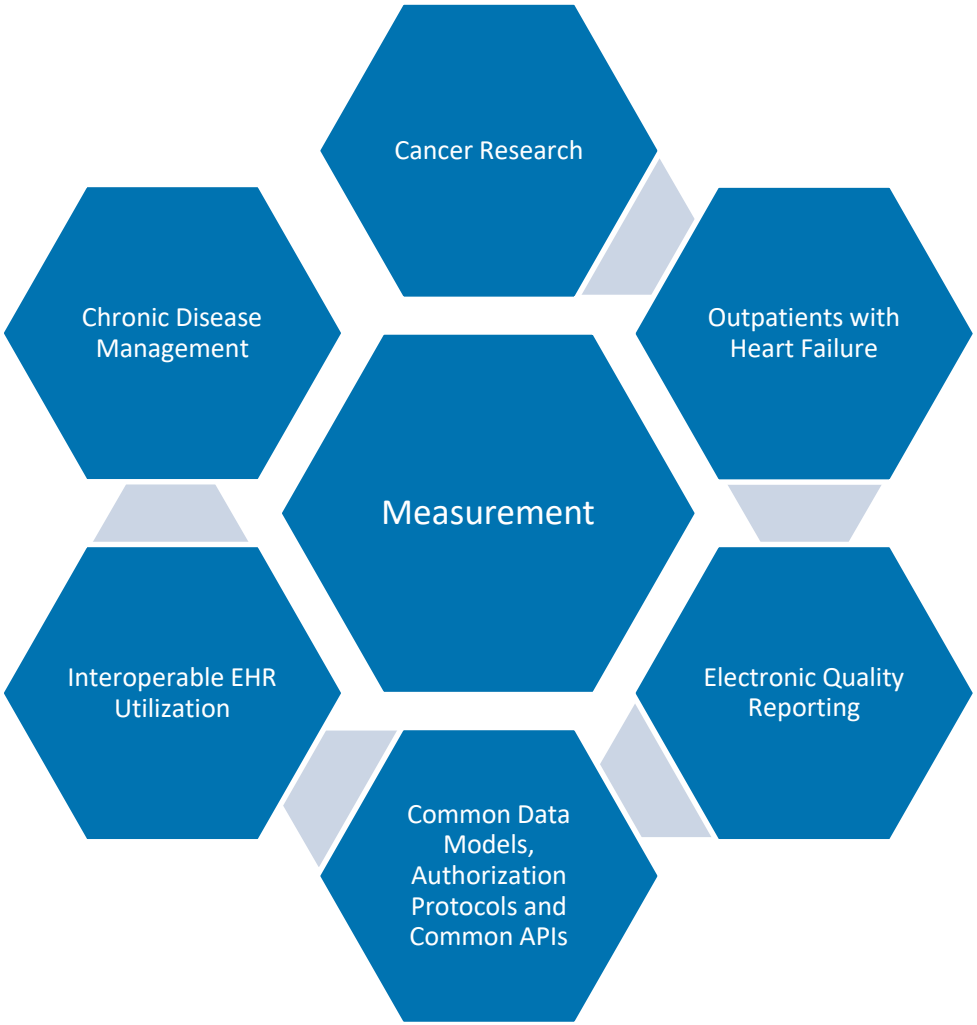
Interoperability Enabled Processes/ Interoperability Sensitive Outcomes



System-Generated/Reported Data Sources for Interoperability Measures



Existing Measures of Interoperability/ Interoperability Sensitive Outcomes



Major Themes in the Literature

Major Themes

1. Use of the semantic web may provide another means of interoperability that would provide data elements needed for quality measurement.
2. Data interoperability can be accomplished in a number of ways, through the semantic web, the HL7 FHIR standard or the CDA/C-CCD, also developed by HL7.
3. Data sources that may assist in the development of measures may come from sources beyond health information exchanges and registries.
4. The measure framework should examine models of interoperability and data use that have been developed outside of the United States.
5. The number of providers across medical disciplines may not be ready to receive or exchange data across systems.

Existing Measure Review Methodology

Existing Measure Review

- Review of existing quality metrics that are "interoperability sensitive"
- Replicate the methodology by Kern, Pincus et al. that focused on the examination of ambulatory care quality metric sets that were sensitive to improvements in quality facilitated by healthcare interoperability
- NQF will expand this methodology to include hospital-based metrics as the current EHR adoption rate within these settings is exceeding 80 percent

Existing Measure Review Criteria

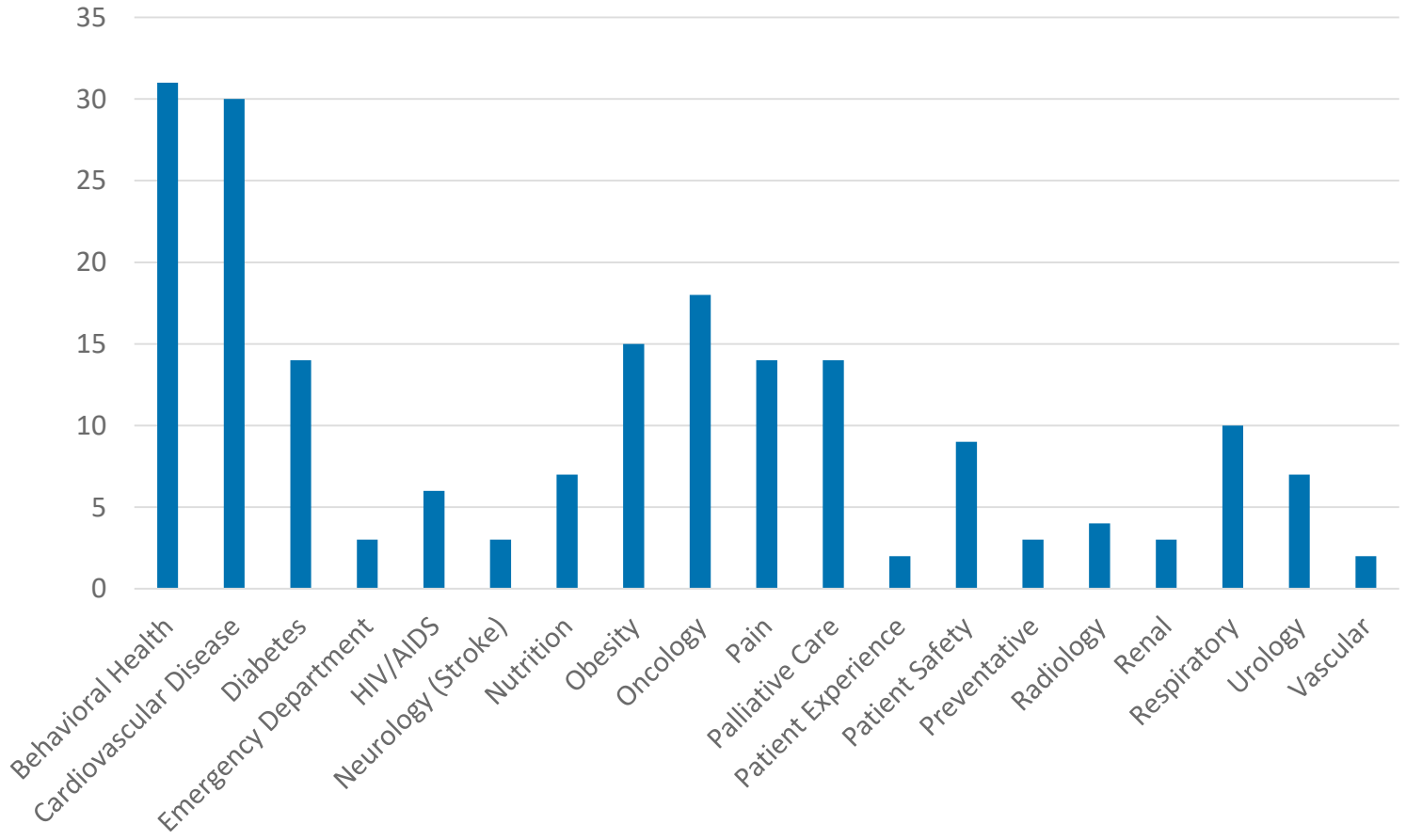
1. Review of existing ambulatory and hospital-based quality e-Measure sets
2. Application of exclusion criteria to individual metrics
3. An articulation of assumptions; a conceptual model and domains for rating that are based directly on the work of Kern, Pincus, et al.
4. A qualitative rating assigned to the measures by internal NQF staff.
5. Validation of this process by the multistakeholder committee.
6. A second round of quantitative ratings by the multistakeholder committee.
7. Development of a conceptual measure framework that includes these validated measure sets.

Existing Measure Review Criteria

- Two domains used to rate each quality metric:
  - *Sensitivity to the Potential Effects of EHRs plus the use of health information from outside the EHR (such as data available through a health information exchange)*
  - *Suitability for Electronic Reporting*
- Scoring Method:
  - *Scores for each metric would range from 0 (not suitable) to 6 (extremely suitable)*
  - *First round of ratings will be conducted by NQF Staff, which include our Chief Scientific Officer (an internist), and other NQF clinical staff*
  - *Each metric will be reviewed by a group of staff members and the scores will be added and averaged*
  - *Metrics receiving a combined score of 9 or more will be considered high*

Existing Measure Review Results

- Initial review had over 700 outcome and process measures



Relationship of Environmental Scan to Measure Framework

Framework Principles

- The framework must be comprehensive and expansive enough to encompass both the short and long-term goals of the ONC Interoperability Roadmap.
- The framework must include core set of dimensions and elements that are defined through consensus to reduce potential variation in measure development over time.
- The framework must be flexible to accommodate changes in data standards, data transport mechanisms, and data sources so it consistently provides utility for those seeking to measure and asses the effect of interoperability and its impact on quality of care.

Questions/Comment?

Next Steps

Next Steps for Interoperability Project

- NQF member and public comment #1
  - *January 13-February 13, 2017*
- Committee Web Meeting #3
  - *February 1, 2017 1-3 PM ET*
- In-Person Meeting
  - *March 21-22, 2017*

Thank you.