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Policy Brief: HITEP II

EXECUTIVE SUMMARY

Meaningful healthcare quality measurement depends on collecting and reporting precise performance data. Developing and implementing electronic health record (EHR) systems should facilitate the seamless collection of these data, but most EHR systems are insufficient to support quality measurement as it is envisioned to assist broad health reform efforts.

National comparison of performance requires that all quality indicators measure the same concepts equally. However, most health information standards were created to send information from one computer system to another. These standards have focused on the "envelope" for the information, not the information itself. But it is the *standard* information that is required for measurement. The lack of a set of precisely defined, universally adopted clinical definitions—i.e., the information—remains a major obstacle to measuring and comparing quality.

Thus, with support from the Agency for Healthcare Research and Quality (AHRQ), the National Quality Forum (NQF) in 2007 assembled an expert panel, the NQF Health Information Technology Expert Panel (HITEP), to accelerate efforts in standardization. In a report published the following year, NQF's HITEP spelled out a set of common data types across a prioritized set of measures to identify standards for how this information could be expressed. To build on that effort, and to assist the healthcare field in its efforts to meet HIT and quality goals in recent legislation, HITEP reconvened in 2009 to define a draft "quality data set" (QDS) that could be used nationwide to support automated quality measurement.

The QDS is "a minimum set of data elements or types of data elements that can be used as the basis for developing harmonized and machine-computable quality measures"—a framework for creating a "dictionary" of electronic clinical terms for purposes of automated quality measurement. The QDS as conceived by the NQF HITEP does not populate that dictionary with a definition of terms. Rather, it is a classification system by which measure developers can offer and refine definitions. Once fully developed, the QDS would be a centralized repository of quality data requirements (such as concepts, data types, data elements, and code lists) and data definitions used by multiple stakeholders to develop, specify, and use quality measures.

The QDS aims to provide direction to measure developers, EHR vendors, and other stakeholders on how to define quality terminology without ambiguity. QDS content should be maintained regularly. As measures previously endorsed by NQF are maintained, they will be required to address the specifications using the QDS. In the near term, measure developers should classify data requirements using the QDS framework.

Introduction

Meaningful healthcare quality measurement is a cornerstone of healthcare quality improvement and health reform efforts. It depends on the collection and reporting of precise performance data. Currently, however, many processes to collect and report these data are rudimentary. They often depend either on retrospective review of paper-based medical records or on the use of electronic claims data that lack clinical precision. This makes quality measurement complex and burdensome, with great potential for error.

The widespread adoption of health information technology (HIT) should automate and simplify these processes. Specifically, the development and implementation of electronic health record (EHR) systems should facilitate the seamless collection of useful electronic health quality data. Unfortunately, the administrative data that comprise the majority of readily available electronic health information are, by and large, insufficient to support quality measurement.

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"Health IT holds tremendous promise for improving the quality of healthcare in the United States, but to date that promise has gone largely unfulfilled," says Paul C. Tang, MD, MS, vice president and chief medical information officer of the Palo Alto Medical Foundation. "To achieve high-quality, patient-centered care, we need interoperable HIT that not only facilitates access to patient information wherever the patient needs care, thereby reducing errors and overuse, but also allows us to measure and improve care across the continuum."

True and significant national comparison of performance depends on consistently and reliably measuring the same thing. This requires that all quality indicators measure the same concepts and speak the same language. Although there is no dearth of HIT standards, such standards have not been broadly applied to quality metrics. For example, different institutions or physicians may apply different definitions to such basic terms as diabetes, high blood pressure, or obesity.

Achieving Automated Quality Measurement: NQF's HITEP

There have been many important recent steps in the universal adoption of EHR systems. Following the Bush Administration's declared goal of the widespread use of EHRs by 2014,[1] the American Recovery and Reinvestment Act of 2009 (commonly known as the stimulus package)[2], which contains the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), is now encouraging and funding their rapid adoption. NQF has endorsed national consensus standards for HIT including use of interoperable EHRs.[3] While EHRs are increasingly able to communicate with each other, the lack of full interoperability and a set of precisely defined, universally adopted electronic clinical definitions remains a major obstacle to measuring and comparing quality.

With the goal of achieving automated quality measurement, NQF in 2007 assembled an expert panel, the NQF Health Information Technology Expert Panel (HITEP), to accelerate efforts in standardization.[4]

In a report published in 2008, NQF's HITEP spelled out a set of common data types across a prioritized set of measures in order to identify standards for how this information could be expressed. In addition, HITEP outlined specific actions to improve the ability of the quality measurement and HIT enterprise to support quality improvement.[5]

"In order to make the use of EHR systems standard in hospitals and physicians' offices across the United States, we need to advance a common vision of an EHR platform that will facilitate performance measurement in the future," said Floyd Eisenberg, MD, MPH, NQF's senior vice president of HIT. "HITEP's initial work was important because the technical and organizational approach it described should assist in the transition of quality measurement to EHRs."

To build on that effort, and to assist the healthcare field in its efforts to meet HIT and quality goals spelled out in legislation,[6] the NQF HITEP reconvened in 2009. Its purpose was twofold:

1. To define a draft "quality data set" (QDS) that could be used nationwide to support automated, patient-centric, and longitudinal quality measurement; and
2. To create a framework for "data flow," or characteristics to describe data used within measures based on where they are stored within EHRs.

The Quality Data Set

The QDS has been defined as "a minimum set of data elements or types of data elements that can be used as the basis for developing harmonized and machine-computable quality measures."[7]

"The QDS is a framework for creating a 'dictionary' of clinical terms for purposes of electronic quality measurement," said Daniel Rosenthal, MD, MSc, MPH, senior advisor for HIT at NQF. "For instance, if you have a performance measure for administration of aspirin on arrival to the hospital for a heart attack, the QDS defines what is administration, what is aspirin, what is arrival to the hospital, and what is a heart attack."

Once fully developed, the QDS would be a centralized repository of quality data requirements (such as concepts, data types, data elements, and code lists) and data definitions used by multiple stakeholders to develop, specify, and use quality measures.

The QDS effort as conceived by the NQF HITEP does not populate that dictionary with a definition of terms. Rather, it is a classification system by which definitions can be offered and refined by measure developers.

The QDS should serve as the common language for data to include quality measurement in EHRs and other HIT systems. It also should serve as the bridge between quality measures and the development of standards for interoperability, data export, data storage, and certification criteria for HIT systems.

As conceived by HITEP, the QDS framework contains two levels of information:

1. **Standard elements:** Standard elements consist of a single clinical concept and the atomic unit of information, identified by a ***data element name*** (e.g., diabetes), a ***code set*** (e.g., ICD-9-CM), and a ***code list*** comprising one or more enumerated values (e.g., 250.0, 250.1). Standard data elements should be reused and aligned among measures and measure developers.
2. **Quality data elements:** The quality data element is composed of a standard element, as defined above, and a ***quality data type***. The quality data type is the context in which

FIGURE 1 Summary of Combined QDS and Dataflow Frameworks

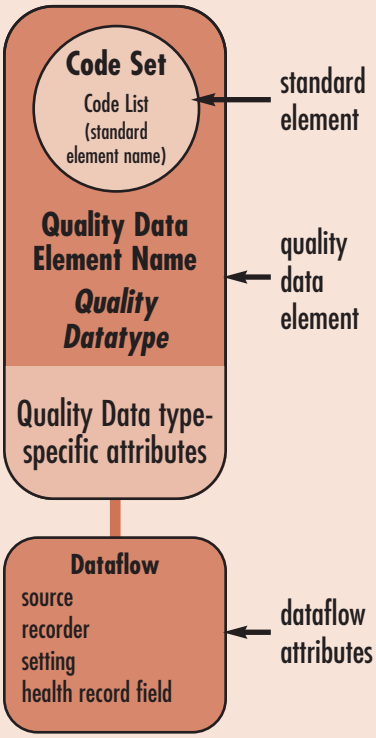
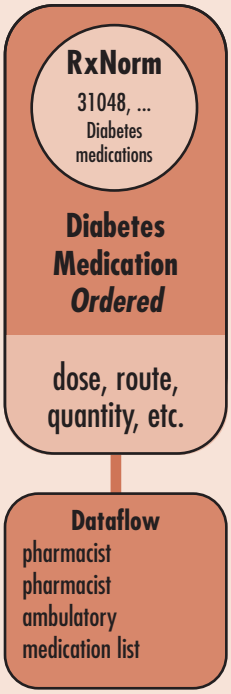


FIGURE 2 Summary of Combined QDS and Dataflow Frameworks: Diabetes Example



each standard element is used in a clinical context in a quality measure to describe part of the clinical care process. Quality data elements reuse the standard elements and should be reused by other measures and by clinical guideline and clinical decision support developers. Examples include, in the case of diabetes:

- *active diagnosis* of diabetes,
- *family history* of diabetes,
- diabetes medication *dispensed,* and
- diabetes medication *administered*.

The QDS framework is intended to represent clinical and administrative information required to calculate quality measures. These elements will be used to construct, with measure-related logic, numerators and denominators. Because of the importance of the QDS as a framework from which EHR developers can extract data for performance measurement, adherence to the QDS likely will become a requirement for NQF endorsement.

Data Flow

To determine how best to gather data as a seamless part of care delivery, facilitate improved quality measurement and reporting, and drive improved care outcomes, NQF's HITEP also sought to establish a framework for "data flow"—an understanding of how data move within the clinical workflow so that any given data element is the authoritative source for the required information.

Data flow is an important concept because so many pieces of information exist in the clinical record. To avoid error and make the performance measurement meaningful, it is not enough to extract a piece of data from the EHR; it must be the *right* piece of data. While the QDS describes the pieces of information needed for quality measurement, the data flow connects the QDS to the right location in the EHR.

As conceived by HITEP, data flow contains four elements:

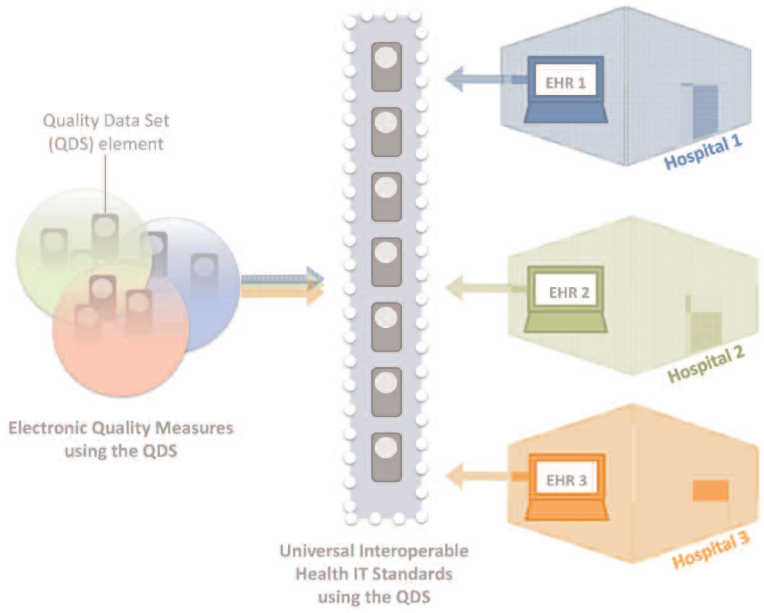
1. **Source:** The source is the originator of the quality data element. The source may be an individual or a device.
2. **Recorder:** The recorder is the individual or device that enters the data element into a health record field.
3. **Setting:** The setting is the physical location at which the data element is captured.
4. **Health Record Field:** The health record field is the location within an electronic record where the data should be found.

A Look Ahead: Meeting in the Middle

The QDS, as envisioned by HITEP, aims to describe the information needed for quality measurement. Its goal: to provide direction to measure developers, EHR vendors, and other stakeholders on how to define quality terminology without ambiguity.

Once the QDS is widely accepted and adopted, other HIT standard groups can begin to make the necessary connections to electronic clinical information—so that a standards group can easily find an acceptable, agreed-upon interoperability standard describing such terms as "patient information." Simultaneously, HIT vendors can connect their systems to those HIT standards so that an EHR vendor can define where to find those terms (e.g., "patient information") in its system. Measure developers would not have to map to every single EHR system; rather, the QDS would map to common standards. The goal is for quality content and clinical

FIGURE 3 **QDS and Data Flow: The "Missing Link" Between Quality Indicators and EHRs**



information to "meet in the middle" using those common HIT standards.

The QDS contains quality data elements for measurement use. As measures are created and continually updated, the QDS will need to reflect these changes. HITEP recommended maintenance of the QDS content at regular intervals. As measures previously endorsed by NQF are maintained, they will be required to address the specifications using the QDS. In the near term, measure developers should classify data requirements using the framework of the QDS.

Appendix A: Major Panels in Health IT

AHIC

American Health Information Community. A federal advisory body chartered in 2005 to make recommendations to the Secretary of Health and Human Services (HHS) on how to accelerate the development and adoption of health information technology. AHIC was formed by then-HHS Secretary Mike Leavitt to help advance efforts to achieve President Bush's goal for most Americans to have access to secure electronic health records by 2014. AHIC concluded its operations in 2008 and transitioned to a private-public organization, the National eHealth Collaborative (NeHC), which is working on a number of initiatives critical to a nationwide electronic health information network.

CCHIT

Certification Commission for Health Information Technology. An independent not-for-profit organization founded in 2004, and certifying electronic health records (EHRs) since 2006. CCHIT established the first comprehensive, practical definition of what capabilities were needed in these systems. More than 200 EHR products, representing more than 75 percent of the marketplace, were certified as of mid-2009.

HITSP

Health Information Technology Standards Panel. A public-private partnership formed for the purpose of harmonizing and integrating standards that will meet clinical and business needs for sharing information among organizations and systems. HITSP was formed in 2005 under contract from the Office of the National Coordinator of Health Information Technology by the American National Standards Institute along with strategic partners HIMSS, Booz Allen Hamilton, and the Advanced Technology Institute. It is envisioned as a standards harmonization endeavor for health information technology.

NQF's HITEP

Health Information Technology Experts Panel. HITEP was convened in 2007 by the National Quality Forum (NQF) with support from the Agency for Healthcare Research and Quality to accelerate ongoing efforts in the standardization of health information technology. Its initial effort (known as HITEP I) focused on envisioning the electronic health record (EHR) platform required for performance measurement in the future. It sought to do this by identifying and recommending common data elements to enable automation of a prioritized set of measures through EHRs and Health Information Exchanges. Its follow-on work (known as HITEP II), the subject of this policy brief, focused on recommendations for a standardized Quality Data Set (QDS) and more meaningful quality measurement through improved clinical data flows within and across care settings.

ONCHIT

Office of the National Coordinator of Health Information Technology. Created in 2004, ONCHIT is the principal federal entity charged with coordinating nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. ●

NQF
NATIONAL QUALITY FORUM

NQF's mission is to improve the quality of American healthcare by setting national priorities and goals for performance improvement, endorsing national consensus standards for measuring and publicly reporting on performance, and promoting the attainment of national goals through education and outreach programs.

NQF Issue Briefs provide insight into payer, policy, and industry efforts to promote quality healthcare. The work of HITEP II was supported by the Agency for Healthcare Research (AHRQ).

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Notes

1 In 2004, President Bush issued an executive order establishing the position of the National Coordinator for Health Information Technology within the Office of the Secretary of Health and Human Services (HHS). The primary purpose was to aid the secretary of HHS in achieving the president's goal for most Americans to have access to an interoperable electronic medical record by 2014. For more information, visit http://healthit.hhs.gov/portal/server.pt. Last accessed September 2009.

2 The American Recovery and Reinvestment Act of 2009 (ARRA) provides significant funding to support the adoption of qualified EHR systems. The act defines such a qualified system as an electronic record of health-related information about an individual that: "(A) includes patient demographic and clinical health information, such as medical history and problem lists, and (B) has the capacity—(i) to provide clinical decision support, (ii) to support physician order entry, (iii) to capture and query information relevant to health care quality, and (iv) to exchange electronic health information with, and integrate such information from other sources."

3 National Quality Forum (NQF). *National Voluntary Consensus Standards for Health Information Technology: Structural Measures 2008.* Washington, DC: NQF; 2008.

4 To address the need to standardize healthcare quality measurement, the American Health Information Community (AHIC), an advisory committee to the Secretary of Health and Human Services, established a Quality Workgroup to define how health information technology can evolve to effectively support performance measurement. The workgroup recommended that an HIT expert panel be convened to accelerate ongoing efforts in this standardization process. The Agency for Healthcare Research and Quality (AHRQ) commissioned NQF to assemble and convene the expert panel and to provide a detailed account of its conclusions and recommendations. The NQF Health Information Technology Expert Panel (HITEP) members were selected to ensure broad representation across the fields of quality measurement and HIT and of EHR vendors, health systems, and government organizations.

5 National Quality Forum (NQF). *Recommended Common Data Types and Prioritized Performance Measures for Electronic Healthcare Information Systems: A Consensus Report.* Washington, DC: NQF; 2008.

6 The Medicare Prescription Drug Improvement and Modernization Act of 2003 introduced the concept of paying providers an incentive to report on quality measures, which the Centers for Medicare & Medicaid Services reinforced in 2004 when it tied reporting of a "starter" set of 10 NQF-endorsed™ consensus standards to receipt of a hospital's full Medicare market basket update. HIT adoption is encouraged by the ARRA.

7 The American Health Information Community Quality Workgroup. *AHIC Quality Workgroup Recommendations.* Available at http://www.healthit.hhs.gov/. Last accessed October 2009.