Transitioning to Electronic Clinical Quality Measures in the Informatics Era

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There are a number of recent factors driving changes to how healthcare quality is being measured. First, there's the rapid adoption of healthcare information technology (HIT) due to the Centers for Medicare and Medicaid Services (CMS) "meaningful use" Electronic Health Record (EHR) Incentive Program. In addition, new quality measurement programs are part of healthcare reform initiatives, which rely heavily on value-based payment incentives.

Quality measurement used to be achieved through manual chart entry and review (abstraction) and/or the analysis of administrative claims. But now there are electronic clinical quality measures (eCQMs) that are captured by HIT systems as a byproduct of a clinician's workflow and documentation. This requires an HIT infrastructure to support the capture and reporting of these eCQMs, which has a direct impact on a health information management (HIM) professional's own functions, standards, and practices.

This article discusses eCQMs, their opportunities and challenges, and the implications to HIM practice.

Defining eCQMs

eCQMs, also called "eMeasures," are clinical quality measures that use structured data found in EHRs or other HIT to measure the quality of care provided to patients. The data to satisfy each measure must be captured in a structured format in HIT during the patient care process.[1] Evolving standards and tools are used to enable the capture and reporting of the eCQMs.

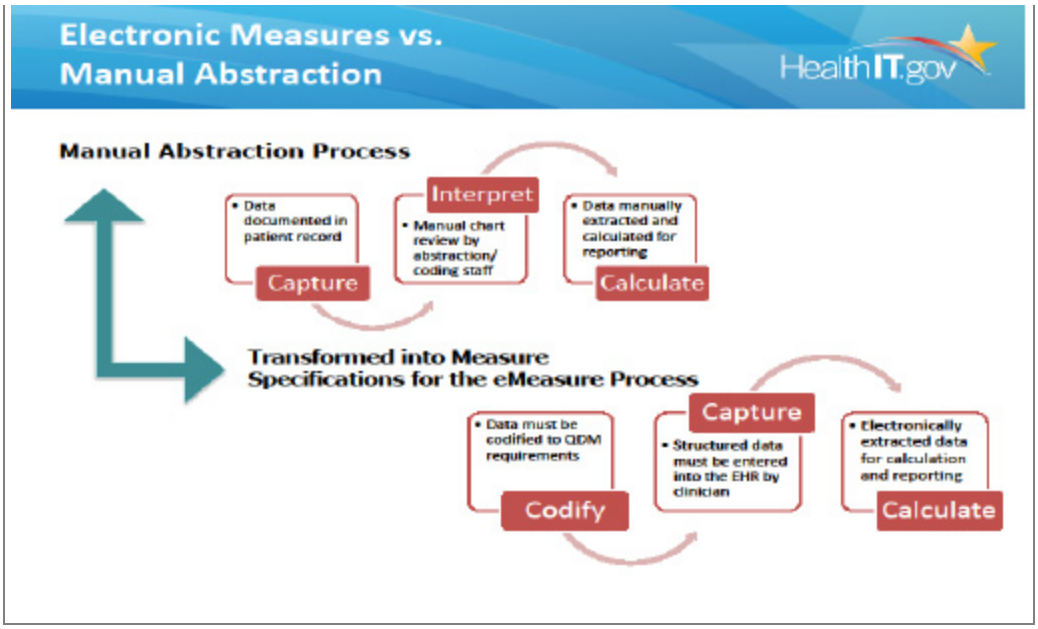
The use of eCQM reporting has the potential benefit of reducing the burden of quality reporting on providers, while increasing the access to real-time quality data that can help improve quality of care. Other potential benefits of eCQMs are improved accuracy, better alignment with clinical workflows, and shortened implementation timeframes for reporting clinical performance and quality.[2]

eCQMs were first introduced in the rulemaking process for meaningful use stage 1. The use of eCQMs has subsequently been expanded to multiple CMS quality programs, including the Hospital Inpatient Quality Reporting (IQR) and Value-based Purchasing Programs (VBP); the Physician Quality Reporting System (PQRS); the Comprehensive Primary Care Initiative; and most recently to the final rule for the Quality Payment Program under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).[3]

The transition of quality measurement to eCQMs has not been without its challenges. Because of regulatory timelines, the initial set of eCQMs were retooled from existing manual measures, not developed from scratch (new measures from scratch are referred to as "de novo"), leading to significant new workflow requirements for clinicians along with requirements for HIT development and implementation by software developers. Adequate time was not available in both meaningful use stages 1 and 2 to test the accuracy and feasibility of the eCQM specifications, and nearly 100 percent of the stage 2 eCQM specifications contained errors when first released.[4]

Many efforts have been made and are still in progress to improve the eCQM process, including verification of the feasibility, reliability, and accuracy of the eCQMs along with the development of improved standards.

Comparison of Electronic Measures vs. Manual Abstraction[5]



Major Differences in Reporting CQMs and eCQMs

Until the introduction of eCQMs, quality data was typically collected and reported in one of two methods—manual abstraction and claims-based reporting:

- **Manual Abstraction:** For hospitals, most of the quality measures relied on data that was manually abstracted from information found in the paper patient medical record by experienced clinicians or HIM professionals. These professionals search for the data needed to satisfy the required quality indicators according to the manual specifications. The abstracted data is often validated by using a third party software tool. The quality data is usually submitted by the hospital quality department.
- **Claims-based:** For physicians, much of the quality measurement relied on analysis of electronic claims data sent to payers, with the payers doing the analysis and calculation of the quality measure. This method has been used for some hospital quality measures as well.

In contrast, eCQMs require the use of specific data elements that are coded according to the eCQM electronic specification and associated value sets within the EHR. Clinicians must then record the required structured clinical data as they document the patient encounter. Using specified standards, the data to satisfy each eCQM for each patient is then gathered and reported electronically to the appropriate entity in the required format.

Updated annually, electronic specifications (e-specifications) must be developed for each eCQM in order to report measures electronically from HIT. CMS posted the 2016 annual update for eCQMs for eligible hospitals and eligible professionals in April 2016. Providers will use these updated measures to electronically report 2017 quality data for CMS quality reporting programs.

Currently, each eCQM electronic specification is represented using a specific standard called HQMF (Healthcare Quality Measure Format).

The electronic specifications include:[6]

- HTML—A web-facing, human-readable version of some of the XML file content, rendered so that the user can understand how the elements are defined and the logic used to calculate the measure.
- XML (Extensible Markup Language)—A computer-readable format that describes the logic of the content and allows for the creation of queries against an EHR (or other data store) for quality reporting.
- Value Sets—Specific code sets that use standard vocabularies or terminologies to define each clinical concept and/or patient data needed to calculate the eCQM. The value sets are curated through the National Library of Medicine Value Set Authority Center (VSAC).

eCQM Impact on HIM Functions and Practices

Because of the nature and extended responsibilities of HIM departments, eCQMs have direct implications to HIM practice. They can impact the completeness and accuracy of clinical data documentation, reporting, and coding and classification, as well as policy, standardization, and data governance.

- **Clinical data documentation.** Incorrect data values or format such as discharge date, before admission date, and missing data. Missing data might include discharge date not recorded. Those are some of the most common errors found when calculating measure results or validating the data reporting transmission. Accuracy and completeness of data collection and medical record documentation are critical for eCQM measures.
- **Predictable HIM issues.** Requiring the clinician documenters to enter specific data to fulfill pre-defined requirements will necessitate HIM professionals needing to continually verify accuracy, and provide and revise predetermined lists of possible selections of descriptors for the clinician to select.
- **Coding and vocabularies.** The data elements used in eCQMs must utilize specific standard vocabularies such as SNOMED CT, RxNorm, LOINC, and ICD-10-CM to identify clinical concepts for each quality data category in HIT, such as clinical condition or diagnosis, patient encounter, laboratory test, and procedure. The terminology and vocabulary requirements are based on the Office of the National Coordinator for Health IT (ONC) Health Information Technology Standards Committee (HITSC) recommendations. These include recommendations for both standard (end-state) and transitional vocabularies as indicated in Table 1 above. Standard vocabularies are those used to support evidence-based patient care, clinical decision support, and clinical workflow such as SNOMED CT and LOINC, while transitional vocabularies are used for administrative and billing, such as ICD-9-CM, ICD-10-CM, and CPT. The primary purpose for the use of transitional vocabularies for eCQMs was to provide an alternative to the use of the standard clinical terminologies when the HITSC first provided the recommendations, as they were more commonly used in HIT at that time.[7]

Table 1. List of Standard and Transition Vocabularies and their Definitions[8]

Standard		**Transition**	
Name	**Definition**	**Name**	**Definition**
SNOMED CT	A comprehensive clinical terminology developed by the College of American Pathologists	ICD-9-CM	An epidemiological classification used to identify diagnoses and procedures
LOINC	A universal code system that facilitates exchange, pooling, and processing of results	ICD-10-CM	Diagnosis classification system developed by the CDC for use in all healthcare settings
RxNorm	A standardized nomenclature that provides names and identifiers for clinical drugs	ICD-10-PCS	Procedure classification system developed by CMS for use only in inpatient hospital settings
CVX	Vaccine coding system which identifies the type of vaccine product used	CPT	Provides a uniform language that describes medical, surgical, and diagnostic services provided by physicians
PHIN/VADS	Vocabulary system for accessing, searching, and distributing vocabularies used in public health and clinical care practice	HCPCS	Healthcare procedure codes based on CPT covering specific items and services provided in the delivery of healthcare

Challenges of eCQMs

As the healthcare industry transitions from claims-based and manually abstracted measures to eCQMs in quality measurement and reporting, HIM and health informatics professionals should assess and anticipate current and potential issues and challenges by combining quality reporting efforts with data governance practice.

Some common issues are related to data quality, clinical data integration, capture and conversion of unstructured data, report configuration, and limitations of functions in EHRs. As discussed above, the importance of coding and vocabularies to define

required data in eCQMs cannot be underestimated. An example of the complexity of the coding methods is the use of transitional vocabularies for the patient condition/problem list management.

Historically, providers have relied on the more accurate ICD codes when creating the problem list. These codes are used to calculate manually-abstracted or claims-based quality measures. The move to encode SNOMED CT has raised several challenges to healthcare organizations, including ensuring the accuracy of the problem list along with accurate assignment of ordinality (i.e., principal, secondary, etc.) and cardinality. As the coding of the problem list is expected to be done in real-time, there are also challenges with determining who is primarily responsible for accurate maintenance of a patient's problem list.

It is essential for healthcare organizations, especially HIM professionals, to design standardized data collection tools, establish policy infrastructure of data capturing, data aggregation, data management, reporting, and strong data governance practices to facilitate and support the transition to eCQMs. There will undoubtedly be frequent trial and error iterations of these tools by commercial vendors and by the government agencies imposing the requirements to do this. The current uncertainty around the future of the Affordable Care Act and all of its components lends additional complexity. Hopefully, the first few months of 2017 will bring some clarity so as not to delay progress in ensuring the alignment of quality reporting programs.

Notes

[1] Centers for Medicare and Medicaid Services. "Annual Updates, eCQM Specifications."

[2] Healthcare Information and Management Systems Society. Comments to the Secretary of the US Department of Health and Human Services on eCQM, January 10, 2012.

[3] Javellana, Minet. "eCQMs 101: Introduction to eCQMs for Use in CMS Programs." CMS webinar. September 18, 2014.

[4] Meadows, Ginny; Nielsen, Karen H.; and Sarah Corley. "Implementers: Incorporating Clinical Quality Measurement into Health Information Technology." 2014 HIMSS Annual Conference and Exhibition.

[5] Nielsen, Karen H. "Incorporating Clinical Quality Measurement into Health Information Technology." HIMSS 2014 Pre-conference Symposium: Keeping the Delicate Quality Measurement Ecosystem in Balance. February 23, 2014.

[6] Centers for Medicare and Medicaid Services. "Electronic Specifications for Clinical Quality Measures."

[7] Health IT Standards Committee and Clinical Quality Measures Workgroup and Vocabulary Task Force. Recommendation Letter to ONC Head Farzad Mostashari, September 9, 2011.

[8] Rubini, Juliet. "Developing Electronic Clinical Quality Measures (eCQMs) for use in CMS Programs." Webinar.

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Article citation:
Houser, Shannon H.; Meadows, Jean M. "Transitioning to Electronic Clinical Quality Measures in the Informatics Era" *Journal of AHIMA* 88, no.2 (February 2017): 28-31.