Overview
The Health Information Technology for Economic and Clinical Health (HITECH) provisions in the 2009 American Recovery and Reinvestment Act (ARRA) created a tremendous opportunity for physicians, hospitals and health systems to adopt electronic health record (EHR) systems. The legislation includes significant financial incentives designed to accelerate EHR use, and ultimately reduce healthcare costs by improving quality, safety and efficiency. However, the incentives are tied to demonstrating meaningful use of certified EHR technology based on specific measures and milestones that must be documented and reported.

Since the legislation became law, there’s been a flurry of activity, including the federal rule-making process for meaningful use and certification. Eligible providers and hospitals that plan to qualify for incentives must demonstrate meaningful use; health IT vendors are responsible for achieving EHR certification.

On July 28, 2010, the U.S. Department of Health & Human Services published two companion rules finalizing Stage 1 requirements for healthcare providers and for certified technology. Eligible providers and hospitals need to report the results of a core set of measures and a menu set of measures as part of the demonstration process.

These measures are paired with meaningful use objectives – such as using computerized provider order entry (CPOE) or recording smoking status – and apply to eligible providers, or hospitals, or both. One of the core objectives is to report automatically computed quality measures to the Centers for Medicare and Medicaid Services (CMS). There are 15 hospital measures, evaluated for all patients regardless of payor. Eligible provider measures break down further into core and specialty measures, but are much fewer in number for a given provider.

Supporting Measures with the EHR
A basic HITECH assumption is that measuring the quality of clinical care and IT usage should flow automatically from implementing and using an EHR system during patient care. For this automation to occur, several prerequisites must be in place:

- The central requirement of **certified EHR functionality** must be installed and deployed throughout the provider organization. An example of IT functionality is nursing documentation.
- That functionality must include the necessary **clinical content** to support the required data collection. For example, to record the smoking status of a patient, a single structured documentation element needs to be in place.
- The functionality must be deployed using a prescribed **workflow and methodology** to help ensure that the data collected is consistent and comprehensive. To build on the previous example, the prescribed workflow would embed collecting smoking status for all patients age 13 and older into the admission assessment conducted by a caregiver, and it would cue the caregiver that documentation is missing or unconfirmed until properly collected or updated.

These prerequisites are the pillars that support a measure. The relationship is depicted in Figure 1.

The example focuses on supporting the IT functionality measure associated with the objective to record smoking status for patients age 13 and older. This particular measure is fairly simple. It can be addressed using a single component of EHR functionality, a single element of clinical content, and straightforward methodology with few instances of branching logic, e.g., is the patient equal to, greater than or less than, 13 years of age?

Overall, the proposed IT functionality measures share similar characteristics. The clinical measures employ much more complicated logic and typically require data from multiple EHR components, combined with complex content, workflow and methodology.

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Measure: More than 50% of all unique patients 13 years old or older admitted to the inpatient or emergency departments have “smoking status” recorded as structured data

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**Figure 1: Supporting Measurement**
Managing Measures
Within the framework of the meaningful use rule, healthcare providers must achieve and report specified results for each of the IT functionality measures. In the previous example, the goal is documenting specific findings for more than 50% of the applicable patients treated during the measurement period. Incentive payments depend on attaining that level of performance. A recent report by Yonek, et al, on the characteristics of high-performing healthcare organizations cited several best practices including:

1. Establish a system-wide strategic plan with measurable goals and track the progress through system performance dashboards.

2. Create alignment across the health system with goals and incentives.

3. Leverage data and measurement across the organization by, among other things, sharing dashboards and national benchmarks with hospital leaders and staff to identify areas in need of improvement and then take immediate actions to get back on track.2

CMS has clearly adopted the principle of defining measurable goals and aligning them with incentives. It now lies with participating eligible hospitals to manage performance against those goals. As noted by Yonek and his colleagues, high performing organizations leverage data and measurement across the entire organization. To be effective, information must reach the people charged with improving performance, and must do so in a timely manner. For measures related to patient care activities, reporting must reach caregivers in real-time.

For this reason, there are meaningful use objectives to implement drug and allergy checking, and to align that process with CPOE-based medication orders. In the smoking status example cited above, reporting functionality must be embedded throughout the EHR to support three primary user roles:

- **Patient/caregiver:** Cues within the clinician’s workflow indicate where documentation is missing and remind the clinician to collect it. Typically this function would be built into the admission assessment component of an EHR.

- **Unit/manager:** Reporting to the unit or other manager that a population of patients still needs smoking status collected before they leave the unit. This type of reporting may take the form of a visual tracking board, as a list of patients on the unit or as a worklist for a specific caregiver.

- **Organization/senior manager:** Dashboards reporting to the nursing director the rate of smoking status documentation during the past 24 hours, week or month. This type of reporting, or analytics, will support drill down by individual units, caregivers or shifts. By monitoring the measure, the director can address issues of adoption or care processes that affect patient care outcomes. In the case of a measure that affects payments such as meaningful use incentives, the manager

<table>
<thead>
<tr>
<th>Inpatient Measures for Eligible Hospitals</th>
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<tbody>
<tr>
<td><strong>CORE SET</strong></td>
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<tr>
<td><strong>Previous 4 Months</strong></td>
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<tr>
<td><strong>Current</strong></td>
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<td><strong>Action</strong></td>
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<td><strong>MU Defined</strong></td>
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<td><strong>Target</strong></td>
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<tr>
<td><strong>IMPROVE QUALITY, EFFICIENCY, REDUCE DISPARITIES</strong></td>
</tr>
<tr>
<td>Unique pts w/medication list and med order using CPOE</td>
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<tr>
<td>Enabled drug-drug and drug-allergy interaction checks</td>
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<tr>
<td>Unique pts w/to-date problem list</td>
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<tr>
<td>Unique pts w/active medication list</td>
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<tr>
<td>Unique pts w/active medication allergy list</td>
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<tr>
<td>Unique pts w/species demographics recorded</td>
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<tr>
<td>Unique pts w/blood pressure, height and weight recorded (2+ years)</td>
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<tr>
<td>Unique pts w/smoking status (13+ years)</td>
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<tr>
<td>Implement one clinical decision support rule</td>
</tr>
<tr>
<td>Report clinical quality measures as specified</td>
</tr>
<tr>
<td><strong>ENGAGE PATIENTS AND FAMILIES</strong></td>
</tr>
<tr>
<td>Requests for electronic copy of health info fulfilled within 3 business days</td>
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<tr>
<td>Patients w/request for electronic copy of discharge instructions are provided it</td>
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<tr>
<td><strong>IMPROVE CARE COORDINATION</strong></td>
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<tr>
<td>Test capacity to electronically exchange key clinical information</td>
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<td>Test scheduled 6/7/2012</td>
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**MENU SET**

**IMPROVE QUALITY, EFFICIENCY, REDUCE DISPARITIES**

- **Drug-formulary checks implemented**
  - Unique pts w/advanced directives recorded (65+ years) | 52% | 67% | 74% | 98% | 100% | ✓ | 51% |
  - Numeric & +/- clinical lab tests results ordered in incorporated as structured data | 100% | 100% | 100% | 100% | 100% | ✓ | 41% |

**ENGAGE PATIENTS AND FAMILIES**

- Unique pts provided patient specific education resources | 35% | 45% | 50% | 75% | 83% | ✓ | 11% |

**IMPROVE CARE COORDINATION**

- Perform medication reconciliation for transition of care | 92.5% | 89.9% | 100% | 94.5% | 100% | ✓ | 51% |

**IMPROVE POPULATION AND PUBLIC HEALTH**

- Test capability to submit electronic data to immunization registries | 92.5% | 89.9% | 100% | 94.5% | 100% | ✓ | 51% |

**Figure 2: Monitoring Progress on Meaningful Use Objectives**
can ensure performance does not drop below required levels. This aggregated, trended reporting is supplied through an organization’s enterprise intelligence solution. Figure 2 illustrates a trended scorecard focused on meaningful use.

**IT Functionality Measures**

The meaningful use IT functionality measures associated with the objectives are largely designed to quantify capabilities and adoption levels. The intent is to record whether:

- Features are activated
- Communication functionality has been tested
- EHR components are in use by a percentage of users, or
- Basic data of interest is being collected for a portion of the patient population.

Many of the measures include target values. An eligible provider or hospital must report the IT functionality measures to CMS via an attestation process at the end of a reporting period in order to demonstrate meaningful use.

No organization wants to reach the end of a reporting period only to tally up its results and find them deficient. It is therefore essential that EHR functionality be supplemented with robust scorecards measuring the adoption of key EHR components and tracking internal performance against the full set of IT measures. A well-designed enterprise dashboard should support the analysis of supporting details around all aspects of the meaningful use objectives. For example, it is not enough to simply track the medication orders placed by authorizing providers using CPOE. You also need to know who is ordering, what they are ordering, and more importantly, who is not using CPOE. This information is essential to put in place the necessary coaching, training, and system modifications to support adoption, and the attainment of meaningful use. As you progress along the adoption path, you may decide to set a more aggressive goal than the Stage 1 target.

**Clinical Quality Measures**

Clinical quality measurement is already a prominent component of The Joint Commission certification process and CMS incentive payment mechanisms such as Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU). However, the computation and submission of measures today is typically a cumbersome, costly, manual process that is almost entirely retrospective, and offers little value to caregivers. The meaningful use framework seeks to revolutionize clinical quality measurement by making it an automatic, low cost by-product of the care process itself. Conceptually, this goal assumes the required data for measure calculation is captured within the EHR during care and then flows seamlessly to reporting and data submission mechanisms. Existing measure specifications must be completely redesigned, or retooled, to transform them from manual measures to so-called e-measures.

The initial work on measure redesign was done by the Health Information Technology and Standards Panel (HITSP), under contract to CMS, to modify three sets of existing quality measures to use EHR generated data directly. Fifteen of the original 16 measures, covering ED throughput, stroke and VTE, were adopted in the final rule for use by eligible hospitals. Figure 3 depicts the transformative nature of the retooled measures vs. the current process.

The concept is engaging and will eventually enable continuous feedback to caregivers to support quality improvement. Nevertheless, the transition from the current manual process to an automated process is quite complex and may be prolonged over several years, because:

- It takes approximately 18-24 months to develop and roll out a new measure, so “retooling” existing measures for automated collection may take years. Most new measures are likely to be developed as e-measures from their inception.

**Manual Measures**

Quality registry computes, measures and reports to Joint Commission, CMS, etc.

**Electronic Measures**

EHR computes, measures and submits reports to Joint Commission, CMS, etc.

<table>
<thead>
<tr>
<th>Manual data collection</th>
<th>EHR</th>
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<tr>
<td>HIS</td>
<td>EHR</td>
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Relies on ICD and billing codes from hospital information system (HIS). Minimal EHR contribution. Supplemental data collection requires human reasoning over distributed free text.

Relies on SNOMED and clinical vocabularies from EHR. Minimal HIS data contribution. EHR supports computerized reasoning over discrete coded data entered through prescriptive workflows.

*Figure 3: Quality Measurement Transformed*
Not all clinical quality measures will transition to an automated data collection approach immediately. Therefore, the existing manual collection and reporting process in place for The Joint Commission and specialty registries will remain both time- and labor-consuming for the foreseeable future. Thus, the process to collect and report metrics will be a hybrid as depicted in Figure 4. In this model, the EHR supports the implementation of functionality, content and best practice methodology for data capture and e-measure calculation. Existing quality registries support data collection for other measures.

**Measure for Management**

While meaningful use is designed to produce tangible patient care results and significant financial incentives, measurement of IT adoption and related quality improvement represents only one aspect of a broader management imperative. Sustainable success is the product of a multifaceted strategy that requires constant care and feeding and the management of an overwhelming amount of new data.

While pursuing meaningful use, organizations must still continue to manage the overall business of healthcare, including:

- Modeling revenues and managing the costs of operations in order to remain financially viable beyond incentives
- Demonstrating the competency of the clinical staff

**Learn More**

To learn more about McKesson’s clinical content, workflow and methodology, and supporting analytics that can enable your organization to prepare for and demonstrate meaningful use, e-mail us at stimulus andreform@mckesson.com.

This paper outlines McKesson’s strategy for supporting providers’ meaningful use measurement efforts, and it is not intended as a detailed guide.

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