Under the terms of the Health Information Technology (HITECH) Act, the Centers for Medicare & Medicaid Services (CMS) will provide incentive payments to health care providers who adopt certified electronic health record (EHR) technology and use it to demonstrate Meaningful Use (MU) of that technology.

In the simplest of terms, MU is:

- a set of baseline activities and functionalities that an EHR should be able to perform to demonstrate the efficient and significant use of electronic technology
- envisioned to break down barriers to the electronic exchange of information and decrease the cost and complexity of building interfaces between different systems

Eligible professionals (EPs) and hospitals need to successfully attest to demonstrating MU of certified EHRs. CMS has determined the criteria required for Stage 1 and Stage 2. Criteria for Stage 3 MU are still being formulated, and the expectation is that there will be further criteria - Stage 4 and beyond - as the CMS continues to administer the Medicare EHR Incentive Program and ongoing oversight of the HITECH Act.

Each stage is intended to build on the previous stage in complexity and requirements – with the concept of core vs. menu. As the program advances, requirements that may have been optional (menu) will now be required (core).

In brief, MU criteria, objectives and measures will evolve in three stages over the next few years (Figure 1).

<table>
<thead>
<tr>
<th>STAGE 1: MU CRITERIA FOCUS ON:</th>
<th>STAGE 2: MU CRITERIA FOCUS ON:</th>
<th>STAGE 3: MU CRITERIA FOCUS ON:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronically capturing health information in a standardized format</td>
<td>More rigorous health information exchange (HIE)</td>
<td>Improving quality, safety, and efficiency, leading to improved health outcomes</td>
</tr>
<tr>
<td>Using that information to track key clinical conditions</td>
<td>Increased requirements for e-prescribing and incorporating lab results</td>
<td>Decision support for national high-priority conditions</td>
</tr>
<tr>
<td>Communicating that information for care coordination processes</td>
<td>Electronic transmission of patient care summaries across multiple settings</td>
<td>Patient access to self-management tools</td>
</tr>
<tr>
<td>Initiating the reporting of clinical quality measures and public health information</td>
<td>More patient-controlled data</td>
<td>Access to comprehensive patient data through patient-centered HIE</td>
</tr>
<tr>
<td>Using information to engage patients and their families in their care</td>
<td></td>
<td>Improving population health</td>
</tr>
</tbody>
</table>

Figure 1
In Stage 1, which took effect in 2011-2012, the laboratory-specific MU criteria focused on data capture and sharing, and concentrated on two key data streams:

**INCORPORATE LAB RESULTS**

Laboratories are required to demonstrate the capability for the EHR Module to electronically receive clinical laboratory test results in a structured format, display such results in human readable format and incorporate results to a laboratory order or patient record. This laboratory result data must be received by the EHR in a structured format – such as HL7. There must be the ability to display the results and to incorporate those results into the patient’s health record. In Stage 1, this capability is a menu item. Data flow:

Instrument and interface results ⟷ via HL7 ⟷ into LIS

**REPORTABLE LAB RESULTS**

In Stage 1, laboratories are also required to demonstrate the capability for the EHR Module to electronically record, retrieve, and submit laboratory test results containing Logical Observation Identifiers Names and Codes (LOINC) codes in HL7 v2.5.1 format to public health and other agencies. LOINC v2.38, designed by the Regenstrief Institute, has been accepted as the single source of truth for standardization of laboratory orders across disparate systems. As noted, the requirement is LOINC v2.38 and HL7 v2.5.1 for standardization purposes with the capability of transmitting encoded results to public health agencies. This again is a menu item in Stage 1. Data flow:

LOINC-encoded results from LIS ⟷ Public Health Agencies

As you can see, in Stage 1, laboratory requirements are minimal – and optional. However, that changes dramatically in Stage 2.

MU Stage 2 raises the bar for laboratory involvement as we move toward more standardization to meet the goals of the government mandates: complete and accurate information, better access to information and patient empowerment.

Stage 2 advances the criteria for these clinical processes. Reportable laboratory results are now moved to a core measure with the requirement of successful ongoing submission for the entire reporting period. The capability for the EHR Module to electronically record, retrieve, and submit laboratory test results containing LOINC codes in HL7 v2.5.1 format to public health and other agencies. The requirement to incorporate laboratory test results is also moved to core, with an increased threshold from 40% to 55% of results reported.

In brief, Stage 2 requires that hospitals must meet 16 core objectives and 3 of 6 menu items. Eligible providers must meet 17 core objectives and 3 of 6 menu items. And CPOE thresholds will be raised from 30% of medication to 60% of medication, 30% of laboratory, and 30% of radiology orders.

Stage 2 also addresses ambulatory providers and quality measures. This new criteria is to provide transmission of structured electronic lab results to ambulatory providers for more than 20% of electronic lab orders received. This will require LOINC v2.38 and HL7 2.5.1. Hospitals, eligible providers and Critical Access Hospitals will have thresholds to meet in relation to Clinical Quality Measures (CQMs) – with the same approach of identifying core and menu items.
MU Stage 3, which is targeted for 2016, will expand the model established by MU Stage 1 and 2 and continue a focus on improved patient outcomes, additional CQMs, and higher compliance requirements.

So where does this leave the typical laboratory? What can the laboratory IS team do to parley their expertise in this area? How can they position themselves to lead the effort – and lead successfully?

Clinical laboratories have historically been the hub for test order and result information. Now that LOINC is recognized as the source of truth for mapping test orders/results, laboratories own that role more definitively. Laboratories should look at LOINC in LIS as a scalable strategy. LOINC will be used to meet Stage 2 reportable laboratory results criteria; however the expectation is that labs will expand LOINC to all tests. LOINC-coded results sent by the lab to ambulatory clients will support them to meet the Stage 2 laboratory results criteria. LOINC-coded results sent by the lab to the HIS will also support that system to meet other MU criteria such as transitions of care and patient access.

Note that your HIS may not be able to deliver all lab-related MU criteria. Most HIS systems are not certified for reportable results or Ambulatory applications. LOINC is best maintained in the lab/LIS. This does put the lab in a key position to lead this effort and standardize the order code set across all systems.

Planning and efficient execution are key. Where are your LIS and HIS vendors in preparation for Stage 2? Where is your billing system in preparation for ICD-10-CM requirements? Where are you with LOINC coding preparation? If you are not actively planning, you are already too late.

“Providers need to get started on this program right now. It is key to meeting the deadlines,” says Representative Gayle Harrell, member of the Florida House of Representatives and U.S. Department of Health and Human Services’ Health Information Technology Policy Committee. To organizations that have not yet adopted practices that demonstrate MU, she stresses that this is the time to take action.

For more information about maxIT-VCS’ Clinical Imaging, Informatics, and Laboratory solutions and services, please contact us at 610.444.1233, or maxIT-VCS.com.
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APPENDIX OF COMMON TERMS
ARRA – American Recovery and Reinvestment Act of 2009
CAH - Critical Access Hospital
CDA – Clinical Document Architecture
CDS – Clinical Decision Support
CEHRT - Certified EHR Technology
CMS - Centers for Medicare & Medicaid Services
CQM - Clinical Quality Measure
EH - Eligible Hospital
EHR - Electronic Health Record
EP – Eligible Provider
HIT - Health Information Technology
HITECH - Health Information Technology for Economic and Clinical Health
HITPC - HIT Policy Committee
HITSC - HIT Standards Committee
HL7 - Health Level Seven (v2.5.1)
ICD–10–CM - International Classification of Diseases, 10th Revision, Clinical Modification
LOINC - Logical Observation Identifiers Names and Codes (v2.38)
MU - Meaningful Use
ONC - Office of the National Coordinator of Health Information Technology
SNOMED–CT® Systematized Nomenclature of Medicine—Clinical Terms (Jan 2012 Int’l)