LIS-EHR Integration and Meaningful Use Requirements

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LIS-EHR and Meaningful Use

Learning Objectives
By the end of this session, attendees will be able to:

1. Specify to their laboratory information system and electronic health record vendors the requirements for transmitting data from the LIS to the EHR, via HL7, so that
   a. Reports are accurately and clearly presented to the physician/provider and
   b. Data is transmitted to the EHR in a manner that facilitates decision rules, trending, etc.

2. Describe the advantages of the meaningful use requirements, vs. the previous voluntary adoption of healthcare information technology.

3. Prepare your laboratory to ensure regulatory compliance in assuring accurate presentation by the EHR.
Session description

This session will discuss the importance of getting lab data to EMR's with a focus on the meaningful use of lab data. Health information exchange and standards as well as challenges of regulatory requirements for laboratory data validation will be discussed.
Getting understandable and usable lab data to the Electronic Medical Record 1

Orthodox (“discrete-fielded”) method:

- Put every aspect of a lab result into the appropriate specific field in HL7 2.3.1 (or later version)
- Wherever possible, use standard codes to represent data – for example, LOINC code to represent result name
- The receiving system can then correlate, drive rules, trend individual analytes, etc.
- Works fine for potassium, hemoglobin
- Proper presentation of more complex reports – microbiology, surgical pathology, genetics – requires more subject-matter expertise in the EMR designers.
Understandable and usable lab data to the Electronic Medical Record 2a

The issue: complex reports

Early interfaces represented some – or even all – lab reports as page-images (e.g., microbiology)

Laboratorians have spent decades learning how to effectively present complex arrays of data in a printed report

It is unrealistic to expect EMR developers to have the expertise to duplicate those decades of experience when they combine myriads of data fields to a report presentation
Understandable lab reports in the EMR 2b

Transmitting and displaying formatted reports

Standards for formatting, transmission, and display – all can be used without license fee

Portable document format (PDF)
Rich text format (RTF)
Clinical document architecture (CDA) – part of HL7 version 3

PDF and RTF can be readily transmitted within a standard HL7 2.x message – has been common practice in Australia for a decade
But how do we get our interfaces to do this?

We must insist that all parties support the use of formatted reports over the interface:

LIS vendors must transmit formatted reports for all but the simplest report types:

- Microbiology
- Surgical pathology
- Genetics
- Immunology

Not needed for basic chemistry, wet hematology, pure single-numeric testing
Data across the interface
Interface specifications must embed these report images within the HL7 2.x data.
Some interfaces now pass a “pointer” or URL to an image of the page – rather than the page itself – we recommend instead to pass the image itself.
Only if a report is very picture-intensive, and we can assure long-term persistence of the originating picture store, might the passing of pointers be acceptable.
To re-emphasize:

Reports of all moderately or heavily complex results must be send across the interface as TWO data streams:

1. Fully formatted report images, in PDF, CDA, or perhaps RTF format. And
2. Fielded data – all individual result parts in individual HL7 fields.
To summarize how complex reports should flow from the LIS to the EHR:

1. LIS or APLIS
2. Report in PDF Format, embedded in HL7
3. Detail results in HL7 fields
4. EHR
Meaningful use?

Increasing clear that use of electronic medical records can yield better outcomes at lower cost.

How to encourage their use? Financial incentives – and penalties (carrot and stick).

Just installing systems won't help – have to be integrated in actual practice.

Hence, “meaningful use” - to measure use that is likely to reap benefits.
EHRs, EMRs

Electronic Health Records – this incorporates, and is a bit broader than, electronic medical records (EMRs).

Very wide range of scope and capability – from a solo physician's office, to a multi-facility medical center

Conveys orders to – and gathers results from – a wide variety of other systems – including the LIS
For a broader description of the scope of EHRs, we refer you to the references.

EHRs are growing in usage

Especially rapidly since the Meaningful Use incentives were enacted.

In order to get credit for Meaningful Use, providers must use certified EHR systems – that have been certified by an approved certification body (six so far).
Many agencies involved
Health and Human Services – two branches are making rules
  CMS – Center for Medicare and Medicaid Services
  ONC – Office of the National Coordinator for Health Information Technology
NQF – National Quality Forum – quality measures
NIST – National Institute for Standards and Technology – EHR certification process
ANSI – accrediting EHR certifiers
Many others
Three stages of meaningful use

Stage 1 – 2011 - mostly basic requirements, some optionality/choice – implement now!

Stage 2 – 2013/4 – open for comments soon, will tighten up requirements. Likely that optional requirements in Stage 1 will become mandatory in Stage 2.

Stage 3 – 2015 - further stages of requirements 2015 – penalties begin for eligible providers who did not show meaningful use.
But are we eligible professionals?

Eligible professional – physicians and others making use of EHRs for direct patient care

Most in pathology feel that our practice does not fit the CMS definitions – we would be unable to meet most of the “meaningful use” tests

Downside: not eligible for incentives

Upside: not subject to penalties for failure to implement.
But this is not entirely clear...

Some interpretations of the regulations hold that we would be considered eligible providers – even though virtually nothing in the requirements fit our professional practice.

Stay tuned!!
If we are not “eligible”, why do we care?

Our practices are a very important source of data streams which are essential for our clinician colleagues to show meaningful use. We must support our hospitals in providing data streams required by meaningful use.
Data to clinicians

They may choose to incorporate clinical lab test results as structured data

Ever-expanding expectations by clinicians that we (the lab) provide an electronic interface from our LIS to their office EMR.

Although this is already common practice for larger practices, it would become almost universal

Who pays the cost? In the past, the answer has been “the lab”. Can we find a less costly way to accomplish this connection?
Structured lab data

At least 40% of clinical lab tests ordered whose results are in positive/negative or numerical format are incorporated in EHR as structured data
Clinical quality measures

Required in stage 1
Some of these depend on laboratory tests – at least 12 different measures.
For example, patients in certain age ranges with values of Hemoglobin A1c exceeding a defined cutoff
Rather than attempting to query their own EMR, clinicians may ask the laboratory to provide such reports.
Likely coming in stage 2

Computerized provider order entry from the physician's EMR to the clinical laboratory
Hospitals

They may choose – incorporate clinical lab test results as structured data

They must choose at least one of:

- Capability to submit electronic data to immunization registries/systems
- Capability to provide electronic submission of reportable lab results to public health agencies
- Capability to provide electronic syndromic surveillance data to public health agencies.
Required interface standards

HL7 – Health Level 7

Commonly implemented, but many interfaces will need to be updated from 2.3.1 to 2.5.1

LOINC – underutilized by labs
LOINC

Published in 1995
At the time, all LIS vendors were informed that it was important to implement; uniformly ignored
Numerous articles since then in the laboratory literature, urging laboratories to encode their test names into LOINC – until recently, very few implemented.
LOINC 2

Key health systems implemented LOINC several years ago:

- Partners Health, Boston
- Intermountain Health, Utah
- Indiana Network, Indianapolis

All major national reference labs have implemented, LOINC translations are available on their websites
To implement LOINC for your lab

1. Identify all tests being sent out to reference labs, download those LOINC codes from their websites
2. for tests being run in your lab, become familiar with RELMA (the mapping tool)
3. we are encouraging instrument manufacturers to provide LOINC codes for all tests – call them!
4. if this is a particularly large/daunting task, consider using a commercial company that provides LOINCing services
References


2. Walter H Henricks "Meaningful use" of electronic health records and its relevance to laboratories and pathologists, .. Journal of Pathology Informatics, Year 2011, Volume 2, Issue 1

Questions?

I welcome your questions and comments:

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