

Sender	Message	Sam Faus response
Bill Spooner	Do you have actual statistics on the percentage of results not returned electronically? Are they broken down by provider type and size? Thanks	<p>That's a good question. We don't have hard numbers on the percentage of providers that have electronic lab interfaces (in California or nationally). However we can infer that the percentage is disappointingly low today, especially for small practice providers. If we start with the percentage of medical practices that have any sort of EMR system (35%) and look at the subset that have a "Comprehensive EMR system" that supports features like electronic lab data interfaces (9%)* - then, if we generously assume that (50%) of such systems that are capable of electronic lab interfaces actually have them - We get an estimate somewhere below 5% of medical practices receiving electronic laboratory data today. I suspect that this number somewhat is higher for large medical groups that have higher rates of EMR adoption, greater I.T. resources, and large collective business volume with local and national labs - all important factors for electronic laboratory data exchange.</p> <p>* Source: Hing ES, Burt CW, Woodwell DA. Electronic Medical Record Use by Office-Based Physicians and Their Practices: United States, 2006. Advance Data from Vital and Health Statistics; Number 399; October 2007 (http://bit.ly/asUxck)</p>
Sarah Ryan	Does Calif intend to implement Unified Codes of Units and Measures?	The Unified Codes of Units and Measures standard (UCUM) itself hasn't been identified as a requirement in laboratory data exchange in California. To the extent that ELINCS is used for lab data exchange, ELINCS recommends the use of UCUM codes for units of measure and if the lab supports the standard code set, UCUM codes can be reported along-side the laboratory's regular units of measure. We have seen a hesitancy on the part of laboratories to adopt UCUM. One reason for this hesitancy are liability issues around the laboratory using units of measure other than those produced by the automated analysis devices used in laboratory testing.
Clement McDonald	Comment: Think you are hanging way more crepe than is justified. The optionality does not have much to do with the key fields of OBXmessages. No hospital larger than 100 beds does not have an HL7 output for lab. Its true that they may stiff content into the wrong field, but it occurs in less than 1.5% of the messages and is usually related to send outs	The challenge we have seen with expanded optionality is that it puts undue burden on both sender and receiver alike to provide and capture information in a wide variety of ways. For example, The PID segment has a field for Patient ID, another for a list of patient ids, and a third for social security number. While later versions of the HL7 standard has marked the single patient identifier and social security field as deprecated, older interfaces still use these fields. The option to populate these fields makes it more difficult to implement across a variety of labs and EHR systems. In our experience, limiting the allowed data elements to those specifically needed to meet the use case is the best approach.
Clement McDonald	Comment: PS my statement about HL7messages should be qualified by in Indiana	
James Comins	You mentioned cost for an interface as a potential barrier. Can you be more specific on cost?	First, to clarify, it is typically the EHR vendor that is charging for interface. Actual costs can vary depending on the EHR vendor and the lab company involved. In cases where the medical practice does a large amount of business with a given lab, the lab may pay for the entire cost of the interface and the medical practice need pay nothing. I have seen interface prices range from \$1,500 up to \$10,000 for each interface. I have heard of prices for lab interfaces going higher than that (e.g., up around \$20K), but most I've seen average around \$5,000 per lab interface.
Will Ross	What can be done about this predatory interface implementation pricing by LIS and EHR vendors?	To a certain extent, this is a typical supply and demand issue. Relatively few EHR vendors control the availability of interfaces with laboratories. Add to that the growing desire of medical practices for such electronic interfaces and the data quality value that such interfaces promise, and you have the perfect conditions for high interface prices. I believe that the broad adoption and implementation of a common and well defined interface standard, such as ELINCS, can help put downward pressure on interface prices. If every lab and every EHR vendor "speaks" a common format there will necessarily be reduced effort on both sides (lab and EHR) needed to establish new lab interfaces. With a well-adopted common standard in place, it will be harder to justify over-priced interfaces.
Clement McDonald	Comment: True- hospital labs have not mapped much to LOINC- but some of the large hospitals do support them. LOINC is getting hoards of requests for information and interest from hospital since the interim final rule.- so could get better. ARUP, Quest, Labcorp, Mayo all assert LOINC mappings.NMS the big toxicology lab is mapping rapidly.	
Will Ross	Comment: try \$20,000 for <unnamed LIS> just for the outbound feed.	

Marie Hale	Are there any educational resources for Loinc code mapping?	There are many excellent resources at http://loinc.org including user's guides and manuals, FAQs, online training, presentation slide decks, and the free RELMA LOINC mapping software.
Will Ross	How many v2.5.1 implementation guides are approved by HL7 besides ELINCS?	There are 2 other HL7-approved implementation guides based on v2.5.1. One is the lab reporting guide approved by HITSP and the other is for electronic lab result reporting to public health.
Clement McDonald	Comment: Good Ideas in general regarding transport and getting the most for the dollars - LOINC will have an annotated list of the most top 1800 to 2000 lab tests based on about 300 million test results. We still have clean up to do-- and write guidance about what to choose when.	
Sarah Ryan	Does ELINCS have any competitors?	In a way, ELINCS "competes" with every different implementation of the HL7 ORU message used for lab result reporting. In another sense, ELINCS doesn't compete with other specifications. ELINCS is not a product or a service. The specification is free for HL7 members to download. There is no cost for the vendor to license ELINCS. EHRs and Labs may implement ELINCS along side their existing interfaces, so competition really isn't the issue - it is more about broad adoption.
James Comins	Are there similar standards and systems for Radiology Diagnostics groups?	Aside from the imaging standard DICOM, I am not aware of any result specifications for radiology akin to ELINCS. Having said that, if there are discrete, non-image results reported by radiology diagnostics groups, then ELINCS can likely be used in such a capacity. There are LOINC codes available to identify radiology result data.
Clement McDonald	Comment: This is GREAT - will be a good example	
Pat Bryant	Is the ELINCS standard looking toward standardizing the ordering process from EHRs also?	This is a direction that we definitely want to go in. Having a fully defined specification for electronic laboratory orders could help some of the issues that we have seen in results-only interfaces with ELINCS (e.g., failure of the EHR to include EHR-specific identifiers such as the patient MRN and the requisition). There is a good chance that progress may be made with regards to an order specification to complement the ELINCS results specification within the year (2010).
Michael Tarwater	What is the strategy using ELINCS to send discrete micro data?	ELINCS HL7-R1 requires that med-micro data be sent as discrete results in OBX segments. There are a number of requirements related to the formatting of such results. First, organism identification results must be identified with an appropriate LOINC code. Second, organism result values (e.g. E. coli, S. aureus) must be reported using coded data. For this, SNOMED-CT is the recommended coding system but local codes are also acceptable given that SNOMED-CT adoption by laboratories is limited today. Third, the ELINCS specification has detailed rules for relating anti-microbial sensitivity results to an identified organism result and for the formatting of such sensitivity results. All of these requirements allow an ELINCS conformant system to process the data within a med-micro report and perform decision support with the discrete data.
Sarah Ryan	Is your LOINC 95% subset based on C80, Regenstreif 1.1, or an analysis within California?	The top 95th percentile of tests that must be LOINC coded was based on an analysis that was conducted in 2005. It consisted of rank ordering by frequency the reported laboratory tests for each of three large ambulatory medical groups in California. An aggregate rank ordering was created from the three sources, and the tests that fell into the top 95% (approximately 160 tests) were selected for LOINC coding.

Sarah Ryan	Regarding "discrete" micro, does this mean you will be sending in OBX and not the NTE segments?	Results must be sent in OBX segments. ELINCS prohibits the sending of any result data in NTE segments.
Clement McDonald	Comment: RE LOINC codes, would hope to persuade you to increase the scope a bit- Won't be that much harder to capture a much large proportion of the really useful test	The top 95th percentile is a fairly large proportion. More is always better and we encourage those labs with the resources to go as far as they can towards 100% LOINC coverage. When it comes to a statewide effort however, we have to make the most with the resources we have.
Will Ross	What is the workaround for ELINCS if a paper order lacks the required data elements (e.g., MRN)? That is, the guidelines say the data element MUST appear on the order, but what if the data element is missing?	Strictly speaking, an EHR vendor and Lab that is ELINCS compliant must respectively provide and capture all data elements that ELINCS specifies must be on an order (whether it is a paper-based or an electronic order). In the case where data such as the patients MRN or the requisition id is not present in a result message, the message is not fully ELINCS compliant. Future efforts on a specification for electronic orders should help with issues such as this, essentially completing the round-trip circuit of ELINCS electronic ordering and reporting.
Michael Tarwater	In order create an outbound HL7 message that complies to ELINCS standards (particularly micro) would require rebuild of clinical tests in our LIS. What has been the experience and cost associated with this?	Supporting the requirements for ELINCS, including med-micro, is admittedly no small task. In our experience, laboratories (and EHR vendors) have to make changes to their systems to fully support ELINCS. It took Quest Diagnostics about 6 months of committed development effort to support the ELINCS specification. I've seen hospital labs take similar time to develop full support for ELINCS. Implementing ELINCS is different than implementing other one-off interfaces. Implementing support for ELINCS is an investment that will pay off when the lab or medical practice implements a second ELINCS interface with a different party. Because the specification is so tightly constrained, it is possible to implement additional ELINCS interfaces with no additional work.
Lyman Dennis	What are principal functions available in the full HL7 spec vs ELINCS?	The full HL7 specification supports EVERY use case for the transmission of medical data. ELINCS supports a single use case, the electronic reporting of test results from clinical laboratories to electronic health record systems found in ambulatory care practices. We have excluded those data elements from the core HL7 v2.5.1 standard that do not support this specific use case.
Clement McDonald	Do you know much about NHIN direct?- Might be simple Email messaging- but don't know if it is settled	As I understand NHIN Direct, the use of SMTP as the message transport mechanism has been proposed. The body of the message may consist of a variety of data formats, potentially including formatted data.
Marie Hale	How do the labs meet CAP requirements for ongoing validation?	Sorry, I'm not familiar enough with CAP requirements for laboratory validation. The American Clinical Laboratory Association (ACLA http://www.acla.org) may have more information on this subject.
Clement McDonald	Comment: In Indiana- we found that the hospital labs did not have the personnel or the focus to do the mapping Easier to concentrate the expertise at the center. But would welcome seeing many models succeed	Having the skilled technical resources at the data provider edge of an interface can be challenging, especially for hospitals with tight budgets and limited IT resources. I envision a model where those facilities that can take care of the formatting do so and those with less expertise may be able to rely on centralized support. Coming up with a sustainable business model in the case of the latter is definitely a challenge.
Mike Skinner	In your experience, what are the compelling and measurable drivers (what is the burning reason?) for reference labs to invest financially and/or increase risk?	One primary driver of electronic lab result interfaces in general will be "customer" demand. By customer here I am referring to the medical practices that a hospital or reference laboratory serves. With meaningful use, one of the MU criteria is the receipt of "structured" electronic laboratory data. Faxes and PDFs scanned into an EHR will not meet this criterion. I think that we will see a surge in the number of requests by medical practices for electronic data from laboratory service providers. If a lab cannot accommodate such request, the lab risks losing a customer to a lab that can. The burning reason for a lab to adopt a result format such as ELINCS, despite the up-front costs and effort, is that a broadly adopted implementation guide is a better value for the lab. If the lab can reuse an existing ELINCS interface for another client instead of building a new one from scratch, that is clearly in the lab's best interest from a cost and effort perspective.

Clement Mcdonald	Comment: Think you are right to encourage UCUM- Don't have to change the units- send both raw units AND UCUM. We have data on a few 100 million lab results that units are a total mess right now- ambiguous crazy	
Sarah Ryan	Comment: regenstrief.org has LOTS	
Sarah Ryan	Comment: including a free tool called RELMA	
Clement Mcdonald	Comment: We hope to have a better mapping tool and an anotated mapping guide for the top 2000 tests	
Clement Mcdonald	Comment: You could send most radiology results easily in the eIINCs message since they mostly report text chunk under test name. LOINC has codes for almost all radiology test	