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Dr. Brian Levy Response to HIT Standards Committee

Thank you for the opportunity to again respond to the HIT Standards Committee Vocabulary Task Force. Briefly, Health Language (HLI) provides software for managing and updating standard and localized medical terminology. HLI works with EMR vendors, hospitals, decision support vendors, governments, and more to deliver terminology services.

HLI has been involved in creating, distributing, and updating many standard and local subsets using the terminology service tools. In fact, HLI recently released the LE Access Portal (LEAP), a web-based application to meet the subset and mapping needs for EHRs, PHRs, IHE/RHIO initiatives, analytics, and reporting applications. LEAP lets hospitals and their vendors easily and quickly create, select, update, and manage medical and administrative terminologies for healthcare applications, in support of semantic interoperability, Meaningful Use, and evidence-based medicine. LEAP includes a powerful terminology repository and web-based tools for searching, browsing, mapping, and collaborating.

Based on our experiences with the deployment of terminology services within vendors, governments, and hospitals, HLI appreciates the careful consideration given these issues by the Committee, as the deployment of content requires both process and tools.

Overall Questions

1. *What are the requirements for a centralized infrastructure to implement "one-stop shopping" for obtaining value sets, subsets, and vocabularies for Meaningful Use?*

   In my previous responses, I showed that whenever possible major subsets should be available from a single source.

   However, despite best efforts, all subsets won't come from one place. There will be subsets created by EMR vendors, local hospitals, content companies and more. Many of these subsets may in fact be derived directly from larger subsets created for Meaningful Use. For example, there will be a subset of SNOMED CT specified for recording problem lists, but vendors and users may want to split this subset into smaller subsets based on specialties and other local requirements.

   But it will be helpful to have the "major" subsets required for Meaningful Use to be explicit and available from a single source. This source should include an easy-to-navigate website with clear links to the available subsets, value sets, and terminologies along with their versions. The UMLS could also be used to store this content, but extracting the subsets from the UMLS could be cumbersome for some vendors.

   Because there really is no universal standard for subset, value set, and terminology formats, existing UMLS structures or straightforward CSV files with clearly explained fields could be used.

In fact, the HLI LEAP application already includes such simple subset and terminology management and downloading for individual hospitals and vendors. LEAP also allows for customization and extension of the content as well as updating.

2. *Which requirements or functionalities are urgent, i.e., absolutely required to support "Meaningful Use"? Which would be most useful immediately? What would be a staged approach over time to get to the desired end state?*

   Initially, the website should offer a simple list of the terminologies, value sets, and subsets required for Meaningful Use along with a link to their download. The version of each should be clearly labeled along with the dependencies (i.e., a particular SNOMED subset may be dependent on a specific SNOMED release).

Detailed Questions

3. *Where are you using value sets and subsets? For what domains? How many value sets and subsets?*

   The HLI Terminology Services tools (the HLI Language Engine®, or LE®) provide our customers access to dozens of subsets, value sets, and terminologies. These content sets include those created by standards bodies along with HLI-created ones. In general, the HLI-created subsets are intended to provide additional value and enhancements to the existing standard ones. Our customers also use the HLI tools to create their own enhancements and localizations to the subsets.

4. *In your experience with creating, disseminating, updating, and/or using value sets, subsets, and entire vocabularies, what works and what does not work?*

   Through our experience, use of a terminology service at the vendor and local sites greatly assists in the distribution and updating of the content sets. Underestimating the sheer number of terminologies and the frequency of their updates is a common mistake. In addition to using terminology service tools, however, establishing well thought-out business processes is required for successful deployment.

5. *What human resources does it take to implement and manage value sets, subsets, and entire vocabularies? Informaticists? Clinicians? IT people? How are you organized?*

   HLI recognizes that the creation, updating, and distribution of these various content sets is complicated for the vendor and the end users (hospitals and providers, for example). Particularly challenging is the maintenance of these content sets over time as they are changed by the standards bodies while local changes are also occurring. Terminology experts are clearly not available at all vendors and sites; thus, often clinicians, project managers, or software developers may be in charge of the loading and maintenance process. The use of simple terminology tools sitting on top of a terminology server can more readily guide the users through the processes and streamline the work.

6. *What national resources and services could be leveraged to reduce the level of effort required for local implementations? What is the irreducible minimum of local work at an implementation site, or within an organization or system?*

Providing clearly labeled terminology, value set, and subset downloads along with their versions is a great start to assist in local implementations. In addition, linking each of these content sets with the appropriate measures in the Meaningful Use specifications will clarify confusion often expressed by vendors and hospitals. Most hospitals and practices will look towards their EMR vendors to supply and manage the local implementations. We are seeing, however, an increasing number of hospitals working directly with HLI to ensure that they are meeting the terminology requirements for Meaningful Use.

7. *What is your maintenance process? How do you manage updates?*

   The HLI Language Engine is a terminology service that allows for the maintenance of terminologies. HLI creates updates to all the standard terminologies shortly after their release from standards bodies and distributes those updates to local LE users and hosted solutions. During the application of updates, any potential conflicts between local and standard changes are identified and either resolved or presented to modelers for review. This process allows local LE users to readily ensure their terminology maintenance process.

8. *What metadata do you maintain and how do you maintain versioning?*

   HLI includes metadata related to concepts, terms, facets (attributes), relations, and subsets. Versioning of entire content sets as well as individual objects is maintained.

9. *Is there a difference between versioning for clinical documentation vs. versioning for reported measures, i.e., when do you go live with a change in the EHR vs. when do you use the new version for measures?*

   The reporting of measures requires the right underlying terminology versions (such as ICD-9-CM codes) as well as the corresponding numerator and denominator rules. Ideally, a measure should be able to be reporting from clinical documentation recorded at any time. However, if an EMR has measure reporting hardcoded and built into a specific software version, then customers would need to update their EMR version in order to report new measures.

10. *How do you manage versioning in clinical decision support vs. changes in value sets?*

    Clinical decision support is now increasingly mapped to standard terminologies, subsets, and value sets. Thus it is important to establish a process for ensuring that the decision support content is synched to the right terminology version. In addition, it is may be important for the history of the versioning to be maintained as well—that is, being able to reference what the correct content and corresponding terminology mappings were at a certain period of time. A terminology service can be helpful with this process by creating metadata around the decision-support content and mapping it to the terminologies using tools.

11. *How does an application know which value set is for which purpose? How is the specific context for a value set maintained at the message data element level of specificity? How is the English language intent of the value set context documented and maintained?*

As an underlying terminology service, the HLI application provides EMR applications the value sets. Metadata that includes descriptions of the value sets, versioning, source information, and more is tied to each value set to assist its use for the correct context.

12. *What are lessons learned about web links vs. storage of the vocabulary or other artifacts in a physical repository?*

    The HLI Language Engine provides physical storage of the various content sets for access within other applications. HLI finds that some vendors may export parts of the content out of the terminology service for importing into existing database structures. But increasingly given the sheer number of content sets and updates required, EMR vendors are turning towards terminology services for storage rather than trying to maintain a potentially fluid database structure. There is increased interest, particularly with the smaller vendors of ambulatory applications, in using externally hosted terminology services via web interfaces.

13. *How do you manage distribution of updates to multiple sites?*

    The HLI Language Engine is designed for content distribution from the standards body, to HLI for updating, to the vendor for inclusion in the software, and to the eventual end-user site.

14. *Where is local customization appropriate and how much customization is acceptable?*

    HLI is increasingly seeing interest by end-user sites such as hospitals to manage local customization of the terminologies. Usually, these localizations include creation of local subsets (often as smaller parts of standard subsets), addition of local synonyms to existing standard terminology concepts, and creation of mappings from local terminologies to standards. Localization improves the user experience and acceptance of the standard terminologies. In fact, HLI has created a Provider Friendly Terminology, a custom content set of synonyms to SNOMED CT concepts to assist in the use of SNOMED CT, ICD-9-CM, ICD-10, and other terminologies in the user interface. Often customers want to create even further localizations to these synonyms.

15. *How do you manage distribution of updates with local variations and optionality? Unique subsets? Local mappings?*

    The HLI Language Engine (LE) is designed to manage the distribution of updates to local LE's that have variations such as subsets and mappings. During the update process, LE detects potential conflicts between the local changes and the standard bodies' changes and either automatically resolves the conflicts or presents issues for modelers to review. The distribution of updates to terminologies that have been locally modified really requires a terminology services to handle.

16. *What has to be local in an EHR implementation vs. what can be external in a vocabulary repository?*

    Performance remains a critical aspect to the use of terminologies in an EHR. Vendors request sub-second response times for terminology look-up, browsing, and mapping needs. Thus, often local installations of a terminology service are required. In fact, HLI's LE includes

robust caching mechanisms to improve performance even more. But HLI is also finding that the performance of web services has improved significantly to the point where it is potentially a viable option, particularly for smaller-footprint applications where the local deployment of large terminology databases is not feasible.

17. *What functions are required that users have not yet appreciated?*

    Even with easy-to-find and download terminologies and their subsets, terminology services, and robust tools, the full use of terminologies with a large enterprise often requires careful business process planning, some human resources, and manual mapping processes. With the push towards standards, the number of terminologies and their artifacts will actually continue to grow. Vendors and end-user sites should plan ahead for robust terminology deployment. Of course, the transition to ICD-10-CM is looming and providers have just started focusing on this major issue. HLI sees the transition to Meaningful Use standards and ICD-10-CM as actually synergistic if planned carefully.