

Moon-Hee Lee, Kaiser Permanente
Hearings on Vocabulary Infrastructure Requirements

Panels:

Wednesday 1 Sept. 2010

- A) Morning: Measure Developers / Value Set Creators
- B) Afternoon: End Users / Clinicians / Hospitals / Other EHR Implementers Including Health Information Exchange Organizations

Thursday 2 Sept 2010

- C) Morning: EHR Vendors and Developers, HIE Vendors/Developers
- D) Afternoon: Terminology Services Vendors / Developers / Implementers

Questions for Panelists:

Introduction

The Vocabulary Task Force of HITSC Clinical Operations Workgroup plans to conduct public hearings September 1 and 2, 2010 that will follow the previous hearing of March 23rd 2010. That earlier hearing focused on general questions about national governance of terminologies, value sets and subsets, related to Meaningful Use. A theme in those presentations and discussions, especially with the implementers and users of EHR technology, was a desire for “one-stop shopping” and this was reflected in the subsequent recommendations of HITSC. In the next hearings we wish to understand from your perspective what would constitute the right set of requirements for infrastructure on the path to a future state within the framework of those recommendations (see attached recommendations).

Overall questions

1. What should be the stated requirements for a centralized infrastructure to implement “one-stop shopping” for obtaining value sets, subsets, and vocabularies for meaningful use?

KP RESPONSE: Having an enterprise terminology solution that allows integration or convergence of multiple standard terminology sources and disparate local terminologies with a useful interface/end-user terminology can fulfill the vocabulary needs for a business entity. An example of such tool would be IHTSDO Terminology Workbench. Its “refset” framework could be used for value sets and subsets for meaningful use. Second option could be downloading from UMLS. Since Workbench is open source and has inter-organization collaboration capability, the effort to create/maintain value sets of meaningful use can be shared across regions, which can reduce duplication of effort.

2. Which requirements or functionalities are urgent? Which are most useful immediately? What would be a staged approach over time to get to this end state?

KP RESPONSE: Investing in making IHTSDO Terminology Workbench's development to make it more efficient and bug free and more intuitive could be priority. Organizations like KP is investing our own resources to enhance the Workbench, but smaller organizations will benefit from this tool being in a more mature and stable state, if not to use it as an "enterprise vocabulary tool", but to at least download the value sets and subsets to use in their own EMR framework.

Detailed Questions

3. Where are you using value sets and subsets? What domains? How many value sets and subsets?

KP RESPONSE: Our EMR is KP HealthConnect, which is based on Epic. Its master files and category lists are basically the value sets and subsets for use within our EMR. Master file can be considered subsets, with each entry in the subset having its own attributes. Category lists are enumerated lists and can be considered value sets. The Diagnosis master file is used for Problem List and Encounter Diagnosis. The Procedures master file is used in Order Entry and documentation of performed procedures. There is the Allergen master file, the specimen type category list, Medications master file, and so on.

4. What is your experience, what works and what does not work?

KP RESPONSE: Value sets and Subsets, such as KP HealthConnect master files and category lists work as an interface terminology, but since it is flat lists of end user terms, sometimes it is difficult to tell the full definition/meaning represented by the terms alone.

Additionally, this model requires additional layer for mapping and translation to the required standard terminology. There is some overlap of concepts between these flat lists of value sets and subsets, and since the lists are separate and distinct, it requires duplication of mappings. It would be good to have a vocabulary server where the terminology services and translation services are centralized.

Organizations may be using custom/home grown tools for managing their own vocabulary, but managing interface terminology separately from standard/reference terminology is not an efficient model. There needs to be toolsets that allows organizations to "extend" the standard/reference terminology to include local interface terminology or value sets/subsets.

Some EMR vendors don't provide toolsets for manage large scale terminology/vocabulary. Therefore, some organizations may be creating their own toolsets to support the EMR. It would be good to have EMRs use standardized vocabulary services and vocabulary toolsets with minimal customization for local add ons.

5. What human resources does it take to implement and manage?
Informaticists? Clinicians? IT people? How are you organized?

KP RESPONSE: It requires Informaticists specializing in terminology work. It also requires domain experts, such as laboratory specialist, pharmacist, etc. It also requires IT people to support the toolsets and extract and loading process from terminology editing database to the EMR. It also requires coders to map the terms to ICD9 or CPT4 codes. We also have the interface terms/display names be reviewed by the end uses (KP's terminology work group, specialists, etc.) to ensure usability from the end user perspective.

6. Where can national resources be leveraged? What is the irreducible minimum of local work at an implementation site, or within an organization or system?

KP RESPONSE: Concepts that make up the value sets and subsets can be standardized at a national level. Open source Terminology tools, such as Workbench, can be useful in maintaining those value sets/subsets collaboratively. Suggested interface terms can also be made available. Local work may include additional attributes that are required by the local applications, or colloquialism and preference of the local user community.

KP has begun mapping SNOMED concepts to ICD10-CM. National resources to collaborate on this effort would be valuable for all organizations.

There is a heavy requirement for accurate mapping of administrative codes to clinical terminology such as diagnosis and procedures. It would be necessary to have a definitive source for such mappings for SNOMED concepts that CMS would consider compliant. Current rule based mappings that IHTSDO/CAP is working on does not work directly in EMR. It can be used as a "reference", but there needs to be a definitive one to one SNOMED concept to Administrative code mapping for supporting billing/charge capture requirements within EMRs.

Detailed Questions, continued

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

KP RESPONSE: EMR that we're using does not come with good tools for managing large scale vocabulary. Therefore, KP has developed terminology tools to manage and maintain the value sets/subsets used in the EMR. The maintenance of certain core clinical value sets/subsets are done by a National team and the information is propagated out to all separate KP entities.

Certain changes are initiated at the KP National level, such as yearly regulatory updates for ICD9 and CPT4. Ad hoc changes are requested by KP regions through a request tracking system.

SNOMED updates are projected to be taken bi-annually. The different permutations of the updates are categorized in different groups; Adds are taken in. Updates are broken into the different update types, inactivation/retirements are likewise segregated into different groups; inactivation with replacements and without replacements. Impact to KP HealthConnect is considered prior to implementing the updates.

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

KP RESPONSE: We maintain metadata and version audit trail in three systems. First, we maintain information about what was requested and by whom/what region. Second, we maintain audit trail of the changes made in the terminology maintenance tool/database, as well as versions. Third, versioning and certain audit trail is also maintained in the EMR itself when the changes are loaded into the EMR.

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?

KP RESPONSE: Yes there is a difference. This is accomplished via the terminology tool and the versioning mechanism of the EMR (KP HealthConnect). For example, for clinical documentation, subsets such as the diagnosis subset, ICD9 code mapping needs to be current. This is accomplished by the terminology team updating the ICD9 code mapping to the current/active code, and EMR versioning mechanism keeping a history of what code was active what date. The System then can determine the appropriate ICD9 code for the encounter diagnosis based on the encounter date and the version of the ICD9 code mapping for that diagnosis.

Additionally, certain terms can be deactivated for clinical documentation.

On the other hand, subsets for measures comply by different set of rules and requirements. For this type of subsets, one may want to include deactivated terms/entries to identify the charts/patients of the past.

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

KP RESPONSE: This is also accomplished via the terminology tool and the versioning mechanism within the EMR. Entries in the value sets marked as active are used for clinical documentation. For decision support, we can include subsets that are inactive as well, because the inactive entries will automatically get filtered out by the type of decision support being triggered. The important note to remember for value sets for support decision support criteria has to do with inclusion of new entries being created. In order to ensure completeness, we need to periodically review the value sets to include the new entries that have been created.

Data sets supporting clinical decision support tools are updated based on its sources. Example, sources for The Joint Commission measures are updated bi-annually. For medication core measures, it is reviewed quarterly. KP created a custom notification module that re-runs the queries and identifies delta on a scheduled basis.

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?

KP RESPONSE: In KP HealthConnect, it is hard coded in the application what value set/subset (category lists and master files) are used in which functions/context in the application. Therefore, the entries in the value set/subset are context dependent.

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

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

KP RESPONSE: In KP, we use Epic's IntraConnect system to manage the distribution of the value sets. Using this system we can configure the "build level" – whether the value set/subset is built only at the KP National vs at the

regional/local levels or by both. The other configuration is “tracking level” for allowing/disallowing localization at the attribute level.

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

KP RESPONSE: Local customization is appropriate for mapping and translating local codes, such as local ancillary code for lab tests and results. Other appropriate level of customization includes “orderability” as well as financial data related, such as fee schedule, cost center, etc. Additionally, local customization is required to meet different state regulatory requirements and other business requirement variation.

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

KP RESPONSE: This is done via IntraConnect setting referred in #13. For example, attributes for local code mappings would be set to be “not tracked”. Attributes such as ICD9 code mapping or CPT4 code mapping would be set as “tracked”, in which case the System prevents values being changed at the local level.

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

KP RESPONSE: I don't necessarily think it needs to be separated. Vocabulary services can be designed to expose only the necessary information for supporting EHR implementation.

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

KP RESPONSE:

- Simplifying documentation enabling clinicians to spend more time with patients.
- Improving the use of alerting systems where it is clinically significant to clinicians and not causing alert fatigue.
- back end of an EMR should easily be extractable, data can be mined but sensible at the same time.
- Controlled Vocabulary principles may not yet be appreciated by users and some business partners within an organizations
- Leveraging controlled vocabulary and information models in the EMR design itself.
- less free text and more data structure.
- more standardization in data and workflow, less variability.

Instructions to Invited Panel Presenters/Discussants

- Please answer all questions that pertain to your experience and/or operations
- Please be prepared to provide your verbal remarks in 5 minutes
- Please be plan to participate in a discussion, and to answer questions regarding your written testimony and verbal remarks, for a period lasting between 90 minutes and 120 minutes.

Instructions For Submitting Written Testimony

- Please answer all questions that pertain to your experience and/or your operations,
- Please submit documents to Judy Sparrow no later than Friday, 8/20

Panelists (Organizations)

A) Measure Developers / Value Set Creators

AMA, NCQA, NQF, X12, HL7, CDISC, PHOENIX (sp?), CDC, NCBI

B) End Users / Clinicians / Hospitals / Other EHR Implementers Including Health Information Exchange Organizations (two panels)

B1: Partners, Vanderbilt, Columbia, Duke, CHW, Group Health
Cooperative, OCHIN, Institute for Family Health

B2: BIDMC, KP, Intermountain, Mayo, Regenstrief, Cleveland Clinic,
VA

C) EHR Vendors and Developers, HIE Vendors/Developers

Regenstrief Open MRS, VISTA, <placeholder for other open source
developer>, EHRVA (request 4 EHR vendors)

D) Terminology Services Vendors / Developers / Implementers

CaBIG, Apelon, 3M, Health Language, SIAC, Intellegent Medical
Objects, Mayo, USHIK, NLM

Others will be asked to submit written comments at least 10 days before the hearings.