Top Actions for Healthcare Delivery Organization CIOs: Make Central Terminology Services a Cornerstone of Your Information Architecture

Published: 23 March 2012

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As HDOs bring EHRs into use, their next challenge is to interoperate with other applications for analytics, quality measurement and collaboration. Where they might once have relied on EHR vendors to manage terminologies, they must now assume direct responsibility for this important function.

Impacts

- The volume of terminology work limits agility when turning information into decisions, and decisions into action.

- Terminology service providers are an important resource to overcoming the burden of coordinating terminology use.

- Terminology service providers help when multiple languages are an issue.

Recommendations

- Healthcare delivery organizations (HDOs) and ministries of health should establish a central terminology services group within their organizations.

- Employ the software and services of a terminology service provider to support the acquisition and maintenance of standard, shared and internally developed terminologies.

- Initially focus on a specific deliverable around a mandated code set, such as ICD-10 in the U.S. or the Clinical Observations Recording and Encoding (CORE) Problem List Subset of the Systemized Nomenclature of Medicine — Clinical Terms (SNOMED-CT).

- Ministries of health should use terminology service providers to develop and maintain cross-regional lists of concepts and natural language explanations.

Analysis

IT was once able to hold applications vendors or single HDO departments responsible for acquiring or creating and implementing codes. However, this approach has failed, as HDOs add analytics, natural language processing, care coordination and collaboration with other HDOs to their challenges. The HDO must become its own system integrator for terminology.

Figure 1. Impacts and Top Recommendations for Healthcare Delivery Organization CIOs to Make Central Terminology Services a Cornerstone of Information Architecture

Impacts	Top Recommendations
The volume of terminology work limits agility when turning information into decisions, and decisions into action.	• HDOs and ministries of health should establish a central terminology services group within their organizations.
Terminology service providers are an important resource to overcoming the burden of coordinating terminology use.	• Employ the software and services of a terminology service provider to support the acquisition and maintenance of standard, shared and internally developed terminologies. • Initially focus on a specific deliverable around a mandated code set, such as ICD-10 in the U.S. or the CORE Problem List Subset of the Systemized Nomenclature of Medicine — Clinical Terms (SNOMED-CT).
Terminology service providers help when multiple languages are an issue.	• Ministries of health should use terminology service providers to develop and maintain cross-regional lists of concepts and natural language explanations.

Source: Gartner (March 2012)

Impact: The volume of terminology work limits agility when turning information into decisions, and decisions into action

HDOs underestimate the sheer volume of work involved in coordinating the use of codes and underlying concepts across multiple applications. Establishing the consistent use of standard codes and mapping them to internally developed code sets is a mind-numbing, time-consuming task that reduces the agility of HDOs to achieve interoperability and change their own systems to adapt to new approaches to analyzing, providing and automating care. The coordination and approval of code sets and mappings typically happen in spreadsheets maintained by individual analysts. The numerous interdepartmental meetings for coordination are often characterized as "root canal meetings" because of their duration and painful tedium. At the completion of coordination, informaticists carry the spreadsheets to individual systems, where they do their best to enter the codes and mappings without error. The process is repeated each time a new procedure is added to a compendium, as well as during the periodic updates of code sets from standard sources.

The job involves "big" code sets such as Logical Observation Identifiers Names and Codes (LOINC), the Systemized Nomenclature of Medicine — Clinical Terms (SNOMED-CT) and DSM-IV; national code sets such as CPT-IV; and national adaptations of code sets such as ICD-10 as adapted in various countries. It also involves hundreds of "little" value sets, such as body site for specimens, route for medications and characterizing urine based on its appearance. These concepts usually exist in different forms in various clinical applications, and must be mapped to standard codes for interoperability (see Health Level Seven [HL7] Standard Version 2.7[1] for a representative list of code sets).

The mapping process must be applied to more and more system implementations and revisions as semantic technologies, such as natural language processing, become embedded in tools for quality assessment, computer-assisted coding, semantic search of clinical data repositories and institutional review board (IRB)-approved research repositories, and the basic documentation steps within an electronic health record (EHR).

Recommendations:

- HDOs and ministries of health should establish a central terminology services group within their organizations.

Impact: Terminology service providers are an important resource to overcoming the burden of coordinating terminology use

Terminology service providers can streamline the process of acquiring standard codes, mapping local codes to them, coordinating changes, and providing controlled distribution to multiple applications, within and among HDOs.

These specialized vendors, which languished as suppliers to EHR vendors and a few highly advanced medical centers, are getting substantial uptake through HDOs and healthcare payers. This trend has three principle drivers:

- Some HDOs are getting over the hump of installing and implementing their EHRs. They are using analytics to exploit the data they are collecting. Representative applications include computing quality measures, identifying best practices and finding high-risk patients.

- The impetus for this effort includes payer-imposed quality reports, quality measures required for meaningful use, various outreach efforts to nonaffiliated physician practices and various collaborative care arrangements.

- In the U.S., the impact analyses that many HDOs conducted for the ICD-10 mandate uncovered reliance on coordinated codes that had previously been sprinkled through many individual projects.

In 2000, "Vocabulary Server Definitions" and "Vocabulary Server Architectural Issues" reviewed the use of tools in a manner that closely parallels how terminology service providers work today. This research describe a combination of services and software that provides their users with:

- Easy access to published code sets and their changes

- Technology to support discovering mappings between internal and standard code sets, and between multiple internal code sets

- Tools and methodology for a portal-based workflow to minimize the meeting time and increase the accuracy of internal and cross-enterprise coordination of code sets

- Automated supports for distributing changes to code sets to multiple application systems at the same time

The tools empower informaticians to identify exact match and near-match situations across code sets. They further enable HDOs to replace root canal meetings with workflows that are managed through Web-based collaboration.

Representative vendors include Apelon and Health Language. In order to better represent the service and methodology value added by such vendors, we have changed the term "vocabulary service vendors" to "terminology service providers," but most of the concepts described in the 2000 research still apply.

Recommendations:

- Employ the software and services of a terminology service provider to support the acquisition and maintenance of standard, shared and internally developed terminologies.

- Initially focus on a specific deliverable around a mandated code set, such as ICD-10 in the U.S. or the Clinical Observations Recording and Encoding (CORE) Problem List Subset of the Systemized Nomenclature of Medicine — Clinical Terms (SNOMED-CT).

- Despite the narrow focus of any initial project, the use of the terminology services should be funneled through the HDO's own terminology services group to build a repository of skills and knowledge of the HDO's need.

Impact: Terminology service providers help when multiple languages are an issue

In countries or multicountry collaborations where coded concepts must be described in multiple languages, the tools of terminology service providers support maintaining multiple descriptions of a concept. In addition, Internet-based workflows will substantially reduce the number of meetings necessary to achieve consensus on multiple codes.

Recommendation:

- Ministries of health should use terminology service providers to develop and maintain cross-regional lists of concepts and natural language explanation.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Update: Architecture for the ICD-10 Mandate in Care Delivery Organizations"

Evidence

[1] See Health Level Seven [HL7] Standard Version 2.7 for a representative list of code sets.

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