HIMSS 20

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Knowledge management and the dynamic discovery and evaluation of executable knowledge artifacts

Supporting SEAMLESS CARE for Veterans

Use Case:

The healthcare industry has spent many years trying to achieve data interoperability and move towards greater democratization of patient records. With the increasing adoption of FHIR and greater appreciation for APIs and modern architectures that enable greater data interoperability, the reality of data democratization is shifting from a technology problem to a business problem. Unfortunately, the same cannot be said for knowledge. Similar to patient records, knowledge (e.g., clinical decision support rules and other forms of algorithmic decision aids) has historically been locked inside electronic medical record systems and other clinical systems and only available for use by users of that system. It has been estimated that medical knowledge doubles every 5-10 years and has increased at this rate for the last 100 years. No one organization or EMR vendor can possibly keep up. Knowledge needs to be democratized from the clinical systems and their proprietary implementations to encourage greater sharing of knowledge artifacts and a crowd-sourced, community approach to knowledge creation and curation.

In this demo, we will show how knowledge artifacts can be engineered and expressed using emerging standards for knowledge representation. We will demonstrate the process for publishing executable knowledge artifacts as knowledge services that can be integrated in to health IT systems to enable a plug-and-play knowledge ecosystem.

Supports Interoperability Goals:

Executable knowledge artifacts, federated and shared knowledge engineering, shared and portable knowledge, knowledge-level interoperability.

Solution:

The emergence of standards such as CDS-Hooks and Clinical Query Language (CQL) provide some of the tools needed to create and deliver knowledge artifacts as services (discrete, modular and autonomous units of software) that can be accessed and integrated through standards based interfaces. In this demo, we will showcase a knowledge manager built to dynamically register and discover knowledge services and

understand their data requirements and usage context. Armed with this information, the knowledge manager will integrate knowledge services with interoperable data systems to dynamically and intelligently execute knowledge services based on the availability of appropriate data to provide real-time insights and decision guidance. The knowledge manager is decoupled from the knowledge services themselves and can add or remove knowledge services into the framework on demand resulting in a truly dynamic, standards-based approach for the discovery and evaluation of executable knowledge artifacts.

Project Phase:

The solution is in concept development. The first target system implementation is expected to be used in live pilot sites in 12-18 months.

Value:

The value to Veterans is improved care due to greater breadth and sophistication of decision support for themselves and their care providers. Federating and sharing knowledge in a standards-based, computable way unlocks a large volume of knowledge assets and evidence that aims to improve care with greater efficiency and lower cost.

Future:

The future plan is to make knowledge assets available as a shared entity that is separated (democratized) from the proprietary health IT systems that manage and deliver decision support today. Health IT 2.0 achieves greater data and knowledge democratization by removing control of knowledge engineering and knowledge artifacts from proprietary IT systems. CDS-Hooks, CQL and the knowledge manager architecture are significant steps towards this future vision.

VA Wants Your Help:

How can industry help?

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