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A Prototype Knowledge-Sharing Service for Clinical Decision Support Artifacts

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Summary

Objectives

The Office of the National Coordinator for Health Information Technology (ONC) Advancing Clinical Decision Support (ACDS) effort is a project intended to accelerate the effective use of computer-based clinical decision support (CDS) interventions to facilitate evidence-based clinical practice and the meaningful use of health information technology (IT). In Task 4 of this effort, a team of CDS and knowledge management experts led by Tonya Hongsermeier, M.D., of Partners HealthCare has proposed a functional architecture, governance model, and standard format for a knowledge-sharing service (KSS) that could potentially be deployed on a national scale. In addition, the team has built a first-generation version of a KSS that expands on the infrastructure previously developed for the Clinical Decision Support Consortium (CDSC). This report primarily describes the work associated with Task 4.8, led by Janet Lewis. The key objectives were to develop CDS artifacts for at least 20 interventions of different types, targeted toward guidelines and clinical conditions called for in the 2011 meaningful use criteria, and to disseminate the tools, content, and materials through the KSS. This report also describes key findings from the other Task 4 subtasks.

Methods

The ACDS team collaborated with other federally funded efforts, including the CDSC project, the National Quality Forum (NQF) eMeasures effort, and the Structuring Care Recommendations for Clinical Decision Support (eRecs) project. The ACDS interventions or artifacts were built utilizing the extensible markup language (XML) schema developed by the CDSC project and were published on the CDSC portal, which functions as the ACDS KSS. The CDSC portal resides on a Partners HealthCare server and utilizes Documentum’s Web Publisher for content life-cycle management, workflow management, metadata tagging, and publishing. The artifact content was based on CDS interventions implemented at Partners and refined based on related CDS projects, especially the NQF eMeasures and eRecs projects. Clinical subject matter experts were consulted to review and finalize the ACDS artifacts. We reviewed our approach with vendors and worked with Allscripts to conduct a demonstration of artifact transformation.
Results

While the original CDSC Level 3 XML schema adequately supported the development of the ACDS alert/reminder artifacts, we worked with the CDSC team to expand the schema to support additional intervention types (order sets, documentation templates, infobuttons, relevant data display, and value sets). Twenty-two CDS artifacts and 16 value sets were developed that cover the five CDS intervention types. Three custom style sheets were developed to render the XML files in human-readable form. We worked with the CDSC portal team to enhance the portal to support the ACDS artifacts and custom style sheets. We also established a new page on the portal to link to the related work performed by the NQF and eRecs project teams. The ACDS artifacts may be viewed at http://cdsportal.partners.org/.

Conclusion

The ACDS Task 4 work was instrumental in identifying requirements for a KSS and exercising an XML schema for CDS sharing. Chapter Five highlights the lessons learned, key barriers to knowledge-sharing, recommendations for the future, and reasons for knowledge-sharing. The foundational building blocks for shareable CDS described in Chapter Five, such as dictionaries and value sets, are essential regardless of whether CDS developers and implementers utilize a CDS intervention-sharing or services consumption approach. The CDS content on the portal needs to be expanded and maintained in order for it to remain a viable resource for CDS implementers.