

Structuring Care Recommendations for Clinical Decision Support

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Target Population: General

Summary: Incorporating widely accepted, evidence-based clinical care recommendations, also known as clinical guideline narratives, into clinical decision support (CDS) systems is a key method for improving health care and health outcomes. However, the process of translating such recommendations into “if... then...” logic statements (or rules) in CDS systems is slow, inconsistent, and inefficient, with many CDS developers independently translating text-based care recommendations into computer-executable code. Structured, coded clinical logic statements that can be electronically processed can increase the speed, consistency, and efficiency of guideline implementation as CDS rules. Such logic statements will reduce redundancy related to extracting and structuring decision logic by assigning computer-interpretable codes to the elements of recommendations, such as inclusion and exclusion criteria for relevant patients and recommended treatment actions. Also, widely accepted formats and approaches for expressing the logic and variables of recommendations will help organizations that develop care recommendations write them in a way that can be more easily adapted for use as automated clinical decision support rules. These rules can be used to trigger helpful reminders to clinicians and to identify groups of patients that may benefit from particular care interventions, as indicated by evidence-based medicine.

This project involves developing structured, coded logic statements (called “eRecommendations”) for all 45 A- and B-graded recommendations of the U.S. Preventive Services Task Force (USPSTF) and up to 20 recommendations underlying clinical performance measures required to be reported to the Centers for Medicare and Medicaid Services under [“meaningful use”](#) regulations. To identify patients for whom each clinical recommendation applies and actions that should be taken, these eRecommendations will leverage standard data elements, coding systems, and value sets being developed for performance reporting under meaningful use. The eRecommendations will be available for health information technology (IT) application developers, care providers, and others to access and further process into locally useful CDS rules.

Project Objectives:

- Increase use of interventions (e.g., tests, medications, and counseling) for which evidence-based clinical recommendations indicate a clear benefit to patients. An example is routine screening for colorectal cancer in individuals between the ages of 50 and 75. **(Ongoing)**
- Make it easier for clinical information system suppliers (e.g., government agencies and commercial vendors) and implementers (e.g., hospitals and physician practices) to develop and implement automated clinical reminders and related CDS tools based on widely accepted care recommendations. **(Ongoing)**

- Produce and populate, with broad stakeholder input, an “eRecommendation” format for expressing clinical recommendations as structured, coded logic statements that are widely useful. This includes leveraging codes and structures used to express clinical performance measures in a computable format to help tighten the measurement and CDS components of the clinical performance improvement cycle. **(Ongoing)**
- Leverage the eRecommendation format and project learning to help clinical guideline developers make their recommendations more precise and easier to translate into automated clinical reminders. **(Ongoing)**

2010 Activities: The project devised, vetted, and documented a consistent method for transforming evidence-based clinical recommendations into a format that can be readily adapted further for widespread implementation in CDS systems and other health IT products. The project used the eRecommendations format to develop a collection of structured clinical recommendations for A and B grade USPSTF guideline statements, as well as a few meaningful use measures. To help ensure that the work performed was supported by the full range of stakeholder perspectives, a Rule Value Advisory Panel was convened to provide input about the value of proposed project deliverables and their potential future use. The project team specifically sought out potential users of structured recommendations who were interested in testing the usefulness of the eRecommendation template in the short term and possibly providing continuing feedback over a longer term.

In the last quarter of 2010, the project engaged in further activities to examine and enhance eRecommendation use in CDS rules. This included launching a pilot analysis of eRecommendation use in two real world settings – one inpatient (Memorial Hermann Healthcare System) and one outpatient (Tulane Community Health Centers). It also included building an “eRecommendation Stakeholder Community” consisting of a broad cross-section of potential eRecommendation developers and users and other relevant parties. This Community was formed to follow the pilot site findings in 2011 and identify next steps for supporting widespread eRecommendation use and value.

Preliminary Impact and Findings: The project team has held several key discussions with information system developers, implementers in both the public and private sector, associations that represent these stakeholders, and Federal care delivery organizations (i.e., Veterans Health Administration, Department of Defense, and Indian Health Service) to develop a report that synthesizes the background, existing approaches, and specific approach of this project for creating eRecommendations. A core strategy has been to align the format and methods for creating eRecommendations with corresponding work towards national standards and tools for integrating performance measurement and reporting into electronic health records. These include eMeasures for quality measurement, which draw on the Health Quality Measure Format and the Quality Data Model specifications from the National Quality Forum. Because of the strong motivation of information system suppliers and implementers to adopt eMeasures and related standards in order to achieve meaningful use, this alignment provides considerable synergy for CDS implementation efforts.

Multiple stakeholders validated that initial project deliverables hold promise for improving the efficiency and effectiveness with which clinical recommendations can be structured and coded for subsequent CDS rule implementation. The project has also cultivated synergies with other related national CDS initiatives that, if further developed, might help ensure widespread use of effective CDS rules. At the same time, the work to date has identified important issues that must be addressed to fully realize this promise.

Strategic Goal: Improve health care decisionmaking by developing and disseminating health IT tools that better manage the knowledge from evidence-based clinical guidelines and accepted quality measures

Business Goal: Implementation and Use