

Structuring Care Recommendations for Clinical Decision Support

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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 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 would reduce redundancy in 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 could help organizations that develop care recommendations write them in a more easily adapted way for use as automated clinical decision support rules. These rules could be used to trigger helpful clinician reminders and to identify groups of patients who may benefit from particular care interventions, as indicated by evidence-based medicine.

This project developed structured, coded logic statements called “eRecommendations” for all 45 A- and B-graded recommendations of the U.S. Preventive Services Task Force, and 12 recommendations relevant to “meaningful use” measures that, by regulation, must be reported to the Centers for Medicare and Medicaid Services. These eRecommendations leverage standard data elements, coding systems, and value sets developed for performance reporting under Meaningful Use to identify patients for whom a clinical recommendation applies and action should be taken.

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. **(Achieved)**
- 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. **(Achieved)**
- 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. **(Achieved)**

2011 Activities: The project engaged in activities to examine and enhance eRecommendation use in implementing CDS rules. This included launching a pilot analysis of eRecommendation use in two real world settings; one inpatient (Memorial Hermann Healthcare System), one outpatient (Tulane Community Health Centers). It also included building an expanded “eRecommendation Stakeholder Community” consisting of a cross-section of potential eRecommendation developers and users, and other CDS stakeholders. This community was convened in connection with the pilot site activities to identify next steps for supporting widespread eRecommendation use and value. Furthermore, additional eRecommendations were developed for high priority clinical rules, and two guides were created to facilitate the development and use of eRecommendations.

This project was completed in September 2011.

Impact and Findings: The project team was instructed to develop a method and format for translating clinical recommendations that went as far down the pathway to a machine-executable form as the process could be taken, while still ensuring widespread value from the material. A key component of the resulting eRecommendation method and format was an “implementation considerations” section that navigated the tension between implementers’ need for more setting-specific factors and the vendors’ desire for fewer of these specifics. In addition, the national push for Meaningful Use of health information technology (IT) and related efforts to apply electronic health records to performance measurement and improvement made it desirable to leverage momentum for this and related tools when the methods for structuring care recommendations were developed.

After extensive vetting, broad stakeholder feedback on the eRecommendation work indicated wide interest and a belief that the project materials could deliver significant value for improving the translation of clinical recommendations into CDS rules. The active engagement of this large group of public and private stakeholders in CDS-facilitated healthcare performance improvement is another important project by-product.

This project’s impact also extends to related projects. The Advancing Clinical Decision Support portal project, an Office of the National Coordinator for Health IT (ONC)-sponsored project, may be making eRecommendations available to the public on their portal. An additional ONC-sponsored project, the Strategic Health IT Advanced Research Projects C-2B project, may create an implementer’s workbench to configuring setting-specific factors related to converting eRecommendations into locally-useful CDS rules. This project interplay appears to have stimulated CDS rule development and value that is greater than the sum of the individual projects.

Target Population: General

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Implementation and Use
