The Coronary Artery Disease Quality Dashboard: A Chronic Care Disease Management Tool in an Electronic Health Record

Eunice Jung MPH1, Jeffrey L. Schnipper MD, MPH2, Qi Li MD, MBA1, Jeffrey A. Linder MD, MPH2, Alan F. Rose MSc1, Ruzhuo Li1, Michael S. Eskin1, Dan Housman3, Blackford Middleton MD, MPH, MSc1,2, Jonathan S. Einbinder MD, MPH1,2

1Information Systems, Partners HealthCare System, Boston, MA
2Division of General Medicine, Brigham and Women’s Hospital, Boston, MA
3Recombinant Data, Inc., Burlington, MA

Abstract: Quality reporting tools, integrated with ambulatory electronic health records (EHRs), may help clinicians understand performance, manage populations, and improve quality. The Coronary Artery Disease Quality Dashboard (CAD QD) is a secure web report for performance measurement of a chronic care condition delivered through a central data warehouse and custom-built reporting tool. Pilot evaluation of the CAD Quality Dashboard indicates that clinicians prefer a quality report that combines not only structured data from EHRs but one that facilitates actions to be taken on individual patients or on a population, i.e., for case management.

Background: Partners Healthcare System has developed the Longitudinal Medical Record (LMR), an ambulatory EHR used across the network that captures a variety of structured and coded clinical data. The CAD Quality Dashboard is a new report paradigm for the Report Central application, which is an integrated data aggregation and reporting module of the LMR. Leveraging the custom-built reporting solution of Report Central, which ensures flexibility and tighter integration with LMR for workflow support, the CAD QD provides valuable information on performance of CAD measures for a clinician’s panel, including blood pressure and lipid management, anti-platelet and beta-blocker medication use, and body mass index and smoking documentation.

Features: The CAD QD contains several views to give users a snapshot of how well their panel of patients with CAD is meeting each of the quality measures.

1. Summary View: tabular view of the rates of compliance with each quality measure compared with peers and national benchmarks.
2. Measures View: detailed graphical data on each quality measure, followed by a sorted list of patients who are out of compliance with that measure.
3. Patient List View: a view of the provider’s panel of patients that can be sorted or filtered in real time using a variety of clinical or demographic criteria.

At any time, a user can “drill down” to any patient’s medical record within the LMR to take action, save the user-defined lists, or export a customized list of patients to Excel for case management.

Findings from Pilot Implementation: Twenty-five primary care providers and cardiology specialists evaluated the CAD QD during its ten-week pilot implementation. During one-on-one usability sessions and through a structured on-line survey, pilot users evaluated the CAD QD for usability, including ease of use and design layout. Pilot users also evaluated the utility of providing feedback on care management for this chronic condition and integration of the reporting tool with clinical and case management workflow.

The majority of the pilot users indicated that a chronic condition reporting tool would need to facilitate actions not just on individual patients but for populations, i.e., by using the user-defined patient lists from the QD to perform actions on multiple patients at once, such as letter-writing, test ordering, and batch documentation. Pilot data also indicate that clinicians found the data on performance against peers and benchmark targets using color-coding to be useful and consistent with alerts used in LMR. However, pilot users also noted that the utility of the dashboard could be limited by a lack of coded data in the LMR (e.g., test results from outside laboratories, problem lists that are not well maintained, blood pressures entered as free text instead of as coded vital signs). Incentives to use the CAD QD do not currently exist, but could come from new pay-for-reporting or pay-for-performance contracts or from the provision of a case manager to act on deficiencies noted by the CAD QD.

Conclusion: The CAD Quality Dashboard is a useful feedback report for performance measurement of chronic condition care. Delivered as part of Report Central, it allows providers to securely access the report and LMR patient records through one integrated application. Critical to future CAD QD development and success will be the ability to use the dashboard to take batch actions on a population of patients. Without this “closed loop” workflow, clinicians are less inclined to use CAD Quality Dashboard on a regular basis. Furthermore, as pay-for-reporting and pay-for-performance become more common, drivers to use interactive quality reporting tools such as the CAD QD will likely increase.