Report Central: Quality Reporting in an EHR
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Abstract
At Partners HealthCare System (PHS), data from the Longitudinal Medical Record (LMR), Partners’ ambulatory electronic health record, is being used to generate reports and data sets to support quality measurement, clinical operations, and clinical understanding. Report Central is a Web report delivery tool, built using ASP.NET technology, which allows an LMR user to view reports about his/her patients; medical directors may view practice-level reports. It manages user authentication and context and allows users to run reports on demand. Reports run against data in the Quality Data Warehouse, a relational database that contains data drawn from the LMR, as well as other data sources. Report Central is currently available to over 7000 providers at 300 clinics. Since implementation in June 2006, usage has been growing at about 10% per month.

Introduction
At Partners HealthCare System (PHS), data from the Longitudinal Medical Record (LMR), Partners’ ambulatory electronic health record, is being used to generate reports and data sets to support quality measurement, clinical operations, and population management. To support reporting using EHR data, we have taken the following approach:

1. Externalize information from Partners’ EHR into the Quality Data Warehouse (QDW), and
2. Use data from the QDW to view reports through a reporting portal, which is linked to the EHR.

In this theater demonstration, we will demonstrate and explain how the Quality Data Warehouse and Report Central support reporting and data requests for quality and operations at Partners.

Description of the Solution
Report Central is a reporting module that is available to every user of LMR. Each user may view reports about his/her patients; medical directors may view practice-level reports. Access to custom reports may be turned on for groups of users or individual users. Policies about who may see patient data have been developed, working closely with Partners’ Health Information Services (HIS) department. Examples of reports include: asthma, diabetes, influenza vaccination, prescribed medications, overdue pediatric immunizations, pediatric body mass index percentile, visits without notes, pediatric lead screening, and oncology pain scores. Reports that include patient-level detail allow the user to click through from the report directly to a patient’s full electronic record.

Reports run against data in the Quality Data Warehouse. The Quality Data Warehouse (QDW) is a relational database that contains data (problems, medications, flow sheets, notes, tumor staging, pain scores, and orders) drawn from the LMR, as well as other data sources such as vital signs, laboratory results, and clinic schedules. Currently, data is refreshed at least once per month. As of January 2007, the QDW contained more than 60 million pieces of information (facts) about more than four million patients.

System Architecture
Report Central is a Web report delivery tool built using ASP.NET technology. It manages user authentication and context and allows users to run reports on demand. Currently, most reports are displayed using Crystal Reports XI™; however, a key design principle of Report Central was to allow integration of more than one report viewer. An example of another report viewer is Quality Dashboards, an interactive reporting tool built using ASP.NET but viewable through the Report Central portal. Report Central also includes a number of administration functions such as creating user groups, managing authorization for reports, and viewing usage summaries and logs.

Current State of deployment
Report Central was deployed as a pilot in December 2005 and has been in production since June 2006. It is currently available to over 7000 providers at 300 clinics. There are approximately 750 report runs per month—this is growing about 10% per month. There are currently 13 standard reports, which are available to all users; three custom reports are being added each month in response to individual requests. Of note, the effects of reports are being evaluated in several internally and externally funded research studies.