Sentinel feedback: path to meaningful use of EMRs

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Simply using an electronic medical record (EMR) does not lead to better care. As one research team eloquently stated, "Our findings show that even after the potentially disruptive phase of initial EHR [electronic health record] implementation, quality improvements remain elusive. Achieving truly meaningful use of this technology will require more than time and experience: it will require recognition that until population health is improved, use does not equal success."[1]

Electronic medical records are built to help physicians chart and provide care to patients one at a time, similar to paper charts. Improving care requires the ability to look at a practice population, figure out where gaps exist, and then change work flows to consistently address those gaps. The first 2 steps are often poorly supported by current EMR systems (eg, we might be unable to generate a complete list of our patients with diabetes, and therefore cannot discover if all diabetes parameters have consistently been met).

Traditional audits and feedback only have small to moderate effects.[2] Audits based on EMR data and directly answering physicians' questions might be a new path toward better care. However, current EMR systems cannot quickly, easily, or accurately generate this information.[3] This is even more problematic for groups of physicians with EMR data spread across several servers.

A software application, the Data Presentation Tool (DPT), was developed by the Canadian Primary Care Sentinel Surveillance Network (CPCSSN) that enables the production of quality reports according to physician, office location, and groups of physicians. The DPT uses data extracted and merged from EMRs; it bypasses the limitations of individual software applications by using data that have been cleaned using the standard processes of CPCSSN. For example, all weights are changed to kilograms, and there is only 1 term to indicate hemoglobin A_{1c} level. In a previous Sentinel Eye,[4] we described the steps taken at CPCSSN to more consistently identify patients with chronic diseases through standardized algorithms using EMR data. These EMR case definitions enable the DPT to generate registries of patients with selected chronic illnesses.

This leads to the ability to base care decisions on actual data. For example, a team wanted to know if their depressed patients with diabetes were more likely to smoke than nondepressed patients with diabetes. Using the DPT, the team identified 3310 patients with diabetes seen in the past 2 years. Of those, 551 were depressed (17%). Eight percent of nondepressed patients with diabetes were current smokers, as opposed to 12% of depressed patients with diabetes. The team also wanted to know about their patients with diabetes who were overdue for care; they searched for all patients with diabetes with currently active charts who had been seen in the past 2 years but not within the past 6 months. Of all patients with diabetes, 477 (14%) were overdue for a visit. The DPT report detailing the age and sex distributions of these patients was attached to the data sent to the team.

The DPT can also help physicians and primary care teams improve the data in their EMRs. It provides detailed descriptions of all terms found for selected chronic conditions and risk factors. Our team was shocked to discover 6719 ways to indicate smoking status, including "A FEW," "somker," and "stoped." We made the decision to use consistent, standardized terms to indicate tobacco use: *current smoker*, *ex-smoker*, and *never smoked*. This enabled us to consistently identify and add alerts to EMR records for all current smokers. We found that you cannot improve quality if you cannot measure it, and you cannot measure quality if the data are not standardized.

The DPT can provide new methods for physicians and primary care teams to systematically monitor their quality as they implement smaller Plan-Do-Study-Act cycles in individual practices or larger programs in primary care teams. The DPT also includes reports on data standardization, a necessary preliminary step for quality improvement. Tools such as the DPT can overcome the limitations of current EMRs and help physicians transform their data into useful information, thus providing a path toward the meaningful use of EMRs. ❧

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