Essays and Commentaries

EMRs for Improving Quality of Care: Promise and Pitfalls

James M. Gill, MD, MPH

There is growing enthusiasm in the United States about the use of electronic medical records (EMRs) in outpatient settings. More than $20 billion of the federal economic stimulus (the American Recovery and Reinvestment Act of 2009) is slated to assist physicians, hospitals, and other health care settings in adopting health information technology.[1] Two studies that are published in this issue of *Family Medicine* highlight the promise of EMRs in improving quality of care but also their challenges and potential pitfalls.[2,3]

The study by Schriefer et al showed that adding prompts for patients with a high body-mass index (BMI) led to a higher rate of diagnosed obesity and also led to higher referral rates for diet treatment and exercise.[2] Other studies have also shown EMRs to improve quality for preventive care,[4-6] acute conditions such as streptococcccal pharyngitis,[7] and chronic conditions such as diabetes[8] and hypertension.[9]

It seems logical that the EMR would be a promising tool for improving quality of primary care. EMRs can make practice guidelines available at the point of care.

The EMR can also help to better organize patient information such as diagnoses, medications, and test results so that guidelines can be more easily followed. EMRs can provide automated prompts and reminders for when tests are due or when control of chronic diseases is suboptimal. The EMR can also improve care outside of patient visits, through disease registries and other tracking systems that can identify potential quality problems. For example, one can search for patients with diabetes whose lipids are not well controlled and who need follow-up or those on metformin whose renal function is impaired and whose metformin should be discontinued.

While it seems obvious that EMRs should improve quality of care, this promise is not always fulfilled in reality. Two recent studies attracted attention by showing that care was no better and sometimes even worse for physicians using an EMR. One regional study found diabetes quality indicators to be generally worse for physicians using an EMR,[10] and a national study using the National Ambulatory Medical Care Survey found use of an EMR was generally associated with no difference in quality.[11]

One reason for this apparent paradox is that EMRs are often used in a way that does not maximize their potential to improve quality of care. For example, while 50% of family physicians are either using or implementing EMRs in their offices, only a minority use advanced features such as decision support and health maintenance prompts.[12] The same was true for primary care physicians in Florida who reported using an EMR.[13] Even when physicians do use EMRs for decision support, it is sometimes done in a manner that does not take advantage of the strengths of an EMR. The study by Schriefer et al highlights one example of this.[2] In their study, the patients' BMIs were manually calculated by office staff and inserted a prompt to the physician. One of the strengths of an EMR is that it can manipulate clinical data such as height and weight and automatically calculate a BMI.[6] While the study did show a positive result, requiring extra work by staff may discourage offices from adopting a similar process.

While the EMR has great promise for improving quality of care, there are many pitfalls that often get in the way of fulfilling this promise. The study by Terry et al in this issue of *Family Medicine* highlights some of these pitfalls.[3] Physicians and office staff are often overwhelmed by the amount of work needed to learn how to use their EMR. This is a particularly difficult issue when offices try to continue their usual patient volume while implementing the EMR.

Another barrier is implementation of features that require extra time but add little to quality of care. An example is including a pain assessment tool into the EMR template for every patient visit. This is often done in offices that are

From Delaware Valley Outcomes Research (Newark, Del) and Jefferson Medical College.

part of hospital systems, since pain assessment is one of the requirements of the Joint Commission. However, most patients in primary care do not benefit from routine pain assessment at every visit, so requiring this type of structure only adds to the time and frustration of implementing an EMR. In fact, such regulatory features can actually worsen quality of care by detracting from those prompts and reminders that are important.

So how can primary care offices implement EMRs in a way that allows them to fulfill their promise of improved quality while avoiding many of the pitfalls?

The first step is to have a thorough planning process and to decide which features to include that will likely improve quality of care, as well as which features to avoid that will add little to quality.[14] Once implementation begins, it is important to take the time needed to properly institute use of the EMR so physicians and staff can be trained to take advantage of the functions that lead to improved quality of care. Most experts recommend an extended period of planning and training before implementation and then reducing patient volume for weeks or months during implementation.[14] The article by Terry et al shows that this is often not done in smaller practices and that lack of time for training and implementation can hinder full use of the EMR functionality.[3] One of the goals of the federal stimulus package is to provide financial assistance and incentives for small offices that are implementing EMRs.

The EMR should also be used as a tool to facilitate the team approach to care that is recommended in the Future of Family Medicine report[15] and in the Patient-centered Medical Home (PCMH).[16] Since EMRs can automatically determine when tests or other procedures are needed, prompts can be directed toward staff without requiring physician time and judgment. For example, a medical assistant (MA) who is rooming a diabetic patient can see that the patient is due for a glycated hemoglobin test. The MA can confirm whether the test was actually done. If it was done, the MA can have the result available for the physician; if not done, the MA can order that test even before the physician sees the patient. The MA can also be prompted to screen for bipolar disorder or administer a depression severity questionnaire for patients with ongoing depression, so that the results are available for the physician.[17]

This team approach to care is important not only when patients are in the office but also when they are not. As discussed earlier, the EMR can support disease registries and reports to identify patients who need follow-up. For example, clinical team members can identify women over age 50 who have not been in the office and are overdue for a mammogram and can contact these patients to arrange for testing and follow-up.[18] Team members can also improve follow-up for patients with depression by administering a depression severity questionnaire between office visits. Primary care offices often do not take advantage of these quality improvement methods, partly because the extra cost is usually not reimbursed. However, the EMR can even help here— the EMR can facilitate reporting for Medicare's Physician Quality Reporting Initiative (PQRI) and thereby help to capture the additional revenue that can support team-based quality initiatives.

The EMR can also be a tool for helping patients to become a more active part of their own care team. For example, patients can complete medical history forms or screening questionnaires before seeing the physician. The results can be automatically entered into the EMR with important items highlighted for the physician to see.[19] Patients can also enter their information directly into the EMR through computer kiosks in the waiting room. Such kiosks can be made to be interactive, so that patients can retrieve targeted education or other information. EMRs can also facilitate patient interaction with their medical home outside of the office, through Web-based patient portals where patients can communicate with the office, request refills or appointments, or obtain medication lists or lab results. By using these features, the EMR can be used as a tool to help fulfill the promise of improved quality and access as defined by the principles of the PCMH.

In summary, the EMR is a promising tool for improving quality of care in primary care and other health care settings. The EMR can facilitate disease management both during and outside of office visits. The EMR can facilitate a team approach to care and can help patients become a more active part of their team. But it must be remembered that the EMR is just that—a tool. As with any tool, it must be used correctly to fulfill its potential. There are many pitfalls that can result in the EMR not being used to its full potential and therefore becoming just an expensive system for storing patient charts or a mechanism that adds regulatory burden but does little to improve quality. Careful planning and allowing adequate time for training and implementation can help to avoid these pitfalls. Financial incentives can help small and private offices to make this feasible and can therefore help to fulfill the promise of EMRs for improving quality of care.

Correspondence: Address correspondence to Dr Gill, Delaware Valley Outcomes Research, 17 Henderson Hill Road, Newark, DE 19711. 302-444-9363. Fax: 302-444-9364. gillj@dvoresearch.com.

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