

## Five Key Elements of an Electronic Health Record

By Mike Raymer

*While an EHR's return on investment can be measured in a variety of ways, the most successful implementations have five elements in common.*

The electronic health record's most successful early adopters have something in common. It's the realization that the technology itself plays only a small--albeit critical--role in improving the quality of care.

Since the 1999 Institute of Medicine report, *To Err is Human*, there's been a sharp increase in the number of health care organizations deploying EHRs. In fact, nearly two thirds of health care organizations expect to have a functional EHR in two years, up from only a small minority today, according to the 2005 HIMSS Leadership Survey. But organizations that focus on the technology and logistics of these massive implementations--without the in-depth clinician involvement needed to achieve new levels of quality care--won't see the ROI they were promised or promised to others.

In successful organizations, IT is an enabler. It supports comprehensive process and cultural change that will itself produce the majority of the benefits. The growing ranks of clinician informaticists are the most visible evidence of this paradigm shift, signaling the importance of clinician involvement both in designing the EHR and in promoting it throughout the organization.

Today, we see these changes in action at organizations such as Park Nicollet Health Services, St. Louis Park, Minn., and PeaceHealth, Bellevue, Wash., where clinicians are pivotal leaders of EHR initiatives, and technology is a catalyst to transform care across inpatient and outpatient environments with aggressive quality measurement tools in place.

### Key Elements

Guided by a commitment to improving both the quality and cost of care, successful EHR implementations share the following five key elements.

**Use technology to drive patient safety.** *To Err is Human* catapulted EHRs to the top of IT priority lists. Medical errors take a toll not only in human lives, but also on the health care system with \$17 billion a year in preventable errors, according to the IOM.

Implementing technology that enhances patient safety should be the primary reason for embarking on the EHR journey. Computerized physician order entry can eliminate the dangers of illegible handwriting and misplaced decimal points, and EHRs can alert clinicians to drug interactions or allergies that might

otherwise be overlooked. Bar code medication charting ensures that the right patient gets the right medication at the right time.

When technology is used to improve patient safety, effective measurement is essential before and after new technology goes live, and on an ongoing basis. Organizations that document reductions in preventable adverse drug events can use hard numbers to win over clinicians and strengthen board-level support for technology initiatives. Measurement is equally important for each of the following elements because it helps illustrate the true value of the technology investment.

**Drive clinician efficiency.** A major element of EHR design should be streamlining workflow for clinicians. If the EHR isn't easy to learn and doesn't deliver demonstrable benefits, clinicians simply won't use it. Involving nurses, physicians and pharmacists in designing screens and workflows is essential, as is enlisting clinician champions to educate their peers about the gains that can be achieved.

Online documentation, for example, can cut in half the time nurses spend on charting, as documented by a study at PeaceHealth, a large integrated delivery network in the Pacific Northwest. The result was an additional 1.5 hours per 12-hour shift that each nurse could spend on patient care. With the severe nursing shortage, saving time is crucial to care quality and nursing satisfaction.

**Integrate clinical, administrative and financial data.** Traditionally, many health care organizations have divided clinical information and billing systems between separate silos. When an organization integrates clinical, financial and administrative information within a single enterprisewide system, the costs of an EHR implementation can be recouped relatively quickly.

Integrated EHRs can help prevent three major sources of financial woe: missed charges, sluggish cash flow and inaccurate patient billing information. A clinically automated revenue cycle means that clinical events generate charges. Because every charge is captured, bills are more accurate. As a result, health care organizations can accelerate reimbursements from payers and reduce accounts receivable days, which benefits the bottom line. Finally, organizations can better capture patient billing information during registration, rather than having bills go astray later.

**Support evidence-based practice.** Some estimates say it takes more than a decade for new medical discoveries to be widely incorporated into clinical best practices. Quality of care can vary widely by region and even within a single health care organization, depending on how well each clinician keeps up with the latest research.

Clinical guidelines have been developed in an effort to create a more uniform level of care for specific conditions. But these guidelines exist primarily on paper,

in the form of complex flow charts that can run 40 pages or more, which makes them unwieldy for real-world use. Efforts are under way to incorporate these guidelines into an EHR that can apply them in a context-sensitive way (taking into account the patient's specific medical history) to suggest a recommended course of action for the clinician. Ideally, the electronic guideline format will be interoperable, allowing guidelines to be shared among organizations regardless of the underlying EHR system in use.

**Embrace the future: disease management.** To preserve its sustainability, our health care system will have to shift its emphasis to preventing illness and managing chronic disease, rather than responding primarily to acute episodes.

An EHR is essential to this effort. It provides both a comprehensive longitudinal view of a single patient's condition as well as the ability to analyze the health of entire communities. It can generate health management alerts, helping staff to work with patients to proactively manage chronic conditions, for example, by alerting them when diabetic patients are due for exams and follow-ups. The wealth of data housed in the EHR can also enable the organization to look for patterns within populations that suggest ways to improve treatment.

Another promising development is the use of EHRs to support pay-for-performance initiatives. The Centers for Medicare & Medicaid Services (CMS) are running a pilot program to reward systemwide improvements in health care quality; some local payers have similar initiatives and more are sure to follow. Providers that can document improved outcomes and efficiency will receive incentive bonuses above the standard Medicare reimbursement levels.

### **Preventive Care, Balance**

The outcomes that CMS is looking for, including improvements in the health status of patients with chronic illnesses such as diabetes or congestive heart failure, can primarily be achieved through more aggressive preventive care, which will help patients avoid costly emergency department visits and hospital admissions. This requires tracking patients at the *system* level, however, not by the care they received at an individual clinic or hospital. For example, Park Nicollet--one of 10 providers chosen to participate in the CMS pilot program--will use its cross-continuum EHR to track outcomes across inpatient and ambulatory visits and assess the actual value of the care provided. Paper records simply aren't up to the task.

Taken individually, no single one of these elements is sufficient to deliver the full promise of the EHR's potential. Each institution will need to find its own balance based on its unique position on the clinical IT trajectory. The organization must also build on a stable, reliable technology infrastructure that can grow along with the EHR while delivering consistent uptime and subsecond response time.

When implementing an EHR, the opportunities to improve every process along the health care continuum are limited only by a failure to coordinate with all the stakeholders. Attention to these five elements will enable health care organizations to meet the evolving challenges of 21st century health care by maintaining focus on the pursuit of clinical excellence.

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