Turning a Dream Into Reality: The Evolution of a Seamless Electronic Health Record

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by Geoffrey Dalander, MS, Sue Willner, RRA, and Sam Brasch

Imagine: It has been a productive day. Although it is only Wednesday, you have accomplished all the items on your weekly to-do list. All the hospital and SNF records are coded and analyzed. The discharges from this past Monday have been billed. Ongoing audits of the medical records are now complete for the quarter. The only physician complaining about the timely availability of a medical record was calling from a vacation in Alaska. Information requests are only two days out. And your organization announced a major breakthrough in the early detection of Alzheimer's disease.

Now wake up. This scenario is only a dream for most health information management departments. To make it a reality, healthcare providers will need to adopt a seamless electronic health record.

Background

During the past 10 years, growing competition for dwindling healthcare dollars has transformed a relatively disjointed US healthcare delivery structure into a series of integrated systems. Hospitals, physicians, payers, and other independent entities now seek each other out in their attempts to survive and prosper. The resulting integrated delivery systems (IDSs) have changed the manner in which the business of healthcare is conducted and the means by which provider organizations measure and achieve success.

The growing competition in the market has had a significant impact on the approach to quality in the healthcare industry. Prior to the recent transformation of the healthcare system, quality was not necessarily an organizational priority for industry leaders. Instead, quality issues usually were addressed on an individual basis by those on the front line. This has changed, however, as competition has flattened costs within markets and business leaders have realized that quality is a factor in their competition.

Measuring and improving the quality of care is now an imperative for both the individual healthcare provider and the healthcare organization. The push to improve quality throughout the healthcare system has been driven further by many of the technologies that have appeared during the information revolution. Healthcare leaders have jumped on many of these new technologies as possible means of achieving the quality improvements they now consider important to the success of their organizations. Included among the technologies adopted by the healthcare industry are a wide assortment of clinical and business systems meant to assist organizations in the collection, communication, and evaluation of patient and financial data.

The Electronic Health Record

One of the more notable new technologies developed to assist organizations in improving the quality of care is the electronic health record (EHR). More of a theoretical tool than a definitive piece of technology at this point, the EHR or seamless patient record has been characterized in a number of ways. Included in most definitions are the following features:

Ubiquitous Access

An electronic medical record should have the ability to be viewed by multiple users at multiple sites at any given time. Data must be integrated so that no gaps or overlaps exist.

Timely Access

An electronic medical record must be accessible at all points of service to be truly useful for patient care.

Individual and Population-based Access

All information, including clinical notes, must be coded so that they describe a population as well as an individual. This is critical for the development of best practice models and to allow for adjustments for case mix.

The Current State of Affairs

Currently, most integrated systems only capitalize on the opportunity to share information for improvements in their business operations. Recent studies have shown that more than half of IDSs have integrated information systems relating to managed care contracting and other business functions. However, fewer than 10 percent of healthcare systems or individual providers have invested the resources necessary to create significantly integrated clinical information systems that service the continuum of care.[1]

Despite this apparent resistance in the market to integrating clinical information systems, some progress is being made. A 1997 study reported that 71 percent of hospitals and integrated systems with more than 100 inpatient beds have begun to implement varying types of electronic patient records.[2] Some of the more common efforts include the creation of a master patient index within organizations, electronic access to lab and other test results, electronic lab, x-ray, and prescription ordering systems, automated patient check-in and entry of vital signs, completion of encounter notes, or electronic signature of dictated notes returned electronically.

Barriers to Success

With the atmosphere ripe for the development of a seamless EHR across the continuum of care, why are most organizations lagging in the implementation of the necessary technology? IDSs and other healthcare organizations still see overwhelming business, technical, or other barriers standing in their way.

Business Considerations

Even though a completed, functioning seamless EHR will ultimately be the most efficient way to support higher-quality patient care, its development will require a significant financial investment. IDS business stakeholders will require a compelling business case before authorizing EHR development funds.

The investments in a coordinated clinical information system can be substantial. Pacific Bell explored investing $2 billion in a Community Health Information Network (CHIN). [3] Kaiser Permanente investigated spending up to $1.2 billion to build a Caregiver Workstation that would provide all Permanente physicians with a complete medical record of their patients. [4] Both decisions were scaled back significantly within a few years once the extent of the cost and technical hurdles were further understood.

Classifying the costs, benefits, and risks of investing in information technology-enabled solutions is a difficult task. Despite positive forecasts, most technological investments fall short of their promise. The reality may be that IT processes often do not completely replace their paper predecessors, that users do not fully utilize the technology's capability, or that designers were overly optimistic about what they could deliver.

Most businesses will run a cost-benefit analysis to guide their investment decisions. Deciding what to include as a benefit requires some thought. Most businesses will include the "hard" measures, such as reductions in overall staff, lengths of stay, number of errors (with their associated costs), or paper and paper support mechanisms. They may also consider whether they want to include the "softer" benefits such as increased provider or consumer satisfaction, more "face" versus "paper" time, improved quality of life, and more elusive measures.

Finally, IDSs must decide how advanced the system they will develop or purchase should be. Pursuing the "state of the art" sounds like a nice idea, but may not always be the best business decision because it is difficult to predict which technologies will lead future markets. Many larger, more conservative organizations are waiting for technologies to prove themselves in the market before investing in them.

Technical Considerations

In addition to these business issues, significant technical considerations serve as barriers to the development and implementation of integrated clinical information systems in IDSs. The central consideration is that a truly portable record must be understandable to all users. This requires a common language which, despite much progress, has not yet been achieved.

There are two kinds of standards for an EHR: technical standards, such as Health Level 7 (HL-7) or the Internet protocol TCP-IP; and coding standards, such as ICD-9-CM or CPT. These "standards" have not settled down to the point where they are truly universal. For example, the diagnostic portion of ICD-9-CM will be replaced within the next three to five years in the United States with ICD-10-CM, a revision of the coding system that differs significantly from ICD-9. At the same time, the procedural portion of ICD-9-CM will be replaced by ICD-10-PCS, an entirely new and different coding system for procedures. It is expected that CPT will continue to be used for physician reimbursement while ICD-10-PCS will be implemented by HCFA for hospital patients. Until there is widespread agreement on a standardized healthcare "language," any efforts to develop an EHR will be hampered.

Clinical Practice Considerations

Though the above business and technical considerations are important barriers to the implementation of clinical information systems within IDSs, the human factor may present the most important concern. An EHR must provide easy, accurate methods of inputting patient care information into the system.

To date, no technology has adequately dealt with the input barrier. Visionaries point to the day when a palm-top electronic device "reads" a physician's handwriting or "transcribes" a physician's voice. Yet these technologies have not made much progress in the last decades. The problems engendered by indecipherable physician handwriting still haunt clinicians and health information management staff as they attempt to read a colleague's scrawl or abstract and code the medical record.

The mundane solution of having physicians type information into an exam room terminal is likely to fail because many clinicians lack the keyboarding skills to make this efficient. Pull-down menus that assist in writing progress notes are intriguing, but lack the speed necessary to make this the solution of choice. More transcriptionists or data entry personnel could quickly enter information, but this option is both expensive and error-prone.

Once the information has been entered, however, differing levels of data presentation detail will be required by the different users of the record: MDs, RNs, PAs, MSWs, LVNs, clerks, payers, and researchers. Each "view" of the data may require customization that most software to date has not been able to achieve. Additionally, information must be portable, so that it is available in the inpatient, outpatient, or home settings. Systems must maintain enough flexibility to quickly and effortlessly communicate appropriate information to each practitioner, regardless of the point of care. The Internet may play a role here, but this presents the thorny issue of confidentiality.

Other Requirements

Confidentiality, Security, and Privacy
Many healthcare consumers fear that their diagnosis and treatment information will be misused by unauthorized people who gain access to their records. Laws like the Health Insurance Portability and Accountability Act set security and confidentiality requirements, yet no acceptable solution has been developed. Continuing work is needed before many users will feel comfortable with EHR technology.

Regulatory Requirements All healthcare providers must comply with external standards. Hospitals, for example, are regulated by the Health Care Financing Administration and accredited by the Joint Commission, while health plans do their best to comply with National Committee for Quality Assurance accreditation and Health Plan Employer Data and Information Set standards. In practice though, these standards are subject to considerable interpretation in the way they may be implemented. Flexibility of interpretation will create difficulties in merging the information systems of organizations coming together to form an IDS.

Managing the Transition from Paper to EHR

With so many considerations, the seamless EHR will only be achieved by a slow migration marked by stops and starts along the way. Health information management (HIM) professionals can take a number of critical steps to help their organizations

through the conceptual and operational problems inherent in the transition to an EHR.

Identify and Integrate Crucial Relationships

HIM professionals develop an appreciation for the information needs and expectations of physicians, nurses, administrators, and other operational managers. As organizations come together to create an IDS, these needs are multiplied. It is important for HIM professionals to apply their understanding of the organization to proactively address key issues that could later hurt the organization and waste significant resources.

Many integrated EHR designers fail to consult with very important users. Front-line physicians must be actively involved in the development and implementation of the electronic medical record from inception to ongoing maintenance. Another important constituency is the medical/legal professionals who, along with HIM staff, have joint accountability for the legal and ethical security, confidentiality, and privacy concerns of healthcare consumers. HIM professionals must actively encourage these groups to participate in all phases of EHR development. Without their active cooperation and support, the transition from a paper to an automated record will fail.

Identify New Functions and Realistic Staffing Requirements During the Transition

The development of an integrated electronic patient record will result in a period of transition that will affect staffing requirements and fuction. The danger for HIM professionals is that management may want to cut operational budgets in optimistic anticipation of the efficiencies provided by an EHR. HIM professionals must help management understand this apparent inconsistency or be faced with the overwhelming prospect of having more work with less staff and no good automated support.

The prospect of having both paper and electronic records simultaneously creates the need to operationally address the following questions:

- What is the patient record? Is your record now officially a combination of the paper record and the electronic record? Will you be able to satisfy regulators with your decision?

- Will you need to duplicate information on paper that is available online? When will clinicians be willing to give up the safety of having a paper record in their hands and be content in accessing the electronic record only?

- How will patient information requests be handled? Will information release personnel have to go to both the paper and electronic to check which data is better?

- Should coders use both the paper and electronic information as a basis for coding an episode of care, or is it safer to continue to require that all documentation that is the basis for coding be available in the paper record?

These questions call for the development of new policies and procedures. This will be an ongoing challenge with increasing automation. For example, as soon as an organization feels a semblance of security with its new policies for exchange of patient information via e-mail, it is faced with the necessity of developing patient protection policies for the Internet and the intranet.

All of this points to an increased leadership role for HIM professionals. They must alert management to their own considerations and the considerations of their colleagues as early in the process as possible. In its daily role, the HIM staff is often the first to experience data quality problems as implementation begins. It is also often required to deal with problems as they emerge on the back end. HIM professionals can help paint a larger picture that includes the whole spectrum of information needs as organizations move toward EHR development in their IDS strategies.

Conclusion

Survival and success in the evolving healthcare market will inevitably require the development of a seamless EHR. Success will go to those organizations that correctly deal with the many challenges outlined above. Considerable energy, resources, and forethought will help increase the odds. But so will some risk-taking and some luck. The challenges are great, but so are the rewards: efficient, high-quality healthcare that continually improves the outcomes of healthcare consumers.

Notes

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