

Trustee

VIEWPOINT

Is the EMR Dead?

By Donald W. Rucker, M.D.

Converting to an electronic medical record (EMR) has been the health care system's collective goal for decades. Hundreds of EMRs have been developed during the last 30 years, but the likelihood of a patient having a largely electronic medical record in the near future remains slim. Adoption has been slow, and the physician time required to enter data is still daunting. And related technologies, such as voice recognition and natural language processing, always seem to be just over the horizon.

Is it time to rethink the EMR? Should we be making the paper chart electronic? Or should we be looking for a new paradigm in medical computing?

In hospitals today, the electronic medical record is, at heart, a storage system for data--storing each symptom, sign, result and assessment for the patient. Moreover, automation is seldom designed for the actual downstream use of these data.

Computerizing patient data has also been a massive effort, and, obviously, patients do not get better just because we have stored more of their data.

It makes more sense to put our energies into supporting health care tasks-- diagnosis, treatment, services--rather than on filling in data fields within the database. We should start thinking about the hundreds of steps involved in providing care and which are repetitive enough to be computerized.

This means letting go of the electronic medical record as our primary goal. Let us move from passive computing initiated by system users (e.g., looking at the chart) to more active computing in which the tasks the users subsequently perform after looking at the chart (e.g., the phone calls they make, the pages they place, or the orders they write) are fully or partially automated.

We are beginning to see this shift with computerized physician order entry (CPOE). Often, the physician's orders are the starting point for an episode of care. By moving from handwritten orders to electronic entry, we facilitate sending those orders directly to the nursing station or to the computers used by the laboratory technician, the pharmacist and the radiologist. Human handoffs on paper or by phone are reduced or eliminated. Although CPOE has been justifiably heralded as a great advance, it only supports a limited number of the many tasks that hospital clinicians and staff perform daily. What about all the complex work flows set in motion by the physician order?

We can define complex work flows as sets of interrelated tasks with subtasks that do not necessarily occur in the type of predictable, linear sequencing that lends itself to programming. Complex work flows often fail at critical points, requiring human rework and further scheduling and sequencing. But more importantly, complex work flows with many interdependencies are not unique to health care.

For example, compare the steps necessary to prepare a patient for elective surgery with the steps necessary for a bank to provide a home mortgage. The former involves obtaining signed consents, performing preoperative lab work, scheduling the operating room and obtaining insurance approval. The latter includes obtaining the property appraisal, verifying the borrower's employment, confirming the borrower's resources, and getting the necessary signatures. Both involve complex work flows with multiple paper forms. Both have many potential sources of delay or even outright error. However, over the

last decade, the time needed for customers to obtain a routine mortgage has shrunk from weeks to days, while the effort needed to arrange elective surgery has scarcely changed.

What has the mortgage industry done differently? It has realized that complex work flows can actually be accomplished through the use of the right software. This type of software is called a work-flow engine and is used to simplify work flows in activities as varied as tabulating the U.S. Census and manufacturing a computer chip. You can think of the work-flow engine as a way to automate a flow chart.

While the EMR may not be dead, we now have the chance to think differently about what computing can do for health care. We can computerize not only what we document, but also what we do. We should take the tools that other industries have developed to automate work flows and apply them to the labor-intensive world of the medical center. By understanding this potential, hospital boards have the opportunity to ensure that when they purchase major information systems, they are providing an engine to fundamentally redesign their hospital's processes rather than just documenting them electronically.

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