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# The Electronic Medical Record: A Means to an End

by Joseph K. Jachinowski

**E**verywhere you turn today health care providers are talking about going paperless. Why the sudden interest in an electronic medical record? As with most inventions, it was born out of necessity.

Consider the challenges facing oncology care providers. Whether threatened by health care reform, the onset of managed care, or decreasing reimbursements, providers are experiencing increased pressure to reduce costs. At the same time, they are being asked to better document all aspects of patient care, accurately measure utilization, track treatment effectiveness via outcomes, and refine practice guidelines based on cost/outcome information, often across multiple modalities.

Moreover, providers must accomplish these feats while still maintaining quality of care, sustaining or improving profitability, and holding or gaining market share.

How can providers meet such varied challenges? Only through wide-area communication, improved documentation and reporting, and increased efficiency—not via a traditional paper medical chart. Consider the following shortcomings of the paper chart:

- It physically impedes a center's ability to communicate effectively, especially across departments. There is simply no way for the paper chart to be in two places at once.

- It is infinitely *not* accessible. A

stack of paper charts cannot be efficiently queried to access information.

- It is inherently inefficient. Staff members waste time chasing a chart, film jacket, or schedule.

In fact, in 1991 the Institute of Medicine established a committee to examine how the traditional patient record should be improved in response to increasing functional requirements and technological advances in the field of medicine. In its subsequent report, *The Computerized Patient Record: An Essential Technology for Health Care*, the committee stated that: "...the components of needed reform in health care that require evaluation, consolidation of data, and improved communication will not easily be achieved without reforms in the scope, use, and automation of the patient record."

Yet, an automated, electronic medical record is merely a means to an end—not an end in itself—that helps providers observe, control, and optimize the way they deliver patient care. Therefore, when purchasing or implementing an electronic medical record, providers should beware of technology for technology's sake. Providers must keep focused on why they have decided to computerize and what they hope to achieve by computerization, and then implement a system accordingly.

If a cancer center's goal is to improve documentation and reporting, and also increase efficiency, productivity, and communications, it must implement an electronic medical record capable of compiling data on-line as part of its routine operations. By accumulating data on-line, information becomes immediately available for querying, analysis, and discovery.

## INTEGRATING INFORMATION ACROSS DEPARTMENTS

Currently there are numerous commercial software applications available that will help automate one or more of a center's routine operations, such as scheduling, billing, treatment planning, and dictation. In addition, numerous applications can be run on the same network. However, separate applications running on the same platform do not constitute integration and therefore do not render the productivity and quality assurance benefits that are best achieved through comprehensive systems integration.

Integrated systems use a common user interface (i.e., the same look and feel throughout), provide seamless movement between system features (i.e., you don't have to shut down one system to bring up another), and share a single patient database (i.e., you don't have to re-enter patient data when moving to a different application). In an integrated environment, the receptionist can correct the spelling of a patient name and have it instantly corrected on the patient's electronic chart. The nurse can assess a patient for a specific disease type, then review a subset of that same data on the flowsheet displayed during treatment. Any staff member can perform any activity and have it immediately available for billing or cost analysis. If communication is not instantaneous, if documentation is not automatic, if information is not timely, accurate, and accessible across programs, then the system is not truly integrated and has not achieved the benefits of an automated patient record.

Integrating department management functions—registration, scheduling, billing, radiation and

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medical oncology charting, transcriptions, and billing—is the first step toward a paperless environment. But what about information—data or images—sent from or to an oncology center?

If its goal is to be paperless, a cancer center should have the capability of sending information electronically—if the recipient can receive it electronically. Likewise, a center should be able to receive information electronically—if it is sent in a format the system can understand. Because not every system speaks the same language, an interface is used to translate the information into a language both systems can understand—a sort of “software Esperanto.”

One such “language” is Health Level Seven (HL7), a computer application protocol for electronic data exchange in health care environments. Level seven refers to the highest level of the International Standards Organization’s communication model for exchanging data. HL7 has emerged as today’s standard health care data format because protocols are completely independent of any manufacturer. As long as an electronic medical record is equipped with an HL7 interface, a center will be capable of communicating electronically with any outside system that is also HL7 compliant to exchange orders and results, ADT information, and billing data.

Similarly, Digital Imaging and Communications in Medicine (DICOM) protocols have emerged as today’s standard health care image message format, again because these protocols are completely independent of any one manufacturer. As long as an electronic medical record is DICOM-compliant, a center will be capable

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of receiving DICOM-formatted images (CTs, MRIs, and electronic portal images) from multiple sources and departments. Proprietary or nonstandard systems limit the value of the electronic medical record by shutting it off from outside systems and confining its use to a single department or functional area. Compliance with standard interfacing protocols provides a level of open systems integration that further optimizes the electronic medical record and makes possible the enterprise-wide communications a cancer program needs to meet its goals.

While the HL7 and DICOM

standards govern how information is communicated electronically, other standards such as ICD-9, SEER, ROADS, and CPT govern how critical information is communicated directly to the health care professional. Therefore, the electronic medical record must comply with these standards and facilitate their use. It is also important that they can be quickly and easily modified to accommodate changes to coding structures or regional requirements. An electronic record that is inconsistent with established standards will only encumber a center’s ability to participate in the future health care environment. That environment is characterized by the ability to report data across multiple centers and multiple databases in multiple geographic locations, and the ability for multiple physicians to consult on a single case while viewing the patient’s electronic chart complete with up-to-the-minute data and images. The first steps toward achieving this advanced health care communication and cooperation begin with the implementation of an electronic medical record that is consistently justified by the *end*.

The *means* is the electronic medical record—a tool that lets a cancer center compile data on-line as part of its routine operation, integrate and automate all the center’s internal management functions, and communicate effectively with outside health care data and image systems via industry standard protocols. The *end* is enterprise-wide communications, improved documentation and reporting, increased efficiency, higher quality, and bottom-line contributions required in today’s health care environment. ■

## Tips on Selecting an Oncology Information System

by Richard M. Levy, Ph.D., and Julie Norris

Today's oncology professionals are expected to coordinate a wide variety of oncology department functions to provide comprehensive care to cancer patients across a continuum that includes diagnosis, treatment, survivorship, and home or hospice care. At the same time they are responsible for measuring outcomes and monitoring patient satisfaction, all part of an effort to position themselves for the demands of managed care.

To unify fragmented department functions, many cancer programs are investing in information systems. Matching the right information system to an oncology department can result in a powerful system that improves treatment precision and accuracy, while streamlining the process to keep costs in check.

When searching for a computer system for an oncology department, managers should follow these guidelines:

■ *Unify not fragment.* The system must unify every aspect of oncology care, both clinical and administrative functions, and be easy to use, even for the "computer phobic."

■ *Improve processes.* The system

must do more than simply automate current department processes—it should help identify and provide a solution for making departmental processes more efficient.

■ *Manage revenue and costs.* The system must capture both revenue and costs to give oncology managers a true representation of the financial well-being of their departments.

■ *Integrate clinical and financial information.* The system must directly tie clinical outcomes to financial information. This link will provide oncology managers with information to control departmental costs while maintaining or improving standards of care.

■ *Eliminate redundant and non-value-added activities.* The system must automate routine tasks so that all oncology professionals in the department can spend more time with patients and perfect their treatment methods.

■ *Improve communication.* The system must improve communication among medical, surgical, and radiation oncologists to support multimodality treatments.

Before any oncology information system is selected, clinical staff, including physicians and nurses, must be willing to accept it and agree that the system fits department needs.

After selection comes the challenging task of software imple-

mentation. Inevitably, the implementation of an information system will force cultural change.

System implementation must be well planned and executed if the new changes are to be embraced by all department members. Establishing standards and guidelines that define how data are collected, used, monitored, and controlled will help managers implement the new information system and provide a means of identifying how the system may evolve. The rapid evolution of technology requires the long-term support from your information system provider in the form of software service and upgrade contracts, consulting services, and advanced training courses.

By following these tips, a department can arrive at a unified solution that actually reduces treatment costs and at the same time improves standards of care. Information will flow smoothly from registration and treatment planning to treatment delivery and oncology management. An invaluable data warehouse of clinical and financial information will be built. With this information, your oncology department can increase patient satisfaction by improving standards of care, retain valuable oncology professionals by providing them with an innovative work environment, and accurately manage your financial success. ■

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