Selecting an Electronic Health Record System

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How did you select your electronic health record?

At The University of Texas M.D. Anderson Cancer (Houston, Texas), with its very high patient volumes and commitment to research-based treatments and education, we were not able to identify an “off the shelf” electronic health record (EHR) system that would scale up and

suit the needs of the patients, staff, and institution. In 2003, the decision was made to build on the foundation of a home-grown system called Clinic Station developed initially by the Diagnostic Imaging Division under the leadership of Dr Kevin McEnery and Charles Sutor. Today, this fully integrated image and clinical data environment has made us virtually both filmless and paperless.

There are a number of commercial systems available professing to serve the needs of oncology practitioners and cancer centers. However, most of these are designed for a broader base of practitioners rather than any special requirements of an oncology practice.

What functional elements do you consider to be important?

Basic requirements for an EHR should include the following:

- Current medications
- Diagnostic imaging and reports
- Discharge summaries
- Flowsheets (special requirements of an oncology practice that may not be accommodated in a more broadly based electronic medical record)
- History and physical examination information
- Individual health care providers
- Interactive patient information
- Laboratory data
- Pathology information
- Progress notes and dictations
- Scheduled appointments and tests

Many broad-based EHR systems may not accommodate the special requirements of an oncology practice. Functional elements that are important in an oncology EHR include:

- Chemotherapy ordering and administration
- Radiation oncology information
- Research protocol information
- Tumor registry information

The clinical research needs of an oncology practice or cancer center present additional requirements. Here is a sample of the items needed to support clinical or translational research:

- Adverse event reporting
- Current Procedural Terminology codes
- Defined data dictionary
- Genomic and proteomic investigations
- National Cancer Institute common data elements
- Treatment outcomes
- Patterns of failure and cause of death
- Protocol management information
- Quality of life instruments
- Tissue banking

What went right and what went wrong with the process?

We were able to harness the creativity and experience of our information services department as well as talented members of the faculty, to put together an in-house team that meets frequently and has been able to create an inside-out solution for our clinical and research needs. It took several years to recognize we would be better off developing our own system rather than using outstanding commercial consultants and programs that simply did not fit into the overall enterprise. This process was iterative and expensive, but information technology is so vital to the future of oncology that the research and development cost was well worthwhile.

What advice would you give others in terms of implementation issues?

For each individual, group practice, or institution, we believe it is most important to think about the mission and strengths of the institution and the physician culture, and to carefully assess the patient population, types of clinical care, and research to be supported by the EHR. We would advise people to spend adequate time getting familiar with the input characteristics of the system because the output of any computer is critically dependent on the quality of the input.

Determine whether the system will include dictation, keyboard entry, voice recognition, point and click, or some other modality. Take plenty of time considering the uses of the EHR that will best suit your practice needs. Anticipate the need for back-up and recovery capabilities, but recognize that no system is likely to meet all of your requirements and expectations.

Do you have any sense of your return on investment yet and how do you plan on measuring it?

Documenting a true return on investment for information technology investments can be difficult to measure, especially in the early stages of EHR adoption. There is bound to be an

initial startup cost and learning curve. Using an EHR may actually slow down a busy practitioner early on. However, with time the dividends should be dramatic and the benefits to the patients of having their medical data available as needed can never be ignored.

Nevertheless, virtually everywhere we go in our society we see the computer as integral to quality and accuracy, whether it be accounting for inventory, paying bills online, documenting purchases in person or over the Internet, ordering food at a restaurant, self-checkout at the supermarket, tracking delivery of goods or services, or supporting hotels and rental car companies. There is little doubt a modern EHR will produce great dividends over time and complement many other technical advances in oncology practice.

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Disclaimer: The authors are not recommending any particular type of software service.

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The new Web site (<http://jop.ascopubs.org>) will continue to house *JOP* articles back to Volume 1, Issue 1 (May 2005), but will now allow readers to take advantage of robust online functionality:

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