Oncology EMR Systems: Prescription for Quality Care

By Nancy Heifferon

What technology is likely to have a profound impact on the future of cancer treatment? While an innovation in diagnostic imaging or a breakthrough in personalized medicine might make headlines, out-of-the-spotlight electronic medical record (EMR) systems are beginning to show the power and potential to make a significant difference in the quality of cancer care.

For their perspectives on the value of EMR systems in oncology, *Centerline* spoke with a multilocation medical oncology practice in Gaston, North Carolina; a comprehensive treatment center with several clinics in Fort Worth, Texas; a medical oncology department in a major London teaching hospital; and a province-wide cancer care provider in Alberta, Canada.

All have chosen an EMR system that is specific to oncology over general purpose systems because of the unique nature of the oncology practice. No other specialty is like oncology for the complexity of the disease, the multidisciplinary treatment, the high toxicity of the medications, and the unrealistic reimbursement schemes. An oncology-specific EMR system addresses these challenges by providing guideline-driven care, workflow management, and decision support as well as incorporating everyday clinical operations such as charge capture and billing, scanning, faxing, dictation, lab work, clinical trials, and communication with external healthcare providers.

Supporting the best decisions

An oncology-specific EMR enhances the quality of patient care in ways that a generic system cannot.

When the Center for Cancer and Blood Disorders in Fort Worth, Texas, first went digital eight years ago, they wanted more than an online viewable chart; they wanted decision support. Generic EMR systems just aren't a good fit for oncology, says William Jordan, MD, president. While they can capture the typical historical and physical findings that all clinicians use, they can't manage chemotherapy regimens with sophisticated dose calculations, capture and measure toxicities, or manage clinical trial programs—all essential capabilities for oncology practices. "We were determined to use an oncology-specific health record because oncology is not like other specialties," says Jordan. "We developed our EMR program to be able to query into what we do. We know there is an ocean of information in patient charts that can help us understand what we do, how we do it, and the outcomes, and to change our behavior to increase the quality of care."

Decision support was also vital to St. Bartholomew's Hospital in London. "We face increasingly complex demands for information about who we are treating and with what," says Chris Gallagher, MD, clinical director of St. Bartholomew's Cancer Centre. "This is the sort of data that only an oncology-specific system can provide. The system will help us review up-to-the-minute data on response and toxicity to better tailor treatment to each patient's particular requirements."

The Cancer Board of Alberta, Canada, operates regional and community clinics, but its larger mission is to coordinate all cancer research, prevention, and treatment programs in the province of Alberta. "Our mandate is to provide the highest standard of cancer control to a province of three million people, in which we see 13,000 new cases of cancer per year," explains Heather Bryant, MD, PhD, chief information officer for the Alberta Cancer Board. The board is in the process of implementing the MedOncology™ EMR from Varian province-wide. All of the board's 17 facilities access the EMR by virtual private networks. "Outcome analysis is part of what we do," says Bryant. "We see the potential of using the information captured to manage the care process better. We are building a rich database describing our experience, which we could not do before."

While every healthcare provider believes it is delivering the best care, the right EMR gives oncology practices the means to prove it. "We are able to share data with our payers relative to clinical patient outcome in ways they have never seen before," says Jordan of the Center for Cancer and Blood Disorders in Texas. "For example, we prescribe white and red cell growth factors at a higher rate than some other clinics in our area, and we are keeping people out of the hospital. This is not our subjective opinion; we can demonstrate better outcomes because of the EMR."

Managing the care process

Oncology-specific EMR systems enhance the quality of patient care by helping practices to manage the care process more efficiently. From the moment patients arrive to the moment they check out, every step of their journey is captured electronically by the EMR.

"The EMR forces a practice to take a new look at patient flow," says Scott Gilomen, the practice administrator of Gaston Hematology and Oncology in Gastonia, North Carolina. Gaston is a six-physician treatment center with three locations that specializes in medical oncology. "We can pull a report from the system detailing step-by-step how the patient moved through our office, and the variance in minutes between the expected and actual arrival times at each stage. We use this information to determine where the bottlenecks are in our office flow and streamline our services."

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> *—Chris Gallagher, MD, St. Bartholomew's Cancer Centre, London*

Gilomen thinks the audit trail provided by the EMR is the most valuable tool available for clinical management. Every entry made in the EMR is tagged with the date and user identity. "Our practice uses the audit tool to help with training personnel," Gilomen says. "It is very easy to see who needs additional training."

In addition to improving the quality of the patient experience, Gaston's EMR system is saving the practice US $100,000 a year, almost half from reduced transcription costs alone. At this rate, Gilomen expects the system to pay for itself in three years.

Ensuring patient safety

While cost savings are undeniably important, the real bottom line is improved patient safety. Cytostatic drugs are so powerful that even small errors can have profound consequences. A 2003 study found some kind of error in 22 percent of the prescriptions examined.[1] In two percent of the cases, the error was serious. St. Bartholomew's Hospital implemented VARiS® MedOncology, Varian's oncology-specific EMR, in large part to reduce the risk of human error when prescribing chemotherapy. The EMR provides a customizable library of regimens to choose from—including clinical-trial protocols. It also calculates doses and checks contraindications automatically. "[MedOncology] has been shown in various studies to significantly reduce the incidence of human error in the prescribing process," says St. Bartholomew's Gallagher.

Integrating information

The EMR enhances patient safety in another way as well—through the integration of information. "The modern treatment of cancer is organized through multidisciplinary teams and not separate departments, so that integration of information and improvement of communication between departments is of greatest importance in ensuring safe and optimally effective treatment," says Gallagher. Integration of the MedOncology system with existing hospital networks gives the hospital a fully integrated oncology department.

The Alberta Cancer Board is working toward integrated care throughout the entire province. "We definitely see the benefit of being able to exchange information across healthcare access points across the province, so that information captured at one point of care can be made available to other points of care," says chief information officer Bryant.

Providing comprehensive care is the mission of the Center for Cancer and Blood Disorders, and its EMR, VARiS MedOncology, is central to achieving it, says Jordan, the center's president. "The center is founded on the belief that a comprehensive community cancer center, where there is an integration of services, enhances the quality of patient care." At the center, the Radiation Oncology, Surgical Oncology, and Medical Oncology departments all use the EMR system for their clinical records. "When radiation oncologists input their clinical data into the MedOncology record," concludes Jordan, "it provides us with excellent communications across the board for patient care. The EMR is the core of our integration of multidisciplinary systems."

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1. Aguirrezabal et al. 2003. "Detecting errors in chemotherapy prescriptions." *Farm Hosp.* 27(4):219–223.