

# “Hybrid” EMR Systems

*Another option for hospital-based cancer programs*

Cape Cod Healthcare Cancer Services, which encompasses three outpatient departments in two hospitals, has been wrestling with information technology (IT) challenges for more than five years. During this time, staff have implemented some creative solutions, including partial adoption of an electronic medical record (EMR). While the IT journey will continue well into 2006, here is an overview of the planning process, progress, and challenges the hospital-based cancer program faced during EMR development and implementation.

For Cape Cod Healthcare Cancer Services, EMR implementation began in an effort to solve some very real problems: illegible flow sheets, incomplete nursing documentation, inconsistent chemotherapy ordering practices, and transcription errors. Our search first led us to examine various vendors that offered stand-alone, off-the-shelf EMR systems or packages. Based on the cost and the difficulty of integrating an off-the-shelf EMR system with our existing hospital information system, we ultimately chose to design a hybrid version. Basically, our “hybrid” EMR involved three parts:

1. Putting together flowsheet software from a niche software vendor
2. Creating semi-automated medication order forms
3. Using and refining special features already in our hospital’s core information system.

In retrospect, the time and manpower spent on this “hybrid” EMR came close to the cost of an off-the-shelf purchase. On the positive side, we’ve been able to create a unique oncology EMR system that is seamlessly integrated with our hospital’s information system.

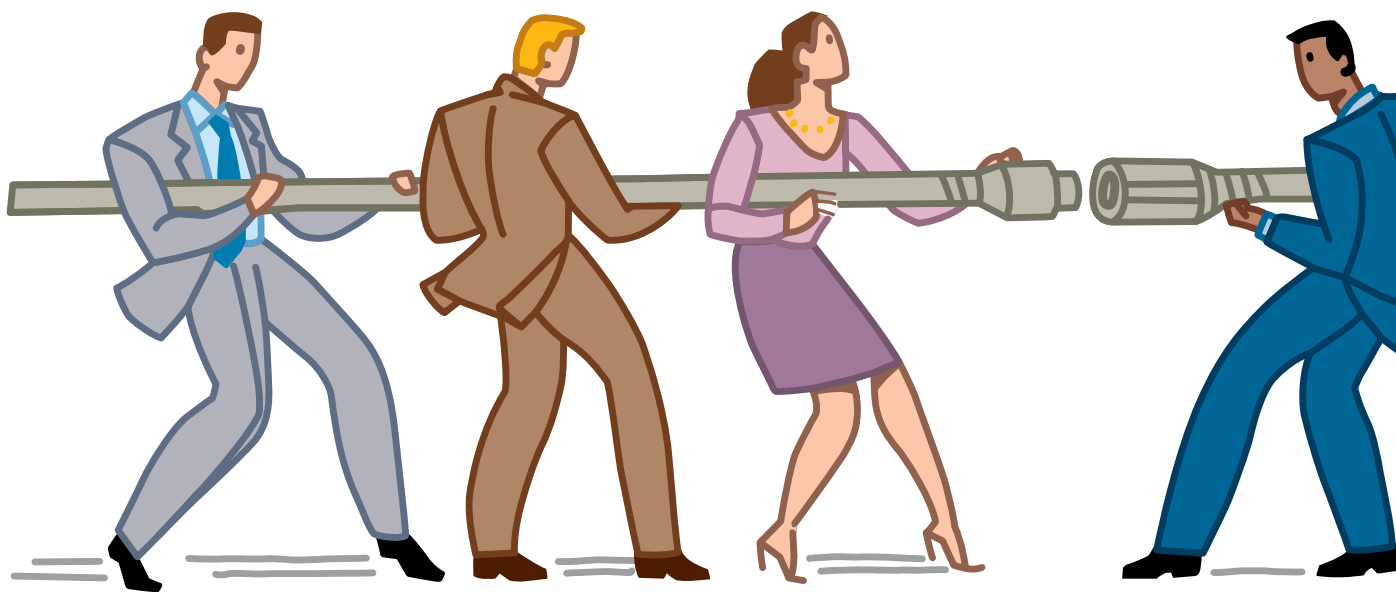
## *Growing an EMR System*

At the start of our journey, Cape Cod Healthcare Cancer Services assembled an IT project team consisting of the nurse manager and the administrative director of the cancer program, several individuals from the hospital’s IT staff; an outside IT/EMR consultant; and a physician, pharmacy, nurse, and administrative representative. The IT project team outlined our EMR goals, which included:

- Creation of a computerized flow sheet
- Standardization of nursing documentation and chemotherapy orders
- Electronic access to patient records
- Development of a medication administration record and a computerized physician order entry (CPOE) system.

Over a three-year period, the IT project team was kept quite busy working toward these goals.

First on the list: building and refining a *computerized flow sheet* that downloads patient information, such as labs, directly from the hospital information system. The flow sheet also collects information about medication administration, nursing assessments, vital signs, and allergies, among other items. Once the computerized



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nursing assessment was adopted, *consistent nursing documentation* was realized across the cancer center's three outpatient departments. Consistent nursing assessment improved the flow of information when patients move from medical to radiation oncology and back.

The IT project team simultaneously focused on *standardizing chemotherapy orders*. In a major accomplishment, the IT project team obtained consensus among six physicians (no easy feat) and created 52 standardized chemotherapy order sets. At the present time, these orders are only available as Word documents. These Word documents are merged with patient identifiers to create a neat, legible, paper document. The IT project team anticipates moving these standardized chemotherapy orders online when the cancer center moves to computerized physician order entry (CPOE).

The next phase of the IT project takes the team to a new level—*electronic patient records* and *computerized physician order entry*. The team itself evolved to include higher level managerial and technical IT support from the hospital, senior development staff from the vendor of the hospital's computer information system, a practicing physician, and designated "super-users" in each discipline. We also added a dedicated oncology staff position to the IT project—a 0.5 FTE facilitator from within the oncology department.

For the past year, the IT project team has worked with the vendor of the hospital's core information system to develop an oncology module with the ability to integrate with the hospital's existing systems. Cape Cod Healthcare

Cancer Services was designated as an alpha/beta test site, and the IT project team was closely involved in "building" this unique oncology information management system. Bottom line: the system had to meet the needs of its three outpatient departments and work within the context of the hospital's existing information system.

The final product goes live this winter and includes:

- CPOE
- An electronic medication administration record (eMAR)
- Automated billing
- Chemotherapy cycle tracking (including lifetime dosing)
- Decision supports
- Clinical pathways
- Electronic reference, system alerts, and sign-offs
- Tumor registry
- The ability to electronically generate prescriptions and patient education materials.

Prior to final implementation, the IT project team continues to move the IT initiative forward. Most recently, the team evaluated and selected a vendor for wireless computers on wheels (or COWs). The plan is to use the COWs for documentation in the treatment room.

### *Look Forward—Not Back*

For the IT project team, anticipation and anxiety is high as we begin testing of the EMR software. We anticipate spending a significant amount of time working and refining the infrastructure of the new system. For example, our pharmacy department has been heavily involved in creating the drug dictionaries. We are also carving out time for IT project team members and super-users to learn the new software and offer constructive feedback.

Allocating time for this extensive IT project in a busy clinical setting has required commitment, as well as a belief that the investment will pay off in greater patient safety, and improved efficiency and staff satisfaction. Fortunately for Cape Cod Healthcare Cancer Services, senior administration, hospital IT staff, and our software vendors and consultants have been committed to the project across the board. The IT project team has come to understand and appreciate the intricacies and special requirements involved in managing oncology information electronically. Further, we have come to trust that our journey of the past several years will stand us in good stead as we fully implement the EMR system into our cancer program. ■

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