Hamilton Health Sciences EHR Case Study
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Bridging from Paper Charts to an EHR at Hamilton Health Sciences

By Myrna Francis Ph.D

ABSTRACT
Hamilton Health Sciences (HHS) implemented a centralized document management system so that all patient records are now scanned and stored as electronic documents accessible online anytime, anywhere by authorized staff. In addition to solving administrative and clinical problems created by the hospital's growing mountain of paper patient records, the new system is facilitating the hospital's transition to a full Electronic Health Record (EHR). In addition to helping HHS optimize its forms environment, and giving clinicians a taste of personal productivity benefits yet to come, the system is part of a solid technology platform being built to support the coming EHR.

Hamilton Health Sciences (HHS) operates five hospitals and a cancer centre that serve the 468,000 citizens of the city of Hamilton and the more than two million residents of Central-South Ontario. HHS is one of Canada's largest teaching hospitals, and its 10,000 staff, physicians and volunteers provide a comprehensive range of acute, non-acute and specialized services, catering to healthcare needs from preconception through to aging adults.

SITUATION

While the implementation of a single, centralized MEDITECH hospital information system (HIS) has done much to start HHS down the path toward online patient information management, the bulk of patient records at HHS is still being generated in paper form, as it as at many hospitals. In fact, the hospital generates 10 million pages of patient records per year, and the number continues to climb. In response to significant administrative and clinical problems that this growing mountain of patient records was causing, HHS decided to implement an electronic document management system.

The Sovera Health Information Management Solution from CGI was chosen to provide a single, consolidated medical records platform and a single, consistent set of patient record indexing for the online storage and retrieval of patient health records across all HHS facilities. All new patient records created are now scanned and stored as electronic documents accessible online by authorized staff. These online records complement the patient information already stored in the HIS database and constitute the long-term legal health record for each patient, eliminating any further need to store paper records.

BRIDGING TO EHR

Beyond the many immediate administrative and clinical benefits that come from having anywhere, anytime access to online patient records, the new document management system is an effective stepping stone for the hospital's transition to a full Electronic Health Record (EHR).

"With Sovera, electronic patient records are now accessible by our physicians through the same Clinician Portal they use to access other clinical information such as lab test results and PACS images," says Mark Farrow, Director of Information & Communications Technologies at Hamilton Health Sciences.

Although the portal represents a big step towards achieving the 'output' goals associated with an EHR – viewing electronic patient records online – HHS has not yet tackled the 'input' side of the EHR equation to any great extent. A big part of this is the direct electronic entry of patient-related data by clinicians – nurses keyboarding progress notes or physicians entering drug orders online, to cite common examples. However, the new Sovera document management system is giving HHS an early opportunity to address a number of challenges they will face in making this transition to online clinician data entry.

"For example, the new model of scanning all our paper records is letting us take stock of a number of forms-related issues we will face in moving to a full EHR," says Mary Bedek, Manager of Health Records and the Chief Privacy Officer at Hamilton Health Sciences.

Taking Stock of the Forms Challenge

Through the scanning process, which is done by a third-party service provider at a special offsite scanning centre, HHS has discovered that nearly 2,000 different forms are in use throughout its hospitals – they thought there were only 700. As a result, they have begun the process of standardizing on fewer forms; and any home-grown 'rogue' forms received by the scanning centre – they've encountered 1,000 different ones so far – are sent back to the author, who must re-write the information using the proper forms. This standardization will mean that fewer input templates and online forms will need to be developed to support a transition to an EHR.

The new document scanning process has brought other forms issues to light, including the need to rethink the size and shape of the hospital's forms to facilitate the transition to online data input templates used for an EHR; and the need to emphasize 'searchability' when designing records for an EHR to compensate for the loss of coloured forms that have traditionally made it easier for clinicians to find specific information in a paper-based patient record.

"This interim scanning step is also enabling us to quantify the actual usage of our various forms," says Bedek, who goes on to say that this knowledge will be useful in helping HHS prioritize its investments in electronic clinician data entry and collection systems. "It makes better sense for us to invest in a nursing system that automates the data entry

for the millions of progress notes that are done every year, rather than investing in a system to automate data collection in an area where there's far less usage."

Helping Physicians Climb the Comfort Curve

The use of computer workstations by clinicians is another example of how HHS's new Sovera document management system – which requires users to have at least basic keyboarding and 'mousing' skills – is helping it prepare for the emerging EHR world.

"We didn't realize just how many clinicians didn't have these skills, so rolling out the new document management system was challenging for our users," says Bedek. "In the past, many of our physicians have been assisted with patient information retrieval, so they typically haven't needed these skills until now," she explains.

The online patient records project provided a strong incentive for clinicians to acquire these skills and build greater comfort level with computers; and as a result, there was a higher adoption rate and a much smoother transition when the hospital subsequently installed a PACS system that required the same skills.

A Taste of Benefits to Come

The new document management system is also serving as a useful reference point for physicians in giving them an initial taste of personal productivity benefits they will be able to reap from the various electronic systems that will ultimately enable an EHR. With Sovera, HHS physicians no longer need to travel from site to site to complete patient documentation, for example. Now they can access the records from anywhere – including from the comfort of their own office or home – to view the entire chart online in order to dictate necessary reports or apply their electronic signatures to assigned deficiencies.

The benefit of this really hit home for physicians at HHS when the hospital embarked on a two-month blitz program to reduce the number of incomplete patient records in preparation for an accreditation audit. One physician working with paper records was able to complete and signoff on 120 patient charts in an eight-hour span. The next day, that same physician, working with electronic patient records online, completed well over 200 records in just one hour. All told, the hospital was able to reduce the number of incomplete records from over 35,000 to just 5,000.

"This was a big step forward for physicians to start saying that while it wasn't always totally clear to them how the system could help patients, they could definitely see that it was helping them save time and be more efficient," says Mark Farrow.

Some physicians are being very creative in how they're using the new system. By combining the use of Dragon NaturallySpeaking voice recognition software with Sovera, the physicians are able to simply dictate directly into the electronic patient records instead of using a keyboard to enter consult notes and other information that may be required to resolve chart deficiencies.

"I think that part of what it will take for the successful adoption of the EHR, especially in larger facilities, will be to offer clinicians and other users a variety of ways to interact with it, including styles of input such as this," predicts Bedek.

Getting the IT Infrastructure Ready

Putting patient records online required the IT organization at HHS to deal with a number of technology issues that need to be addressed in laying the proper foundation for the broader EHR implementation yet to come. For example, in order for these records to be considered 'legal' health records, HHS needed to ensure that they are securely stored, unalterable and easily auditable. The Sovera system provides these capabilities – all online records are stored using WORM (Write Once, Read Many) technology, for example, making them unalterable.

"This level of protection and auditability was never in place for our paper charts, so this project has actually raised the quality level of our patient records environment," claims Farrow.

In conjunction with the implementation of the document management system, the hospital has enhanced its overall IT infrastructure and system management processes to ensure that system uptime is better than ever – 99.999% uptime in fact.

"As more aspects of patient records go online, and as more clinicians come to depend on having 24x7 access to those records, it becomes even more critical that we keep the hospital's systems up and running smoothly," says Farrow, who concludes by adding that, "For a large organization such as ours, the document management project has proven to be an effective middle ground that will help make our transition from paper to the online data entry and document viewing associated with EHR a simpler proposition."

About the Author

Myrna Francis, Ph.D is the Vice-President of Global Marketing for the health industry at CGI, one of the world's largest independent information technology and business process services firms. Ms Francis leads the development of CGI's healthcare business strategy and its approach to supporting the IT and eHealth needs of government health departments and healthcare providers.