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CASE STUDY

Saint Michael's Medical Center Saves Big With eForms

By converting printed medical forms to eForms, Saint Michael's Medical Center streamlined admissions, improved record keeping efficiency, and reduced print-related costs, saving more than $345,000 annually.

To operate, hospitals require many physical objects – beds, medical instruments, medications and equipment, among others. One type of object perhaps not as often associated with hospitals, but vital to their operation nonetheless, has been paper. Lots of paper. Hospitals such as Saint Michael's Medical Center generate mountains of paper, or at least they have, until recently.

Saint Michael's is a 357-bed hospital in the heart of Newark, New Jersey. Opened in 1867 by the Franciscan Sisters of the Poor, the hospital has been at its current site since 1871.

A beloved Newark institution, it provides tertiary care, while functioning as a teaching hospital and research center. Known as an innovator, it was the first medical institution in New Jersey to perform open-heart surgery and the first to develop a cardiac catheterization program. Today, it is a major teaching affiliate of the Seton Hall University School of Graduate Medical Education, the New England College of Osteopathic Medicine, and Saint George's University School of Medicine.

PREPRINTED FORMS DRAIN STAFF & HOSPITAL BUDGETS

A 2003 study, Paper Crisis in American Hospitals conducted by Healthcare Information and Management Systems Society, found that an estimated 60 pieces of paper are generated for each hospital patient visit.

CBS News, in a 2009 broadcast about rural hospitals, reported that, "it's not uncommon for patients … to accumulate a 2-inch-thick binder of paper records during a week long stay."

Paper is not just associated with medical records but registration and other record keeping at hospitals. The number of different forms at Saint Michael's, like at many hospitals, numbers in the hundreds.

So much paper requires an enormous amount of time and effort. At Saint Michael's, office workers spent up to 60% of their time preparing, handling, filing, copying and faxing documents. In addition, printing paper records cost the hospital hundreds of thousands of dollars a year, and generated significant inefficiencies.

Even a minor change in one form immediately makes all preprinted copies of the existing version of the form obsolete. Chances are good that hundreds of copies of the form are in inventory when the change is made and will have to be thrown away. Not surprisingly, departments often resist wasting all of these unused copies, and do not start using the new version until all copies of the old version are used. While the old version is in use, two versions of the same form begin to circulate, causing additional inefficiencies and disruptions.

Costs and labor were other factors. Printing forms with outside vendors ran up bills in the hundreds of thousands of dollars per year. And this did not include such "soft costs" as having wasted forms, and the labor and space involved with storing and retrieving forms. Saint Michael's challenge was to control the costs and inefficiencies related to paper forms. The solution: Move to electronic forms.

eFORMS & DOCUMENT IMAGING TO THE RESCUE

Saint Michael's began using dbtech products in 2001, when it implemented the Ras (Report Automation System) Viewer, which provides a secure web-enabled viewer used for report retrieval.

According to James Wu, Saint Michael's IT applications specialist, the first uses of the product were for archiving and distributing forms over the hospital's Siemens INVISION reports product. Now, a decade later, Ras is still being used. During this time, it has been enhanced, including adding auto print features and automating the distribution of files to servers. Numerous other enhancements have been implemented relating to email, formats and other functions.

In 2008, the hospital stepped up its use of Ras by implementing Rasi (Ras Imaging). This was followed by the hospital's decision to use eForms beginning in 2009, which can convert a library of paper forms into electronic ones.

The hospital began its use of eForms by converting manual forms used in patient registration into the eForms format, which automatically defaults patient names, numbers and all other HL7 (Health Level Seven) fields. Initial implementation was with about one dozen forms, some with multiple pages.

"After patient registration, we expanded eForms into clinical areas," says Wu. "Then we started incorporating forms for patient assessments, physicals, physician orders and progress notes. We stopped ordering forms from our print vendor and began printing forms from a laser printer with all the patient information right there." Today Saint Michael's has approximately different 250 forms in the eForms format.

Every clinical department, inpatient, outpatient and ER departments currently use eForms. Also using it are all clinicians and the patient registration department.

ON-DEMAND PRINTING DRIVES EFFICIENCIES

When clinicians and others at Saint Michael's want to print forms, they go into Ras and select a patient by account number or medical record number. To simplify finding forms for the end user, IT organized forms into sets of documents for different admission categories, such as inpatient, outpatient, ER and behavioral health.

Later, if need be, the user can return to a document set and print additional forms individually, such as progress reports or nurses notes. These forms print with all the patient bar-coded information already there.

"When we need a form, we now don't have to label each form, or write the patient's name and account number on it," notes Wu. "With eForms, everything you need is automatically there. The forms are also very easy to retrieve. When our forms were in hard copy, you had to know where to locate them. We had walls of shelves and filing cabinets. You had to know where every form was. Now all you do is log into a workstation and look for what you need."

Another benefit relates to the time and effort required to change existing forms or create new ones. Before, changes had to be made and sent to the printer, who would return a proof, which had to be edited and sent back, which required another proof be sent, and so on. "It took a week or two and then you have to order the forms and remove the old ones from drawers or shelves," says Wu. "The change management is more effective with eForms. You make a change, the committee approves the change and everybody gets the change at the same time. Nobody has to do any legwork. Everybody starts using the new form immediately."

PRIORITIZATION KEY TO A SUCCESSFUL eFORMS IMPLEMENTATION

All implementations require work, but for eForms, the work was relatively easy. "You have to be able to design the forms in their forms builder, says Wu, "so to do that quicker, we use Adobe Acrobat PDF for the image."

Hospitals require precision, more so than most organizations. Patients must be admitted to the correct room and are discharged properly. "One of the most challenging pieces was developing ADP interface into eForms. You have to make sure you have the right application for the right bed, the right nursing unit," comments Wu.

To prioritize which forms to convert first, Wu and his team went to nurse's stations around the hospital and asked the nurses which forms they used the most, and based on this, Wu's team was able to choose which forms to digitize first. Also factoring into the equation was the cost of the forms. One chosen was an eight-page nursing assessment form that cost $1.50 to $1.70 apiece and was required for each and every admission. A four-page form used with every patient, at a cost of $1, was also converted. The nurse progress notes form – three or four per day are used with each patient – was another convert.

Converting the first 150 or so forms took about two months and the training time required was minimal, about 15 minutes per person, reports Wu. That's because the forms are identical to the printed version but are now electronic.

The rollout of the technology was incremental. "We went live unit by unit, department by department," says Wu, "which allowed us to train nurses on one floor before moving onto the next floor."

THE BENEFITS OF eFORMS

Saint Michael's Medical Center has realized numerous benefits from its eForms solution, including:

- Cost savings resulting from not having to order preprinted forms from a vendor.
- Cost savings resulting from not having to reprint outdated forms that essentially go to waste.
- Improved workflow because employees can now instantaneously and simultaneously access all eForms, including newly created or updated forms. The electronic system also eliminates the possibility of having two or more versions of a form in use at the same time.
- A hard cost savings of approximately $7 per patient.
- Total annual hard cost savings of more than $345,000 as a result of reduced printing costs.
- Rasi proved to be an EMR backup. "What's pretty amazing with Rasi," says Wu, "is if Siemens is down, you can go to Rasi to locate medical records. We use Rasi to search for patients."

Current Ras Applications At Saint Michael's Medical Center

Ras View:
- The report repository
- Billing documents

Ras Web:
- Web version of the report repository

Rasi:
- Document image repository
- eForms printing
- Barcode label printing

Ras Manager:
- System Administration
- Autoprint, integration, email functionality