

A CASE STUDY: ONE MED DIRECTOR'S EDIS QUEST

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Modern medicine mandates that clinicians have patient information at their fingertips, and maintaining a productive, profitable facility demands data mining for measurable results. Nowhere is this more evident than in the Emergency Department. It is the nature of Emergency Medicine that throngs of patients present to the ED at varying times with wide ranges of acuity. Tracking these patients throughout their stay, accurately and expediently documenting care, and providing timely information to PCPs is of paramount importance—and has been historically a vexed process.

In most EDs, antiquated processes still dominate. Patients might be tracked on a dry-erase board, with their past medical history scribbled down on a piece of paper. I grew weary of this in 2004, seeing a clear need for real-time patient tracking and communication, patient safety enhancements, legibility, robust reporting for data mining, and several other documentation features simply not available to me on a handwritten charting system. I made it my quest to find a user-friendly, comprehensive Emergency Department Information System (EDIS) that would conquer the inefficiencies plaguing our ED. The core areas of concern became user-friendliness, comprehensiveness, robust reporting, and concurrently minimizing IT resources.

The EDIS Research Process

As with any process that requires group input, convincing my staff that the transition to computers would be a positive one was an arduous task at times. Mindsets ranged from antipathy to downright resistance, but ultimately I was able to win them over once they realized how much an EDIS would improve patient care, not to mention their own professional lives.

The New Britain General Hospital ED staff began our evaluation process in July 2004 for an emergency department information system (EDIS). At that time, a 65,000-volume ED that was growing daily, it was imperative to improve efficiency and enhance patient flow. No reporting abilities existed for administrators; any data we wanted to collect had to be done so by hand via a tedious process that made it impossible to drill down to realistic numbers. My nurse manager had no way to easily access performance studies, quality assurance reports, or verify that JCAHO core measures were being adhered to.

We were experiencing extremely slow turnaround (“door-to-doc”) times as well, with many patients waiting hours at times simply to get a room in the ED. And our archaic records management system provided no data with which to prove our growing concerns over the functionality—or lack thereof—of the Emergency Department that I could take to the administration.

In short, we needed a tool that would enable us to do the jobs we were hired to do.

Through researching the EDIS industry and determining the best fit for our ED was a daunting task, there were several specific features that we knew we required in whatever solution we chose:

- 1) User-friendliness
- 2) Comprehensiveness
- 3) Robust reporting
- 4) Improved patient and medical staff satisfaction
- 5) Lab and test results notification
- 6) CPOE/AOE after core migration

User-Friendliness

All of our clinicians had varying computer skills and many feared change in general. They were used to documenting on paper, and although we all recognized the need for change, some of the staff would require more time than others to adapt to a new system. Whatever system we chose had to be intuitive, with only a couple hours of training time. We had no idea whether this was a realistic expectation, but it was one we felt was necessary.

Comprehensiveness

I didn't know much about EDIS at the time, but I did know that I wanted the real deal. To me, there wasn't much point to implementing a module or two that would result in a disjointed "solution" that wouldn't meet all of our needs. Capturing all patient information from triage through discharge was the only way I could see that this would work. In short, we needed a one-platform EDIS—essentially, a core HIS for the ED.

Robust Reporting

My nurse manager and I already had hard enough jobs, but the lack of reports made it that much worse. Being able to prove to our administration that every patient who presented with chest pain received aspirin was impossible, so capturing that data in structured fields was mandatory if we were to implement a computer system. In addition to QA studies (such as aspirin with chest pain), we needed a way to track Operational Performance studies. We had no concrete proof or method of tracking which physicians or nurses were more productive. This prevented us from creating any reward structure for exceptional performance. Just measuring simple things like daily volume, number of admissions, length of stay was an arduous time consuming process.

Improved Patient Satisfaction

Our low Press Ganey scores made improved patient satisfaction one of my top goals. Documenting on paper hindered the entire workflow process, with bottlenecks at every step. Up to five people at a time might need one patient's chart, but paper can only be in one place at a time. Making this process an electronic one would solve this issue that had long been plaguing our ED. This would translate to happier patients, as we could enhance

patient throughput—by getting them to a room faster because we would have a much better way to assign rooms, to assessing patient clinical information in real time by multiple users. Ultimately, patient wait times would decrease and patient satisfaction would increase.

Lab and Test Results Notification

Part of the workflow process got bogged down because there was no good way to notify our doctors that lab and test results had come back. Many times patients would be waiting to be discharged or admitted longer than necessary because of the lack of communication. Automating this notification process would get the ball rolling on enhancing patient throughput. For example, we needed flags for abnormal lab values both on the tracking board and in the EDIS.

CPOE/Automated Order Entry

Order entry was also on the wish list. As it was, we had no way to assess the needs of our ancillary departments (clinics, etc.). If we were to purchase a truly comprehensive EDIS, it made sense to eliminate double order entry, into the EDIS and into the core HIS. An interface between our EDIS and core HIS would be needed. Physician documentation was probably the biggest rate limiting factor to our procuring an EDIS because of the tendency of EDIS vendors to continue to rely upon dictation because they could not create a user-friendly physician documentation system. However, one of our requirements was CPOE—doctors entering all medical, diagnostic, and pharmacy orders—on day one. In essence, a comprehensive system.

Vendors: What NOT To Do

Early on in the EDIS research process, we discovered that most vendors didn't even offer the features our facility required for the greatest possible improvement. They put on a lot of dog and pony shows, but oftentimes their "product" was just vaporware. They could show us what it "would look like" when finished, but all that meant was that we had to do the work ourselves in order to build it. We needed a product already built on a stable platform, designed with best practices in mind. Most of the vendors didn't even have any physicians on staff, which I found personally disheartening.

For the few products that were already built but didn't make it into the next round, we found that one of them (an integrated solution vendor) offered extremely inflexible templates that in no way mirrored our workflow. We didn't want to have to fit a round peg in a square hole, which is what we would have been doing to go with most of the products we considered.

For the two vendors who made it into the final round of our evaluation process, we soon found out that one of them employed nickel-and-diming tactics that made their product less and less desirable. This vendor was also selling primarily vaporware. Nevertheless, despite strong clinical protest, we were encouraged strongly to go with an integrated solution. Ultimately, the clinical team acquiesced and we choose an integrated solution. From there, the process got interesting. We would go through round after round of negotiations, and just when we thought we had come to a mutually agreeable decision,

there would be some added charge here or there. It wasn't the way our hospital wanted to do business.

The other style of EDIS we ran into was disjointed modules (Frankenstein-esque) expected to work together. Because comprehensiveness was at the top of my list, I knew right away that this would not work for us. Having a tracking system only would not alleviate the need to automate the clinical note. Likewise, having just my nurses document on computers would have only solves a small portion of the problems that the handwritten chart presented. Simply having my nurses document electronically would do nothing for physician documentation, and therefore throughput and door-to-doc times would remain unchanged.

Any of these products would have drastically slowed down my physicians, and I knew I would have a hard time even getting some of them on computers. In fact, I still feel that physician acceptance remains the largest barrier to selecting an EDIS.

These disappointments drove home to me that I needed to keep looking for what I wanted, rather than settle for something I didn't.

Selecting an EDIS

To meet the many challenges posed by our Emergency Department, my staff and I conducted a thorough evaluation process, including several written RFPs, countless web demonstrations, and many in-person presentations. Two vendors immediately separated themselves from the pack: Cerner and ECDS.

We quickly established that these were the only two vendors we would consider, and thus eliminated the rest from our evaluation process. Immediately, Cerner proved to have the corporate mentality that some colleagues had warned me about. They bogged us down with paperwork and nickel-and-dimed us to death on every detail. The final straw was the 1,200-page implementation manual that landed with a thud on my desk one afternoon. I knew that any EDIS requiring that much paperwork could not solve my ED's problems.

The staff and I decided that ECDS' EmpowER System was the way to go. Although we already knew quite a bit about EmpowER, I wanted to take a closer look. I called ECDS and signed up for a seminar at The Plaza Hotel in New York City.

I was blown away by the user-friendliness and functionality of EmpowER, as well as the impressive knowledge base of everyone who spoke at the event. They had experts in coding and billing, risk management, malpractice, medical records, syndromic surveillance, government compliance—it was by far the most informative and well thought out presentation I had encountered. It was apparent that the ECDS team was made up of visionary clinicians who knew what the future of emergency medicine documentation needed to be, and EmpowER was the tool that would enable it.

As I chatted with EM colleagues from around the country, the consensus was that a vendor had finally gotten it right. Most of the attendees, like myself, were still using a paper charting system in their EDs. The appeal of EmpowER was tangible; none of us could really look forward to going back to work without the EmpowER System.

Following the seminar, we invited ECDS to do a full-blown presentation during a “Vendor Day” at our facility that my staff had coordinated. We invited several vendors, at the behest of my administration, but the EmpowER presentation blew the others out of the water. However, the administration was reluctant to move forward with a best of breed, as our facility had historically been committed to an integrated solution.

But after more than a year, we finally signed a contract with ECDS in September 2005 and implementation began immediately. We were even able to go live on December 15, 2005, less than 3 months after the contract signing. (This could have occurred even sooner, but the servers we wanted were on back-order.) This, to me, was a true testament to how ECDS does business and how the EmpowER System improved ED life: expediently and effectively.

Pre-Implementation

Prior to the implementation EmpowER, we held weekly conference calls with the ECDS team to discuss all the details of go-live day and beyond. We were assigned a project manager, who was our point person from ECDS and navigated us through the pre-implementation process.

ECDS was very focused on getting the hardware in and the training done so that the staff would have ample time to get comfortable using it before actual implementation. We spent two months planning for the servers to be delivered, and for the optimal hardware configuration. We opted for a combination of desktop computers, wireless laptops, and COWs (computers on wheels).

Physician and nurse training went exceptionally well, and most of our staff mastered EmpowER within an hour or so. Physicians trained physicians via web sessions scheduled at each physician’s convenience; nurse training was conducted on site in group sessions. Both physician and nurse training was facilitated by extremely knowledgeable and competent clinician trainers. Our staff picked up on EmpowER very quickly, and ECDS’ promise of “one hour training” was achieved.

Implementation

Anxiety was high on Go Live day, which occurred on a Tuesday. ECDS personnel arrived Monday to ensure proper configuration of hardware and, probably more significantly, that nerves were quelled. The Go Live was pretty anticlimactic because it went like clockwork. ECDS sent two physicians and one nurse for the entire week of go-live to alleviate concerns, handle any hardware issues, and answer lingering questions

about EmpowER. We didn't want to let them go at the end of the week, but by that time the staff was so proficient that we knew we would be fine without them.

We planned ADT during pre-implementation and initially went live with the ADT interface only, followed by the Lab results feed from Care Manager in March 2006. We were live with CPOE day one with EmpowER, since it is a single platform solution. However, we had to do double entry with orders until we could get the order entry interface online. We knew this process would have to wait until the hospital's core HIS migration from Siemens to Cerner was complete.

Post-Implementation

Five months after the EmpowER go-live at New Britain, we went live at our sister facility, Bradley Medical Center, with both campuses on one server, proving ECDS' enterprise capabilities. On October 1, 2006, we went live with Cerner and lost our lab results interface, due to an IT resource constraint. In February 2007, we got the results feed back up live with Cerner. As of the writing of this case study, CPOE/Automated Order Entry has just gone live. This was the most tedious of the interfaces to achieve; however, the benefit of having unit secretaries' time used for patient care rather than entering orders is invaluable.

Success

Since we implemented EmpowER, our professional lives have changed significantly.

We no longer fear the arrival of JCAHO, because EmpowER employs mandatory government compliance. We are 100% compliant with JCAHO core measures, and the mandatory fields in every patient chart meet the government standard for appropriate billing. After a recent JCAHO visit in March 2007, our CEO, Larry Tanner, disseminated a memo entitled "Joint Commission Survey a Success."

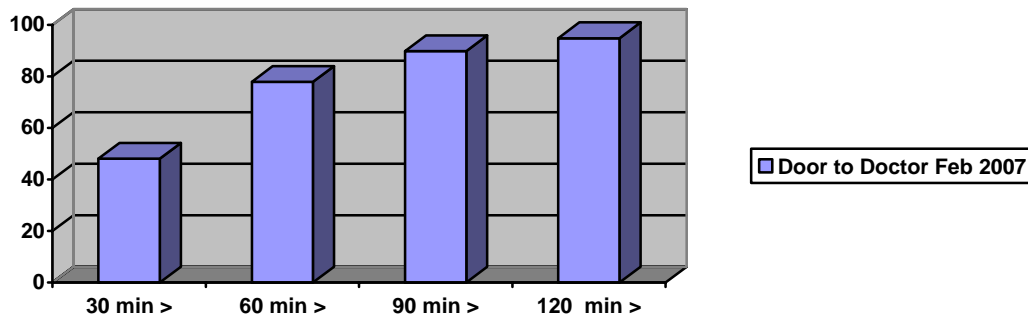
The JCAHO surveyor spent time at both campuses, tracking one patient who came into the ED at the Bradley campus, then on to a med-surg unit, and eventually into critical care. He looked at surgery, from pre- to post-op, reviewing everything from anesthesia carts to time-out procedures. He reviewed the pharmacy processes at both campuses, as well as the physical plant. And he examined our medical credentialing process, as well as how we've integrated two medical staffs into one. Said Tanner: "Not surprisingly, the surveyor had many good things to say about The Hospital of Central Connecticut. He was clearly impressed by the ED's EmpowER System..." I was not surprised, already being aware that other EmpowER facilities had experienced highly favorable Joint Commission reviews.

The Joint Commission was also here again last week on an unannounced 4 day survey involving 6 surveyors. They were very complimentary of the ED and how we were using

data to improve quality. They were completely satisfied with our electronic medication reconciliation done in EmpowER and said it was a model of how it should be done.

EmpowER was also quickly improving patient throughput. Despite the ongoing construction in our ED, our patients remained happy with our door-to-doctor times. Almost 80% of our patients are seen within 60 minutes of arriving. Our average length of stay for discharged patients is consistently less than 1.5 hours and even less in our fast track.

Figure 1: Door-to-Doctor Times Feb 2007



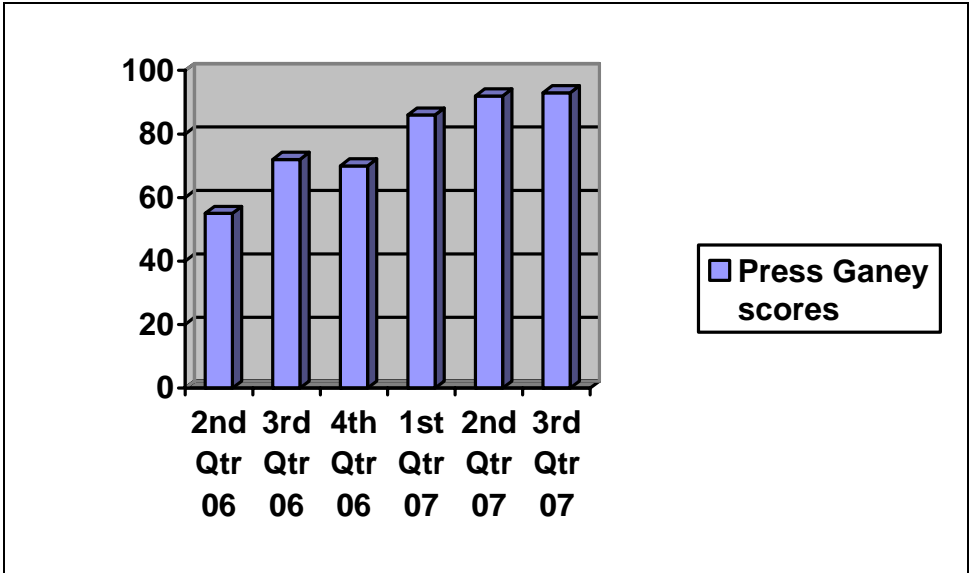
This expedient customer service would have been impossible with a paper charting system. Now we can focus on “How is the patient?” rather than “Where is the chart?”

Administrators can run reports on any conceivable statistic now that we have EmpowER, such as core measures, IV starts and finish times, door-to-doc times, door-to-door times, patient load per hour, controlled substances, and much more. Even small things like being able to justify weekend staff can now be proved to our administration because we have the reports to back it up.

Since merging with Bradley Medical Center, our patient volume has significantly increased. This change would have been unmanageable before EmpowER. Our busiest month since implementation was December 2006, one day of which we saw 255 patients. Afterward I ran reports to find out how we did and was pleased to find that 47% of patients were admitted in two hours or less, and 66% of patients had a boarding time of less than 169 minutes.

Our patient satisfaction scores have also steadily increased since implementing EmpowER. We started off the second quarter of 2006 in the 55th percentile, and right after EmpowER went live we jumped 15 percent to the 70th percentile. We then saw a slight drop due to firing one of our physicians, but since then our patient satisfaction scores have gone sky high, as you can see from the graph (Figure 2) below.

Figure 2: Press Ganey Patient Satisfaction Scores – Q2 2006 to Q3 2007



The Future

We are currently adding 10,000 square feet to the Emergency Department and are experiencing a steady and significant increase in patient growth. We will see over 90,000 patient visits this year between both our campuses. We do not anticipate that this will taper off any time soon, and we know that the ECDS team will help EmpowER grow right along with us.

Because ECDS keeps their ear to the ground for every industry development, we know EmpowER will always handle any new mandate, whether it be governmental or facility procedures. For example, our hospital has mandated the decrease in the use of antecubital sites, so now we just run the reports and provide feedback to our staff. We went from 27% antecubital sites to approximately 11%, most of which were traumas and cardiac arrests.

Rewarding good performance is also a great benefit that EmpowER provides. Because we can provide our staff with real-time feedback, we can show them how they can

improve their performance or reward the ones doing well. And with a 14% turnover rate at hospitals in our region, we are pleased to have a rate of less than half that, 6.6% or less on average, most of which have been retirements and department transfers.

In short, ECDS and their amazing EmpowER System have turned our ED around. Productivity can effortlessly be measured with the click of a button at any point during a patient's visit. This invaluable feedback identifies bottlenecks that we can quickly rectify. EmpowER is stable, dependable, and requires few IT resources to maintain. ECDS project management and technical support has been extremely responsive. The great news is that we don't require much technical support at all. In fact, we experienced an entire core HIS outage in the hospital recently, but EmpowER did not go down. I joke that our EmpowER system is like the Energizer Bunny. It just keeps going and going. In fact, in almost 2 years and over a hundred twenty thousand encounters, we have not had any clinically significant down time, either scheduled or unscheduled, and have not once had to resort to our back up paper plan.

ECDS remains in very close contact with us, and we look forward to the many value-added products ECDS is starting to offer, such as handheld devices and much more.

The outcome of my EDIS quest shows that choosing the right EDIS is of paramount importance and that patient tracking, data collection, and superior documentation lead to improved efficiencies and enhanced patient care. ■