



TAMPA GENERAL HOSPITAL'S INFECTION PREVENTION & PHARMACY DEPARTMENTS WORK TOGETHER

CASE STUDY

IMPLEMENTATION OF THERADOC® CLINICAL SURVEILLANCE TECHNOLOGY

INTRODUCTION

Tampa General Hospital is one of the most comprehensive medical centers in West Central Florida, serving a dozen counties and a population in excess of 4 million people. Like most healthcare facilities, 988-bed Tampa General faces ongoing patient-safety challenges such as reducing the spread of healthcare-associated infections (HAIs), multi-drug resistant organisms (MDROs) and other infectious diseases, as well as preventing adverse drug events and optimizing medication therapy.

Addressing these challenges is complicated by the fact that important patient clinical data typically are housed in numerous separate information systems, or “silos,” meaning that infection preventionists (IPs), pharmacists, and other clinicians must manually collect, review, and track large amounts of clinical data from a variety of diverse information sources—a labor-intensive and inefficient process that impedes the delivery of high-quality patient care, wastes resources, and increases costs for hospitals.

Clinical decision support technologies help address this fragmentation of information and allow clinicians to work smarter, faster, and more effectively.¹ With that in mind, and in keeping with its commitment to improving patient safety and the quality of care, Tampa General Hospital implemented the TheraDoc clinical surveillance solution, an electronic patient safety surveillance and clinical decision support system from Premier.

TheraDoc brings together relevant clinical information from a variety of sources and offers tools for real-time data gathering, alerting, analysis, and reporting. For more than 10 years, a growing number of hospitals have been using the TheraDoc enterprise-wide clinical surveillance and decision support platform to improve the quality and safety of patient care.

SEARCH FOR THE RIGHT SOLUTION

The process of acquiring the TheraDoc system at Tampa General began in February 2008, when Infection Prevention Department staff members began researching various systems. According to Peggy Thompson, RN, BSN, CIC, director of infection prevention, the department wanted to take advantage of patient safety and workflow benefits offered by a computerized infection surveillance system. They knew that an electronic system would enable them to spend less time on data collection and analysis and more time on intervention, education, and prevention. “Improving efficiency was certainly high on our priority list,” Thompson said. “We wanted to make sure that people with degrees were using those degrees to problem solve—not to count.”

The ability to collaborate with other departments and reduce the fragmentation of information also were key goals. “Often, each department picks software that’s narrowly focused on its specific area, without considering whether it talks to other

systems or enhances inter-departmental communication,” Thompson said. “We wanted to choose the most appropriate system not only for our department, but also for our hospital. We saw tremendous value in having a system that would allow collaboration and access to information between Infection Prevention, Pharmacy, and other departments.”

As a result, the Infection Prevention Department invited Earnest Alexander, PharmD, FCCM, manager of clinical pharmacy services, to participate as part of a multidisciplinary group, with the goal of identifying a dynamic computerized patient safety surveillance and clinical decision support system that would benefit the hospital. “We had separate systems without any real interfaces,” Dr. Alexander said. “Our pharmacy system didn’t talk to the laboratory system, which didn’t talk to the system from the microbiology lab, which didn’t interface with data from the nursing units, radiology, or surgery. We knew that it would be very useful for both pharmacists and IPs to have all of that information at our fingertips.”

After a nine-month process, the group decided that the TheraDoc system was the right fit for Tampa General. “We selected TheraDoc for its ability to help us improve the quality of patient care,” Thompson said. “It was critical for us to be able to more quickly respond to clinical situations, identify significant trends, and improve workflow and collaboration—all things that are key assets of the TheraDoc system.”

Once TheraDoc was selected, the process of getting the necessary approvals began. According to Dr. Alexander, the group prepared a proposal outlining details of the acquisition and implementation process, which then went through the appropriate channels for approval and funding.

“We took the show on the road and presented our proposal to the IT Governance Committee and other decision-makers, relaying the most important reasons for this project to move forward,” Dr. Alexander said. “We were able to show that there would be improvements in patient safety, quality, and regulatory reporting compliance with the TheraDoc system. We had significant support from the hospital—everyone in the C-suite signed off on the decision.”

IMPLEMENTATION

In December 2008, less than one year after the research process began, implementation of the TheraDoc system got underway. A hospital support team was formed and included staff members from key areas such as infection prevention, pharmacy, and information technology. TheraDoc provided a dedicated team for building the system, including a project manager whose responsibility was to ensure that the hospital’s needs and priorities were met, and to keep the project on track.

Thompson and Alexander both were closely involved in the planning and implementation, focusing on configuring a system that would meet their specific needs, but also interdepartmental and hospital goals. Thompson said it was a smooth process for the Infection Prevention Department, especially considering Tampa General’s large size.

Thompson employed the help of Infection Preventionist Emily Clarkson, RN, MS, CIC, who took on the role of a “super-user” and was part of the implementation team. “It was important for me as a super-user to have a thorough understanding of the TheraDoc system so that I could help my co-workers understand it in order to make the transition as smooth as possible,” Clarkson said.

With a 10-person infection prevention team, including Thompson, seven IPs, a quality data analyst, and an administration assistant, staff training was a critical part of the process. “Some staff members were more comfortable with technology than

others, which made it a challenge at times in the classroom," Thompson said. "The TheraDoc trainers were patient and helpful—they answered our questions and made themselves available to us during the entire implementation process."

Dr. Alexander said implementation for the Pharmacy Department also went well. A pharmacy steering committee was created, including the pharmacy director, pharmacy educator, super-users, and pharmacists involved in the workflow and processes being addressed by the system. The committee worked to define the department's needs and expectations, held frequent calls with the TheraDoc team to help achieve those goals, and ensured that all pharmacy interfaces were working correctly.

"An important step for us involved working on some of our processes, because our goal was not just to have one or two pharmacists using the system, but to have all 80," Dr. Alexander said. "We wanted to make sure that, as we changed from paper to electronic processes, there were clear and consistent expectations and standard operating procedures. This was critical for a smooth transition."

Alexander and his team helped customize many of the pharmacy reports and alerts, with the help of the TheraDoc support staff, and he also served as the point person for questions. "Once all of our questions were answered and we had a plan in place, the training phase began," he said. "Our super-users were trained first, and then they trained others. We not only trained on the TheraDoc system, but also on new standard operating procedures and expectations, and the rationale for those policies and procedures." (See call-out box on last page: Tip for Successful Implementation of a Clinical Decision Support System)

Minh-Tri Duong, PharmD, director of residency programs and education coordinator for the Pharmacy Department, also played a key part in the implementation process, as well as the ongoing use of the system. "My role was to assist with getting the TheraDoc system implemented, work with the pharmacy staff to coordinate the education and training, and also help maintain the program on an ongoing basis," Duong said.

The implementation process took approximately six months, with a partial rollout beginning in June 2009. The system was fully operational for both the Infection Prevention and Pharmacy Departments by October 2009.

LEVERAGING INFORMATION TECHNOLOGY ACROSS THE HOSPITAL

Clinical surveillance systems must interface with as many hospital sources as possible to ensure accurate collection, analysis, and reporting of data — enhancing the clinicians decision making process. TheraDoc brings together information from the laboratory, pharmacy, admissions/discharge/transfer (ADT), patient demographics and vital signs, radiology, and surgery.

In addition, the TheraDoc system provides a core set of cross-functional clinical tools, while offering software Knowledge Modules tailored to specific clinical applications. For example, Tampa General implemented the TheraDoc Infection Control Assistant® module for its IP staff, which provides continuous infection surveillance, alerts, and customizable reporting capabilities. The Pharmacy Department is utilizing the Antibiotic Assistant® module, which helps optimize antimicrobial therapy and the clinician's ability to combat drug-resistant infection diseases. Both departments are using other tools included in the TheraDoc system such as the Rounds Assistant™ and Intervention Assistant™. This ability to choose features and customize the system provides Tampa General IPs and pharmacists with the specific clinical tools they need, while the single system helps reduce fragmentation, facilitate collaboration, and improve patient care quality across the facility.

BENEFITS FOR INFECTION PREVENTION

After more than one year using the TheraDoc system, the Infection Prevention Department has experienced numerous benefits, including increased efficiency and more direct and effective patient care. “Having all of the real-time information we need in one location is very helpful in making our infection investigations more efficient,” Clarkson said. “We are able to more quickly find and confirm infections, identify trends, and initiate interventions to stem the spread of infections. Also, because the system is easy to customize, we have programmed alerts for specific lab results, medication orders, or other data of interest.”

With the new system, IPs spend more time on patient care units and can make more of an impact with the staff about infection prevention practices. “We are no longer bogged down with paperwork like we were with our previous system, where we had to manually go through each piece of paper and report individually,” Clarkson said. “With TheraDoc, information such as microbiology data is automatically available whenever an IP needs it, saving significant time. In turn, there are increased opportunities to focus on infection prevention strategies that we can implement with staff. For example, we now can observe hand hygiene more effectively.”

TheraDoc is also helping the department with quality initiatives, according to Clarkson. “We’re using the system to help implement and monitor National Patient Safety Goals, and the Intervention Assistant facilitates data gathering and helps monitor compliance with things such as isolation and isolation education,” she said.

Thompson agreed that TheraDoc has positively impacted the hospital’s infection prevention efforts. She said the ready availability of clinical information keeps patients from slipping through the cracks and helps in daily workflow. “IPs can quickly go through surgical information, labs, and alerts, and prioritize which patients need to be seen during rounds,” she said. “In addition, they all have laptops, so as they’re making their rounds, they’re entering pertinent information directly into the system—there’s no paperwork that they have to come back and worry about.”

The TheraDoc system also helps Thompson enhance her own workflow by streamlining her management responsibilities. “Having information and reports readily available for use during clinical, quality, and administrative meetings is key,” she said. “For example, I need to include specific device data when preparing quality improvement reports. It’s a godsend to have immediate access to all of the device data, allowing me to see which units are more challenged than others with specific types of device-related infections. And if I forget a piece of information, I don’t have to print 900 pages to figure it out—I can just select a field and easily retrieve the data.”

BENEFITS FOR PHARMACY

The TheraDoc System also has positively impacted the Pharmacy Department, due in large part to the ready availability of clinical information that is critical to patient safety and quality of care. “Previously, our surveillance was a manual process, much like infection prevention,” Dr. Alexander said. “We tracked patient consults with handwritten cards, recording basic lab values obtained on a day-to-day basis. We probably spent about 10 minutes per patient writing down the information. Now data are immediately available in TheraDoc and can be easily passed from one pharmacist to the next. Pharmacists now can spend that 10 minutes actually evaluating those numbers and making decisions related to them.”

Dr. Alexander said the Rounds Assistant is a key tool for pharmacists. “We have all of the patient information we need at our fingertips. Our pharmacists also appreciate having the information displayed in a user-friendly manner—it is

integrated and incorporated into everyday functionality.”

Access to clinical data on patients who are eligible to be switched from IV to oral medications and patients whose renal function is being monitored is invaluable. “These are basic responsibilities of hospital pharmacists, but the big questions are how easy is it to get the information, and how consistently do you do it?” Alexander said. “In addition to being better for the patient, more timely switching from IV to PO can save money because oral medications tend to be less expensive. Similarly, more timely information about patients’ renal function may result in giving them less drugs, which is potentially less toxic and also less expensive. Optimizing antibiotic therapy also is both safer for the patient and often saves the hospital money as well. So, there are financial benefits that may be gained using the TheraDoc system, and these benefits can be captured in reports tying interventions with corresponding cost savings—demonstrating a return on investment for pharmacy and hospital administration.”

Other advantages include better communication among department staff and improved compliance with guidelines such as National Patient Safety Goals. For example, the system tracks the conditions of patients receiving anticoagulation therapy by providing early warning and timely intervention of potential adverse events or therapeutic failures, supporting 6 of the 8 implementation steps outlined in NPSG 3.05.01.² According to Duong, the system allows pharmacists to leave notes for each other between shifts, enhancing shift-to-shift communication and improving the continuity of care. The department also uses the TheraDoc system for assisting in drug therapy management programs, such as anticoagulation, through the real-time monitoring of the laboratory information system. “We have anticoagulation patients who require ongoing monitoring,” she said. “We use TheraDoc to set alerts so that pharmacists can identify patients and their corresponding laboratory values for the monitoring program.”

According to Duong, the new system has made a significant improvement with efficiency and workflow. “We have customized the system to fit our needs and help improve our day-to-day productivity, communication and the overall implementation of pharmacy services,” she said.

A LASTING PARTNERSHIP

The Infection Prevention and Pharmacy Departments at Tampa General are proud of their joint effort to adopt a computerized clinical decision support system. Dr. Alexander said the cooperation between departments was critical to the success of the program. “The fact that we were invited into the discussion and decision-making process was key,” he said. “Infection prevention deserves 100 percent of the credit for getting the project off the ground. Involving us assisted them in their efforts—and it helped us immensely, too.”

Thompson said the collaboration has extended beyond the acquisition process to patient care activities, illustrating the benefits of using a single solution. “Now, if we’re not sure a patient with an infectious organism is being treated, we can go right to the pharmacy records within TheraDoc, without having to go to the floor and find the pharmacy record and see if the patient’s on appropriate therapy or not,” she said. “This helps us all in the end—including patients—because it’s more seamless.”

Both departments are very happy with the new system and the impact it has made on patient care and improved efficiencies for IPs and pharmacists. Asked how the IP staff members would react if they had to go back to the previous manual process,

Thompson joked, "They would leave!"

"This is a good time to reflect on how far we've come," Dr. Alexander said. "Perhaps at one of our upcoming staff meetings, I'll bring one of the paper cards that we used to use, and remind everyone of the cumbersome process that was in place not too long ago.

TIP FOR SUCCESSFUL IMPLEMENTATION OF CLINICAL DECISION SUPPORT TECHNOLOGY — ASK QUESTIONS

According to Earnest Alexander, PharmD, FCCM, manager of clinical pharmacy services at Tampa General Hospital, one of the keys to the hospital's successful transition from a paper-based process to an electronic clinical decision support system was asking questions.

Questions Aid Planning—The pharmacy steering committee was charged with configuring the TheraDoc system for the department, determining which features and functions to incorporate in the initial implementation, as well as policies and procedures. "We had a small group of people working through the processes and workflow, challenging the system, and asking questions of the TheraDoc team," Alexander said. "Once this process was complete and we were ready to roll it out to the entire department, we were confident that we had a solid system in place."

Anticipate User Questions—Alexander and his team focused on anticipating questions that might be asked by users. "We already had asked all of the questions, and we had all of the answers for them," he said. "We'd developed a clear rationale and the reasons behind the processes and procedures that we were asking them to adopt, which was invaluable—especially for staff who might be slower to embrace changes. As a result, we were able to demonstrate how the new system fit into their workflow, and the benefits not only for pharmacy but also for the entire hospital. Having answers to their questions was a critical factor that enabled a smooth transition for the department."

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1. Colera E. Guide to Health Informatics. 2 ed. London: Arnold; 2003.
2. National Patient Safety Goals Effective July 1, 2011: Hospital Accreditation Program [Internet]. Oakbrook Terrace (IL): The Joint Commission; 2011 July 1. Available from: http://www.jointcommission.org/hap_2011_npsgs/. Accessed July 29, 2011.

