Implementation of an EDIS in a pediatric emergency department translates to more efficient and timely care.

By Dwight Doerhoff, MSN, RN

With nearly 60,000 visits per year, treatments at the tertiary pediatric emergency department (ED) at St. Louis Children’s Hospital involve the ordering, prescribing and administration of medications as a routine part of caring for our patients. Previous studies have shown that the process of giving medications in an emergency department is a complex one, and our emergency department was no different.

The 2,000 employees and medical staff of 700 at St. Louis Children’s Hospital provide a full range of pediatric services to the St. Louis metropolitan area and our primary service region covering six states. As a Level 1 pediatric trauma center and the pediatric teaching hospital for Washington University School of Medicine, we offer nationally recognized programs for physician training and research.

Like many hospital emergency departments operating in the world of paper documentation, we were faced with the challenges of paper charts that could only be in one place at a time and could only be used by one clinician at a time. Medication orders and prescriptions were handwritten and were often difficult to read. Additionally, our physicians lacked an efficient communication method to let nurses know that there were new medication orders to be carried out.

Some medication orders required additional staff members such as a unit secretary and pharmacy technician to handle the orders before the medication could be delivered to the emergency department. Finally, acetaminophen, antibiotics and medications used for the treatment of asthma are commonly used in pediatrics. Typically, the dosage for these medications are based on the weight of the child, so having access to the patient’s weight at the time of ordering or prescribing is essential.

Early on, Dr. David Jaffe, our emergency department medical director, had recognized the need for an emergency department information system (EDIS). According to Dr. Jaffe, the department’s physical layout was designed with an EDIS in mind. He, and all concerned, felt that such a system would be essential to improving patient flow and patient care from presentation at triage, to disposition.

Possible Solution Assessment

With project funding secured in 2003, the search for an EDIS could begin in earnest. An evaluation team was formed that consisted of ED leadership and front-line ED staff, as well as a project manager and systems analyst from the information systems department. Although we had been using an electronic patient tracking system since 1998, it was not capable of meeting our requirements of having a complete electronic patient record, a robust patient tracking system and an easy to use order management system.

Based on this assessment, our evaluation team chose a solution from Wellsoft Corporation and an additional vendor. Wellsoft was selected for evaluation because their system was being used in the emergency department at Children’s Hospital of Philadelphia—a facility very similar to our own. The other vendor was selected for evaluation because their system had recently been installed in the adult emergency department at our sister hospital across the street.

The exhaustive process of evaluation and selection of the new EDIS included prioritizing system requirements with ED leadership, front-line ED staff and information
systems staff; vendor demonstrations both onsite and over the Web; and, customer site visits to see the two systems in action. The team ultimately chose Wellsoft due to its ease of use, proven track record at a similar children’s hospital and feedback from other Wellsoft clients.

Implementation

Implementation began with the vendor spending several days onsite getting to know our staff and understanding our current processes. The support of the vendor was critical in gaining the support of the staff that would have to rely on the system once it was in place. “Their experiences installing Wellsoft in other emergency departments was invaluable in helping us improve our current processes and develop new processes,” says Emergency Department Manager Linda Robert.

In an effort to cause as little disruption as possible while ensuring buy-in from staff, we chose to implement the system in three phases. The first phase encompassed patient tracking, triage nurse documentation, results reporting from the hospital’s lab system, automated discharge instructions (based on diagnosis) and electronic prescription writing. “The transition went so smoothly that by the end of the first week of using Wellsoft, the nurses were asking when we were going to enter the rest of the nursing notes into the system,” says Shannon Miller, clinical educator for the emergency department.

Primary nurse documentation followed in phase two, and finally, order entry along with physician and nurse practitioner documentation followed in phase three. At the time we went live with our first phase, Wellsoft did not have a weight-based medication-dosing calculator. To their credit, the company agreed to begin work on developing a tool within the application to meet this need. In the meantime, the system’s flexibility and ease of customization allowed us to work closely with the hospital’s pharmacy team to develop prescriptions based on weight ranges for many of the commonly prescribed medications.

Benefits and Results

Several immediate benefits related to the medication process were seen with the first phase of implementation. Physicians and nurse practitioners could review the child’s home medications, allergies and weight on the screen as they wrote their discharge medications using the prebuilt weight-based prescriptions. Prescriptions were printed on safety paper, which eliminated calls from pharmacies that couldn’t read the prescription or the name of the person who wrote the prescription. In addition, the weight of the patient is printed on the prescription so the pharmacist can confirm that the correct dose is being dispensed.

With the implementation of complete nursing documentation during phase two, physicians, nurse practitioners, and other nurses had instant computer access to the documentation of care provided to the patient while in the ED, including medication administrations. In preparation of phase three, we again worked closely with the pharmacy team to develop weight-based medication orders for the most commonly ordered medications.

The third phase of implementation allowed a physician or nurse practitioner to enter a medication order and have it immediately flagged and made accessible from any computer in the department. If the medication being ordered is weight based, the order entry system presents the physician or nurse practitioner with typical dosing guidelines for the medication and the weight range chosen.

Multiple hand-offs of medication orders is a thing of the past, especially for medications not stocked in the ED that need to be filled by pharmacy. When the order is entered, the pharmacy receives a notification that there is a medication order for them to fill. The pharmacist has instant access to all of the patient’s clinical information in the system such as weight, allergies and home medications, as well as the nursing and physician notes from the current visit or any prior visits to the ED. Should the pharmacist have a question about a medication order, the EDIS clearly identifies who placed the order, so when they call, they can ask to speak directly to the physician or nurse practitioner that placed the order.

Since the implementation of Wellsoft’s order entry system, we have been able to provide reports back to the pharmacy on the amount of time it takes to process, fill and dispense medications for emergency department patients—something that was previously difficult to track with a paper-based system. In addition, we are beginning to use the data on medications ordered to improve the quality of care being provided to specific populations of children such as those with asthma and sickle-cell anemia.

Even though we have already realized some benefits of using Wellsoft at St. Louis Children’s hospital, we are moving forward with implementation of the new weight-based dosing calculator that was recently announced as part of the company’s Integrated Medication System. We fully expect this to enhance the medication ordering and prescribing process in our pediatric emergency department, so that we can provide the best and most expedient care to our young charges.

Dwight Doerhoff is a patient care information systems specialist at St. Louis Children’s Hospital. Contact him at ded7609@bjc.org.