Medication error prevention continues to be an area of increased focus in relation to patient safety. The use of bar code scanning technology in the hospital offers healthcare administrators an opportunity to manage this issue at the point of care; studies suggest that a successful bar code scanning program implemented in a hospital can reduce the incidence of medication dispensing errors. In one recent study conducted in an academic medical center, the use of a bar code electronic medication administration system provided a ≈ (p<0.001) 51% relative reduction in the rate of potential adverse drug events due to nontiming errors, compared to pre-bar code system installation.

Nevertheless, a 2009 survey by the American Society of Health-System Pharmacists found that bar code assisted medication administration systems were implemented in 28% of surveyed hospitals. While this number represents an upward trend over the past few years, the relatively slow uptake of bar code technology in hospitals may be due in part to a few significant obstacles to successful usage. These obstacles include the lack of appropriate training; work flow redesign; resistance by hospital staff; and issues related to technology, such as problems with software and hardware.

Keenly aware of the impact that technological issues can make upon hospital processes, Baxter recently introduced an enhanced version of its ENLIGHTENED High-Resolution Bar Code (ENLIGHTENED$_{HRBC}$) for its small- and large-volume parenteral solutions portfolio. ENLIGHTENED$_{HRBC}$ technology, originally introduced in February 2003, was designed to meet data management and patient safety demands with leading-edge technology. At its inception, the ENLIGHTENED$_{HRBC}$ design featured two bar codes: one indicating the product lot number and expiration, the other representing the GS1 Global Trade Identification Number, or GTIN (GS1 is a type of global standardization used in bar coding).
In late 2008, Baxter began working with a few customers and leading scanner manufactures, Honeywell and Motorola on updating its ENLIGHTENED<sub>HRBC</sub> bar codes to better meet their needs. In May 2009, Baxter began its rollout of its enhanced bar code, which included a single, larger GS1 GTIN and the removal of the lot and expiration bar code to help improve success rate of first-attempt scans, decrease medication overrides, and minimize variability in scanning techniques.

The result? Baxter’s work to exceed its customers’ needs has “improved an already good impression,” says David Breeze, technology systems coordinator at Wake Forest University Baptist Medical Center, Winston-Salem, North Carolina. “The new [bar code] is definitely easy to scan; we usually pick it up on the first flash. It just flows through the system a little more efficiently with that one bar code. We are very happy with Baxter’s efforts to address this situation.”

Staff at Children’s Memorial in Chicago, Illinois have experienced higher scan rates and first-attempt scans, as well as fewer medication overrides, says Dan Healy, pharmacy informatics coordinator. “I definitely see [fewer false-positive scans] on the bar code reports,” he adds.

At Baystate Health in Massachusetts, Gary Kerr, director of pharmacy services, worked with Pharmacy and Nursing Informatics leaders to observe the nursing staff regarding large-volume parenteral infusions which rarely scanned. Through direct observation it was noticed that two bar codes were adjacent to each other resulting in confusion for the nurse on scanning the correct bar code. The pharmacy department collaborated with Baxter and agreed having a single bar code that featured the enhanced ENLIGHTENED<sub>HRBC</sub> bar coding would improve scan rates. Though these new bags are in the early stages of utilization, nurses have noted that scanning is much easier with the single bar-coded bags, says Mark Heelon, medication safety specialist. Also, scanning rates associated with Baxter large volume parenterals have risen substantially, he adds.

Although customers may still be cycling through Baxter products with the older ENLIGHTENED<sub>HRBC</sub> technology, those that have begun using products with the new bar coding have noticed a positive difference. Customers are pleased with the benefits of the new ENLIGHTENED<sub>HRBC</sub> technology; all agree that the general process of integrating bar code medication administration can be complex.

“Be prepared to commit more resources than you might think,” advises Breeze. “It’s an extremely labor-intensive program to start. And contact as many institutions as you can [that] use similar software and have similar systems, and get the benefit of their experience. Every system is technically different and has its own challenges.”

Yet although the integration of bar coding technology into hospital use does require work, all agree the effort is well worthwhile. Craig Jones, IV pharmacist at Boston Medical Center, a 639-bed medical academic center says “Bar coding in general has been advantageous to us because it helps…put a safeguard in place to ensure patient safety, and that we get the right drug at the right place, at the right time.”

References:

Medication Delivery