Building bridges one bar code at a time: Laboratorians and nurses pursue patient ID system

By Melody Botterbusch, MT (ASCP)

Data management for point-of-care (POC) testing is designed to save time and money and to improve accurate posting of results to the patient chart. Many “puzzle pieces” must fit, working together to capture and interface POC data. In York, PA, the York Hospital’s (York’s) Sure Step FLEXX glucose interface system held much promise until a puzzle piece fell out of place in January 2001.

Before the use of the glucose test system, York’s data was entered manually into the laboratory information system (LIS). But now for the first time, POC results could be captured electronically. The new meter was equipped with a barcode scanner. Operators wore a bar-coded employee badge with an ID number assigned by the hospital’s security department. Patients wore an armband that had a bar-coded financial number (FIN). To perform a POC glucose test, the operator would first have to be identified using the bar-coded image on the employee ID badge. Then the armband of the patient would be scanned to capture the image of the FIN.

At first, implementation went smoothly. Shortly thereafter, a trend started to emerge. The POC department began to generate billing errors because testing was being done on discharged patients. How could this be happening? To the hospital staff’s dismay, the bar-coded image on the patient armband was fading, smudging, and smearing from normal patient use almost immediately after application. The operators were scanning something other than the bar-coded armband. Nothing protected the label from moisture or mechanical deterioration.

The volume of errors warranted making “POC billing errors” a performance improvement (PI) indicator. Meanwhile, frustrated operators began to scan just about anything except the patient armband in an attempt to capture an image that would allow them to continue to perform the bedside glucose test — the dawn of a habit known as the “workaround.”

Some assembly required

In an effort to correct the problem, a different armband was requested. This second armband had a plastic sleeve. The armband label that was previously attached to the outside of the band now was placed on a card-stock insert, slipped into the plastic sleeve, and then sealed. “Some assembly required” was our new motto — but at least now, the bar-coded image was protected from deterioration. Or so it was thought. Again, it did not take long to discover that the label inside the plastic sleeve also faded, just a little more slowly than it did when placed outside of the armband.

The POC department promoted scanning of the armband for patient identification. When the armband failed to scan, the nursing staff was encouraged to replace it with a new band — a time-consuming chore for the busy nursing staff. The shortcoming of the system was obvious, but laboratorians and nurses were powerless to bring about a change until the POC department conducted a Q-Probe on one of the more problematic and high-volume testing units.

Q-Probe is part of the Q-TRACKS program designed by the College of American Pathologists to provide continuous quality-improvement monitors for hospital laboratories. From York’s study of 161 patient armbands, results showed that 11% were illegible and could not be scanned by the FLEXX meter. Operators were scanning creative alternatives for patient identification. It became evident that yet another new armband system had to be found. York’s POC department studied practices and procedures from other healthcare institutions and questioned their personnel about what system was being used for patient identification. York Hospital discovered that not many institutions utilized a bar-coded armband. Therefore, the staff had to blaze its own trail in the bar-code wilderness.

The lab-nursing partnership is born

Up to this point, the lab (POC) and nursing staff were somewhat at odds. The lab wanted better compliance with patient identification for glucose testing; nursing just wanted hassle-free testing. Both sides got a chance to air frustrations when they were invited to participate in a failure mode...
effects analysis (FMEA) team. The FMEA process was formed to address patient-safety issues. JCAHO requires the FMEA be employed for high-risk tasks. Because the POC department used billing errors directly related to failing armbands as a PI indicator, enough data existed to prompt York's patient-safety committee to recommend the armband process be added to the FMEA. A multidisciplinary FMEA team formed in January 2003 included nurses from three different types of in-patient units, the laboratory operations manager, phlebotomists, and the POC coordinator.

During those FMEA meetings, frustrations were vented in a productive, controlled environment. Every conceivable way the patient-identification process failed was recorded, with the goal of providing interventions to prevent the continuation of those failure modes. What developed was an alliance or partnership between the lab and nursing. As Janet Werner, LPN at York Hospital, says, “The relationship that developed between the lab and the nursing staff while working on the FMEA was remarkable. Without the caring personnel from both departments, the project would not have been a success. It took much patience, persistence, and time from them to accomplish this mission, and they gained much knowledge from each other.”

The FMEA team united, empathetic to each other’s plight, and determined to support efforts to remedy the situation. The LIS staff was petitioned by the team to create and customize an armband program. The system included a new Zebra Direct Thermal printer and a new armband that does not require assembly. The band was found to be durable, easy to scan, easy to use, and difficult to remove. The bar code, designed to run both vertically and horizontally, eliminated curvature and scanning issues. An added feature was the creation of a solid bar or quality-control bar. Any breaks in the solid print would allow detection of printer failure.

**Pilot program success**

The new alliance between the lab and nursing staff was put to the test during a three-month pilot program when a clinical trial of a newly created armband system was conducted. During those three months, all patients on the pilot unit wore the new armband. Staff members were asked to document the armband quality for each patient on each shift. A survey format was used to summarize the number of patients wearing an armband, correct patient identification, legibility, and scanability. A total of 2,620 patient surveys was completed.

The most remarkable outcome of this nurse-laboratory partnership was that the percentage of illegible armbands went from 11% to 0.2% during the three-month period, and the offending armbands were sent to the media company for research. A manufacturing correction to the armband medium was made to prevent recurrence. This remarkable improvement can be attributed to at least two changes: the new armband was much easier to scan, and the operators were reacquainted with the need for compliance with the patient-identification policy. Results of the pilot study and Patient-Safety FMEA were presented to the hospital’s board of directors, and a budget exception was granted to purchase a new armband system.

**The “workaround” nemesis disappears**

In order to address infection-control issues, POC worked with the infection-control department to change the isolation protocol for the Sure Step FLEXX bedside glucose meter. Prior to leaving the isolation room, the exterior of the meter must be disinfected. Before the new isolation protocol, the meter did not enter isolation rooms, requiring the operator to scan something other than the armband. This change in protocol eliminated the staff’s nemesis — the “workaround” — for patient identification.

York’s FMEA project resulted in two positive outcomes. An excellent bar-coded armband for the patients at York Hospital is now in place, and lab and nursing personnel have a deeper appreciation for the jobs each other performs. Rosa G. Hickey, MSN, RN, and York’s director of clinical and professional development, explains, “Working collaboratively with our lab colleagues has resulted in the implementation of an armband that represents the ‘gold standard’ for patient identification and bar-code technology. At the end of the day, it is about working together to achieve the best for our patients — and that is exactly what we did.” Werner summarizes the collaboration: “We became a nursing-lab partnership working and thinking as one unit.”

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