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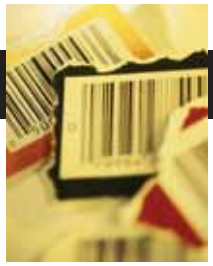


Bar Coded, Unit Dose Packaging

PACKAGING PRACTICES AT A SMALL COMMUNITY HOSPITAL

By Bill Arrington, DPH

Stillwater Medical Center, in Stillwater, Oklahoma, is a 120-bed, city-owned, not-for-profit hospital that also operates a rehabilitation center and skilled nursing facility, and owns or manages several physician practices. The pharmacy has been bar coding its unit dose medications for about three years, and our hospital has been using IntelliDOT's CAREt system – we were the alpha test site – for bar coded bedside medication verification and administration for just over two years.

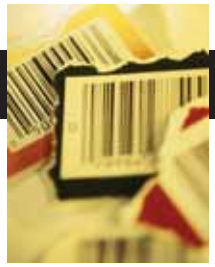
In developing our program for bar coded medication administration, patient safety was the number-one issue. We also plan to use the system to help us bill on administration, an initiative we are currently working towards in order to achieve more accurate billing for our patients.

Packaging Systems

We use the Auto-Print II from Medical Packaging Inc. (MPI) for packaging tablets and capsules. Prior to using that system, we had been manually packaging doses in blister packs, but we have found that nurses prefer the Auto-Print's packaging. They find it easier to open and the machine's capability to print larger fonts and tall-man lettering is helpful to them at the bedside. For syringes, vials, or ampoules, we use a software package developed by our Louisiana-based wholesaler that generates thumbnail-sized bar coded labels.

System Selection and Implementation

As a small hospital, we were on a tight budget, and when IntelliDOT representatives introduced us to MPI, we were pleased to work with them. To ensure a smooth implementation, we built two extensive bar code databases, or dictionaries: one for our IntelliDOT system and one for the AutoPrint. In those dictionaries, we linked the drugs' NDC numbers to six-digit, hospital-specific billing codes. In fact, the bar codes on each unit dose package reflect those billing codes, rather than the NDC numbers for each drug. Because we need to enter the billing codes into our IntelliDOT formulary anyway, we



did not need to add a step to our process, and it is helpful to have the same bar code value on each dose of the same drug, regardless of the manufacturer. In addition, the Auto-Print tracks information regarding each packaging batch. So if there is a recall, we are able to locate that particular batch and easily remove it from our inventory. In addition, the six-digit hospital bill code is also common to Meditech (our hospital information system) and our Pyxis cabinets. This commonality helps ensure accuracy across our various computerized systems.

Packaging Practices and Process Improvements

Generally, our technicians perform the packaging and a pharmacist verifies their work by carefully examining the packages and the information printed on them. The pharmacist also inspects the packages to ensure they have been properly sealed. In extremely rare instances, we find an empty package or a package with two doses – the result of the Auto-Print being improperly loaded. However rare these instances, it is best to inspect each package before releasing it to inventory.

When we build a new drug into the Auto-Print database, we also build it into the IntelliDOT dictionary. And after running a test batch, we ensure that our nurses' handheld devices can scan the bar code printed by the machine.

We have found it best to allow only one bulk bottle in the packaging area at one time. If multiple bulk bottles are present, there is a higher chance of an entire batch of improperly packaged and labeled drugs making it to our patient care areas, which could lead to difficult-to-detect medication errors.

Best Purchasing Practices

At first, we thought we would mostly purchase bulk medications and repackage them ourselves, because the Auto-Print generates unit dose packages relatively quickly. However, after analyzing costs, we found that it is sometimes cheaper to buy unit dose medications already packaged by the manufacturer. So, when it makes financial sense, we do just that. It can also be safer to buy manufacturers' prepackaged bar coded unit dose products because of the intensive QA processes inherent in the manufacturers' packaging operations.

In the past two years, we have also found that more and more products are bar coded at the unit dose level directly by the manufacturers, particularly ampoules and vials. Our ability to purchase about 90% of our drug inventory in bar coded unit dose has had a positive impact on efficiency and patient safety. Prepackaged doses save us the time and effort associated with packaging, and rid us of the risk of mislabeling doses during the packaging process. However, there is one drawback: manufacturer bar code symbologies are not yet standardized. Our IntelliDOT bar code readers have been able to read all of the bar codes we have received from manufacturers thus far, but the nurses' scanning technique has to be modified for certain codes. As such, we realize the most efficiency benefits with linear bar codes, such as those applied to our packages by the Auto-Print.

Going Forward

The MPI system has been very reliable. Furthermore, the WinPak software is easy to work with. We have been very pleased with the support we receive from Medical Packaging Inc. In fact, we have considered adding their PALP (Pharmacy Accessory Label Printer) to our bar coding operations, for labeling ampoules, vials, syringes, and suppositories or any other unit of use product not bar coded by manufacturers. ■

Bill Arrington, DPh, is the director of pharmacy at Stillwater Medical Center, where he has worked for over 29 years. He holds a B.S. from Southwestern Oklahoma State University.

MEDICAL PACKAGING INC.

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