from the Automation Expert
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# THE ROLE OF ADMs
# IN ENSURING MEDICATION-USE SAFETY

I'VE BEEN THINKING ABOUT CASH MACHINES AND drug dispensing.

### Point of Dispensing

Since their early days, automated dispensing machines (ADMs) have been likened to automated teller machines (ATMs), because nurses dispense drugs from the former the way bank customers get cash from the latter. When they were first introduced, ADMs, with ATM-like convenience and security, offered a number of improvements over manual narcotic boxes, which were then managed a lot like hotel mini "honor" bars.

However, there were also noteworthy differences between ADMs and ATMs. Some of the first ADMs allowed nurses to choose any patient, then select and dispense any drug. (Suppose a bankcard holder could access anyone's account or withdraw any amount of cash.) Nurses were frequently presented with a matrix of a few dozen compartments from which to select the correct drug. Better dispensing machines would limit nurse access to multiple doses of one drug, from which nurses would remove one item and verify the count remaining. What if an ATM drawer containing 100 $20 bills opened, and the user was instructed to take one and verify that 99 remained? Fortunately, over the years ADMs have become more like ATMs.

Today, ADM software typically restricts dispensing to "meds due" from the selected patient's profile, just as ATMs restrict access to the cardholder's accounts. Furthermore, single-item dispensing hardware can limit access to—you guessed it – single items. Most ADMs may be configured to dispense only one 10-mL vial of Lasix to fulfill an order for Lasix 10 mL.

Personally, I think we ought to treat ADMs more like we treat ATMs.

When loading cash machines, banks are extremely careful not to mix fives in with the twenties. I'd bet they are even more careful not to mix twenties in with the fives. Because cash machines deal exclusively with fives and twenties, loading is essentially fail-safe. ADMs, however, must stock hundreds of drugs in various dosages and formulations, sometimes with labels and names that look and sound alike. My experience informs me that pharmacies do not fill compartments in automated cabinets as carefully as they fill patient cassettes in medication carts. Therefore, I recommend that a bar code-enabled verification system—comparable to an ATM's electronic bill reader—should be standard in ADMs to ensure that the correct drug is loaded into the correct compartment.

When asked, nearly all people say they count dispensed cash before they leave an automated teller, in spite of the fact that there is a one-in-a-million chance for a miscount. Nurses also should never assume that the drug dispensed is the drug ordered.

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It is equally important to understand that ADMS need to do more than ATMs.

While it's OK that ATMs don't tell us how to spend our cash, ADMS must provide caregivers with information on how to administer the medications dispensed.

As valuable as their technology is, ADMs do not complete a safe medication-use process. Let's assume the dispensing cabinet ensures that the correct formulation of the right drug is dispensed to the correct nurse for the right patient. We must acknowledge and respect the significant gap between the electronic box and the patient. How does the nurse ensure that the meds in her left pocket, which were pulled for Mary Smith, are not confused with Maria Smyth's meds in her right?

### Point of Administration (POA) Technology

When it comes to ensuring a safe drug-delivery process, equipping nurses with bar code scanning technology to match patients and medications at the POA is even more important than providing them with automated dispensing cabinets. Not only does scanning ensure that Mary Smith gets the right medication at the right time, but the bar code's accompanying information also helps ensure that she gets the correct amount. When the ADM appropriately dispenses a 40-mL vial of Lasix, and Mary's order calls for 30 mL, POA scanning will not only tell the nurse that she has the right med in her hand, but it will also tell her what to do with it, avoiding a potential 10-mL overdose of Lasix.

Furthermore, POA systems document real-time, real-place administration activity. With manual charting, too much documentation is done at the end of shift, at a nursing station, from scraps of paper collected during med passes—as if the M in MAR stood for *memory*. The result is that approximately 20 percent of bedside documentation is in error. Physicians who make decisions to continue, discontinue, or amend orders lean on MARs, so it helps if they are accurate.

A few hospitals chart administrations in the MAR when meds are dispensed from ADMs, similar to an ATM's ability to tell us how much money we pulled from our account, but not how we spent it. That process may be fine for cash, but it is not for drugs. A MDR (medication dispensing record) should never be considered a MAR.

All in all, both point-of-dispensing and point-of-administration technologies can play valuable roles in ensuring a safer medication-use process. We just need to make sure to respect the gap between the two, and not confuse the role of one with the other. P&P

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