Increasing Pharmacy’s Role in the Purchase of Ambulatory Infusion Pumps

By Lynn Kelley, RPh

AMBULATORY INFUSION PUMPS ARE AN IMPORTANT MEANS OF DRUG delivery for both inpatient and outpatient settings. Among the applications for these pumps are the delivery of medications for pain control; TPN infusions; intermittent therapy to deliver antibiotics, such as penicillins and aminoglycosides; and continuous infusion therapy for the delivery of chemotherapeutic medications. Pharmacists prepare the medications for the pumps, and this is often the limit of their involvement with these devices. However, in my experience, pharmacists need to be much more involved in deciding which infusion pumps should be used in their practice setting. While the pump selection process is typically handled by the nursing and anesthesia departments, pharmacists need to proactively get involved with the selection process in order to ensure cost control and patient safety. When selecting an infusion pump, there are a number of factors to consider that will impact both the patients and the staff.

Soft Goods
The type of pump that is used can affect both the pharmacy budget and the amount of time pharmacists will spend on medication admixture. For instance, the purchase of a pump that utilizes bags, tubing, and cassettes that are easy to use can cut down on the time that pharmacists spend mixing the medications. In addition, the cost of these soft goods should be taken into consideration, as it will impact the pharmacy budget. With increased involvement in the purchasing process, pharmacy can ensure the pumps’ impact on the budget and staff hours is a positive one.

Size and Durability
The size of the pump is also a key factor to consider, especially with regard to your patients’ comfort. Patients like a pump that is as small and lightweight as possible, so they can move about freely. Another important issue is the durability of the pump. A pump that fails frequently will obviously have a negative impact on patients, as well as health care providers. A malfunctioning pump takes up a lot of the staff’s time, and it can also cause anxiety for patients. Therefore, health care providers should research the repair rate for a given ambulatory infusion pump before making a purchase.

Flexibility and Programmability
Because ambulatory infusion pumps are used for a wide range of medications and clinical conditions, health care providers should look for pumps that have the capacity to handle multiple functions. By utilizing such pumps, cost savings can be realized as the number of pumps needed is consolidated. However, as the programming capacity of the infusion pump increases, the battery life usually decreases. Therefore the pump’s power supply should also be considered when making a purchasing decision.

Alarms and Alerts
The audibility of the pump’s alarm/alert setting is a safety feature that should not be overlooked. The Joint Commission requires that alarm/alert settings be loud enough to elicit a response from the staff. Newer pumps can even “tell” you—via their screen displays—exactly what needs to be adjusted or fixed when the alarm rings, making repairs or adjustments easier. In addition, consider the pump’s reporting capabilities. Some pumps are able to report on a patient’s infusion history, helping health care providers monitor the patient’s therapy and make better informed care decisions.

Pharmacy’s Role in Patient Safety
When health care delivery shifts from the hospital to outpatient and home settings, ambulatory pumps are necessary to safely deliver medications. In the outpatient setting, incorrect pump programming is the number one cause for medication errors. Since pharmacists mix a patient’s medication, they are well aware of the concentration and the directions for use, which are individualized for each patient. As such, the pump’s programming must be adjusted for each patient. Pharmacists can play an important role in decreasing pump programming errors by verifying a nurse’s programming decisions before infusion starts, even by having just a simple phone conversation with the nurse.

Because pharmacists are responsible for medication control throughout their organizations, it only makes sense that the pharmacy department plays a role in determining which ambulatory pumps will ultimately deliver medications to their health systems’ patients. Pharmacy expertise can ensure that the pumps selected are effective and safe in their delivery of patient care. Among the safety features to look for in an ambulatory pump is the device’s ability to lock its programming. If a pump were to go off its program because a patient inadvertently pressed one of the pump’s buttons, that patient could suffer an adverse drug event. Furthermore, look for a pump that offers a secure attachment to the cassettes, bags, and tubing that contain the patient’s medication. An insecure attachment could lead to the faulty delivery of a drug, thus causing a medication error.

Conclusion
There are many advances currently in the infusion-pump technology pipeline. There are pumps in development that will be able to give pulse oximetry, as well as pumps equipped with GPS locators, which can be of benefit in a nursing home setting. While these future developments promise additional clinical benefits, it is imperative that pharmacists be involved in today’s ambulatory pump purchasing decisions to assure the best clinical outcomes for their patients.

Approach the purchase of ambulatory pumps with a clear idea of the needs of your health care organization, and the needs of the pharmacy department in particular, and then evaluate the features of different...
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Lynn Kelley, RPh has extensive experience working in clinical settings that utilize ambulatory infusion pumps. He has served as the director of pharmacy at St. Johns Hospital in Springfield, Missouri, and is currently the president of Home Parenteral Services, also in Springfield.

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