Nix the Quick Fix: Adopting New Drug Protocols Requires Groundwork

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**Problem:** A pharmacist shared a story that conveys just how error-prone a new medication protocol can be when planning and testing are sidestepped in favor of quick, widespread adoption.

A few physicians had obtained a protocol for an insulin infusion from another hospital. Right away, they began copying the protocol and placing a copy of it on patient records whenever an insulin infusion was prescribed. In response, hospital staff members quickly reproduced the protocol in their own format, pushed it through the P&T committee, and encouraged the entire medical staff to use it for all patients who required an insulin infusion. Soon thereafter, the problems began.

According to the protocol, the standard concentration for the infusion was 1 unit per 5 milliliters (mL). However, because this proved to be too much fluid for some patients, the physicians sometimes changed the concentration to 1 unit per mL while still using the protocol for dose changes. This led to enormous confusion.

There was another drawback to the new protocol; it presented the insulin dose in units per hour, whereas the nurses had been accustomed to handwritten orders prescribing the infusion in milliliters per hour. Inevitably, the nurses sometimes entered the infusion rate as the dose per hour, not mL per hour. In those instances, patients received only 20% of the intended dose.

The protocol also called for bolus doses and dose adjustments every two hours, which often resulted in labile blood sugar levels. Eventually, many physicians began altering the frequency of bolus doses, or eliminating them, while still using the protocol for dose adjustments. It was later discovered that the other hospital’s protocol had been developed specifically for patients who were receiving tube feedings and total parenteral nutrition.

**Safe Practice Recommendation:** Standardized protocols are invaluable tools for guiding the safe use of medications, but some fundamental background work is necessary before these protocols can be successfully adopted. Here are some suggestions for avoiding errors when a new protocol is being adopted:

1. Before any new protocol is implemented, an appropriate interdisciplinary team should be created to perform a failure-mode-and-effects analysis (FMEA) to determine potential pitfalls in the protocol and to plan appropriate remedies. In the case described earlier, for example, a FMEA would have probably led to many changes, including the use of a concentration of 1 unit per mL to avoid patient harm from fluid overload or accidental entry of the dose per hour as the rate per hour. (The dose and rate per hour are the same with 1 unit per mL.)

2. From the beginning, the interdisciplinary team should determine process and outcome measures to help evaluate the success of the protocol. Examples include compliance with different parts of the protocol (process measures), fluctuations in glucose levels, and episodes of hyperglycemia and hypoglycemia (both outcome measures).

3. After the concept of the protocol is approved, several enthusiastic physicians and nurses should be requested to test it on the next few patients admitted while they gather information about its ease of use and effectiveness.

4. The interdisciplinary team should address any problems they discover before allowing the protocol to be used throughout the organization.

5. Staff members must receive education and training about new protocols.

6. The error described in this article should not discourage readers from using tools that have been created by other health systems or from sharing their own tools with others. This sharing of tools—really, the sharing of innovation—has caught fire in health care and is making a significant impact on safety and quality. The wisdom of adopting innovation that has been developed by others should not be in doubt as long as everyone consistently follows a process to ensure medication safety.

Fortunately, all of these steps to ensure safety can be accomplished in a short period of time when a new protocol is adopted.

The reports described in this column were received through the USP–ISMP Medication Errors Reporting Program (MERP). Errors, close calls, or hazardous conditions may be reported on the ISMP (www.ismp.org) or the USP (www.usp.org) Web site or communicated directly to ISMP by calling 1-800-FAIL SAFE or via e-mail at ismp-info@ismp.org.