

Learning From Others: A Case Report from the Anesthesia Incident Reporting System

Case 2021-3: All Orders Are Not Alike

A 5-year-old boy with complex congenital heart disease POD 2 is intubated and ventilated with dexmedetomidine infusion for sedation in the ICU. He had more and more frequent desaturations associated with thrashing, coughing, and bucking. During rounds, the team decides to paralyze the patient and verbal orders were given for vecuronium. The respiratory therapist communicates this to one of the nurses in the med room. The nurse obtains vecuronium from the automated dispensing cabinet by overriding the controls. The attending returns to the bedside and is handed an unlabeled syringe. When she asks, "What's in the syringe," she is told Versed – error discovered.

This case illustrates how so many things can, and do, go wrong even with a seemingly simple decision to paralyze a patient in an ICU. In this incident, it was fortunate that no harm occurred, but one can easily envision a scenario in which this type of error may have had catastrophic consequences.

The chain of events began with a verbal order. All hospitals and The Joint Commission strongly discourage the use of verbal orders except in emergency situations or when the prescriber is unable to document the order. In this instance, it could be argued this was a not an emergency and that a written order could have been entered while rounds were being conducted or immediately afterward. This scenario would have ensured that the standard medication ordering and administration process could be followed.

There are several valid safety reasons for discouraging the use of verbal orders, but the general concept is that verbal orders bypass the checks and balances that exist when an order is written. Computerized provider order entry is now common across the country. Computerized systems allow for clinical decision support, dosing guidelines and guardrails, and a host of other safeguards. Written orders also clarify the correct patient, medication, dose, time, route, and, in some instances, the correct indication. Finally, written orders allow for pharmacy review, which is one of the most important but underpublicized safety mechanisms in the medication administration process.

The report provides no information on whether there was any readback/two-way communication of the verbal order to verify that the individual receiving the order indeed heard the correct information. Moreover, in this situation the original verbal was taken by a respiratory therapist who then communicated the order to a nurse. Respiratory therapists are not licensed, independent professionals and should not be



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taking or transmitting these types of verbal orders.

Automated dispensing cabinets (ADCs) are now very common both in and out of the OR. The Institute for Safe Medication Practices (ISMP) has several recommendations regarding the safe use of ADCs. One such recommendation is that ADCs should be profiled when possible. Unprofiled ADCs are most often found in the OR and allow practitioners to access all medications housed in the ADC without an order and pharmacy review. There are a host of medication safety issues associated with unprofiled ADCs again related to the fact that these allow providers to bypass the usual medication safety checks and redundancies. Profiled ADCs are typically found on the inpatient units and do not allow a provider to withdraw a medication without an order and pharmacy review except in emergency situations.

There will always be emergency situations in which a medication must be obtained quickly and without a written order. The ADC override function allows a provider to obtain the medication quickly. ISMP recommends that hospital pharmacies regularly and periodically review the overall override rates by individual hospital units. They should also have clear policies on ADC overrides, which should include indications for overrides, medications eligible for overrides, and safety measures that could minimize the risks associated with ADC overrides. ISMP specifically cited a versed for vecuronium switch in one of its communications as a potentially fatal error associated with overrides, mostly likely because there a recent well-publicized incident that resulted in a fatality when vecuronium was administered instead of versed following a verbal order for versed.

The nurse in the case presentation overrode the ADC safeguards presumably because she thought this was an emergency. One potential safety concern with overrides is that the provider must search for the drug. In this situation, a provider would begin searching by typing in the name of the drug. Regardless of whether the intended drug was versed or vecuronium, the first two letters entered would be V and E. In many ADC systems, both vecuronium and versed would appear along with any other medication beginning with letters V and E. There are some potential solutions. One would be to program the system to show a list of drugs only after three letters have been typed as opposed to two. In this incident, versed is the trade name of midazolam, and if midazolam had listed, this switch could have been avoided. Lastly, one could debate whether vecuronium should be on the list of medications available for override because it requires a provider to reconstitute the drug, which could result in an error – especially if that provider is not an anesthesia provider and may be unfamiliar with the medication.

All anesthesiologists are trained to label every syringe beginning with their very first day of residency, and it would be fair to say that failure to do so would be a breach of the standard of care. While there are a number of ways departments accomplish this, the fundamental principle is that all medications should be labeled. For the rest of the hospital, the overwhelming majority of all medications are prepared, labeled, and dispensed by the pharmacy. These labels contain all the important elements required to prevent errors.

One should be aware, however, that while having the hospital pharmacy prepare and dispense medications provides many important safety features, this does not completely eliminate the possibility of a drug error – this is due to the fact that all of the labels look exactly alike. A prior report in the *ASA Monitor* highlighted a medication swap during which a cephalosporin was injected into the femoral nerve during a block. While there were a number of contributing factors, one important

factor was that the two syringes were prepared by the pharmacy and looked exactly alike.

In this instance, the medication was not prepared by the pharmacy and was also not labeled. Anesthesiologists often label syringes with pre-printed labels that are also color-coded to indicate a particular class of medication. Labels should include the drug name and concentration, date and time of preparation, and the name or initials of the provider who prepared the medication. Some ORs have devices that can scan the medication ampule and print a color-coded label with the appropriate information. These devices can serve as a valuable check in the OR to prevent drug errors.

Most hospital units outside of the OR, however, do not have such systems or devices in place to label medications and often rely on bedside nurses to label the medications. From a safety and compliance perspective, it is unknown whether the required elements of a drug label are consistently followed or whether hospitals perform routine audits to ensure compliance. In this instance, it was fortunate that the ICU physician saw the unlabeled syringe and asked what it contained.

Using the override feature bypasses what is perhaps the last safety element in the medication administration process – barcode scanning. Most hospitals have equipment and processes that require a provider to scan the barcodes on both the medication and the patient prior to administration. Among other things, this practice ensures that the medication was ordered for the correct patient, that it is indeed the correct medication, and ensures that the patient has no known allergies to the medication.

Medication errors are the most identified errors that occur in the OR. Anesthesiologists, however, provide care in several hospital settings, and this case illustrates how a single verbal order could lead to a series of downstream errors that may result in serious consequences. Anesthesiologists should familiarize themselves with the medication administration process outside of the OR in order to minimize the likelihood of medication errors. ■

Review of unusual patient care experiences is a cornerstone of medical education. Each month, the AQI-AIRS Steering Committee abstracts a patient history submitted to the Anesthesia Incident Reporting System (AIRS) and authors a discussion of the safety and human factors challenges involved. Real-life case histories often include multiple clinical decisions, only some of which can be discussed in the space available. Absence of commentary should not be construed as agreement with the clinical decisions described. Feedback regarding this article can be sent by email to airs@asahq.org. Report incidents or download the AIRS mobile app at www.aqiairs.org.