



Learning From Others:

Anesthesia  
Quality Institute   
ANESTHESIA INCIDENT  
REPORTING SYSTEM (AIRS)

## A Case Report From the Anesthesia Incident Reporting System

*Detailed review of unusual cases is a cornerstone of anesthesiology education. Each month, the AQI-AIRS Steering Committee will abstract a case and provide a detailed discussion based on a submission to the national Anesthesia Incident Reporting System. Feedback regarding this item can be sent by email to [r.dutton@asahq.org](mailto:r.dutton@asahq.org). Report incidents to [www.aqiairs.org](http://www.aqiairs.org).*

### Case 2012-5: Two Patients, One Syringe

*Safety requires that all anesthesia providers exercise vigilance when caring for every single patient.*

– Motto of the American Society of Anesthesiologists

#### Case Presentation

A 1-year-old male was scheduled for revision of an inguinal hernia repair in an O.R. staffed by an anesthesia care team. The patient underwent a routine inhaled induction with parental presence. Intravenous access was obtained. At that point, the patient experienced profound laryngospasm. The attending anesthesiologist picked up a properly labeled syringe of propofol lying atop the anesthesia cart and administered an appropriate dose to deepen anesthesia and break the laryngospasm. The patient stabilized and the airway was secured without incident. The operation proceeded uneventfully. After the case and while reconciling the drugs, the other provider noted that the propofol syringe had also been used on the preceding patient. The event was disclosed to the families of both patients and viral serology testing was negative; there was no adverse outcome.

#### Discussion

Anesthesia providers are the only members of the health care team tasked with diagnosing a problem, identifying the appropriate drug to administer, preparing the medication for delivery, labeling the drug, preparing the route of administration, giving the drug, assessing for side effects and documenting the dose. In every other area of health care this is a multifaceted process with at least two individuals involved. While this approach is fundamentally dictated by the environment in which we work and has many tangible benefits – such as rapidity of action – it is fraught with potential risks.

First and foremost, there is no redundancy in our process unless the individual anesthesiologist drives it. Worse, when two members of the anesthesia care team are working

together, the natural assumption that this provides redundancy is unfortunately wrong. In fact, it may be that the reverse is true, and the presence of two providers may contribute to miscommunication events.

In 2010, the Anesthesia Patient Safety Foundation hosted an international conference on safe medication management.<sup>1</sup> More than 100 experts convened to create a consensus recommendation for medication administration in anesthesia. Many of the recommendations apply to this specific case. The statement has four areas of focus: standardization, technology, pharmacy/prefilled/premixed, and culture.

The standardization section recommends ready-to-use syringes with fully compliant machine-readable labels. While in this case the syringe was labeled with the five required elements (medication name, concentration, date, time and identification of the preparer), this does not include the name of the patient for whom the drug is intended. While this may seem to be a heavy burden for routine medications, this case illustrates why it may be worth considering. Technology to print labels with the patient's name might help ensure the right patient receives the right medication.

Standardization also applies to the process used to dispose of medications at the end of a case. Leftover partial doses of medications should be destroyed when the case is completed. A consistent, agreed-upon process for room turnover should be in place. This policy should include the role of the anesthesia providers, the role of technicians and a process for managing controlled substances.

The technology section suggests a paradigm shift for anesthesiologists – scanning the medication prior to delivery and allowing time for the electronic medical record (EMR) and anesthesia information management system (AIMS) to provide real-time decision support as to whether this medication should be given. In this case, an alert may have displayed that the

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syringe had been used for a previous patient. Bar code scanning may lead to more reliable medication administration, but is in routine use in relatively few O.R.s today.

The pharmacy section advocates standardized, pre-filled syringes whenever possible. While a laudable goal that may prevent a host of different errors, it would not have prevented this specific one. That said, appropriately labeled, pre-filled syringes as part of kits for each patient may meet the need for patient identification on each syringe.



The final section of the report offers many thought-provoking recommendations about building a safety culture at individual institutions. This is part of the reason the anesthesia incident reporting system (AIRS) was developed, to encourage the review, analysis, discussion and prevention of future errors. While this work is under way at a national level as part of the Anesthesia Quality Institute (AQI) and APSF, there is opportunity at every practice and institution to collect cases of near-misses and patient harm for review, education and planning process improvements

After the event, the provider told the attending anesthesiologist that production pressure was a contributing cause of the event, and that the provider felt rushed preparing for the case. Crew resource management training (CRM) has been successfully utilized in the perioperative environment and is applicable to this scenario. CRM was initially developed in the aviation industry and offers best practices on how the crew of an airliner should communicate and interact. This model has been successfully implemented in the perioperative environment. According to Stephen Pratt, M.D. (a member of the AIRS Steering Committee), one relevant concept from CRM is that any member of the team is empowered to “stop the line.”<sup>2</sup> In this case, if the provider felt unready to proceed, it may have been appropriate to halt the process temporarily.

## Recommendations

- Each practice should develop a process for medication reconciliation at the end of every case.
- All anesthesiologists should consider a model proposed by the APSF where technology provides “a mechanism to identify medications before drawing up or administering them (bar code reader) and a mechanism to provide feedback, decision support and documentation (automated information system).”<sup>1</sup> Further, this system should check via bar coding that the medication has not been used on a prior patient.
- All institutions and practitioners should work toward advancing a safety culture where incidents such as this one are reported, discussed and prevented from occurring.
- Principles from CRM training, including reinforcement that any participant in the case can “stop the line,” should be reinforced with all members of the perioperative care team.

## Conclusion

Vigilance is the motto of the ASA and the hallmark of safe, effective care. Every institution and member of the anesthesia care team should have a method in which medications are safely handled, including proper disposal and reconciliation at the end of every case.

Anesthesiologists are the leaders in patient safety – we should work to advance a practice model that leverages technology to provide the safest environment for our patients.

## References

1. Eichhorn JH. Consensus statement of the medication safety conference. *APSF Newsl.* 2010; 25(1):1-7.
2. Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based training on obstetric outcomes and clinicians' patient safety attitudes. *Jt Comm J Qual Patient Saf.* 2007; 33:720-725.