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

Case 2022-1: Pagers... What's a Pager?

A 1-year-old male was undergoing a craniosynostosis procedure when the resident noted an increase in bleeding and an elevated heart rate from baseline. The resident texted his attending. The attending was not carrying her personal cellphone and did not receive the message (This organization uses hospital provided phones for communication). The resident and attending had discussed the cases by text message the night before. The patient continued to bleed and the resident treated the patient with phenylephrine. The patient decompensated and an overhead announcement for anesthesia help was initiated. The child was resuscitated appropriately with packed RBCs, fluid, and had a good outcome.

An appendectomy was a scheduled at an off-site hospital, covered by an anesthesiologist on call from home. Calls to the anesthesiologist's cell phone were not responded to. The on-call anesthesiologist at the main hospital sent an urgent chat message via the EHR to her partner that was received. Their phone was in silent mode, but the urgent message somehow set off an audible alert.

A 43-year-old patient recently underwent a cholecystectomy and was admitted to the floor of the hospital. The patient's nurse noted irregularities in the patient's vital signs and an elevated temperature. The nurse sent a secure chat message to the physician she thought was covering the patient and was quite concerned. The physician responded that this was not significant and would "drop by" later to see the patient. The patient decompensated over the next two hours and an RRT was called. The physician was surprised to find the patient in the ICU with a diagnosis of sepsis. The nurse on the floor said she "had a bad feeling about this patient" but did not communicate that via text.

Over the past five years, there has been a proliferation in communication technologies. At one organization, we counted nine different ways to communicate with a practitioner. As anesthesiologists, seconds count; reliable, timely communication methods are integral to our practice. Communication errors are typically found at the core of patient safety errors.

Years ago, things were simpler, and communication was largely synchronous. This format of communication is immediate and continuous, face to face or over the phone. An anesthesiologist either returned a phone number page or placed a call and a conversation took place. The common failure modes were simple: broken/inoperative pagers, forgetting to wear them or falling off our clothes, and a bad connection on a phone.

Messaging adds a new element of complexity to our practice and has become a "default" communication method socially. This type of communication is asynchronous, meaning there is a delay between receiving the message, processing it, and responding. Further, clarifying questions are also delayed. Social cues, or the "non-verbals," such as intonation in voice or speed of speaking are also missing, making it harder to interpret the stress level and urgency of the person initiating the message. These concepts were illustrated in a study that showed the risk of medical error or injury was reduced with phone communication (synchronous) versus pagers (asynchronous) (*Anesth Analg* 2006;102:535-41). The other issue is that, depending on device settings, these messages can be easily missed.

Further compounding these issues are the expansion of communication technologies. Almost all anesthesiologists have a personal cell phone capable of texting. Many electronic health records now have a built-in messaging application such as Epic's Secure Chat (Epic Systems). Complicating this, many sites also still have text pagers in use. Some sites have work communication phones such as Vocera or PatientTouch (Vocera Communications). Add that up and there are five different ways for health care team members to communicate. The question becomes, which one to use? At some practice sites, it has become a matter of personal preference. The issue with that is if the notification settings and alerts are not configured correctly, your urgent message may not make it. The more messages coming, the more likely a user may choose to "silence" certain alerts to preserve resiliency and reduce alert fatigue.

Software manufacturers have responded to this with a "hammer." Depending on the device settings, and as noted in the AIRS case report, it is possible to break through a user's settings and set off a loud alert even when the user has silenced their phone. While this is a well-intentioned solution to a user accidentally or purposefully putting their device in silent mode while on call, there can be unintended consequences. As we return to in-person events, an obnoxiously loud alert may not be well received in a theatrical setting or a fine restaurant. This may lead to users disabling these settings and further dissatisfaction.

The cases described here also highlight another error: closed-loop communication was not maintained. Closed-loop communication is the process of acknowledging the receipt of information and clarifying with the sender of the communicated message that the information received is the same as the original, intended information (asamonitor.pub/3EG1bfD; *Jt Comm J Qual Patient Saf* 2005;31:185-202). Messaging applications compound this issue, with the resulting delays and distractions inherent in this format of communication. Closed-loop communication is a critical patient safety principle. The members of the committee have heard many examples of critical communication being sent but not acted on, and the response from the sender is, "I sent the message." closed-loop communication requires that if the message is not responded to, or if the response is unclear or does not meet the needs of the sender, escalation to another member of the health care team or clarification occurs, respectively.

The proliferation of messaging has another side effect that may not be considered. Text messages are retained on personal devices for a long time, in some cases indefinitely, and can be very hard to erase. These messages can be discoverable in medical malpractice claims (asamonitor.pub/3EMjLmB). Further, text messages and many paging systems are not HIPAA-compliant. HER-based messaging systems are compliant and have an advantage here, but there is an important caveat. These systems can be set such that messages are saved as part of the legal medical record, or that these messages "self-destruct" after a period of time and are not discoverable. Our readers are encouraged to learn how your hospital's messaging platform is set up and, as a general recommendation, to avoid using their personal cellphones to "text" patient information or status. Use a secure, HIPAA-compliant platform whenever possible or limit patient-related conversations to phone calls.

If cellular phones were invented before pagers, pagers would not exist. The proliferation of technology is unavoidable. What is frequently missed is retiring the older technologies and demonstrably deciding

HIPAA and Confidentiality Considerations

The HIPAA Security Rule mandates the following must be adhered to when sending patient information via text messages:

- Access Controls: The device must be secured with a passcode, and patient information must not be viewable unless the authorized user has accessed the device. This means apps that "preview" the message without security are not allowed.
- Audit Controls: These monitor who accesses what information and when. This is not available for traditional text messages. Typically a business associate agreement with the vendor is part of accessing audit trails.
- Encryption: Patient information must be secured end to end. Encrypting data ensures it cannot be intercepted by unauthorized users. SMS messages and many pages are not encrypted.

Access the HIPAA Security Rule at **asamonitor.pub/3q5buFZ.**

Each month, the AQI-AIRS Steering Committee abstracts a patient history submitted to AIRS and authors a discussion of the safety and human factors challenges involved. Absence of commentary should not be construed as agreement with the clinical decisions described. Reader feedback can be sent to **airs@asahq.org**. Report incidents or download the AIRS mobile app at **www.aqiairs.org**.

to align on a new process and workflow. As anesthesiologists, we are extremely facile with new technologies, as they are at the core of our practices. We are also experts in patient safety, and our peers in medicine look to us for guidance on how to apply technology to time-sensitive situations. We are in a prime position to advocate for the thoughtful review and alignment of communication tools. Our recommendation is to do exactly that.

The primary take-away from this case report and analysis is that there is still a place for phone calls, and with these new technologies, closed-loop communication becomes even more critical. Remember, when in doubt, picking up the phone or going to the bedside is always the right choice. ■

Recommendations

- Partner with your organization to align on a consistent method of communication for notifications and urgent communication. Develop this into a formal policy.
- Try to reduce the number of methods of communication. Ideally there would be one asynchronous method and one phone-based method.
- Train on your preferred communication methods and make sure they are reliable. Understand how "breakthrough" messages work and when to use them.
- Onboard new members to your group to ensure they are part of the paradigm and have the equipment and software logins required.
- Consider the legal and confidentiality aspects of your communication platforms. Discourage use of SMS or IMessage texts for clinical care.
- Avoid "message tennis" – when things become complicated or are clearly acute, transition to a phone call or in-person communication.
- Practice closed-loop communication. The sender is always responsible for making sure the patient receives the care that is needed. If there is no response to a message, escalate to another person.
- If you are medically directing or supervising an anesthesia care team, proactively discuss and agree on communication methods for the day.

ACE Anesthesiology Continuing Education

ACE Question

A 76-year-old woman presents for urgent exploratory laparotomy. She has been receiving several medications for the management of dementia. Which of the following medications is MOST likely to interfere with neuromuscular blockade?

- ☐ **(A) Citalopram**
- ☐ **(B) Memantine**
- ☐ **(C) Donepezil**

As the population ages, more patients are receiving drugs for the treatment of dementia. Many of these drugs have possible interactions with perioperative medications. The indication for some of the commonly used medications is based on a presumed link between loss of cholinergic input and dementia.

Anticholinesterase medications are also frequently used in the treatment of dementia (e.g., donepezil). These medications may prolong paralysis from succinylcholine and impact nondepolarizing muscle relaxants by decreasing or reversing their effects. In order to avoid this interaction, stopping these dementia medications a day before surgery has been suggested. For most medications in this category, the elimination half-life is short enough that this can be considered. Donepezil has a half-life of 70 hours and should ideally be discontinued two to three weeks prior to anesthesia.

If nondepolarizing muscle relaxation is needed, the patient may require higher doses of neuromuscular blockers. If a patient receives anticholinesterase for dementia treatment until the time of surgery, perioperative management would include avoidance of succinylcholine. High-dose rocuronium or vecuronium with sugammadex reversal could be used instead.

Citalopram and memantine are unlikely to interfere with neuromuscular blockade. ■

References:

1. Alcorn S, Foo I. Perioperative management of patients with dementia. *BJA Education.* 2017;17(3):4-98. doi:10.1093/bjaed/mkw038
2. Cottrell JE, Patel P, eds. *Cottrell and Patel's Neuroanesthesia.* 6th edition. Philadelphia, PA: Elsevier; 2017:402-3.

Answer: C