



Learning From Others:

Anesthesia
Quality Institute

ANESTHESIA INCIDENT
REPORTING SYSTEM (AIRS)

A Case Report From the Anesthesia Incident Reporting System

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 Heather Sherman: h.sherman@asahq.org. Report incidents or download the AIRS mobile app at www.aqiairs.org.

Case:

Patient undergoing an ORIF of a fracture under general anesthesia. ETT in place. Music being played loud by iPhone cradle/sound system located directly behind anesthesiologist. In between songs, anesthesiologist notices high pressure alarm caused by kinked endotracheal tube that was previously not audible because of the loud music. The lesson learned stated by submitter was that music should not be played in the operating room.

Discussion:

The impact of O.R. distractions on the anesthesia professional has received significant attention in recent years. Articles on the subject have appeared in both the Anesthesia Patient Safety Foundation and ASA newsletters, and even in the lay press.¹ As recently as October 2015, ASA approved a “Statement on Distractions.”² While this document is rather broad in its recommendations, it does suggest that our responsibility includes: “*managing the working environment to control and when possible eliminate distractions that reduce appropriate attention to the patient within the anesthesia care environment*” and a “*professional obligation to minimize the risks of avoidable or unavoidable distractions diverting their attention from the care of their patients. This is both a collective and individual obligation of all those participating in the procedure.*” The statement also suggests that much more research is needed.

Many sources of distraction exist in the O.R., and not all are avoidable. The work itself may distract us from the minute-to-minute monitoring of the patient. Moving the O.R. bed, answering a page or becoming buried under the drapes while placing a second I.V. are all normal work activities for an anesthesiologist. Each is important to the overall care of the patient, but each can undermine vigilance. The sum of distracted time due to normal activities during a case might be significant.

An in-depth discussion of the impact of distractions in the O.R. is beyond the scope of this piece, but noise has become an area of significant interest. The simple noise level of the O.R. can be distracting. O.R.s can be surprisingly loud places, with average volumes of about 75 decibels (a car driving by at 65 mph), but can reach 100 decibels (outboard motor or lawn mower). Not surprisingly,

noise has been associated with decreased ability to detect changes in the pulse oximetry tone.³ Perhaps more importantly, O.R. noise is associated with increased sense of work load and fatigue among anesthesiologists.⁴ Noise has also been associated with increased surgical site infections, postoperative complications, surgeons’ stress level and decreased auditory responsiveness by surgeons. Not all noise in the O.R. is preventable, but very loud music (as in the case above), the sound made by excess staff, arguing or other disruptive behavior are a few that can and should be managed.

Reading in the O.R. is another (and somewhat controversial) potential source of distraction. Few would argue that looking up lab results or reading the side effects of a specific medication that one’s patient is taking is inappropriate, as each is likely to help the patient. Either could be distracting, but the risk/benefit seems tolerable. Reading general medical texts may help current and future patients and improve the general knowledge of the clinician. Whether this is acceptable is up for debate. Most would consider reading newspapers or other non-medical sources unacceptable. It is interesting to note that reading does not appear to hinder anesthesiologists’ vigilance.⁵ This is likely due to the fact that experienced anesthesiologists know when they are at “cruising altitude” and it is safe to read.

Distraction by electronic devices has received the most attention recently. With the near-ubiquitous use of smart-phones and tablets, or the growing availability of computer systems that house an AIMS system, anesthesia professionals have nearly 24/7 access to electronic devices in the O.R. As with reading, how these devices are used is more important than whether they are used. Looking up labs in an electronic health record or calling the blood bank to order more products would not be concerning. Shopping for gifts on Ebay would. The degree that using the Internet impacts patient safety is not well understood and may actually be dependent on the individual provider or situation. Wax found that periods of time during which the anesthesiologist was on the Internet (approximately 16 percent of the case duration) were not associated with an increased rate of significant hemodynamic instability.⁶ Similarly, only a small fraction of cases in the ASA Closed Claims database cite distraction as a contributing factor (13 of 5,822

cases).⁷ However, we know that texting or reading emails decrease driver response time 10-20 times more than being legally drunk.⁸ Concerns about electronics in the O.R. have led some to question whether they should be banned completely.⁹ Until we have better evidence to the contrary, it is not unreasonable to extrapolate that these activities would have a negative effect on care in the O.R.

The case above involved music, and while music in the O.R. is commonplace, it is a complicated issue. Music has been a part of medical practice for centuries and used in the O.R. for decades. Its ability to aid in the patient's relaxation and to promote patient healing has been used by physicians of many specialties, including anesthesiologists. However, most music currently played in the O.R. is designed to "help" the clinicians as opposed to the patients, to create a more relaxed atmosphere and to even improve technical skills. According to available data, music is played during 53-72 percent of operations,¹⁰ making it nearly a daily occurrence for many clinicians, and roughly twice as common as reading. Most clinicians of all specialties enjoy music in the O.R., with classical or light jazz being preferred by anesthesiologists, while top 40 seems to be the preference of surgeons.¹¹

Both patients and providers believe that music improves clinicians' concentration and team communication, with nurses holding this belief most strongly.¹¹ It is not clear that this is true for all specialties. Music does appear to be beneficial to surgeons; it lowers their heart rate, blood pressure and muscle effort.¹² Classical music improves surgical task accuracy, even among experts, and may improve efficiency, while chaotic sounds hinder efficiency but not accuracy.^{13,14} In contrast, and importantly, some anesthesiologists believe that music hinders vigilance (26 percent), distracts them from alarms (11.5 percent)¹⁵ and does not appear to improve psychomotor performance. Interestingly, white noise, while annoying to some, does not appear to hinder performance among anesthesiologists.¹⁶

As it turns out, music in the O.R. may actually have a negative impact on team performance, and not just because it creates another topic for potential disagreement between the anesthesiologist and surgeon (e.g., Wynton Marsalis or Miley Cyrus on Pandora). Weldon et al. videotaped surgical procedures performed with and without music.¹⁰ The authors measured the frequency with which requests had to be repeated and the impact that these repetitions had on O.R. efficiency and staff frustration. Repetitions were more than five times more common during procedures in which music was playing, with nearly 2 percent of requests needing to be repeated in the music group. These repetitions led to delays of 4-68 seconds per request. Not surprisingly, this had a significant negative effect on tension in the O.R. due to frustration. These results clearly do not support the widely held belief that music improves teamwork and communication.

The modern O.R. is a complex environment with workloads and equipment and staff and sounds that can easily distract anesthesia professionals from the care of the patient. We must be careful not to add to these distractions with preventable causes (reading, electronics or additional noise). While music is clearly common in the O.R., the degree to which it impacts our individual or team care has not been fully elucidated. The aviation industry utilizes the

concept of the "sterile cockpit," a term used in this column before. The federal regulation states that "no flight crew member may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crew member from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in non-essential conversations within the cockpit and non-essential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft." Using that as a model, the anesthesiologist should make a point of exerting influence on the music played, as on all elements of the operative environment. It is reasonable to insist on keeping the volume low enough that monitors can be heard at all times and to turn the music off during moments of the case when communication is most needed (induction, emergence, time out, cross clamps on/off, etc.). We can't control all potential causes of distraction, but we can do our best to maintain a sterile O.R.

References:

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For a complete list of references, please refer to the back of the online version of the *ASA Monitor* at asahq.org or email Jamie Reid at j.reid@asahq.org.