

PBLD #23

Title: **The Distracted Anesthesiologist: It's a Small World After All**

The Challenges of Anesthesia for Medical Services Abroad

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Educational Objectives: At the conclusion of this session the participant will be able to:

1. List 3 potential pitfalls of practicing anesthesia for a medical mission in the third world.
2. Identify elements in your workplace that often lead to distraction or decreased vigilance in the OR.
3. Describe a systems-based improvement in your institution that has affected the quality and safety of patient care in your operating room.
4. Formulate a strategy to reduce errors related to physician fatigue and/or production pressures at home or abroad.
5. Discuss the use of quality metrics for anesthesia and surgical outcomes on medical mission trips.

Case Description:

It was the last case of a productive but exhausting week of a medical mission to Peru. The team had performed over 65 strabismus surgeries. In the warm OR, with no scavenging system, the music was turned up for a little celebration.

The final patient was a 16 year-old female for strabismus repair under general anesthesia. Good equipment and propofol were in short supply.

During induction, propofol initially flowed retrograde through unfamiliar IV tubing. Additional propofol was given and the LMA placed. To decrease OR pollution, a helpful assistant turned off the vaporizer during LMA placement, but didn't communicate this over the noise. Anesthesia charting was abandoned, as anesthesia records were scarce, and you weren't sure if they would actually make it into the patient's medical record. Based on the available vital signs, the patient appeared anesthetized and surgery proceeded. You begin thinking about food and a shower, when you hear the surgeon scream, "She's awake!" and your patient is suddenly trying to sit upright in the middle of her eye surgery.

What events led up to this moment? How could this be avoided? Should this event be treated differently because it occurred on a medical mission? How should quality and safety be measured when working on a medical mission?

Discussion Outline:

1. Mission Mucho Eye Surgery: While preparing for the last case in an exhausting, but fulfilling week in Peru, you survey the situation. In trying to get all the cases done, you have again skipped lunch. You notice your headache from yesterday (maybe it's all that Sevo I'm breathing) has never subsided. You set up your IV with some expired tubing that looks foreign and check your machine, which has served its purpose despite a broken ventilator and no ETCO₂ or end expired gas monitors. There's one vial of propofol left, but that should be enough...
 - Does this sound familiar to anyone? Have you been on medical missions before? Have you also dealt with scarcity? In what ways? If not in a foreign country, have you dealt with scarcity or unfamiliar medications, equipment, etc. at home? How does this affect your anesthetic management? How does this affect safety or the propensity for medical errors?
 - Have you observed strategies that would increase safety in these unfamiliar situations? What are some of the most significant pitfalls or challenges you encounter (have encountered) on an international medical mission?

2. Como se dice “Preoperative Assessment”?: You meet your patient in the hallway outside. She is shaking and nervous, but excited to finally get her eyes “uncrossed”. In your half English-half Spanish, you ask her some final questions. She admits she thinks she had a fever last night, but didn’t measure it. She also has some congestion and a cough, which is new. She asks if she’ll wake up after surgery – she is worried because her grandmother “died from anesthesia”. You think, “I don’t remember this in pre-op clinic!!”
 - Should interpreters be used when speaking to patients in these situations? What if you feel comfortable speaking the language? What about at your home institution-are official interpreters suggested or required? What other barriers are present internationally besides language?
 - Based on her symptoms, will you cancel surgery? What if she was a 2 year old and the surgeon explains waiting a year will cause vision loss? Are your criteria different because you’re on a medical mission? Should all patients for medical missions be seen by anesthesia pre-operatively?
 - Based on her family history, will you change your anesthetic technique? What if there are no infusion pumps? (A very likely scenario). Why can’t this be done under local/eye block?
3. Vamos!: After convincing yourself there’s little MH risk and a brief discussion with your enthusiastic team (“We have to do her surgery – she may not have another chance for surgery!”), you bring your patient to the OR. You notice that her armband placed in pre-op clinic is smudged. You mention this to the rest of the team and half the team believes this is “Maria” and the others aren’t sure.
 - Are patient safety and standards approached differently on international medical missions? Is it less safe? What are some of the broader ethical dilemmas?
 - How important are team dynamics and communication to safety?
 - What types of medical services or surgeries should or should not be performed on international trips? Why?
 - What are some guidelines or ethical principles that could be followed to avoid the pitfalls? What are some strategies that you have seen implemented that make this successful?
4. Propofol y Peru: Another anesthesiologist (whose patient is asleep on the next OR bed) pushes propofol while you pre-oxygenate. She exclaims, “Wow! This IV flows great!” and you notice all the propofol has flowed retrograde into the IV bag. You turn on the Sevo, grab your last vial of propofol, and instruct her to inject while clamping the tubing. The LMA is inserted and your assistant turns off the Sevo to help with your headache. The circuit is reconnected and the case proceeds. The nurse decides it’s time to celebrate the last case of a successful trip and cranks up the music...

- Should music be played in the OR? In all situations or only certain ones? Is it distracting? How loud is too loud?
 - What other distractions are present in your OR? Do they affect patient care, patient safety, or team communication? Do you have a strategy to help with distractions when they seem to threaten safety? Does your institution have a policy regarding personal electronics or email in the OR? If not, what rules or policy would you implement?
 - How does fatigue affect our performance or patient safety? Does it increase medical error? By how much? Do most physicians feel that fatigue affects their performance? Do most physicians admit to making mistakes? How should mistakes or near misses be shared so they have the most impact on avoiding future errors? How do you identify fatigue in yourself and colleagues and do you have a strategy to address this?
5. “There’s someone grabbing my leg”: The case proceeds and you are pleased the patient is breathing spontaneously and the monitors are working. You think how weird it feels not to be charting, but there were more patients than anesthetic records. 15 min later, the scrub tech yells, “She’s grabbing my leg! She’s awake!”, as your patient tries to sit up. You glance at the Sevo, which to your surprise is off, and crank it to 8%. Someone is trying to open a Peruvian glass vial of borrowed propofol, but is clearly struggling. As you hold the patient down, you think, “How did this happen?! Can I go home now?”
- Summarize the multiple factors that led to this event. How could it have been avoided?
 - What has been your experience with quality assessment on international trips? What opportunities are there for improvement in quality assessment?
 - Final Thoughts?

Discussion

Over the past decade there has been increasing interest in quality and safety in the operating room. It has been well established that when errors occur the cause is multifactorial.⁵ To minimize error and optimize outcome the anesthesiologist must have an awareness of the situation in the OR and an understanding of the system in which he or she works. ⁶ This can be particularly challenging when providing volunteer medical services abroad. We present a case where an error occurred on an international trip due to a “perfect storm” in the OR. By analyzing what went wrong we hope to help others avoid the same pitfalls.

Providing anesthesia for medical services abroad presents a unique set of challenges.¹ The anesthesiologist is working in a foreign environment often with nurses, techs and surgeons they are not familiar with. Anesthesia equipment may not equal the standards used in the United States whether you are using local anesthesia machines and monitors or those brought with you. Safety standards in the OR such as electrical line isolation may not be present. Supply of oxygen and medications may be different than that experienced at home. In addition, the patients selected and the ability to screen them effectively prior to surgery may differ than in the States. On occasion, anesthesiologists and surgeons may be operating outside of their normal scope of practice. Often, there is production pressure on international trips to accomplish as much as possible in a short time with a skeleton staff. This means that there must be rapid turnover, short PACU stays and stability on discharge from the PACU since there may be limited supervision or pain control on the ward. Needless to say, to insure safety in this environment requires the anesthesiologist to be attentive and vigilant.

Recent attention has been given to the issue of the “distracted anesthesiologist” in the OR and the use of personal electronic devices.⁴ The OR itself with the monitors, sounds of surgical equipment, conversation, and music is distracting. In order to stay focused the anesthesiologist must develop situational awareness to react appropriately and filter out the distractions. A recent study demonstrated that background noise caused as much as a 17% reduction in the ability to recognize changes in oxygen saturation.⁸ Multi-tasking, the flip side of situational awareness, should be avoided. Use of personal electronic equipment in the OR is strongly discouraged. While use of personal electronic equipment in the OR is not a big issue on international trips there are many other distractions. Often the noise level is very high. There may be loud portable suction equipment or loud fans. In our situation, where 2 surgical teams were working in one room, the noise level and the distractions were confounded.

Fatigue is a human factor, which may contribute to error in the operating room.⁷ Individuals who are fatigued generally have impaired executive function and tend to over-estimate their ability to effectively perform their job. It has been documented that after working a 16-24 hour shift, performance level deteriorates to a level identical with a blood alcohol level of 0.05-0.08 %. Individuals providing volunteer medical services abroad often work sleep deprived and fatigued due to travel and extended workdays.

Literature regarding surgical and anesthetic outcomes of volunteer medical services abroad is sparse. There is little standardization regarding documentation of services provided and short term and long term outcome. Some organizations have internal QA systems and others have none. In 2001, Fisher et al published a review of anesthetic practices and adverse events related to Operation Smile. In the discussion they note the difficulty in obtaining data and in identifying acceptable rates of morbidity for surgical volunteer medical services abroad. This article encourages international medical organizations to develop tools for ongoing evaluation of their practices.¹

In the case presented, multiple risk factors came together to promote the error, which occurred. Working with irregular equipment in a noisy environment with multiple distractions at the end of a productive but exhausting trip, communication was suboptimal and poor assumptions were made. This resulted in the patient waking in the middle of surgery. Fortunately, there was no recall or permanent injury. The organization that sponsored this trip, like many others, currently has no mechanism for reviewing cases, identifying equipment irregularities or performing quality improvement. Much opportunity exists to improve the standard of care provided during medical services abroad. Improved standards for providers, patient selection, workload, and equipment coupled with a robust QI process may help to minimize error.

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