REFLECTIONS

Reflections on opioid stewardship and the journey to improving intraoperative storage and handling

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This week, I proudly watched our facilities staff permanently bolt the holding rack for our new opioid disposal container to my anesthesia medication cart. I took a moment to reflect on the three-year journey that led to this moment.

On a Friday evening in October 2018, I checked my work emails one last time before starting my weekend. I found a department-wide request, written by my Chair, to be more careful about leaving opioids unattended in the operating room (OR). Having seen similar requests over the years by previous site chiefs and Chairs, I felt deeply discouraged by the stubborn chronicity of this issue. I responded that, to effect a significant change, we needed a *major overhaul* in this area and that a reminder email just wasn't enough. His response came seconds later: "You up for it?". Emboldened by a glass of wine and the recent completion of another project, I responded "Bring it on". What followed was an adventure to tackle that which humbles even the most ardent quality improvement (QI) enthusiast: attitudinal and behavioural change.

My Chair provided me with the names of two colleagues who shared my frustration with our current status quo. My equally supportive Quality and Patient Safety (QPS) Chair successfully lobbied for some dedicated nonclinical time for the project. Soon after, the Safe Medication Practices Working Group was created. The group consisted of

leaders representing the stakeholders of allied healthcare colleagues: anesthesiologists (site chiefs, QPS lead, residency program lead), anesthesia residents, an anesthesia assistant, OR nurse managers from each campus, a hospital QPS committee representative, the director of surgical care, and a pharmacist.

We started with audits, carried out at all three campuses of our tertiary care centre, to gain insight into the extent of the problem. In a department of 90 well-meaning, conscientious anesthesiologists, our audit findings were sobering. Opioids and other controlled substances (e.g., ketamine, midazolam) were routinely being left unattended on our anesthesia medication carts and were being disposed of in open bins, making theft/diversion a simple task.

An exploration of the literature revealed that other countries (e.g., the USA, the UK, Australia, and New Zealand) had, in fact, formally addressed this issue years ago and that Canada was significantly behind.^{1–3} Our own *Canadian Guidelines to the Practice of Anesthesia* at the time (2018) made no mention of controlled substance storage/disposal.⁴ (The Canadian Anesthesiologists' Society Standards Committee was very receptive to adding it in 2019 and further developing these expectations in 2020).^{5,6} The Canadian Society of Hospital Pharmacists' Diversion Guidelines (draft at the time) outlined a few basic recommendations for overall OR storage (use of an automatic dispensing cabinet) and disposal/documentation of waste, but recognized the OR as a special area and offered little direction with regards to specifics of intraoperative handling throughout the day.⁷ Thus, we committed to creating our own path towards safer handling.

According to Simon Synek, the most effective way to inspire change is to start with the WHY.⁸ We chose to do this by presenting departmental rounds that opened with a deeply impactful, personal narrative of an anesthesiologist whose career was decimated as a result of leaving opioids unattended.⁹ This simple act led to a quick syringe swap by a member of the OR team with an unrecognized opioid

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substance use disorder. The swapped syringe was used in the subsequent patient, who contracted hepatitis as a result (one of several at this centre). The anesthesiologist was involved in a very public, devastating lawsuit that effectively ended her career. The presentation continued with compelling data (the extent of the opioid crisis, the mounting number of Canadian cases of hospital/OR opioid theft and diversion), as well as the impact of diversion on healthcare workers, patients, and institutions.^{10,11} We continued with information on specific methods of diversion and our own audit data, which showed our immense shared vulnerability. This led to a fulsome discussion of our collective path moving forward.

Our working group's next step was to identify barriers to safe storage and disposal and to systematically dismantle each one of them, to better enable our colleagues to do the right thing. The dialogue that started at our rounds and continued in our lounges, locker rooms, and ORs provided the working group with a list of pain points to address. The list grew after we inspected every location where our anesthesiologists administered controlled substances. The identified barriers were:

- some anesthetizing locations lacked safes
- many of the old safes were broken
- the varied models of safes led to some confusion
- the attached safe instructions were nonintuitive, incomplete, and inaccurate
- some safes lacked instructions entirely

- there was much confusion about the variety of OR disposal containers and their specific uses
- the disposal containers intended for controlled substances were highly prone to malfunction (e.g., sticky or jammed flap doors)
- these disposal containers were too small and frequently full
- there were substantial delays in getting replacement containers when found to be full/unusable
- diversion was not effectively prevented because the containers (which contained leftover opioid syringes) were not locked down and could be easily carried away.

While compiling this list of issues, we created a departmental policy, which outlined, in detail, expected controlled substance handling behaviours and protocols to follow when controlled substances were found unattended (see Electronic Supplementary Material, eAppendix). This policy also described the graded consequences of not following these practices, which are aligned with our hospital's Just Culture principles.¹² After the policy was disseminated, strict enforcement of the consequences was delayed, both to allow a grace period for behavioural change and to give the working group an opportunity to address the many barriers to compliance.

After presenting the extent of this problem to our hospital senior management team (and highlighting the associated institutional risks), we obtained support for the purchase of a new fleet of functional safes for all of our anesthetizing locations. We then created a significantly

Figure 1 Percent (%) of operating rooms with controlled substances available for diversion before and after introduction of a new disposal container. Baseline performance data is derived from audits 1–8 with an average of 43% of ORs with controlled substances available for diversion (pre-intervention audits: 265 ORs). Audit 9 was the first to

occur after a new product in-service and introduction of the new disposal containers. Audits 14 and 15 found no controlled substances available for diversion (post-intervention audits: 238 ORs).

improved set of instructions for their use. We were also eventually permitted to explore alternative disposal solutions, despite the existing multiyear, multimillion dollar contract that the hospital had with our current disposal company.

After a review of existing disposal containers, our team found a newer product that fulfilled our search criteria. It is much easier to use (simply squirt leftover controlled substances into the container opening), it immediately inactivates controlled substances on contact (eliminating further diversion risks), and it lasts several months before needing to be changed. After a product trial period, paired with ongoing disposal audits and strong usability data (Research Ethics Board-waived), we were able to convince our hospital administration to approve its adoption across all campuses, in all active anesthetizing locations.

If our story seems like a rather smooth process, it was not. I encountered plenty of resistance along the way, from an environmental services department that would not respond to my calls/emails for months (requiring me to go further up the chain of command), to hospital budget folk that most certainly *did* respond (“We have NO money for this”). I had a few colleagues ask me “What’s this new container?” despite extensive messaging (via emails, department meetings, and laminated signs in each OR). The COVID-19 pandemic also resulted in a prolonged suspension of all non-COVID-19 related QI initiatives, which significantly reduced momentum as priorities rapidly shifted. Nevertheless, we maintained our firm resolve to resume our efforts as soon as we were allowed to do so.

Today, the reaction I observe when a colleague discovers that they’ve left an opioid syringe behind is akin to when a wallet full of cash is left in an unlocked car on a busy city street. There is momentary dismay, followed by relief that it wasn’t stolen, and a moment of self-reflection on how it happened, so that it doesn’t happen again. Our local culture change is no more evident than when one of our residents returns from an elective elsewhere, shocked at the lack of precautions (“They don’t even *have* safes over there!”). When they commented on it, it’s typically defended by the confident assertion that “We don’t have a problem with opioid diversion here...”

Is our work done at our centre? Absolutely not! (Is QI work *ever* “done”?). The handling of controlled substances will continue to be audited and we will continue to find the occasional lapse in safe handling, but these episodes are far less frequent (Figure 1). Nevertheless, we were able to turn relatively widespread indifference into heightened awareness and a genuine desire for change. We were able to empower our colleagues to embark on behavioural modification by smoothing the many frustrating obstacles in their paths.

I’d like to thank my colleagues for their open-mindedness, professionalism, and engagement, as well as their willingness to continuously evolve in their professional practice. I’d also like to challenge my anesthesia colleagues in other centres to critically examine their own opioid handling habits. Opioid diversion in hospitals continues to be a significant problem.^{13,14} We owe it to our OR team members and our patients to make our operating rooms a safer place.

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