

# 2011 Medical Student First Prize Paper

## Addiction In Anesthesia: Past, Present and Future Hope

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Since its development almost 175 years ago, the field of anesthesia has evolved rapidly. The development of new techniques such as spinal and regional anesthesia has increased the efficiency of operations and decreased recovery time for patients. Similarly, the advent of new medications has resulted in increased patient safety and comfort during procedures. In spite of all of the progress that has been made regarding patient care, the issue of physician addiction in the field continues to be a major problem and appears to be as prevalent today as ever, if not more so<sup>4,9</sup>. Addiction in anesthesia is almost as old as the specialty itself; one of the early leaders in the development of volatile anaesthesia, Dr. Horace Wells, eventually became addicted to chloroform, battled with depression, and eventually took his own life in 1848<sup>10</sup>. It is both surprising and troubling that after so many years that addiction in anesthesia remains such a persistent problem. Fortunately, improving the situation is a surmountable task as awareness of the problems continues to grow and novel solutions are put forward.

The actual prevalence of addiction among anesthesia providers is difficult to ascertain<sup>4,9</sup>. What is known for certain is that anesthesia personnel are overrepresented in treatment and rehabilitation programs for physicians dealing with addictions<sup>3,5,7</sup>. Two potential conclusions could be drawn from this fact: that the prevalence of addiction among anesthesiologists is indeed higher than among other medical specialties, or that anesthesiologists are simply more likely to seek treatment for their problem. While some authors have argued the latter, many studies report that levels of addiction are indeed higher in anesthesia as compared to other specialties, and almost every study agrees that it is a major occupational hazard in the field of anesthesia<sup>1,4,9,15</sup>. Currently, the most common substances of abuse within anesthesiology are fentanyl, alcohol, midazolam, oral opioids, and propofol<sup>3,6,A</sup>. Several studies have noted that while rates of alcohol addiction between medical specialties are comparable to one another and to the level in the general public, anesthesia personnel are much more likely to become addicted to opioids than the two aforementioned groups<sup>1,4</sup>. Additionally, a separate study found that the anesthesiologists participating in the study were more likely to have tried intravenous drugs

than physicians from other fields<sup>5</sup>. Although the risks of the commonly abused drugs are well known, a study conducted in 2000 found that anesthesiologists have a higher risk of death from accidental poisoning and suicide – particularly drug related suicide – when compared with a cohort of internists and with the general public<sup>1</sup>. While this finding further illustrates that anyone is susceptible to addiction, it raises the question of why is it so prevalent among anesthesiologists?

Various theories have attempted to explain the potential etiologies behind the prevalence of addiction in anesthesia. While the potentially high levels of stress in the workplace – and in anesthesia training programs – no doubt contribute to addiction for some individuals, other programs in the medical field are also potentially stressful<sup>4,6</sup>. Stress is therefore unlikely to be an independent cause<sup>9</sup>. Some authors have argued that close proximity to commonly addictive drugs, and knowledge of dosage and administration of these drugs plays a role in addiction<sup>2,4,6,10</sup>. Furthermore, that anesthesiologists commonly work alone and are able to prescribe, draw up, and administer medications may be contributing factors<sup>2</sup>. Another explanation is offered by a recent study which found that low doses of aerosolized narcotics and propofol could be found in areas of the operating room, particularly around the anesthesiologists work area as the patient exhales small amounts of the drugs – even intravenous drugs such as propofol<sup>9</sup>. It was proposed that this prolonged low dose exposure to opioids in the operating room could increase the risk for addiction in susceptible individuals. Other factors found to increase the risk for addiction were genetics and previous history of marijuana or tobacco use<sup>9</sup>. The same authors postulated that certain personality types common in anesthesia may also predispose individuals to addiction. It may be that in the addicted individual, there has been a “perfect-storm” of factors that have all contributed to the current situation.

Given the multitude of potential contributing factors for addiction it is not surprising that many different options have been discussed as possible solutions. Close regulation of narcotic usage, “for cause” testing, and education programs have been implemented at various sites in Canada and the United States in an attempt to decrease addiction in anesthesia<sup>4,11</sup>. Unfortunately, the determined addict will often find a way to feed their addiction regardless of deterrents. With increased monitoring of narcotic usage there have been reports of some physicians drawing up an amount of narcotic and administering less than the full dose to the patient, keeping the remainder for personal use<sup>6</sup>. They may use volatile anesthetic to keep the patient asleep and substitute non-controlled IV agents in place of narcotics<sup>6</sup>. This type of behaviour obviously in-

A While propofol still makes up a relatively small percentage of common substances of abuse, it is worth noting that its popularity has increased dramatically over the last decade<sup>14</sup>.

creases the possibility of adverse patient outcomes, and there have been reports of intra-operative patient morbidity related to anesthetist impairment<sup>7</sup>. At this time, it appears as though the best available option to help addicted physicians is early identification and early registration in a physician rehabilitation or physician health/wellness program<sup>4,6</sup>.

Identification of physician addiction can be challenging. One study reported that anesthetists are less likely than other medical specialists to seek help for alcohol addiction, but more likely to seek help for opiate addiction<sup>11</sup>. That being said, for those who do not voluntarily seek help, they often become adept at hiding indications of their condition and therefore signs can be subtle<sup>4,5</sup>. Vigilance is required on the part of the physician's colleagues to notice the subtle signs of addiction. In a recent article on the topic, the author mentions that the addicted physician may demonstrate mood swings; withdrawal from friends, family, and leisure activities; spending extra at the hospital often while not on duty; refusing lunch or coffee breaks; and weight loss and pale skin among other signs<sup>4</sup>. There is a scarcity of Canadian literature on this topic and therefore it is difficult to discuss the specific details regarding reporting and rehabilitation protocols for addicted physicians. Every province in Canada has some form of Physician Rehabilitation Program designed to help physicians who are dealing with stress or illness in their lives, including addiction; however, the efficacy of similar programs in other centers remains controversial<sup>3,4</sup>. Studies have reported highly variable relapse rates among anesthetists enrolled in these programs, with several factors such as the presence of a comorbid personality disorder or family history of addiction altering an individual's risk for relapse<sup>3,4,5,6,11,14</sup>. Similarly, there remains debate as to whether previously addicted anesthetists and residents are able to safely return to work in the field of anesthesia without relapse. Currently, it appears that the most cases should be assessed on an individual basis<sup>4</sup>. Studies have shown that the highest risk for addiction in anesthesia is in the 5 years after graduation from medical school; in Canada, this would be during the residency period<sup>1,6</sup>. This means programs to increase awareness, educate and promote wellness among physicians and residents in anesthesia, and also amongst medical students could provide some very positive results.

While physician, resident and student wellness programs are still in their early stages, they have been established in a few centers already and are likely to continue to develop in more centers across the country. Although these programs are relatively new, they may have great potential. Addiction may not be the most upbeat topic, but the reality is that it has affected many anesthesia departments and residency programs across the country. While not an issue isolated to anesthetists – though it may be more prevalent in anesthesia compared to other specialties – there has been a continued awareness of the issue in the field of anesthesia for quite some time<sup>3</sup>. This sus-

tained awareness, combined with the desire to improve the situation and ideas such as the developing wellness programs, will hopefully allow addiction to be less of a burden on the specialty and more of an opportunity to improve and be leaders in healthcare and wellness.

## Works Consulted

1. Alexander, B. H. (2000). Cause-specific Mortality Risks of Anesthesiologists. *Anesthesiology*, 93, 922-930.
2. Baird, W. (2000). Substance misuse amongst anesthetists. *Anesthesia*, 55, 943-945.
3. Bryson, E. O. (2009). Should anesthesia residents with a history of substance abuse be allowed to continue training in clinical anesthesia? The results of a survey of anesthesia program directors. *Journal of Clinical Anesthesia*, 21, 508-513.
4. Bryson, E. O., & Siverstein, J. H. (2008). Addiction and Substance Abuse in Anesthesiology. *Anesthesiology*, 109 (5), 905-917.
5. Domino, K. B., Hornbein, T. F., Polissar, N. L., Renner, G., Johnson, J. A., & Hanks, L. (2005). Risk Factors for Relapse in Health Care Professionals With Substance Use Disorders. *Journal of the American Medical Association*, 293 (12), 1453.
6. Farley, W. J. (1992). Addiction and the anaesthesia resident. *Canadian Journal of Anaesthesia*, 39 (5), 11-13.
7. Liang, B. A. (2007). To tell the truth: potential liability for concealing physician impairment. *Journal of Clinical Anesthesia*, 19, 638-641.
8. Luck, S. (2004). The Alarming Trend of Substance Abuse in Anesthesia Providers. *Journal of PeriAnesthesia Nursing*, 19 (5), 308-311.
9. Merlo, L. J., Goldberger, B. A., Kolodner, D., Fitzgerald, K., & Gold, M. S. (2008). Fentanyl and Propofol Exposure in the Operating Room: Sensitization Hypotheses and Further Data. *Journal of Addictive Diseases*, 27 (3), 67-75.
10. Rose, G., & Brown, R. E. (2010). The impaired anesthesiologist: not just about drugs and alcohol anymore. *Journal of Clinical Anesthesia* (22), 379-384.
11. Skipper, G. E., Campbell, M. D., & DuPont, R. L. (2009). Anesthesiologists with Substance Use Disorders: A 5-Year Outcome Study from 16 State Physician Health Programs. *Anesthesia and Analgesia*, 109 (3), 891-896.
12. Tetzlaff, J., & al, e. (2010). A strategy to prevent substance abuse in an academic anesthesiology department. *Journal of Clinical Anaesthesia*, 22, 143-150.
13. Wilson, J. (2008). A survey of inhalational anaesthetic abuse in anaesthesia training programmes. *Anaesthesia, Journal of the Association of Anaesthetists of Great Britain and Ireland*, 63, 616-620.
14. Wischmeyer, P. E. (2007). A Survey of Propofol Abuse in Academic Anesthesia Programs. *Anesthesia and Analgesia*, 105, 1066-71.
15. Woods, G. M. (1993). Anesthesiologists and Substance Abuse. *Anesthesiology*, 79, 190-193.

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