

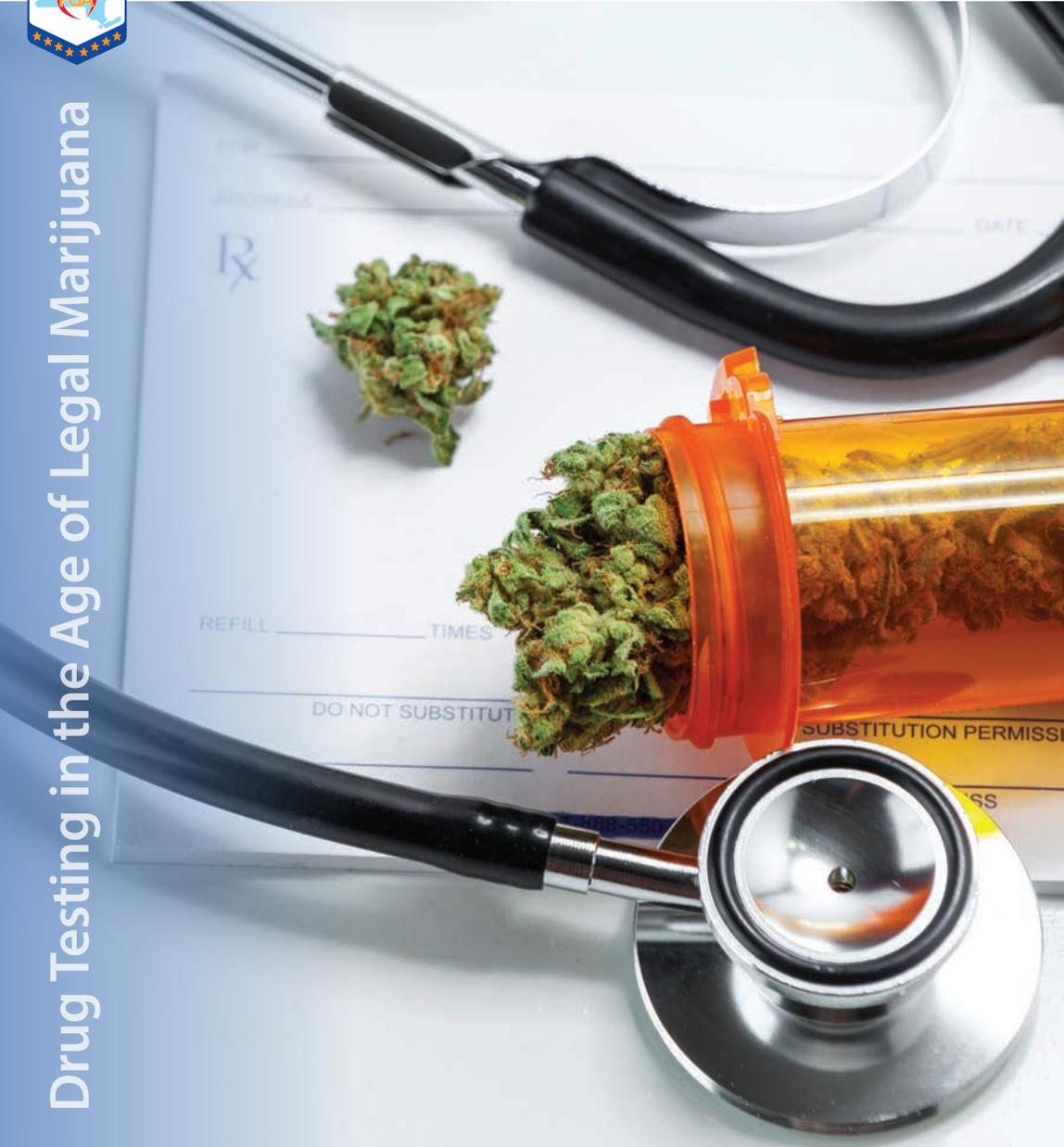
SPHERE

Quarterly Publication



NYSSA • The New York State Society of Anesthesiologists, Inc.

Drug Testing in the Age of Legal Marijuana



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President's Message

Back to Basics

RICHARD N. WISSLER, M.D., PH.D., FASA

I am writing this before the U.S. general election on November 3. Any political comments at this point are premature, other than to note that the outcome will have obvious impacts on the healthcare system, our patients, and us, both as physicians as well as individual citizens. Although much of the attention has been on the race for the White House, the political party majorities in the U.S. Congress and in many state legislatures may have a greater practical impact on the future of healthcare.

The coronavirus pandemic has irrevocably changed our lives. People are tired of hearing about it constantly and not knowing when it will wane. Combined with the political uncertainties in this country, it is easy to feel nervous about the future. As I have mentioned in this space before, there are many wellness initiatives available through our professional societies, and I encourage you to get “back to basics” by spending adequate time on your own health during these trying times.

For me, getting “back to basics” has another meaning as well. As anesthesiologists, we serve a very important role in the lives of our patients. Although our focus is on helping our patients, the very nature of this relationship can be spiritually satisfying for us as well. I am encouraging all of us to spend a little extra time connecting with our patients as people during pre-anesthesia and post-anesthesia care. Our patients enjoy these interactions and are reassured that a caring and highly skilled physician is in charge of their anesthetic care, and we will benefit psychologically from their positive reactions. Trust and care are at the center of the patient-physician relationship, with positive impacts on both participants. Don't pass up this “basic” opportunity to improve your job satisfaction.

For many years, the national and state professional societies for physician anesthesiologists and nurse anesthetists have been in disagreement over independent and unsupervised practice by nurse anesthetists. In New York state, there have been two basic legislative issues surrounding the status of nurse anesthesia. One issue is the independent practice of

anesthesia by nurse anesthetists, or “scope of practice” (see above) and the other issue is official recognition of nurse anesthesia, or “title.” In general, the NYSSA has been supportive of “title” legislation for nurse anesthetists, as long as the same legislation clearly delineates direct physician supervision as the “scope of practice” for nurse anesthetists. Some of you may remember that the leaders of the New York State Association of Nurse Anesthetists (NYSANA) and the NYSSA met several times over the years without coming to any substantive agreement. The most recent meeting was in New York City in December 2019. That meeting was collegial and professional. No agreement was reached, but the conversation suggested that we might be able to agree on a single piece of legislation that addressed both title and scope of practice. However, since December 2019, there has been no progress on an agreement between the NYSSA and NYSANA. Perhaps this represents another disruption from the coronavirus pandemic, or perhaps there is no real interest among NYSANA’s leaders in agreeing to direct physician supervision as the permanent scope of practice.

NYSANA’s current president, Yana Krmic, wrote an opinion piece for the “Another Voice” column in *The Buffalo News*, which was published on September 28. From my perspective, this article was an unsolicited attack on physician anesthesiologists as supervisors of nurse anesthetists and leaders in anesthesia care. I wrote a rebuttal column that was published on October 19. It is possible that NYSANA has decided that their legislative strategy in New York state will be confrontation with the NYSSA. I can assure you that the NYSSA will not yield on direct physician supervision of nurse anesthetists, because we believe it is a patient safety imperative.

Through the Medical Society of the State of New York (MSSNY), we have learned that physicians in a number of other specialties are experiencing demands for independent practice from nurse practitioners and physician assistants. Several NYSSA members are serving on an ad hoc committee within MSSNY that is examining the topic of unsupervised practice by non-physicians in New York state. In the long run, each state will have to decide the scope of practice delineations between physicians and non-physician providers. It is difficult to believe that blurring the lines between physicians and non-physicians could possibly improve patient safety or satisfaction. Stay tuned, renew your memberships in the NYSSA and the ASA, and donate to NYAPAC and ASAPAC. ■



Editorial

Tackling Issues That Encourage Debate

KIRI MACKERSEY, MBCHB

Somehow, in the tail end of the first wave of COVID in New York I missed the second wave and now find myself reading about the third wave in *The New York Times*. Fortunately, there is no number of waves that will stop the virtual PGA! I wish to thank the organizers for the time, effort and creativity they devoted to ensuring a successful virtual PGA conference. If you haven't done so already, remember to renew your NYSSA membership so you can continue to take advantage of all the NYSSA has to offer, including the PGA.

I would also like to welcome our expanded Communications Committee for 2021, which now numbers more than 40 members! We are excited about the new injection of creativity and enthusiasm that growth brings.

In this issue of *Sphere* we tackle a controversial area for our pro/con series: drug testing of physicians in an era when marijuana is becoming legal in many places. While one may be personally opposed to drug use of any kind, use of a legal drug such as alcohol is not assessed; considering the increasing legality of marijuana, should we differentiate? Public opinion and the moral stature of physicians are important considerations — most people would choose a practitioner who is free of vices and able to think clearly. At the other extreme, how far into a non-impaired practitioner's private life should we be allowed to go? Should there be different standards for specialties with a history of access to controlled substances, such as anesthesia? We aim to stimulate debate and hope that the feature article in this issue begins the conversation. ■

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From the Executive Director

The Year in Review

STUART A. HAYMAN, M.S.

I begin my 13th year with the NYSSA and my 32nd in medical association management in a strangely altered pandemic paradigm. These past eight-plus months have taught me the importance of being prepared to adjust on the fly.

Like all of you, I am deeply troubled by the impact the coronavirus has had on both our personal and professional lives. I was not prepared for the enormous loss of life, the toll on those who became ill as well as those who cared for them, the devastation to the economy, or the changes we had to make in our work environment and our social interactions. I have not yet grasped the full impact of the damage this pandemic has caused. However, this experience has made me more grateful to you, the members, for the support you have shown me and the rest of the NYSSA staff and, more importantly, for the dangerous and important work you do to help patients and save lives. Thank you!

Since I arrived at the NYSSA in September 2008, the association has been continually evolving. These past 12 months have resulted in a dramatic transformation: We have downsized, streamlined operations, and become highly efficient at working remotely, which we have been doing for more than eight months. Thankfully, over the last decade we found ways to increase our financial reserves. Between our belt-tightening measures and these rainy day funds, we were prepared to absorb the significant financial impact of this virus on the association.

Below are just a few of our activities this past year:

Planning for the Future

The 5,000-plus square-foot NYSSA headquarters in Manhattan was purchased in 2010. Innovation and streamlining have again created a surplus of space. At the June interim Board meeting, I explained the rationale for selling the NYSSA headquarters. In addition to the excess space, staff members have voiced serious trepidation about commuting in and out of the city. They are not alone in their concerns. Utilization of the Metro North and Long Island Rail is down approximately 75 percent.

Taking these factors into consideration, Dr. Richard Wissler created the NYSSA Ad Hoc Committee on Headquarters and asked Dr. Christopher Campese to chair this committee.

Advocating for Our Members

The NYSSA has forged strong working relationships with other county, state and national medical associations, including the Medical Society of the State of New York. These relationships have made the NYSSA stronger and better positioned to serve our members.

The NYSSA leadership, consultants and staff, along with MSSNY and other specialty societies, have worked to combat egregious efforts to maintain the expanded scope of practice that was authorized by the governor via emergency order at the height of the pandemic. In May we reported that Gov. Cuomo had reinstated section 405.13 of the New York state health code pertaining to anesthesia services in Article 28 facilities. These regulations require physician supervision of nurse anesthetists either by a physician anesthesiologist or the operative surgeon.

Drs. Steven Schulman, Richard Wissler, Christopher Campese and Jonathan Gal worked with NYSSA staff and representatives of the ASA to advocate for enhanced payments for a discrete set of procedures currently provided to COVID-19 patients. We contacted Rep. Thomas Suozzi and informed him that the care of COVID-19 patients requires special services. We have requested that Medicare payments be realigned to reflect the additional work and risk involved in treating COVID-19 patients who are Medicare beneficiaries.

I would like to thank the NYSSA's core group of volunteer leaders, all of whom dedicate an enormous amount of time and effort to the organization's legislative and regulatory goals: NYSSA President Dr. Richard Wissler; Government and Legal Affairs Committee Chairman Dr. Jonathan Gal; NYAPAC Chairwoman Dr. Rose Berkun; and ASA director, and former GLAC chairman, Dr. David Wlody. Additionally, the members of the NYSSA's Executive Committee and the Board of Directors should be recognized for devoting significant time to work on behalf of their fellow members, the association and the profession.

Nurse Anesthetists: In late 2019, a group of NYSSA leaders met with the leadership of NYSANA to discuss getting New York's nurse anesthetists the official title of CRNA. Those talks were friendly;

however, since that time, NYSANA's leaders have publicly expressed very negative comments about physician anesthesiologists. The NYSSA's leadership will continue to counter any misinformation that is put forth by NYSANA.

Surprise/Out-of-Network Billing: The NYSSA has been assisting the ASA and MSSNY in the ongoing battle in Congress relating to federal legislation on surprise/out-of-network billing.

It is imperative that NYSSA members stay vigilant and engaged. You are vital stakeholders in the healthcare system. Legislators tend to focus on cost, quantity and profits. We must ensure that they do not sacrifice quality and safety. By working together, you can improve patient care and practice safety, advance fair reimbursement, provide quality medical education, and work toward sensible regulations and legislation.

Providing for the Educational Needs of Our Members

Transitioning the PGA from a five-day in-person conference to a two-day virtual event was a herculean undertaking. Thanks to the tireless efforts of PGA General Chair Dr. Meg A. Rosenblatt and Scientific Programs Chair Dr. Linda J. Shore-Lesserson, along with numerous committee and staff members, PGA74 was turned into a unique educational meeting that includes:

- Twenty-five lecture-style panels with live Q&A and approximately 80 speakers;
- Two plenary sessions that provide the opportunity for attendees to earn up to 35 CME credit hours;
- A virtual poster hall and exhibit hall, as well as virtual networking and alumni lounges; and
- For the first time ever, a PGA74 on-demand CME library that will be available for 12 months.

In April, at the apex of the pandemic in New York, the NYSSA, in conjunction with NAPA, held a one-hour webinar titled "Strategies & Lessons Learned on the Front Lines of New York's Coronavirus Crisis." Approximately 500 physicians participated.

Drs. Elliott Greene and Richard Beers deserve thanks for remaking the three-credit, specialty-specific infection control program. This program, which is housed on the NYSSA website, meets the New York state standard for infectious disease CME credits.

Conclusion

This annual report provides a brief summary of a few of the activities we have engaged in on behalf of all NYSSA members and the specialty of anesthesiology. The report is not intended to be all-inclusive but, rather, to highlight significant areas or initiatives from this past year. I am proud of what we have accomplished this year, especially considering the extraordinary circumstances we have experienced, and I thank all of you for your continued support. ■

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The value of our specialty has never been more apparent than this past year. Your continued membership is especially important as we look forward to 2021 — please be sure to renew today.



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Drug Testing Healthcare Providers in the Age of Legal Marijuana

**KIRI MACKERSEY, MBCHB, LORI-ANN OLIVER, M.D., AND
JODI-ANN OLIVER, M.D.**

Marijuana is currently the most widely used illicit drug in America and the rest of the world. As of 2018, more than 11 million American teenagers and young adults admitting to using the drug.¹ Although for many marijuana continues to carry the same stigma as other illicit drugs, views about the drug are softening in the wake of the legalization process. As of the 2020 election, 36 states and the District of Columbia have legalized marijuana for medical use. Fifteen states and the District of Columbia have taken it a step further by making marijuana legal for recreational use as well. Should we also soften our stance when it comes to the use of marijuana among medical professionals? Additionally, marijuana has been approved for medical use for several conditions, including chronic pain and spasticity in patients with multiple sclerosis, cachexia associated with HIV/AIDS, and chemotherapy-induced nausea and vomiting.¹ Should we start considering it just another element in our pharmacological resource kit?



Pro: We Should Drug Test Practitioners in an Era When Marijuana Is Now Legal

Softened stance or no, marijuana is still considered to be a Schedule I drug, making possession illegal from a federal perspective.^{1,2} The stigma of illegal drug use is a key element in avoiding any association with its use among medical professionals. We are held in a higher regard than many other professions, and with this privilege comes the responsibility to uphold a higher standard of moral behavior. Whether or not one agrees with the Schedule I classification of marijuana, the fact remains that it is illegal on a federal level and, as a profession, we should not be engaged in illegal behavior. Genuine medicinal use is no excuse for recreational use; by the same argument, we could excuse ourselves the abuse of opioids and benzodiazepines.

On May 10, 2020, New York City passed a law banning pre-employment testing for marijuana for certain employers as a condition of employment (New York City Human Rights Law, section 8-107, paragraph 31(a)). The new law prohibits employers from testing applicants for certain jobs for marijuana but does not change employers' ability to drug test current employees. The exceptions to this rule are interesting and highlight the recognition that some jobs are different and require a greater level of vigilance (both on the part of employees as well as employers). Among the exceptions to the pre-employment testing ban are the police, childcare workers, transportation workers (such as pilots or train dispatchers), commercial drivers and, hardly surprisingly, "positions supervising medical patients" (New York City Human Rights Law, section 8-107, paragraph 31(b)). Amidst the increasing environment of tolerance toward marijuana use, society recognizes exceptions.

Even without the stigma attached to its use, marijuana is a drug with cognitive effects. There is no controversy surrounding the effects of acute intoxication; rather, it is the duration of neurocognitive impairment *after* acute intoxication that needs clarifying. THC (the compound delta-9-tetrahydrocannabinol) is one of the most common marijuana derivatives and is primarily responsible for its psychoactive effects.^{2,3,4,5} The amount of THC uptake in the lungs has wide individual variation, reaching up to 70%, but only a fraction of that drug affects the brain (5%-24%).^{3,4} THC acts on at least two cannabinoid receptors (CB1 and CB2) that play a role in cognition; pain perception; and memory, coordination and

reward centers. These receptors are concentrated in the cerebellum, frontal and paralimbic regions.³ The described effects include a wide range of disturbances in basic motor coordination as well as complex executive function, such as the ability to organize, plan, problem-solve, make decisions, remember details, and control emotions.^{2,3,4,6-10} In a real-world example, marijuana users are at increased risk of accidents, including motor vehicle accidents, with higher rates of hospitalization when compared to non-users.³ The degree of impairment from using marijuana is dose-dependent and increases significantly with chronic use,⁹⁻¹⁴ with the most severely affected brains being those of individuals who started using marijuana in their teenage years.^{13,14} It is interesting to note that the research comparison groups for some of the cognitive effects are not always non-users but may include opioid abusers and recovered users.^{7,11-13} While many of these effects resolve after a period of abstinence, the range of time away from the drug that is needed for return to baseline is significant (from less than 24 hours up to four weeks).^{7,9-13} Such a long period of work-free abstinence is unlikely to be available to most physicians, and any but the most light and infrequent users of marijuana are likely to carry some degree of impairment. There may be professions in which a chronic impairment in emotional control or decision-making is not an impediment to function (or even success); anesthesia is not one of those professions. As anesthesiologists, we function in the acute environment of the operating room, with second-to-second changes in vital signs and surgical progress — a decrement of even a tiny percent in mental clarity could mean the difference between a rapid and reasoned decision and a devastating mistake.

The use of marijuana has also been associated with a greater willingness to try other illicit drugs such as cocaine and ecstasy. Additionally, marijuana users generally engage in more risk-taking behaviors.^{1,2} Whether or not the marijuana use itself was the cause of these behavioral associations (the gateway drug hypothesis) or just part of a personality cluster and environmental influences, is difficult to differentiate.¹⁵ However, it is also difficult to justify cocaine, ecstasy and risk-taking as part of a professional medical life. Like these more dangerous drugs, marijuana use can become a chronic problem in the form of dependence and addiction. Dependence is defined as the physical need for the substance and is often associated with signs of tolerance and withdrawal when the drug is not administered, whereas

addiction refers to the behavioral changes that occur with chronic use and dependence. Marijuana dependence is currently one of the most common forms of drug dependence in the U.S. and can develop in 9% of chronic users.⁴ Physicians suffer from a substance use disorder slightly more than the general population, at a rate between 10% and 15%.¹⁶ Unfortunately, among physicians, anesthesiologists have a much greater probability of becoming addicted, probably because of access to high-risk medications.^{17,18} For anesthesiologists, substance-induced mortality is higher than for other physicians. With this in mind, drug testing can act as a safety net for an at-risk population. In a real-world example, drug testing can also act as a deterrent: In 2004, Massachusetts General Hospital instituted a random drug-testing requirement for anesthesiology residents. In the 10 years prior to the drug testing, there were four known cases of substance abuse. In the 13 years following the testing program, not a single resident tested positive.^{19,20} Education has not been shown to be an effective deterrent.²⁰

When discussing the ethics of drug testing, the accuracy of urine drug tests (UDTs) has been used as a reason to avoid testing. This is due to a high false positive and false negative rate in the point of care immunoassay (5%-10% of drug tests are false positives and 10%-15% are false negatives).²¹⁻²⁴ However, it is also important to note that the



point of care tests that produce these false or inconsistent results should never be used as definitive tests and that the confirmatory testing, using liquid or gas chromatography-mass spectrometry, is very accurate. In the past, ibuprofen and ingested hemp oil were considered risks for a false positive test. With regard to ibuprofen, this was an issue with only a limited number of commercially used assays. Changes to testing technology (an altered formulation of the EMIT immunoassay) have nearly eliminated this issue.^{22,25,26} Hemp-containing foods (such as hemp oil) can produce positive screens for marijuana, but since a 2003 U.S. Drug Enforcement Agency (DEA) ruling classifying food and beverages containing any amount of THC as Schedule I, domestically made hemp-containing products are now virtually free of THC.²⁷ While this does not cover the consumption of products from overseas (herbal medicines or foods), the relevance of this to screening physicians should be negligible. Currently, the only medication known to cause a false positive for marijuana is the HIV drug Sustiva (efavirenz); like previously discussed false positives, a follow-up confirmatory test would yield a negative result. Anyone prescribed efavirenz would also be educated about the issues with UDTs.^{28,29}

The Cons of Marijuana Testing in the Workplace

In a discussion about drug testing, it is important to separate acute intoxication and impairment from the discovery of the residue of a substance in a drug test. Acute intoxication causing impairment is unacceptable for any reason, be it from legal alcohol or illicit narcotic use, and marijuana is no exception. However, assuming a non-impaired physician, it is interesting to ask whether evidence of marijuana use, in and of itself, is the business of the employer.

Consider this scenario: A physician takes a vacation to a country with completely legal access to recreational marijuana. The physician uses marijuana legally and then returns to the U.S. two weeks later and resumes work. There is no impairment at work. A urine drug test on this person is reasonably likely to detect use but gives no information on the acuity of use — the urine drug test for THC can still be positive up to 15 days later and for more than 30 days in a person with a history of heavier use.⁶ Unlike alcohol, where blood alcohol levels or a breath test can detect recent use, we have no way of knowing when marijuana was last used, making the test close to worthless for assessment of acute impairment.

When looking at the long-term effects of marijuana use, it is useful to differentiate effects that are unlikely to impair work performance, such as lung effects, from cognitive impairment. As an extreme example, if employees are not tested for smoking cigarettes, any suggestion that lung damage constitutes grounds for marijuana testing would need to be justified in the context of “accepted” cigarette smoking. More importantly for a physician are the neurocognitive effects of marijuana. It is fascinating to note that while heavy use and chronic heavy use show an impact on decision-making and concentration, the literature as a whole “has been fraught with inconsistencies in findings”⁷ (Crean et al. 2011, p. 6). When comparing current heavy cannabis users, former heavy cannabis users, and control subjects on days 0, 1, 7 and 28 of abstinence, there was no significant difference found on tests of attention.^{8,13,14} Likewise, verbal fluency, decision-making and impulsivity do not show a clear deficit after more than 21 days of abstinence (although some discrepancies exist depending on the type of assessment test used).^{7,8,13} Even when looking at shorter periods of abstinence (up to 24 hours), the only clear and consistent signal of cognitive impairment comes from people who are heavy users.¹¹

An entirely different picture emerges from young users: When use of marijuana starts before the age of 17, there has been more consistent evidence of persistent cognitive impairment.⁷ However, it is very difficult to separate these users from their socioeconomic situations, and when twin studies are used, these do not show a difference in IQ or cognitive impairment from short-term adolescent use.¹³ A large 2018 meta-analysis in *JAMA* of young marijuana users (mean age of 26 years) showed only a small and non-significant difference in cognitive functioning after 72 hours of abstinence.¹⁴ Disregarding consistent use (either medical or recreational), and looking solely at occasional recreational use of marijuana, there is no consistent evidence of long-term cognitive impairment.

The next commonly stated issue with marijuana use is that it is a gateway drug. Currently there is little to no evidence for this. The vast majority of people who use marijuana do so as a sole drug — the CDC and NIH explicitly state this on informational websites.^{30,31} A recent review article by Williams¹⁵ concludes that marijuana is a gateway drug for “some at-risk individuals” (Williams 2020, p. 8) and that escalation of drug use is driven by other risk factors (genetic, familial and environmental).

The main issue then becomes that possession is prohibited under federal law (21 U.S. Code Section 844 (a)). This is a significant problem legally — as well as ethically — as a physician is held to a higher moral standard than most of the lay public. In 1996, California became the first state to legalize medical marijuana. Fast forward to 2020: 36 states and the District of Columbia allow medical use of marijuana, while 15 states and the District of Columbia also allow adult recreational use.³²⁻³⁴ As a result, the majority of Americans now live in regions with some legal access to the drug, and two-thirds of Americans support broad legalization.³⁵ Realistically, the question is not *if* marijuana will be legally available under federal law, but *when*?

In the states that have laws allowing for the use of medical marijuana, these laws focus on providing protections for the physicians who prescribe/recommend medical marijuana and for those who use it for medical purposes.³²⁻³⁴ In some states, employers are prohibited from penalizing employees who use medical marijuana.^{36,37} In others, a positive drug test is insufficient grounds for firing an employee unless there is evidence of physical and mental impairment.^{37,38} While the loophole of medical marijuana use is potentially interesting in the face of an employee's positive drug test, it is still problematic in a physician, in whom consistent, chronic use may suggest questionable function based on medical impairment, *quite separate from the marijuana use itself*.

Ignoring medicinal use and focusing solely on occasional recreational use of marijuana, what are the legal implications of a positive urine drug test? The federal statute (21 U.S. Code Section 844(a)) is broad — it forbids possession within and across state boundaries. Possession can include physically holding the drug or the drug being found in your home, workplace, or in the possession of another person (who is looking after it on your behalf). The statute does not clearly cover evidence of past use. Back to the example of the physician on vacation, it is not clear whether a federal law was broken.

There are states, including states that have legalized marijuana, where an employee can be fired based on a positive drug test alone. The legal implications of this depend heavily on whether the employee signed a contract agreeing to avoid drug use and consenting to drug testing. In the absence of such contractual agreements, the legality of termination is questionable; with a contractual agreement, the employee is likely to be

in breach of contract. Philosophically, the deeper question that is raised by these situations is whether the employer is entitled to make these demands. In the absence of employee impairment, and in the absence of illegal activity, random drug testing starts becoming an invasion of privacy.

After the legal implications, the more difficult topic is the ethical or moral stature of a physician who is using marijuana. With a majority of states having some legal access to marijuana, is it time we changed our ethical response to the drug? Are the people using marijuana morally different? There is very little literature on the subject. Potentially, a discussion could begin with the classification of marijuana as a Schedule I drug.

Since 1970, the federal Controlled Substances Act (CSA) has regulated drugs with the potential for abuse, and the U.S. Drug Enforcement Agency (DEA) is tasked with enforcing the CSA. The DEA also classifies drugs on Schedules I-V based on a combination of abuse potential and accepted medical use in the U.S. Since 1970, tetrahydrocannabinol (THC) has been classified as Schedule I (high potential for abuse and no currently accepted medical treatment). Schedule I drugs may not be prescribed for medical use. To this end, even in places with legal medical marijuana use, it cannot be prescribed; rather, it can only be “recommended.”³⁴ Looking at the other drug schedules, Schedule II reflects the relative medicinal value rather than high potential for abuse — opioids and opium are Schedule II because of the approved medical use of their derivatives. The Schedule I classification has become a self-fulfilling prophecy due to the restrictions on medical research of drugs without accepted medical uses.^{34,39} Ethically, the schedule of the drug has huge implications — it is easy to see Schedule I in a harsher light than higher schedule numbers. Scientifically, the schedule is out of date.

What other evidence is there for moral judgment based on marijuana use? Evidence is sparse. A 1970 study of undergraduates looked at the personality and moral attributes of students under four levels of marijuana use: frequent users, occasional users, nonusers, and principled nonusers. The personality of the groups differed significantly. Users were socially poised, open to experience, and concerned with the feelings of others but also seemed impulsive, pleasure-seeking, and rebellious. By contrast, nonusers were responsible and rule abiding but

also inflexible, conventional, and narrow in their interests. Interestingly, *both* frequent users and principled nonusers scored below the others on scales of moral maturity, predictive of moral behavior.⁴⁰ Even in the absence of literature on the morals of users and nonusers, the stigma of marijuana use remains. It is this stigma that is most damaging to a physician. Perversely, avoidance of stigmatization could also be used as an argument against marijuana drug testing in a non-impaired individual.

In conclusion, when the argument of definite cognitive impairment is questioned and the label of a gateway drug challenged, we are left with legal implications and the moral stigma. This is a rapidly changing legal area. From a purely legal perspective, marijuana is still illegal under federal law; but is this enough to enter the private life of a non-impaired physician who has used the drug in a legal overseas setting? From a moral perspective, will legal reform change our moral judgment? The answers are not straightforward. ■

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REFERENCES

1. Wilkinson ST, Yarnell S, Radhakrishnan R, Ball SA, D'Souza, DC. Marijuana Legalization: Impact on Physicians and Public Health. *Annu Rev Med* 2016; 67:453-466. doi: 10.1146/annurev-med-050214-013454. Epub 2015 Oct 19. PMID: 26515984.
2. Phillips JA, Holland MG, et al. Marijuana in the Workplace: Guidance for Occupational Health Professionals and Employers: Joint Guidance Statement of the American Association of Occupational Health Nurses and the American College of Occupational and Environmental Medicine. *Workplace Health Saf* 2015 Apr; 63(4):139-164. doi: 10.1177/2165079915581983. Epub 2015 Apr 10. PMID: 25862727.
3. Neavyn MJ, Blohm E, Babu KM, Bird SB. Medical Marijuana and Driving: A Review. *J Med Toxicol* 2014 Sep; 10(3):269-279. doi: 10.1007/s13181-014-0393-4. PMID: 24648180.
4. Hall W, Degenhardt L. Adverse health effects of non-medical cannabis use. *Lancet* 2009 Oct 17; 374(9698):1383-1391. doi: 10.1016/S0140-6736(09)61037-0. PMID: 19837255.

5. Dresden D. What is the difference between hemp CBD and cannabis CBD? *MedicalNewsToday* July 23, 2020.
6. Goodwin RS, Darwin WD, Chiang CN, Shih M, Li SH, Huestis MA. Urinary elimination of 11-nor-9-carboxy-delta9-tetrahydrocannabinol in cannabis users during continuously monitored abstinence. *J Anal Toxicol* 2008 Oct; 32(8):562-569. doi:10.1093/jat/32.8.562. PMID: 19007504.
7. Crean RD, Crane NA, Mason BJ. An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. *J Addict Med* 2011 Mar; 5(1):1-8. doi:10.1097/ADM.0b013e31820c23fa. PMID: 21321675.
8. Pope HG Jr, Gruber AJ, Hudson JI, Huestis MA, Yurgelun-Todd D. Neuropsychological performance in long-term cannabis users. *Arch Gen Psychiatry* 2001 Oct; 58(10):909-15. doi: 10.1001/archpsyc.58.10.909. PMID: 11576028.
9. Bolla KI, Brown K, Eldreth D, Tate K, Cadet JL. Dose-related neurocognitive effects of marijuana use. *Neurology* 2002 Nov 12; 59(9):1337-43. doi: 10.1212/01.wnl.0000031422.66442.49. PMID: 12427880.
10. Grant I, Gonzalez R, Carey CL, Natarajan L, Wolfson T. Non-acute (residual) neurocognitive effects of cannabis use: a meta-analytic study. *J Int Neuropsychol Soc* 2003 Jul; 9(5):679-89. doi: 10.1017/S1355617703950016. PMID: 12901774.
11. Pope HG Jr, Gruber AJ, Hudson JI, Huestis MA, Yurgelun-Todd D. Cognitive measures in long-term cannabis users. *J Clin Pharmacol* 2002 Nov; 42(S1):41S-47S. doi: 10.1002/j.1552-4604.2002.tb06002.x. PMID: 12412835.
12. Jager G, Kahn RS, Van Den Brink W, Van Ree JM, Ramsey NE Long-term effects of frequent cannabis use on working memory and attention: an fMRI study. *Psychopharmacology* 2006 Apr; 185(3):358-68. doi: 10.1007/s00213-005-0298-7. Epub 2006 Mar 7. PMID: 16521034.
13. Meier MH, Caspi A, Danese A, et al. Associations between adolescent cannabis use and neuropsychological decline: a longitudinal co-twin control study. *Addiction* 2018 Feb; 113(2):257-265. doi:10.1111/add.13946. Epub 2017 Sep 5. PMID: 28734078.
14. Scott JC, Slomiak ST, Jones JD, Rosen AFG, Moore TM, Gur RC. Association of Cannabis With Cognitive Functioning in Adolescents and Young Adults: A Systematic Review and Meta-analysis. *JAMA Psychiatry* 2018 Jun 1; 75(6):585-595. doi:10.1001/jamapsychiatry.2018.0335. PMID: 29710074.
15. Williams AR. Cannabis as a Gateway Drug for Opioid Use Disorder. *J Law Med Ethics* 2020; 48(2):268-274. doi:10.1177/1073110520935338. PMID: 32631185.
16. Oreskovich MR, Kaups KL, Balch CM, et al. Prevalence of alcohol use disorders among American surgeons. *Arch Surg* 2012 Feb; 147(2):168-174. doi: 10.1001/archsurg.2011.1481. PMID: 22351913.
17. Booth JV, Grossman D, Moore J, et al. Substance abuse among physicians: a survey of academic anesthesiology programs. *Anesth Analg* 2002 Oct; 95(4):1024-1030. doi: 10.1097/00000539-200210000-00043. PMID: 12351288.

18. Skipper GE, Campbell MD, DuPont RL. Anesthesiologists with substance use disorders: a 5-year outcome study from 16 state physician health programs. *Anesth Analg* 2009 Sep; 109(3):891-896. doi: 10.1213/ane.0b013e3181adc39d. PMID: 19690263.
19. Fitzsimons MG, Baker KH, Lowenstein E, Zapol WM. Random drug testing to reduce the incidence of addiction in anesthesia residents: preliminary results from one program. *Anesth Analg* 2008 Aug; 107(2):630-5. doi: 10.1213/ane.0b013e318176fefa. PMID: 18633044.
20. Fitzsimons MG, Baker K, Malhotra R, Gottlieb A, Lowenstein E, Zapol WM. Reducing the Incidence of Substance Use Disorders in Anesthesiology Residents: 13 Years of Comprehensive Urine Drug Screening. *Anesthesiology* 2018 Oct; 129(4):821-828. doi: 10.1097/ALN.0000000000002348. PMID: 30020101.
21. Blanke RV. Accuracy in Urinalysis. In: Hawks RL, Chiang CN, eds. *Urine Testing for Drugs of Abuse*. Rockville, MD: Department of Health and Human Services, National Institute on Drug Abuse; 1986. NIDA Research Monograph 73. <https://archives.drugabuse.gov/sites/default/files/monograph73.pdf>
22. Rollins DE, Jennison TA, Jones G. Investigation of interference by nonsteroidal anti-inflammatory drugs in urine tests for abused drugs. *Clin Chem* 1990 Apr; 36(4):602-606. PMID: 2323039.
23. Eskridge KD, Guthrie SK. Clinical issues associated with urine testing of substances of abuse. *Pharmacotherapy* 1997 May-Jun; 17(3):497-510. PMID: 9165553.
24. Moeller KE, Lee KC, Kissack JC. Urine drug screening: practical guide for clinicians. *Mayo Clin Proc* 2008 Jan; 83(1):66-76. doi: 10.4065/83.1.66. Erratum in: *Mayo Clin Proc* 2008 Jul; 83(7):851. PMID: 18174009.
25. Swotinsky RB, Smith DR. *The Medical Review Officer's Manual*. 3rd ed. Beverly Farms, MA: OEM Press; 2006.
26. Shults TF. *Medical Review Officer Handbook*. 8th ed. Durham, NC: Quadrangle Research; 2005.
27. 21 CFR 1308: clarification of listing of "tetrahydrocannabinols" in schedule I and exemption from control of certain industrial products and materials derived from the cannabis plant: final rules. *Federal Register* 2003; 68(55):14114- 14126.
28. Sustiva yields false positives on marijuana tests. *Crit Path AIDS Proj* 1998 Fall; (No 33):65. PMID: 11366375.
29. Gottesman L. Sustiva may cause false positive on marijuana test. *WORLD* 1999 Apr; (No 96):7. PMID: 11366946.
30. CDC. Does marijuana use lead to other drug use? Centers for Disease Control and Prevention, Marijuana and Public Health website. <https://www.cdc.gov/marijuana/faqs/does-marijuana-lead-to-other-drugs.html>. Accessed November 19, 2020.
31. NIDA. Is marijuana a gateway drug? National Institute on Drug Abuse website. <https://www.drugabuse.gov/publications/research-reports/marijuana/marijuana-gateway-drug>. April 8, 2020. Accessed November 19, 2020.

32. Carliner H, Brown QL, Sarvet AL, Hasin DS. Cannabis use, attitudes, and legal status in the U.S.: A review. *Prev Med* 2017 Nov; 104:13-23. doi: 10.1016/j.ypmed.2017.07.008. Epub 2017 Jul 11. PMID: 28705601.
33. National Conference of State Legislatures. State medical marijuana laws. Available at: <http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>.
34. Glickman A, Sisti D. Prescribing medical cannabis: ethical considerations for primary care providers. *J Med Ethics* 2020 Apr; 46(4):227-230. doi: 10.1136/medethics-2019-105759. Epub 2019 Dec 18. PMID: 31852743.
35. McCarthy J. Two in three Americans now support legalizing marijuana, 2019. Available at: <https://news.gallup.com/poll/243908/two-three-americans-support-legalizing-marijuana.aspx>.
36. Kenney JE. How state medical marijuana laws affect workplace drug testing. *Occup Health Saf* 2006 April; 75(4):26, 28, 31. PMID: 16642674.
37. Nagele-Piazza L. SHRM.org. Marijuana and the Workplace: What's New for 2020? Society for Human Resource Management. January 17, 2020. <https://www.shrm.org/resourcesandtools/legal-and-compliance/state-and-local-updates/pages/marijuana-and-the-workplace-new-for-2020.aspx>. Accessed November 20, 2020.
38. Court Mulls Legality of Firing for Pot Use Off Job, CBS Denver, October 1, 2014. <http://denver.cbslocal.com/2014/10/01/court-mulls-legality-of-firing-for-pot-use-off-job/>.
39. Nutt DJ, King LA, Nichols DE. Effects of Schedule I drug laws on neuroscience research and treatment innovation. *Nat Rev Neurosci* 2013 Aug; 14(8):577-85. doi:10.1038/nrn3530. Epub 2013 Jun 12. PMID: 23756634.
40. Hogan R, Mankin D, Conway J, Fox S. Personality correlates of undergraduate marijuana use. *J Consult Clin Psychol* 1970 Aug; 35(1): 58-63. doi: 10.1037/h0029618. PMID: 5487609.

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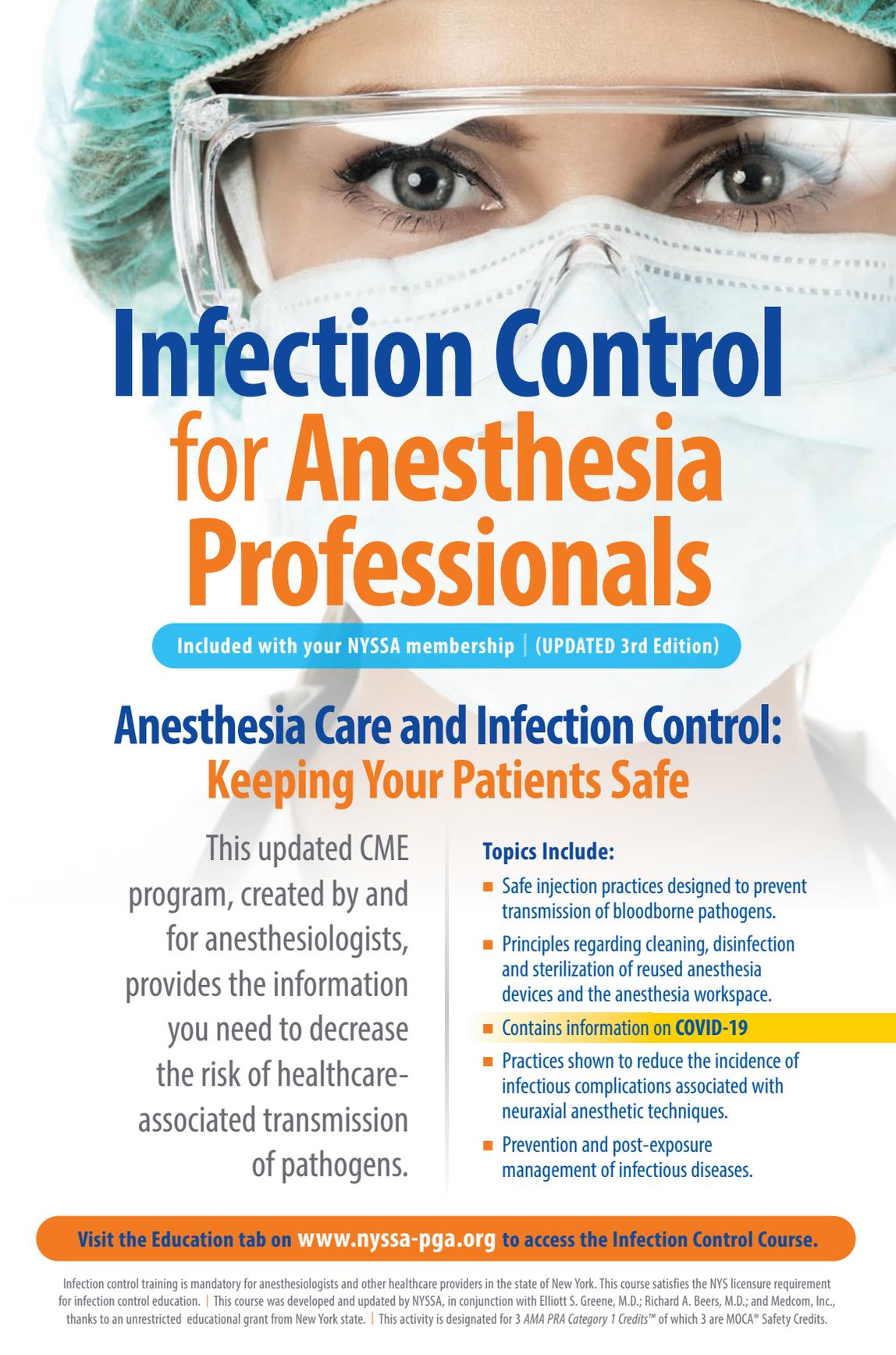
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The Race to Achieve Inclusion

**NIGEL WILKINSON-MAITLAND, M.D.,
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The terms “diversity,” “equity” and “inclusion” have become buzz words of late. For those of diverse backgrounds, however, these terms are not new. In fact, they represent important challenges in the workplace, namely in the hospital setting, where positive team dynamics and cohesiveness may improve communication and ultimately decrease medical errors.

Gender diversity in anesthesiology is being addressed aggressively by specialty and component societies and, although not optimal, we have made some headway. However, a more diverse workplace does not equate to equal opportunity for all or even a more inclusive workplace. This article is intended for NYSSA members who seek methods to build more inclusive practices, institutions and residency programs.

History

Our historical highlight this quarter focuses on Drs. Daniel Hale Williams and Robert Boyd. Both men were born during the era of slavery in America, in the 1850s. Dr. Williams is notable for performing a successful pericardial surgery prior to technological advancements in blood conservation. He was among the first elite physicians to perform cardiac surgeries. Dr. Williams should also be remembered for creating the first interracial hospital in the U.S. in regards to staffing: Provident Hospital and Training School for Nurses in Chicago, Illinois. He was a champion for inclusion. Due to the exclusion of Black physicians from the American Medical Association as well as many Southern hospitals, the National Medical Association was founded in 1895 by Drs. Williams and Boyd as a professional organization for Black medical practitioners. Today, the organization represents the interests of 30,000 African-American physicians, the patients they serve, and approximately 129 affiliated societies throughout the nation.¹ In 1913, Dr. Williams became a charter member of the American College of Surgeons.

Of the approximately 892,000 active physicians in the U.S., 3% of medical school faculty are Black, 4% are Hispanic or Latino, and only 0.1% of full-time faculty are Native American or Alaskan Natives.² Even in medical specialties that are predominantly women, such as obstetrics-gynecology and pediatrics, the leadership is mostly men.³ Similarly, physicians of color are promoted at lower rates and leave academic medicine at higher rates than white physicians. Although overt bias is less visible in the medical arena today than in 1895, insidious forms of workplace discrimination remain and are detrimental to achieving organizational missions, can adversely affect physician wellness, and negatively affect the financial bottom line.

Defining Inclusion

Diversity refers to the heterogeneity of a qualified group of individuals and the value that varying opinions, creativity and innovation bring to an organization. Inclusion is the state in which those individuals feel valued, respected and supported, with systemic conditions or culture in place allowing each person to achieve his or her full potential.⁴ All members of the perioperative team should feel accepted, instrumental and contributory in delivering optimal patient care. Inclusion ties into physician well-being and resilience and decreases symptoms of burnout, which include: emotional exhaustion, depersonalization or cynicism, and a low sense of personal accomplishment within the workplace.⁵ Physician burnout in itself may aggravate mental health and substance use disorders in the practitioner and may lead to negative financial impacts to institutions, as employee turnover is costly.

From a trainee perspective, inclusion during residency begins at the rank list. While the application process is influenced by unambiguous, tangible factors such as geographic location, program reputation, case volume, workload, etc., the ranking of each program is more nuanced and most often attributed to the applicant's "fit" therein.^{6,7} If "inclusion" is a culture that allows each person to achieve his or her full potential, then "fit" may represent the applicant's anticipation of inclusion. Observing a program's current residents and faculty is one way of predicting compatibility.

Ku et al. assessed applicants' perceptions of the gender and racial diversity in their prospective programs.⁸ Among applicants to surgical specialties, the perception of program staff as majority male was more

common among women than men. Similarly, the perception that programs were lacking in racial diversity was more common with applicants underrepresented in medicine (URIM) than with white applicants and similarly pronounced in minority applicants not underrepresented in medicine (e.g., Asian Americans). Asian Americans, including Southeast Asians, represent 6% of the general population and 17% of physicians.⁹ Simply put, women and minorities were more perceptive of gender and racial imbalances among staff.

The study then assessed the effect of gender and racial diversity on the applicants' rankings of the programs.⁸ Minority applicants were more likely than white applicants to rate racial diversity of staff positively toward a program's ranking. Gender diversity was more frequently a positive influence for women than for men in all specialties. Among women ranking obstetrics-gynecology programs, the positive influence of faculty and resident diversity was 20% and 13%, respectively, versus 52% and 54% in other surgical specialties. What explains the stark contrast? Relatedly, male students have described feelings of exclusion from clinical teams on their OB-GYN rotations.¹⁰ The examples highlight our ethical relativism. Though less frequently than women, men also perceived when specialties were male-dominated. Perceptiveness and concern for diversity exist in each of us, lying dormant until inspired by the right setting. Our concern about fitting in might then progress to a feeling of belonging. To achieve inclusion in residency, we need to cultivate empathy not only toward our patients but also toward our colleagues. There is hope.

Achieving Inclusion

In order to attain inclusion within organizations, acknowledgement of the cultural norms impeding these efforts must first be addressed. These include microaggressions, a term coined in 1970 to refer to damaging humiliations experienced specifically by African-Americans but that has now been broadened to incorporate subtle slights and insults toward minorities, women and other stigmatized groups such as those from the lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ+) community. Microaggressions occur daily via dismissive body language and tone and may include verbal abuse or general disrespect, devaluation or exclusion of the recipient.¹¹ Toolkits for organizational metric self-analysis can be selected for use based on proposed

environmental barriers to success. Options include those created by the NIH Scientific Workforce Diversity Office, the Workforce Diversity Network, Urban Universities for HEALTH, and the Diversity Engagement Survey (DES) created by the Association of American Medical Colleges (AAMC).¹² The DES may also serve as a scorecard allowing benchmarking among departments and institutions.¹³

Organizational culture shifts must occur to influence inclusion. Bullying, sexual harassment and microaggressions undermine the culture while reducing quality of care and patient safety; thus, departments should educate staff on inappropriate conduct and have a mode of assessing the prevalence of these behaviors.¹² Similar to patient safety tools put forth by the Agency for Healthcare Research and Quality (AHRQ), the American Surgical Association recommends a “stop the line” policy to optimize the health of colleagues. The policy would empower victims or witnesses and provide a clear pathway for reporting concerns to leadership, facilitating an inclusive, tolerant work environment.¹²

Departmental leadership support is paramount when redesigning workplace culture and may be exercised in various ways. The following methods will be discussed:

1. Focus on New Faculty
2. Mentorship
3. Support Resources
4. Cultural Competence
5. Faculty Retention

Early career physicians — less than 10 years in practice — have been identified as having higher rates of burnout, and as such should be targeted in a preventive way.⁵ New faculty should receive official onboarding to include cultural hierarchy, institutional paths to promotion or private practice partnership and compensation policies.¹² They should be given the opportunity to familiarize themselves with the environment, thereby reducing undue stress.

Mentorship between residents and junior and senior faculty is especially important to aid in the intergenerational divide as well as to promote self-value and success in the mutual relationship. Leadership plays a tremendous role in this. Per the survey distributed by the NYSSA Ad Hoc Committee on Professional Diversity, 60% of respondents who reported having a mentor had the mentorship established at their current or previous institution.

Support resources are essential to preserve inclusiveness and ensure employees are fully engaged. These include parental leave policies for both parents after birth, adoption or surrogacy; institutional support for backup child care needs; lactation facilities and appropriate time allotted; and confidential and on-site mental health and wellness resources. Residents, in particular, can benefit from the continuation of cultural competence taught in medical schools. It has been shown to improve health outcomes as well as equitable healthcare and can benefit relationships with colleagues of various backgrounds.¹²

Faculty retention can be improved through greater transparency in salary, promotion and professional advancement criteria.¹² Clear paths for academic or clinical promotions that include impartial rubrics utilizing factors such as years of service and departmental citizenship would be beneficial. Exit interviews should be utilized as a tool for improving retention strategies, with a goal of 100%.¹² When key stakeholders address inclusion, policy implementation will influence change in actions. Lasting change will require objective measures.

Metrics and evaluation are the keys to assessing progress. Utilizing AHRQ's Plan-Do-Study-Act (PDSA) model, interventions may be applied with continuous evaluative methods to allow for a dynamic process. Specific metrics may be selected, on a departmental or institutional basis, as a balanced scorecard to benchmark progress and serve as a comparison. Communication among team members is important throughout the course of process implementation.

Inclusion is a race that healthcare organizations must win. Ensuring that all physicians, especially those of diverse backgrounds, have a sense of fulfillment and control in the workplace further accomplishes the "Triple Aim": improved patient satisfaction and quality of care, improved population health, and reduced healthcare costs through efficiency. Most importantly, it promotes the professional well-being of tomorrow's physicians. ■

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REFERENCES

1. About Us. National Medical Association. Nmanet.org. https://www.nmanet.org/page/About_Us. Published 2020. Accessed October 24, 2020.
2. Torres M, Salles A, Cochran A. Recognizing and Reacting to Microaggressions in Medicine and Surgery. *JAMA Surg* 2019; 154(9):868-872. doi:10.1001/jamasurg.2019.1648.
3. Silver J, Ghalib R, Poorman J, et al. Analysis of Gender Equity in Leadership of Physician-Focused Medical Specialty Societies, 2008-2017. *JAMA Intern Med* 2019; 179(3):433-435. doi:10.1001/jamainternmed.2018.5303.
4. Diversity and Inclusion Definitions. U.S. Department of Housing and Urban Development (HUD). Hud.gov. https://www.hud.gov/program_offices/administration/admabout/diversity_inclusion/definitions. Published 2020. Accessed October 18, 2020.
5. Khan A, Vinson A. Physician Well-Being in Practice. *Anesth Analg* 2020; 131(5):1359-1369. doi:10.1213/ane.0000000000005103.
6. Lebovits A, Cottrell J, Capuano C. The Selection of a Residency Program: Prospective Anesthesiologists Compared to Others. *Anesth Analg* 1993; 77(2):313-317. doi:10.1213/00000539-199377020-00017.
7. Nuthalapaty F, Jackson J, Owen J. The Influence of Quality-of-Life, Academic, and Workplace Factors on Residency Program Selection. *Acad Med* 2004; 79(5):417-425. doi:10.1097/00001888-200405000-00010.
8. Ku M, Li Y, Prober C, Valentine H, Girod S. Decisions, Decisions: How Program Diversity Influences Residency Program Choice. *J Am Coll Surg* 2011; 213(2):294-305. doi:10.1016/j.jamcollsurg.2011.04.026.
9. Butler P, Longaker M, Britt L. Major Deficit in the Number of Underrepresented Minority Academic Surgeons Persists. *Ann Surg* 2008; 248(5):704-709. doi:10.1097/sla.0b013e31817f2c30.
10. Chang J, Odrobina M, McIntyre-Seltman K. The Effect of Student Gender on the Obstetrics and Gynecology Clerkship Experience. *J Womens Health* 2010; 19(1):87-92. doi:10.1089/jwh.2009.1357.
11. Torres M, Salles A, Cochran A. Recognizing and Reacting to Microaggressions in Medicine and Surgery. *JAMA Surg* 2019; 154(9):868-872. doi:10.1001/jamasurg.2019.1648.
12. West M, Hwang S, Maier R, et al. Ensuring Equity, Diversity, and Inclusion in Academic Surgery: An American Surgical Association White Paper. *Ann Surg* 2018; 268(3):403-407. doi:10.1097/sla.0000000000002937.
13. Person S, Jordan C, Allison J, et al. Measuring Diversity and Inclusion in Academic Medicine: The Diversity Engagement Survey. *Acad Med* 2015; 90(12):1675-1683. doi:10.1097/acm.0000000000000921.

Understanding Ambulatory Surgery Centers

MATHEW J. LEVY, ESQ.

Introduction

It is no secret that ambulatory surgery centers (“ASCs”) are becoming the go-to place for physicians to perform procedures, as opposed to hospitals, as physicians attempt to increase revenue and align with hospitals. As per the Centers for Medicare & Medicaid Services (CMS), an ASC is defined as follows: “any distinct entity that operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization and in which the expected duration of services would not exceed 24 hours following an admission. (See 42 cfr § 416.2 Definitions.) While there are certainly several benefits to ownership in an ASC, prior to jumping on the ASC bandwagon it is imperative that physicians and other investors understand the process of starting/operating an ASC, as well as evaluate the legal, business and regulatory implications. Although the corporate practice of medicine doctrine in New York state generally prohibits general business corporations from employing physicians for the purpose of providing medical services or arranging for the provision of medical services, ASCs, unlike medical practices, can be owned by non-physicians. (See NY BCL §1501 et seq.; NY Education Law §6522.)

CON Process

In order to operate an ASC in New York, approval must be obtained from the Department of Health and Health Planning Committee via the Certificate of Need (CON) process. The objectives of the CON process are to promote delivery of high-quality healthcare and ensure that services are aligned with community need. The CON process can be very involved and can often take several months to complete. All proposed operating documents must be submitted, in addition to floor plans and other information pertaining to the project.

In order to increase the probability that approval is granted, many ASCs are partnering with hospitals, as hospitals often are able to help prove the need for an ASC in the community. Additionally, hospitals have an interest in entering into joint ventures with ASCs, as it is more cost-effective to perform procedures at an ASC as opposed to a hospital.

Legal Documents

Prior to commencement of the CON application process, proposed documents in connection with the ASC must be drafted. These include formation documents (Articles of Organization/Certificate of Incorporation) as well as operating documents (operating agreement/shareholders agreement) dictating the terms regarding how the ASC will be governed and the rights of its owners. There are several key provisions to consider in such operating documents. For instance, potential investors should ascertain information regarding how distributions are made and how decisions are made with respect to the ASC, as well as who is responsible for the day-to-day management and decision-making. Furthermore, potential investors should consider how new members are added, as well as what their buy-in will be. Termination provisions are also important to consider: specifically, how an owner can be terminated (without cause or with cause), whether an owner has an exit strategy in the event the owner wants to terminate the relationship, and what the buyout terms are in the event of termination. Furthermore, it is important to consider whether there is a restrictive covenant and non-solicitation provision, which may preclude the physician investor from having an ownership interest in another ASC within a certain geographic region, as well as from soliciting patients, employees and referral sources. A Subscription Booklet, including a Subscription Agreement, should also be drafted and distributed to potential investors. Such documents would outline the terms of the venture, including but not limited to investment terms and the proposed terms of a lease agreement, billing agreement, consulting agreement, and escrow agreement, as applicable. A questionnaire should also be distributed to obtain information regarding potential investors for due diligence purposes.

Regulatory Concerns

In the event an investment is made by a physician and there are referrals being made, the federal and state rules and regulations governing referrals must be reviewed, including but not limited to the Stark Law and Anti-Kickback Statute.

While the Stark Law (self-referral statute) has significantly restricted the possibility of many physician joint ventures, it does not prohibit a physician from entering into an arrangement with an ASC. The Stark Law prohibits physicians from referring Medicare patients to an entity for certain “designated health services” if the physician has a financial

relationship with that entity, subject to certain exceptions. Since ASC services are not, themselves, “designated health services” covered by the Stark Law, the law does not restrict physician ownership of ASCs, so long as the ASC does not provide any separately billable designated healthcare services. (See 42 USC § 1395NN.)

However, an investment by a physician in an ASC can implicate the Anti-Kickback Statute. The Anti-Kickback Statute prohibits any person from “knowingly and willfully” providing any remuneration to induce referrals, or in exchange for referrals, of federal healthcare program patients or business. (See 42 U.S.C. § 1320a-7b(b).) Accordingly, the Anti-Kickback Statute applies to any physician-owned ASC that treats federal healthcare program patients (including Medicare and Medicaid) since the physician’s return on investment can arguably be viewed as an inducement for physician investors to refer patients to the ASC.

Such arrangement would not run afoul of the Anti-Kickback Statute in the event the arrangement falls within the parameters of an applicable safe harbor, specifically those that protect various types of physician-owned ASCs as well as hospital/physician ASC joint ventures. (See 42 C.F.R. § 1001.952(r).) Although safe harbor protection is afforded only to those arrangements that precisely meet all of the conditions set forth in the safe harbor, the absence of safe harbor protection is not fatal; rather, the arrangement may be subject to further scrutiny.

The ASC safe harbor generally excepts from the definition of “remuneration” payment that is a return on an investment interest made to an investor, so long as the investment entity is a Medicare-certified ASC, the ASC’s operating and recovery room space is dedicated exclusively to the ASC, patients referred to the ASC by an investor are informed fully of the investor’s investment interest, and all of the applicable standards are met within one of four categories: surgeon-owned ASCs, single-specialty ASCs, multi-specialty ASCs, and hospital-physician ASCs.

Some standards that are applicable to each of the categories are as follows: (See 42 C.F.R. § 1001.952(r).)

- the terms on which an investment interest is offered to an investor must not be related to services furnished, the previous or expected volume of referrals or the amount of business otherwise generated from that investor to the entity;

- any distribution or dividend payment to an investor in return for the investment must be directly proportional to the amount of the capital investment (including the fair-market value of any pre-operational services rendered) of the investor;
- at least one-third of each surgeon investor's medical practice income from all sources for the previous fiscal year or previous 12-month period must be derived from the surgeon's performance of those procedures on the list of Medicare-covered procedures for ASCs (with respect to a multi-specialty ASC, at least one-third of these procedures must be performed in the ASC as well);
- any and all ancillary services for federal healthcare program beneficiaries performed at the ASC must be directly and integrally related to primary procedures performed at the ASC, and none may be separately billed to any federal healthcare programs, including Medicare; and
- the ASC and any surgeon investors must treat federal healthcare program beneficiaries in a nondiscriminatory manner.

It is important to note that physicians must also disclose in writing their ownership interest in an ASC to patients. (See 42 CFR Part 420.) ASCs must also ensure that all rules and regulations governing patient confidentiality, including but not limited to HIPAA, are complied with, and that all billing and coding rendered in connection with services rendered at the ASC are accurate and are substantiated by the medical records.

Conclusion

In sum, investing in an ASC can be a great opportunity for physicians and other non-physician investors. To that end, prior to participating, it is in the best interest of potential investors to evaluate the opportunity from a business, as well as regulatory, perspective in order to ensure maximum benefit. ■

Mathew J. Levy, Esq., is a partner at Weiss Zarett Brofman Sonnenklar & Levy, P.C., the NYSSA's general counsel. Mr. Levy has extensive experience representing healthcare clients in transactional and regulatory matters. He can be reached at 516-926-3320 or mlevy@weisszarett.com. The firm can be found on the web at weisszarett.com.

Legislative Update

CHARLES J. ASSINI, JR., ESQ.

The New York State Association of Nurse Anesthetists (NYSANA) has made numerous factually inaccurate arguments over the years in an effort to persuade the New York state Legislature to enact legislation that will dismantle the long-standing physician anesthesiologist-led anesthesia care team and substitute a loose collaboration arrangement permitting independent practice for nurse anesthetists.

NYSANA is now advancing the argument that Gov. Cuomo's temporarily suspension of the requirement that nurse anesthetists be supervised by a physician anesthesiologist or operative physician — an action taken during the initial days of the COVID-19 pandemic (in accordance with his emergency powers) and later reversed for the hospital setting — should become permanent. (The part of the emergency directive suspending physician supervision in an ambulatory surgical center remained in effect until early November 2020. The requirement that physicians supervise nurse anesthetists in the accredited physician's office practice was never suspended.) This latest NYSANA argument, which is similar to prior arguments asserted by them to advance their independent practice legislation, is factually flawed and should be rejected.

This article, written with the assistance of NYSSA Government and Legal Affairs Committee Chairman Dr. Jonathan Gal, outlines the arguments why it is more important than ever to continue to preserve the long-standing physician anesthesiologist-led care team.

As briefly noted above, NYSANA has developed a number of arguments to advance their effort to achieve independent practice, all without factual basis, including the following:

- The education and clinical training that a nurse anesthetist receives is equivalent to the education and clinical training that a physician anesthesiologist receives.
- Affording nurse anesthetists independent practice will result in significant savings to New York state under the Medicaid system.

- Studies have shown that nurse anesthetists administering anesthesia is on par with physician anesthesiologists.
- New York state patients in rural hospitals do not receive the care of physician anesthesiologists.
- The existing regulatory framework embodied in the New York state health code creates barriers to the ability of nurse anesthetists to administer anesthesia.

Please note: For extensive information on how the NYSSA has refuted each and every one of these arguments, go to the members-only page on the NYSSA website under Advocacy - Legislative and Regulatory Issues at www.nyssa-pga.org/members/legislative-regulatory-issues/ and view the memorandum under “NYSANA 2019” Just the Facts – Answering NYSANA regarding Bill A.7100 (Bichotte)/S.5885 (Gaughran) “Equal Access to Safe Anesthesia.”

In a recent story published in Spectrum News titled “Nurse Anesthetists Lobby for Permanent Status Change in New York,” author Ryan Whalen quotes NYSANA President Yana Krmic (found at <https://spectrumlocalnews.com/nys/central-ny/politics/2020/10/07/nurse-anesthetists-lobby-for-permanent-status-change-in-ny>):

Krmic is one of more than a thousand CRNAs who worked countless hours during the peak of the COVID-19 pandemic. In March, Governor Andrew Cuomo passed an executive order pulling back requirements they practice under the supervision of a physician.

“It worked out well in the sense that nurse anesthetists were able to place the lines, we’re able to go out there and prescribe necessary medications for these patients and practice without any barriers and restrictions,” Krmic said.

The governor has extended the order several times and it currently expires on November 3. Krmic said it’s time the state makes the rule permanent.

“New York is one of two states in the country that does not recognize Certified Registered Nurse Anesthetists as an advanced practice provider,” she said.

She said changing the law would provide enormous relief to the state’s health care system. Insurance companies typically don’t reimburse at the same rate for procedures

that utilize CRNAs instead of anesthesiologists — often leaving hospitals to cover the costs and pull money from other care.

“It is an overlapping service. We do exactly the same care,” Kremic said. “We provide exactly the same anesthetic care as our physician colleagues. There is absolutely no difference in the outcomes. There is plenty of research out there that shows that.”

As the NYSSA has continuously done to set the record straight and to preserve safe anesthesia care, it is critical to respond to NYSANA’s assertion that eliminating physician anesthesiologist-led care during a pandemic will not jeopardize patient care. Additionally, it is important to clarify that, as noted above, although the governor initially suspended physician supervision of nurse anesthetists in hospital settings, this supervisory requirement was reinstated by the governor, effective May 8, 2020.

Outlined below are reasons why it is essential that we continue to educate our lawmakers about why physician anesthesiologists are the physicians best equipped to provide critical care to COVID-19 patients and why physician anesthesiologist-led anesthesia care should be maintained. I have asked Dr. Gal to provide his expertise in setting forth substantive arguments supporting the NYSSA’s position, and these include the following:

- Physician anesthesiologists are trained to provide the following critical medical services: ventilation management, emergency intubation, placement of invasive monitoring lines and transesophageal echocardiography — all medical services that were, and are, essential throughout the COVID-19 pandemic period.
- COVID-19 patients require a higher level of medical skill and effort to treat. Physician anesthesiologists go through four years of medical school and receive up to 16,000 hours of training, which includes critical care medicine training. This education and training allows physician anesthesiologists to make immediate medical assessments when seconds count.
- COVID-19 patients are gravely ill. The virus infects patients’ respiratory systems, which can result in pneumonia and, in severe cases, acute respiratory distress syndrome (ARDS) and death. The virus can also damage other vital organs, triggering a full range of complications, including heart and renal failure.

- Most COVID patients are already in compromised health. According to the CDC, most patients hospitalized with COVID-19 (91.5%) already have at least one compromising health condition such as high blood pressure, obesity, diabetes, or heart disease, further complicating their medical care.

It is now more essential than ever to stay involved in the NYSSA's advocacy efforts. NYSSA's lobbyist, Bob Reid, of Reid, McNally & Savage, LLC, would be happy to assist our members in scheduling Zoom meetings with legislators, and I would be more than happy to provide supporting background information and memoranda as needed. ■

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A Unique Case of Single-Lung Transplant From a Deceased Donor Sensitive to Cold

SAQIB SAEED, M.D., JONATHAN LEFF, M.D., AND KIRI MACKERSEY, MBCHB

Abstract

Lung transplant is a rapidly evolving technique, and improved patient outcomes have been reported owing to new preservation techniques and drugs; however, challenges remain because of the restricted donor pool. This report illustrates a unique case of a single-lung transplant from a cold-sensitive deceased donor whereby the transplanted lung failed to inflate after storage in a cold preservation solution. Mechanical and technical issues were eliminated. The lung inflated with improved aeration after warming.

Case Presentation

A 64-year-old woman with interstitial lung disease presented for a single left lung transplant. The donor was a 22-year-old woman with a history of seasonal asthma who died of anaphylactic shock after receiving a desensitization injection.

The donor's history revealed sensitivity to cold. The recipient's lung was removed once the donor's lung arrived. There were no anatomical abnormalities, and the total ischemic time of the donor organ was 3 h and 28 min.

The lung transplant was performed without complication; however, the left lung did not inflate upon resumption of ventilation. The endotracheal tube position was checked and bronchoscopy was performed. Bronchoscopy showed that the allograft appeared to be in a normal anatomical position with no stenosis in the anastomosis. Multiple unsuccessful attempts were made to inflate the lung using bronchodilators and gentle recruitment. After exhausting all options and eliminating any mechanical issue, the chest was closed, and the patient was supported with VV ECMO while the surgical team continued to investigate the allograft's ventilatory problems. Intraoperative chest X-ray showed a deflated left lung. The patient was stable and was transported to the ICU on ECMO.

Postoperative chest X-ray a few hours later showed lung inflation; repeat bronchoscopy showed no abnormalities. The left lung continued to inflate, and the patient was extubated on post-operative day four. The remaining hospital stay was uncomplicated, and she was discharged on post-operative day 10.



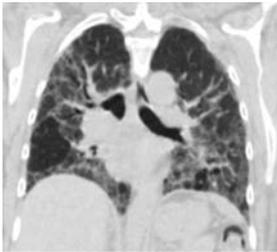
Pre-transplant chest X-ray



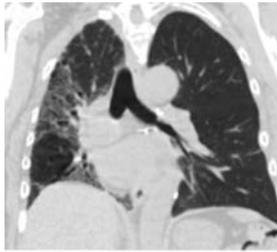
Intra-operative chest X-ray showing deflated lung on patient's left



Post-operative chest X-ray in ICU showing improvement in inflation



Pre-operative CT



Post-operative CT

Learning Point

Bronchospasm from exercise in cold and dry environmental conditions has been attributed to two possible pathophysiological mechanisms.^{1,2} The first, referred to as the hyperosmolarity theory, suggests that the bronchial mucosa loses heat and water, resulting in an increase in the tissue's osmolarity.^{1,2} The increased osmolarity triggers histamine release that induces bronchoconstriction. The second possible theory is the thermal expenditure theory. This explains the bronchospasm as a result of rapid rewarming of the airways after exercise. After rewarming, the constricted bronchiolar vessels vasodilate and the resulting hyperemia causes constriction of the airways.^{1,2}

Storage of the donor's lung in a cold preservation solution created challenges due to the lung's sensitivity to cold. Once the core

temperature of the lung returned to normal, it inflated and aerated optimally. In our case, it appears that the hyperosmolarity theory is a better explanation, as the patient improved with warming. ■

Saqib Saeed, M.D., is a cardiothoracic surgical fellow at Montefiore Medical Center. Jonathan Leff, M.D., and Kiri Mackersey, MBChB, are cardiothoracic anesthesiologists at Montefiore Medical Center. Dr. Leff was the attending who provided the anesthesia for this case.

REFERENCES

1. Storms WW. Exercise-induced asthma: diagnosis and treatment for the recreational or elite athlete. *Med Sci Sports Exerc* 1999 Jan; 31(1 Suppl):S33-S38.
2. Voy RO. The U. S. Olympic Committee experience with exercise-induced bronchospasm, 1984. *Med Sci Sports Exerc* 1986 Jun; 18(3):328-330.



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Duct Tape, Plastic Tarps and Constant Codes: An Intern's Perspective on the Pandemic Peak in Brooklyn

PATRICK PFAU, D.O.

As I sit down to write this, the United States has surpassed 230,000 confirmed COVID deaths and more than 100,000 daily cases. I work as a trainee mainly at safety net hospitals in Brooklyn and the scars from the height of the pandemic are ever present. Each morning I walk past a makeshift memorial dedicated to hospital employees who died from COVID. A wall covered with the pictures of and farewell messages to colleagues provides a sobering reminder of the risks assumed by healthcare workers and hospital staff.

At the height of the pandemic, I was an intern on the medicine floors and recorded some of the events as they transpired, hoping that someday they would serve as a reminder. During the last week in March, I wrote about my interactions with patients and my experiences. As the cases in New York begin to rise again, I share what happened over the course of a typical day during peak COVID, in order to remind us to remain vigilant in our patient interactions and daily life:

The day starts early. Someone set a 2 train on fire in Harlem and the 5 train has been running irregularly this week, so I make it to the hospital just after 7 a.m. We had four admissions overnight. We have eight teams caring exclusively for COVID patients, and each team got several admissions. I sit down to review the charts. Before I can accomplish anything, they call a code overhead. Our team responds. The patient is already intubated. We do chest compressions and provide medications, but we cannot save the patient. I fill out paperwork, then go back to my

office and sit down. Another code is called for a different patient. The individual is already intubated. Again we do chest compressions and provide medications, but we cannot save the patient. I fill out paperwork, sit down and review charts.

It's after 9 a.m. and I'm seeing my new patients, then I'll circle back to see my old patients. Every patient encounter is the same process: wash/sanitize hands; don head covering, N95 mask, eye protection and gown; wash/sanitize hands; put on gloves; talk to patient; examine patient; remove gloves and gown; wash/sanitize hands; remove goggles; remove mask; remove head covering; wash/sanitize hands; clean stethoscope; and move on to the next patient. Each encounter takes longer thanks to my new routine. It feels like I wash/sanitize my hands approximately 1,000 times per day.

Each patient interaction is unique but follows the same path. Almost all patients require some sort of supplemental oxygen. Every initial interaction, regardless of age, ends with me addressing their code status.

After 11 a.m. we round, discussing patients and making plans. We try to figure out the next steps. We make time to call families to update them and discuss plans. Another code is called, this time in the ICU. We push back the plastic tarps duct-taped to the ceiling, which were hastily assembled to better separate COVID patients. We begin the familiar cycle again; after chest compressions and medications, the patient's pulse returns. It's a small victory. Twenty minutes later they call a code for the same patient; once again, after chest compressions and medications, the pulse returns. Another small victory, but this time only fleeting, as 10 minutes later a code is called for the same patient; despite more chest compressions and medications, there is no return of pulse. Each loss lingers as we are reminded of how powerless we feel as we treat and attempt to save patients. I fill out paperwork, and we have to continue with our day.

Some patients have made improvements. They no longer require oxygen. We plan to send them home. One took a turn

for the worse overnight and can't go home. One patient is speaking today and eating. First I've seen in three days. He says, "Thank you" when I bring in his breakfast. His unexpected gratitude is very touching. The next morning I deliver his breakfast again and we have another short conversation. About an hour later, the nurse finds him unresponsive and pulseless. He's DNR/DNI, so we call his family to notify them.

Throughout the day there are more admissions. These patients are experiencing shortness of breath, fever, cough, difficulty breathing, weakness and dizziness. The ER is like a war zone. Stretchers crowd every available space. Ambulances continue to pull up. There's a line of patients struggling to breathe, waiting to be seen. As I see more patients, there are more discussions about goals of care. We discuss treatment plans. We test oxygen requirements. No family is allowed in the hospital and patients feel isolated, anxious and afraid. Sometimes I find myself holding hands with the patients when we talk. We comfort each other during this unprecedented situation.

We're staying late tonight. All the other teams give us sign out. Another code is called. We're about to begin chest compressions but realize the patient is DNR/DNI. I call the family and fill out the paperwork. We continue fielding calls from nurses and the pharmacy to clarify orders. Another code is called, but this patient is also DNR/DNI; we call the family and fill out the paperwork.

I'm getting ready to go home when there's another code. The patient is intubated. We discuss our patients with the overnight coverage team. I leave the hospital around 9 p.m. and take the train home. It's much emptier than usual. ■



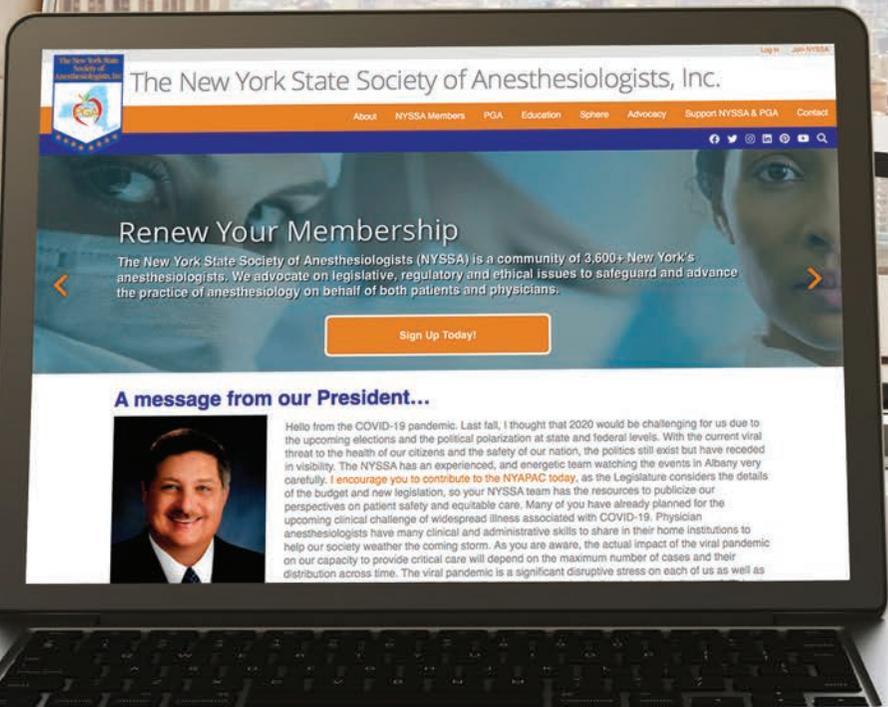
Patrick Pfau, D.O., is a CA-1 at SUNY Downstate Medical Center. He currently serves as the content and outreach coordinator for the Resident and Fellow Section.

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A message from our President...



Hello from the COVID-19 pandemic. Last fall, I thought that 2020 would be challenging for us due to the upcoming elections and the political polarization at state and federal levels. With the current viral threat to the health of our citizens and the safety of our nation, the politics still exist but have receded in visibility. The NYSSA has an experienced, and energetic team watching the events in Albany very carefully. I encourage you to contribute to the NYAPAC today, as the Legislature considers the details of the budget and new legislation, so your NYSSA team has the resources to publicize our perspectives on patient safety and equitable care. Many of you have already planned for the upcoming clinical challenge of widespread illness associated with COVID-19. Physician anesthesiologists have many clinical and administrative skills to share in their home institutions to help our society weather the coming storm. As you are aware, the actual impact of the viral pandemic on our capacity to provide critical care will depend on the maximum number of cases and their distribution across time. The viral pandemic is a significant disruptive stress on each of us as well as

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FROM THE STAFF OF The New York State Society of Anesthesiologists, Inc.



Multiple Failures in Care Result in Neurologically Impaired Infant

A CASE STUDY BY MLMIC INSURANCE COMPANY

**WRITTEN BY: ROBERT TIERNEY
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The Delivery

A 30-year-old female, gravida 4, para 3, was admitted for induction of labor at 42 weeks gestation. The pregnancy was essentially unremarkable. Following the artificial rupture of membranes at 7:30 a.m., a Pitocin drip was started and the dosage was gradually increased by protocol. At 12:05 p.m., a nurse first noted bleeding. At 12:10 p.m., the obstetrician placed an internal lead after performing a vaginal examination. An episode of bradycardia lasting 11 minutes was noted before recovery to baseline. During that time, the fetal heart rate fell below 100 bpm.

At 12:30 p.m., the obstetrician ordered an epidural anesthesia and left the unit. As the anesthesiologist attempted to place the epidural catheter, the patient developed a leg cramp. Therefore, the epidural needle was removed. Placement was finally achieved at approximately 12:55 p.m., at which time the anesthesiologist also left the unit. The length of time that it took to place the epidural catheter was felt in no way to contribute to the fetal difficulties that subsequently ensued. Decelerations were noted during the 25 minutes that it took to complete placement of the epidural catheter. This was followed by a prolonged deceleration with a decrease in beat-to-beat variability and a slow return to baseline.

At 1:05 p.m., maternal blood pressures decreased to 81/50 following the epidural. The nurse's note reflects that the obstetrician was called

and advised of those changes. At 1:10 p.m., the maternal blood pressure was 88/49 and the fetal heart rate was 150 to 160. At 1:15 p.m., the maternal blood pressure was 99/52, but the fetal heart rate was now below 90 bpm. Late decelerations were noted, and the obstetrician was again notified.

The obstetrician arrived at 1:23 p.m. At that time, the maternal blood pressure was 103/63 and the fetal heart rate was below 80 bpm. There were late decelerations with slow recovery and decreased variability on the EFM strips. A vaginal examination revealed the cervix to be 3-4 cm dilated, with bleeding again present. At 1:30 p.m., the fetal monitor showed minimal variability. At 1:35 p.m., the maternal blood pressure was 85/50, and the fetal heart rate was between 70 and 110 bpm. At this time, the nurses noted bright red bleeding. At 1:38 p.m., the obstetrician called for a caesarean section. The anesthesiologist responded and “topped off” the epidural at 1:52 p.m. The patient arrived in the operating room at 1:59 p.m. The fetal heart rate was now below 60 bpm. The first incision was made at approximately 2:12 p.m. and the infant was delivered at 2:15 p.m.

Post-Delivery Observations

The baby boy weighed 8 pounds 9 ounces. He was extremely floppy at birth, with Apgars of 1, 4 and 7 at 10 minutes. Free blood and clots were seen in the uterus at the time of the delivery, which strongly suggested a placental abruption. At two to three minutes of life, the baby was intubated by the anesthesiologist. The pediatrician arrived at 2:24 p.m. He documented chest compressions with a heart rate of 60. He also documented that the baby was still limp and blue and had a poor response to the resuscitative efforts. He suggested that the tube was misplaced, so the anesthesiologist reintubated the baby. The baby’s heart rate and color then improved. The anesthesiologist went back to care for the mother until 3 p.m.

At 3:10 p.m., a chest x-ray of the infant revealed that the tip of the tube was directed toward the right mainstem bronchus. The radiologist’s impression was that the tube was “malpositioned.” There is nothing documented in the medical record that reflects that the tube was subsequently raised. However, a second chest x-ray taken later showed that the tip of the tube was now above the carina. The child was maintained on mechanical ventilation, suffered seizures, and was

transferred to a tertiary medical center. An MRI there showed encephalomalacic changes representing hypoxic ischemic encephalopathy. The child suffered from cerebral palsy, with spastic quadriplegia and profound cognitive/communication impairment. He required 24-hour home or institutional care. The baby had no genetic defects upon testing.

Lawsuit and Expert Reviews

The plaintiff's parents commenced a lawsuit on the child's behalf against the hospital. They sued the pediatrician, a non-MLMIC insured, the obstetrician and his partner, both MLMIC insureds, their professional corporation, and the anesthesiologist, who was also a MLMIC insured. The complaint alleged mismanagement of the plaintiff's labor and delivery.

Medical experts in the fields of obstetrics, anesthesiology and pediatrics reviewed this case. The obstetrical reviewer expressed concerns that at approximately 12:05 p.m., the electronic fetal monitoring tracing and the nurse's notes reflected maternal bleeding. The fetal monitor strips showed prolonged, deep variable decelerations and a reduction in beat-to-beat variability. After the epidural was completed at 12:55 p.m., the strips demonstrated a bizarre pattern, with almost complete loss of variability, associated with a baseline of approximately 100 bpm, with multiple short accelerations to 130 bpm. The electronic fetal monitoring strips continued to show ominous signs until approximately 1:40 p.m., when the emergency caesarean section was called. The obstetrical expert opined that the caesarean section should have been called for at around 12:30 p.m., which would have resulted in delivery of the fetus approximately one hour and 15 minutes sooner. The obstetrical reviewers recommended prompt settlement of the lawsuit.

The anesthesiology reviewers opined that the insured anesthesiologist should have questioned the appropriateness of placing an epidural in a patient with bleeding and a fetus in distress. They also advised that he should have stayed with the mother to observe the effects of the epidural, which caused a decrease in blood pressure. They also were extremely critical of the lack of documentation by both the obstetrician and the anesthesiologist. The anesthesia record indicated that the epidural placement at 12:30 p.m. was essentially unremarkable. However, the nurse's notes reflect that the catheter was initially removed

due to a possible injury to the patient. Further, the anesthesiologist entered no notes in the record regarding topping off the epidural at 1:52 p.m.

The most damaging part of the anesthesia record were the vital signs of the mother taken between 12:30 p.m. and 2:00 p.m. The record showed repeated blood pressure entries of 115/55. However, the nurses had recorded blood pressures of 80-90 systolic. It was not clear whether the anesthesiologist was in attendance with the mother from 12:30 p.m. onward, as the caesarean section was called at 1:38 p.m. and the nurse's notes indicate that the anesthesiologist responded at 1:50 p.m. The anesthesia record also failed to reflect the time of the incision. Additionally, the anesthesiology record was extremely brief regarding the intubation of the infant. However, the nurse's notes indicate that the initial intubation by the anesthesiologist "failed" and that the infant was not successfully intubated until nine minutes after delivery.

This faulty recordkeeping and poor documentation were very damaging to the credibility of the anesthesiologist. Because his credibility was completely compromised, his care could not be supported by an expert witness.

Settlement

The plaintiff's initial demand to settle this matter was \$11 million. Eventually, the case was settled for a total of \$6.7 million. A total of \$4.9 million was paid by MLMIC. All of the policies of the obstetrician were used for the settlement. This included \$1.3 million in primary coverage, \$1 million in excess coverage through another carrier, and \$1.3 million of the policy of his professional corporation. All of the anesthesiologist's policies were used as well. This included his primary policy of \$1.3 million and the \$1 million in coverage for his professional corporation. He did not have a policy of excess coverage. The non-MLMIC insured pediatrician contributed \$750,000 from his policy. The non-MLMIC insured hospital paid \$50,000 towards the settlement. Interestingly, this settlement occurred prior to the inception of the New York State Medical Indemnity Fund, to which these parents would have been directed to seek money for future medical expenses and devices. ■



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Quality in Healthcare: How Do We Define It When Practicing Neuromuscular Blockade Reversal?

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We often talk about quality in healthcare, but less commonly we talk about *value* in healthcare. Quality and value are interrelated concepts and sometimes expressed as the following equation:

Value = Quality / Cost

As the equation shows, both value and quality in healthcare are related to the cost of that care. In general, if the cost of two alternative treatments is similar, determining the value and quality of healthcare is relatively simple. However, when the cost of two treatments is different such that one is significantly greater than the other, then the value of that higher cost treatment will depend on how the quality of that treatment is measured.

When it comes to neuromuscular blockade (NMB) reversal, if quality is defined as the duration from administration of drug to when the patient is ready for extubation, there is no question that the quality of reversal of deep NMB with sugammadex is superior to that of neostigmine. When comparing sugammadex 4 mg/kg and neostigmine 0.07 mg/kg for reversal of rocuronium-induced deep NMB from a post-tetanic count 1-5 to a train-of-four ratio (TOFR) > 0.9, sugammadex is 45 minutes faster at achieving the outcome (2.9 vs. 48.8 minutes).¹ In surgeries where deep NMB is required throughout the entire case, the quicker reversal of sugammadex can contribute to shorter emergence duration, timely

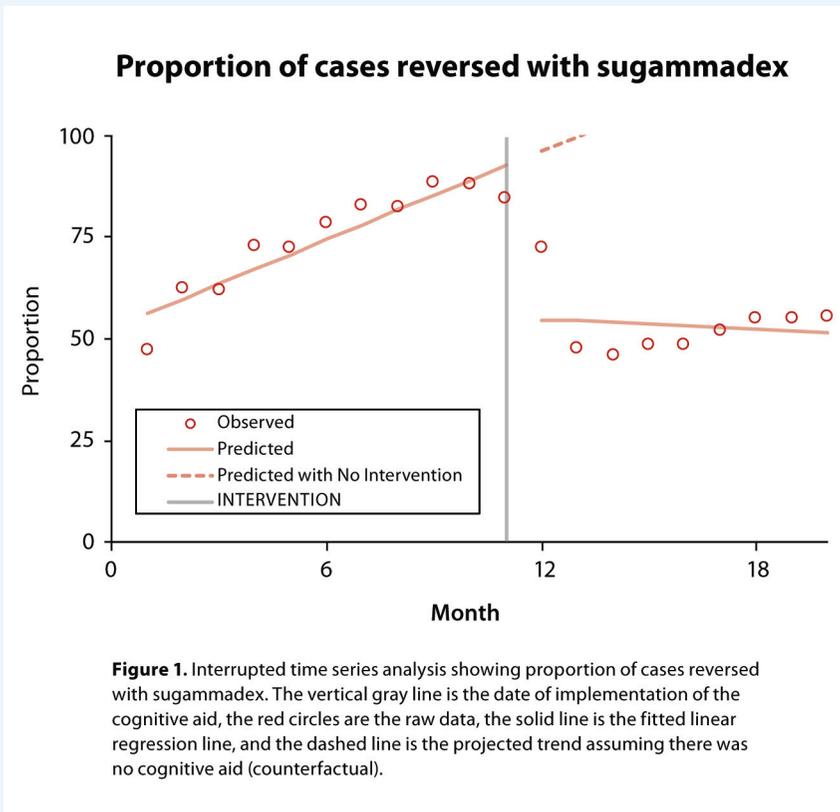
extubation, and more efficient turnover. All these benefits can translate to greater value of sugammadex.

However, deep NMB is not always required and at the time when reversal is necessary, patients may be in a lighter state of NMB. When comparing 1 mg/kg sugammadex to 0.025 mg/kg neostigmine for reversal of rocuronium-induced NMB from a TOFR = 0.5 to TOFR > 0.9, sugammadex is only 2 minutes faster (1.0 vs. 3.2 minutes).² While the quality of reversal with sugammadex in this circumstance is again undeniably greater (if defined as duration), the additional *value* of using sugammadex to achieve that 2-minute difference is less clear. Reversal of NMB is typically done early enough in surgery such that 2 minutes are unlikely to significantly contribute to OR efficiency. In other words, while the quality of sugammadex reversal is again better (when defined as speed of reversal), the *value* of sugammadex in this situation is less clear.

If quality is defined as the proportion of patients who experience postoperative respiratory adverse events, some studies suggest that sugammadex represents greater value. Krause et al.³ studied the effects of a system-wide transition from neostigmine to sugammadex as the standard drug administered for reversal of NMB. The authors found that the composite outcome of postoperative reintubation or new noninvasive ventilation was 6.1% when neostigmine was the primary reversal agent vs. 4.2% when sugammadex was the primary reversal agent. The study suggests that fewer respiratory events represents the *value* of exclusive use of sugammadex. However, the study has important limitations that need to be considered. First, patients with deep NMB inappropriately received neostigmine, which contributes to increased risk of respiratory events.^{4,5} Second, while the difference in composite outcome was statistically significant, it was driven primarily by an increase in noninvasive ventilation; reintubation itself (which occurred in fewer than 1% of patients) was not statistically significant. Therefore, the study only tells us that when reversal of NMB is incorrectly performed, we may see more noninvasive ventilation postoperatively. As clinicians, it should not come as a surprise that incorrect use of a drug can lead to adverse events!

Plausibly, the greatest value to our healthcare system is in a situation where both sugammadex and neostigmine are used, with the more

expensive sugammadex reserved for situations where that expense is offset by improved patient outcomes and efficiency. When sugammadex was introduced on formulary at Tufts Medical Center, we observed an increasing use of sugammadex. At one point, up to 90% of rocuronium-induced NMB was being reversed with sugammadex (see Figure 1), sometimes even up to 8 hours after the last dose of rocuronium. The hospital pharmacy considered imposing strict restrictions on sugammadex use, but we proposed that we could use sugammadex more reasonably with the introduction of a cognitive aid.⁶ Within a month of introducing the cognitive aid to our department members, we observed a more balanced (about 50/50) use of sugammadex and neostigmine that was sustained for several months.



Did the increased use of neostigmine result in greater respiratory adverse events? No, our study did not find that to be the case (for details, please see Figure 2 in the original article⁶). Was there lengthened emergence

duration, which might affect turnover and efficiency? No, we did not find that to be the case either. While we were unable to accurately assess monitoring of NMB agents with a peripheral nerve stimulator, the findings suggest that we were generally using sugammadex for cases with deep NMB and neostigmine for those with lighter NMB, without untoward effect.

Many institutions and hospital pharmacies fear introducing sugammadex due to a concern that costs will increase without a clearly appreciable improvement in quality of care. If used appropriately, sugammadex can improve efficiency and decrease respiratory events in those specific clinical scenarios where it is superior to neostigmine. As anesthesiologists, we must demonstrate that we can operate in a fiscally responsible way, acknowledging today's cost of sugammadex is significantly higher than neostigmine. If we practice based on scientific evidence, both sugammadex and neostigmine have their appropriate time and place to deliver *value* to the healthcare system. ■

REFERENCES

1. Hristovska AM, Duch P, Allingstrup M, Afshari A: Efficacy and safety of sugammadex versus neostigmine in reversing neuromuscular blockade in adults. *Cochrane Database Syst Rev* 2017; 8: CD012763
2. Schaller SJ, Fink H, Ulm K, Blobner M: Sugammadex and neostigmine dose-finding study for reversal of shallow residual neuromuscular block. *Anesthesiology* 2010; 113: 1054-60
3. Krause M, McWilliams SK, Bullard KJ, Mayes LM, Jameson LC, Mikulich-Gilbertson SK, Fernandez-Bustamante A, Bartels K: Neostigmine Versus Sugammadex for Reversal of Neuromuscular Blockade and Effects on Reintubation for Respiratory Failure or Newly Initiated Noninvasive Ventilation: An Interrupted Time Series Design. *Anesth Analg* 2020; 131: 141-151
4. McLean DJ, Diaz-Gil D, Farhan HN, Ladha KS, Kurth T, Eikermann M: Dose-dependent Association between Intermediate-acting Neuromuscular-blocking Agents and Postoperative Respiratory Complications. *Anesthesiology* 2015; 122: 1201-13
5. Rudolph MI, Chitilian HV, Ng PY, Timm FP, Agarwala AV, Doney AB, Ramachandran SK, Houle TT, Eikermann M: Implementation of a new strategy to improve the peri-operative management of neuromuscular blockade and its effects on postoperative pulmonary complications. *Anaesthesia* 2018; 73: 1067-1078
6. Drzymalski DM, Schumann R, Massaro FJ, Trzcinka A, Azocar RJ: Effect of a Cognitive Aid on Reducing Sugammadex Use and Associated Costs: A Time Series Analysis. *Anesthesiology* 2019; 131: 1036-1045