Identify Those at Risk

Access to highly addictive drugs is a significant risk factor for substance use disorder among anesthesia professionals and all healthcare professionals who have access to addictive medications. The anesthesia professional's risk is increased as he or she may have several of the general risk factors along with anesthesia-specific risk factors described below in Table 1.

Table 1. Risk factors for developing substance use disorder

General Risk Factors[13,17,20]	Workplace-Specific Risk Factors[4,11-13,20]
Psychological • Depression/anxiety • Low self-esteem • Low stress tolerance • Feelings of resentment • Addictive personality • Underlying psychological disease **Behavioral and Social** • Personal history of alcohol or medication misuse • Risk-seeking behavior • Maladaptive coping strategies • Trauma, isolation, abuse, lack of support system • Stressful work, home, community environment • Victim of bullying (e.g., work place, school) • Family history of substance use disorder and addiction • Family dysfunction • Unnecessary prescriptions of addictive medications, including opioids **Physical** • Acute or chronic pain **Genetic** • Inherited predisposition • Deficits in natural neurotransmitters • Absence of adverse reactions	• Heightened stress of working in high-intensity environment (e.g., operating room) • Production pressure • Fatigue and burnout • Irregular work hours • Role strain • Inadequate work-life balance • Lack of education or resources about substance use disorder and curbing addiction **Anesthesia-specific** • Possible sensitization to the effects of opioids and anesthetic agents • Access and availability of opioids, benzodiazepines, IV and inhalational anesthetics in workplace • Unregulated, readily available propofol

Signs and Behaviors of Impairment and Drug Diversion

Early identification of substance-using anesthetists reduces the risk of harm to themselves, colleagues, and patients (see harmful consequences described in Table 3).[13] Colleagues may be the first individuals to notice changes in behaviors, but may not be equipped to recognize the signs and behaviors that may be associated with substance use or impairment.[16,21] Healthcare providers are often successful at disguising their issues or their signs are ignored because they are popular, respected, and intelligent.[21] Suspicious or significant changes in behavior in the workplace may have many causes, and if subtle signs and behaviors of substance use disorder and drug diversion are left unrecognized, the provider may be placed in danger, patient safety may be compromised, and the organization may be placed at risk for liability. Signs and behaviors of impairment and drug diversion are described below in Table 2.

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com
Professional Practice Division I 847-655-8870 I practice@aana.com

Table 2. Behaviors and signs associated with substance use disorder and drug diversion

Impairment[3,17,22,23]	Drug Diversion*[4,16,23,24]
Behaviors • Severe mood swings, personality changes • Frequent or unexplained tardiness, work absences, illness or physical complaints • Elaborate excuses • Underperformance • Difficulty with authority • Poorly explained errors, accidents or injuries • Wearing longs sleeves when inappropriate • Confusion, memory loss, and difficulty concentrating or recalling details and instructions • Visibly intoxicated • Refuses drug testing • Ordinary tasks require greater effort and consume more time • Unreliability in keeping appointments and meeting deadlines • Relationship discord (e.g., professional, familial, marital, platonic) **Signs** • Physical indications (e.g., track marks, bloodshot eyes) • Signs indicative of drug diversion* (*see right column*) • Deterioration in personal appearance • Significant weight loss or gain • Discovered comatose or dead	**Behaviors** • Consistently uses more drugs for cases than colleagues • Frequent volunteering to administer narcotics, relieve colleagues of casework, especially on cases where opioids are administered • Consistently arrives early, stays late, or frequently volunteers for overtime • Frequent breaks or trips to bathroom • Heavy wastage of drugs • Drugs and syringes in pockets **Signs** • Anesthesia record does not reconcile with drug dispensed and administered to patient • Patient has unusually significant or uncontrolled pain after anesthesia • Higher pain score as compared to other anesthesia providers • Times of cases do not correlate when provider dispenses drug from automated dispenser • Inappropriate drug choices and doses for patients • Missing medications or prescription pads • Drugs, syringes, needles improperly stored • Signs of medication tampering, including broken vials returned to pharmacy

Harmful Consequences of Drug Diversion and Substance Use Disorder in the Workplace

Healthcare professionals are responsible for the safety of patients, which includes the duty to deliver care without impairment.[6,12] Impairment and drug diversion in the workplace can create an environment of disorganization, demoralization, and promote feelings of betrayal among staff, which can adversely impact patient safety and quality of care.[25] There are significant harmful consequences when substance use and drug diversion occurs in the workplace for patients, professionals, colleagues, family, friends, communities, and the facility. The consequences directly related to the workplace are described below in Table 3.

Table 3. Harmful consequences of drug diversion and substance use disorder in the workplace

Consequences[4,23,26]	
Patient	• Undue pain, anxiety, and side effects from improper dosing • Allergic reaction to wrongly substituted drug • Communicable infection from contaminated drug or needle • Victim of medical errors (e.g., medication, procedural) • Loss of trust in the healthcare system
Impaired Professional	• Adverse health effects (e.g., respiratory depression, organ failure, death) • Chronic health effects (e.g., liver impairment, heart disease) • Communicable infections from unsterile drugs, needles, injection techniques • Accidents resulting in physical harm • Familial and financial difficulties • Loss of social status • Decline in work performance and professional instability • Felony prosecution, incarceration and civil malpractice • Actions against professional license • Billing or insurance fraud
Colleagues	• Injury or infection from blood borne pathogens due to improperly stored equipment (e.g., needle sticks) • At risk for medico-legal liability secondary to shared patient-care responsibilities with an impaired professional, resulting in adverse patient outcomes • Stress due to an increased workload from impaired professional absence • Disciplinary action for false witness of leftover drugs disposal or failure to report impaired professional
Facility	• Costly investigations • Loss of revenue from diverted drugs or reimbursement from adverse events due to impaired provider • Poor work quality or absenteeism of the impaired healthcare worker and paying overtime to cover the worker's shifts • Civil liability for failure to prevent, recognize, or address signs of drug diversion or of an impaired provider • Civil liability for patient harm • Damaged reputation due to public knowledge of mandatory reporting or highly publicized drug diversion instances, especially those that led to patient harm • Increased worker's compensation costs

Drug Diversion Prevention

Vulnerability to drug diversion exists when a provider is free to engage in drug procurement from central stores, drug preparation, drug administration to patients, and disposal of drug waste.[5,27] System-wide initiatives that prevent and identify diversion of controlled substances allow healthcare facilities to promptly intervene when diversion is occurring. These systems require close cooperation between multiple stakeholders, such as departments of pharmacy, safety and security, anesthesiology, nursing, legal counsel, administration, and human resources.

In an effort to discourage drug diversion, inform all employees, contractors and students practicing at clinical sites that protocols are in place to detect and prevent drug diversion, with the primary objective of preventing patient harm. Policies that advocate for fair and uniform management of providers with substance use disorder help create a safe environment for prompt reporting, appropriate treatment, and the potential for the reentry of the anesthesia professional into clinical practice. Practices that may be implemented to help prevent diversion in the workplace are described below in Table 4.

Table 4. Considerations for drug diversion prevention strategies

- Institute random drug testing
- Install automated drug dispensers to control excess amounts of drugs from being administered[4,23]
- Return all unused medications to a centralized location[4]
- Secure return bins so that unused portions of drugs could be submitted for subsequent random quantitative drug assays before destruction[4]
- Audit anesthesia records to identify outliers using excessive drugs, particularly opioids
- Witness disposal of excess waste from medications dispensed and randomly assay waste
- Collaborate with other departments (e.g., pharmacy, supply chain management) to create systems to reconcile waste volumes with the dispensing records and patient anesthesia records[4]
- Investigate medication discrepancies (e.g., automated information management)[4,23]
- Withdraw substances for only one patient at a time and administer immediately to patient[23]
- Implement policies and procedures for investigations and for managing the many possible outcomes of a confirmed diversion[4]
- Create a safe environment for prompt reporting, including self-reporting, which may result in less punitive outcomes, can discourage continued drug diversion

Drug Testing

Facilities that implement random, for-cause and pre-employment drug testing, within the limits of applicable federal (e.g., Americans with Disabilities Act), state, and local law, as the basis of an effective policy may prevent, deter and detect misuse of substances and drug diversion.[12,21,28-31] A description of various drug testing modalities is provided below in Table 5. Please consult legal counsel for legal review of drug testing policies and processes.

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 |
AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com

Table 5. Description of pre-employment, random and for-cause drug tests

Pre-Employment	• Predictably scheduled**,** typically as a condition of employment. • Misses drug use that begins after employment.[32] • May deter individuals from using substances, however the predictable, scheduled time makes it easier for impaired individuals to deploy strategies to subvert the test.[21,33]
Random	• Unpredictably scheduled • Administered in a non-discriminatory manner to individuals regardless of whether there is reason to suspect substance use disorder.[32] • Compared with pre-employment and for-cause testing, the value of drug testing is improved because individuals do not know when they will be tested, which may deter misuse of substances and drug diversion, especially first-time use, for fear of being caught.[34,35]
For-Cause	• Administered when there is reason to suspect substance use disorder. • While the test may confirm suspicion of substance use, it is not effective in preventing use of harmful substances and impaired individuals may deploy strategies to subvert the test.[33]

Facility policies can optimize the validity of testing processes with the following practices:

- Provide pre-employment notification with individual's signed acknowledgement of facility drug testing policy.
- Select individuals for random testing without human interference.
- Notify individuals of an immediate testing time with escort to an observed testing site for specimen collection.[36]
- Request disclosure of any legal prescribed drugs or substances they are using that may impact test results.
- Consider privacy in all drug testing settings.[36]
- Use testing protocols and an extended panel, especially for anesthesia providers that identify anesthesia drugs not commonly detected on standards tests (e.g., fentanyl, propofol). [37]
- Collaborate closely between the laboratory and medical review officer to help ensure that the best test is being ordered and the results will be interpreted appropriately.[37]
- Ensure proper chain of custody and prevent tampering of sample.
- Implement protocols for handling false positive and true positive results, including processes to challenge results.
- Provide opportunity for appropriate intervention and treatment arrangements.[33]
- Refer impaired individuals for evaluation for substance use disorder by a properly trained addiction professional, without jeopardizing employment, in the event of a positive result.

Facility policies detailing drug testing should be in compliance with practices outlined by the Substance Abuse and Mental Health Services Administration (SAMHSA) guidelines and all applicable laws, and use a lab that is certified by the U.S. Department of Health and Human Services or an equivalent state agency.[38] Practices outlined by these organizations can help alleviate concerns of a false-positive test damaging careers.[21] Seeking legal consultation in the development of drug testing policies will help ensure compliance with legal and regulatory requirements and mitigate common concerns with drug testing, which are described below in more detail.[39]

- Variable detection windows depending on dose, sensitivity of the test method, route of administration, duration of substance use, and variability between individuals.[12]
    - May miss infrequent substance use
    - Standard drug tests do not test for anesthetic substances such as propofol and fentanyl, which are often drugs of choice due to availability[40]
    - Substances such as propofol have short half-lives and require testing via blood draw promptly after use[40]
- Time consuming, expensive and a personnel-intensive procedure
- Potential for issues with regards to the chain of custody of samples by the laboratory
- Time lag between sample collection and test results, making it difficult for a timely intervention.

Reporting a Colleague to Supervisor or Appropriate Chain of Command
Ideally, the anesthesia professional will acknowledge his or her condition, seek help voluntarily, and not require intervention. However, this is often not the case due to denial of condition, stigma, fear of job loss, and other ramifications. Therefore, colleagues play an important role in helping the impaired provider get into treatment.[22,41] Colleagues are often reluctant to report a suspected colleague for a variety of reasons, such as believing someone else is addressing the issue, it is not their responsibility, the individual will be punished excessively; fear of retribution and being responsible for their colleague's loss of job or license; or lacking knowledge of how to properly report or intervene.[32] The AANA Peer Assistance Helpline (800-654-5167) is available for administrator or colleague concerns and questions related to the safe handling an individual struggling with substance use disorder.

Communication forums where individuals can safely and confidentially voice their concerns can empower them to report an individual suspected of substance use disorder and potentially save a life by preventing death from overdose. Maintaining regular departmental operations and promoting confidence among affected staff after a colleague has been removed from practice and placed into treatment can facilitate the provision of optimal and safe patient care.[16]

Colleagues may have certain legal responsibilities in identifying and reporting providers to their supervisor or appropriate chain of command.[6,16] States may have reporting laws which hold colleagues responsible for harm to patients if they fail to report a coworker in whom substance use disorder is suspected. Outline proper steps in facility policies to help guide informants on how to report an impaired colleague, ensure confidentiality of the informant, and offer guidance for investigating and evaluating the credibility of the allegation.[42] More information on reporting is described in the section below, *Legal Reporting*.

Conducting a Safe Intervention
Critical components involved in an effective intervention need to be in place prior to confronting the individual, which means coordinating a large number of variables. If an individual is suspected of impairment or drug diversion, the facility should follow all appropriate laws and conduct a thorough, objective investigation and plan an intervention to facilitate transition into a treatment program for proper evaluation for treatment. Ideally the intervention will be planned, although some situations may warrant conducting a crisis intervention, (e.g., impaired during patient care, threats to harm themselves). Details on how to proceed with a planned or crisis intervention are described in Table 6. Simulating interventions (e.g., during grand round presentations) may help to train staff to be better prepared to intervene, whether in a planned or crisis situation.[21]

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com
Professional Practice Division I 847-655-8870 I practice@aana.com

Assistance for safely handling an individual struggling with substance use disorder is available by contacting the AANA Peer Assistance Helpline 800-654-5167.

Gathering Evidence

Suspicious or significant changes in behavior in the workplace may have many causes; therefore, it is important to have proper evidence that supports the notion of substance use disorder or drug diversion.[29] Ensure evidence is documented and convincing, sequential and substantiated, including specific dates and occurrences and accounts from multiple witnesses, if available.

A thorough, nondiscriminatory investigation of the individual suspected is accomplished by:

- Reviewing work behaviors and performance evaluations
- Analyzing utilization of controlled substances
- Documenting changes in appearance and suspicious behaviors, including dates and times
- Collaborating with various departments (e.g., surgery, nursing, pharmacy) to gather evidence

When evidence supports a case of substance use disorder or drug diversion, arrange an intervention and remove the individual from clinical practice.[43,44]

Assembling an Intervention Team

Assemble an intervention team with a common goal of supporting the individual using people who care about the individual's well-being.[45] Best practice is to involve a trained interventionist during all points of the intervention; however, during a crisis intervention where there is little time to act, this may not be possible. If possible, contacting an interventionist to coordinate the process should be the first course of action. Sensitivity to the needs of the individual being confronted (e.g., gender, age, ranking) and involving individuals who will make them feel the most comfortable is important to creating a supportive environment.[29] Recommendations of individuals to be present during the intervention include:

- Trained interventionist
- Colleagues in recovery (if available)
- Supportive family, friends, and colleagues
- Clinical supervisor
- Administrative supervisor
- Representative from human resources and/or employee assistance program
- Member of security department may be available if there is a particular safety concern

Facilities may have a designated individual or group (e.g., employee assistance programs) with sufficient expertise to assist in interventions.[29] Confirm the scope of these services before utilizing them for interventions.

During the Intervention

The intervention is an opportunity to present organized and irrefutable evidence in an atmosphere of care and concern for the individual, where the individual can be empowered to admit their problem, accept help and transition into treatment. These situations are extremely sensitive and must be handled with caution and without coercion to avoid further harm.[29] Handle all interventions in a professional, uniform, nondiscriminatory manner. It is important to confront the individual who is suspected appropriately and in a safe environment to facilitate an effective intervention.

Individuals may become suicidal once the gravity of the situation becomes apparent. Avoid cornering the individual and questioning him or her about suspicious behaviors, and refrain from removing the individual from practice without any plan for treatment evaluation. Never leave the individual alone until evaluation for treatment, and do not allow leaving the intervention unaccompanied.[29] Facilitate transfer to a facility for proper treatment evaluation. Table 6 provides an overview of how to facilitate a safe intervention, whether it is planned or conducted in a crisis.

Table 6. Overview of facilitating a safe intervention[29]

Planned Intervention	Crisis Intervention
1. Assemble an intervention team, including a trained interventionist.	1. **Do not let the person out of your sight! Do not let them drive!**
2. Gather all the evidence.	2. Get a properly collected drug test.
3. Invite the individual into an intervention meeting. **Do not let the person out of your sight! Do not let them drive!**	3. Include a trained interventionist, family, spouse, and colleagues.
4. Get a properly collected drug test, if necessary.	4. Bring all evidence.
5. Have a bed in a treatment facility ready.	5. Have a bed in a treatment facility ready.
6. Do not let the impaired individual decide treatment. Remember, they are sick.	6. Do not let the impaired individual decide treatment. Remember, they are sick.
7. Only when all else fails, threaten to call the police. Often, this will cause the individual to admit that he/she has a serious problem.	7. Only when all else fails, threaten to call the police. Often, this will cause the individual to admit that he/she has a serious problem.

Legal Reporting

Since the priority is to get the impaired individual evaluated and into treatment safely, reporting to the proper state medical or nursing board can usually wait until after the individual is safely in treatment. Most states have programs that promote treatment and rehabilitation of impaired providers as an alternative to disciplinary action.[22,46] Programs vary by state; some programs are housed within the board of nursing, while others are not. Although it is important that facilities are aware of their state's reporting process, the priority is to get the impaired individual safely into treatment.[16,22]

- Not every state requires reporting unless patient harm has occurred. Therefore it is important to review state law to determine responsibilities in reporting an individual, versus the impaired individual self-report to the state's alternative program and/or state board of nursing.[20,29,45]

- State requirements should not preclude filing a complaint if it is believed the impaired individual presents danger to themselves or others.[29]
- Confidentiality must be exercised with disclosure only to appropriate authorities.[29,45]

Treatment Recommendations for Anesthesia Professionals

Due to their direct access to potent drugs and knowledge of pharmacology, anesthetists present unique challenges for treatment and recovery compared to other practice specialties.[40] They also face potential loss of profession, professional guilt and shame, and a tendency to intellectualize the treatment process.[20,40,46]

The most desirable inpatient rehabilitation treatment program has experience treating healthcare professionals, specifically anesthesia professionals.[29] Completion of a minimum of 28 days inpatient treatment with at least 90 days of treatment total (inpatient or outpatient) offers the highest success rate.[20] An ideal treatment center for anesthesia professionals includes:

- Approval by the state board of nursing [40]
- A comprehensive evaluation and treatment recommendations by an American Society of Addiction Medicine (ASAM) member certified by the American Board of Addiction Medicine (ABAM) who is committed to evaluating and treating anesthesia professionals in abstinence based recovery models in accordance with other safety sensitive occupations such as aviation, department of defense and department of transportation[13,20,29,45]
- Evaluation by an American Academy of Addiction Psychiatry (AAAP) board-certified addiction psychiatrist where appropriate[20,45]
- Appropriate neuropsychiatric and or psychometric testing[20]
- Medically supervised detoxification, when clinically indicated[20]
- Treatment for mental health comorbidities[20,29,47,48]
- Emphasis on a long-term 12-step model of abstinence-based recovery[13,49,50]
- Evaluation of suitability for, and timing, of the return to anesthesia practice[20]

Reentry to Clinical Practice

Reentry challenges an anesthesia professional may encounter include stigmatization, shame, working with choice substances, and unresolved pain, all contributing to the threat of relapse.[13,51,52] Furthermore, the Americans with Disabilities Act (ADA) provides limited protection from employer discrimination against individuals in recovery, further compounding the issue.[30]

Intensive inpatient treatment following recommendations specific to anesthesia professionals (listed above) and subsequent participation in aftercare for healthcare professionals as well as the state's alternative to discipline monitoring program are the most important factors for consideration for an individual's return to work in anesthesia supportive of their continued recovery.[3] Upon meeting these factors, a safe return to work in anesthesia can be facilitated on an individual basis. Not all practitioners will be able to return to practice.

The readiness for reentry is a collaborative decision of the state licensing board, the state monitoring program, an addiction professional from the current aftercare program, and the employer.[48] The following criteria should be considered prior to re-entering practice:

- Evaluation by a licensed provider with experience treating substance abuse and dependency[13,47,48,53]

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 |
AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com

- Successful completion of a rehabilitation program[13,48]
- Acceptance of the chronic nature of substance use disorder
- Evidence of a supportive spouse, significant other, or other supportive individuals[54]
- Willingness to take Naltrexone, if appropriate, under direction and supervision of medical professional[29,46,47]
- Having no untreated psychological comorbidities[48,50]
- Participation in a monitoring program with random drug testing.[49,51]
    - Recovery is improved when random drug testing occurs because of the consequences of a positive test.[12]
    - Five-year duration of monitoring with the potential of monitoring for the duration of clinical practice[29,49]
- Having supportive colleagues, especially administrators and supervisors, at worksite familiar with history and needs[20,52]
- Grounding in a recovery community, such as *Anesthetists In Recovery*[46,48]
- Participating in a 12-step program[54]

Because anesthesia professionals are engaged in safety-sensitive work with considerable consequences when errors occur, abstinence-based recovery and refraining from substitute treatments such as buprenorphine are recommended.[55]

Disclosure and Return to Work Contracts

Disclosing recovery status to an employer or potential employer is important to gain support and obtain protection from legal repercussions.[48] Open disclosure may remove the stigma of shame and gives colleagues the opportunity to extend the same care and compassion to a recovering colleague as they do their patients.[54] Recovering anesthesia professionals may have a difficult time gaining employment after disclosure of their history and managers may not be willing to monitor them in practice.[40] Various state laws may impact the anesthesia professional's ability to return to full scope of practice in their state.

A return-to-work agreement is highly predictive and supportive of successful reentry into the clinical workplace.[20] Include the following stipulations in contracts defining terms of practice reentry:

- Length of the contract
- Phases of the clinical reentry plan, which outline practice restrictions and milestones
- Consequences of failure to comply with contract stipulations
- Plan for treatment (if the contract is signed at the time the anesthesia professional's substance use disorder is first detected) and aftercare[49]
- Practice restrictions, such as no overtime or extra call and limiting administration of narcotics for a period of time[13,40]
- Supervision requirements[48]
- Random drug testing requirements[47]
- Mandatory attendance at support group meetings
- Job performance standards
- Provision for periodic evaluation meetings with direct supervisor
- Steps to be taken in the event of relapse
- Regular reports from supervisors or work-site monitors
- Monitoring with state board of nursing

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 |
AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com

Relapse Prevention

Job dissatisfaction and overall stress may be an indicator of potential relapse, especially for the anesthesia professional who is working with substances they formerly abused. Managing stress, and maintaining healthy lifestyle habits (e.g., fitness, nutrition), and support of peers can help prevent relapse.[52] Additionally, managing triggers to substance use can also help mitigate incidents of relapse.[52,56] A scale to measure job satisfaction can give the employer and practitioner a score for job satisfaction and alert employers and practitioners of potential relapse due to the level of stress or burnout.[51]

Conclusion

Substance use disorder and impairment in the workplace can result in harm to the impaired individual, their colleagues or patients. Education, random drug testing, and drug diversion prevention can help deter substance use disorder and get individuals safely into appropriate treatment. Not all practitioners will be able to return to clinical practice. Those who do return to practice may encounter stigmatization, shame, and work with their choice substances, all contributing to the threat of relapse. Developing facility policies that address awareness, prevention, reporting, and safe intervention and management of impairment in the workplace is a key step in the prevention of adverse outcomes. Policies that advocate for fair and uniform management of providers with substance use disorder help create a safe environment for prompt reporting, appropriate treatment, and the potential for reentry of the anesthesia professional into clinical practice.

References

1. Volkow ND, Koob GF, McLellan AT. Neurobiologic Advances from the Brain Disease Model of Addiction. *N Engl J Med.* Jan 28 2016;374(4):363-371.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders.* 5th ed. Washington, D.C.2013.
3. Baldisseri MR. Impaired healthcare professional. *Crit Care Med.* Feb 2007;35(2 Suppl):S106-116.
4. Berge KH, Dillon KR, Sikkink KM, Taylor TK, Lanier WL. Diversion of drugs within health care facilities, a multiple-victim crime: patterns of diversion, scope, consequences, detection, and prevention. *Mayo Clin Proc.* Jul 2012;87(7):674-682.
5. Centers for Disease Control and Prevention. Risks of Healthcare-associated Infections from Drug Diversion. http://www.cdc.gov/injectionsafety/drugdiversion/index.html. Accessed February 15, 2016.
6. American Medical Association. Opinion 9.031 - Reporting Impaired, Incompetent, or Unethical Colleagues. http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/opinion9031.page? Accessed February 24, 2016.
7. National Institute on Drug Abuse. DrugFacts: Prescription and Over-the-Counter Medications. https://www.drugabuse.gov/publications/drugfacts/prescription-over-counter-medications. Accessed July 6, 2016.
8. National Institute on Drug Abuse. Prescription Opioids and Heroin. https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/heroin-use-driven-by-its-low-cost-high-availability. Accessed July 6, 2016.
9. United States Drug Enforcement Adminstration. DEA Issues Nationwide Alert on Fentanyl as Threat to Health and Public Safety https://www.dea.gov/divisions/hq/2015/hq031815.shtml. Accessed July 6, 2016.

American Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 |
AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com

10. United States Drug Enforcement Administration. National Heroin Threat Assessment Summary - Updated. https://www.dea.gov/divisions/hq/2016/hq062716_attach.pdf. Accessed July 6, 2016.
11. Sharer KB. Controlled-substance returns in the operating suite. *AORN J.* Aug 2008;88(2):249-252.
12. 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.* Aug 2008;107(2):630-635.
13. Wright EL, McGuiness T, Moneyham LD, Schumacher JE, Zwerling A, Stullenbarger NE. Opioid abuse among nurse anesthetists and anesthesiologists. *AANA J.* Apr 2012;80(2):120-128.
14. Chipas A, McKenna D. Stress and burnout in nurse anesthesia. *AANA J.* Apr 2011;79(2):122-128.
15. Lord M, Magro M, Zwerling A. Substance Abuse and Anesthesia:Why It Is Your Problem and What Student Nurse Anesthetists Are Doing About It. 2010. https://www.aana.com/docs/default-source/wellness-aana.com-web-documents-(all)/substance-abuse-and-anesthesia-why-it-is-your-problem-students-doing.pdf. Accessed February 15, 2016.
16. Tanga HY. Nurse drug diversion and nursing leader's responsibilities: legal, regulatory, ethical, humanistic, and practical considerations. *JONAS Healthc Law Ethics Regul.* Jan-Mar 2011;13(1):13-16.
17. Bettinardi-Angres K, Angres DH. Understanding the Disease of Addiction. *J Nurs Regul.* 2011;1(2):31-37.
18. National Institute on Drug Abuse. The Science of Drug Abuse and Addiction: The Basics. https://www.drugabuse.gov/publications/media-guide/science-drug-abuse-addiction-basics. Accessed April 12, 2016.
19. Code of Ethics for the Certified Registered Nurse Anesthetist. Park Ridge, IL: American Association of Nurse Anesthetists; 2005.
20. National Council of State Boards of Nursing. Substance Use Disorder in Nursing. 2011. https://www.ncsbn.org/SUDN_11.pdf Accessed February 17, 2016.
21. Tetzlaff J, Collins GB, Brown DL, Leak BC, Pollock G, Popa D. A strategy to prevent substance abuse in an academic anesthesiology department. *J Clin Anesth.* Mar 2010;22(2):143-150.
22. Bettinardi-Angres K, Bologeorges S. Addressing Chemically Dependent Colleagues. *J Nurs Regul.* 2011;2(2):10-17.
23. New K. Preventing, Detecting, and Investigating Drug Diversion in Healthcare Facilities. *Journal of Nursing Regulation.* 2014;5(1):18-25.
24. Epstein RH, Gratch DM, McNulty S, Grunwald Z. Validation of a system to detect scheduled drug diversion by anesthesia care providers. *Anesth Analg.* Jul 2011;113(1):160-164.
25. Ramer LM. Using servant leadership to facilitate healing after a drug diversion experience. *AORN J.* Aug 2008;88(2):253-258.
26. National Safety Council. How prescription opioids may be affecting your workers compensation program. http://www.nsc.org/RxDrugOverdoseDocuments/RxKit/EMP-How-Prescription-Opioids-May-Be-Affecting-Workers-Compensation-Program.pdf. Accessed July 6, 2016.
27. Cummings SM, Merlo L, Cottler L. Mechanisms of prescription drug diversion among impaired physicians. *J Addict Dis.* Jul-Sep 2011;30(3):195-202.

28. Bryson EO, Silverstein JH. Addiction and substance abuse in anesthesiology. *Anesthesiology.* Nov 2008;109(5):905-917.
29. Bryson EO, Hamza H. The drug seeking anesthesia care provider. *Int Anesthesiol Clin.* Winter 2011;49(1):157-171.
30. 42 U.S.C. §§ 12111–12117 (1994).
31. The National Bureau of Economic Research. Employee Drug Testing is Effective. http://www.nber.org/digest/mar00/w7383.html. Accessed July 6, 2016.
32. DesRoches CM, Rao SR, Fromson JA, et al. Physicians' perceptions, preparedness for reporting, and experiences related to impaired and incompetent colleagues. *JAMA.* Jul 14 2010;304(2):187-193.
33. American Society of Addiction Medicine. Drug Testing: A White Paper of the American Society of Addiction Medicine (ASAM). 2013. http://www.asam.org/docs/default-source/publicy-policy-statements/drug-testing-a-white-paper-by-asam.pdf?sfvrsn=4#search="drugscreening". Accessed February 19, 2016.
34. Marlowe DB, Festinger DS, Foltz C, Lee PA, Patapis NS. Perceived deterrence and outcomes in drug court. *Behav Sci Law.* 2005;23(2):183-198.
35. DuPont RL, Voth EA. Drug legalization, harm reduction, and drug policy. *Ann Intern Med.* Sep 15 1995;123(6):461-465.
36. American Society of Addiction Medicine. Terminology Related to the Spectrum of Unhealthy Substance Use. 2013. http://www.asam.org/docs/default-source/publicy-policy-statements/1-terminology-spectrum-sud-7-13.pdf?sfvrsn=2. Accessed February 12, 2016.
37. Jones JT. Advances in Drug Testing for Substance Abuse Alternative Programs. *Journal of Nursing Regulation.* 2016;6(4):62-67.
38. National Safety Council. Steps to update a drug free workplace program to address prescription drugs. http://www.nsc.org/RxDrugOverdoseDocuments/RxKit/EMP-Steps-To-Update-Drug-Free-Workplace-Program.pdf. Accessed July 6, 2016.
39. National Safety Council. The proactive role employers can take: Opioids in the workplace. http://www.nsc.org/RxDrugOverdoseDocuments/proactive-role-employers-can-take-opioids-in-the-workplace.pdf.
40. Bettinardi-Angres K, Garcia R. A Consistent Approach to Treatment and Reentry for CRNAs with Substance Use Disorder. *J Nurs Regul.* 2015;6(2):47-51.
41. Kelly JF, Saitz R, Wakeman S. Language, Substance Use Disorders, and Policy: The Need to Reach Consensus on an “Addiction-ary”. *Alcohol Treat Q.* 2016;34(1):116-123.
42. *Comprehensive Accreditation Manual for Hospitals 2015. Chicago, Ill: Joint Commission on Accreditation of Healthcare Organizations.*
43. Bertrand, A. Substance Use Disorder (SUD) in the Workplace. AANA Newsbulletin. May 2015; 69(3):28-31.
44. Federation of State Medical Boards. Policy on Physician Impairment. 2011. https://www.fsmb.org/Media/Default/PDF/FSMB/Advocacy/grpol_policy-on-physician-impairment.pdf. Accessed April 7, 2016.
45. Zwerling A, Hamza H, Rampleman G, Stone L. Almost Everything You Want to Know about the AANA’s Peer Assistance Advisors Committee. *AANA NewsBulletin.* 2011. https://www.aana.com/docs/default-source/wellness-aana.com-web-documents-(all)/almost-everything-you-want-to-know-about-aana-paac.pdf?sfvrsn=cf2c4bb1_2. Accessed February 16, 2016.
46. Wilson H. Reentry of the Addicted Certified Registered Nurse Anesthetist: A Review of the Literature. *Journal of Addictions Nursing.* 2009;20(4):177-184.

47. Hamza H, Monroe T. Reentry and Recidivism for Certified Registered Nurse Anesthetists. *Journal of Nursing Regulation.* 2011;2(1):17-22.
48. Monroe T, Vandoren M, Smith L, Cole J, Kenaga H. Nurses recovering from substance use disorders: a review of policies and position statements. *J Nurs Adm.* Oct 2011;41(10):415-421.
49. Monroe T, Hamza H, Stocks G, Scimeca PD, Cowan R. The misuse and abuse of propofol. *Subst Use Misuse.* 2011;46(9):1199-1205.
50. Angres DH, Bettinardi-Angres K. The disease of addiction: origins, treatment, and recovery. *Dis Mon.* Oct 2008;54(10):696-721.
51. Valdes JA. The concept of reentry in the addicted anesthesia provider. *AANA J.* Apr 2014;82(2):95-100.
52. Wright EL, McGuinness T, Schumacher JE, Zwerling A, Moneyham LD. Protective factors against relapse for practicing nurse anesthetists in recovery from anesthetic opiate dependency. *J Addict Nurs.* Apr-Jun 2014;25(2):66-73.
53. Monroe TB, Kenaga H, Dietrich MS, Carter MA, Cowan RL. The prevalence of employed nurses identified or enrolled in substance use monitoring programs. *Nurs Res.* Jan-Feb 2013;62(1):10-15.
54. Higgins Roche B. *Substance Abuse Policies for Anesthesia.* Winston-Salem, NC: All Anesthesia; 2007.
55. Hamza H, Bryson EO. Buprenorphine maintenance therapy in opioid-addicted health care professionals returning to clinical practice: a hidden controversy. *Mayo Clin Proc.* Mar 2012;87(3):260-267.
56. Hamza H, Bryson EO. Exposure of anesthesia providers in recovery from substance abuse to potential triggering agents. *J Clin Anesth.* Nov 2011;23(7):552-557.

The *Substance Abuse and Chemical Dependency* position statement was adopted by the AANA Board of Directors in 1984 and revised in 1998, 2007, and November 2011. In July 2016, the AANA Board of Directors archived the position statement and adopted *Addressing Substance Use Disorder for Anesthesia Professionals.* Revised by AANA Board of Directors May 2021.