Addiction and the Anesthesia Provider

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Objectives

- Participants will understand the background and history of addiction in anesthesia.
- Participants will understand the frequency and impact of addiction on anesthesia practice.
- Participants will be able to recognize signs of impaired or addicted colleagues.

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> Addiction is a treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequences.

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Introduction

- "The greatest occupational hazard facing the CRNA is not hepatitis B, nor HIV but rather substance abuse."
  - AANA News Bulletin 1996
- Disease that is progressive and often FATAL if left undiagnosed or untreated

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What is Addiction?

- DSM-IV Criteria
  - Two categories
    - Substance abuse
    - Substance dependence
- DSM-5
  - Combines these two categories into one called "substance use disorder" (SUD)

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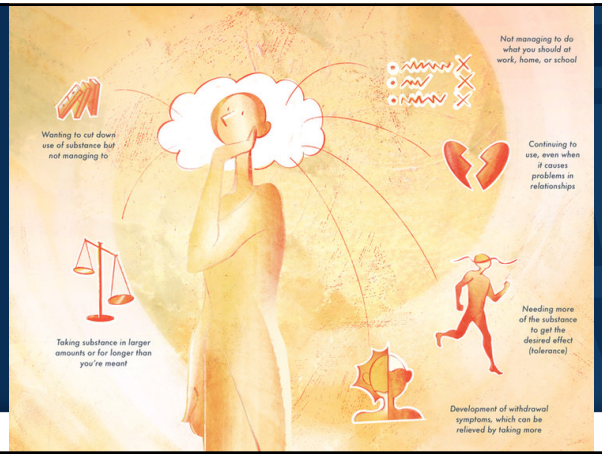

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Categories of Symptoms

CATEGORIES OF SUD SYMPTOMS

Symptoms of substance use disorders in the DSM 5 fall into four categories: 1) impaired control; 2) social problems; 3) risky use, and 4) physical dependence.

Impaired Control	Social Problems	Risky Use	Physical Dependence
Using more of a substance or more often than intended Wanting to cut down or stop using but not being able to	Neglecting responsibilities and relationships Giving up activities they used to care about because of their substance use Inability to complete tasks at home, school or work	Using in risky settings Continued use despite known problems	Needing more of the substance to get the same effect (tolerance) Having withdrawal symptoms when a substance isn't used

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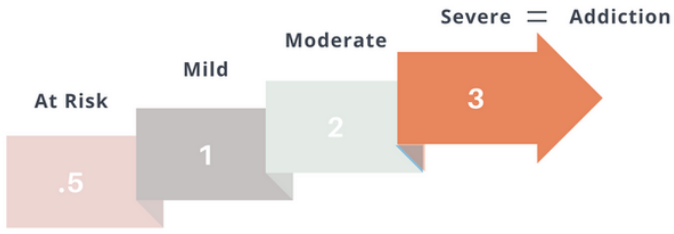
Levels of Severity of Substance Use Disorders



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SUD

- Each substance use disorder is classified as its own disorder
- Six most common substance use disorders in the United States
  - Alcohol use disorder
  - Tobacco use disorder
  - Cannabis use disorder
  - Stimulant use disorder
  - Hallucinogen use disorder
  - Opioid use disorder

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What is Addiction??

- Great deal of research and several theories have been proposed to help with understanding process of addiction
- Models that attempt to explain factors leading to addiction
  - Moral Model
  - Psycho-dynamic Model
  - Socio-cultural Model
  - Brain Disease Model of Addiction

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Moral Model

- 18th and 19th century
- Addiction was views as a sin
  - Addicted people seen as morally weak
- Outdated but stigma is still present

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Psycho-dynamic & Socio-cultural Models

Psych-dynamic

- Freudian in nature
- Link problems to our childhood and how we cope (or don't cope) as adults
- Drug use or misuse may be an unconscious response to prior experiences

Socio-cultural

- Focuses on society as whole and not just on individuals
- Links between inequality and drug use

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Brain Disease Model

- Brain is a dynamic network
- Drugs can alter healthy functions
- Addiction is repeating three cycles
  - Binge/Intoxication
  - Withdrawal/Negative Affect
  - Preoccupation/Anticipation

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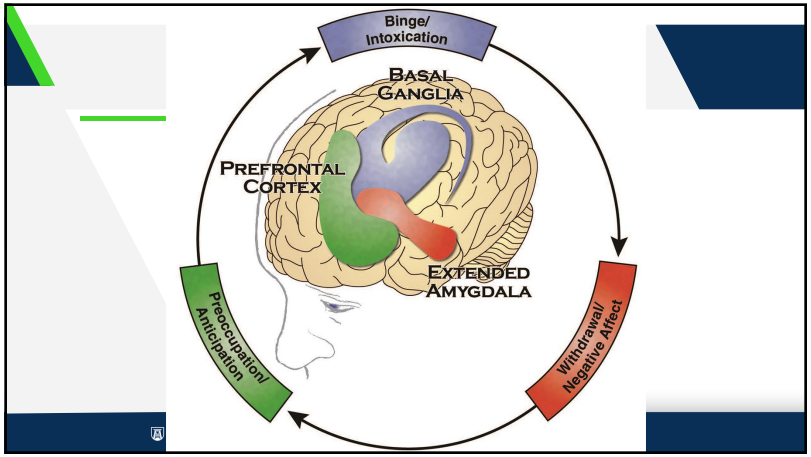

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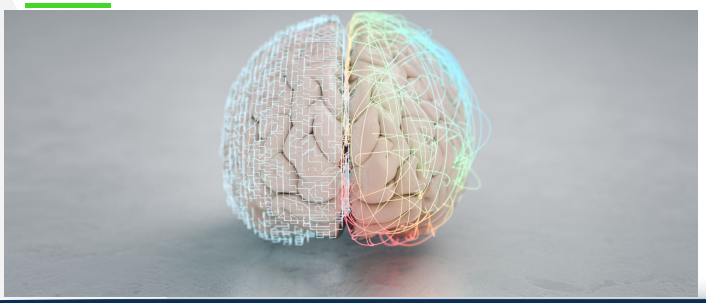
Brain Disease Model



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Recognition of Substance Abuse

- "All anesthesia personnel, however, should be aware of the basic nature of the problem and possess the necessary information to recognize and assist an impaired colleague."

- Addiction and Substance Abuse in Anesthesiology.
- Bryson EO, Silverstein JH. Anesthesiology.2008; 109:905-17

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Health Care Provider Impairment

- **"Impairment of a healthcare professional is the inability or impending inability to practice according to accepted standards as a result of substance use, abuse, or dependency (addiction)."**
- Different reported numbers
  - Many state between 10-15%
  - Rate similar to general public
  - Healthcare providers more likely to abuse prescription drugs, benzos, and opiates

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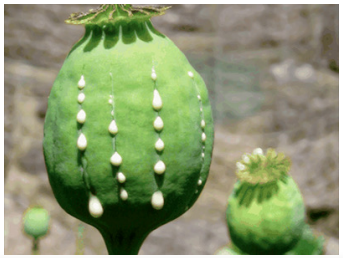
How did we get here?

- Remember, anesthetics/analgesics were discovered by people trying them!
- Ancient Greeks
  - Used potions and poppy extract
  - Ineffective



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Valerius Cordus

- 1540 first synthesized ether
- "Sweet oil of vitriol"
- Adding sulfuric acid to ethyl alcohol
- Used recreationally at the time
  - Bored socialites would take a big sniff and go on giggly "ether frolics"
- Pain-erasing properties had not yet been discovered

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John Priestley

- 1772 discovered Nitrous Oxide (N20)
- Heating and acidifying metallic compounds
- Exposed brass to nitric acid ⇒ nitric oxide
- Nitric oxide ⇒ iron and mercury ⇒ nitrous oxide
- He called it Dephlogisticated Nitrous Air
  - Meaning combustible
  - Theorized insufflating rectally would cure intestinal disease

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Humphry Davy

- 1778-1799 discovered the exhilarating effect of N2O
- Locked himself in airtight room filled with nitrous
  - Could not find practical use
  - Provided novel entertainment
    - "Laughing gas" parties
- Most famous near miss of anesthesia history
  - "…as nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used during surgical operations…"
- Nearly 50 years went by without use of nitrous in surgical setting

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Gardner Q. Colton

- 1844
- Designed exhibit to demonstrate nitrous oxide effects
- Subject accidently sustained a leg injury while under nitrous
- Reported feeling no pain

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Horace Wells

- 1844
- Led Wells to undergo tooth extraction under nitrous
  - The very next morning
- Once again, reported feeling no pain
- Attempt to demonstrate at Mass Gen
- Subject cried out in pain
  - Subject later did not remember the extraction or pain

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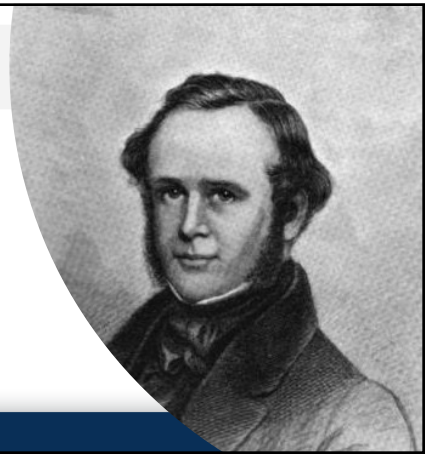
Horace Wells

- Self-experimenting with ether and chloroform
  - Addicted to chloroform



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History of Health Care Provider Impairment

- 1869
  - Paget mentioned physician impairment as "habits of intemperance"
- 1892
  - William Halstead described to have cocaine addiction in "Inner History of the John Hopkins Hospital"
- Early 20th century prevenance rates of impaired physicians at 10-40%
- 1958 alcohol and drug addiction was first recognized as healthcare problem and disciplinary measures and rehab models were adopted

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Prevalence of Disease

- Substance Use Disorders:
  - Prevalence in HCPs probably not different than that of the public at large
  - ~ 10% (SAMHSA, 2009)
- AANA listed the addiction rate of CRNAs and anesthesiologists at more than 15% in 1996
  - AANA News Bulletin
- Population found to be most at risk in our profession
  - Male CRNAs 36-40 yo with 6 to 10 years of clinical experience

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Prevalence of Addiction Anesthesiologists

- Anesthesiologists are overrepresented in addictive treatment (Talbott et. al, 1987)
  - Rate of 3X's higher than other MD's
    - 12-15% of all MD's in treatment are anesthesiologist
  - Anesthesiology residents < 35 accounted for 1/3
- Academic anesthesiology programs (Booth et. al, 2002)
  - 1% incidence of controlled-substance abuse among residents
  - 1.6% incidence among faculty
  - Sadly, in 18% found to be abusing, death or near death due to an overdose was the initial indicator of abuse

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Not a New Problem

- **Drug abuse in anesthesia training programs. A survey: 1970 through 1980** Ward et al.
  - 334 drug-dependent persons in 184/247 (74%) of responding US anesthesia programs
  - Meperidine & fentanyl most common
  - Behavioral changes noted by staff
  - Long term follow-up available for 201 persons
    - 55% rehab
    - ~ 2/3 of these (71) offered return to original place of employment
    - 30/201 (15%) dead of drug overdose

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Anesthesiology Residency Survey

- Chemical Dependency Treatment Outcomes of Residents in Anesthesiology: Results of a Survey, Collins et al. 2005
- An impaired resident identified in 80% of 169 responding programs
- 19% experienced pre-treatment fatality
- Majority attempted reentry into the program after rehab
  - 46% successfully completed residency
  - 40% left anesthesia

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Prevalence of Addiction in CRNAs

- Little data specific for rates of addiction among CRNA's
- Likely grouped into general nursing profession estimates of substance abuse
  - Between 6 - 10%
- National Council for State Boards of Nursing (1993)
  - Looked specifically at discipline of advanced practice nurses
  - CRNA's accounted for 75% of drug-related claims

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Drug Misuse by CRNAs

- 1999 Bell, McDonough, Ellison, Fitzhugh AANA Journal
  - 2,500 actively practicing CRNAs
  - 68.4% (1,709 of 2,500) response
  - 9.8% prevalence
    - Majority indicating polydrug misuse
    - Comparable with those of studies involving anesthesiologists and registered nurses

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Drug Misuse by CRNAs

- 1999 Bell, McDonough, Ellison, Fitzhugh AANA Journal
  - Male 63% of those reporting SUD
  - Order of drug abused
    - Benzos
    - Propofol
    - Inhalation Agents
    - Opioids

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SRNA Survey

- The Prevalence and Patterns of Substance Abuse Among Nurse Anesthesia Students. Bozimowski et al. 2014
- Twenty-three programs (response rate = 21.7%) reported data related to 2,439 students
- 16 incidences
  - 10 underwent treatment
  - 7 dismissed from program
  - 2 lost RN license
  - 1 death

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Characteristics of Addicted CRNAs

- 67-88% male
- 76-90% use opioids (approx 1.6% in USA)
  - (propofol x 10 less common, 0.1% in USA)
- 33-50% are poly-drug users
- 33% have family history of addictive disease
- 65% associated with academic departments
- Often associated with previously undiagnosed psychiatric illness

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Why does it happen to some people?

- Themes common to general population, as well as other doctors:
  - Genetic predisposition
  - Psychiatric co-morbidities
    - ? Self medication of symptoms
  - Social factors [trauma]

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Why does it happen to some people?

- Experimentation – Risk-takers
- Self-medication - acceptable
- Regulation of sleep patterns –night shifts
- Escape from pain of traumatic events – drugs will "numb memories"

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Why Anesthesiologists & CRNAs?

- Ease of diversion
- High-stress environment
- Proximity to highly addictive drugs
- Direct administration and their witnessed effect
  - "We know our drugs"
- Exposure to picograms of drugs

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Why CRNAs?

- Selection Bias
- Choosing the specialty deliberately
  - Medical students/residents/RNs with predisposition to drug abuse more likely to enter anesthetic training
  - Do HCPs choose anesthesia as a specialty because of ease of access to powerful drugs

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Risk Factors Similar for Students

- STRESS
- High performance expectations
- Perception of poor performance, be it accurate or not → decreasing self-esteem
- Financial: loans, debts
- Lack of coping skills
- Moved from expert back to novice
- Decreasing time for self/family

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Exposure-related theories

- Increased risk is related to opioid or propofol sensitization through inhalation or absorption of picograms of these agents
- Low-dose exposures sensitize brain's reward pathways to promote substance use
- Anesthetists may use drugs to alleviate the withdrawal they feel when away from the exposure

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Fentanyl and propofol exposure in the operating room: sensitization hypotheses and further data

Lisa J Merlo [1], Bruce A Goldberger, Dara Kolodner, Kimberly Fitzgerald, Mark S Gold

Affiliations + expand

PMID: 18956530 DOI: 10.1080/10550880802122661

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Most Frequently Abused Drugs

- Opioids traditionally drug of choice
  - Fentanyl/sufentanil most common
  - Meperidine and MSO4 follow
  - Particularly evident <35 years of age and early in one's practice
- Alcohol
  - Primarily in older anesthesiologist

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Most Frequently Abused Drugs

- Trend towards drugs of less accountability
  - Propofol
  - Inhalational agents (sevoflurane)
  - Ketamine
  - Stadol
- Regardless of primary agent, after 6mos, increase incidence of poly drug abuse among abusers

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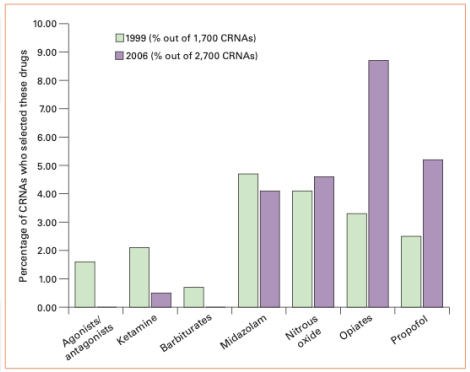

Figure 1. Most commonly used substances misused by CRNAs.
(Compiled from Bell et al[14] and unpublished data by Bell, 2006).

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Routes of Administration

- Traditional approaches
  - IV
    - Hidden sites include feet, groin, thigh, penis
  - IM
- Major switch over past 5yrs to "needleless"
  - Oral/nasal
  - Rectal
  - Sublingual
  - Inhalation

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"Diversion" of Drugs

- Falsify record keeping
- Excessive use of narcotics (charted)
- Giving breaks
- Keeping waste
- Switching syringes
- "Breaking" ampules
- Withholding from patients
- Breaking into sealed narcotics
- "Secretly" access ampule then reseal with other drug

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What Prevents HCPs From Getting Help?

- Ignorance about disease
- Fear of the stigma attached to diseases such as depression and chemical dependence
- Self-diagnosis and "curbside" consults
- Concern about confidentiality
- Time Constraints

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What Prevents HCPs From Getting Help?

- Fear of jeopardizing one's career
- Culture of medical education and medicine that rewards individuals who are self-reliant, high achievers, competitive – leads to isolation and the notion that "good CRNAs" have few needs
- Character traits of HCPs to be "self-sacrificing" at the expense of their own health and needs
- Family and colleagues participating in "conspiracy of silence"

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Identifying the Impaired HCP

- It is often difficult to identify chemical dependence and substance abuse among our colleagues.
- Signs may be subtle and attributed to other problems.
- Changes in behavior are often gradual and overlooked on a day-to-day basis.
- Usually, the workplace is the last place to be affected by chemical dependence.

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What If Impairment Occurs?

- Impaired HCPs are removed from practice and usually enter treatment
- Intervention is undertaken to assist with getting practitioner to full medical/psychiatric assessment/treatment
- Denial is universal characteristic of disease and very difficult to overcome even in the face of overwhelming consequences.

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What can we do?

- Prevention - difficult
- Preparation – essential education
- Response - planned
- Recovery - prolonged
- A strategy to prevent substance abuse in an academic anesthesiology department.
- Tetzlaff et.al J. Clin. Anesthesia. (2010) 22: 143 – 150

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Prevention – Control Systems

- Agent control
  - Regulated dispensing – occurs with opiates
  - Locking up the propofol & midazolam ? – hasn't worked with opiates !
  - Witnessed discarding – ditto
  - Always empty or return controlled substances

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Prevention

- Monitoring use
- Usage profiling
- Screening during recruitment
- Random drug testing
- Disappointingly, does not appear to have reduced the incidence

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Preparation - Education

- Regular trainee & specialist seminars
- Compulsory web-based training
- A visiting expert
- Consultant – trainee mentoring

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Response – Early Signs

- Time to detection of abuse depends on the drug
  - Alcohol often >20 years
  - Fentanyl 6-12 months
  - Propofol days-weeks

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Signs & Patterns of Behavior in an Impaired Anesthesia Provider

- Wears long sleeves
- Pupils pinpoint
- Withdrawal
  - Sweating
  - Vomiting
  - Shaking
  - "Monday morning Shakes"
- Injection sites/bruises
- Liquid or blood on clothing
- Disappearing from department in agitated mood; returning calm
- Suffers from frequent illnesses or physical complaints

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Signs & Patterns of Behavior in an Impaired Anesthesia Provider

- Spends more time at hospital, even during scheduled time off
- Refuse lunch relieve or breaks
- Frequently relieves others
- Volunteers to take extra cases/call
- Isolates & withdraws from family & peers
- Frequent bathroom breaks or disappears while on duty

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Signs & Patterns of Behavior in an Impaired Anesthesia Provider

- Consistently signs out more narcotics than do peers
- Has patterns of inappropriate drug choices and doses for patients
- Patients pain needs in the PACU are out of proportion to narcotic record
- Increased or unexplained tardiness or absenteeism
- Gradual decline in work performance

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Any unusual and persistent behavior should be cause for alert.

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Suspected Colleague: What to do?

- Observation
- Gather information and DOCUMENT reported indicators & observations to supervisor
- Seek the aid of resources that have experience in these matters
  - Notify Chief CRNA/MDA, well-being committee, employee assistance professional, or State Peer Assistance
- DO NOT resort immediately to regulatory boards

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Planning: Confrontation/Intervention

- A PLANNED EVENT/NEVER do alone
- Verify facility policy
- Know if requirement for mandatory reporting to BON
- Consult with hospital EAP
- Explore options for treatment

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Planning: Confrontation/Intervention

- Provide valid documentation
  - Drug screening, behavioral observation
- Follow up with appropriate evaluation and fair procedures that include due process
- Conduct in supportive manner
- Goal is assessment not termination
  - offer of non-punitive help ,leave of absence rather than termination to preserve the benefits needed for effective treatment and recovery

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After the Intervention

- "Because of the association between chemical dependence and other psychopathology, successful treatment for addiction is less likely when comorbid psychopathology is not treated"
  - Bryson & Hanza 2011
- Return to work and conditions of work
  - determined by the Medical Board/Council or local registration authority

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Treatment

- Should occur at facilities that specialize in the treatment of health care professionals
- Physicians, pharmacists, dentists, CRNAs more likely to receive long term residential care (30-90 days)

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Treatment

- Inpatient/Residential Treatment Components:
  - Detoxification
  - Med/Psych evaluation
  - Individual/Group therapy
  - Alcoholics Anonymous/Narcotics Anonymous introduction
  - Family Therapy

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Treatment

- Outpatient Treatment Components (after completion of residential):
  - Group therapy usually weekly for 2-3 years
  - Continued AA/NA
  - Family therapy as needed
  - Identification of support system for practitioner
  - Pharmacotherapy
  - Monitoring – to include urine screening

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Recovery

- Ongoing treatment
- Ongoing monitoring
- Ongoing mentoring
- Staged through nonclinical -> supervised

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Recovery

- Reentry to anesthesia
  - A high risk but high gain decision
  - More junior trainees may be advised against this but there have been successes
- Retraining outside anesthesia

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Reentry to Practice

- Should the policy be "One Strike and you're out"
  - Some evidence supports this
    - high % of relapse and death
  - Deters those from seeking help
  - Some come back successfully
    - If good care & rehabilitation

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Reentry to Practice– Trainees

- Should anesthesia residents with a history of substance abuse be allowed to continue training in clinical anesthesia?
  - 135 trainees needing treatment -10 years
  - 73 % (99) returned to training (36 did not)
  - 29% (29) of these relapsed (70 did not)
  - 14 % (4) of these died
  - Bryson E. Journal of Clinical Anesthesia (2009) 21, 508–513

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Reentry to Practice– Trainees

- Fry et al 2005 survey (128 Aus/NZ programs)
- 16 registrars (44 total)
- 5/7 returning relapsed - 1 died
- 19% (1 out of 5) of abusers made a long-term recovery within the specialty

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Reentry to Practice

- Oreskovich & Caldeiro 2009
  - July Mayo Clin Proc. 84:576-580
- A guarded "yes"
  - but it depends significantly on the
  - quality of the intervention and rehabilitation
- What is the quality of these processes in
  - Australia, New Zealand and HK ?

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Reentry to Practice

- Initial rehabilitation process complete
- Participation in continuing treatment
- Abstinence has been initiated and maintained for a period of time
- Voluntary entry into a professionals health program that will provide monitoring services to assist with ongoing treatment and assure abstinence

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Reentry to Practice

- Complicated by constant access to potent anesthetic drugs and possibility of relapse
- Opponents
  - High relapse rates
    - Only 34% opioid abusing anesthesiology residents successful., while 70% nonopiod abusers where successful (Menk et. al, 1990)
- Proponents advocate “cautious” reentry, supporting reentry on an individual basis

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Reentry into Practice

- Determined on an individual basis
  - Not all providers will be able to return to practice safely
  - Readiness for reentry is a collaborative decision of the monitoring program, certified drug and alcohol counselor, and employer
- One full year in recovery is recommended prior to returning to anesthesia practice
- Abstinence-based recovery recommended
  - Refrain from substitute treatments.
  - High-risk of relapse
- Participation in a monitoring program at least 5 years in length with random drug testing

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Reentry to Practice

- Will be considered to re-enter practice under contract and continued monitoring with the professionals health program & practice/training program
- Contract will stipulate treatment, urine/hair toxicology screening, work site monitoring, self-help groups

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Take Home Point

- This is a serious issue
- We need to look after each other
- Prevention by closer control
- Preparation with education

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Take Home Point

- Recognition and/or suspicion of substance abuse – major and minor signs
- Respond in a pre-planned way
- Think carefully about recovery & re-entering training

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AANA Peer Assistance Helpline

- 1-800-654-5167
- Assist both the individual and colleagues

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Resources

- AANA Peer Assistance
- GANA Peer Assistance
- State BON Diversion Program
  - GNA Advocacy Program
- Employee Advocacy Program
- AIR (Anesthetist in Recovery)

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