Medical Marijuana in the Workplace

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Overview

• History of Marijuana
• Metabolism of Marijuana
• Physiologic Effects
• Workplace Issues
• Challenges Facing MROs
• Conclusion
History

• Marijuana - grown as hemp plant – Cannabis Sativa
• Drug form – dry, shredded green and brown mix of leaves, flowers, stems and seeds
• Psychoactive Chemical – delta-9-tetrahydrocannabinol (THC)
• Commonly smoked in hand rolled cigarettes (joints), water pipes (bongs), or cigars filled with a mixture of marijuana and tobacco (blunts)
History (Cont’d)

• Marijuana is the most commonly used illicit drug according to the 2008 “National Survey on Drug Use and Health”

• In 2008 marijuana was used by 75.6 percent of current illicit drug users and was the only drug used by 53.3 percent of them
History (Cont’d)

- Use among young people has been increasing since 2007
- Corresponds to diminished perception of drug’s risks
- Amount of THC in marijuana has been increasing steadily
- From 4% concentration in 1980’s to close to 10% on 2009 (latest data available)
- This has increased the chance of an adverse or unpredictable reaction in new users
- Rise in emergency department visits involving marijuana use
Pharmacokinetics

- THC rapidly passes from lungs to bloodstream when smoked
- Peak plasma levels of 100-200 ng/mL within 9-23 minutes after smoking
- Absorption is slower with a more delayed peak 1-3 hours when ingested
- Plasma levels generally fall below 5 ng/mL less than 3 hours after smoking
- Significant THC concentrations (7 to 18 ng/mL) are noted after a single puff
- Peak plasma THC: from 46-188 ng/mL in 6 subjects after smoking 8.8mg THC over 10 minutes
Pharmacokinetics (Cont’d)

- THC acts upon specific molecular targets on brain cells, called cannabinoid receptors
- THC is rapidly and extensively metabolized to $11\text{-hydroxy-TCH}$ (psychoactive) and then to $11\text{-nor-9-carboxy-THC}$ (not psychoactive)
- Chronic users can have mean plasma levels of THC COOH of 45 ng/mL
- 12 hours after use corresponding THC levels are however less than 1 ng/mL
Pharmacokinetics (Cont’d)

- Cannabinoid receptors are typically activated by endocannabinoids, such as anandamide.
- Endocannabinoids are naturally occurring in the body and are part of a neural communication network (endocannabinoid system).
- Receptors are found in areas of the brain that affect:
  - memory, pleasure, thinking, concentration, movement, coordination, and sensory and time perception.
- Urinary elimination half-life is estimated at 3-4 days.
- THC is highly lipid soluble which is sequestered in the tissues slowly.
- Majority of THC is excreted via feces (65%).
- 30% excreted in the urine as conjugated glucuronic acids and free THC hydroxylated metabolites.
Pharmacokinetics (Cont’d)

- Effects of Marijuana vary with dose, route of administration, experience or user vulnerability to psychoactive effects and setting of use
- Difficult to establish a relationship between THC blood or plasma concentration and performance impairing effects
- Need to understand metabolism when interpreting urine drug testing results
  - Intermittent use versus daily use
  - Impossible to predict specific effects based on THC-COOH
  - Inadvisable to try to predict effects based on THC concentrations alone
- Positive tests generally indicate use within 1-3 days
  - Longer following heavy chronic use
Interpretation of Urine Test Results

• Detection of total THC metabolites in the urine only indicates prior THC exposure (use)
• Published excretion data from clinical studies have provided a reference for evaluating urine concentrations;
  – these data are only reflective of occasional marijuana use not heavy, chronic exposure.
• For occasional users, positive test results indicate use within 1-3 days
• The detection window can be longer following heavy, chronic use
• Single doses of Marinol, low levels of dronabinol metabolites have been detected for more than 5 weeks in urine
• Low concentrations of THC have also been measured in over-the-counter hemp oil products – possibly causing positive urine cannabinoid test results
Physiologic Effects

ACUTE

- Respiratory tract irritation (inhalational route)
- Impairs:
  - short-term memory attention, judgment, and other cognitive functions coordination, reaction time, and balance (via effects on cerebellum and basal ganglia)
- Increases heart rate
- Psychotic episodes (large doses, gastrointestinal route)
- Genetic variant of catechol-O-methyltransferase (COMT) that metabolizes dopamine and norepinephrine increases the risk of psychosis
Physiological Effects (Cont’d)

Persistent (lasting longer that intoxication, but may not be permanent)

• Impairment of memory, attention, and learning (can last for days or weeks after the acute effects wear off)
• Sleep impairment

Long-term (cumulative effects of chronic use and/or abuse)

• Can lead to addiction
• Increases risk of chronic cough, bronchitis
• Increases risk of anxiety, depression, and amotivational syndrome
• Increases risk of schizophrenia in vulnerable individuals
Workplace Issues: Thorny Situations

- Eighteen U.S. states and the District of Columbia have:
  - Enacted laws that remove criminal sanctions for the medical use of marijuana
  - Define eligibility for such use
  - Allow some means of access - either through home cultivation, dispensaries or both
Is Marijuana Medicine?

• The use of Medical Marijuana use is considered a “recommendation,” not a prescription
• Insufficient number of clinical trials to show that benefits outweigh health risks in patients with symptoms it is meant to treat
• To be considered a legitimate medicine, a substance must have well-defined and measurable ingredients that are consistent from one unit to the next.
• THC based drugs are FDA approved to treat pain and nausea
• More research is needed and scientists continue to investigate the medicinal properties of cannabinoids
Medical Marijuana
• Marijuana is classified as a Schedule I drug – considered highly addictive and having no medical value
• Conflict between state and federal Law
• Under federal law, marijuana is treated like every other controlled substance
Medical Review Officers: Thorny Situations

- At present, seven medical marijuana states have **implicit employee protections in place**, where the law mentions only on-the-job consumption or impairment as grounds for termination—Colorado, Hawaii, Michigan, Montana, New Jersey, New Mexico and Vermont

- Rhode Island and Maine, have **explicit protections** for medical marijuana patients written into their legislation
Workplace Concerns/ Issues

- Most obvious – safety issue due to effects on coordination and reaction time
- Many employers preclude safety sensitive duties in states where medical marijuana is recognized
- Indirect effects can impact coworkers and company
- Decreased productivity
- Increased morbidity (respiratory illnesses), worker absences, tardiness, accidents and workers compensation claims
- A series of large, prospective studies has shown a relationship between marijuana use and later development of psychoses, and it worsens the course of illness in patients with schizophrenia
Challenges facing MROs

• Employers that operate in states where marijuana is now legal are struggling to reconcile zero tolerance drug policies with a patient’s right to get high
• How do you draw the line between drug free workplaces, and medically approved use of marijuana and other prescription drugs?
• No clear definition
  – As the courts continue to rule on medical marijuana in the workplace, employers will gain the guidance needed to create drug policies that protect both their business interests and the rights of their employees
Challenges facing MROs

• “Safety sensitive" defined as a job that has a greater than normal level of trust, responsibility for or impact on the health and safety of others or where errors in judgment, inattentiveness or diminished coordination could put others in danger.

• The federal DOT guidelines prohibit the use of medical marijuana for transportation workers in safety-sensitive jobs including pilots, school bus drivers, truck drivers, subway operators, ship captains, and transit fire-armed security.
  – Even in states where medical marijuana is legal.
Medical Review Officers: Thorny Situations

- **2008 Supreme Court ruling in California**, involving a systems administrator who was fired for using medical marijuana by Sacramento-based employer offers the most definitive guidance:
  - Drug testing in the state is legal
  - Firing an employee for use of medical marijuana is not tantamount to discrimination
  - Employers are not obligated to accommodate the use of medical marijuana, even outside work
- The state's medical marijuana laws protect patients from criminal prosecution, but **provides no protection on the job**
- Marijuana remains classified as an **illegal substance under federal law**
Legal Pot Use in Colorado Could Still Get You Fired

• Article: Wall Street Journal April 26, 2013
• Medical and Recreational marijuana use may be legal in the state but with a positive drug test employers could still fire employees
• Companies need to have flexibility to be able to fire employees when individual behavior raises issues endangering other employees and productivity
• The ruling of the case did not invalidate state law
  – Colorado law does not “extend employment protection to those engaged in activities that violate federal law”
• Other states have such laws in place to protect employees and restrict firing from marijuana usage
Case Study: #1

- I am reviewing a Non-Regulated Hair drug screen that is positive for Marijuana, donor has a Medical marijuana card and the company doesn't have a MM policy and the donor stated he was unaware of the implications of MM as well as he will never take it again and I got this mail from the donor seeking the employment.

- "Hi, Here is a copy of my Medical Marijuana card. This job at ____ could change me and my family's life. Me and my wife are both unemployed, so I really need this job ____ I could stop taking my prescription today if it meant I could still work there. Thank you for taking the time to call me first. " 
Case Study: #2

• Employer has operations in multiple states, including CO
• Employee in CO has a random non-regulated UDS and marijuana is found
• Is it still considered +?
• Consider: the company drug policy probably says employees can't use “illegal drugs,” likely without reference to differences between state and federal laws
• Marijuana however, is not "illegal" in CO (though still illegal under federal law)
Case Study: #3

- Employer in TX
- Employee goes on ski vacation to CO for 2 weeks, where he smokes marijuana legally
- On return, his first day back, he has random non-regulated UDS that shows marijuana
- Should test be reported as +?
- How about if his test showed marijuana on day 4? Day 7? Day 10?
- Remember THC is fat soluble, so after heavy consumption the UDS can be + for a long time
Case Study: #4

• Employee and employer in WA
• Employee has a work accident
• UDS + for marijuana
• Was the employee impaired?
• Is testing available that helps answer that question?
Approaches

- MRO NEGATIVE, with warnings about safety-sensitive work and possible violation of company policy
- MRO POSITIVE, with statement that employee has a documented marijuana medical card (with EE consent, of course)
- MRO positive not qualified per Federal guidelines
Challenges of MROs

• Depending on input from Clients
• Most Clients Choose Approach #3. MRO Positive Not Qualified per Federal Guidelines
Most Common Illegal Drugs: Synthetic Marijuana

- K2, Spice Gold and dozens of other currently legal "herbal incense" products are spiked with powerful designer drugs and they don't show up in drug tests
- Considered synthetic cannabinoids
- Smoking produces effects similar to those of marijuana
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