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MEDTOX-DAR Newsletter Book Report: "Substance Abuse Treatment with Correctional Clients: Practical Implications for Institutional and Community Settings" Edited by Barbara Sims, PhD



Once in awhile, the DAR staff discovers a good book that speaks to professionals working in the field of drug treatment in correctional settings "Substance Abuse Treatment with Correctional Clients: Practical Implications for Institutional and Community Settings" is one of those books. In the book, readers are provided a non-technical overview of the critical issues involved with treatment of substance abusers who are within the jurisdiction of state and local corrections agencies. Dr. Sims, who is a faculty member at Penn State University-Harrisburg, has penned a primer that deals with core concepts associated with identifying, rehabilitating, and managing probation and parole clients who present with substance

abuse disorders. This book is not a textbook of neurobiology and psychology, rather it is a primer that helps a reader understand the daunting challenges and complexities involved with efforts that must be made in order to effect change with substance abusing "clients." In an economic environment where public drug treatment programs are being cut, it is important that community corrections personnel keep an eye on the ball of drug addiction and ensure that the community gets the most bang for the buck from their publicly funded drug rehabilitation services.

Corrections agencies, institutional and community-based, have been a dumping ground for repeat offenders who are unable to correct their substance abuse disorders. If the truths about the backgrounds of most prison and county inmates in America were made known, the public would realize that no matter the precise nature of an inmate's offense (felony or misdemeanor) that there is some sort of underlying substance abuse complication that fueled the bad behaviors. This situation is complicated by the

incidence of mental illness (dual diagnosis cases) that exists in inmate populations. The public frequently assumes that addicted prisoners and probationers receive treatment for their conditions while serving their time or living out their terms of probation supervision. Sometimes an addict does receive adequate rehabilitative services. But in most cases, a lack of resources means that a needy inmate or probationer may or may not get services that are spotty and/or uncoordinated. This book addresses the overwhelming impact of drugs and drug abuse on the American corrections scene. It is evident that community corrections personnel needs to have a more sophisticated understanding of what substance abuse disorders are all about; Dr. Sims has endeavored to do that.

To best communicate the various concepts advanced in the successive chapters of the book, Sims has brought together 21 contributing writers. Each writer advances an opinion and recommendation pertaining to the topic of which he or she is an expert. The observations and theories put forth by the contributors are mostly evidence based and current. Complicated and vexing topics such as mental illness and dual diagnosis disorders are dealt with in a clear and concise way. The book also addresses interesting ideas and suggestions that should be read by managers, policy makers, and politicians who have responsibilities for the operation of county, state, and federal corrections programs.

This 257-page book and its 21 individual contributors are organized and portioned into four main sections:

- Part I deals with the underlying concepts and theories that make up current substance abuse treatment programs. Indicators for program success and failure in institutional treatment are discussed here.
- Part II deals with experiences and lessons of current and past prison substance abuse treatment programs. Historical analysis and discussions about the expectations of inmates is found in this section.
- Part III deals with experiences of drug diversion programs and drug courts. Practical advice for starting a court-based treatment program is put forth. Also, suggestions for insuring accountability and treatment success are discussed by several writers in this section of the book.
- Part IV deals with special treatment populations. Unique challenges posed by juvenile substance abuse problems are laid out in this part of the book; differences in treatment methods for boys and girls are discussed. The book wraps up with discussions of unique problems that may or may not have been experienced yet by a reader.

This book is a valuable read and a productive use of time for anyone who is working in the fields of probation, parole, institutions, drug court, social work, and drug treatment programs that accept patients from one of the forgoing sources.

Substance Abuse Treatment with Correctional Clients: Practical Implications for Institutional and Community Settings, Edited by Barbara Sims, PhD. Haworth Press, 2005. ISBN 0-7890-2127-7 (paperback), \$24.95

Jimson Weed Poisoning Gives Insight to the Effects Experienced by "Locoweed" Abusers

Consumption of jimson weed has become a recreational pursuit of young people seeking a cheap hallucinogenic high. The plant grows wild as a shrub in most parts of the United States. Called angel's trumpet, locoweed, and stinkweed, the flowers on the plant are fragrant and appear as white or cream colored "trumpets." Concentrated in the root of the jimson weed plant are scopolamine and atropine, both powerful anti-cholinergic compounds. When taken in sufficient quantities, these drugs can cause vivid hallucinations and out-of-body experiences. Creating a jimson weed tincture requires skill and patience; it is more than easy to overdose. Police blogs are replete with stories of jimson weed overdoses: car accidents, violent confrontations and altercations, and death. An accidental poisoning with jimson weed by a Maryland family points to the risks associated with any sort of effort to get high from jimson weed.[1]



In the early morning of July 9, 2008, six adult family members presented themselves at a local emergency room complaining of hallucinations, confusion, dilated pupils, and rapid heartbeats. (These signs are classic symptoms of jimson weed intoxication as taught in the MEDTOX Drug Abuse Recognition (DAR) program). The common denominator in the experiences of the family members was that they had shared a meal consisting of homemade stew and bread some 4-5 hours earlier. Investigators later learned that the stew contained both atropine and scopolamine. Evidently, jimson weed plant material somehow was processed as some sort of spice or flavoring. The amount of material was more than sufficient to bring the levels of scopolamine and atropine to poisonous levels. It did not appear that the jimson weed was added to the stew for nefarious purposes. After the fact, investigators learned that the chef had included with the stew some homegrown mint from the yard. Jimson weed leaf material was eventually detected in leftover stew material.

The physical and medical problems afflicting the family members was typical of what police and emergency medical personnel see with drug users who are deliberate consumers of jimson weed. All six affected persons were family members ranging in age from 38 to 80 years. An hour after finishing their jimson weed tainted meal, another unaffected family member arrived at the home to find all six people to be inebriated to one degree or another. Some family members were laughing; others appeared confused and were complaining of auditory and tactile disturbances. All six affected family members had to be transported to the hospital by ambulance.

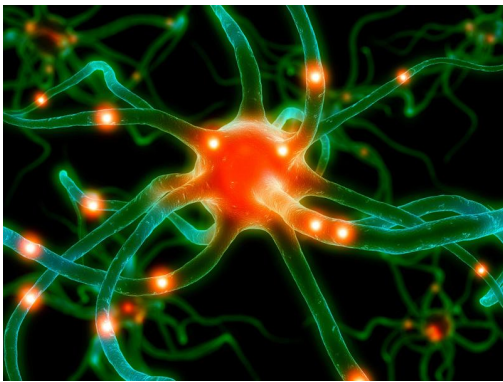
Upon arrival at the hospital, two patients were unconscious, the other four all exhibited symptoms of altered consciousness. Each patient exhibited classic hallucinogen DAR signs: dilated pupils, rapid heart beat (tachycardia), and hot, dry skin. The conscious patients exhibited altered mental states that included periods of agitation and disorganized speech. Some of the patients experienced additional anti-cholinergic effects of urinary retention. All of the patients recovered, although each experienced 3-4 days in the hospital. Logically, the family member who ate the most stew was the last one to be discharged from the hospital.

Recreational abuse of jimson weed continues despite the evident dangers in doing so. Unfortunately, the

Internet has become a sourcebook for drug users looking for cheap and natural sources for getting high. This case of innocent jimson weed points to the need for public safety and medical personnel to stay abreast of current drug use trends and to be aware of the unique signs and symptoms associated with nonconventional drug use. MEDTOX Drug Abuse Recognition (DAR) courses are an effective means of developing the knowledge and capabilities needed to deal with the challenges of uncovering and identifying modern drug use habits.

[1] From the Centers for Disease Control and Prevention (CDC), Journal of the American Medical Association, 303:11; 1029-1030.

Slowing the Effects of Substance Abuse on the Human Nervous System



How substance abuse disorders are treated does not impact just those who are undergoing treatment. Treatment effects every member of society who has to pay for it and/or who has to endure the process as part of a larger member of the society. Over the last couple of years, scientific evidence is growing in support of the thesis that when substance abuse levels increase, so does the rate of attendant acquaintance and spousal physical abuse. How this happens is explained more and more by our understanding of the neurobiological systems that are impacted by chronic drug use.

Recently published studies have laid the groundwork for our understanding of how substance abuse effects gene expression. Genes express themselves in biochemical ways that lay the groundwork for neurotransmitter processes that ultimately spur the process for neuro-electrical mapping of executive functioning, reward feedback, and impulsivity. These processes, if they go awry, can crack the whip and spur increased substance abuse and addictive behaviors.

In recent years, researchers have been digging into secrets of nerve cells of the brain in search of medications that can act on neurobiological mechanisms to help addicts improve their performance in sobriety and resist the drug cravings that lead to relapse. One of the drugs recently investigated was the medication prazosin, an alpha-1-noradrenergic receptor blocker. What does prazosin do exactly? It is a medication that is used to treat patients who suffer from post-traumatic stress disorder. The drug controls the flow of norepineprine in the frontal lobe of the brain. For alcoholics attempting to reduce the amount of alcohol consumed, prazosin noticeably reduced the frequency of drinking. Naltrexone, a drug already approved and known for efficacy in treating alcoholism, has shown an ability to reduce stimulant use amongst amphetamine dependent addicts who were seeking treatment. Opiate addicted patients who received implanted, sustained release depots of naltrexone with a 30-day absorption lifespan did better than those who took the drug in its oral form. These results and other studies like them tend to suggest that addiction and substance abuse disorders all share a common neural pathway, one mediated by the instrumental neurotransmitter dopamine.

Other more controversial treatment methods have emerged during this time of discovery. One more provocative strategy involves the use of injectable heroin to treat heroin addiction. In a study previously reported on in this newsletter, heroin addicts were provided with maintenance (replacement) doses of

heroin and in a protected setting were allowed to self-inject the drug. Patients who were allowed to self-inject heroin did better than methadone using subjects. In addition to being a controversial use of scarce treatment funds, this program is expensive and difficult to manage. Yet this approach seems to be effective and potentially more benign in its impacts on the human nervous system. And for cocaine, there is some hope that the biochemical pathways it follows may be amenable to blockade in much the same way that the action of heroin at opiate receptors is blocked and reversed by naloxone. A recent study of a cocaine vaccine produced hopeful results for widespread utilization. In the study cohort, after five vaccinations over 12 weeks, 38% of cocaine dependent subjects developed adequate antibodies for cocaine. These subjects were substantially more cocaine-free at important data points down range than were placebo patients or patients with lesser levels of antibodies. The cocaine vaccine holds promise.

Researchers investigating the interaction between substance abuse disorders and food addictions found some interesting connections. Hypothesizing that food and substance use disorders stem from bad wiring in the brain's mesolimbic reward area, researchers experimented with a ghrelin, a peptide that can cause weight gain and obesity. By inhibiting the action of this peptide, weight gain in mice could be reduced. Moreover, mice that had been habituated to alcohol experienced fewer alcohol rewarding effects when the weight-gaining ghrelin peptide was inhibited. By blocking the rewarding effects of a drug, drug consumption will usually decline on the part of those who are abusing it or who are addicted.

The pursuit of neurobiological solutions to the treatment of addiction will continue. Stay tuned to this newsletter for the latest information in drug treatment research and discussions of therapies that hold promise and hope in blunting the impact of addiction on the central nervous system.

Hotline Call of the Month: Instant Testing Device Sniffs out Abuse of an "Over-the-Counter" Drug

Not long ago, the DAR Hotline staff received a request for assistance from a client that operates a large residential drug and alcohol treatment program. The treatment center is a user of Sure Screen, a MEDTOX instant drug-screening instrument. The subject of the call was a patient who had been exhibiting strange behavior the day prior. The patient "crashed" and slept for more than 12 hours after exhibiting bizarre behavior. House managers and supervisors at the treatment center were suspicious that the patient had been using drugs. Because of the suspicion, the patient was asked to provide a urine sample for a drug test. The staff used a Sure Screen low cut-off screening device. The instrument is widely known as the "Salvation Army" kit because the Salvation Army was first to use the device. The patient's results were positive for opiates and PCP. Because of the odd drug combination, the sample was sent to the MEDTOX laboratory for confirmation. Under gas chromatography and mass spectrometry analysis, the sample produced negative results for opiates or PCP; ketamine was also negative. Staffs at the treatment center were vexed by the results. They were adamant that the patient had been using drugs prior to the test and were frustrated that the screening device's positive finding was not confirmed by the laboratory.



Responding to the call for assistance, the MEDTOX staff suggested that the patient's urine sample be rescreened pursuant to a protocol called a "306" exam. This testing process is an investigational, forensic

exam that undertakes a search of any given sample for hundreds of common abused drugs. Subjected to the "306" exam, the urine sample produced a positive screen and confirmation for dextromethorphan. Known on the streets as DXM, dextromethorphan is a widely available over-the-counter drug utilized to reduce or prevent cough. The drug is commonly blended with cough syrups and cold capsules and is the principal component of Robitussin-DM. Since 2001, DXM abuse has skyrocketed. This newsletter has spotlighted DXM abuse in past editions. The MEDTOX staff continues to receive reports from readers that the drug is widely abused and that many aficionados experience untoward effects of the drug when they engage in serial use. Although DXM abuse will not result in a physical drug dependency, tolerance rapidly develops. Chronic use can devolve into addictive and compulsive use with consequences consistent with those seen with methamphetamine, cocaine, ketamine, and PCP.

DXM affects the brain in complex ways. The drug triggers a cascade of experiences that are a blend of PCP, opiate, hallucinogen, and depressant effects. Because a DXM high is a mix of mind-altering effects, it has become a popular party drug with drug using adolescents and young adults. Its over-the-counter availability and low cost fuel its popularity. DXM is an NMDA receptor antagonist and, as such, is going to lead to a predictable set of physical effects for a person who is using the drug to get high. Typically, a DXM user will require about 5 mg of DXM per kilogram of weight in order to get a potent high. Lower concentrations of 1-3 mg will result in a more sublime high. For a 175-pound male, 375 mg of DXM will probably suffice in achieving a memorable high. The drug is available in tablet and capsule form. It is also widely available as a liquid in a variety of commercial cough suppressants. DXM's role in Robitussin-DM earned users the street identification as "robo-trippers."

DXM abuse include, but are not limited to, the following:

- Agitation
- Dilated pupils-normal reaction to light
- Nystagmus and lack of convergence (some cases)
- Facial flushing
- Goose flesh
- Sweating
- Delayed reactions
- Slow (not slurred) speech
- Slowed reactions
- Loud speech
- Inappropriate reactions
- Laughing and/or crying jags

DXM is a drug that requires special drug screening procedures done at the laboratory. A MEDTOX sales representative can help with obtaining *DXM* testing services. Drug Abuse Recognition (DAR) training courses also address *DXM* abuse and teach students how to recognize the signs and symptoms of its use. More information on the availability of DAR training can be obtained by contacting the MEDTOX DAR Program at DARSProgam@mac.com



This month's subject drug is one of the most widely utilized medications in America. It is a common component found in most home medicine cabinets and first aid kits. First synthesized in 1946, the drug was the first prescription medication of its class to be approved by the Food and Drug Administration. At present, it is available as an over-the-counter drug where it is frequently combined with other medications to make a diverse slate of important pharmaceutical compounds. The drug is defined and categorized as an antihistamine. Illicit uses of the drug have evolved over time. A quick trip to the Internet will reveal that the drug has an underground following who find satisfaction with the drug as a hallucinogen. Because of its over-the-counter accessibility and low cost, the drug is a popular option for users who are looking for a new experience that is cheap and easy to acquire.

The inventor of this month's drug is a fabled and iconic figure that spent a career as an investigational scientist at the University of Cincinnati. While working at the university in 1946, Professor George Rieveschl toiled to create a synthetic alternative drug to scopolamine, which was an anti-cholinergic drug of the time. Scopolamine is a substance found in the nightshade family of plants like jimson weed and corkwood. Dr. Rieveschl's efforts resulted in the chemical isolation of this month's drug. And although Dr. Rieveschl did not quite formulate the drug he was looking for, he did find that his discovery was a powerful means of reducing the levels of histamine in the bloodstream. The drug inhibits the effects of histamine by blocking the transmitter's effects at the H1 receptor. Release of histamine is an inflammatory and allergic reaction that launches a cascade of effects that includes redness of the skin, itching, hives, swelling, edema, and agitation. As an antihistamine, the drug can mitigate the allergic reactions associated with bug bites, bee stings, and allergic drug reactions. Doxylamine is another similarly acting drug of the same class that is also readily available as an over-the-counter tonic. Doxylamine is also an abused drug, but does not share the widespread popularity that this month's drug does with substance abusers. Doxylamine is a frequent component of over-the-counter sleep aids, (i.e. Unisom tablets) and in that role is a principle competitor to this month's drug. This month's drug also acts in the central nervous system to slow the reuptake of serotonin. The key to depression in humans lies in the mechanisms effecting release and reuptake of serotonin, a monoamine neurotransmitter. This capability led to the search for more precise medications that could slow serotonin reuptake. Ultimately, this investigation led to the modern line of selective serotonin reuptake inhibitor (SSRIs) drugs such as Prozac, Zoloft, and Paxil.

For patients under psychiatric care, this month's drug can offer noticeable relief from many of the uncomfortable and untoward side effects caused by prescribed antipsychotic medications and the effects of Parkinson's disease. The extrapyramidal symptoms of psychiatric medications include tremors, sudden involuntary movements, muscle spasms, and dizziness. This month's drug can significantly relieve these symptoms and make life easier for mental health patients.

This month's drug comes in various forms, sizes and types: gels, creams, tablets, capsules, dissolvable tablets and oral strips, and as syrup. It is a powerful antihistamine. To this day, this oldest drug of its class is arguably more effective than many of its modern counterparts. Like most drugs of its class, it has some notable side effects however. One of the most common side effects of this drug is drowsiness. In recognition of its side effects, the drug has created for itself a separate pharmaceutical niche as a sleep aid and anxiolytic. In fact, most American hospitals dispense this drug to patients as a front line sleep aid.

Because of its value as a sedative, the drug has attracted a niche following of drug abusers who cherish its hallucinogenic effects that are achieved with ingestion of high doses. The widespread availability of the drug and its over-the-counter status makes it easy to acquire by anyone who is interested in experimenting. Recreational users of this drug can have very divergent experiences while under the influence of it. At low doses, the drug maintains its sedative properties and can increase the effects of alcohol or other central nervous system depressants. At high doses, the drug tends to interact with a separate set of transmitters and receptors that lead to hallucinogenic effects not unlike LSD, peyote (cactus buttons) and psilocibin (magic mushrooms). The drug is sometimes mixed with prescription opiates to create an enhanced sedative effect that optimizes the effects of drugs like hydrocodone and oxycodone.

This month's drug is best known as the principal chemical in the over-the-counter drug brands of *Benadryl* and *Sominex*. On the streets, the drug is referred to as "Ben-ees" or "Som-ees", terms that are rooted in the drugs widely recognized brand names. As is the case with other over-the-counter drugs of abuse, the Internet suffices as an operator's manual for people interested in abusing this drug. Multiple websites host "writers" who provide directions and advice for recreational users who are interested in getting high from this drug.

A person found intoxicated and impaired by this drug will exhibit classic "depressant" signs and symptoms. Evaluators should expect modest presentations of nystagmus and non-convergence. In the higher doses however, the drug may trigger dilation of the pupil and a sluggish response to the introduction of direct light. Higher doses may also result in the development of piloerection and claims of hallucinogenic symptoms. Speech may range from being slow to being thickly slurred. Performance on standard field sobriety tests will present similar to that of alcohol intoxication.

This Month's Drug: Diphenhydramine (Brand name examples: Benadryl, Sominex, Unisom Sleep Gels)



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