

# MEDTOX<sup>®</sup>

Criminal Justice & Rehabilitation Services



## MEDTOX<sup>®</sup> Journal

Public Safety Substance Abuse Journal

July 2009

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### "BZP": An Old Central Nervous System Stimulant Re-Emerges as Alternative to Methamphetamine



For drug users attracted to the use of central nervous system stimulant drugs, there are choices that go beyond that of methamphetamine and cocaine. Alternative stimulants are attractive to drug users at a couple of different levels. Foremost might be the fact that these sorts of drugs are rarely screened for in drug tests; use of alternative drugs can go undetected for as long as a drug user can compensate for them and otherwise be functional. Alternative central nervous system stimulant drugs include the likes of Ritalin (methylphenidate), Cylert (pemoline) and Vyvanse (lisdexamfetamine); each of these is a controlled substance. Diversion of these drugs from legitimate to illicit purposes is common; these drugs can be found for sale on the Internet and on the street. For those who seek alternative drugs, the Internet serves as a vector and source of important information.

A quick Internet search for non-amphetamine central nervous stimulants will yield information on a powerful drug known as benzylpiperazine. Called "BZP" for short, this drug is a potent stimulant that produces amphetamine-like effects; the drug also provokes feelings that are described as being mildly hallucinogenic. Recently, the drug has been seized within the walls of some U.S. state prison systems as well as on the streets of several large cities. In the 60's and 70's, this drug was widely available on the streets as an alternative to LSD, back then it was often purported to be MDA (methylenedioxyamphetamine), a hallucinogenic amphetamine that pre-ages Ecstasy (MDMA). The drug was popular for its mixed effects as a central nervous system stimulant and mild hallucinogen. Oftentimes, its hallucinogenic effects were attributable to compounds that were mixed with it. Drugs like TFMPP (1-(3-trifluoromethylphenyl)piperazine) were added to give BZP a boost, a hallucinogenic buzz of sorts. Considering its hazy quality control background, BZP is suspected of having a number of odd constituents added to it.

BZP is consumed orally, there is little evidence that it's smoked or snorted. BZP is typically sold as a small single scored tablet; there may be a symbol of some sort stamped on the side opposite of the scoring. Usually found in a white or off-white color, the tablet may be colored in orange or yellow. Vivid colors and unusual cursive figures make BZP tablets look like Ecstasy; however, the symptoms are much different than that of Ecstasy. BZP has central nervous system stimulating effects. BZP interacts with transmitter systems that regulate and control the release of dopamine, norepinephrine and acetylcholine. Its central effects are not unlike methamphetamine, but it brings with it a more visceral sense of excitement. From an equipotency point of view, BZP is more powerful than methamphetamine, Ritalin or any of the other pharmaceutical stimulants. BZP has a longer half-life than methamphetamine and its stimulating effects persist for six, eight even twelve hours.

## MEDTOX Training Reaches South Koreans



In

1948 Southern Korea violently separated from Northern Korea, that armistice which halted hostilities was signed in 1953. South Korea is a capitalist democracy and is similar to the United States in its innovations and industrial capacities. They are active members of the United Nations, G-20, World Trade Organization and other vital world bodies. The South Koreans have created successful companies such as Hyundai Automotive, Samsung, and LG Electronics.

South Koreans are proud, highly motivated and driven people; their intense work ethic and associated lifestyles are often times the catalyst for the development of substance abuse disorders and alcoholism. Like all free societies, South Koreans make personal choices to use or abuse drugs; for some of those who use drugs and alcohol, a habitual pattern of consumption results in the development of addiction and/or dependency. At some point, intervention, treatment and rehabilitation must begin. This is where the Salvation Army steps in.

The South Korean government provides services such as substance abuse counseling, family health services, etc. and requires all persons wishing to work in this sector of healthcare to possess a certification of specialized drug and alcohol training. The Salvation Army is increasingly active in South Korea and has sponsored specialized instruction that new counselors and treatment professionals need in order to be licensed there. The Salvation Army recruits interested men and women for future assignments as commissioned officers who will be assigned command Adult Rehabilitation Centers on the peninsula. Patterned after the age-old American model of residential drug and alcohol treatment, the Korean system is still in its infancy. The Western Territory of the Adult Rehabilitation Center command has taken the Korean ARC system under its wing and is providing guidance and support as it

On the street, the drug is likely to pop-up in the "rave" and "club" settings; in addition to "BZP," the drug has acquired names of "Frenzy" and "Crash." Although BZP has been on the "market" for years, it's never really attracted a consistent, loyal following. A variety of Internet sources purport to be outlets for the drug, most of them connected to European drug dealing enterprises.

MEDTOX DAR Hotline has received several inquiries this year about BZP, these calls have all come from corrections officers working in county jails and state prisons. BZP has turned up in the possession of inmates and visitors. First suspected as Ecstasy, forensic analysis revealed that the drug was in fact BZP. Because BZP is not an amphetamine, standard drug test panels will not detect its use. BZP can be screened and confirmed at MEDTOX as a special test. People interested in testing for this drug can make arrangements with a government sales representative. For those who are trained in Drug Abuse Recognition (DAR), BZP symptoms will be present as classic signs of CNS stimulant influence. Fundamental signs of dilated pupils, rapid internal clock and hyperactivity will be present.

Should a reader encounter a situation where suspected methamphetamine use cannot be verified by urinalysis, some thought should be given to the use of "BZP" or some other alternative stimulant drug. More information about "BZP" can be obtained by contacting the MEDTOX [DARS Program](#).

## Are There Real Lifetime Health and Achievement Consequences for the Early Use of Marijuana? Article Headline



Indeed there are. For decades now, marijuana advocacy groups have promulgated the idea that marijuana use is innocuous, a benign vice that is nothing more than a little homeopathic trip to inner relaxation and peace. Marijuana advocates push a syllogism that goes something like this: Alcohol is a widely used legal drug that is the root cause of thousands of fatal automobile collisions every year. Marijuana a sedative like alcohol is involved in far-fewer numbers of fatal traffic collisions. Therefore, marijuana is a safer drug than alcohol and it should be legalized. The case for marijuana legalization is being made by a wide array of groups these days. Libertarians, medical marijuana "experts" and Internet "stoner" groups have joined ideological hands to make a case that marijuana is a safe drug to use. These groups rally that there is not any coherent or medically accepted evidence that contradicts their views. For its supporters, the love affair with marijuana has been a long one. But a steady stream of contemporary scientific research and study is making it abundantly clear that marijuana use can have serious consequences for those who smoke it early in life. A study published in the American Journal on Addiction[1] last year added to a growing compendium of evidence that associates marijuana use with a long list of physical and psychological problems later in life. The accumulating evidence associated with the deleterious effects of marijuana is important to readers who work in the fields of probation, parole, drug treatment and pain management. For more than a generation now, marijuana has evaded the scrutiny of the scientific community and has over the same time achieved a level of social acceptance. Things seem to be changing however.

The growing list of research includes the study of marijuana's role in the development of respiratory disorders and cognitive decline. An offshoot of this push in research has led investigators to assess the role that early life use of marijuana has on later adult achievement and mental health. There have been a number of studies that have associated marijuana use with lower academic achievement and reduced cognitive functioning. The study is one of a few that have taken a longitudinal approach in evaluating the effects; the study integrates data from several different important points along the way in the growth of the marijuana user from a child, to an adolescent and then into adulthood. The study took a more focused approach to the analysis of collected data, this report addressed marijuana use relating to very specific and discreet medical conditions; it also exposed the connection between marijuana use and later aspects of adult personality. Investigators specifically correlated marijuana use with respiratory problems, neurocognitive decline, general malaise and lower academic achievement. The research involved the use of surveys and self-reports of participants who identified themselves as having used marijuana in their youth. Complex formulas for assessing levels of marijuana use were established. Levels or rates of marijuana use were then correlated with important age milestones to create a timeline of marijuana's impact on the lives of those who had reported adolescent use of the drug. The age span of the participants in this study ranged from 14 to 27, one of the few studies that dealt with marijuana's effects well into adulthood.

Researchers clearly found that the degree of later-life (adulthood) effects of marijuana use was connected to the frequency of use as adolescents. In other words, the negative effects of marijuana were dose dependent. The more someone "smoked out" in their youth, the greater the likelihood that respiratory and psychological problems would manifest in adulthood. For those youths that may have been described as "stoners" or "pot heads," their potential for low achievement, cognitive impairment, malaise and respiratory problems was nearly 150% greater than marijuana users who fell within the conventions of what would be casual or social use of the drug. The study controlled for other phenomenon such as

begins its operations in-country.

Recently, MEDTOX instructors completed the second installment of Drug Abuse Recognition (DAR) instruction for the Salvation Army's Korean officer recruits. The training was held in Perris, California at the Army's large rehabilitation center located there. MEDTOX provided students with translated copies of its new DAR manual that deals with drug pharmacology, biology of addiction and drug recognition. Although some of the rookie officers spoke English, a Korean translator was necessary for the important dialog. In July of last year, MEDTOX provided the Salvation Army and its Korean officers with its initial course of instruction at the Army's beautiful Crestmont College campus in Rancho Palos Verdes (CA). Since then, MEDTOX has updated the curriculum and has translated it into Korean. The current curriculum is a one-of-a-kind training seminar that puts these Korean officer-students on the cutting edge of drug rehabilitation. MEDTOX plans to continue this joint venture with the Salvation Army. In addition to the training regimen described here, MEDTOX currently provides the Salvation Army with five unique types substance abuse and addiction rehabilitation courses that are taught at Adult Rehabilitation Centers (ARC) throughout the United States territory.

### HAIR TESTING: I've got the answer - What's the question?



By:  
Robert  
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Smaltz

Omega Laboratories  
Guest Writer

Often the most important part of drug testing is deciding what type of drug test to conduct. You must ask yourself, "What 'question' am I asking this donor?" The question may be "Are you impaired?" or "Do you have a habit of drug use?" By thinking in terms of the question you need to answer, you can select the appropriate testing method for the situation.

When you need to know if there has been recent drug usage or if the donor is currently impaired, urine testing is recognized as the industry standard.

maternal marijuana use, social status and advantage and childhood aggression. The impacts of marijuana on later adult functioning were also shown to be independent of one another. The data was quite clear, early marijuana use is a predictor of later adult functioning. An association was established between marijuana usage over time and later lower academic achievement. It was also evident that early marijuana use is associated with the use and abuse of other illicit drugs; marijuana is a gateway drug. Prior editions of this Newsletter have described the relationship between chronic marijuana use and later development of serious instances of depression. The study reported here links early marijuana use with general malaise. The connection here may be related to phenomenon associated with marijuana's role in depression. Malaise by extension effects sleep patterns; disrupted sleep will obviously impact levels of motivation and a person's ability to get going in the morning. Late appointments, tardiness at work and propensities for workplace accidents may all be connected to early use of marijuana.

This study tends to rebut claims that whatever the negative effects of marijuana, the impacts are diluted and less noticeable over time. This study also substantiates marijuana as a drug of abuse that warrants careful surveillance in community corrections programs, especially those where substance abuse has been a factor in a client's history of counter-social behavior. Marijuana's connection to malaise and low achievement creates a serious concern for professionals who work with clients and offenders in probation and parole systems. It is important that efforts be made to monitor its use and to take appropriate action when it is abused. Education programs for substance abusers and those at risk should include information made from studies like this. Marijuana is not bad because it is illegal; it's illegal because it's bad. People of all ages should take pause and recognize that early life marijuana use has consequences.

Information regarding marijuana's short and long term effects can be obtained by contacting the MEDTOX [DAR Program](#)

[1] Brook JS , Stimmel MA, Zhang Z, Brook D. The association between earlier marijuana use and subsequent academic achievement and health problems: a longitudinal study. The American Journal on Addictions. 2008;17: 155-160.

### Darvon Dodges a Ban by the FDA



In February 2009, MEDTOX did a brief report regarding the investigation undertaken by an FDA advisory committee that voted for the withdrawal of Darvon products from the American drug market. Darvon and several sibling preparations contain the synthetic narcotic propoxyphene. First developed by drug maker Eli Lilly in the mid 50's, the drug has been prescribed to millions of Americans to treat mild to moderate pain.

Propoxyphene is a narcotic regulated by DEA under the terms of the Controlled Substance Act, Schedule IV. Propoxyphene bears a chemical resemblance to methadone, another synthetic narcotic

that is exponentially more powerful. In its generic form the drug is inexpensive, widely available and is manufactured by a variety of big and small pharmaceutical companies. Propoxyphene represents an alternative narcotic-analgesic that physicians can consider for use with patients whose usage of drugs like Vicodin and Percocet may be inappropriate; in particular, the drug has found a niche as an analgesic to treat moderate pain in the elderly.

Generally viewed as a weak and underpowered analgesic (ibuprofen being more effective), propoxyphene products have been used for generations to treat complaints such as back pain, painful arthritic joints and cluster headaches. In years past, some physicians reported that they would prescribe propoxyphene to opiate demanding patients as a way of mollifying their demands for a more powerful analgesic, but avoiding utilization of more powerful opiates that have a greater potential for abuse. Mixed with acetaminophen (Tylenol), propoxyphene has enjoyed continued popularity in the form of Darvocet-N-100. Because propoxyphene is a narcotic, classic addictions and physical dependencies can occur. Opiate addicts have recognized propoxyphene for its value as a substitute that can be used to blunt the discomfort of physical withdrawal from other more potent narcotics such as Vicodin (hydrocodone) and Tylenol with Codeine (#3 & #4). On the street, the drug continues to experience black market demand, mostly driven by its value as a partner in drug combinations involving depressant drugs like muscle relaxant Soma (carisoprodol) and anti-anxiety drug Xanax (alprazolam).

Over the past decade, patient safety activists and other patient interested parties have advocated the withdrawal of propoxyphene from the market. Propoxyphene foes point out the fact that the drug has been involved in thousands of cases where patients either intentionally or unintentionally overdosed on it. Proponents of propoxyphene argue that the drug is safe when it is used as directed, the drug's authority not withstanding. The FDA ultimately decided to find some middle ground with propoxyphene. Within 30 days, drug manufacturers are ordered and must submit to the FDA proposed language for a boxed

When the question is "Does this person have a habit or pattern of drug use?," hair testing is fast becoming the test of choice. Using a small sample of hair cut at the crown of the head, hair analysis evaluates the amount of drug metabolites embedded inside the hair shaft over a longer timeframe, with the standard test going back 90 days. The test result can also be used to determine approximate usage levels of the drug.

The standard 90-day hair test uses an inch and a half of hair from the head. If head hair is not available, then body hair can be tested, showing a broader range of approximately twelve months of detection. It is extremely important to understand that Hair-testing does not detect the most recent 1-2 weeks of drug use because the hair has not grown out from scalp, for more immediate usage of 7-10 days urinalysis is recommended.

Standard hair-testing cutoff levels are designed to catch repeat drug abusers, while urinalysis cutoff levels are more sensitive and can detect trace drug usage. The question of external contamination creating a "false positive" test result is not a concern since hair testing is a metabolite-based process. Like urinalysis, hair testing reports levels of drug use making it applicable to rehabilitation programs where patterns of past drug use are reviewed.

The standard 5-Panel hair test mirrors that of other testing methodologies. It screens for Cocaine, Marijuana, Opiates (Codeine, Morphine & 6-Monoacetyl Morphine), Amphetamine, (Meth/amphetamine & Ecstasy), and Phencyclidine (PCP). Several other drug panels are also being analyzed in hair, including Oxycodone, Hydrocodone, and Hydromorphone. While urinalysis offers drug panels not currently found in hair, many new panels are being developed for hair analysis.

Hair testing is prevalent in industries where there is a high level of concern for health and workplace safety, such as heavy manufacturing or food service industries. Since hair testing is a quick and easy observed collection, sample substitution is impossible to do without cooperation of the sample collector. In addition, hair testing results cannot be altered with the use of shampoos or other external chemicals. These elements have aided in its ability to withstand legal challenges, gaining wide court support for hair analysis.

warning that will accompany any future prescriptions written for the drug. The warning will counsel physicians and patients in the appropriate use of the drug when treating pain. There are no other types of conditions or restrictions attached to the FDA's action. Propoxyphene dodged a bullet.

For Newsletter readers, this announcement means that propoxyphene and all its compounds will be around for a while. Although propoxyphene addictions are much less common than those of hydrocodone or codeine, the drug represents its own stand-alone threat for abuse.

For readers who are trained in Drug Abuse Recognition (Standard DAR) or DAR Rapid Eye Technique, someone under the influence will present with typical opiate 7-step signs that are detailed in the SHOMADID matrix; severity and extent of symptoms are dose related. Constricted pupils (miosis) may be less obvious than what's encountered in DAR eye examinations where other prescription narcotic-analgesics (oxycodone, hydrocodone etc.) are in play.

Questions about propoxyphene, Darvon, Darvocet etc. can be directed to the MEDTOX DAR Online Hotline at [darsprogram@mac.com](mailto:darsprogram@mac.com)

## But I Caught Him Smoking a Joint! How Come He Tested Clean?



Questions like this are routinely directed to the DAR Hotline staff. Frustrated callers scratch their heads in puzzlement, people caught in the act of smoking a joint nonetheless test clean on a THC urine diagnostic screening device that's run a short time later. The answer to the question is relatively simple. Be patient.

The most active psychogenic ingredient in marijuana is tetrahydrocannabinol, most commonly referred to as "THC." This psychoactive substance and drug is concentrated in the

leafy part of the marijuana plant, the greatest single accumulation of THC is found in flowering tops or "buds." These parts of the plant are harvested, cleaned and dried for eventual smoking or eating, smoking being the most popular means of ingestion. Whether marijuana is smoked in a hand-rolled "joint" or via a water-filtered pipe called a "bong," THC filled gas is absorbed in the lungs and instantly deposited into the bloodstream. Breaching the vitally protective blood-brain barrier, THC selectively targets a set of nervous system receptors and binds to them. When activated by THC, "cannabinoid" receptors prompt a number of pleasurable experiences that reduce feelings of anxiety and tension. These things happen in very quick order once THC enters the bloodstream. For those who choose to eat marijuana in impregnated brownies, bagels or cookies, THC absorption is much slower and its effects less euphoric. Once THC is active in the bloodstream, the body goes about trying to find it and eliminate it. A class of proteins known as enzymes are given the task of eliminating THC from the bloodstream. Like a pack of attack dogs, enzymes take off after THC and begin snapping and snipping away at it. With bite after bite taken out of THC, the enzymes end up creating second order substances called metabolites; some of these breakdown products look quite similar to their THC parent, some even have their own unique psychoactive capabilities as the same receptors that bind THC. As the enzymes plow their way through the accumulation of THC, metabolites undergo a transformation that allows them to be filtered by the kidneys and sent to the bladder for final elimination. This process takes time, it can't be made to go any faster or slower.

When an individual is caught smoking marijuana, the subject of this vignette was likely to have a bladder that was full with urine to some level or another. The urine in the bladder at that moment in time reflected biological activity for a number of hours that preceded the puffing of the joint. Acquiring a urine sample at this point in time from the smoker in question will only render results depicting a timeframe that preceded the incident. If this person hadn't smoked marijuana before, a urinalysis for THC will yield negative results. The lag between ingestion of a drug and sufficient accumulation of metabolites in the bladder can take hours. Complicating this scenario further is the fact that all drug screens are created with cut-off levels, so-to-speak concentration thresholds that dictate at what point a suspicious sample is officially reported as being positive. For marijuana, the most common setting for THC screening is 50 ng/ml; a sample containing 51 ng/ml or more will be recorded as positive, 49 ng/ml or less will be recorded as negative. An explanation and discussion of cut-off levels is discussed elsewhere in the DARS Newsletter. Suffice to say, the existence of cut-off levels in drug testing creates and additional chemical speed bump that extends the amount of time it takes for THC and metabolites to reach reportable levels in urine.

Controlled experimentation and testing of marijuana smokers suggests that reliable, detectable concentrations of THC metabolites in urine occur 2-3 hours following ingestion. Detectable levels of THC metabolites may persist for up to 3-5 days following a single incident of marijuana smoking. But for planning purposes, drug testing of someone who was caught "red handed" smoking the drug should not be undertaken for at least 2 hours following discovery. If a situation allows an evaluator to hold off urinalysis screening for 4 hours or so, the odds of a positive drug test report are even greater. For

## "Ask the Expert" Newsletter Question of the Month



Periodically MEDTOX Newsletter staff will present to our readers a technical question of interest to mull over and comment upon. The Newsletter gladly welcomes our readers' responses, comments and/or questions. In a subsequent edition we will present a summary of reader emailed responses and the commentary associated with them.

This month's edition of Question of the Month deals with the conundrum associated with drug testing cut-off levels and the guideline thresholds established originally for the screening and reporting of positive drug test results within the workplace. Unless one is engaged in workplace drug testing (employment testing etc.), why would a criminal justice or rehab testing authority want to utilize minimum concentration cut-off levels in the reporting of drug test results?

First proposed and implemented in the mid 1980's, cut off levels were a means of hedging against the potential for laboratory caused testing errors and/or for the protection of sample donors who may have somehow had an innocent brush with a drug or may have been "contaminated" with trace amounts of it. Ingestion of poppy seed muffins and rolls would occasionally result in an otherwise innocent person's positive opiate drug test result. This one particular scenario helped fuel the construction of the cut-off rubric. Since then, reliability, credibility and technical precision in clinical and forensic laboratory science have significantly evolved. Legal decisions and case law have also morphed since the mid 1980's and a new reality of drug testing has emerged as a direct result. Questioning the utility and appropriateness of cut-off levels in drug testing is now underway.

For the purpose of this discussion, we've chosen to create a narrative that contrasts the experiences of two fictitious drug testing donors who present urinalysis results that are near-

someone who has orally consumed marijuana, it's best to double the waiting period before acquiring a urine sample for testing.

equal. The final reported test results, however, are very different.

Both Subject A and Subject B are on probation; as condition of their probation they are not to use drugs and are not to enter or loiter at places where drugs are used or sold. Both subjects have received notifications that they are to report to their local probation office and produce a urine sample for drug testing; (an important footnote to this vignette is the vital fact that urinalysis is relied upon by authorities to help protect the community from recidivistic and relapsing probationers. Drug test results help judges and probation officers to determine whether or not probation clients such as Subjects A & B are abiding by the terms and conditions of their probation.)

Both subjects appeared at their local probation office as directed. Subject A ingested cocaine at a rave club party 32 hours before being tested, he rendered a final, confirmed urinalysis drug test result of 151 ng/ml (a measurement calibrated in nanograms per milliliter) of cocaine metabolite. The official workplace guideline screening cut-off level having been set at 300 ng/ml and the GC/MS confirmatory cut-off level at 150 ng/ml, a POSITIVE result for the presence of cocaine metabolite was officially reported for Subject A. Now, Subject B, a fellow probationer and good friend of Subject A was at the rave club party as well; she too ingested cocaine a few minutes before Subject A did and was also drug tested on the same day as Subject A. Subject B's urinalysis produced a result that was slightly different than Subject A however; Subject B's confirmed urinalysis drug test result was determined to be 146 ng/ml of cocaine metabolite. Subject B's official test result was reported as NEGATIVE. Because of cut-off level reporting, Subject B's very recent evidence of drug use was essentially ignored and reported as being clean.

When testing for cocaine, why is the screening threshold, ergo the cut-off level pegged at 300 ng/ml and the confirmatory cut-off at 150? Shouldn't Subject B who produced a urine sample with a cocaine metabolite level of 146 ng/ml be reported out as a positive like her partying partner Subject A? Both probationers got high on cocaine at the same party, they snorted within minutes of one another, they were even drug tested at the same place and time. Subject A will face sanctions and recriminations, but Subject B moves forward with a clean slate, a clean report

that decrees that she is abiding by the rules and conditions of her probationary contract. Subject B knows quite well that she had cocaine in her system when she was tested; she also knows that she beat the system...again.

Should public safety officers, community corrections officials, addiction counselors and judicial officers be concerned about how workplace designed cut-off levels effect their testing programs? For many Newsletter readers, use of cut-off levels in urinalysis causes head scratching: it begs a discussion. A drug test should produce unambiguous results that are either positive or negative, right? Are public safety programs and the objectives of treatment and rehabilitation services best served by an arrangement that forces adherence to cut-offs in drug testing? Shouldn't a drug test result simply report an absolute truth of yes or no?

Readers with comments or questions in response to this edition of Ask the Expert should direct their communication to Lisa Mize at: [lmize@medtox.com](mailto:lmize@medtox.com)

### What is the Depth of Your Drug Knowledge?

#### A Recreational Drug for All Seasons



The subject of this month's Name that Drug is a curious, strange substance

to be sure. This drug entered the American pharmaceutical market in 1958 and had been in various stages of chemical adjustment since the mid-50's. The chemistry blueprint for this drug was remarkably similar to the molecular format established for morphine. In fact, morphologically speaking, this month's drug has a name that has obvious connections to morphine itself; however, this drug is NOT a narcotic. The drug is currently sold in compounds that are available in prescription and in over-the-counter formulas. Until a few years ago, the drug had toiled along as a medicinal workhorse in the treatment of tens of millions of needy patients, an overlooked and overworked drug that few people appreciated.

With the rapid expansion of pain management medicine in America during the late 90's, the drug got a booster shot on life. Although its role in pain management was not cutting edge news, the drug found itself combined with sustained release opiates and membrane stabilizing drugs to reduce patient need for more powerful narcotics. Depending on whom you talk to, the drug was either a pleasant surprise, or it was a wasted experiment in pain management. In some circles, the drug is still used as an adjunct to treat pain. This month's drug is chemically part of a family of medications and recreationally abused drugs that we call NMDA antagonists. Without getting you the reader wrapped around the axle of neurochemistry minutiae, let's just say that this class of drug acts as a quasi-electric barrier for some of the vital chemical messages that transmit back and forth from the brain to the spinal column. Other interesting character-drugs in this group of dissociative anesthetics ketamine and PCP, possess powerful properties as NMDA antagonists and are fellow members. PCP and ketamine have both substantiated themselves as powerful general anesthetics, although PCP is no longer in the American medical formulary, ketamine is a widely used anesthetic with special applications in pediatrics emergency medicine and surgery.

Over the past decade, this month's drug has vaulted up to the top of the law enforcement watch list due to its rapid ascent as an abused drug with populations of adolescents and young adults. For these groups, this drug is an obvious recreational drug choice due to its availability in various over-the-counter formulas. In the public eye, the drug is instantly associated with a popular over-the-counter drug that is sold in a recognizable big orange box. Ingesting 3 to 4 times the recommended clinical dose of the drug, this drug's effects take on the mixed characteristics of ketamine and LSD. Unfortunately, there are no instant urinalysis-screening devices for the detection of this drug. There have been dozens of overdose deaths associated with the abuse of the drug. In some states, the over-the-counter version of the drug is stored behind the counter under the watchful supervision of pharmacy staff.

A controversy has recently erupted over the efficacy of this month's drug for the role it has sustained as a cough suppressant. Several respected studies

have cast doubt on claims that the drugs have any power beyond that of a placebo in its direct effects. On the other hand, several more pointed studies have established that when taken in modest amounts, this month's drug can indeed reduce the potential for cough. Recreational or abusive utilization of this drug will not cause a physical drug dependency.

In over-the-counter preparations (OTC), the drug can be found in medications such as Robitussin, Coricidin and Delsym. Recreationally, this drug has carved out a role as a popular alternative in the Rave and Club drug scene. Addicts to this month's drug have flooded treatment centers throughout the country; there is not an agreed upon standard of care for those who are addicted to it. This month's drug has a unique set of effects in that it impacts neurochemical systems that regulate the actions of two very important central nervous system transmitters. Dopamine and serotonin transporter systems are both influenced by the actions of this drug. The net effect is an unusual high that is both stimulating and soothing. Users report feelings of euphoria, self-confidence and artistic sorts of self-expression. They feel cut-off from the problems of the world and are able to tune in, turn on and drop out.

Because of overdoses and deaths associated with the recreational use of this month's drug, many states now require pharmacists to store and safeguard the drug behind the front counter. Nevertheless, the drug is quite simple to purchase and abuse. To achieve a high from the consumption of this drug, it is widely believed that 3 or 4 times the average concentration of a clinical dose must be achieved. One of the chief complaints of people who abuse this drug is that a disabling nausea develops; others complain that the drug can precipitate an unending headache along with ringing in the ears (tinnitus). The low cost of this drug in its over-the-counter form makes it a great alternative choice for drug users whose budgets might be suffering from the pinch of the worldwide recession. On the street, the drug has been acquired names of DXM, DM, Dance and Robo. The drug is regularly compounded into cough preparations such as Robitussin DM and Coricidin; dextromethorphan can be purchased in a concentrated extended release liquid called Delsym.

Readers who would like more information about DXM and its physical

and psychological effects can contact  
the MEDTOX [DAR Program](#)

This month's drug: Dextromethporphan.

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