In This Issue

Does Teenage Binge Drinking Have Long Term Effects?
"Po Da Lean" Propels "Purple Drank" Popularity in Inner-City Communities
Back-to-School Alert: A "Pharm" Party Is Not a Party at a Farm
Adolescent Texting Hides Evidence of Drug Abuse
DAR Newsletter Drug of the Month: A Stairway to Heaven?

Dear Andrew,

Thank you for subscribing to the MEDTOX Journal. We hope that you find it interesting and informative. You may forward a copy on to others by clicking this box.

Send to a Colleague

If you have questions or suggestions you would like to see featured, please contact us at medtoxjournal@medtox.com

For a printer friendly PDF version of this newsletter click here:
PDF printer friendly version

"Po Da Lean" Propels "Purple Drank" Popularity in Inner-City Communities

A recent call to the MEDTOX DAR Hotline involved an Ohio caller's search to learn about the ingredients of a new canned beverage called "Drank." The caller, who is employed as a rehabilitation specialist, had claimed that several of her patients in recovery had tried the drink and found it to be soothing and relaxing. She became very
Binge drinking adolescents are two to three times more likely than non-bingers to continue this behavior into adulthood. [1] This data has onerous implications. The teenage brain is particularly plastic and is thereby very susceptible to interference caused by binge alcohol consumption. Does early consumption of alcohol affect the development of the adolescent brain? To determine if there is a relationship between binge drinking and harmful impacts on the maturing brain, researchers studied the growth and development of the brains of macaque monkeys. Their brains have remarkably similar hippocampus anatomy when compared to humans.

In the experiment cited here, young macaques aged 4-5 years (12-15 in human years) were exposed and sensitized to alcohol; they were separated into groups concerned that her patients had gotten their hands on the very dangerous concoction known widely as "purple drank." The latter is a tonic made of cough syrup, lemon-lime flavored soda, ice, and hard candies. "Purple Drank" is a dangerous drug, one capable of causing profound central nervous system depression and sedation. "Drank" on the other hand is a sparkling canned beverage that contains several herbs and vitamins that have some suggested connections with relaxation and restful sleep. It's important to understand what each product is and the roles that they may play in substance abuse and addiction.

The purple colored can containing "Drank" is speculated to be a marketing homage to the impact that "Purple Drank" is having on the younger crowd that tends to use it. The marketing mantra of Drank is "slow your roll." The beverage is stated to contain valerian root, rose hips, and melatonin. Valerian and melatonin are components of a wide array of over-the-counter drugs and nutritional supplements that are touted as sleep aids. The substances in "Drank" are non-addictive; their efficacy in "slowing the roll" however is debatable. Someone who drinks "Drank" will not trigger a positive drug test, unless of course some other drug of abuse has been mixed and drank with it.

"Po Da Lean" is a frequently repeated line found in a number of well-known hip-hop songs. "Lean" is another name for "Purple Drank," the special drug cocktail (sipping syrup) that combines codeine-based cough syrup with promethazine, lemon-lime soda, ice, and crushed up hard candies. With those ingredients mixed together in a cup, the color of the blended components turns purple or pink. The core ingredient in "Purple Drank" is the codeine-promethazine cough syrup. Also known as "Phenergan and Codeine," promethazine and codeine merges the narcotic-analgesic effects of codeine with the antihistamine and sedating effects of promethazine. The latter is a member of an antihistamine family of drugs called phenothiazines. This class of drugs includes other well-known medicines such as Compazine, Thorazine, and Stelazine. These drugs are all potent sedatives. Promethazine, by all objective measurements, is the least potent of the group.

Historically, promethazine has been used as a front line drug to reduce nausea and emesis (antiemetic). It has also demonstrated abilities to reduce and prevent cough (antitussive). Partnering promethazine with codeine is an efficient means of dealing with non-productive cough that has not responded to over-the-counter drugs like dextromethorphan. Each drug works at chemical pathways that are responsible for the cough reflex. Promethazine
of those who drank excessively and those who did so modestly. Alcohol was mated with an orange drink and the concentrations of alcohol were increased. In doing this, researchers could discern which macaques preferred higher (or lower) concentrations of alcohol. Ultimately, the group that demonstrated bias for higher concentrations of alcohol and orange drink were provided just that. Those who had low preference for alcohol received orange drink that had no alcohol in it. The group that demonstrated a tendency or preference for alcohol received it in combination with orange drink in over 200, one-hour sessions. The low preference group did not receive alcohol at all. After 11 months of this treatment, alcohol was withdrawn for 8 to 10 weeks. The animals were then analyzed.

Progenitor cells (biological structures that underpin growth and development of brain cells) were found in both brains for the drinkers and the non-drinkers. But there were significantly fewer progenitor cells in the binge drinkers compared to the non-

and codeine is relatively inexpensive to produce; generic versions of the original drug (Phenergan and codeine) are widely available.

To produce Lean, one must first come into possession of diverted cough syrup. Promethazine and codeine is a controlled substance under Schedule III of the Federal Controlled Substances Act. The underground market for the cough syrup is brisk. A pint of promethazine and codeine cough syrup can cost up to $400. The average street price hovers around $250. In some cases, plain codeine cough syrup is substituted when the combination medicine can not be found. But true aficionados of lean will testify that plain codeine syrup falls far short of the effects of real promethazine-codeine products. Typically, Lean is mixed in a two-liter plastic bottle of lemon-lime soda with four ounces of cough syrup. Crushed up hard candies can be added at any point to the blending process. It takes several minutes for the candies to dissolve in the liquid. The candies, along with the lemon-lime flavoring of the soda tend to offset what can be a nauseating taste of cough syrup. Poured over cracked ice or small ice cubes, the drug is consumed from small foam cups. True "Lean" fans drink their cocktail from a foam cup. Music videos and pictures of rap artists using "Lean" or "Purple Drank" always depicts the drug being consumed from foam cups.

The effects of "Purple Drank" and "Lean" are dose dependent. Sharing the beverage with others as it's poured from a two-liter plastic bottle, it's unlikely that a partygoer will get any more drug than what would constitute one to two doses of straight-up cough syrup. In the end though, how much any one abuser ingests is dependent on how much is shared and how many glasses of "Lean" is consumed. Users are urged to nurse their "Purple Drank." It's encouraged to drink the mix it in a fashion similar to that of a martini or "scotch on the rocks." Because both codeine and promethazine are central nervous system depressants, the effects of "Lean" can be quickly observed. Some of the signs and symptoms of "Lean" intoxication are the following:

- Constricted pupils that react poorly to changing light
- Droopy eyelids
- Raspy voice
- Slow speech; slurred speech possible at higher doses
- Nystagmus (involuntary jerking of the eyes as they track a stimulus)
- Slow heart rate (in some cases fewer than 60 beats per minute)
drinkers. Curiously, other interesting cells and features of the hippocampus were essentially unchanged between the two groups. But there were signs of neurodegeneration in the drinkers group that could not be found in the non-drinking group. These changes were striking in some instances. The changes persisted well after alcohol cessation occurred. This phenomenon is likely to occur in humans, a species with biological and evolutionary parallels to the macaques.

This study is sobering. In an analysis of brains with evolutionary biology that is similar to humans, we've learned that symptoms and effects of binge drinking persisted even after alcohol consumption is stopped. Teenagers are reckless. Their tendencies in the use of alcohol are very reckless. But maybe discussions of this research might be a clarion call for adolescents, parents and teachers to address the onerous effects associated with binge drinking. The plasticity of the adolescent brain is such that permanent and irreversible harm.

- Drowsiness
- Poor balance and coordination (at higher doses)
- Pale skin

The span of Lean's direct effects will last 3-6 hours. Some abusers metabolize the concoction quicker than others. Their highs will be closer to three hours. Drug testing for "Lean" is straightforward. Because the cocktail contains codeine, a user can be detected with a standard opiate immunoassay. A positive confirmed drug test result would reveal there to be a mix of codeine and morphine present. A percentage of codeine is converted into morphine once it enters the blood stream. Promethazine, on the other hand, will not trigger any of the modern assays found in instant testing devices. The drug can be detected at the laboratory, but scientists must be notified ahead of time to screen for the drug. Promethazine is a drug that is rarely screened for, other than in special forensic or prescription management testing formulas. Codeine from "Lean" may be detectable for up to 72 hours following last use.

"Lean" is a drug that has a devoted following in the world of hip-hop music. It has also gotten some traction with Southern Punk music. Take a short tour of the Internet and YouTube and you'll find several musical renditions where "Purple Drank" is the subject of the lyrics and the dancing gyrations. A gangster image now drives "Purple Drank." Indeed most seizures and arrests involving the drug are of some connection to gangster distribution rings. The drug is popular in those communities and cities spread out coast to coast.

For our readers working on the front lines of substance abuse and addiction, a new set of key words has been established. Keep on the look out for "Po Da Lean," "Purple Drank" and "Lean." But don't sweat "Drank."

---

**Back-to-School Alert: A "Pharm" Party Is Not a Party at a Farm**

When a child gets invited to a friend's farm party, you might picture meandering horses, slow moving cattle, clucking chickens, and a red barn. Guess again. The child is likely being invited to a pharm party. Pharm is a euphemism for pharmacy. An invited child is expected to raid the family medicine cabinet to gather up pharmaceuticals to take to the party so the medications can be shared and experimented with. Also, instead of
might be done to kids who engage in that type of partying.


Quick Links

Our Website  Products  Services  Contact Us  Past Issues

This publication is brought to you by

MEDTOX Scientific, Inc.

MEDTOX Scientific, Inc.

402 W. County Road D. St. Paul, MN 55112

1-800-832-3244

Doing all the farming from the family medicine cabinet, kids often ride their bicycles to the local grocery store and head for the cough and cold aisle. There, over-the-counter drugs can be purchased and then taken alone or mixed with other drugs (i.e., alcohol or Vicodin) to produce a recreational drug high.

The most sought-after over-the-counter medications for pharm parties contain chlorpheniramine and dextromethorphan. Both of these ingredients have been discussed in prior editions of this newsletter. Chlorpheniramine is an antihistamine that also produces a moderate sedative effect, which is why most of these over-the-counter drugs contain a warning about drowsiness and the need to use caution operating machinery. Dextromethorphan ("Dexy's," "DXM," or "DM") is a cough suppressant. When used in high doses as a recreational drug, the resulting effect is remarkably similar to that of the dissociative anesthetic class of drugs. The common indicators associated with those who abuse dextromethorphan often are the same as those exhibited by someone under the influence of ketamine or PCP (Angel Dust). When kids ingest compounds of chlorpheniramine and dextromethorphan in over-the-counter medications, they may exhibit the following signs and symptoms:

- Dilated pupils (7.0 mm in diameter or greater)
- Rapid resting heart rate (90 beats per minute or more)
- Increased blood pressure (140/90 and above)
- Dry mouth
- Slow or slurred speech
- Poor balance
- Blank stare-disconnected from surroundings
- Flushing of the face and upper torso

Adult users of dextromethorphan products frequently engage in poly-drug use, combining it with marijuana (cannabis), alcohol, Ecstasy (MDMA), methamphetamine, or prescription medications, such as Vicodin, Oxycontin and Soma. At present, neither dextromethorphan nor chlorpheniramine are scheduled under the Federal Controlled Substances Act. Dextromethorphan is the more commonly abused drug of this over-the-counter "cough and cold" duo. It is unclear if the current levels of abuse will be sufficient enough to compel regulators to assign it to some level of status in the Controlled Substances Act.
Adolescent Texting Hides Evidence of Drug Abuse

How fluent are you in the syntax and argot of adolescent Internet and texting dialogue? Modern teenagers are a fairly lazy lot, and as a result, have established their own Morse code to communicate by email and texting. A great deal of their effort has been at creating a vocabulary that is comprised of slang and special characterizations of the keyboard. For instance, do you know what W33d means? It's code for "weed," also known as marijuana. How about SWED? It means "smoke marijuana every day." Or have you ever seen a teenager's text message that goes something like this, "Are you anywhere?" That's code for "do you smoke marijuana?" Or how about, "Do you have any artillery?" That's code for "do you have drug injection paraphernalia?"

An adolescent's cell phone or computer can be under the radar to parents. Parents, teachers and adults who have responsibility for kids must be sensitive to the way kids communicate their use of drugs. Further, predatory adults and drug dealers are in tune with these methods of communication and they easily make the translations necessary to gain their trust and business. Fortunately, there is help for adults who want to get control over this situation. The Partnership for a Drug-Free America shows that one-third of parents are concerned that computers and texting are making it harder for them to communicate and deal with their kids. And this is happening at a time where kids seem to be deeply engaged with an entertainment media that is focused on sex and drugs. Exacerbating parental concerns is the publication of a survey by the National Center on Addiction and Substance Abuse at Columbia University indicating that a quarter of public middle school and high school students say that drugs and gangs are both present on their campuses. These numbers are troubling in others ways, too. Forty-six percent of teens in public schools report the presence of gangs and drugs; only 2% of kids at private and religious schools report the same. Joseph Califano is the chairman and founder of the center at Columbia University. He notes that the "most disturbing finding" is that one in
three middle school students say drugs are used or sold at their school.

And although some researchers disagree with Califano about the seriousness of these numbers, the bottom line is that kids are seemingly mired in a culture that is significantly influenced by drugs. And because kids are kids, the methods and technologies that they use to communicate should be starting points for adult supervision and vigilance. A variety of websites have popped up to help adults get a grip on what is going on with kid Morse code. Several effective web services include www.noslang.com and www.teenchatterdecoder.com. There are software packages, such as PC Tattletale, that can provide parents with Internet monitoring capabilities as well. In a world so dominated by digital communication, parents need a variety of different strategies in order to keep children safe.

MEDTOX provides its voluntary school-based drug testing programs with special teams of lecturers and parent-student presentations. These MEDTOX experts deal specifically with middle school and high school substance abuse problems. Readers interested in obtaining more information about that program should contact MEDTOX at medtoxjournal@medtox.com with the subject line "Text Pages and Kids."

DAR Newsletter Drug of the Month: A Stairway to Heaven?

This edition’s mystery drug is a substance that evokes painful memories for its users; the same can also be said for police officers and other public safety personnel who came into contact with the users. This drug has been darting in and out of the American drug scene for over 40 years, its popularity moving up and down in synch with the fortunes of club and designer drugs. At present, the drug can be found on the streets of most large American cities, but it is more difficult to acquire in suburban areas and the countryside. This edition’s drug is not for the faint of heart. In fact, younger people predominantly abuse the drug. The wear and tear of this drug, both physical and psychological, is too much for older adults to handle. This drug is typically
smoked, but there are other methods of ingestion that vary with the habits and traditions of local drug scenes.

The drug was first synthesized in the mid 1950s as an unintended consequence of a laboratory experiment. On March 25, 1956 1-piperidinocyclohexanecarbononitrile was treated with phenylmagnesium bromide. This product was then cooled and hydrolyzed. Further efforts at purifying the substance created 1-(1-phenylcyclohexyl) piperidine hydrobromide. The arcane chemistry cited here holds a powerful clue as to the drug’s identity. Dr. V. Harold Maddox, working at Warner Lambert/Parke Davis, led the investigation into this chemical and was later startled and mystified at the extent to which the drug was abused. The pharmacological study of this drug began in earnest in the fall of 1956. The drug was found to have powerful effects in both the central and peripheral nervous systems. In animal studies, the drug was found to have effects that were dose dependent. In low doses, guinea pigs treated with the drug would not squeak when held. In higher doses, mice would become cataleptic and incapable of holding on to the metal bars in their cages. In higher doses yet, the drug produced serious seizures. In humans, many of these same effects are seen when this drug is used recreationally.

This month’s drug entered the world of medicine as a product called Sernyl. The drug was used prominently as a general surgical anesthetic (big clue!). The drug worked well as a general surgical anesthetic. Surgeons and anesthesiologists were impressed that while under anesthesia, patients' blood pressure and other physiological processes were easy to maintain. Variants of this drug were created for use in veterinary medicine. Chemical second cousins of this drug are still in use today by veterinarians. Unfortunately, these veterinary drugs are diverted for recreational drug abuse too. Ultimately, humans emerging from surgery where Sernyl was the general anesthetic agent utilized were observed to experience a number of onerous effects. It was common for patients in the recovery room to become agitated, confused and difficult to communicate with. This sort of reaction to anesthesia posed obvious threats to patients who had just undergone major surgical procedures. The side effects of the drug ultimately doomed it. By the early 70s, the drug had been removed from the market. The veterinary formula continued in use for some years in the United States.

As a recreational drug of abuse, the substance did not appear on the radar until Sernyl was “black boxed" and
pulled from the market. By the mid 70s, the drug had been the subject of close study by a variety of scientists and researchers. Its properties were described as that of a dissociative anesthetic. When used by recreational drug abusers, the effects that are experienced are really no different than those felt by patients coming out of surgery. The drug effectively cleaves the body into two functional parts, parts that do not communicate well with one another. This phenomenon is responsible for many of the objective symptoms seen with people who are under the influence of it. For instance, someone high on the drug would often be described as catatonic, exhibiting a blank stare, non-communicative or moved about as if he/she was "moon walking." In short order, police were able to quickly evaluate people and identify them as being under the influence of the drug because of these very prominent and predictable symptoms. But at the doses ingested by the recreational user, the symptoms did not stop with catatonia.

For police and public safety personnel, this month's drug quickly became the pariah of all drugs of abuse. It obtained quixotic street names, one of which was (and still is) "angel dust." This drug was quickly associated with violent police confrontations, many of which ended up in serious injuries for all involved parties. Suspects under the influence of "angel dust" frequently drowned in pools. Suspects "dusted" on angel dust routinely got very warm; their body temperatures soared. To cool off, users would jump into pools, ponds and oceans. The drug caused users to mistake down for up and up for down when they swam. As a result, angel dust users would swim to the bottom of a pool thinking that they were actually swimming up towards air. Sadly, users would be found dead at the bottom of pools where they had clawed helplessly to get out. Other angel dust users were victims to electrocutions and pedestrian versus automobile accidents.

Because of the drug's pharmacological properties, users were impervious to pain. The characteristics that propelled it to be a good general anesthetic now made it a sinister threat to public safety. On the street, this drug was and still is typically found in a liquid form. The liquid is then sprayed or treated onto material that can be burned and smoked. In some parts of the country, the liquid is sprayed onto mint leaves. The mint leaves are then dried and smoked; sometimes the mint material is added to a marijuana cigarette and the two are smoked together. In other locales, cigarettes are dipped into a bottle containing the liquid, allowed to dry and then smoked. The liquid that suspends the drug is rather unique; it emits the
strong odor of petroleum ether. This prominent smell attaches to the cigarettes, mint leaves and marijuana "joints" used to smoke it. The strong ether odor also affixes itself to the people who smoke a dipped cigarette as well. Police officers have found the presence of the ether odor to be a reliable indicator that any given suspected individual was in fact a user of this drug. In the liquid phase, this drug is easily and rapidly absorbed through the skin. If a police officer or bystander were to be splashed with the liquid, he/she would have to quickly wash off the liquid in order to avoid an absorbed or "contact high." For obvious reasons, lab technicians and other analysts involved with the processing of the drug as evidence had to be extremely careful in its handling.

By now, the reader has been dealt a series of powerful hints as to the nature and identity of this edition's drug. But for those who are still scratching their heads about its identity, here are a few more clues to mull over. For people under the influence of this drug, there are a constellation of signs and symptoms that are classic indicators of its use. For police officers, rapid evaluation and determination of drug influence is paramount. Under the influence of this drug, users would wildly swing back and forth between states of agitation and somnolence. When angry or startled, users sometimes reacted very violently. Because the drug is a dissociative anesthetic, users rarely feel pain, particularly pain caused by a police baton or pepper spray. Control holds are not real effective when dealing with someone who is rabidly high. Users who are shot rarely felt the pain of their wounds. They would fight on until they literally bled out. For police officers, there was no more dangerous a drug-using suspect than someone using this drug. To this day, veteran police officers all have a story or two to tell about a violent encounter with a suspect who was later proven to be under the influence of this drug. For some officers, their most violent confrontations of a career occurred with people who were high on it.

More classic symptoms of this drug included the phenomenon known as nystagmus. Use of the drug has pronounced effects on the small muscles that control the movement of the eye (left and right and up and down). People under the influence of the drug will exhibit very noticeable bouncing of the eyes as they track a moving object. In some cases, this sign is so obvious that the eye can be seen bouncing when at rest. Some of the other more obvious effects of the drug are the following:

- Blank stare
- Droopy eyelids
- Profuse sweating
- Inability to talk
- Very slow movements of arms and legs
- Taut skeletal muscle

Sound like a fun high so far? For the human brain, the pharmacology of this drug is not much fun. The effects of this drug on the brain are still not fully understood. Researchers do know that it is one of a very small family of chemicals that are classified as sympathomimetic (stimulates the sympathetic nervous system) general anesthetics. It achieves its mission by antagonizing NMDA receptors in the central nervous system. It also has binding affinity with the dopamine transporter complex and nicotinic acetylcholine receptors. These contradictory effects in the central nervous system are responsible for the bizarre signs and symptoms exhibited by people who are under the influence of the drug. The high from this drug will persist for 4-8 hours; lingering effects may persist for an additional 12 hours. The drug can be found in urine for up to 72 hours following last dose.

Following a nearly decade hiatus from the front lines of drug abuse, it is back on the street again in most big American cities. The angel dust name has stuck. Those people who are users of the drug are called "dusters."

This month's drug is manufactured in and by underground laboratories. More often than not, these labs are set up and operated right in the middle of otherwise sleepy neighborhoods. The chemicals needed to make the drug are highly flammable; they're prone to exploding and starting fires. The labs emit a very strong odor of ether. Depending on the phase of laboratory operations involved, there may be additional odors of "rotten eggs" or that of a "urine-saturated diaper." To say the least, the odors from these labs are hard to miss. Most labs uncovered by police are discovered by enterprising cops who chased down a trail of unusual odors to its source. When discovered, specially trained hazardous materials crews are needed to dismantle it.

This month's drug: PCP, 1-(1-phenylcyclohexylpiperidine)