

# Toxic Wastelands: Salt Ponds, Gravel Pits and Molly- Realms

*Treating the Modern-Day drugs of abuse*

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“All things are poisons, for there is nothing without poisonous qualities. It is only the dose which makes a thing poison.”

— Paracelsus

# Questions to Answer

- 1) What are the modern-day drugs of abuse, and what risks do they pose for the patients?
- 2) Do you need to know what intoxicant the patient ingested to treat them definitively?
- 3) Can a patient's presenting signs and symptoms adequately tell us what class of intoxicant the patient ingested and how to treat it?
- 4) What are the safe options for treating these patients and keeping them from harming you and your partners?

# THE PROBLEM

Drug abuse in the US is becoming a more pervasive problem.

Drugs of abuse are now highly varied, but can be broken down into several classes.

Often patients have multiple classes of drugs in their system, which may have competing effects.



# NHTSA DATA

Drug use reported in the U.S among fatally injured drivers:

-13% in 2005

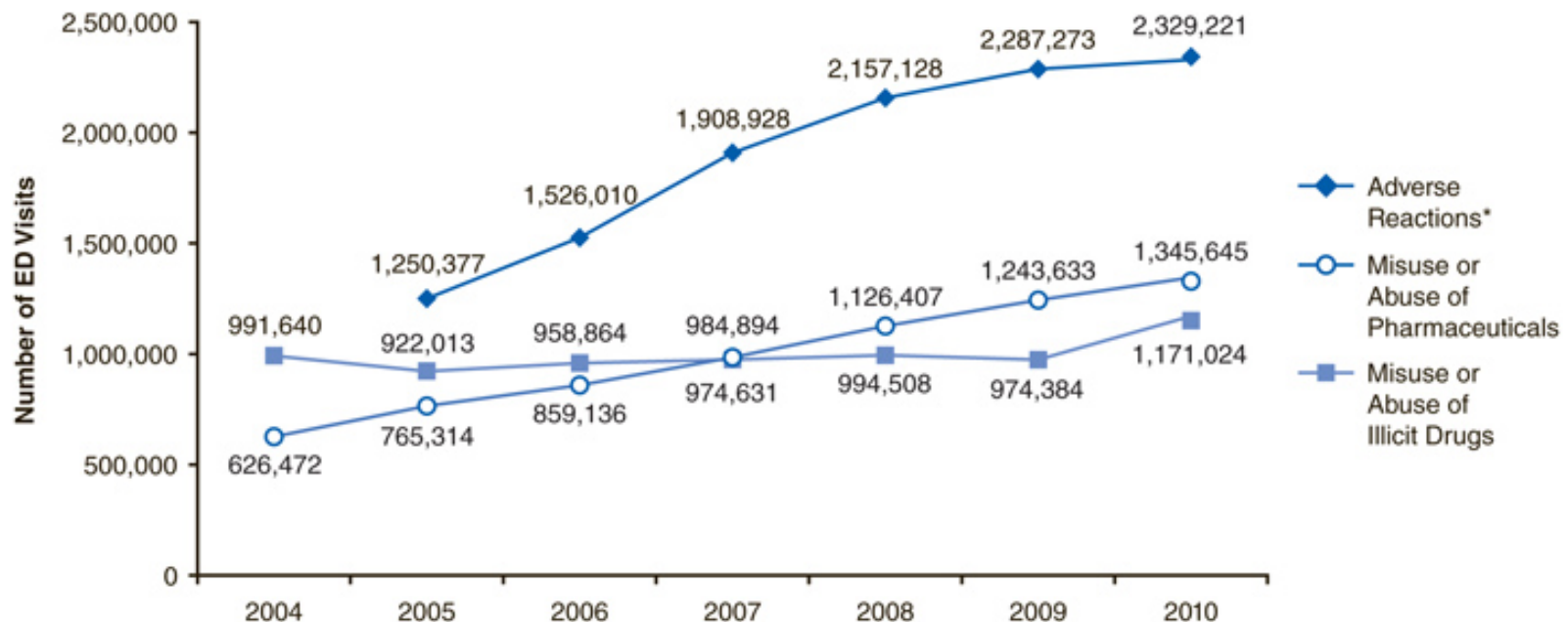
-15% in 2006

-16% in 2007

-18% in 2008

-> 20% in 2014

# Number of Drug-Related Emergency Department (ED) Visits, by Type of Visit: 2004 to 2010



\* Estimate for 2004 suppressed due to low statistical precision.

Note: Estimates may be slightly different from those reported in previous years due to updating of DAWN's drug categorization system and resultant reassignment of drugs to drug codes. Rates may change due to changes in intercensal population estimates. For further information on the DAWN drug lexicon and updating process, see <http://www.samhsa.gov/data/DAWN.aspx>.

Source: 2010 SAMHSA Drug Abuse Warning Network (DAWN).

# US STATISTICS (2009)

1.5 Million Emergency Department visits were associated with drug use/abuse.

56% of those were due to illicit drug use/abuse.

600,000 were due to non-medical use of prescription or OTC medications.

# WHAT IS A DRUG OF ABUSE?

For our purposes; **any substance that when taken into the human body can impair that person's reasoning, coordination and thought processes.**



# CLASSES OF DRUGS OF ABUSE

CNS depressants

CNS stimulants

Hallucinogens

Dissociative anesthetics

Narcotic analgesics

Inhalants

Cannabinoids



# CNS stimulants

Cocaine

Amphetamines

Methamphetamines

Mephedrone

Bath salts (MDPV)

Benzo Fury (5-IT)

Crazy Clown(E4279)

Gravel (Alpha-PVP)

Bromo-Dragonfly

Smiles and NBOME



1998



2002

# Medical effects of CNS stimulants

1) Stimulants are substances that increase, or stimulate the normal activity of the central nervous system.

2) In other words, they increase the normal level of awareness, alertness and energy in one's mind and body.

3) They function by increasing the output of endogenous catecholamines in the patient's system and create an "overdrive" type of situation.

1) Hypertension and tachycardia

2) Apnea, dysrhythmia, or cardiac arrest

3) Seizures, confusion and/or severe agitation

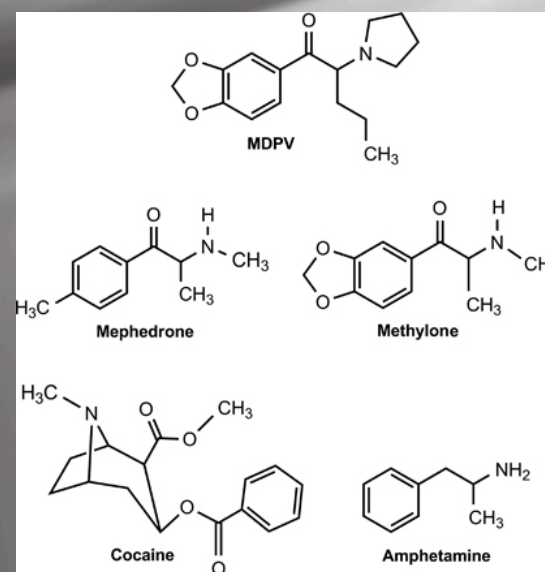
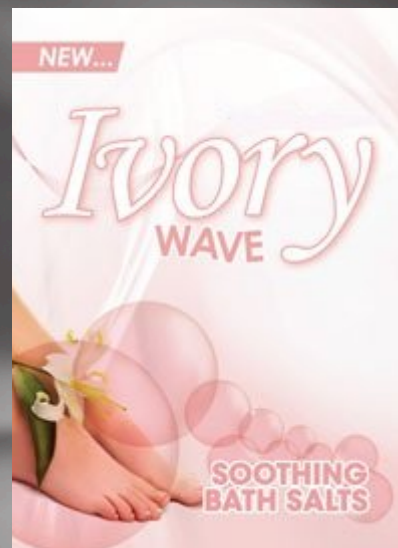
4) Hyperthermia and rhabdomyolysis

# Bath salts (MDPV)

Ivory Wave, Red Dove, Bliss, White Lightning Hurricane Charlie, and Vanilla Sky.

Cathinone (khat), the parent substance of the drugs, comes from a plant grown in Africa and is regulated.

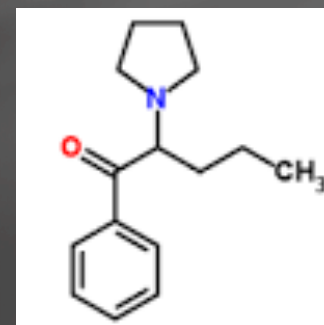
The powders or salts often contain: mephedrone and methylenedioxypyrovalerone, also known as MDPV.



# Gravel (Alpha-PVP)

Alpha-PVP, patented in 1967, is a substituted cathinone that is structurally related to MDPV and pyrovalerone, which have been shown to affect dopamine and norepinephrine in the body.

The pharmacological mechanism of action for alpha-PVP is thought to be similar, but it is unknown at this time.





# Bromo-Dragonfly

Bromo-Dragonfly also known as DOB-Dragonfly, is an extremely potent and long acting psychedelic amphetamine.

Reports suggest psychoactivity may last as long as 36 hours after consumption. The onset of orally dosed Bromo-Dragonfly is typically reported to be very slow, often taking several hours before psychedelic effects are felt.

A user may alternate between states of lucidity and extreme psychedelic intoxication multiple times during the experience.

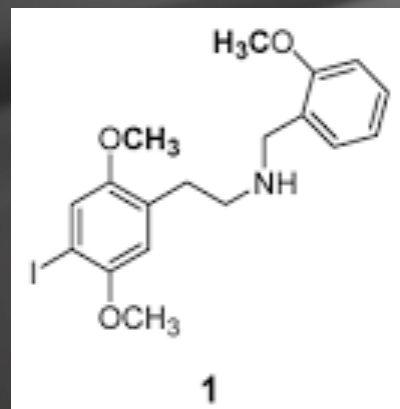




# Smiles and NBOME

Similar to a street drug known as N-bomb, both Smiles and N-bomb are derived from a psychedelic drug discovered in 2003 known as 25I-NBOMe.

At least five deaths in the U.S. had been linked to 25I-NBOMe (Smiles) as of mid-2013. Available in pill, liquid, or powder form, Smiles can cause hallucinations, seizures and panic attacks.



# General indicators of CNS stimulants

Restlessness

Anxiety

Euphoria

Excitation

Body tremors

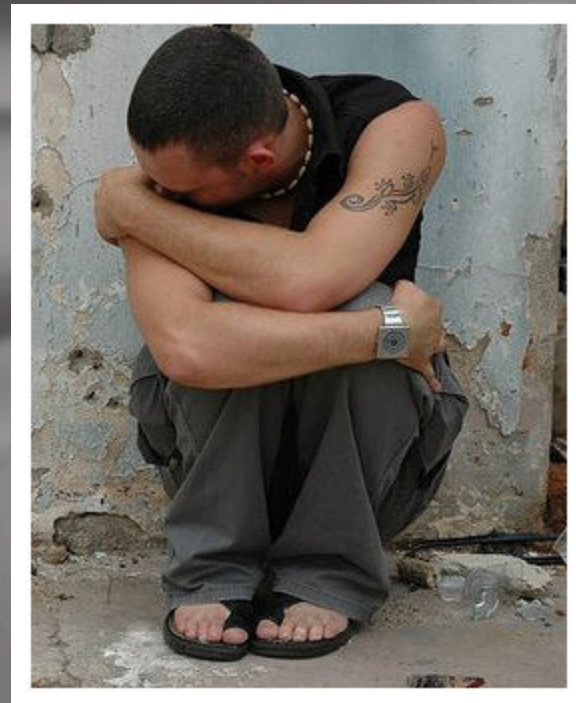
**Bruxism**

Exaggerated reflexes

Insomnia

Agitated delirium

Seizures



# Hallucinogens

Peyote

Psilocybins

LSD

MDMA(Ecstasy/Molly)

Bufotenine

2C-E/2C-B

Antihistamines



# Medical effects of Hallucinogens

- 1) Many hallucinogens have chemical structures similar to those of natural neurotransmitters (e.g., acetylcholine-, serotonin-, or catecholamine-like).
- 2) While the exact mechanisms by which hallucinogens exert their effects remain unclear, research suggests that these drugs work, at least partially, by temporarily interfering with neurotransmitter action or by binding to their receptor sites.
- 3) Distributed throughout the brain and spinal cord, the serotonin system is involved in the control of behavioral, perceptual, and regulatory systems, including mood, hunger, body temperature, sexual behavior, muscle control, and sensory perception.



# Medical effects of Hallucinogens

- 1) Can raise body temperature and increase heart rate and blood pressure
- 2) Can produce uncoordinated movements (ataxia), profound sweating, and flushing.
- 3) At high doses, blood pressure, pulse rate, and respiration drop.
- 4) At high doses, excited delirium and seizures can occur.



# Molly

A new and refined variant of Ecstasy or MDMA, and users frequently believe Molly is safer than that popular drug.

The DEA, however, has listed it as a dangerous Schedule I controlled substance and the use of Molly can — like Ecstasy — cause users to become confused and unable to regulate their body temperature, heart rate or breathing.



# General indicators of Hallucinogens

Dazed appearance

Body tremors

Perspiring

Paranoia

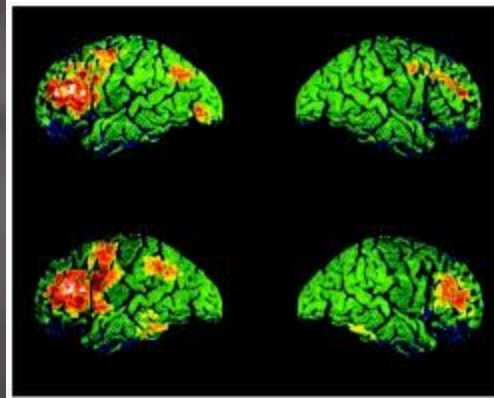
Disorientation

Nausea

Piloerection

Synesthesia

Hallucinatory statements



# Narcotic Analgesics

Heroin

Oxycontin

Morphine

Codeine

Vicodin

Percocet

Methadone

Demerol

Fentanyl



# Medical effects of Narcotic Analgesics

- cold, clammy skin
- extremely small pupils
- serious difficulty breathing or extremely slow breathing
- extreme sleepiness or unresponsiveness
- confusion
- severe dizziness
- slow heartbeat
- low blood pressure
- severe nervousness or restlessness



# Acetyl Fentanyl

A new synthetic opioid drug **five times more potent than heroin**, and was never marketed for medical use. Is being used to “cut” heroin to give users a more rapid effect.

This drug first surfaced on the radar of law enforcement in 2013, after a CDC advisory attributed 14 overdose deaths in Rhode Island to acetyl fentanyl use.

Dozens of additional deaths have since been reported in Pennsylvania, Louisiana and North Carolina.





# Cannabinoids

Marijuana

Hashish

Hashish oil

DAB, etc.

"Spice/K2/Citron"

- synthetics



# Medical effects of Cannabinoid use

- 1) Cannabinoids affect the user by interacting with specific receptors, located within different parts of the central nervous system.
- 2) Interactions tend to occur in our limbic system (memory, cognition and psychomotor performance) and mesolimbic pathway (associated with feelings of reward) and are also widely distributed in areas of pain perception.

# DABS, Budder, Shatter, Wax, Honeycomb

“bho (butane hash oil)”,  
a marijuana product  
extracted from the plant  
and concentrated into a  
smokable oil.



# Cannabinoids: The Next Generation

Legal in multiple states.

Available by mail order to  
ALMOST ANY state in the US.

Colorado reported a 4X increase  
in peds patients with THC  
intoxication since legalization.

These forms can be more long  
lasting then the inhaled variety  
and patients tend to use multiple  
forms at the same time.





# Medical effects of Synthetic Cannabinoid use

**Synthetic cannabis** is an herbal and chemical product which mimics the effects of cannabis. When synthetic cannabis products first went on sale it was thought that they achieved an effect through a mixture of legal herbs.

Laboratory analysis in 2008 showed this was not the case and that they in fact contained synthetic cannabinoids which act on the body in a similar way to cannabinoids naturally found in cannabis, such as THC.

These effects include agitation, anxiety, nausea, vomiting, tachycardia, elevated blood pressure, tremor, seizures, hallucinations, and paranoid behavior.



# TREATMENT:

- 1) Chemical restraint and sedation (as needed)
- 2) Airway management
- 3) Rapid IVF hydration
- 4) Correction of acidosis
- 5) Temperature management
- 6) Naloxone (?)



THE "VALENZUELA" SPECIAL

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# SUMMARY

There are multiple “street drugs” being used, but they can be broken down into their specific classes.

Many patients may have multiple drugs in their systems and they can present with a confusing picture.

Safe sedation, chemical restraint and supportive care is paramount for the safety of the patient and health care providers.

This includes the rapid correction of electrolyte abnormalities, acidosis and temperature management which is critical for patient survival.

# SUMMARY

Anyone can be at risk, so staff safety should always be considered.

While prescription drug abuse is one of the most rapidly rising trends in this country, most of the modern-day drugs of abuse are in the CNS stimulant/hallucinogenic classes.

A good history and presenting signs/symptoms may be your best ally in this situation.





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