



Synthetic Drugs and Natural Substances

Pat Pizzo – Director of Toxicology
Alere Toxicology Services

Who am I?

- Director of Toxicology at Alere
- In the field for 47 years
- Original training and experience was with the FBI crime laboratory in WDC
- Qualified as an expert in Forensic Toxicology in 20 states
- Guest speaker on many radio talk shows and featured in newspapers and magazines
- Authored and co-authored several articles that have appeared in the United States and abroad
- Member of international Organization to establish Drug testing Policies for the Oil and Gas Industry World wide
- Former Member of the Federal Drug Testing Advisory Board



Pat Pizzo

Synthetic Cannabinoids



Drug Enforcement Administration; www.dea.gov

What are these compounds?

- These chemicals are called cannabinoids because they are related to chemicals found in the marijuana plant
 - Synthetic cannabinoids are sometimes misleadingly called "synthetic marijuana" (or "fake weed")
 - They are often marketed as "safe," legal alternatives to Marijuana
 - In fact, they may affect the brain much more powerfully than marijuana; their actual effects can be unpredictable and, in some cases, severe or even life-threatening
 - Synthetic cannabinoid products are often labeled "not for human consumption"
 - Labels also often claim that they contain "natural" material taken from a variety of plants. However, the only parts of these products that are natural are the dried plant materials
- Over 450 synthetic marijuana compounds exist
 - The potential to make more is real
 - Federal guidelines have banned 25
 - Multiple emergency temporary bans since the original law was published

How do these plants effect the user?



Lion's Tail

- Euphoria

Baybean

- Starry eyed
- Smooth smoke

Blue Lotus

- Like Viagra

Pink Lotus

- Euphoria

Dwarf Skullcap

- Relaxing effect

Siberian Motherwort

- Cannabinoid like effect
- Narcotic effect in animals

Maconha Brava (False Marijuana)

- Sedative

Indian Warrior

- Tranquilizer
- Aphrodisiac

Statistics and Trends

“Monitoring the Future” Study: Trends in Prevalence of K2/Spice (Synthetic Marijuana) for 8th Graders, 10th Graders, and 12th Graders; 2016 (in percent)*

Drug	Time Period	8th Graders	10th Graders	12th Graders
K2/Spice (Synthetic Marijuana)	Past Year	2.70	3.30	3.50

Decrease from 2015; NIDA bulletin

Synthetic cannabinoids is now the **third most reported substance used by U.S. high school students.**

- 2013 Center for Substance Abuse Research (CESAR FAX)

Statistics and Trends (continued)

- A report showed synthetic marijuana sent 11,406 people to the emergency room in 2010. 2/3 between the ages of 12-26. SAMHSA – The DAWN Report Dec. 4, 2012
- A 2013 U.S. government report found the number of emergency department visits in 2011 involving toxic reactions to synthetic marijuana had increased 2.5 times, to 28,531. SAMHSA – The CBHSQ Report Oct. 16, 2014
- In 2014, “K2” from a Texas dealer was linked to 120 overdoses in Austin and Dallas in one week alone. http://www.huffingtonpost.com/2014/05/07/synthetic-marijuana-overdoses-texas_n_5280792.html
- There have been numerous fatal car accidents documented involving people under the influence of synthetic marijuana. Seattle Times – March 7, 2016
- Poison centers received 2,668 calls about exposures to these drugs in 2013, 3,682 exposures in 2014, and 7,794 exposures in 2015.
American Association of Poison Control Center
- First 2 months of 2017 – 336 incidents. American Association of Poison Control Center



Acute Poisonings from Synthetic Cannabinoids

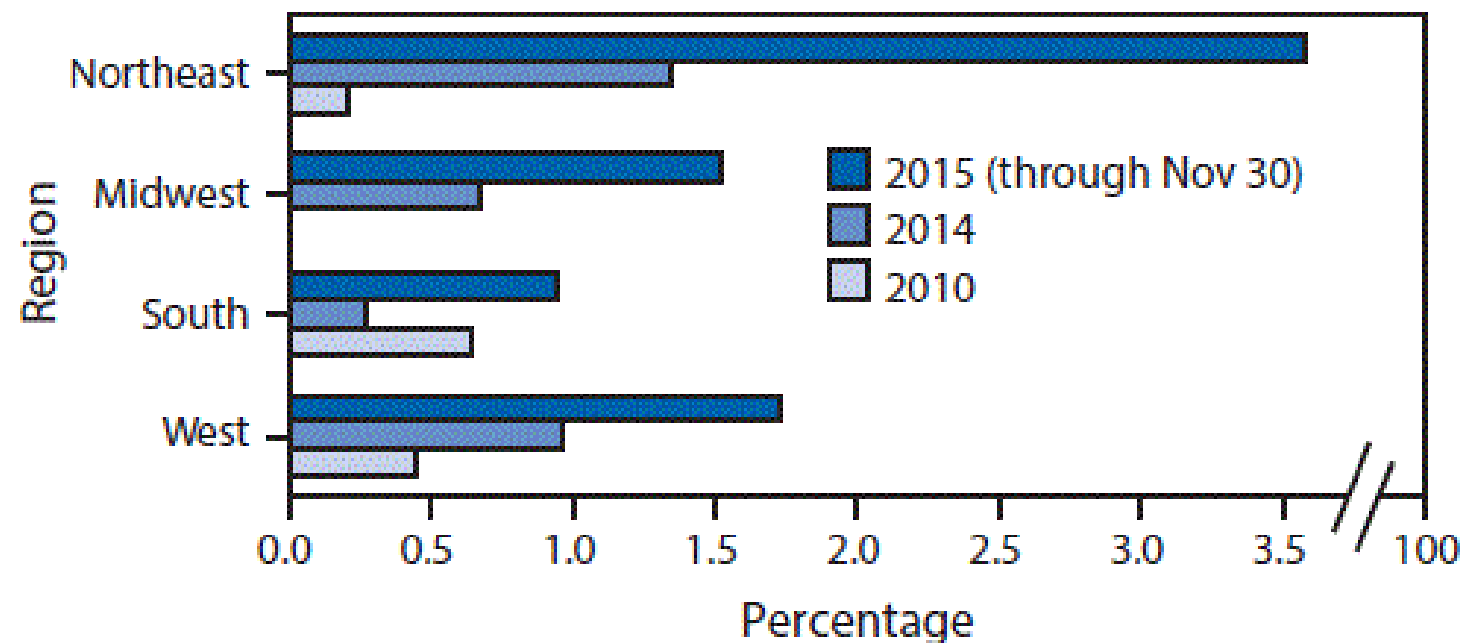
- 1/1/2010–11/30/2015, 456 cases involved synthetic cannabinoids
- Among all 456 synthetic cannabinoid intoxication cases, 70.6% occurred in persons aged 19–65 years and 27.4% occurred in persons aged 13–18 years; 83.1% patients were male
- In 91.0% cases, the patient had clinical signs or symptoms of intoxication
- 61% of patients who reported synthetic cannabinoids as the sole toxicologic exposure experienced central nervous system
- These included agitation, central nervous system depression/coma, and delirium/toxic psychosis, with seizures and hallucinations
- 3 deaths were recorded

CDC publication: Anne M. Riederer et. al



Acute Poisonings from Synthetic Cannabinoids (continued)

- During 2010–2015, the annual percentage of synthetic cannabinoid cases among sites increased in all four U.S. Census regions
- During 2014–2015, the annual percentage increased in all regions except the South



CDC publication: Anne M. Riederer et. al

Synthetic Cannabinoid Product Use

Use pattern by current users	
Daily	1
5-6 days/week	0
3-4 days/week	4
1-2 days/week	0
1-3 days/month	5
Amount spent per week by current users (n=10)	
Mean	\$16.00 (SD 13.1)
Median	\$17.50
Range	\$0 - 40
Age of first use, median years (range)	23 (16-44)
Reasons for use, n (%):	
Try new high	14 (67)
Avoid positive drug test	12 (57)
Friend using it	11 (52)
Couldn't get MJ	10 (48)
Easy to obtain	10 (48)
Cheaper than MJ	8 (38)
Similar MJ high	7 (33)
Decrease irritability if no cannabis	4 (19)
Other: "accidental"	1 (4)

EW Gunderson - 2014

Short Term Effects of Synthetic Cannabinoids



Effects on the Mind:

- Unresponsiveness
- Loss of consciousness
- Confusion
- Altered time sense
- Extreme anxiety
- Panic attacks
- Severe paranoia
- Delusions
- Hallucinations
- Psychosis
- Potential suicide
- Some users have been involved in homicides

Effects on the Body:

- Nausea and vomiting
- Heavy sweating
- Uncontrolled/spastic body movements
- Acute kidney injury
- Rapid heart rate
- High blood pressure
- Reduced blood supply to the heart
- Heart attack
- Convulsions
- Seizures
- Strokes

Health Effects of Synthetic Cannabinoids



- Rapid heart rate
- Vomiting
- Violent behavior
- Suicidal thoughts
- Raised blood pressure
- Reduced blood supply to the heart
- Kidney damage
- Seizures

Are Synthetic Cannabinoids addictive?

- Yes, synthetic cannabinoids can be addictive. Regular users trying to quit may have the following withdrawal symptoms:
 - Headaches
 - Depression
 - Anxiety
 - Irritability

Why are Synthetic Cannabinoids so popular?

- Chemical compounds mimic effects of THC, but may be 4 to 100 times stronger than marijuana
- Easily modified chemical structures allow “chemists” to stay in front of DEA regulations.
Some newer generation products still legal
- Easily distributed and accessible online
- Not typically ordered on routine lab test panel

NFLIS 2016 – Mid-year Report for Synthetic Cannabinoids

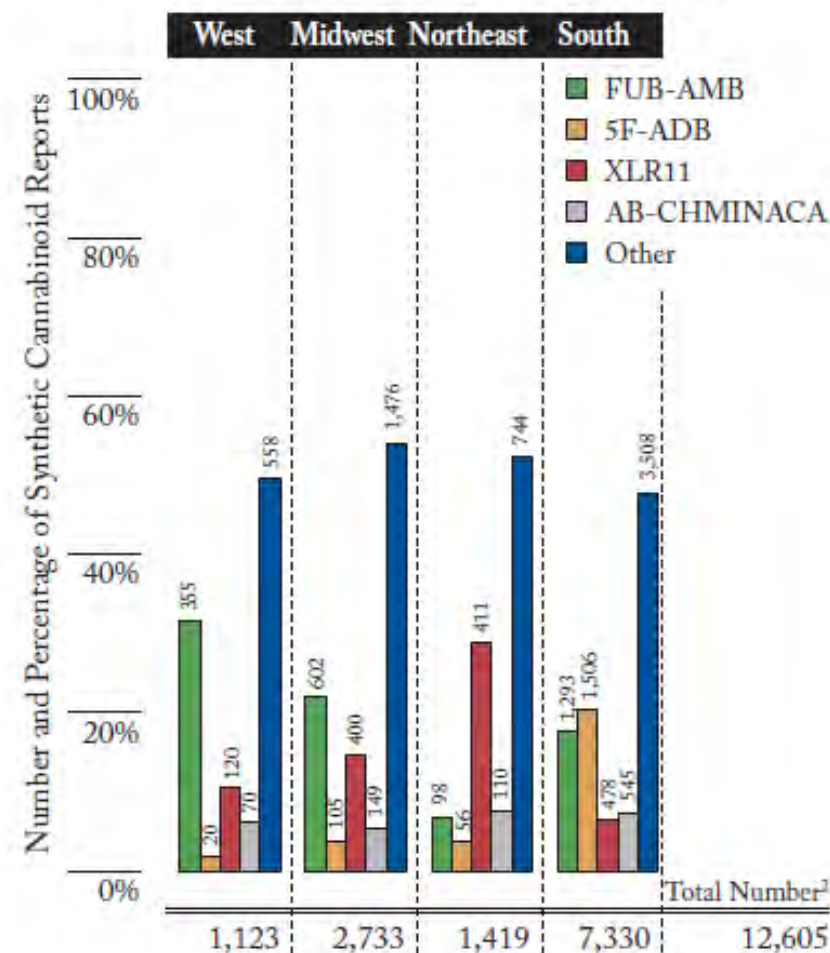
Table 2.5

SYNTHETIC CANNABINOIDS

Number and percentage of synthetic cannabinoid reports in the United States, January 2016–June 2016¹

Synthetic Cannabinoid Reports	Number	Percent
FUB-AMB	2,349	18.63%
5F-ADB	1,687	13.38%
XLR11	1,409	11.18%
AB-CHMINACA	874	6.93%
5F-AMB	821	6.51%
AB-FUBINACA	771	6.12%
MAB-CHMINACA	601	4.77%
ADB-FUBINACA	418	3.31%
NM2201	309	2.45%
MDMB-FUBINACA	253	2.00%
AB-PINACA	243	1.93%
5F-AB-PINACA	185	1.47%
AKB48 N-(5-fluoropentyl)	124	0.98%
MDMB-CHMICA	102	0.81%
FUB-PB-22	77	0.61%
Other synthetic cannabinoids	2,382	18.90%
Total Synthetic Cannabinoid Reports²	12,605	100.00%
Total Drug Reports	795,871	

Figure 2.5 Distribution of synthetic cannabinoid reports within region, January 2016–June 2016¹



Source: National Forensic Laboratory Information System (NFLIS)
2016 Mid—Year Report, pg 18; <https://www.nflis.deadiversion.usdoj.gov/Reports.aspx>

Pretrial Services, Washington DC – Monthly Reports

November 2016		
Positives	71	98.61%
Negatives	1	1.39%
Total	72	100%

December 2016		
Positives	68	97.15%
Negatives	2	2.85%
Total	70	100%

	Number of Positives	Percentage of total samples	Percentage of Positive Samples
AB Pinaca Metabolites	3	4.16%	4.23%
UR-144 Metabolites	65	90.28%	91.55%
5FPB22 Metabolites	18	25.00%	25.35%
AB Chminaca Metabolite	4	5.56%	5.63%
AB Fubinaca Metabolite	7	9.72%	9.86%
XLR-11	10	13.88%	14.08%
PB22 Metabolite	2	2.78%	2.82%
BB22-3 Metabolite	6	8.33%	8.45%
JWH 018 5 Pentanoic Acid	4	5.56%	5.63%
AB Pinaca N (4-hydroypentyl)	1	0.14%	0.14%
ADB-Pinaca Pentanoic Acid	1	0.14%	0.14%
AKB 48 N-Pentanoic Acid	1	0.14%	0.14%
JWH 073 N-Butanoic Acid	1	0.14%	0.14%

	Number of Positives	Percentage of total samples	Percentage of Positive Samples
AB Pinaca Metabolites	6	8.57%	8.82%
UR-144 Metabolites	61	87.14%	89.71%
5FPB22 Metabolites	6	8.57%	8.82%
AB Chminaca Metabolite	1	1.43%	1.47%
AB Fubinaca Metabolite	4	5.71%	5.88%
XLR-11	9	12.86%	13.24%
PB22 Metabolite	3	4.29%	4.41%
BB22-3 Metabolite	1	1.43%	1.47%

www.psa.gov Resources/reading room
https://www.psa.gov/?q=resources/reading_room

Compound	Duration of Effect
THC- Cannabinoids	2-4 hours
JWH-018	1-2 hours
CP47,497	5-6 hours
HU-210	~24 hours

Dr. Robert Kronstrand, SPFT WS9, Oct 2013 (1)

Alere Toxicology Stats for 2016

- 53380 specimens tested
- 0.55 % positive rate
- Drugs detected in order of most common
 - UR – 144
 - JWH – 018
 - JWH – 073
 - AB – PINACA
 - BB22 – 3CI

Federal Law — Synthetic Cannabinoids as of 7.9.12

- In July 2012, President Obama signs Synthetic Drug Abuse Prevention Act,⁽¹⁾ instituting federal ban on 31 designer drugs
- The original ban identified 15 synthetic marijuana drugs and 5 drug classes as Schedule 1 drugs
- A conviction could bring serious criminal penalties for possession or sale—now punishable for up to 20 years in prison
- Also increased the duration of time for emergency control

(1) 112th Congress 2d Session, S.3190. May 16, 2012.
A bill to amend the Controlled Substances Act to place synthetic drugs in Schedule I.



Federal Law Banning Synthetic Cannabinoids

- The Synthetic Drug Abuse Prevention Act signed into law July 2012, bans five classes of synthetic cannabinoids and 15 specific drugs

- | | |
|----------------------------|-----------------------|
| ▪ Hydroxycyclohexylphenols | ▪ Benzoylindoles |
| ▪ Naphthoylindoles | ▪ Phenylacetylindoles |
| ▪ Naphthoylpyrroles | |

5 Classes

-
- | | | |
|------------------------|-----------|-------------------|
| ▪ CP-47,497 | ▪ JWH-200 | ▪ AM2201 |
| ▪ CP-47,497 C8-homolog | ▪ JWH-250 | ▪ AM694 |
| ▪ JWH-018 and AM678 | ▪ JWH-081 | ▪ SR-19 and RCS-4 |
| ▪ JWH-073 | ▪ JWH-122 | ▪ SR-18 and RCS-8 |
| ▪ JWH-019 | ▪ JWH-398 | ▪ JWH-203 |

15 Drugs

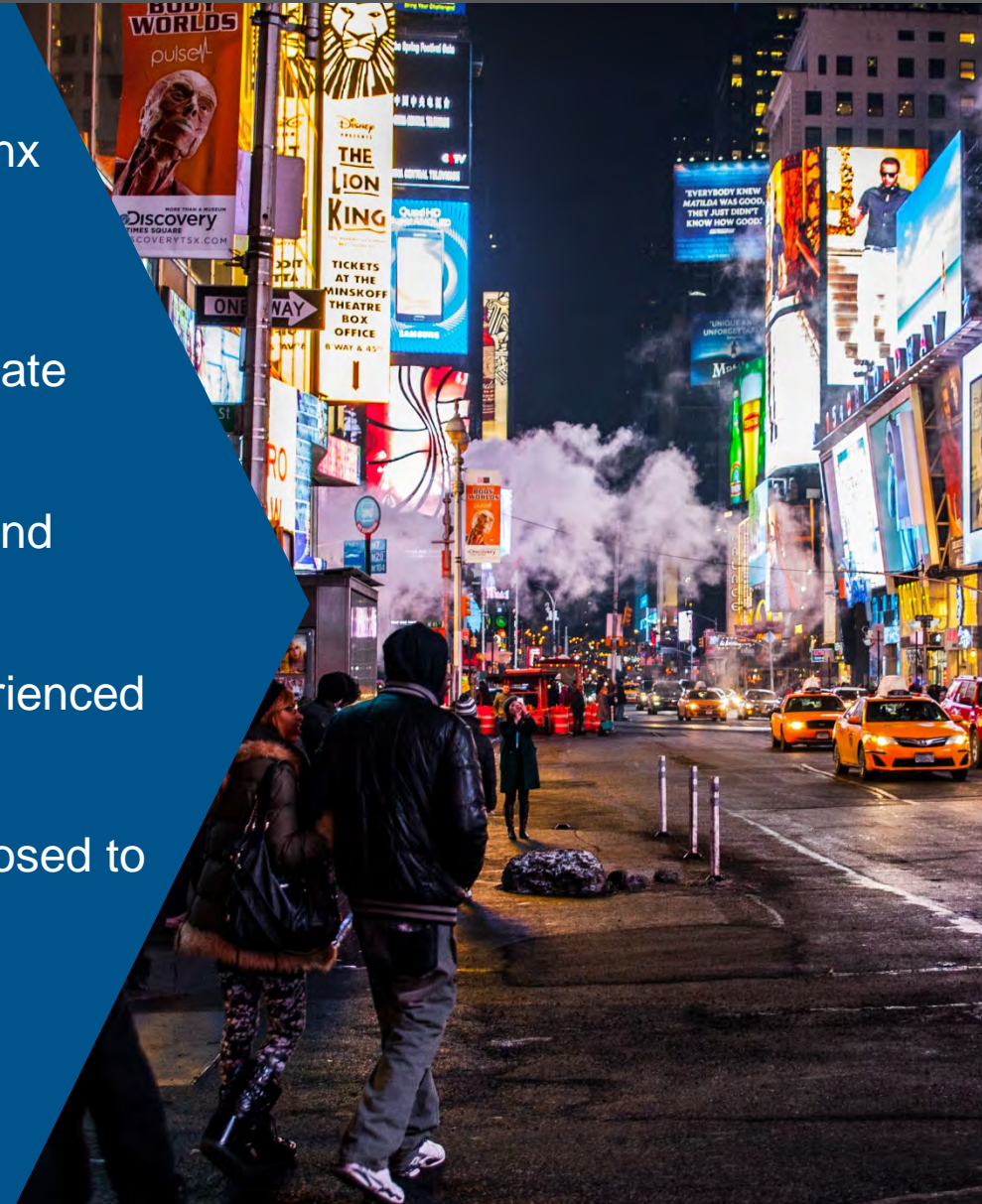
Source: Senator Schumer Press Release July 9, 2012

Legal High Abuse Trends in U.S.

- 2010 abuse patterns (Pre Ban)
 - K2 was most popular brand in US
Active Ingredients: JWH018, JWH073, JWH250 (few preparations)
- 2011 abuse patterns (Post Temporary Ban)
 - Hundreds of other available brands developed
Ingredients begin changing: JWH081, JWH201, RCS4, AM2201
- 2012 abuse patterns (Post Federal Ban)
 - **Third-generation** brands available
Active Ingredients: XLR-11, UR-144, JWH-122
- 2013 abuse patterns
 - **Fourth-generation** brands available
Active Ingredients: PB-22, BB-22, 5F-PB-22
- 2015 abuse patterns
 - **Fifth-generation** brands available
Active Ingredients: AB-CHMINACA, AB-PINACA, THJ-2201
- 2016 abuse patterns
 - **Sixth-generation** brands available
Active Ingredients: MAB-CHMINACA
- 2017 abuse patterns
 - **Seventh-generation** brands available
Active Ingredients: To be determined
- Currently controlled 25 compounds and 11 drug classes

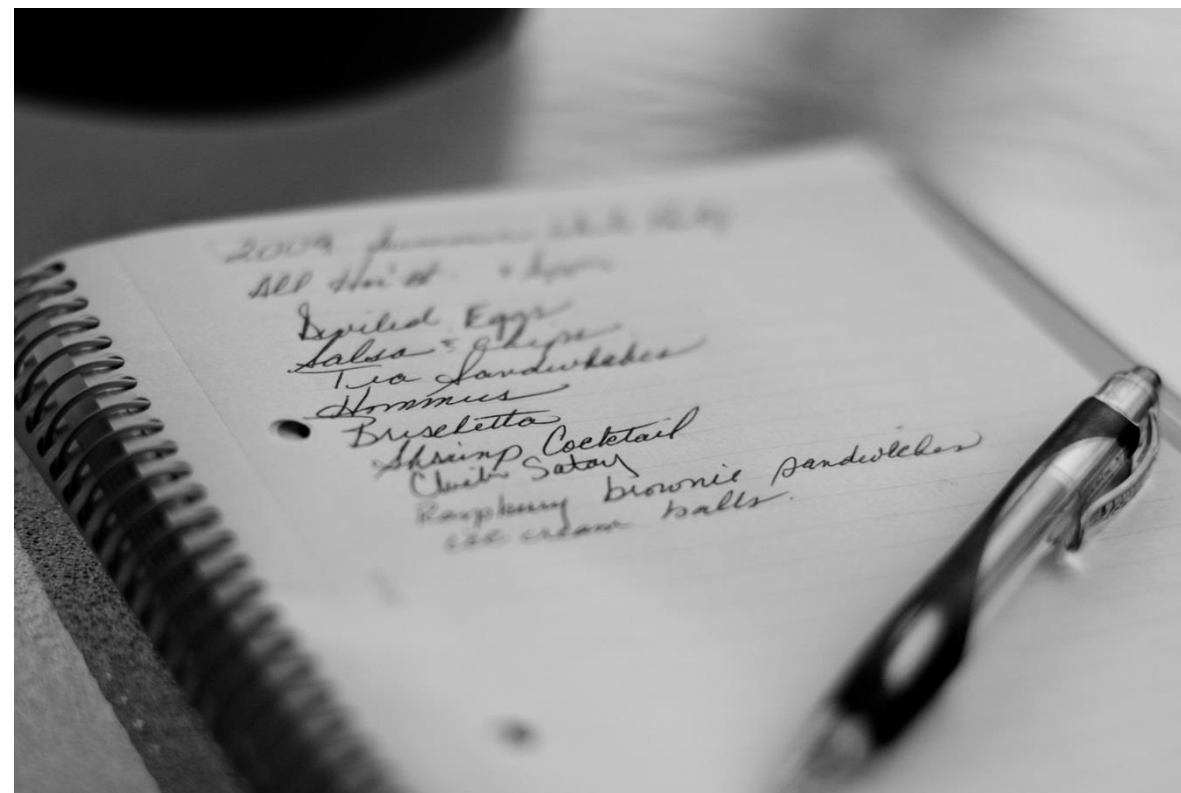
Synthetic Cannabinoid Problem in New York - Jan 2016 Report

- In 2015 alone, more than 6,000 state residents were hospitalized due to use of synthetic cannabinoids, including 700 people in the Bronx
- More than half of all calls in 2015 to the Upstate New York Poison Control Center related to synthetic cannabinoid exposure came from Onondaga County, making it the synthetic cannabinoid capital of upstate New York
- The approximate average direct care costs to the hospital for opioid and synthetic drug cases is \$247 per patient
- Hospitals, ambulance service providers and not-for-profits have experienced an increase in costs due to synthetic drugs
- There were at least 13 correctional officers assaulted by inmates exposed to synthetic cannabinoids in 2015 as reported by NYSCOPBA
- The sale and use of synthetic cannabinoids have cost the state of New York, its municipalities and taxpayers a total of \$22,731,308.20 or \$22.7 million



Synthetic Cannabinoid Shopping List for Criminal Enterprises

- 1 kilogram of chemical powder \$1,500
- 50 pounds of leaves \$500
- 8 ounce bottle of chemical flavoring \$70
- Tub container of Acetone \$450
- Miscellaneous materials \$300
- **Total cost of all materials \$2,820**
- According to the DEA, one kilogram of finished product can net criminals a profit of \$87,000.



DEA estimate

Screening Analysis

- Publication in JAT showed an Elisa screening kit for JWH 250 tested for JWH-250 metabolites but less than a 1% cross reactivity with any other compounds. An Elisa screening kit for JWH-18 however, did cross react with 10 metabolites of other synthetic marijuana metabolites at 50% or greater
- **NEW** lab based kits available *(For criminal justice and forensics use only)
 - AB-PINACA – Significant cross reactivity with 34 compounds and minor cross reactivity with 11 compounds*
 - UR-144/XLR-11 – Significant cross reactivity with 15 compounds and minor cross reactivity with 23 compounds*
- Onsite test – One product will only cross react with JWH-018 and JWH-073 at 100% but does show low cross reactivity with 3 metabolites of other synthetic marijuana compounds
- Labs cannot test for all of the compounds on the market because standards and methods are not available or have not been validated



Can it be detected by drug testing?

Synthetic Cannabinoid Screen Urine Lab Test (15 compounds)			
Panel – Example of Screen Panel – Only cross reactive >50% listed			
JWH 018 Pentanoic Acid	(100%)	JWH 073 N4 Hydroxybutyl	(100%)
JWH 018 Hydroxypentyl	(111%)	JWH 073 6-Hydroxyindole	(111%)
JWH 018	(80 %)	JWH 073 N-Butanoic Acid	(100%)
JWH 018 4-Hydroxyindole	(57%)	JWH 073	(80%)
AM 2201 N4-Hydroxypentyl	(111%)	JWH 019	(80%)
AM 2201 6-Hydroxyindole	(80%)	JWH 200	(80%)
AM2201	(80%)	3-(1 naphthyl)1-H Indol	(80%)
JWH 007	(80%)		

Can it be detected by drug testing? (continued)

Synthetic Cannabinoid Standard Urine Lab Test (15 compounds)	
Panel – <i>Example of Standard Panel Covering Numerous Synthetic Cannabinoids.</i>	
JWH 018 Pentanoic Acid	JWH 073 4- Hydroxybutyl
JWH 018 4- Hydroxypentyl	JWH 073 Butanoic Acid
JWH 018 5- Hydroxypentyl	JWH 250 5-Carboxypentyl
JWH 081 5-Hydroxypentyl	JWH 250 5-Hydroxyindole
AM 2201 4-Hydroxypentyl	JWH 250 5-Hydroxypentyl
JWH 200 5-Hydroxyindole	RCS 4,5-Carboxypentyl
JWH 200 4 or 6-Hydroxyindole	RCS 4,5 - Hydroxypentyl
JWH 073 3- Hydroxybutyl	

Can it be detected by drug testing? (continued)

Synthetic Cannabinoid Expanded Urine Lab Test		
Panel – Example of an expanded panel (30 Compounds plus 15 metabolites)		
AB-PINACA	JWH-018	5-Fluoro-AB-PINACA
AKB-48	JWH-19	5-Flouro-AKB48
AB-CHMINACA	JWH-073	5-Flouro-PB-22
AM-1248	JWH-081	ADBICA
AM-2201	JWH-122	AB-PINACA
AM-694	JWH-200	MAM-2201
AM-694	JWH 203	PB-22
BB-22	JWH-210	RCA-4
AB-FUBINACA	JWH-250	RCS-8
UR-144	UR-144 degradant product	XLR-11

Do you recognize this plant?



Salvia Divinorum



- Historically used by religious healers
- Name means “Divine Sage”
- Initial Effect: Lasts 2-5 minutes
 - Hallucinations to uncontrollable laughter
- After Effects:
 - Calm, clear thinking
 - Improved mood
 - Higher confidence

Coleus

- In traditional homeopathic medicine, coleus extract has been used for treating intestinal spasms, convulsions, lung disease, insomnia, and heart disease. General heart health, including reduced blood pressure, may be promoted by the plant
- On the internet it is reported as a substitute for Salvia Divinorum
- Coleus – mild relaxing and/or hallucinogenic effects when consumed
- Delivery systems – chewing the leaves or making tea



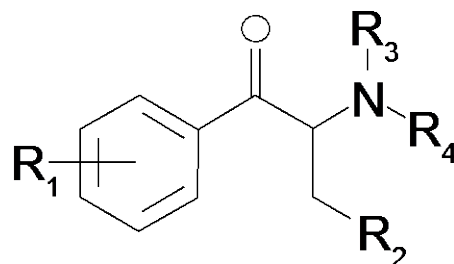
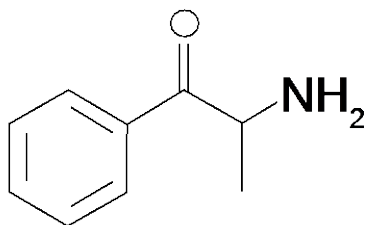
What are designer drugs?

- Designer drug is a term used to describe drugs which are created (or marketed, if they had already existed) to get around existing drug laws
- In early 2000s, there was a huge explosion in designer drugs being sold over the internet
- The term and concept of "research chemicals" was coined by some marketers of designer drugs. The idea was that by selling the chemicals for "scientific research" rather than human consumption, the intent clause of the U.S. analogue drug laws would be avoided



Cathinone Compounds: What does this mean?

- Khat has 6 chemical compounds in addition to cathinone
- You have 43 compounds that can be created by modifying the molecular structure of cathinone to different degrees



Khat or Qat?

- Contains an alkaloid called cathinone
- Amphetamine like stimulate
- Cathinone – Schedule I
- Can be tested but few labs offer this drug
- Costs around \$50 - \$150 per specimen



Mephedrone or Drone

- Derived from cathinone
- Sold on the internet as plant feeder
- Amphetamine like stimulant
- Causing deaths in UK
- Banned and considered a Schedule 1 substance (as of 07/09/12)



Bath Salts – MDPV (methylenedioxypyrovalerone)

- Inhaled
- Stimulant similar to cocaine
- Illegal in US
- Illegal in UK
- Associated with several deaths
- Compulsive use
- NOT FOR HUMAN CONSUMPTION



Bath Salts – MDPV (methylenedioxypyrovalerone)

- Effects of MDPV
 - Increased heart rate
 - Hallucinations
 - Paranoia
 - Seizures
 - Kidney Failure
 - Violent behavior
 - Death



Federal Law — Synthetic Cannabinoids as of 7.9.12

- July 2012, President Obama signs Synthetic Drug Abuse Prevention Act,⁽¹⁾ instituting a Schedule 1 federal ban on two designer stimulant drugs, nine synthetic hallucinogens, and 20 synthetic marijuana chemicals
- MDPV and Mephedrone, common active ingredients in "bath salt" drugs, are now banned by the DEA
- A conviction could bring serious criminal penalties for possession or sale—now punishable for up to 20 years in prison

⁽¹⁾ 112th Congress 2d Session, S.3190. May 16, 2012.
A bill to amend the Controlled Substances Act to place synthetic drugs in Schedule I.



Federal Law — 2 Designer Stimulants and 9 Synthetic Hallucinogens as of 7.9.12

- 4-methylmethcathinone (Mephedrone)
- 3,4-methylenedioxypyrovalerone (MDPV)
- 2-(2,5-Dimethoxy-4-ethylphenyl)ethanamine (2C-E)
- 2-(2,5-Dimethoxy-4-methylphenyl)ethanamine (2C-D)
- 2-(4-Chloro-2,5-dimethoxyphenyl)ethanamine (2C-C)
- 2-(4-Iodo-2,5-dimethoxyphenyl)ethanamine (2C-I)
- 2-[4-(Ethylthio)-2,5-dimethoxyphenyl]ethanamine (2C-T-2)
- 2-[4-(Isopropylthio)-2,5-dimethoxyphenyl]ethanamine (2C-T-4)
- 2-(2,5-Dimethoxyphenyl)ethanamine (2C-H).
- 2-(2,5-Dimethoxy-4-nitrophenyl)ethanamine (2C-N)
- 2-(2,5-Dimethoxy-4-(n)-propylphenyl)ethanamine (2C-P)

List of Drugs Added to DEA Controlled Schedule

- Previously struck:

- Methylone
- Naphyrone
- Butylone
- alpha-PVP

- Current total:

- 13 synthetic stimulants

- New:

- 4-MEC
- 4-MePPP
- 3-FMC
- 4-FMC
- alpha-PBP
- Pentedrone
- Pentylone

The New Face of Street Drugs



Alpha-pyrrolidinovalerophenone (alpha-PVP)

- Street name Flakka
- Real problem in Southern Florida
- CNS stimulant similar impact on the body as the use of methamphetamine and cocaine. Detection times should be similar to that of cocaine and methamphetamine 24-72 hours in urine.
- Studies on humans are not allowed in the U.S.
- Negative effects on the user include:
 - Sweating, anxiety, heart rate increase, palpitations, sleeplessness, unpleasant crash, minor vasoconstriction, addictive behavior, and the urge to re-dose



Superman (PMMA or PMA)

- PMMA: para-Methoxy-N-methylamphetamine or PMA: para-methoxyamphetamine
- Common delivery: Pill shaped as the Superman “S” logo
- Being sold as MDMA or Molly
- Causes dangerous increases in body temperature and blood pressure
- Toxic at lower doses than MDMA
- Requires up to two hours in order to take effect
- Very nearly the perfect overdose drug
- Number of deaths in Europe and the US
- Gaining popularity

What is Molly?

- 1950's – 1970's: Molly or Black Molly was used to refer to methamphetamine. It now has a new meaning
- 2003: DEA identified the contents of capsules called Molly as TFMPP 1-(3-trifluoromethylphenyl) piperazine
- 2013: Molly is a powdered form of MDMA, cut with almost anything from cocaine to heroin including methylene, TFMPP and DHA (3,4-dihydroxyamphetamine)
- Very popular in EDM (electronic dance music), Hip Hop, and Rap cultures
- Numerous songs in current pop culture refer to Molly

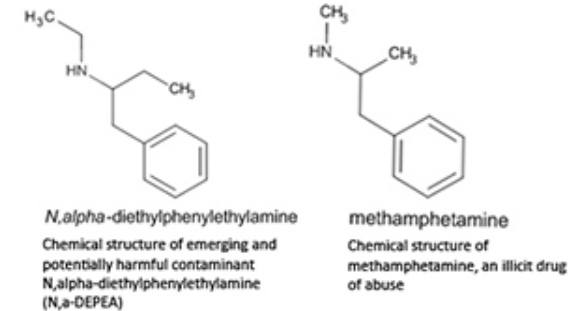


Effects of MDMA

- The hug drug – empathy for others, reduces inhibitions
- Dehydration/dry mouth – Drink water
- “Short circuit” signal to brain controlling temperature
- Teeth grinding – Pacifiers
- Suppress need to eat or sleep
- Dilated pupils
- Overall stimulation
- Great Britain – researchers are investigating the use of MDMA in various treatment regiments



- A popular and controversial sports supplement widely sold in the USA and other countries is secretly spiked with a chemical similar to methamphetamine that appears to have its origins as an illicit designer recreational drug
- Test results on samples of Craze, a pre-workout powder made by New York-based Driven Sports and marketed as containing only natural ingredients, raise significant health and regulatory concerns
- U.S. researchers also said they found the same methamphetamine-like chemical in another supplement, Detonate, which is sold as an all-natural weight loss pill by another company
- There is a methamphetamine-like stimulant in Craze, a synthetic drug called N,α diethylphenylethylamine

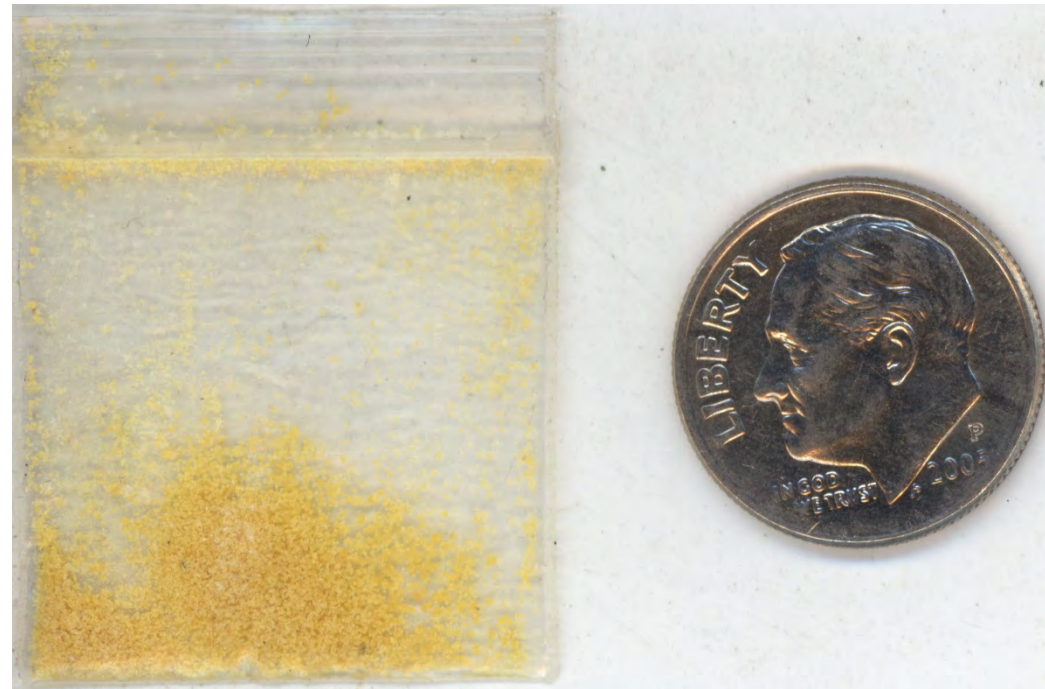


SMILES – 2C-I or 2C-I NBOMe

- Marketed as 2C-I but believed to be 2C-INBOMe a different newer more potent chemical
- Phenethylamine
- DEA Schedule 1
- Also sold under the name N-Bomb
- Several deaths reported throughout the U.S. due to overdose

DMT- Psychedelic Tryptamine

- DMT = N-N-dimethyltryptamine
- DEA Schedule I
- Delivery: smoked – 15-60 mg
- Cost: Single dose – \$10-\$30
- Retail: \$60-\$300
- Effect – in 10-60 seconds
- Duration – 5-20 minutes
- Back to normal in 1-2 hours
- Documented as early as the 700's as snuff from grave sites



DMT- Psychedelic Tryptamine (continued)

- DMT can also come from your back yard.
- Directions to extract DMT from plant material readily available on the internet
- **Ingredients:**
 - Sodium Hydroxide i.e. Caustic Soda (aka Lye)
(minimum of 5g for extracting 20g of Mimosa root or bark)
 - Naphtha (Ronsonol Lighter Fluid / Newport Lighter Fluid 4 Zippos or a similar type)
 - Tap water
 - Mimosa bark (20g minimum extraction)
<http://www.botanicalspirit.com>



Can it be detected by drug testing?

Standard Laboratory Panels	Designer Stimulant Panel
Ensure that your test panel includes the detection of Methylenedioxy-methamphetamine (MDMA).	<p>Detects the presence of 21 designer stimulant drugs including Methylenedioxymethamphetamine (MDMA).</p> <p>NOTE: This will allow your facility to detect Molly if it is comprised of MDMA and/or other designer stimulant compounds.</p>

Phenazepam

- Developed in Russia
- Benzodiazepine
- Not Controlled under Federal Law– this is a non-scheduled drug available on the internet
- States can schedule this drug
- Louisiana and Arkansas have classified this drug as Schedule 1
- Dosage – 0.5 mg X3 daily max 10 mg
- 1 mg phenazepam = 10 mg Diazepam
- Cost– \$28.00/gram or .01 per dose
- Mr. Smiley Bars– \$5.99/pack
- Not currently being tested by labs



Even More “Research Chemicals”

- **Pyrazolam**

- A benzodiazepine derivative which is water soluble
- Duration of action of approximately 6 hours
- Activity approximately x12 that of diazepam (Valium)

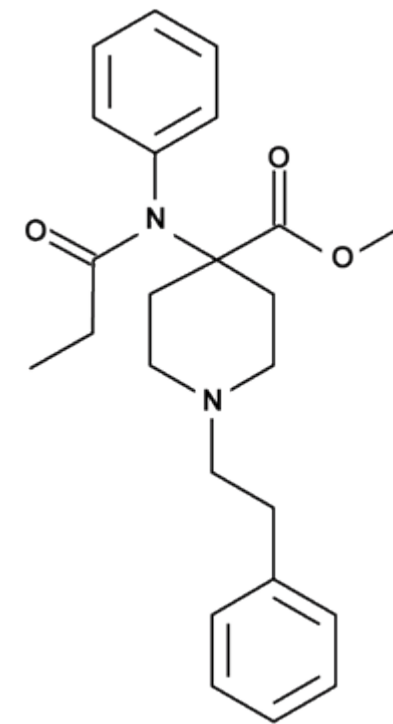
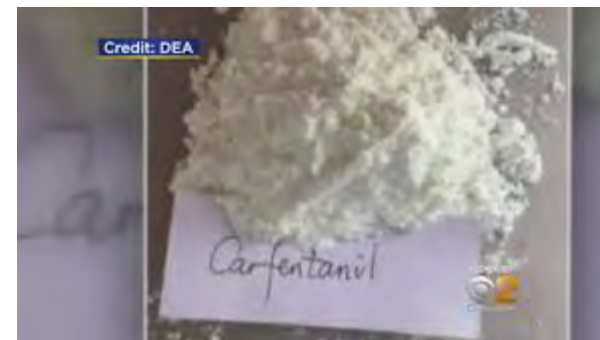
- **Etizolam**

- Etizolam is structurally related to benzodiazepines like Valium and Xanax (Alprazolam)
- You can buy Etizolam & other research chemicals online & in person at locations in England, Scotland, Wales & Ireland

- U-47700 is a lab-made opioid 700% more potent than heroin
- At least 15 people in the country have died since last year because of Pink, according to the Drug Enforcement Administration
- Like other Opioids this drug attaches to the mu opiate receptors, specific proteins in the brain
- People have been able to order it on the internet
- as of Nov. 10, 2016 the Drug Enforcement Administration a final notice to make "pink" a Schedule I drug
- DEA -U-47700 - The substance U-47700 was first described in 1978 in the patent literature. Publications in the scientific literature in the early 1980's found that U-47700 behaved similarly to morphine in animal models. No approved medical use

Carfentanil - 3-methylfentanyl

- An analog of fentanyl but 100 times more powerful
- Estimated to be between 400 and 6000 times stronger than morphine
- First discovered in 1974
- One gram of 3-methylfentanyl might be sufficient to produce several thousand dosage units once diluted for sale
- Estonia has 200 plus deaths per year
- Extremely dangerous when used recreationally, and has resulted in many deaths among recreational opioid users ingesting the drug



Heroin Laced with Carfentanyl – Ohio Ground Zero

- 2015 - Fentanyl was detected in more than 100 overdose deaths in Palm Beach County, according to medical examiner records. They are adding carfentanyl to the testing panel
- 2016
 - (July) – 10 overdoses in Columbus, Ohio and 236 overdoses in a 3 week period in Akron, Ohio
 - (August 15) – 27 overdoses in 5 hours in Huntington, West Virginia
 - (August 29) – 174 heroin overdoses in 6 days in Cincinnati, Ohio
- 2017
 - (June 19) – 365 deaths in Montgomery County Dayton, Ohio
 - (Jan - May) – Police carry 2 doses of Narcan, Coroner estimates 2000 overdose deaths this year and estimates 10,000 for the state



Acetyl Fentanyl

- Studies have estimated acetylfentanyl to be fifteen times more potent than morphine
- Rarely been encountered on the illicit market in the late 1980s
- In 2013, Canadian police seized 3 kilograms of acetylfentanyl
- Like Carfentanyl popular in Europe
- Acetylfentanyl has been analytically confirmed in 32 fatalities in four European member states between 2013 and August 2015 (the most in Sweden -27)
- Twelve deaths have been associated with acetylfentanyl in Russia since 2012
- In July 2015, the DEA informed about 52 confirmed fatalities involving acetylfentanyl in the United States between 2013 and 2015
- Acetylfentanyl is a Schedule I controlled substance as of May 2015



W-18 – Synthetic Opiate

- 1-(4-Nitrophenylethyl)piperidylidene-2-(4-chlorophenyl)sulfonamide (W-18)
- Reported to be 100 times more potent than Fentanyl
- Reported to be 10,000 times more powerful than Morphine
- Found on the streets in Canada in Feb 2016. Now in the US (Florida)
- One of 32 synthetic opiates developed at the University of Alberta
- At this time we cannot test for this compound
- Being sold as Fentanyl

Krokodil

- Actual drug – Desomorphine
- Made from Codeine
- Kitchen labs – 3 steps; use gasoline, paint thinner, hydrochloric acid, iodine and red phosphorous
- Appeared in Russia 2002; now in several European countries
- Usually an orange liquid - Injected like Heroin
- Short high – 1-1.5 hrs; (Heroin 6-8 hr high)
- Cheap – \$6-8; (Heroin \$150 and up)
- Takes about 30 minutes to make
- Causes a scaly green skin irritation, destruction of the skin at the injection site and eventually gangrene
- The drug that eats the user



Kratom

- Found in Thailand and Malaysia
- Powdered extract is \$66/per 2 g
- Powdered leaf is \$15/per 28 g
- Effects:
 - Opiate like sedation high dose 20-50 g
to coca like stimulation low does 10 g
- Duration:
 - Initial effect in 5-10 minutes Max effect in 15-20 minutes, but some effects can be felt for 2-5 hours
- Tea is common delivery



Do you recognize this plant?



Morning Glory Seeds

- Duration of Effects = 2-4 hours
Active ingredient
 - Lysergic Acid Amide (LSA)
- Closely related to LSD
- Acts as psychedelic or hallucinogen
- Schedule III, but sold in nurseries, etc.
- Used by the Aztec and still popular in southern Mexico
- Effects last 6-8 hours



Angel's Trumpet

- Also known as Borrachero Tree – same family as Jimson Weed
- Called Devil's Breath
- Contains: Belladonna alkaloids
 - Atropine
 - Scopolamine
- Drink as a tea in U.S.
Used as powder in Columbia
- Hallucinogenic, zombie-like reaction
- 50,000 cases reported in Columbia – often deadly



Hand Sanitizer

- Liquid hand sanitizer is 62-65% ethyl alcohol or approximately 120 proof. Vodka is 80 proof
- American Association of Poison Control Centers reports several thousand calls annually
- Long term use can cause brain, liver and kidney damage
- Some schools are banning hand sanitizers



Procedure to Purify the Product

- 4 oz hand sanitizer
- 1 tsp table salt
- Cheesecloth
- Mix, filter and recover approximately 2.5 oz of ethyl alcohol

Digital Drugs – i-Dosing

- Use binaural, or two toned, technology to alter your brain waves
- Disturbs your mental state in a manner similar to narcotics
- Search “Gates of Hades” on YouTube



Smoking Nutmeg

- Contains Myrista oil (similar to mescaline) and elemicin (used to treat depression)
- Desired effect – Hallucinations and delusion
- Undesired effect – Damage to the lungs, convulsions, fever, palpitations and death



Desperate for a High?

- Sonoran Desert Toad
- Hallucinogenic compound secreted on the skin
- 5-MeO-DMT
- 5 methoxy-N,N-dimethyl tryptamine



Questions?

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