
WV Poison Center: Toxic Trends & Current Issues

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Drug Testing: United States

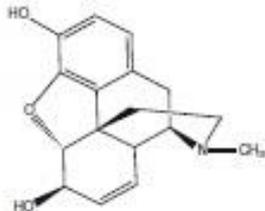
- Guidelines and procedures established and regulated by the Substance Abuse and Mental Health Services Administration (SAMHSA)
 - SAMHSA formerly under National Institute on Drug Abuse (NIDA)
- Federal standards for 5 panel test (NIDA-5):
 - Amphetamine, methamphetamine, MDMA (“ecstasy”)
 - Cannabinoids (marijuana (THC), hashish)
 - Cocaine (parent drug and metabolites)
 - Opiates (heroin, opium, codeine, morphine)
 - Phencyclidine (PCP, angel dust)



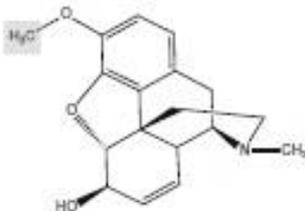
Guidelines only allow labs to report NIDA-5 results



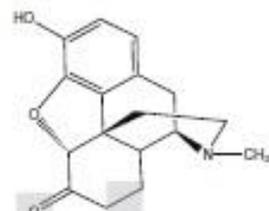
Natural Opioids



Morphine

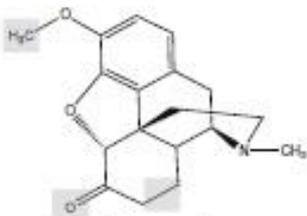


Codeine

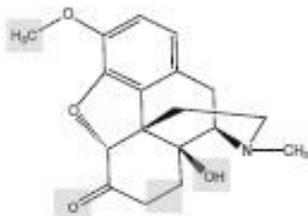


Hydromorphone

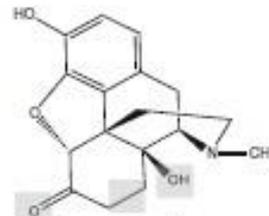
Semi-Synthetic Opioids



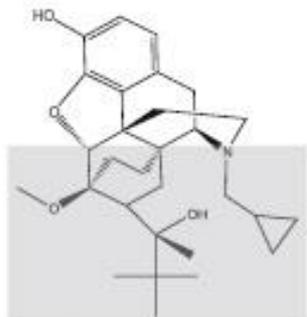
Hydrocodone



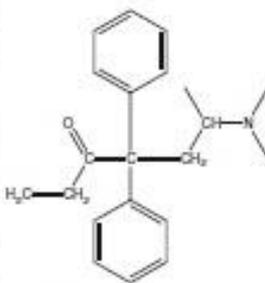
Oxycodone



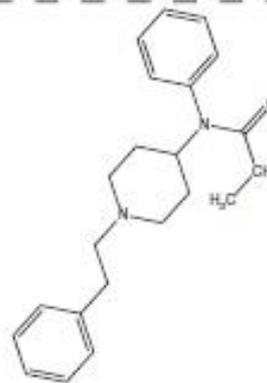
Oxymorphone



Buprenorphine



Methadone



Fentanyl

Synthetic Opioids

Clinical Options are Available

- Other employers may use an 8-panel test (urine)
 - Adds: barbiturates, benzodiazepines, methaqualone
- Employers may also use a 10-panel test (urine)
 - 8-panel drugs + methadone, propoxyphene (no longer made)
- Saliva tests measure a somewhat wider range
 - *No legal standard at this time as testing variables not defined

Still missing:

Fentanyl (e.g., Duragesic)

Buprenorphine (e.g., Suboxone)

Meperidine (e.g., Demerol)

Methylphenidate (e.g., Ritalin)

Benzodiazepines: lorazepam (Ativan), clonazepam (Klonopin)

False (+'s) abound

Emerging Drugs of Abuse (EDA)

- Frequently used terms also include:
 - Designer drugs
 - Synthetic drugs
 - “Legal highs”
 - Novel psychoactive substances



Operation Synthetic Drugs 05-02-12; Columbus, Ohio

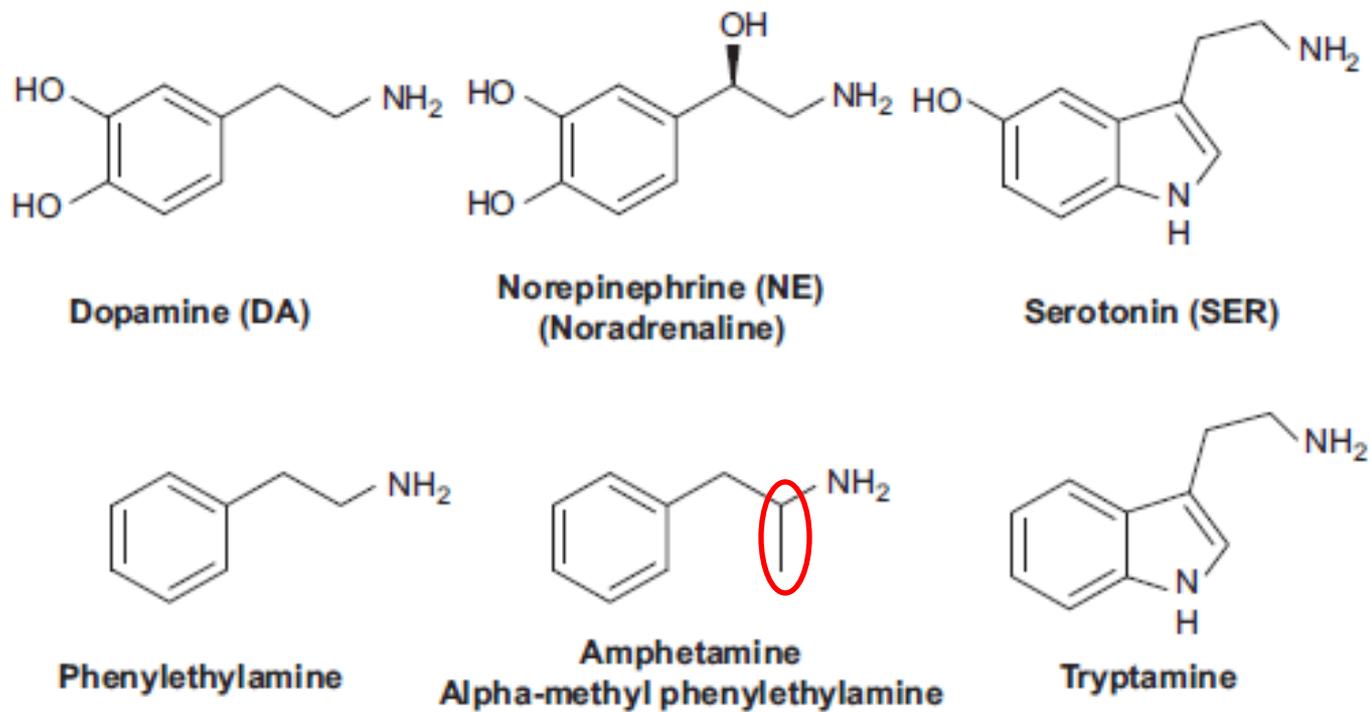


Fig. 5. Many drugs of abuse share structural similarity with our endogenous neurotransmitters.

1. EDA Not Detected by Any Screen

- Synthetic drug testing limited to Drug Enforcement Agency (DEA) and state forensic labs and a few specialty labs (turn-around time days to months)
- Therefore, synthetic drugs can be used by:
 - Those on parole
 - Those seeking employment or working for jobs with drug testing requirements
 - High school student athletes requiring drug screening
 - Children of parents using home drug screening kits
 - Others in situations where drug screens will be done

Battle of the Chemists: DEA v Dealer



WV 2011: Synthetic Drugs

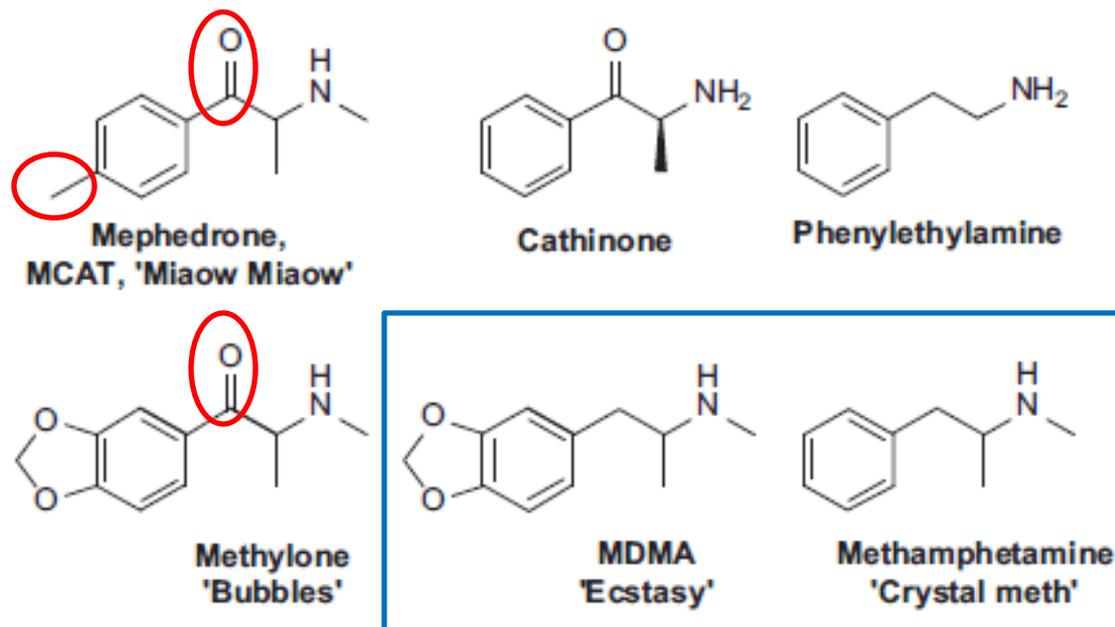
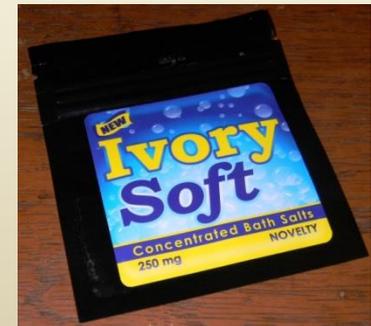
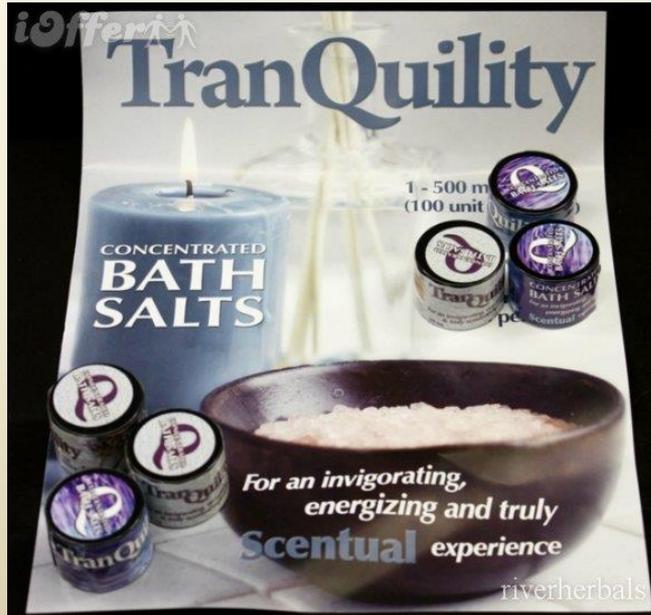


Fig. 7. Natural and synthetic cathinones show striking similarity with amphetamines.

2009 - 2011: “Bath Salts”



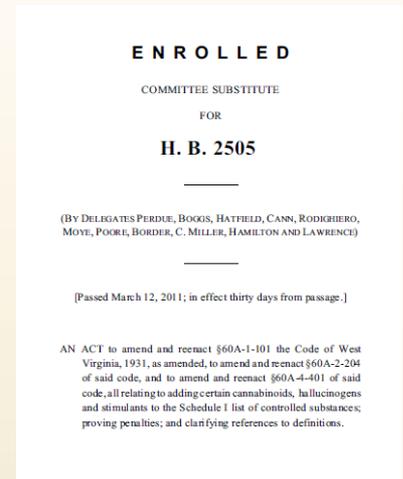


Adverse Effects

- Hypertension (high blood pressure)
- Tachycardia (high heart rate)
- Agitation
- Hallucinations, delusions, paranoia (lasted days!)
- Seizures
- Chest pain
- Elevated troponin (seen with heart attacks)
- Rhabdomyolysis
 - muscle cell breakdown leading to kidney failure
- Death

WVPC: Bath Salt Cases

- December 2010
 - 3 cases; 0.1% of calls nationally (303)
- January 1, 2011 to April 8, 2011
 - 153 calls
- April 9, 2011 to July 31, 2011
 - 70 calls
 - Total year to date 223 WV; 5.3% of calls nationally (4,137)
- Harrison and Kanawha counties led the list



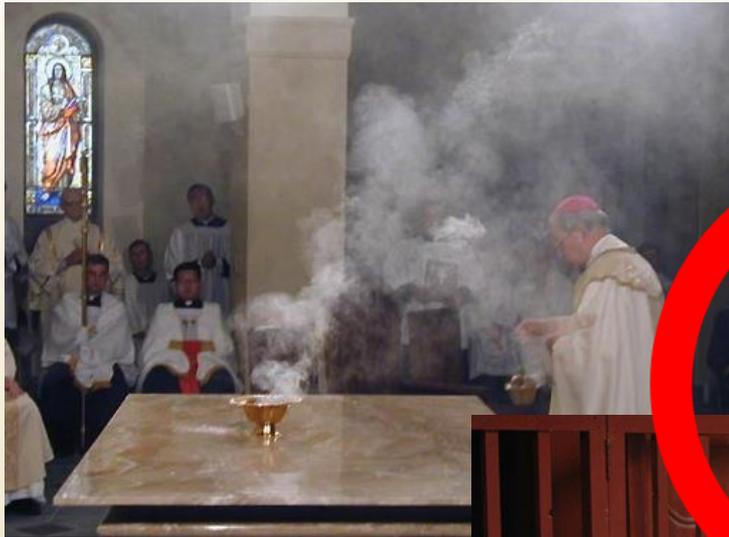
State laws can be more strict than federal (but not less strict):

April 9th, 2011, WV made “synthetic cocaine” and “synthetic marijuana” schedule I substances

Phenethylamines – NFLIS 2014

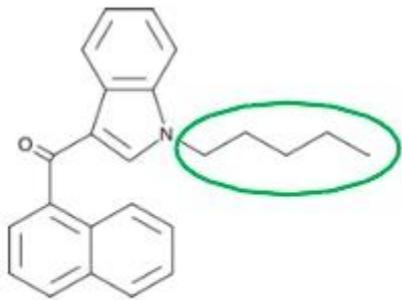
| <u>Phenethylamine Reports</u> | <u>Number</u> | <u>Percent</u> |
|---|---------------|----------------|
| Methamphetamine | 121,109 | 85.30% |
| Amphetamine | 6,101 | 4.30% |
| Methylone “Bath Salts” | 4,417 | 3.11% |
| MDMA | 2,347 | 1.65% |
| alpha-PVP Flakka | 2,244 | 1.58% |
| Ethylone | 1,426 | 1.00% |
| Lisdexamfetamine | 1,030 | 0.73% |
| 2C-I-NBOMe | 396 | 0.28% |
| 2C-C-NBOMe | 375 | 0.26% |
| MDA | 331 | 0.23% |
| Phentermine | 326 | 0.23% |
| MDPV “Bath Salts” | 312 | 0.22% |
| 2C-B-NBOMe | 239 | 0.17% |
| Dimethylone | 219 | 0.15% |
| 4-MEC | 138 | 0.10% |
| Other phenethylamines | 968 | 0.68% |
| <i>Total Phenethylamine Reports²</i> | 141,980 | 100.00% |

2009-2011: Potpourri, Herbal Incense



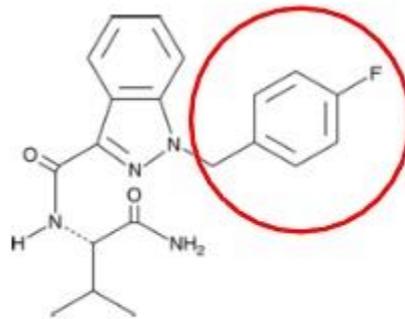
K-2, “Synthetic Marijuana”



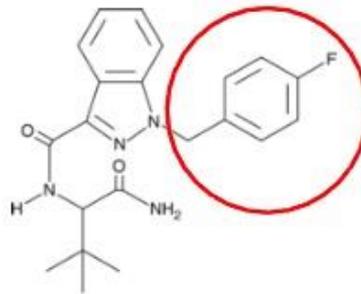


JWH018

2009-2012



AB-FUBINACA



ADB-FUBINACA

Synthetic Cannabinoids- NFLIS 2014

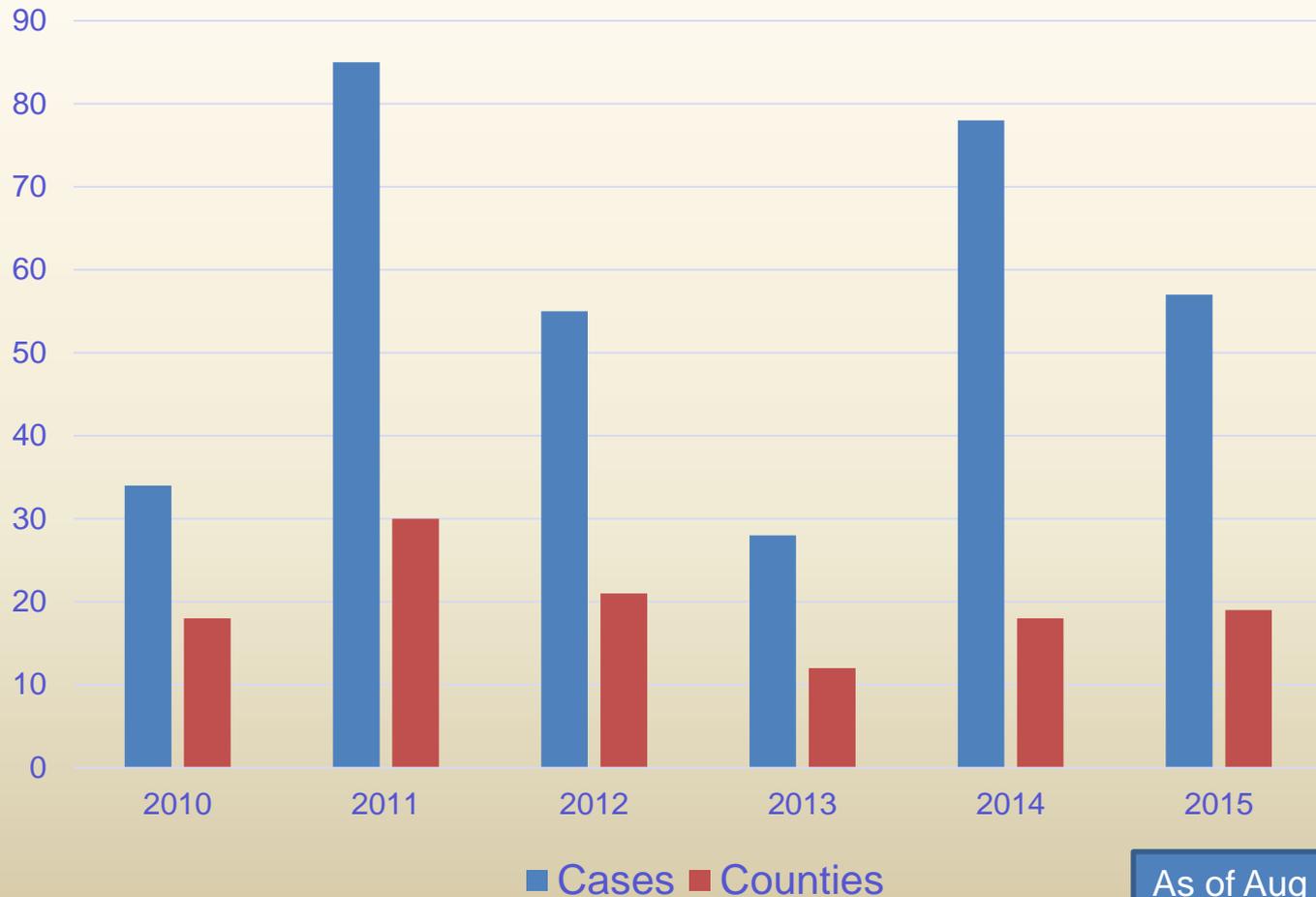
| Synthetic Cannabinoid Reports | Number | Percent |
|--|--------|---------|
| XLR11 | 6,602 | 33.28% |
| AB-FUBINACA | 4,326 | 21.81% |
| AB-PINACA | 2,232 | 11.25% |
| PB-22 | 1,342 | 6.77% |
| 5F-PB-22 | 758 | 3.82% |
| UR-144 | 512 | 2.58% |
| AB-CHMINACA | 324 | 1.63% |
| AM-2201 | 201 | 1.01% |
| AKB48 N-(5-fluoropentyl) | 199 | 1.00% |
| 5F-AB-PINACA | 193 | 0.97% |
| ADB-FUBINACA | 161 | 0.81% |
| FUB-PB-22 | 124 | 0.62% |
| THJ-2201 | 117 | 0.59% |
| AKB48 | 106 | 0.54% |
| JWH-018 (AM-678) | 93 | 0.47% |
| Other synthetic cannabinoids | 2,547 | 12.84% |
| <i>Total Synthetic Cannabinoid Reports²</i> | 19,838 | 100.00% |

'08-'11 Synthetic Marijuana

NFLIS WV Jan-Aug 2015

| Description | Local/Municipal, State and Federal |
|---|------------------------------------|
| 3,4-METHYLENEDIOXYAMPHETAMINE (MDA) | 1 |
| AMPHETAMINE | 3 |
| AMPHETAMINE, ISOMER & SALT UNDETERMINED | 1 |
| LISDEXAMFETAMINE | 1 |
| METHAMPHETAMINE | 30 |
| METHAMPHETAMINE HYDROCHLORIDE | 5 |
| METHAMPHETAMINE HYDROCHLORIDE, ISOMER UNDETERMINED | 4 |
| 5F-AB-PINACA | 1 |
| 5-FLUORO AMB | 1 |
| AB-CHMINACA (N-[(1S)-1-(AMINOCARBONYL)-2-METHYLPROPYL]-1-(CYCLOHEXYLMETHYL)-1H-INDAZOLE-3-CARBOXAMIDE) | 2 |
| AB-FUBINACA | 1 |
| AB-PINACA | 4 |
| AKB48 N-(5-FLUOROPENTYL) | 1 |
| FUB-PB-22 (QUINOLIN-8-YL-1-(4-FLUOROBENZYL)-1H-INDOLE-3-CARBOXYLATE) | 1 |
| THJ 2201(1-(5-FLUOROPENTYL)-1H-INDAZOL-3-YL)(NAPHTHALEN-1-YL)METHANONE | 1 |
| ALPHA-PYRROLIDINOPENTIOPHENONE (ALPHA-PVP) Flakka | 1 |

WV Synthetic Cannabinoid Trends



Demographics: Synthetic Cannabinoids

| | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 13-19 years | 1 st | 2 nd | 2 nd | 1 st | 2 nd |
| 20-29 years | 2 nd | 1 st | 1 st | 2 nd | 1 st |
| 30-39 years | 3 rd |
| 40-49 years | 4 th |

County Synthetic Cannabinoid Trends

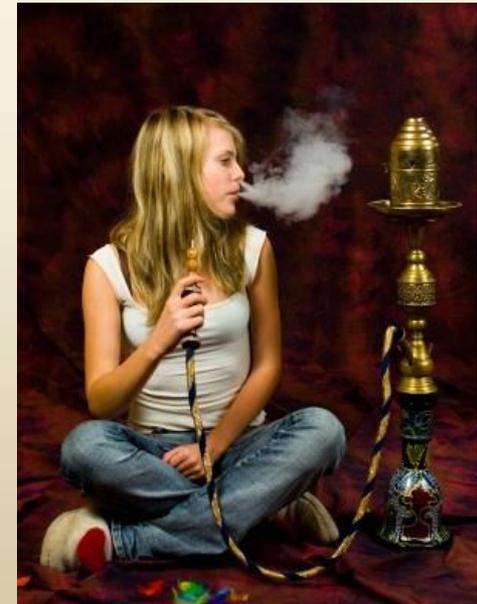
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------------|---------|---------|----------|----------|---------|---------|
| 1 st | Kanawha | Kanawha | Ohio | Raleigh* | Raleigh | Mingo |
| 2 nd | | Raleigh | Berkeley | | Kanawha | Raleigh |
| 3 rd | | Mercer | Wood | | | |
| | | | | | | |

Usual pattern is clusters of cases.

Clinical Effect Changes

- 2011 (JWH-018 popular)
 - Chest pain - Tachycardia
 - Vomiting - Drowsiness
 - Severe agitation, confusion, hallucinations
 - Labored breathing
- 2012 & 2014
 - seizures prominent
- 2015 (AB-CHMINACA, AB-FUBINACA, AB-PINACA)
 - Bradycardia, hypotension, coma: rapidly clears around 24 hrs
 - Agitation - Renal dysfunction - Inc. liver enzymes

Routes of Abuse



Part II:

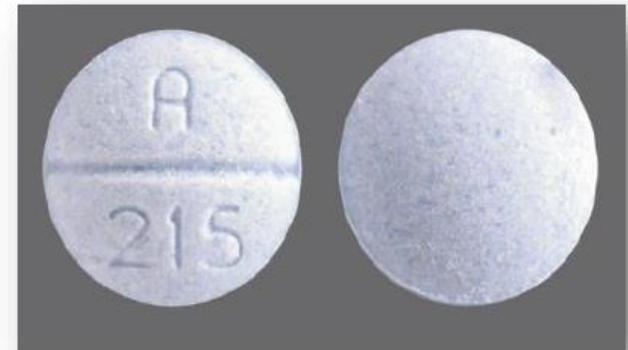
New Trends with Old Drugs

Heroin Additions and Alterations

- Heroin + **fentanyl** = more deaths
- Heroin + **clenbuterol** (a β -agonist)
 - Hypokalemia, tachycardia, palpitations, chest pain, QTc prolongation, leukocytosis, acidosis, elevated CK
- Heroin in tablet form (2014 drug seizure)



New Jersey Heroin Seizure



Pharmaceutical Oxycodone 30mg

New Ways to Abuse Marijuana

**MOST POWERFUL CANNABIS
E-LIQUID AVAILABLE**

**CBD
E-LIQUID**

SEND MY BOTTLE NOW!



✓ **FREE VAPOR starter kit!**
(with paid order of CBD liquid - a \$69.00 value)

✓ **CONTAINS 30% Hemp CBD Extract
Cannabidiol - No THC!**

✓ **Legal in all 50 states with
No Prescription**

✓ **Reduce Feelings of Anxiety***

Drugs of Note: Buprenorphine

- Buprenorphine: 2000 Drug Addiction Treatment Act
 - By 2009: 81 private physicians & 18 treatment centers prescribing

| Reported Exposures Children ≤ 5 Years | | | | | | | | |
|---------------------------------------|--------------|------|------|------|------|------|------|------|
| | 2001 to 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Buprenorphine | 0 | 0 | 0 | 1 | 5 | 7 | 32 | 39 |
| Methadone | 0 | 6 | 4 | 5 | 7 | 6 | 5 | 2 |



Poisonings between Jan 1, 2011 & Nov 18, 2015:

165 < 5 years (38% of all poisonings)
264 ≥ 6 years

Drugs of Note: Opioids

- Substantial decrease 2012 to 2011
 - Another large decrease 2011 to 2010
 - Decreasing since 2010 but less rapidly

| | | | |
|----|---------|-----|----------|
| 1. | Raleigh | 6. | Berkeley |
| 2. | Mercer | 7. | McDowell |
| 3. | Kanawha | 8. | Cabell |
| 4. | Wood | 9. | Mingo |
| 5. | Ohio | 10. | Harrison |
| | | 11. | Logan |

Drugs of Note: Gabapentin

- 222 poisonings in 2013
- 281 poisonings in 2014

- Used to treat neuropathic pain
 - Being added to, not replacing opioids
 - Ideally first line in place of opioids for chronic non-cancer pain

Impact Marijuana Legalization

- *Clinical Pediatrics* 2015
 - Mean age marijuana exposed children 1.81 years
 - 75% via ingestion
 - 18.5% required hospital admission
 - Exposure rate 2.82 x higher in states where legalized
- *Annals of Emergency Medicine* 2014
 - Median age 1.5 to 2 years
 - More in decriminalized states:
 - Required hospital evaluation
 - Had more critical care admissions and severe outcomes
 - Call rate increase: 30.3% legal states vs 11.5% in nonlegal states

Marijuana Edibles



Early Examples of Prepackaged Marijuana Edibles.

Call WV Poison Center
1-800-222-1222

