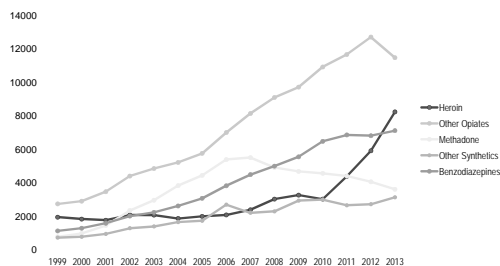


Current Drug Trends: Skittles, Synthetics and Salts

Jane Maxwell, Ph.D.
Center for Social Work Research
The University of Texas at Austin

Number of Drug Poisoning Deaths: United States: CDC 1999—2013



Source: CDC/NCHS WONDER-National Vital Statistics System, Mortality File.

Other Opiates

- Shifting back and forth between Rx opiates and heroin. Studies show more go from pills to heroin.
- Problem with pain pill mills. Houston Cocktail “Holy Trinity”: oxycodone, soma, alprazolam (Xanax).
- Evidence in Florida of decreasing pill problems due to Prescription Monitoring Programs BUT...
- Reports of difficulty in using “hardened” extended release versions.
- Cost difference? In Texas, heroin cap is \$10-\$20 vs. \$1/mg for 72 mg OxyContin.
- What happens with withdrawal?

| | | | | |
|---------------------------------|-----|-----|------|------------------------------------|
| LORCET 10/650 | #60 | #90 | #120 | PO Q 4-6 HRS. PRN PAIN QID |
| LORTAB 10/500 | #60 | #90 | #120 | |
| VICODIN ES 7.5/750 | #60 | #90 | #120 | |
| VICODIN HP 10/660 | #60 | #90 | #120 | |
| NORCO 10/325 | #60 | #90 | #120 | |
| SOMA 350 MG | #60 | #90 | #120 | 1 PO 6-8 HRS. PRN MUSCLE SPASM QID |
| FLEXERIL 10MG 5MG | #60 | #90 | #120 | |
| MOTRIN 800MG | #60 | #90 | #120 | |
| SUBOXONE 2MG 8MG | #30 | #60 | | |
| ALPRAZOLAM 2MG 1MG 0.5MG 0.25MG | #60 | #90 | #120 | PO BID QID PEN |
| DIAZEPAM 10MG 5MG 2.5MG | #60 | #90 | #120 | |
| LORAZEPAM 2MG 1MG 0.5MG 0.25MG | #60 | #90 | #120 | |



Pill Mill Pharmacy Shelves

5



Pill Mill Pharmacy Shelves

6



Mexican Black Tar Heroin

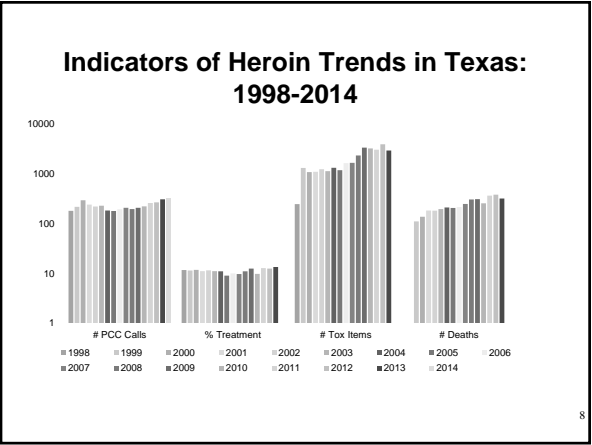


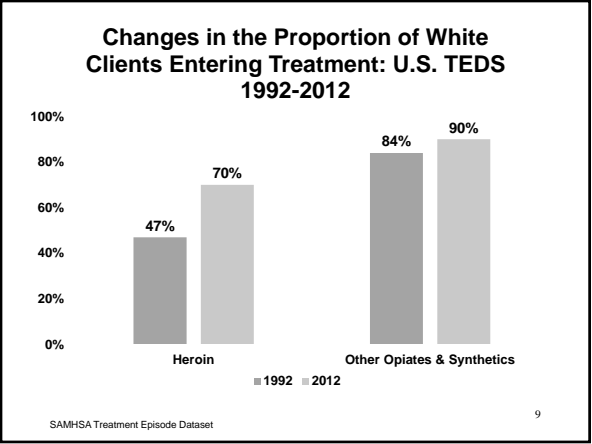
Mexican Brown Heroin

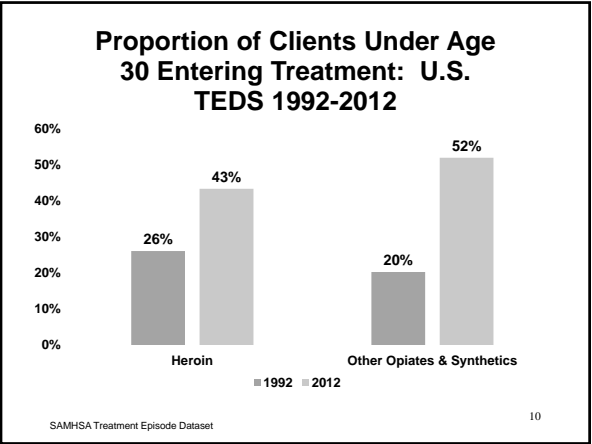


South American Heroin

7



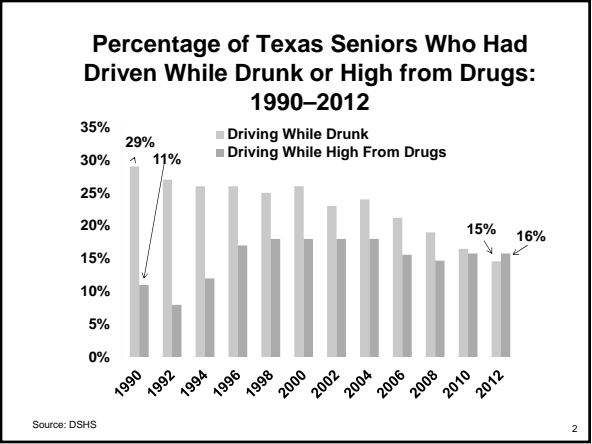




Pharmacologic Treatments

FDA approved for Opiates

- Buprenorphine-daily pill or film
 - Duo (Suboxone© is buprenorphine & naloxone partial agonist-causes withdrawal if use opioids)
 - Mono (buprenorphine--Subutex©)
- Methadone-daily oral dose
- Naltrexone (Revia©) 1 pill per day
- Depo-Naltrexone (Vivitrol©)-injected every 30 days.



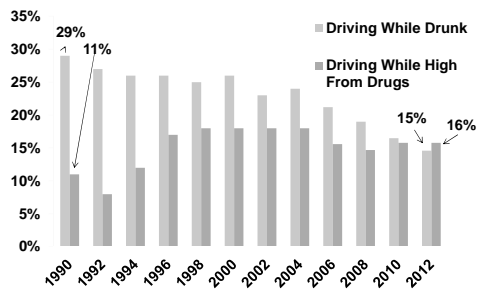
“SYRUP” in Texas

- Codeine cough syrup continues to be abused.
- Cut with Karo syrup, Skittles, jolly ranchers, and soft drink.
- Rap music on syrup continues to drive this phenomenon.
- Repackaged to introduce to youths
Lil'Wayne

And Justin Bieber

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Percentage of Texas Seniors Who Had Driven While Drunk or High from Drugs: 1990–2012

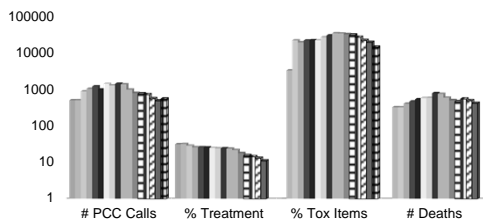


Source: DSHS

2

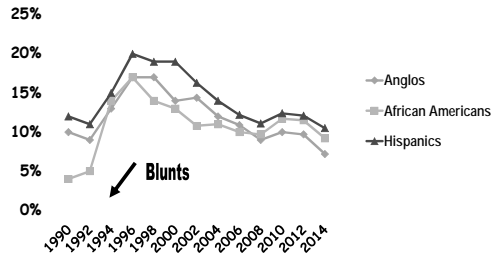
Cocaine Indicators in Texas: 1998–2013

■ 1998 ■ 1999 ■ 2000 ■ 2001 ■ 2002 ■ 2003 ■ 2004 ■ 2005 ■ 2006 ■ 2007 ■ 2008 ■ 2009 ■ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014



15

% Texas Secondary Students Who Had Used Marijuana in the Past Month, by Ethnicity: 1990-2014



Source: DSHS

16

Wax, Budder, Shatter, Dabs



Long-Term Cumulative Effects of Chronic Abuse

- Can lead to addiction
- Increases risk of chronic cough, bronchitis
- Increases risk of schizophrenia in vulnerable individuals
- Age of onset of cannabis use directly associated with age at onset of psychosis and age of first hospitalization.
- May increase risk of anxiety, depression, and amotivational syndrome
- New finding suggesting neurotoxic effect of cannabis on the adolescent brain and cessation did not fully restore functioning.

National Institute on Drug Abuse, Research Report Series, Marijuana Abuse, updated 9/2010.
 Galvez-Buccollini et al., Association between age at onset of psychosis and age at onset of cannabis use in non-affective psychosis. Schizophrenia Research, 139 (1), 157-160, 2012
 Meier, Caspi, Ambler et al., Persistent cannabis users show neuropsychological decline from childhood to midlife. Proceedings of the National Academy of Sciences, published ahead of print, August 27, 2012.

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Synthetic Drugs



- Not really “Spice,” “Bath Salts,” “Incense,” or “Plant Food”
- Chemically-based; not plant derived
- Complex chemistry
- Constantly changing to “stay legal”

2



Will They Turn You into a Zombie? What Clinicians Need to Know about Synthetic Drugs (2nd Edition)

<http://www.uclaisap.org/slides/synthetic-drug-training-package.html>



Pacific Southwest (and Region 6)
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South Southwest (and Region 6)
ATTC
Addiction Technology Transfer Center Network
www.samhsa.gov

3

Cannabis vs. Cannabinoids: Clinical Cases

Most symptoms are similar to cannabis intoxication

- Tachycardia
- Reddened eyes
- Anxiousness
- Mild sedation
- Hallucinations, acute psychosis
- Memory deficits

Symptoms not typically seen after cannabis intoxication

- Seizures
- Hypokalemia (low potassium)
- Hypertension (high blood pressure)
- Nausea/vomiting
- Coma
- Agitation, violent behavior

Schneir 2012 J Med Tox
Rosenbaum et al. 2012 J Med Chem
Forrester et al. 2011 J Add Dis
Hermanns-Clausen et al. 2012 Addiction

21

Findings from the 2014 Texas Secondary School Survey

- 23% of Texas secondary school students have ever used marijuana. 9% used in the past month.
- 7% of Texas secondary school students have ever used synthetic marijuana. 2% used in the past month.

22

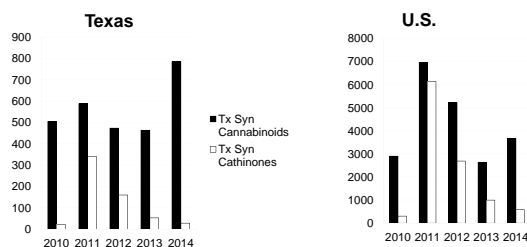
Synthetic Cathinones: Bath Salts

- Mimics the effects of the Khat Plant.
- Could be 4-MMC, mephedrone, or over 37 other varieties.
- Sold on-line with little info on ingredients, dosage, etc.
- Advertised as Legal Highs, Legal Meth, Cocaine alternatives, etc.
- Taken orally or by inhaling; injectors report abscesses and pain.
- Serious side-effects include tachycardia, hypertension, confusion or psychosis, nausea, convulsions.*
- Labeled "not for human consumption" to get around laws prohibiting sales or possession.



*Wood & Dargatzis, Novel Psychoactive Substances: How to Understand the Acute Toxicity Associated with the use of these substances, Therapeutic Drug Monitoring, 34: 363-367, 2012.

Calls to Texas & US Poison Control Centers: 2010-2014



SOURCE: AAPCC and DSHS

4

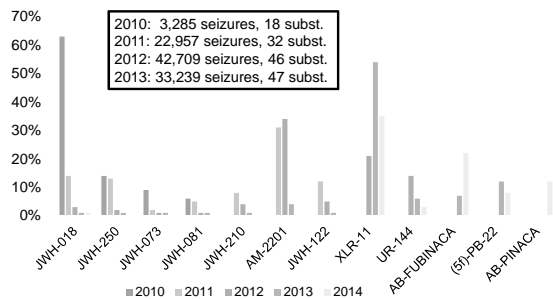
Characteristics of Synthetic Cannabis Users in Texas Drug Treatment

- 412 admitted to publicly-funded treatment in Texas in 2013.
- Average age 23; had been using the drug 2.5 years prior to treatment admission.
- 75% male; 52% white, 38% Hispanic, 6% black.
- Only 38% had no legal problem.
- 33% lived with family; 6% homeless.
- 8% employed full time; 45% unemployed.

SOURCE: Texas DSHS

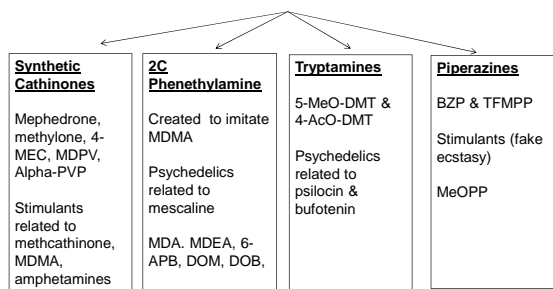
7

Synthetic Cannabis Items Identified and Reported to U.S. NFLIS: 2010-1/2 2014



8

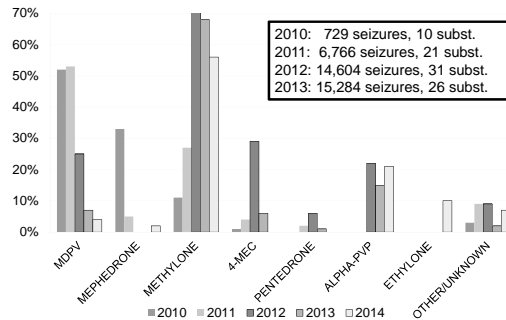
From the term “Bath Salts” to...



And Dissociatives related to ketamine and PCP and Opioids with varying potencies of morphine: 80%, 5.4x potency, 10,000 times potency.

9

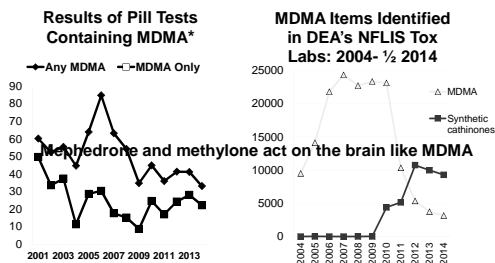
Synthetic Cathinone Items Identified and Reported to U.S. NFLIS: 2000-1/2 2014



Source: US NFLIS.

10

Glimpses of MDMA Situation in U.S.: 1999-2013



*http://www.ecstasydata.org/stats_substance_by_year.php

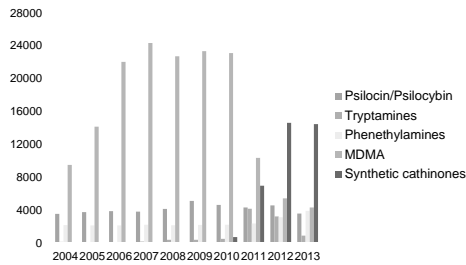
15

New MDMA Warning Watch out for Molly!

- “Molly” initially referred to ecstasy pills with high quality MDMA powder. With MDMA shortage, now have more caffeine, meth, & methylone with little MDMA in them.
- European Monitoring Centre for Drugs and Drug Addiction issued warning in February 2014 that “dangerously high” levels of MDMA are appearing in Europe.
- MDMA tablets in the EU in 2012 contained 60 – 100 mg of MDMA, but tablets containing 150 and 240 mg of MDMA available.
- Austin City Limits death involving MDMA.

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Changes in Psychoactive Substances Identified in Forensic Laboratories in US: 2004-2013



SOURCE: National Forensic Laboratory Information System, 2010, 2011, 2012, 2013

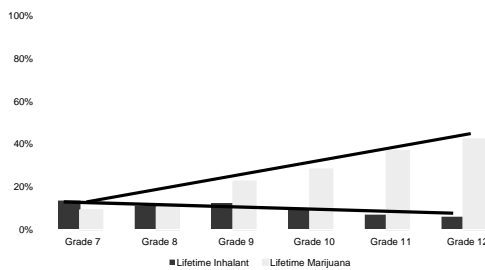
17

New Issues?

- Need better way to disseminate information on harms of new drugs. Adults know very little about them. How can parents talk to their kids when they have no idea what they are talking about?
- Phenethylamines. Need better categorization of these drugs, particularly those with amphetamines such as DOM, DOB, etc.
- Need information on the new and “more potent” generation of cannabinoids and opioids.

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Lifetime Use of Inhalants and Marijuana: Texas School Survey 2014



METHAMPHETAMINE

Different Manufacturing Processes

I. Ephedrine/Pseudoephedrine Based (d-form): (1% of samples tested)

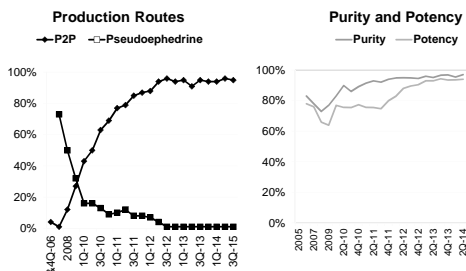
- A. "Nazi Method"-lithium, anhydrous ammonia
- B. Cold method-red phosphorus, iodine crystals
- C. "One Pot" and "Shake and Bake" cooking using dry ammonia nitrite and cough syrup rather than liquid anhydrous ammonia.

II. P2P/Phenylacetone (Illegal in US-Schedule II, precursors legal in Mexico) (l and d,l-forms): (95% of samples tested).

If drug is 100% potent, it's all d-form. If 0% potent, is all l-form. Mexican chemists are refining their process to produce more potent P2P meth.

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DEA Methamphetamine Profiling Program: National Data 2004-3rdQ 2014



Source: DEA

<http://www.justice.gov/dea/resource-center/meth-lab-maps.shtml>

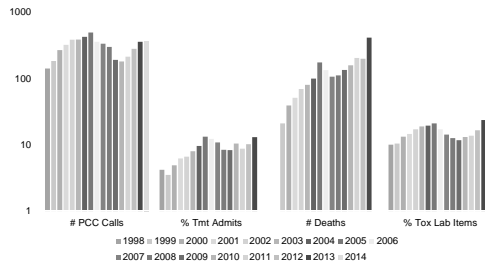
21

Methamphetamine

- Indicators are now equal to or at higher levels than before the ban on pseudoephedrine. Proportion of NFLIS items that were meth rose from 19% in 2012 to 24% in 2014 in Texas. Only cannabis more frequently identified in Texas in 2014.
- Purity & potency across US remain at 95-96% which means the cooks have figured out how to get rid of the l-isomer.
- Areas which had traditionally been dominated by heroin now reporting increasing problems with meth and new users becoming psychotic in short period of time due to potency.
- More crystal meth use among young MSM and high-risk heterosexual populations.
- STDs being spread by use of GRINDR® and Craig's List® but outreach workers also using these apps to locate their cases.
- Meth can be brought in from Mexico as powder dissolved in water and converted to crystal in the US.

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Indicators of Methamphetamine Trends in Texas: 1998-2014



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What is **DxM**? **Dextromethorphan** is a psychoactive drug found in common over the counter cough medicines.



Source: [www.third-plateau.lycaeum.org/beginner/index.html](http://third-plateau.lycaeum.org/beginner/index.html)

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Dextromethorphan (DXM)

- At high doses, may produce dissociative hallucinations (distance from reality, visual effects with eyes open and closed; perceptual changes, drug liking, mystical-type experiences similar to use of psilocybin.*
- Can produce tachycardia, hypertension, agitation, ataxia, and psychosis at high doses.
- Dose-dependent use pattern to try to gauge the amount they need to take to produce the desired effect, which is one of 5 plateaus.

*Reissig, Carter, Johnson, Mintzer et al., High doses of dextromethorphan, Psychopharmacology, 22:1-15, 2012.

28

Internet

- Consists of components
 - Surface web
 - Search engines we use on a daily basis
 - Google
 - Yahoo
 - Functions off an index system
 - Locates domains that follows hyperlinks from other domains
 - Data in-capabilities that do not allow the index to search into the deep web
 - Deep web
 - Technical obstacles
 - Timed-entry
 - Password access
 - Require deliberate search into a website
 - Not always bad
 - Dark web
 - Small portion of the web that is intentionally hidden
 - Inaccessible through standard web browsers

Purchase Menu

- Illegal services:
 - Copyrighted media, hit-men/contract killings
 - Human trafficking, child pornography
 - Illegal firearms, illegal drug trade- Silk Road
- Identity Theft:
 - New passport, ID, social security number, stolen credit card numbers
- Bit-coin:
 - On-line encrypted currency, no banks involved, completely anonymous
- Delivery through FedEx, UPS, DHL, etc.

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