The “Old” Drugs: Drug Use Trends in Texas Today

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Worrisome Trends

- DEA’s EPIC says there is an association between heroin and methamphetamine trafficking. Meth is cheap now and profit margins are higher if they also sell heroin.
- Latest cocaine seizures on the border may be initial indications of increase in cocaine due to increased acreage in Colombia, no use of herbicides, and FARC treaty.
- Cannabis imports from Mexico down 49%; users prefer domestic indoor grown and cannabis from California and Colorado.
- Shift in synthetic cannabis users Getting older, use daily, unemployed, homeless, self-referral to treatment, more serious effects if have past history of mental health problems.
- Continuing role of Dark Web in providing drugs.

Cocaine  Heroin  Methamphetamine  Marijuana

FY2014  FY2015  FY2016
Abused Pharmaceutical Drugs Identified by Forensic Labs by US Region: NFLIS 2016


Opioid Death Rates in States: 2010-2015

The Opiates
Heroin Sources and Supply Routes

Texas Treatment Admissions: 1975 and 2016

% of All Admissions

Source: TCADA & DSHS
Texas Treatment Admissions: 1975 and 2016

Average Age

% Male

Source: TCADA & DSHS

Mexican Black Tar Heroin

Mexican Brown Heroin

South American Heroin & “new” Mexican White Heroin

Texas Heroin Admissions by Age Group: 2010-2016

Source: DSHS
Other Opiates

• Shifting back and forth between Rx opiates and heroin. Which came first?

• Still problem with pain pill mills. Houston Cocktail “Holy Trinity”: oxycodone, soma, alprazolam (Xanax).

• Evidence in Florida of decreasing problems due to Prescription Monitoring Programs but heroin is up.

• Reports of difficulty in using “hardened” extended release pills but methods to use are discovered.

• Cost difference? Heroin cap in Texas is $10-$20 vs. $5-$80 for old crushable OxyContin or about $1-$10 for newer hard to crush.
Opioids of Concern

- Hydrocodone (Vicotin, Lortab)
- Oxycodone (OxyContin)
- Methadone (for pain)
- Hydromorphone
- Percodan
- Dilaudid
- Tramadol
- Fentanyl (Acetyl & Butryl)
- U-47700
- MT-45
- W-18

Fentanyl Items Identified in US Forensic Laboratories: 2000-1/2 2017
Fentanyl and Alprazolam (Xanax)
Fentanyl Exposures: American College of Medical Toxicology Recommendations

• Workers who may encounter fentanyl should be trained to recognize the symptoms of opioid intoxication, have naloxone readily available, and be trained to administer it.
• The drug must enter the blood and brain from the environment.
• Personnel with advanced airway training should provide airway support for patients who are in extremis or those who do not improve with naloxone.
• Incidental dermal exposures should immediately be washed with copious amounts of water.
• If there is significant airborne suspension of powdered opioids, a properly fitted N95 respirator or P100 should be worn.
• OSHA-approved protection for eyes and face should be used during tasks where there exists possibility of splash to the face.
• Naloxone should be administered to those with objective signs of hypoventilation from opioid intoxication.

Comparison of Semi-Annual Oxycodone Trends in Drug Testing in the General Workforce and Drug Submissions of Forensic Labs
July, 2017-Medicare Strike Force closed Houston Pill Mill which gave 60-70 medically unnecessary hydrocodone scripts daily at $300 cash per visit
Risk Factors for Opioid Overdose

- Taking opioids at high doses (equal to 20 mg of morphine or more per day).
- Having a doctor change an opioid dosage or switch you to a different opioid.
- Having problems with your lungs, such as COPD (chronic obstructive pulmonary disease), sleep apnea, and/or asthma.
- Taking medications or substances that interact with an opioid, including alcohol, some sleeping aids, and anxiety medications.
- Taking certain medications for depression.
Pharmacologic Treatments

FDA approved for Opiates

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

FDA approved for Alcohol

- **Accamprosate, Disulfiram, Naltrexone**

Opioid and Heroin Patients Receiving Methadone or Prescriptions for Buprenorphine or Naltrexone vs. Abuse/Dependent or Past Month Users of Pain Relievers Nonmedically or Heroin: 2012

<table>
<thead>
<tr>
<th>Opioid and Heroin Patients Receiving MAT*</th>
<th>Past Month Use of Pain Relievers or Heroin NSDUH 2012</th>
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<tbody>
<tr>
<td>1,462,069</td>
<td>5,197,000</td>
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</table>

* Number of individuals receiving buprenorphine or naltrexone from IMS plus number of patients receiving methadone from NSSATS. Source: IMS Total Patient Tracker, Sept 2014 and SAMHSA NSSATS. Buprenorphine data exclude forms indicated for pain. Oral naltrexone factored for opioid dependence use. Methadone patients from SAMHSA, N-SSATS 2012.
Distribution of Controlled Substances by Manufacturer/100K Texas Population

Possible Limitations on Treatment Access

- Are today’s methadone programs easily accessible and attractive to new young suburban patients?
- Treatment philosophies to attract aging Baby Boomers using pain pills?
- Cost of buprenorphine & naltrexone and reimbursement?
- Limits on size of patient loads?
- Lack of knowledge about new MATS and targets for use + stigma of and by users.
### 1999 vs. 2015 Overdose Death Rates per 100,000 in Texas Counties Due to Heroin, Other Opiates, Other Synthetic Opiates, and Methadone

<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bexar County</td>
<td>2.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Collin County</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Dallas County</td>
<td>2.9</td>
<td>6.1</td>
</tr>
<tr>
<td>Denton County</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>El Paso County</td>
<td>5.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Galveston County</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>Harris County</td>
<td>1.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>Nueces County</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Tarrant County</td>
<td>2.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Travis County</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Statewide</td>
<td>1.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Counties with fewer than 20 deaths were suppressed but termed "unreliable" for Bell, Fort Bend, Hidalgo, Liberty, Lubbock, McLennan, Nacogdoches, Smith, Webb, Williamson.

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**Cocaine**
Cocaine: Why the Changes?

- Poison control, treatment, deaths, & tox lab indicators in Texas have stabilized in 2016 after decreasing for several years.
- The acreage under cultivation in Columbia is up from 83,000 hectares in 2011 to 159,000 in 2015.
- In 2015, DEA reports price per pure gram increased from $98 to $244 while purity decreased from 67% to 44%.
- Cocaine powder can be injected or sniffed/inhaled. Crack is cocaine to which baking soda or another base chemical has been added and with water turned into crack “rock”. Acidic cocaine will flash and burn while basic cocaine will smolder so it can be smoked.
- Prepare to see powder cocaine and then basic crack return.
Watch for Problems with Cocaine

- Levamisole is cancer medication also used in de-worming animals.
- Can result in agranulocytosis (discoloration of skin, beginning in ears—sign of skin cell death)
- Results in neutropenia (bone marrow does not make enough white blood cells)
CONCERNS

• There is no FDA-approved medication to treat cocaine craving and dependence

• Behavioral therapies showing positive results include contingency management, cognitive-behavioral therapy, therapeutic communities, and use of recovery methods tailored to the needs of the individual.

BENZODIAZEPINES
Benzodiazepines as % of All Items Identified by Texas Tox Labs, Number of Deaths, & Alprazolam Treatment Admissions

Number of Poisoning Deaths Involving Benzodiazepines and Other Opiates: U.S. 1999-2015

Data from CDC Wonder retrieved 3/4/2016
METHAMPHETAMINE

QUICK HISTORY OF METH

• Before 1970, amphetamine could be purchased over the counter.

• 1970-1985-meth made using pseudoephedrine + red phosphorus or iodine—Cooked at home. Bikers carrying the product in their “crank cases

• 1982- phenyl-2-propanone(P2P) banned in the US but is still legal in Mexico. Cooks moved from use of pseudoephedrine, which is now regulated in the US and banned in Mexico, to P2P with new P2P analogs under development.
Methamphetamine

- Indicators are now equal to or at higher levels than before the ban on pseudoephedrine.
- 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.
- 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.

Purity vs. Potency

Purity is a measure of the amount of an illicit substance compared to other substances such as adulterants or solvents.

Potency is the measure of drug activity in terms of the dosage required to exert an effect on the body.

Methamphetamine has 2 isomers:

- The $/-$isomer form is sold over-the-counter and exhibits vasoconstrictive effects (Vicks inhaler).
- The $d$-isomer form is 3-5 times stronger on the central nervous system activity (Ciccarone 2011).

If drug is 100% potent, it’s all $d$-form. If 0% potent, is all $l$-form.

Mendelson et al., 2008, JWC Clin Pharm 21, 8-5; Ciccarone, 2011, Prim Care 38, 41-58;
DEA Methamphetamine Profiling Program: National Data 2006-2016

Production Routes
- P2P
- Pseudoephedrine

Purity and Potency
- Purity
- Potency

Source: DEA


# PCC Calls  % Tnt Admits  # Deaths  % Tax Lab Items
Comparison of Semi-Annual Methamphetamine Trends in Drug Testing in the General Workforce and Drug Submissions of Forensic Labs

Texas Male and Female AIDS Cases by Race/Ethnicity: 1999-2016
Percent of Texas AIDS Cases Reported by Mode of Exposure

Source: DSHS

Texas Case Rates of Early Latent Syphilis in Men Who Have Sex with Men, Texas 2010-2015

Source: DSHS
Texas MSM with Syphilis Who Met Partners Via Phone App: EpiGram 2013 & 2014

2013

2014

Dallas CDC Survey of MSM: Past Year Non-IDU Who Used Meth

EpiGram: MSM with Syphilis Met Partners via Phone App by Race-Ethnic 2013 & 2014

No 2013 Yes 2013 No 2014 Yes 2014

White Black Hispanic
CONCERNS

• There is no FDA-approved medication to treat methamphetamine craving and dependence. The Matrix Model can increase treatment adherence, but no cure.

• There is no cure for AIDS, but one pre-exposure prophylaxis, if taken exactly as prescribed, can prevent HIV infection if safe sex practices and condoms are used during any kind of sex.

Marijuana
Monitoring the Future Survey: 1991-2016: Marijuana Use by 12th Graders

% Texas Secondary Students Who Had Used Marijuana in the Past Month, by Ethnicity: 1990-2016

Source: DSHS
Wax, Budder, Shatter

- Advertised for “patients”
- Cost $100-$200
- Potency varies
- Higher percentage of THC
- No odor. Similar to electric cigarettes
- Pen-style vaporizers contain 100-150 hits
- Some can be recharged & refilled
Texas Poison Control Calls, Treatment Admissions, & Tox Lab Exhibits: Marijuana 1998-2016

Personal, Non-Medical Use of Marijuana

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Personal Nonmedical Use

- Changes in law in Colorado & Wash State led to increased hospital discharges, emergency department visits and poison center calls, but arrests and admissions to drug treatment programs were down.
- Arrests for possession dropped but driving under influence increased.
- Canna-business generated large tax revenues.
Medical Marijuana

- New issues such as low-quality evidence of effects that don’t meet FDA standards.
- Inconsistencies in which conditions qualify as medical.
- Need good data on characteristics of medical marijuana users.
- Information on potency and which leaf to buy for which condition.

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.

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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