

# The Walking Drugged



Kirk Hughes RN, FF/EMT-B, CSPI

# Disclosure Statement

**I have no financial relationships with  
any commercial interest related to the  
content of this activity**



Minnesota Poison Control System

-Confidential  
-No Charge  
-24/7 Service



.....

*Anytime*                      *Anywhere*                      *Anyone*

## Call Center 2015

- 47,406 total calls
- 44% Children < 6 y.o.
- 25% from Health care providers

# Hennepin Regional Poison Center Staff

- Pharmacists / Certified Poison Specialist



**Minnesota Poison Control System**

Answering your calls 24/7...

- Immediate Professional Assistance
- Confidential
- Free of Charge

**POISON Help**  
1-800-222-1222

  
Hennepin County  
Medical Center

This is an HCMC Medical Device for use by authorized staff and patients being guided by authorized staff to sign up for MyChart.

# Chanhassen Class of 2016

2013 Dylan Turcotte: Heroin

2014 Macalob Bartram:  
Heroin

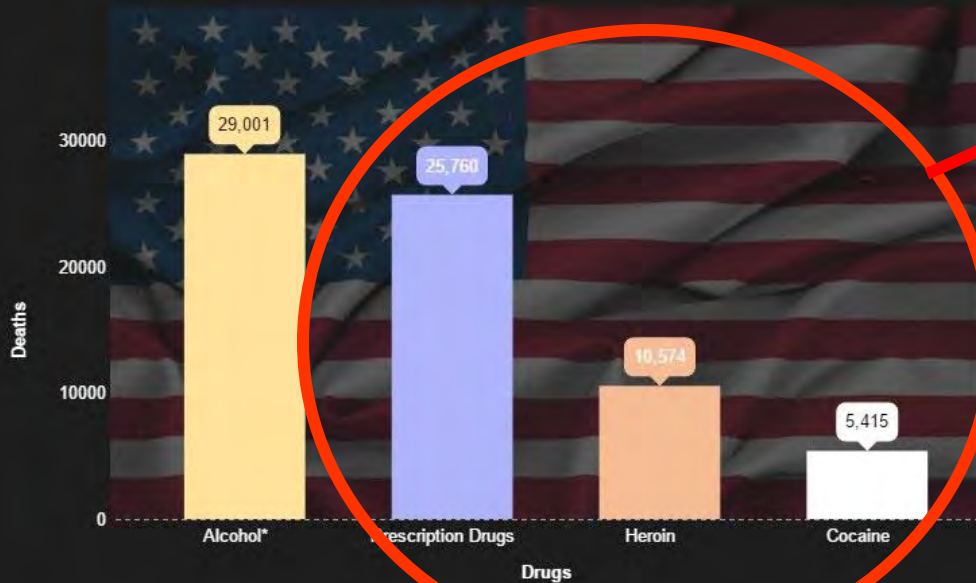
2015 Alex Snyder: DTP?  
Synthetic

2014 Carver County, Davis  
Colley: Synthetic  
cannabinoid contributed



# Overdose Deaths in the US vs. Motor Vehicle Crash Deaths 2014

## Overdose Deaths in the United States (2014)



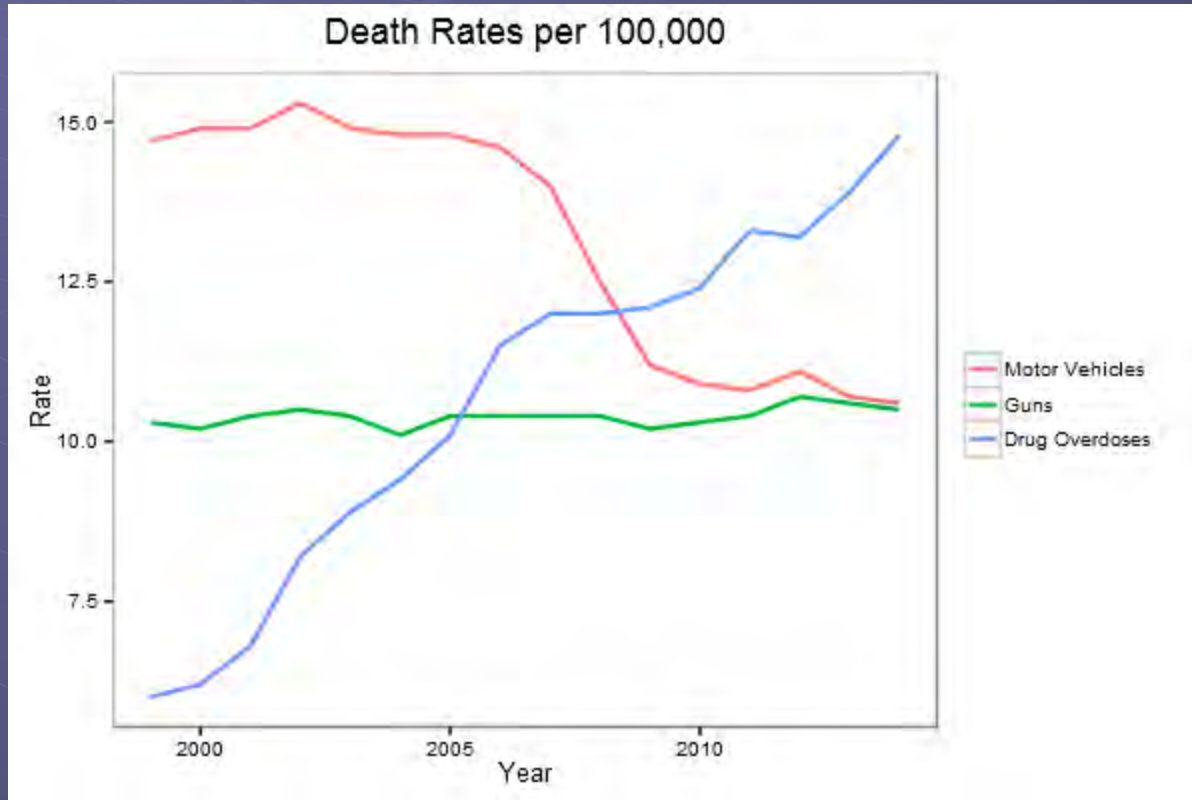
Source: National Center for Health Statistics, Centers for Disease Control and Prevention

41,749

2014 Traffic fatalities\*  
32,675

\*NHTSA's Fatal Analysis Reporting System (FARS)

# Reason Why We are Here Today



Information from CDC

# OD Fatalities in MN

## MDH Report

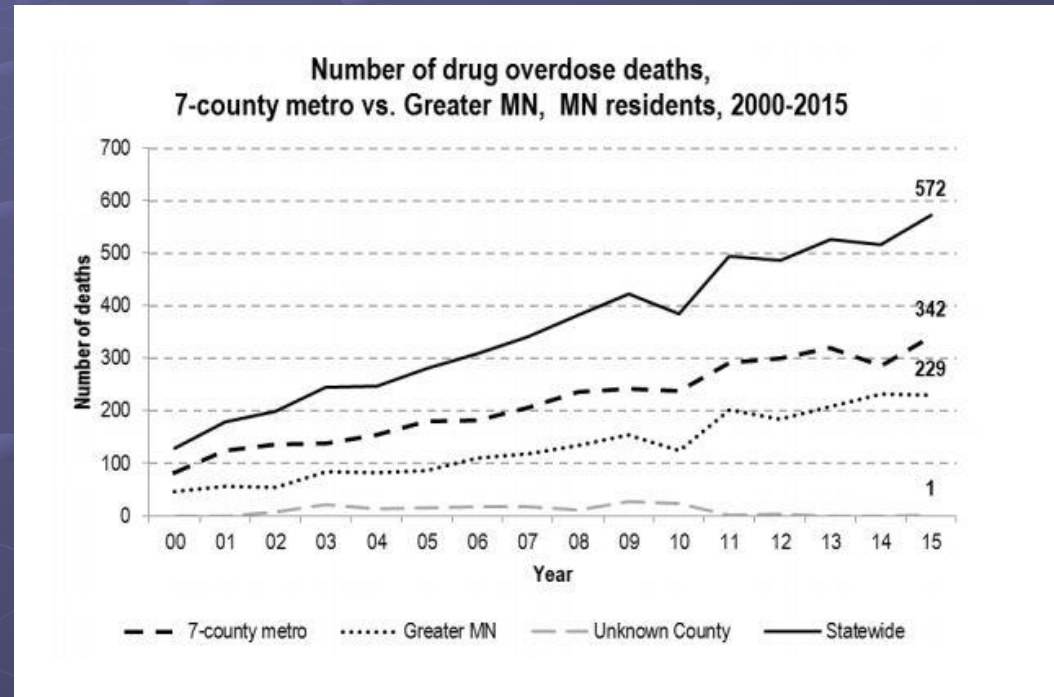
MN 2015

572 Died from OD

411 Died from MVC

Since 2000

~ 5000 died from OD





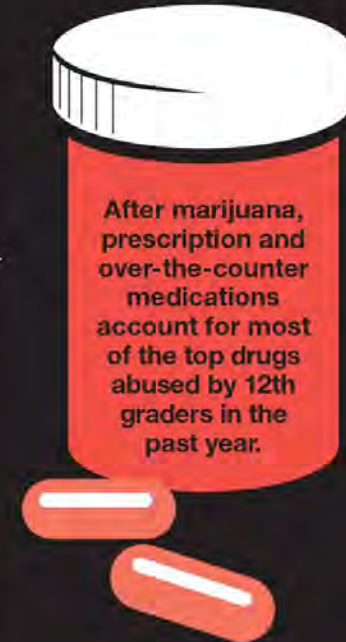
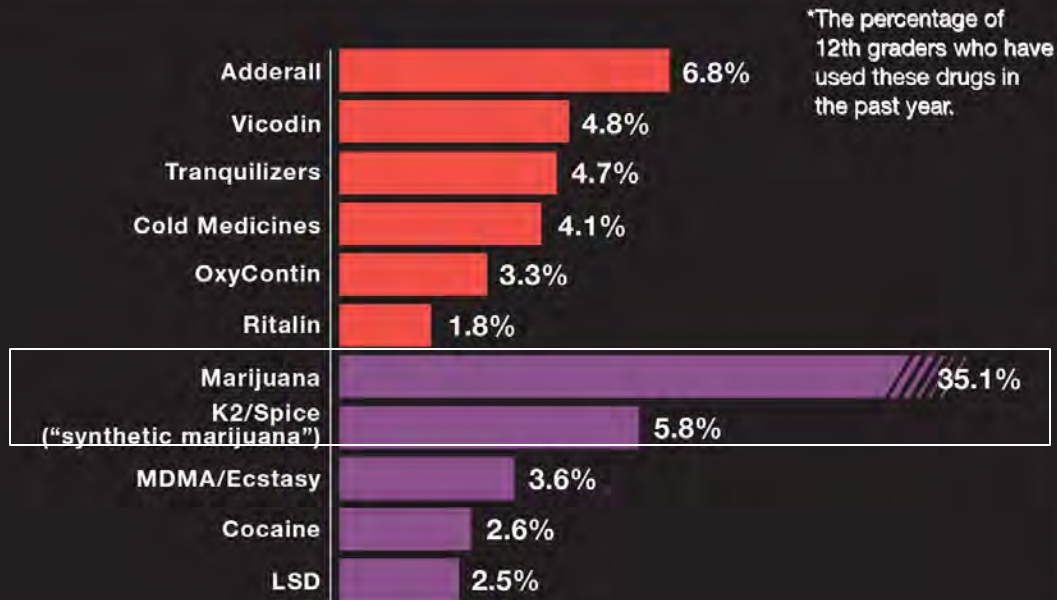
## Costs of Substance Abuse

Abuse of tobacco, alcohol, and illicit drugs is costly to our Nation, exacting more than \$700 billion annually in costs related to crime, lost work productivity and health care.\*\*

	Health Care	Overall
Tobacco	\$130 billion	\$295 billion
Alcohol	\$25 billion	\$224 billion
Illicit Drugs	\$11 billion	\$193 billion

- 50 Years of Progress. A Report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014.
- Centers for Disease Control and Prevention. Excessive Drinking Costs U.S. \$223.5 Billion. Accessed March 9, 2015.
- National Drug Intelligence Center. National Drug Threat Assessment.

## PRESCRIPTION/OVER-THE-COUNTER VS. ILLICIT DRUGS\*



PRESCRIPTION



ILLICIT DRUGS



National Institute  
on Drug Abuse

The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. Fact sheets on the health effects of drugs of abuse and information on NIDA research and other activities can be found at [www.drugabuse.gov](http://www.drugabuse.gov).



# Colorado Experience

## Marijuana and Traffic Fatalities

Percent of All Traffic Deaths That Were Marijuana Related\*



\*Percent of All Fatalities Where the Operators Tested Positive for Marijuana

SOURCE: National Highway Transportation Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2013 and CDOT/RMHIDTA 2014. NOTE: Cannot confirm 100% reporting prior to 2012.

**The  
Legalization of  
Marijuana in  
Colorado  
*The Impact***

**Volume 4  
September 2016**



**Rocky Mountain High Intensity  
Drug Trafficking Area**  
[www.rmhdta.org](http://www.rmhdta.org)

# MJ Kinetics

## Smoked



## Ingested



P450  
Cytochrome



11-hydroxy-  
THC

### Kinetics

Onset: Seconds to Minutes

Peak Effects: 15-30

### Kinetics

Onset: 30-90 minutes

Peak: 1-6 hours\*

\**Clin Pharmacokinet* 2003;42[4]:327

# 1<sup>st</sup> THC Death

March 11, 2015

- 19 y.o. male ingested 1/6<sup>th</sup> of a MJ infused cookie (65mg THC total)
- 30-60 minutes “not feeling any effects”. Ingested the rest of the cookie
- 3.5 hours after taking the first bite he jumped to his death
- Drug Screen revealed on THC in his system 7.2 ng/mL



# Newer Forms



**Shatter** is smooth, clear and solid. It is the purest and most potent form. This can result in over 80 percent THC.



**Budder** or **Wax** THC percentages in the 70s. It has a creamy consistency from being whipped.



**Honey oil** or butane hash oil – can retain a full flavor profile, however, THC levels tend to be less consistent.



# Wax in MN News

3/25/15 Stearns County: 2 men, 18 and 19, were charged with third-degree murder in Stearns County on allegations that a fire that started while making wax killed an 85-year-old woman

## Advantages:

- Easy to hide
- High THC content
- Can be “Vaped”
- Low Smell



## UPDATE

- One plead guilty to aiding & abetting 3<sup>rd</sup> degree murder: 7 years in prison
- Other plead guilty: 7 months in jail & 25 years probation

# MJ labs causing Explosions Nationwide

9/27/16: Explosion in the  
Bronx killing a FDNY  
Battalion Chief.

- Propane/Butane powering CO2 generators for accelerated MJ plant growth
- Precipitating hash oil from MJ extractors using butane while heating the precipitant



# MJ Ingestion Case Study

Omaha, NE: Aug  
2016

53 y.o. male's wife calls  
911

Unknowingly ate 4  
brownies made by son  
w/ MJ

Crawling on floor using  
profanities and calling  
the cat "Bitch"



# Synthetic Cannabinoids (SC)

There is no clear Toxidrome for Synthetic Cannabinoids

## Common Adverse effects of Early SC's

Anxiety

N/V

Tremors

Palpations

Nystagmus

Paranoia

Hallucinations



## Serious Adverse effects of Newer SC's

Excited Delirium

Kidney Failure

Seizures

Psychosis

Cardiotoxic

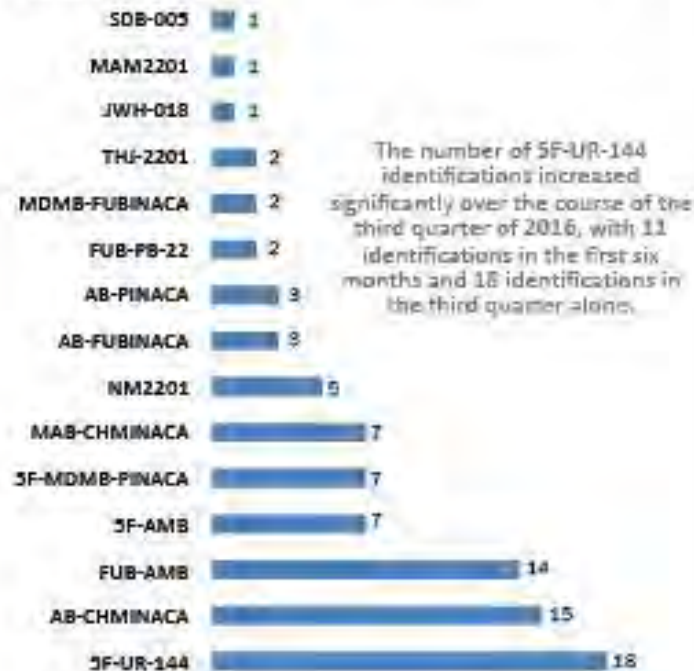
Coma/Death



3<sup>rd</sup> Qtr 2016

## SYNTHETIC CANNABINOIDS

THERE WERE **88** SYNTHETIC CANNABINOID IDENTIFICATIONS IN THE THIRD QUARTER OF CY 2016. 5F-UR-144, AB-CHMINACA, AND FUB-AMB ACCOUNTED FOR APPROXIMATELY **53%** OF THE SYNTHETIC CANNABINOID IDENTIFICATIONS DURING THE REPORTING PERIOD.



# SC Morbidity/Mortality

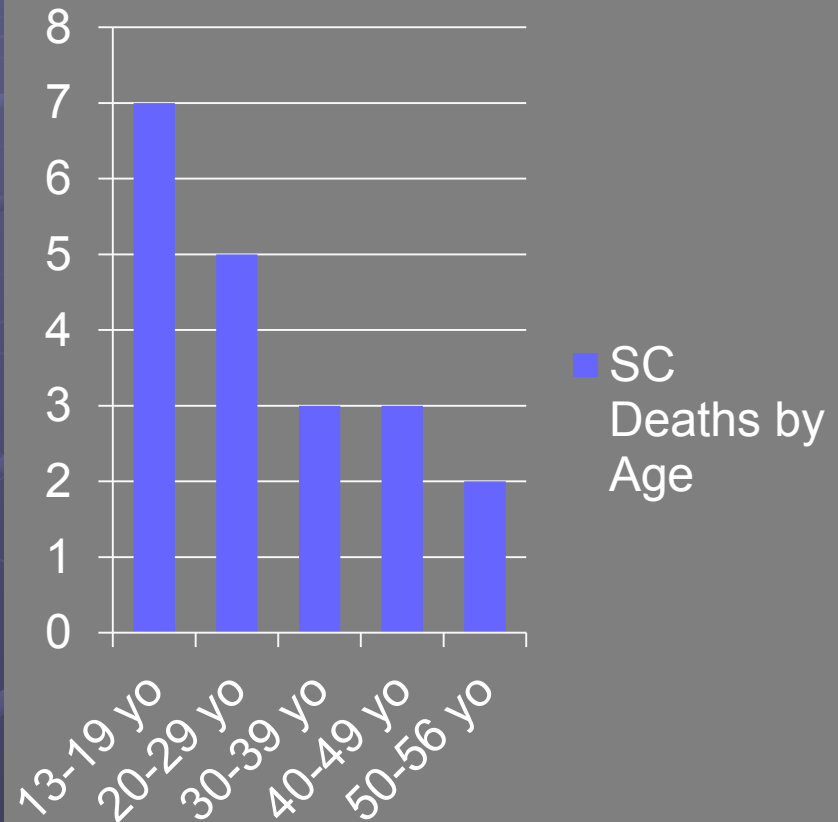
Source:

NEJM 373;2 Jul 9,2015

- N=810
- Mar 2012 – Jan 2015
- Deaths = 23 or 3%

16 different SC homologs identified in the study

SC Deaths by Age



# Opioids



## OD Effects

- **CNS depression**
- **Respiratory depression**
- **Miosis**
- **Hypothermia**





Over  
**249,000,000**

prescriptions for opioids were  
written in 2013— enough for  
every adult in America to have  
a bottle of pills

SOURCE: CDC

TURN  
THE  
TIDE



# Adulterated Oxycodone

## Research Chemical U-47700 in Counterfeit Oxycodone Pills

In March 2016, law enforcement officers in Lorain County, Ohio, seized 500 pills that visually appeared to be oxycodone. The pills were blue and had "A 215" markings, consistent with 30 milligram oxycodone pills (see Figure 5). Laboratory analysis indicated that the pills did not contain oxycodone, but were instead the research chemical U-47700.<sup>19</sup> U-47700 is an unscheduled synthetic opioid not studied for human use that has caused at least 17 overdoses and several deaths in the United States. Although counterfeit opioid pill traffickers currently use fentanyl, it is likely that other synthetic opioids will be utilized if fentanyl becomes inaccessible, or if market preferences shift to other substances.

Figure 5: Counterfeit Oxycodone Pills Containing U-47700.



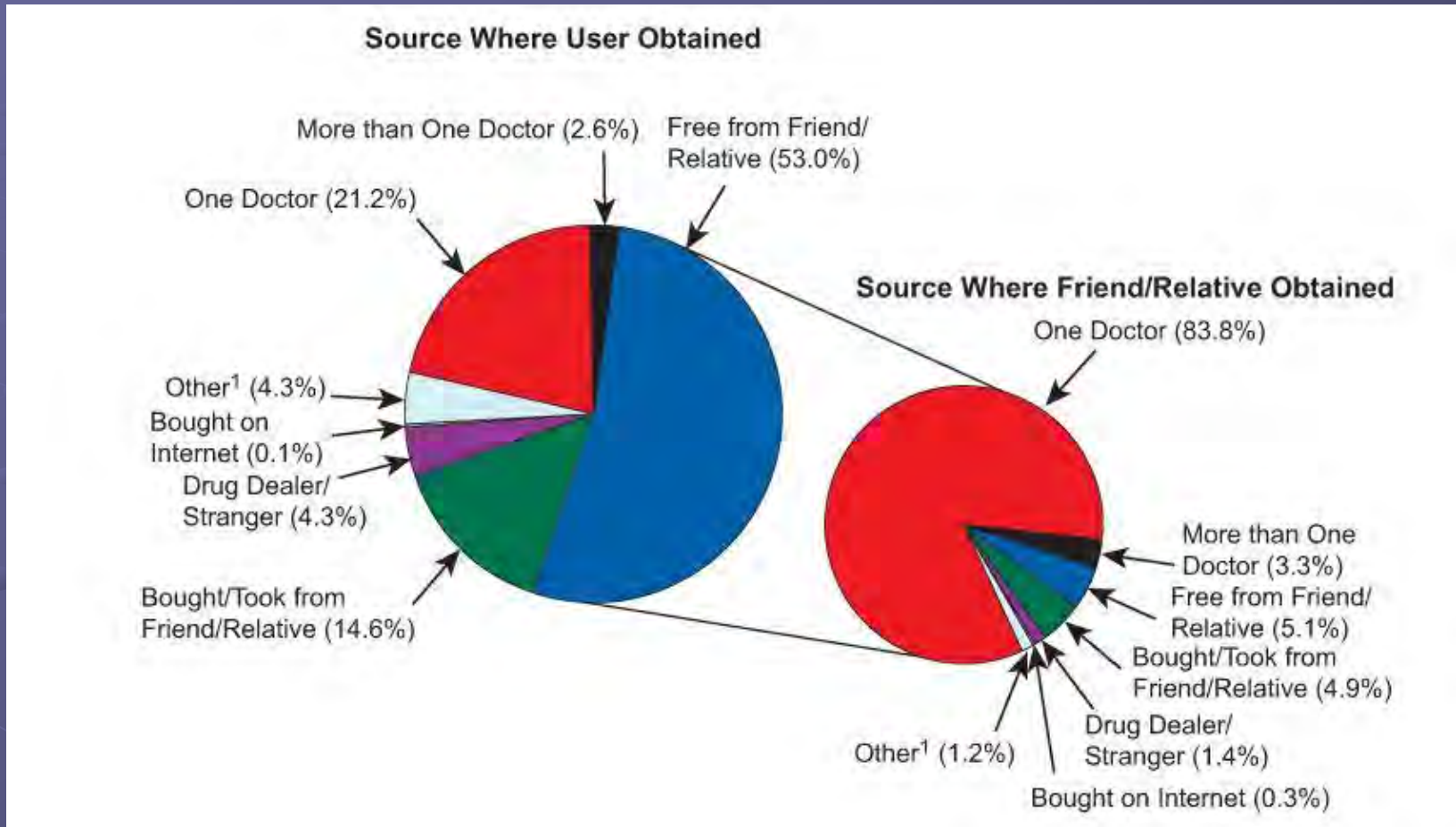
Source: Lorain County, Ohio, Sheriff's Office

# CDC Reports Increase in Fentanyl adulterated Opiates

- 2013-2014
- 426% Increase of seized Drugs testing (+) for fentanyl
- Data from 27 states
- Increase in number of deaths from Fentanyl & Synthetic opioids 79%
- No increase in Rx of Fentanyl during this period



# Rx Pain Reliever Sources



Substance Abuse and Mental Health Services Administration, *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.

# Womens Woes

## ● 2010-2013 (CDC\*\*)

- Women's Heroin deaths increased from 0.4 to 1.2/100,00

## ● 1999-2010 (CDC\*)

- 48,000 Women died of Rx Pain Reliever OD's

## ● 1999-2014 (CDC)

- Middle aged-white woman
  - Opiate OD's up >400%
  - 54,000 deaths from Benzo OD
  - OD's from Black & Hispanic deaths from Opiates/Benzo declining during this time period



\* Center for Disease Control and Prevention. (2013). Prescription Painkiller Overdoses: A Growing Epidemic, Especially Among Women. Atlanta, GA: Centers for Disease Control and Prevention. Available at <http://www.cdc.gov/vitalsigns/prescriptionpainkilleroverdoses/index.html>.

\*\*Hedegaard H, Chen LH, Warner M. Drug-poisoning deaths involving heroin: United States, 2000–2013. NCHS data brief, no 190. Hyattsville, MD: National Center for Health Statistics. 2015. Available at <http://www.cdc.gov/nchs/data/databriefs/db190.htm>

## Ohio 9/16/16 Heroin OD



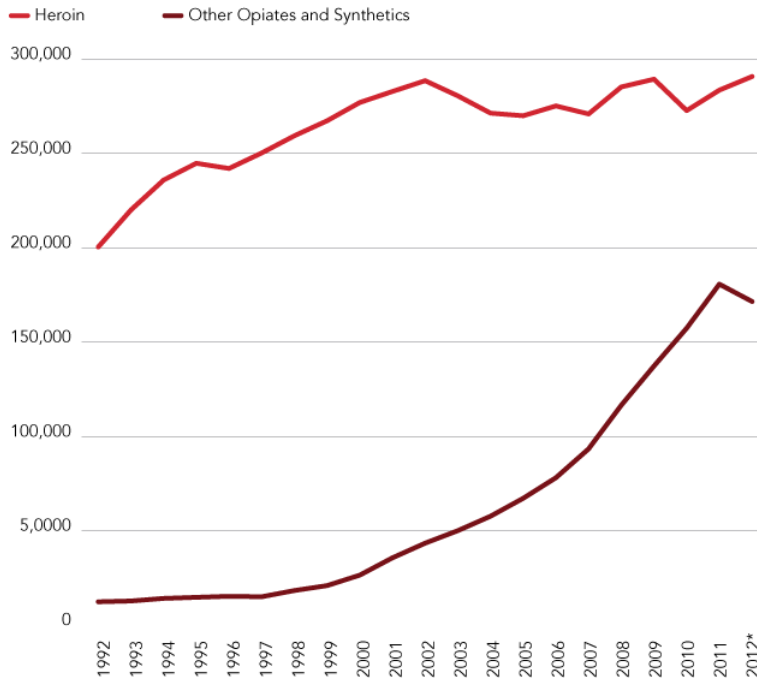
<http://launch.newsinc.com/share.html?trackingGroup=91103&siteSection=WDAF&videoId=31421855>

# The Jump from RX Opioids to Heroin

## Painkillers And The Heroin Market

A growing number of people are using heroin in recent years, in part because it can be cheaper and easier to find than opioid painkillers purchased on the black market. Most heroin users were first hooked on prescription opioids, which generated \$11 billion in 2010 for the pharmaceutical industry.

Substance abuse treatment facilities admissions by primary drug



\*2012 data for Mississippi, Pennsylvania, and West Virginia are not available.

4 out of 5

new heroin users have abused painkillers.

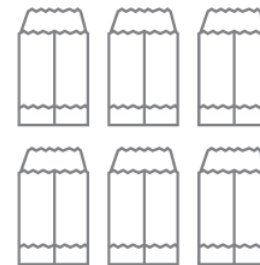


A Cheaper High

\$30 can buy one oxycodone pill on the street in New York...



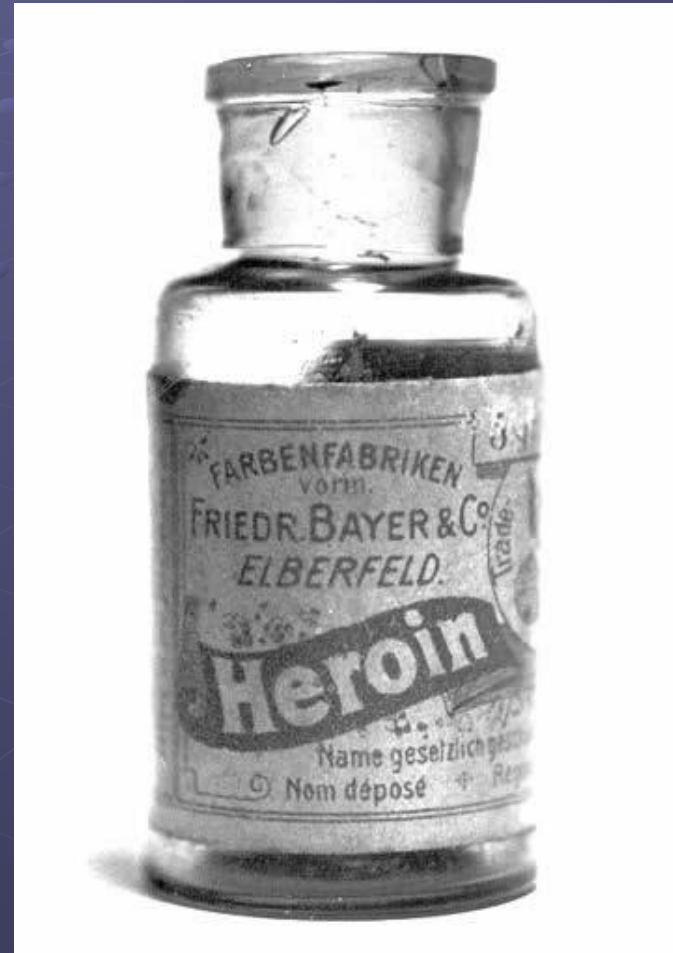
or six hits of heroin.



# Heroin

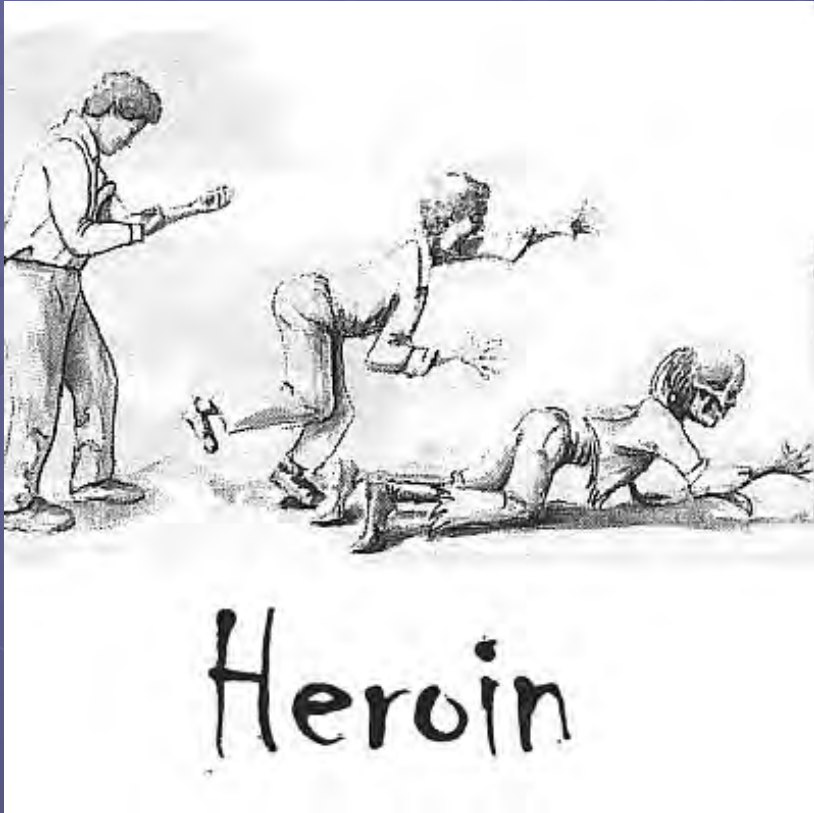
Bayer heroin bottle.

- From 1898 to 1910 heroin was marketed as a non-addictive morphine substitute and cough medicine for children!





# The Perfect Addiction?



- **Intense euphoria in seconds**
  - Addicts prefer heroin and morphine over hydromorphone, fentanyl, oxycodone, meperidine
  - Short acting
- **Rapid tolerance**
  - First time 5-10mg/day titrating up to hundreds mg/day
- **Terrible withdrawal**
  - Within first day

# Minnesota Treatment

## Methadone

- 15 Clinics Statewide
- ~6000 Patients

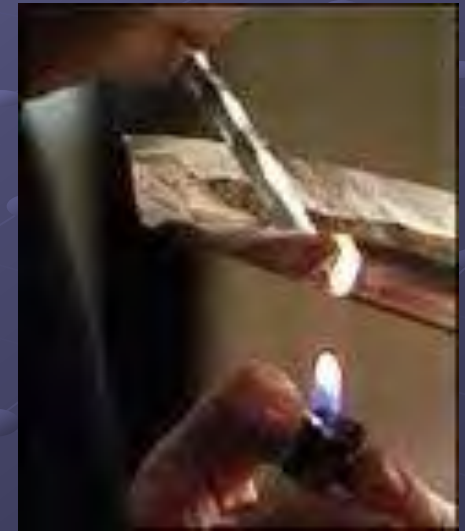
## Suboxone

- Dr can dispense after 8 hour course
- 128 Certified in MN
- Previously manage 100 Patients, now 275



# Routes

- Snort
- Chasing the Dragon
- Injection
- Skin popping
- Smoking



# In the News

3/25/16: Minneapolis PD reports 5 heroin OD's this day. Called "Bad Batch" of heroin.

Spring 2016: North Central MN (Brainerd area) 7 deaths & > 12 non-fatal OD's.

**Report = just more pure heroin vs adulterated**



# MN Heroin Deaths



	2010	2011	2012	2013	2014	2015	2016 (Jan-Sep)
Hennepin	8	22	37	56	51	48*	49
Anoka	5	13	9	10		21#	
Dakota	2	5	7	7	5	30*	
Scott	1	3	3	0	1	9*	

\*Numbers obtained from the Hennepin County Medical Examiners Office  
#Stats obtained from the Anoka County Medical Examiners Office

# OPIOIDS/ ANALGESICS

FENTANYL ACCOUNTED FOR APPROXIMATELY **70%** OF THE OPIOID IDENTIFICATIONS. OF THE **90** IDENTIFICATIONS, FENTANYL WAS FOUND AS THE ONLY CONTROLLED SUBSTANCE IN **30%** OF THE IDENTIFICATIONS AND WITH HEROIN IN **40%** OF THE IDENTIFICATIONS. Furanyl fentanyl was the next most prominent opioid identified, accounting for approximately **10%** of the identifications. Furanyl fentanyl was the only active substance reported in **50%** of these identifications.

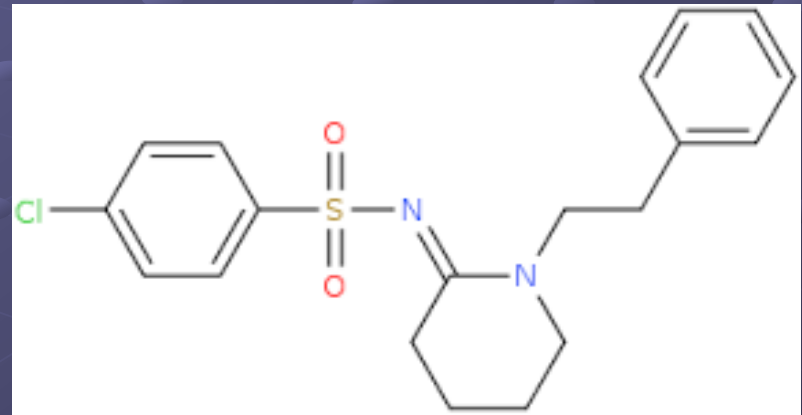




# Novel Synthetic Opioids

# W15

- 5.4x more potent than Morphine
- Unique structure unrelated to almost all other opioids
- NMS Labs can test for

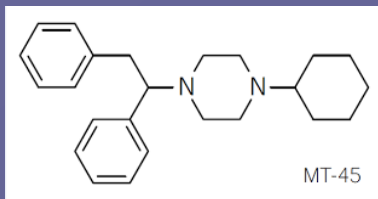




# W18

- Discovered in 1981
- Used as an anesthesia agent in large animals. No recent history of human use
- 1000x more potent than morphine

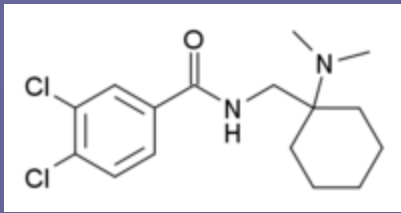




# MT45

- Opioid analog discovered in the 1970's by Dainippon Pharm
- Recreational use associated with hearing loss and unresponsiveness
- Onset/Duration: Similar to Norco

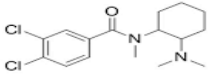




# AH7291

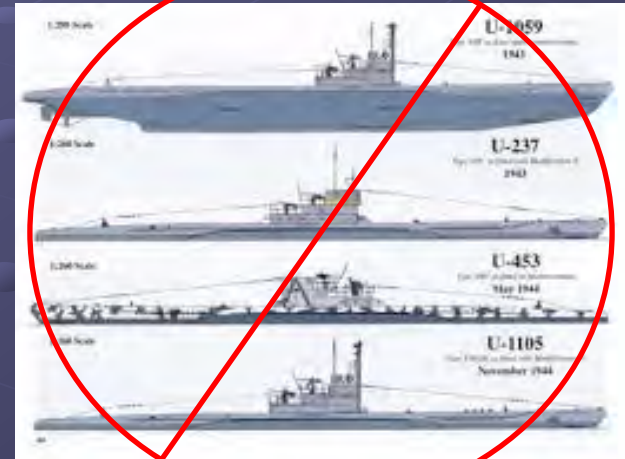
- Discovered in the 1970's by Allen & Hanburys Pharma
- Selective for the MU receptor
- 80% potency of morphine when taken orally





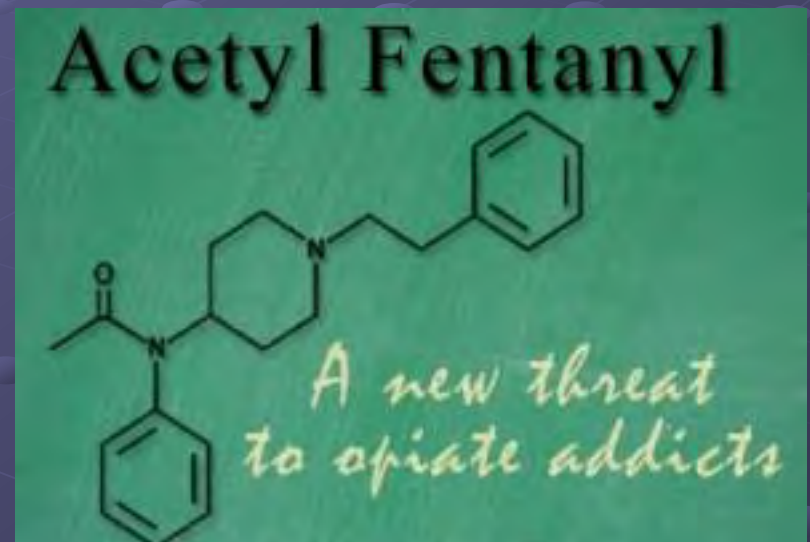
# U47700 (U-Boat)

- Developed by Upjohn in the 1970's
- 7.5x Potency of Morphine in animals. No studies in humans
- NMS labs can detect
- Detected in 16 deaths in 2016
- Onset: 15 min; Duration 5-7 hours
- Known as "Pink" or "Pinky" on the street



# Acetyl Fentanyl

- Analog of Fentanyl
- 5-15x more potent than Heroin
- 2013 Rhode Island = 14 deaths
- 2013 Pennsylvania = 50 deaths
- Not technically Schedule 1 in the US
- Onset 7-10 minutes, Duration 3-4 hours

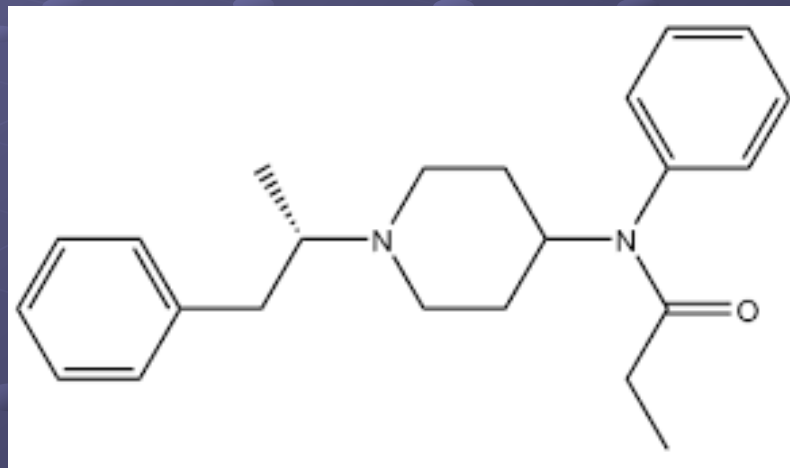
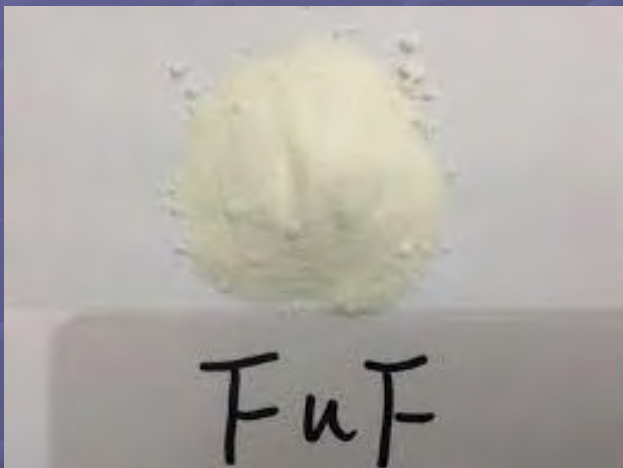


# Butyrfentanyl

- Analog of Fentanyl
- $\frac{1}{4}$  the potency of Fentanyl
- Not directly scheduled in the US.
- Onset 15-30 minutes, Duration 90-180 minutes



# Furranyl Fentanyl (FuF)



# Sufentanil

- Developed by Janssen Pharmaceutical in 1974
- 5-10x more potent than Fentanyl, 500x more potent than morphine
- Available as a transdermal patch in Europe





# Carfentanil

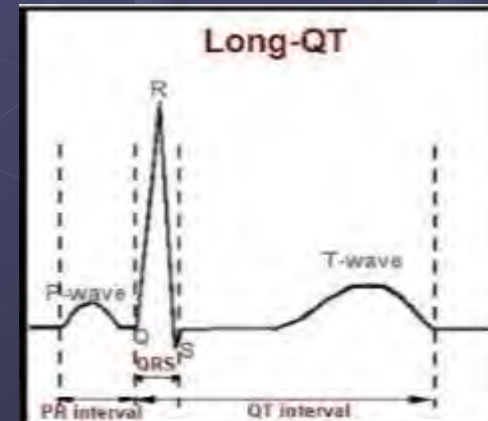
## ● Wildnil

- Develop by Janssen Pharmaceuticals 1974
- Large animal anesthetic
- 10,000 more potent than morphine
- Used in gas form by Russians in 2002 Moscow Theater Chechen hostage crisis 40 Terrorists killed & 130 Hostages died



# Other Trends

- Loperamide HCl
- Urban indications
  - Withdrawal
  - Abuse
- Unadvertised adverse effects
  - QRS widening/QTc Prolongation



# Other Trends

Counterfeit Xanax &  
Oxycodone contain  
Fentanyl

- Xanax G3722  
“Bars”



# Natural Opiate Alternative?

Kratom (Mitragnyna speciosa)

- May agonize Mu opiate receptors
- Low dose: Stimulant
- Medium-High Dose: Sedation



# Naloxone Status Update

As of 22Jun, 2016

- 47 States and Dist. Of Columbia changed laws to enable easier prescribing and dispensing and/or changed “Good Samaritan” laws to summon aid without legal repercussion\*



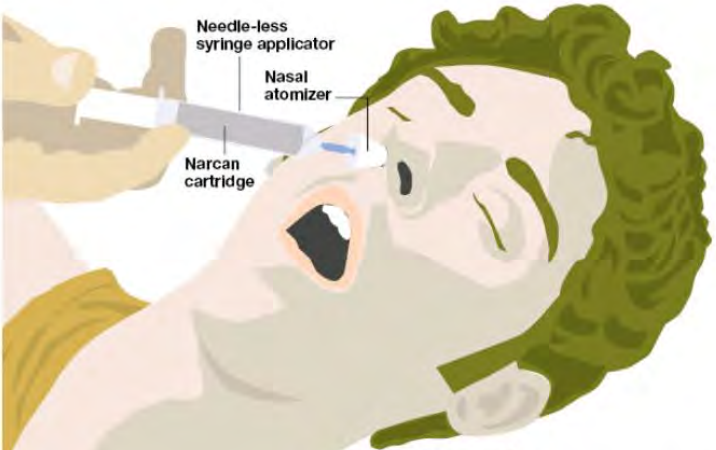
\*[https://www.networkforphl.org/\\_asset/qz5pvn/naloxone-\\_FINAL.pdf](https://www.networkforphl.org/_asset/qz5pvn/naloxone-_FINAL.pdf)

# Steve's Law 8/1/14

- Allows 1<sup>st</sup> Responders & lay public to administer naloxone
- Provides immunity to those reporting someone having a drug OD even if drugs are present



# Resurrection

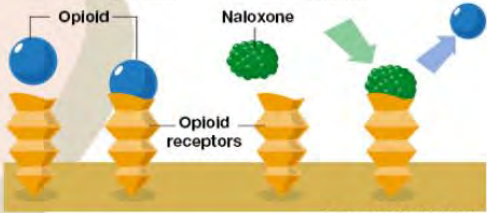


**Needle-less syringe applicator**  
**Nasal atomizer**  
**Narcan cartridge**

**How it works**  
*A prescription nasal spray called naloxone, sold under the name Narcan, can counteract the effects of an overdose of heroin or other opioids. Narcan can also be injected.*

**An overdose**  
When receptors in the brain are overwhelmed by an opioid, like heroin, the receptors slow, then stop the body's ability to breathe.

**The reversal**  
Naloxone has a stronger attraction to the brain's receptors and displaces the opioids long enough to allow breathing to resume.



**Opioid**  
**Naloxone**  
**Opioid receptors**

Source: [hamreduction.org](http://hamreduction.org) R.L. REBACH/STAFF ARTIST

# Intra-Nasal

- 2mg intranasal
- Used by EMT/EMR/Law Enforcement in MN





# Naloxone Recall

Nov. 4<sup>th</sup> 2016

- Teleflex Medical announces recall of MAD 300 nasal atomizer
- Not producing mist reliably



# “Rummler Kit”

## Contents:

- 2 syringes
- 2 vials 0.4mg Naloxone

Available through  
Emergency Rooms



# Evzio

- Auto-injector
- 0.4mg Naloxone delivered IM
- Provides step by step audible instruction
- ~\$500, but covered by most insurance





# Lay Person Opiate Reversal

CDC MMWR Feb  
2012 Vol 61(6)

- 1996-2010
- 15 States & D.C.
- 53,032 trained to provide naloxone
- **10,171** reversals reported



# Bath Salts

## **Zombie Attack**

*The Truth Behind  
The Bath Salts Craze*



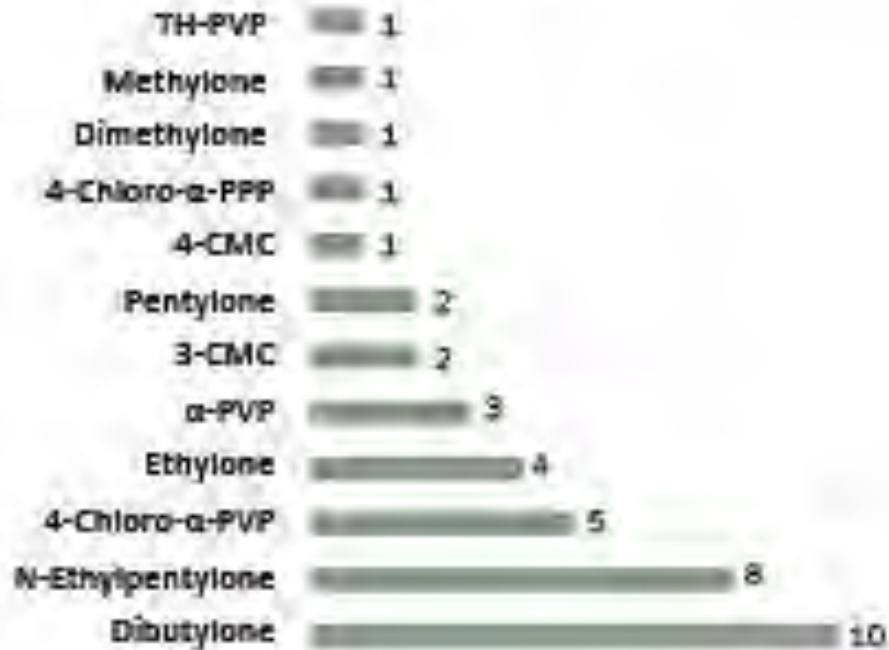
# Synthetic Cathinone

- MDMA/MAMA (Ecstasy)
- Bath Salts
  - Alpha PVP (Flakka)
  - Ethylone
  - MDPV
  - Mephedrone (Meow Meow)
  - Methyone
  - BZP (Party Pills)
  - Many more
- 2C's: 2C-b, 2C-e, 2C-I



# CATHINONES

**DIBUTYLONE WAS THE MOST COMMONLY IDENTIFIED CATHINONE, ACCOUNTING FOR APPROXIMATELY 25% OF THE IDENTIFICATIONS.**

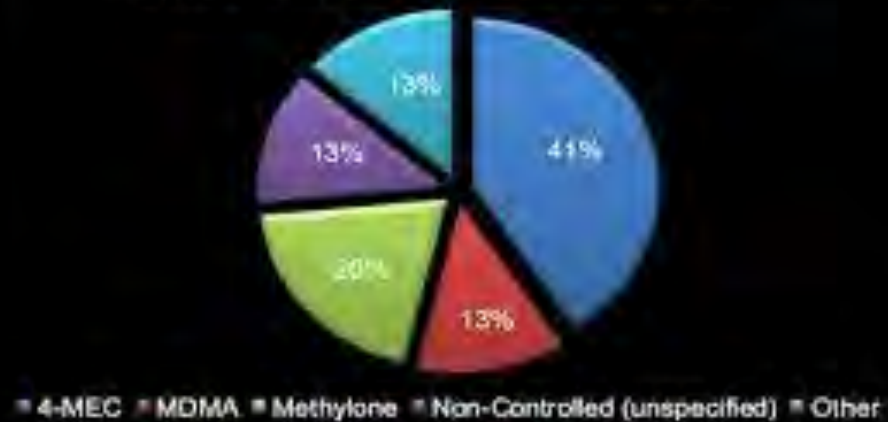




# Molly



**Composition of Molly Seizures in the  
New York Division  
October 2009 - September 2013**



# Cocaine

- > 80% cut with Levamisole
- Old Vet dewormer
- Causes as an unintended side effects leukopenia (Low White Blood cells)



# Acid, LSD, or NBOMe?

Analog of 2C-i/2C-c = 25C NBOMe

## Street Names

- N-Bomb
- Smiles
- Acid

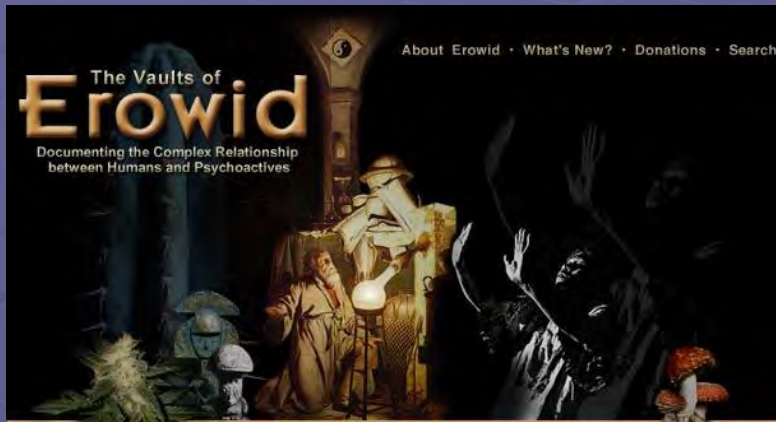
-Mistaken for LSD/Acid (Blotter)

-Very Potent (16x more than parent compound) 50-250 mcg are purported dosages

- 2 deaths confirmed in Grand Forks ND June 2012
- 2 Deaths MN 2014



# Drugs of Abuse Websites



 [www.erowid.org](http://www.erowid.org)

[www.knowthedangers.com](http://www.knowthedangers.com)



The logo for Opiophile features a stylized pill with a crown-like top on the left. To its right, the word 'OPIOPHILE' is written in large, metallic, 3D-style letters.

[www.opiophile.org](http://www.opiophile.org)

The logo for The Poison Review (TPR) consists of the letters 'TPR' in a bold, white font on a dark red background, followed by the words 'THE POISON REVIEW' in a bold, black font on a white background.

[www.thepoisonreview.com](http://www.thepoisonreview.com)

# Questions?



[Kirk.hughes@hcmed.org](mailto:Kirk.hughes@hcmed.org)