# Drug Trends | Symptomatology | Cannabis:Opiate Nexus

Over-the-Counter | Perception of Harm

# DRUG TRENDS & IMPAIRMENT AND USE SYMPTOMATOLOGY

2019 NORTHEAST TRANSPORTATION SAFETY CONFERENCE

Sergeant Jay Riggen Vermont State Police

#### **OBJECTIVE**

<u>Increase</u> awareness of the trends in drug use

<u>Increase</u> awareness of the symptomatology of drug use and **impairment** 

<u>Reduce</u> the harm caused by <u>misrepresentations</u> and <u>deception</u> by weaponizing <u>ambassador knowledge</u>



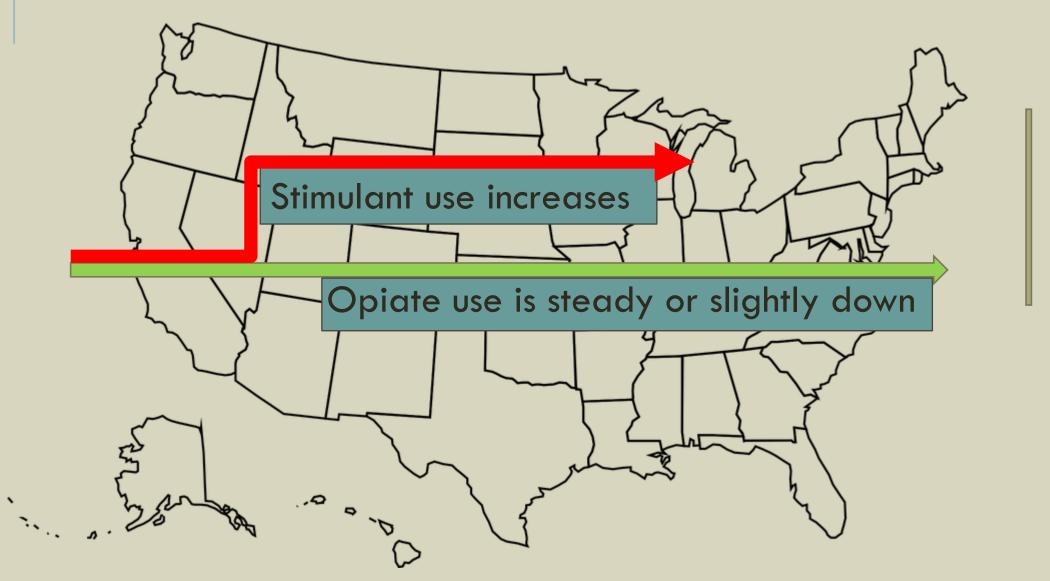
- Identify both local and national trends in the use of certain chemicals
- Discuss the impact these trends have on highway safety
- Distinguish common symptomatology to make the identification of use <u>actionable</u>
- Highlight strategies to weaponize our knowledge

# **Drug Trends**





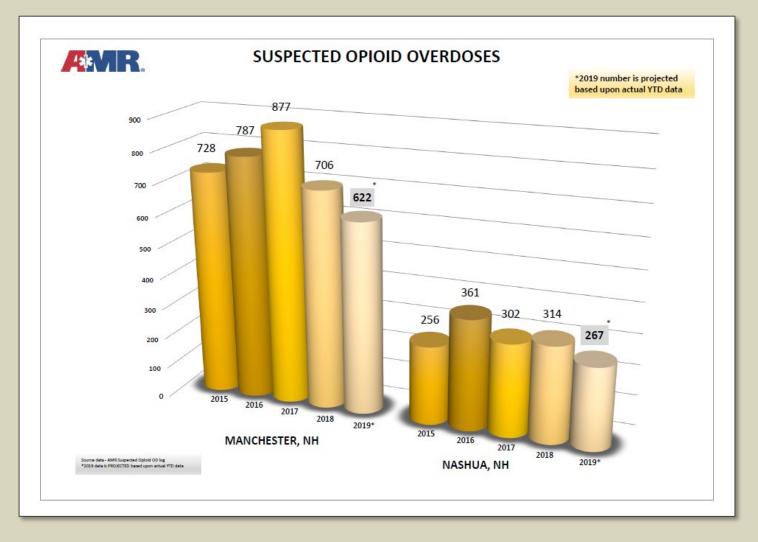
#### NATIONAL DRUG TRENDS — THE ILLICIT LANDSCAPE

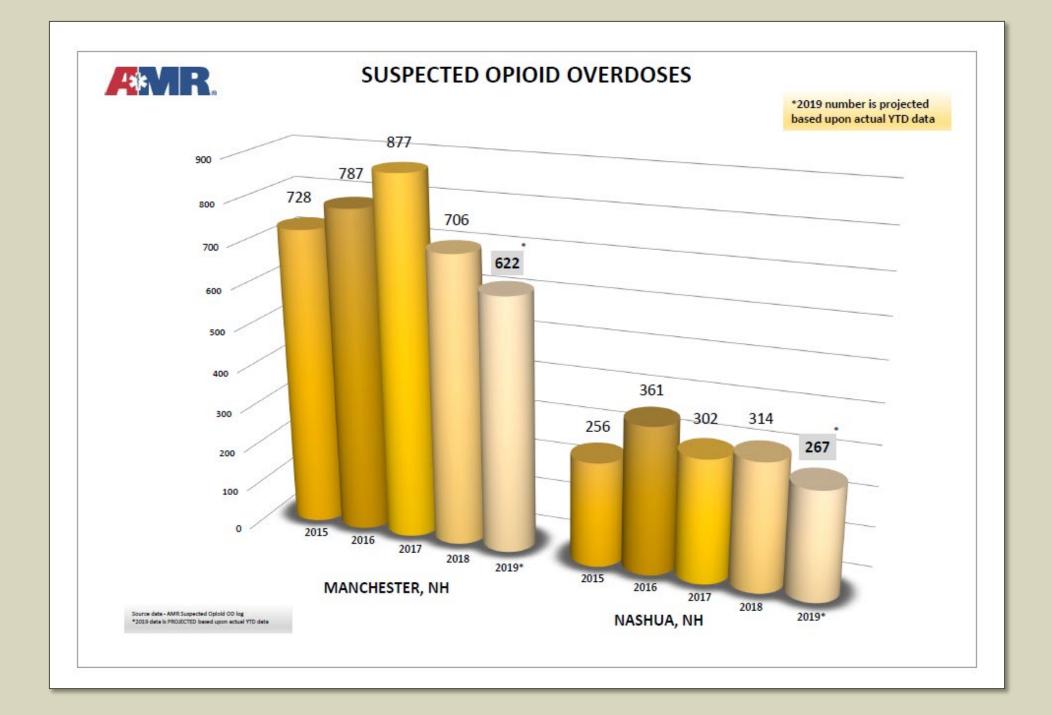


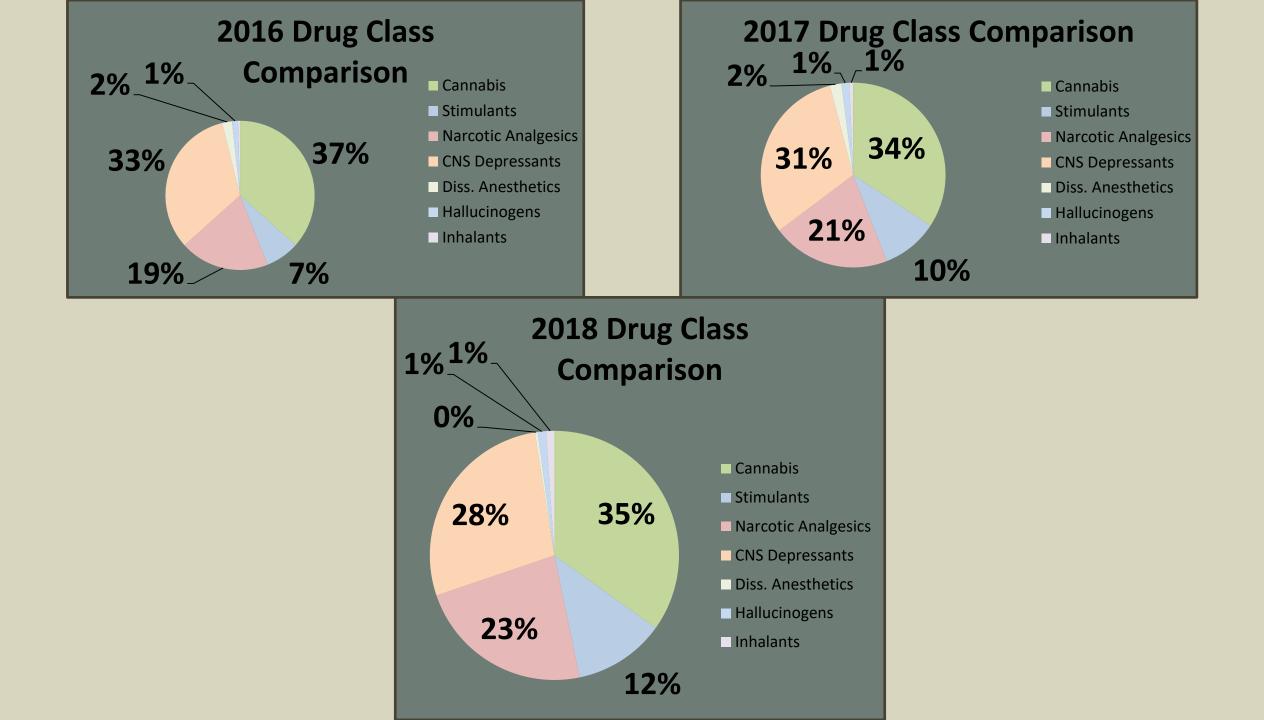
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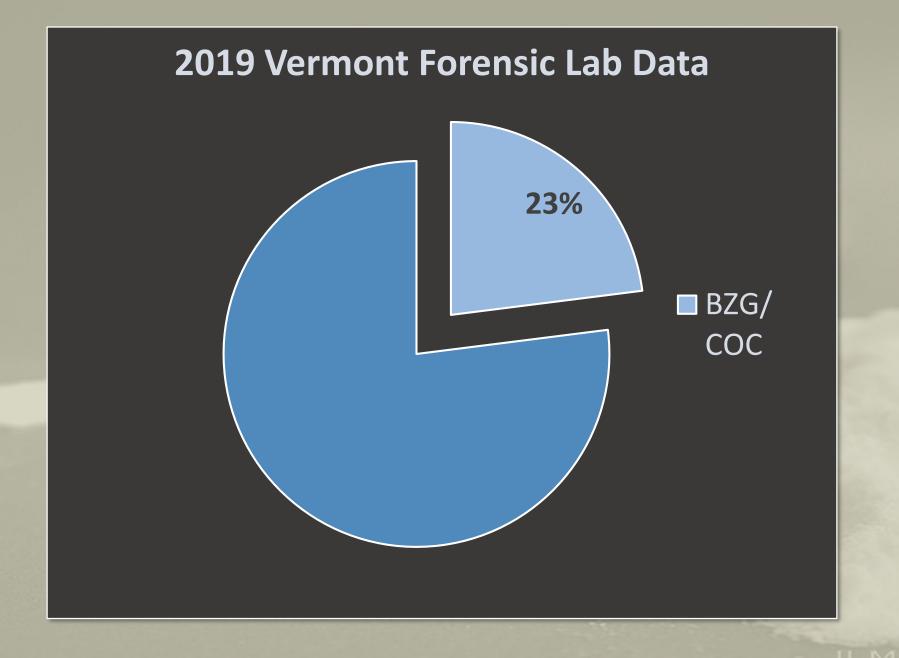


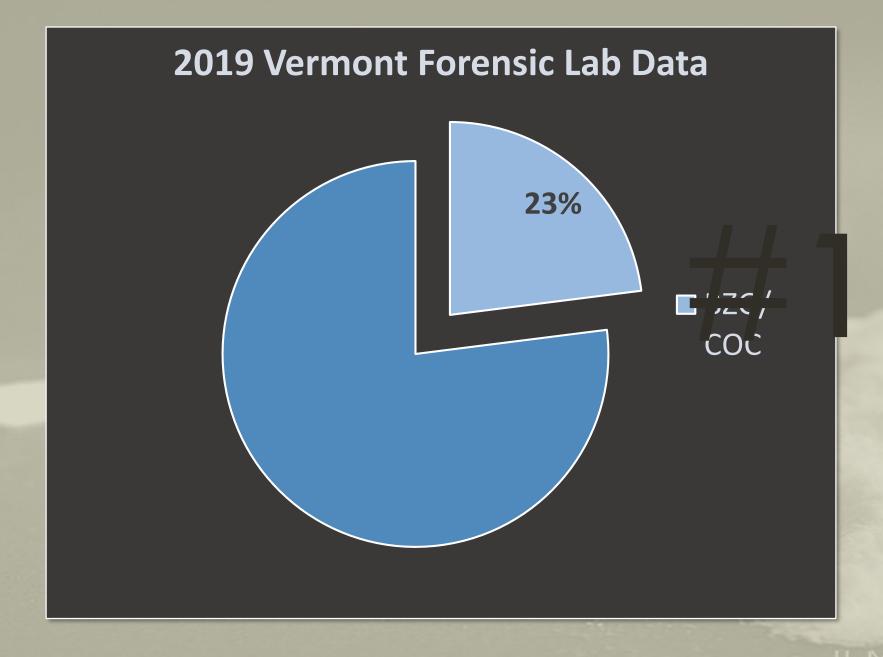
# NATIONAL DRUG TRENDS — THE ILLICIT LANDSCAPE





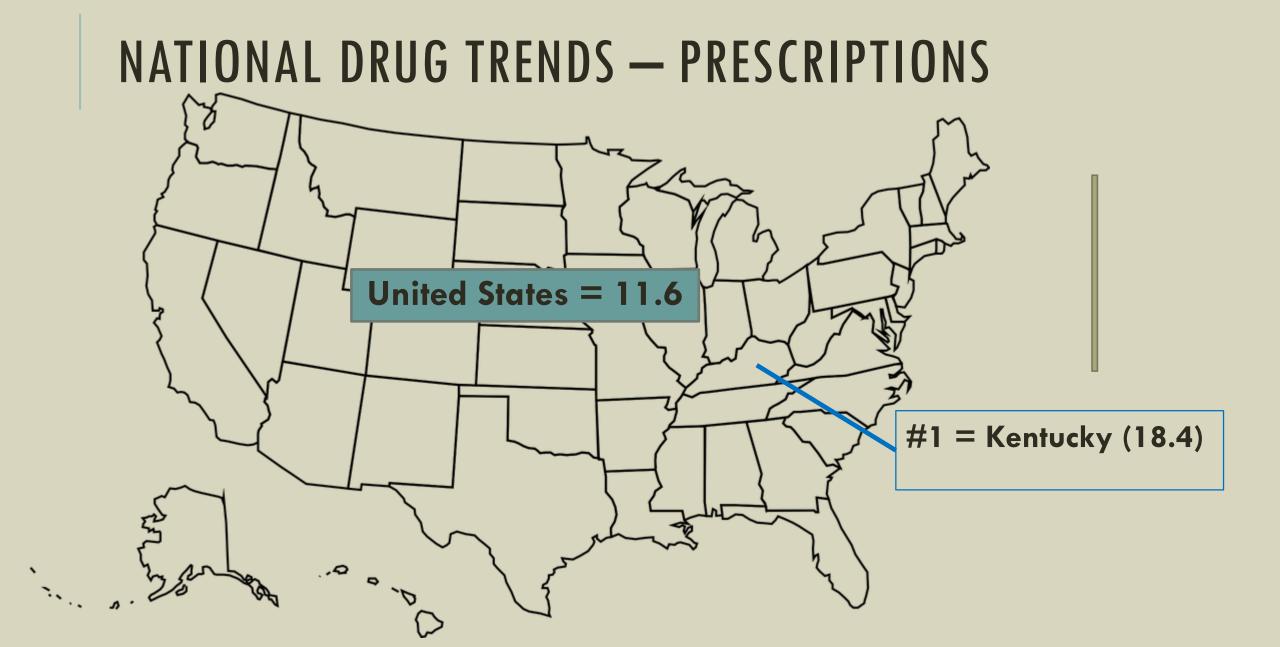


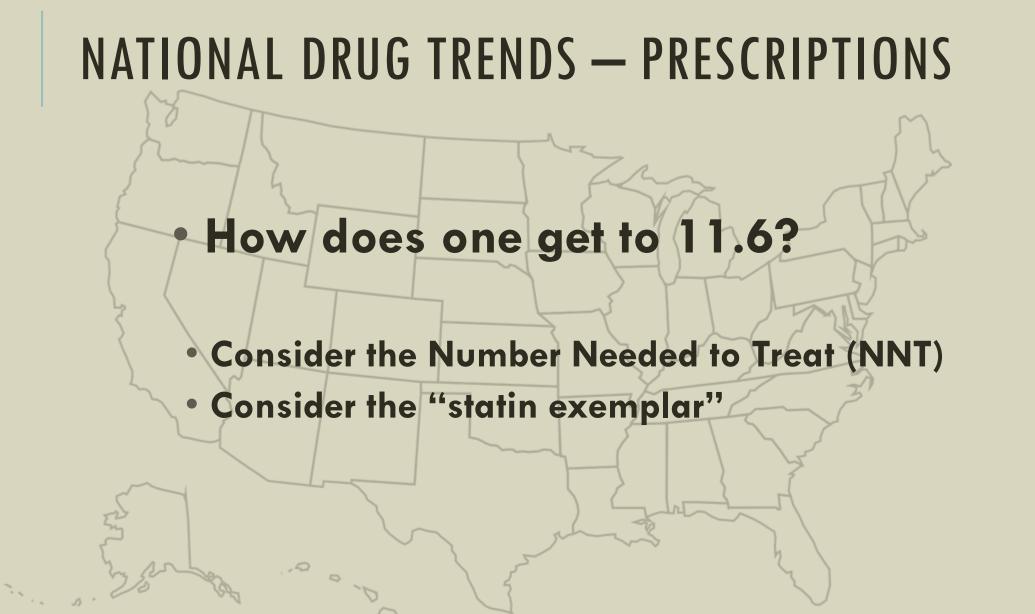


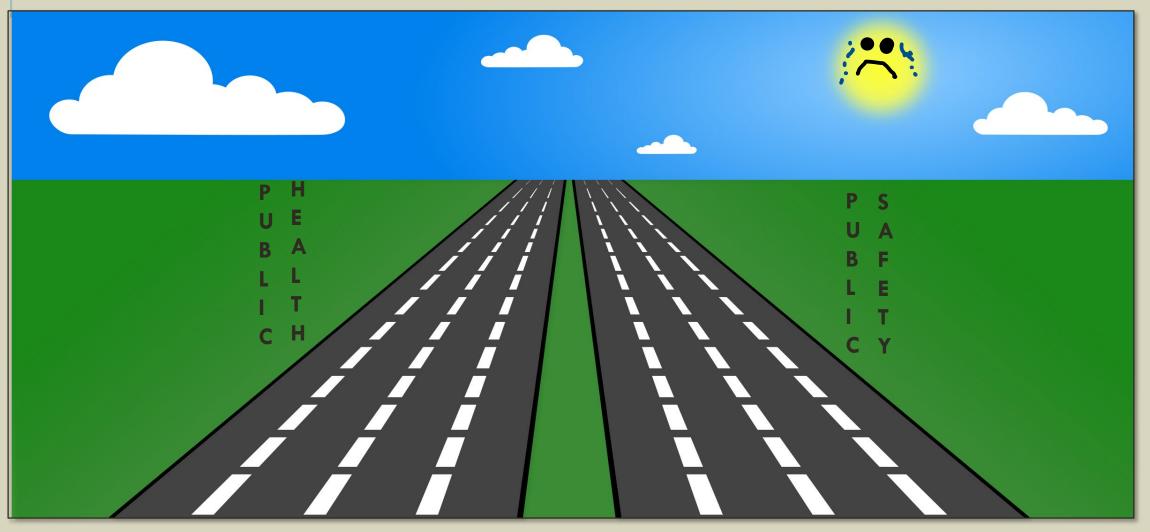




STATE	Prescriptions per Capita
Delaware	12.3
Vermont	11.1
New Hampshire	11.9
New York	13.8
Ohio	13.6
Pennsylvania	13.5
Rhode Island	15.5
Massachusetts	12.5
Connecticut	12.1
New Hampshire	11.9
New Jersey	11.5
Maine	11.4







#### •Prescription Themes:

- Opiates
- Opiate prescriptions are monitored
- Users are flagged
- What rises in its place?



•Prescription Themes:

• Anti-anxiety (anxiolytics) drugs are a powerful subcategory of CNS Depressants

• Withdrawal from opiates are not fatal ...

Benzodiazepine withdrawal <u>CAN</u> be fatal

Diazepa

**Prescription Themes:** 

R only 100 TABLE

• Benzodiazepines

2005-2015: continuing prescriptions +50%

• 1996-2017: Overdose mortality for women 30-64 +830%

NMS Data through February, 2019								
	2013	2014	2015	2016	2017	2018	2019	Total
I CI - I C - mile								
CNS Depressants	81	76	92	77	82	103	15	526
(Non-Alcohol)	48.8%	45.5%	48.2%	40.1%	40.6%	31.8%	25.0%	
Benzodiazepines	66	64	72	60	62	88	14	426
	39.8%	38.3%	37.7%	31.3%	30.7%	27.2%	23.3%	
Antidepressants	21	17	24	25	16	19	2	124
	12.7%	10.2%	12.6%	13.0%	7.9%	5.9%	3.3%	
Z Drugs	5	5	7	6	7	6	1	37
	3.0%	3.0%	3.7%	3.1%	3.5%	1.9%	1.7%	
TCAs/Antihistamines	8	7	11	9	7	8	0	50
	4.8%	4.2%	5.8%	4.7%	3.5%	2.5%	0.0%	
Anti-convulsants	5	3	13	8	7	1	0	37
	3.0%	1.8%	6.8%	4.2%	3.5%	0.3%	0.0%	

Diaze

#### •Prescription Themes:

• Xanax (Alprazolam) is back



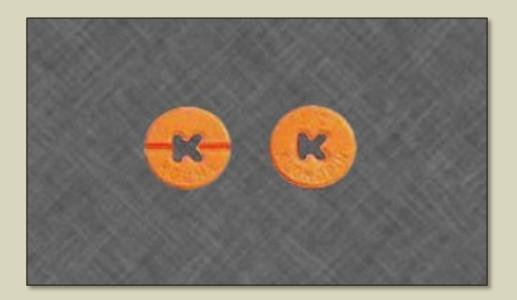
#### •Prescription Themes:

- Valium (Diazepam)
- "Alcohol in pill form."



#### •Prescription Themes:

- Klonopin (Clonazepam)
- Cuts withdrawal symptoms



#### NATIONAL DRUG TRENDS: THE ROLE OF GABA

GABA: (gamma-Aminobutyric Acid) •Chief inhibitory neurotransmitter in the Central Nervous System



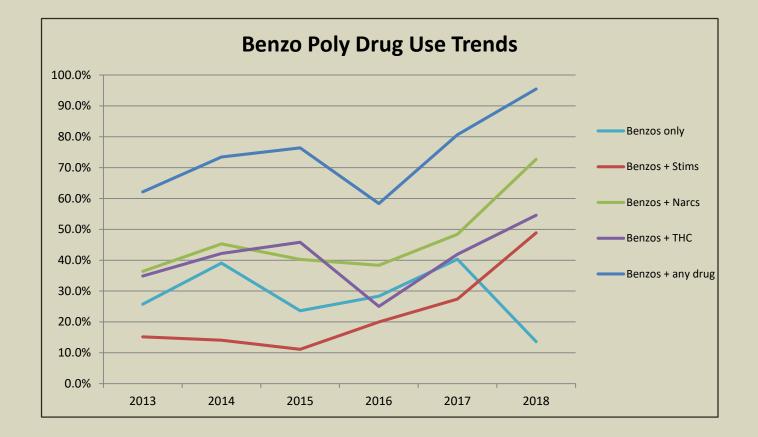


#### **BENZODIAZEPINES:** DRILLING DOWN

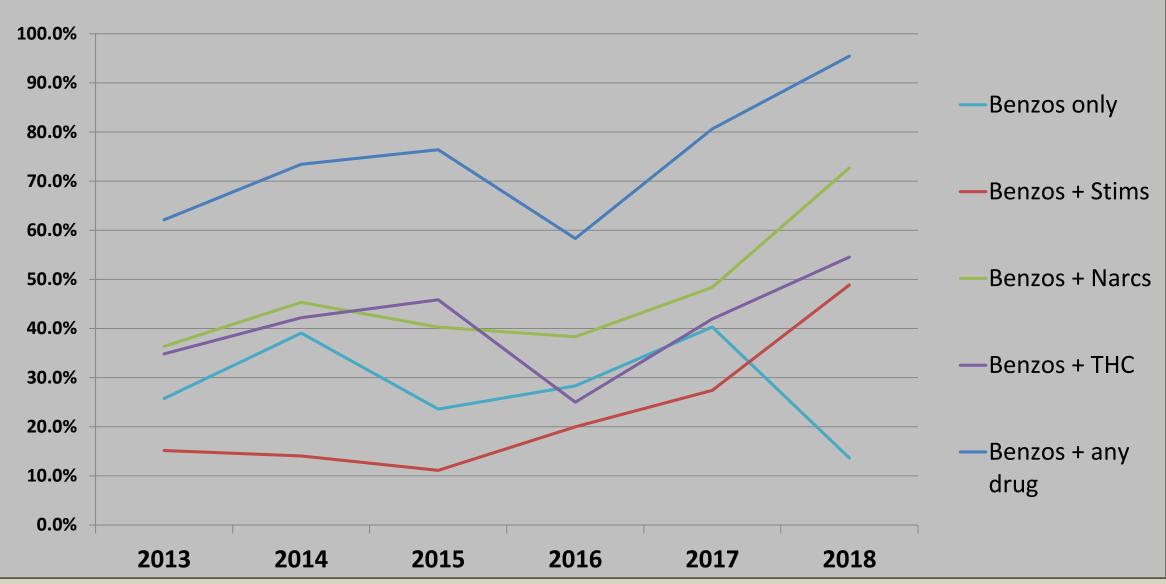
<u>ALL</u> benzos have active metabolites to prolong their duration

Thus, great liability for abuse

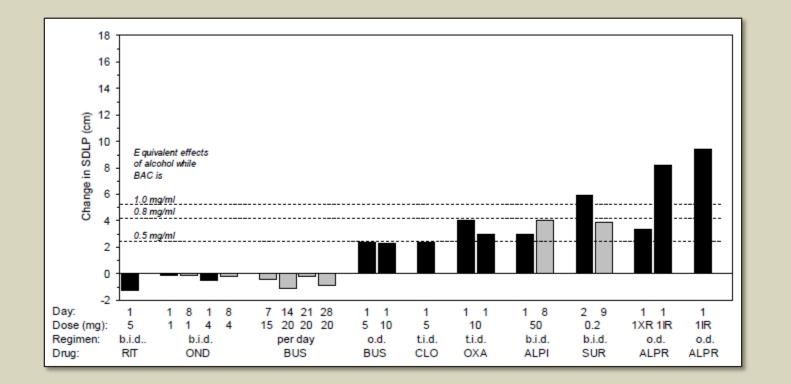
#### **BENZODIAZEPINES:** DRILLING DOWN

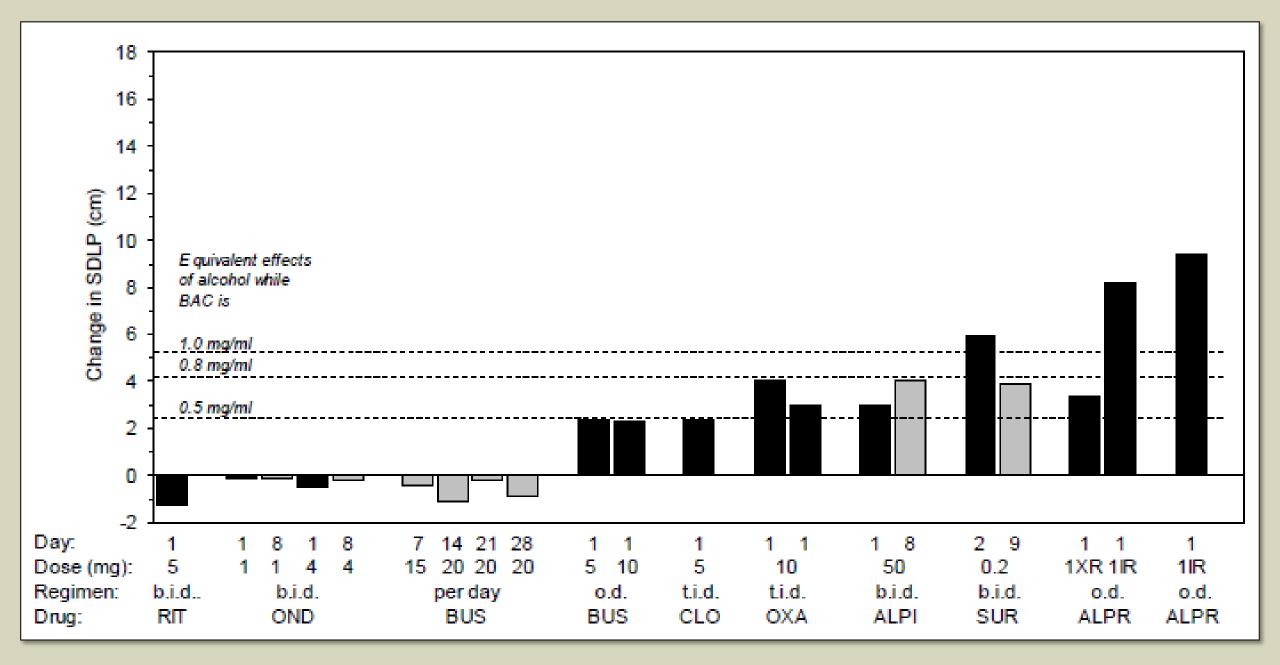


#### **Benzo Poly Drug Use Trends**



#### **BENZODIAZEPINES:** DRILLING DOWN





- •Prescription Themes:
  - Alcohol + ? = Additive effect

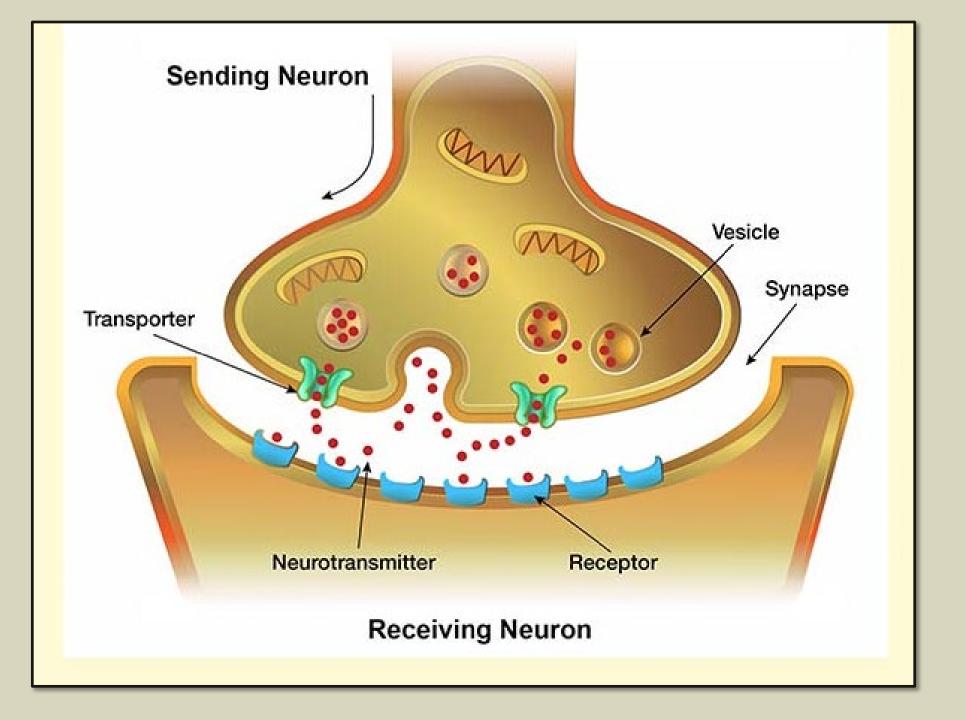
#### = Synergistic

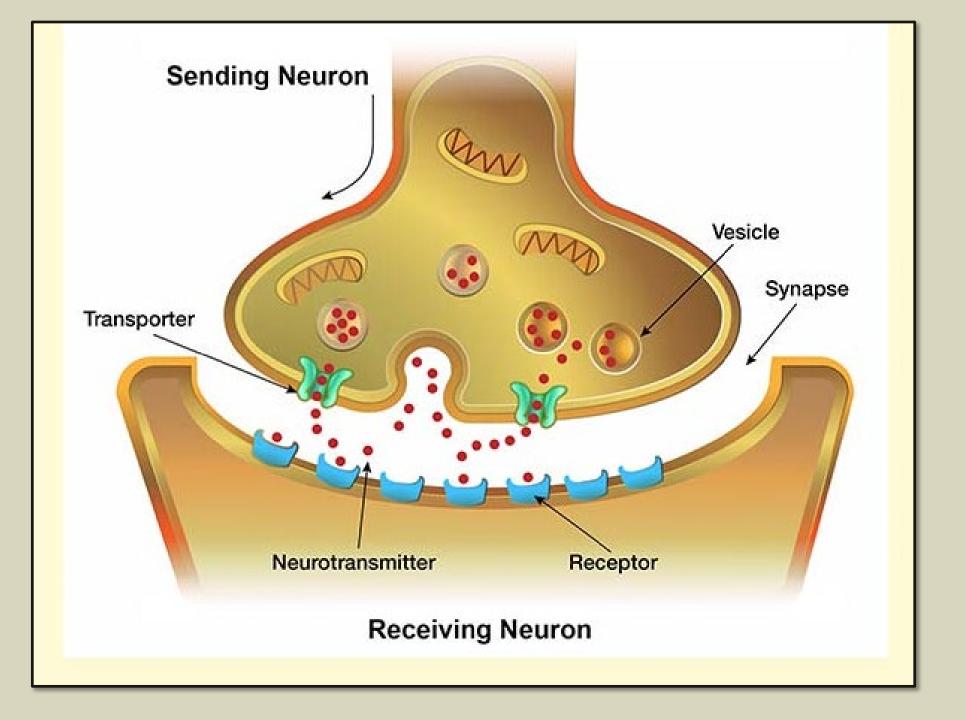
- •Prescription Themes:
  - Polydrug
  - Example: Monoamine Oxidase Inhibitors (MAOIs)



- •Prescription Themes:
  - Polydrug
  - Example: Selective Serotonin Reuptake Inhibitors (SSRIs)

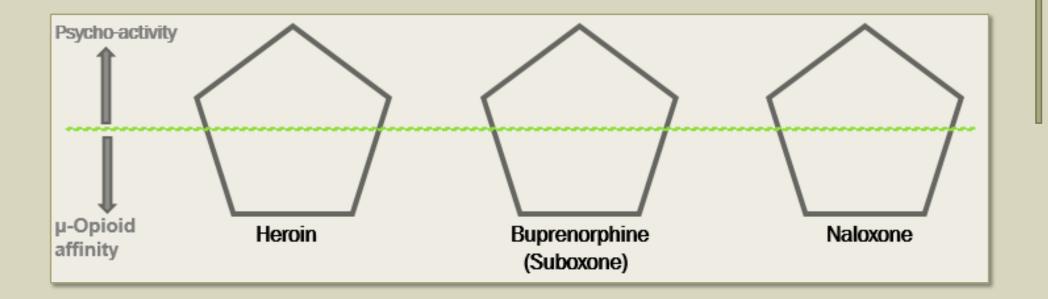
CELEXAZOLOFTLEXAPRO(Citalopram)(Sertraline)(Escitalopram)



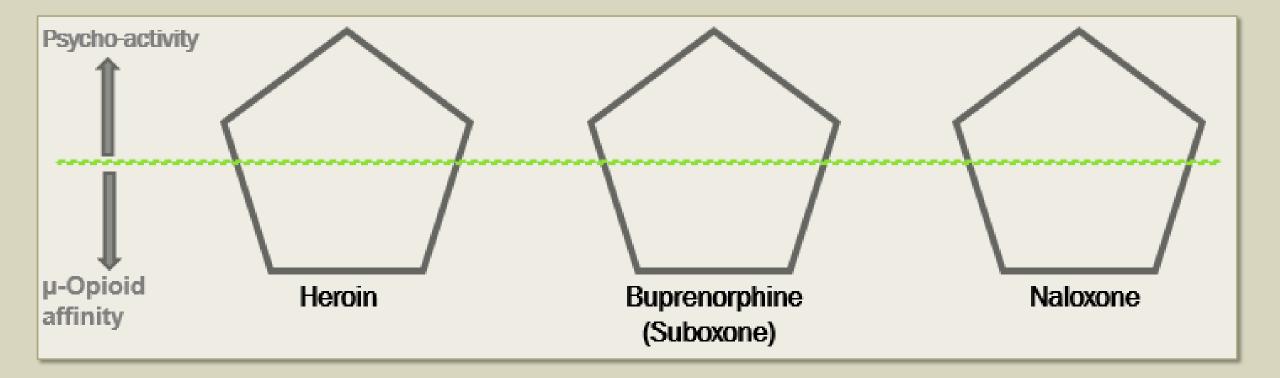


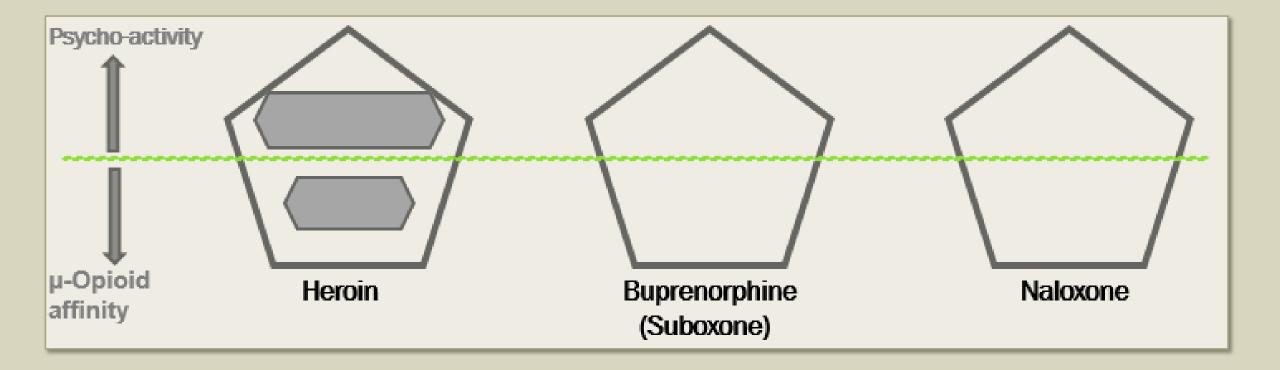
### NATIONAL DRUG TRENDS

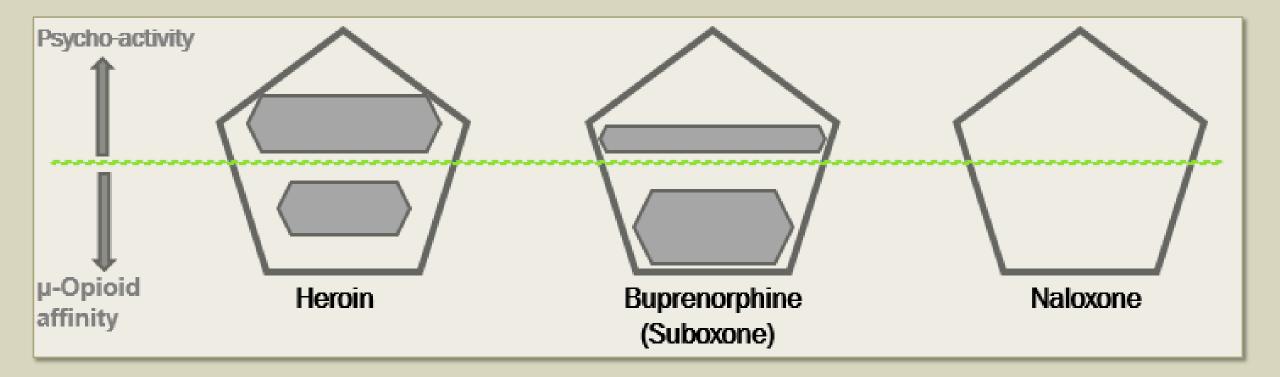
• Medically Assisted Treatment (MAT)

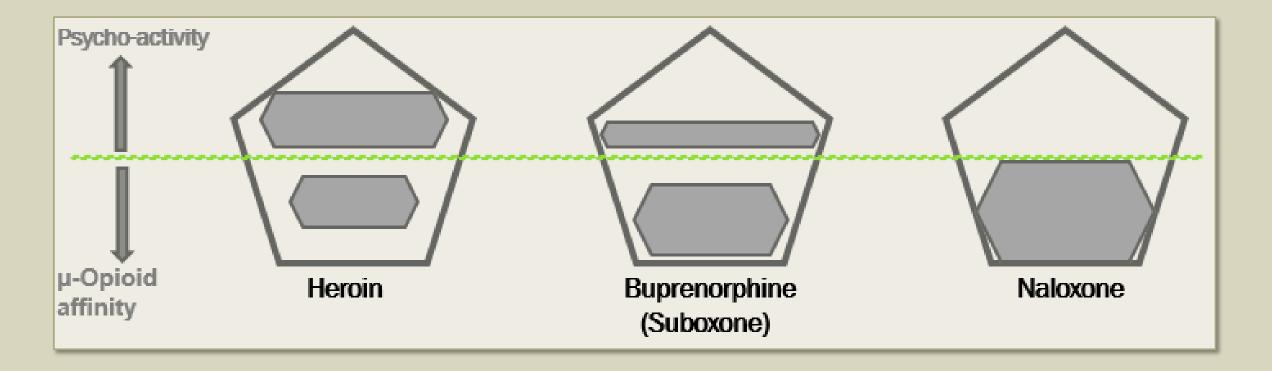


## **OPIOID WITHDRAWAL & RECOVERY**













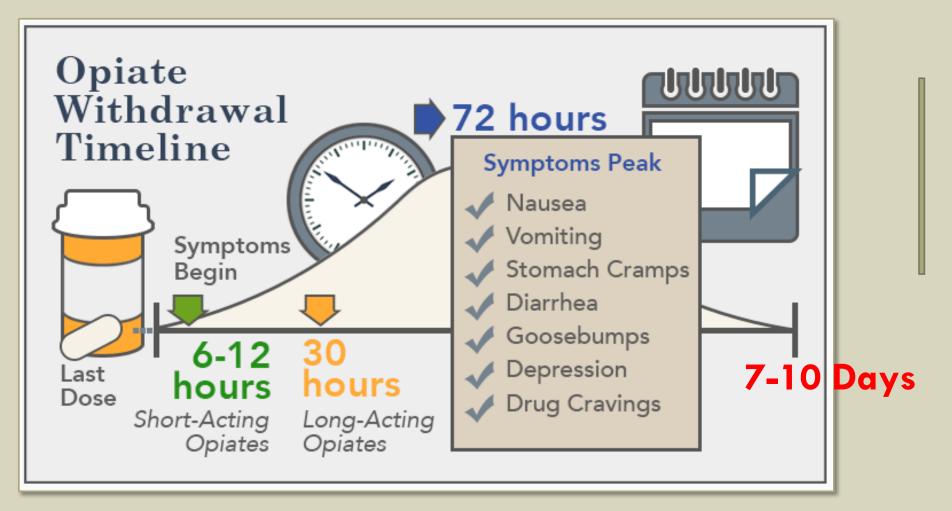
#### **OPIOID DEPENDENT?** For opioid-dependent adults not currently receiving

#### methadone or buprenorphine treatment

- A new UVM research study, now with sites in Chittenden, Addison and Franklin counties and Northern NY
- This study may include:
  - Confidential outpatient treatment with Buprenorphine
  - No counseling required
  - 6 months of participation with flexible, weekly study visits at a convenient location near you with take-home medication available
  - Compensation of \$525



#### For more information, call (802) 656-9858



#### NATIONAL DRUG TRENDS

# **Over-the-Counter (OTC)**



#### • Dextromethorphan (aka: "Robitussin," "Coricidin"



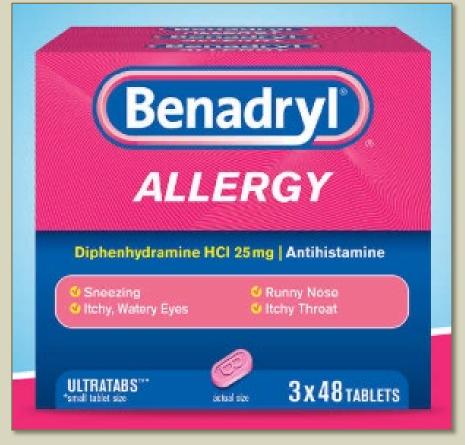


	<u> </u>		
PARENTS: Learn about teen medicine abuse www.StopMedicineAbuse.org	Drug Facts           Active Ingredients         Purpose           (in each tablet)         Active Ingredients           Chicepteniamine matches Fing	Drug Facts (continued)     alcohol, selatives and tranquiltzers may     increase drowsiness     use caution when driving a motor vehicle or     operating machinery     then we and ask a dester if couch leafs motor     than 7 days, reaccurs, or occurs with fever,     rash or persistent headache. These could be     signs of a serious condition.     If pregnant or breast-feeding, ask a health     professional before use.     Keep out of mach of shilldmen. In case of     overdose, get medical help or contact a Poison     Control Center right away. Abase of this     product case lead to serious lajury.     Directions     = do not exceed recommended dose     = aduits and children 12 years and over:     1 tablet every 6 hours, not more than     4 tablets in 24 hours     = children under 12 years of age; ask a doctor	Dextromethorphan (30 mg)
	Ask a dector before sao II you have = glascoma = trouble urinating due to an enlarged prostate	Other Information = store between 20" to 25"C (88" to 77"F)	
o 41100 <sup>8</sup> 1138	gland = cough that occurs with excessive phiagm (mucus) = a breathing problem or persistent or chronic cough as occurs with smoking, asthma, chronic bronchitis, or emphysema Ask a doctor or pharmactist before use if you are taking sodatives or tranquilizers Ween using this product = excitability may occur, especially in children = marked drowsiness may occur = avoid alcoholic bevarages	Isactive ingredients croscarmellose sodium, D&C rad No. 27 aluminum laka, FD&C yellow No. 6 aluminum laka, lactose monohydrata, magnuslum stearata, microcrystalline cellulose, polyethylene glycol, polyvinyl alcohol, povidone, taic, ttanium dioxide Questions or comments? 1-800-317-2155 (Mon-Fri 9AM – SPM EST)	

• Dextromethorphan (e.g.: "Robitussin," "Coricidin"

Dosage	Effects					
100 – 200 mg	Mild stimulation, euphoria					
200 – 400 mg	Stronger euphoria, hallucinations					
300 – 600 mg	Loss of motor coordination, visual distortions					
500 – 1500 mg	<b>Out-of-body</b> sensations					

• Diphenhydramine (e.g.: "Benadryl")



• Diphenhydramine (aka: "Benadryl")

Oral Diphenhydramine Dosages (Recreational)								
Threshold	10 mg							
Light	25-150 mg							
Common	150-300 mg							
Strong	250-500 mg							
Heavy	400-700							
LD50 (Lethal Dose*)	500 mg/kg in rats							

Duration: 4 - 8 hours

#### • Dimenhydrinate / DMT (e.g.: "Gravol," "Dramamine")

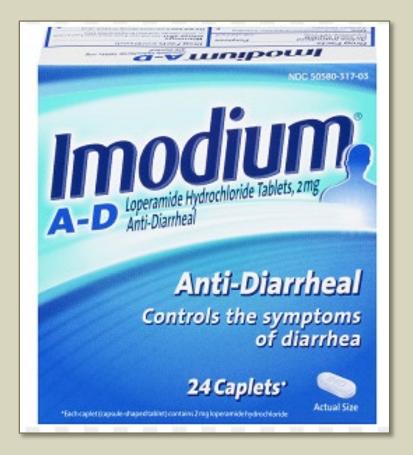




• Dimenhydrinate (e.g.: "Gravol," "Dramamine")

Dosage	Effects					
200 – 1500 mg	Delirium & Hallucinations					
(Body weight specific)	(On par with LSD)					

• Loperamide (e.g.: "Imodium A-D")



#### NATIONAL DRUG TRENDS

## Cannabis



# WHAT ARE **CANNABINOIDS**?

• **Optimized Procession** (THC) is the primary psychoactive ingredient

- >500 chemicals
  - e.g. Terpenes, polyaromatic hydrocarbons

- >100 cannabinoids
  - e.g. Cannabidiol, cannabinol

# WHAT ARE CANNABINOIDS?

#### "The Entourage Effect:"

- Other chemicals in cannabis contribute to impairment effects more so than THC alone
- Users report that they can tell the difference.

#### NATIONAL DRUG TRENDS - CANNABIS

• Cannabis:

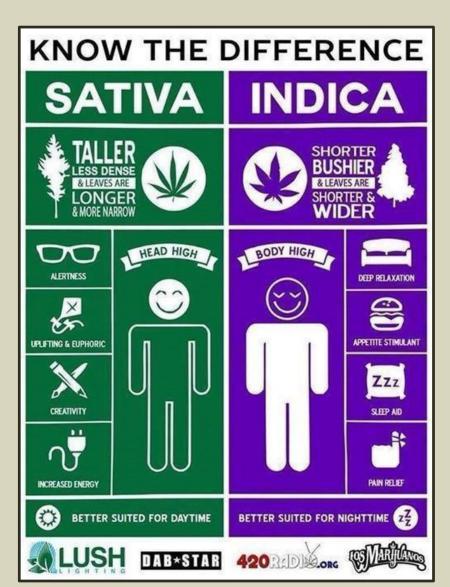






#### NATIONAL DRUG TRENDS - CANNABIS

#### **SATIVA VS. INDICA**



## TRICHOMES



# KIEF/KIF/KEEF/KEIF

Created by mechanically stripping off the trichomes with a grinder

40-60% THC concentration



#### BUTANE HASH OIL



### **'DABBING'**



## **POTENCY/CONCENTRATION OF THC**

<u>Bud/Flower</u> ▪ <2009 (2-8%)

• Present?

<u>Kief/Hash</u> • 40-60%

Hash Oil / Shatter • 70-90%

## **POTENCY/CONCENTRATION OF THC**

#### <u>Cannabis Driving Simulator</u> <u>Studies</u>:

- Increased Reaction Time
- Decreased Speed

#### Law Enforcement Field Contact:

- Increased Reaction Time
- Increased Speed

#### **EDIBLES**







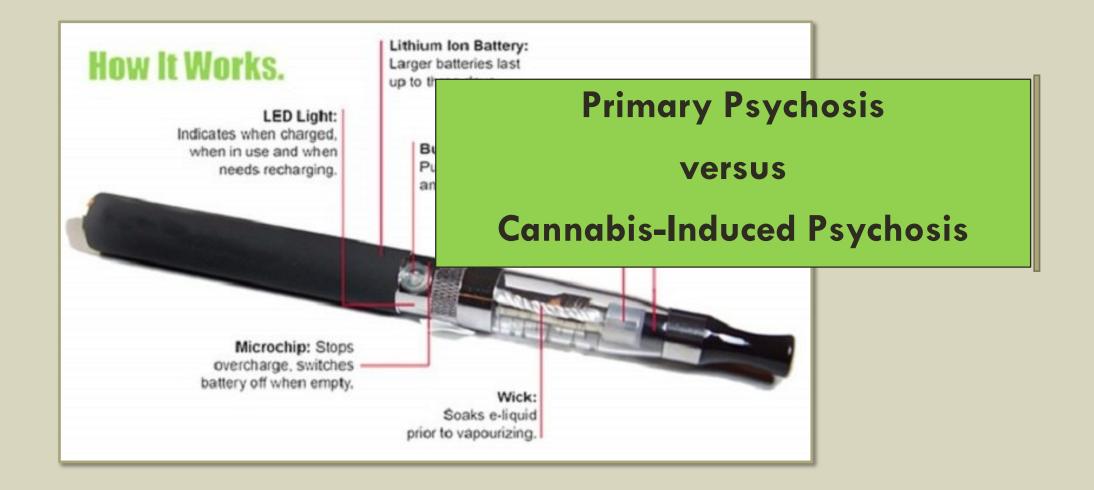




## NATIONAL DRUG TRENDS - VAPING



## NATIONAL DRUG TRENDS - VAPING



## STATE DRUG TRENDS — VERMONT DECP

	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	Totals
Alcohol	0	2	3	5	5	6	0	0	7	7	4	4	9	14	6	72
Cannabis	4	10	11	10	16	16	21	35	59	59	61	73	70	168	89	702
CNS Depressants	6	18	8	22	34	47	50	73	68	58	72	64	63	97	58	738
CNS Stimulants	2	1	2	4	6	5	4	11	18	12	17	18	19	58	22	199
Dissociative Anesthetics	0	0	0	0	0	2	0	0	2	2	6	0	4	3	4	23
Hallucinogens	0	0	0	0	0	1	0	2	0	1	2	2	1	3	0	12
Inhalants	0	0	0	0	0	0	1	0	1	1	2	2	1	0	0	8
Medical	0	0	0	0	0	0	0	3	5	5	5	3	3	7	1	32
N/A or Rule Out	7	8	3	6	15	21	17	22	24	24	34	7	17	16	0	221
Narcotic Analgesic	4	6	5	11	19	26	19	42	36	44	49	53	54	140	62	570
None Detected	0	3	2	1	3	3	3	2	2	11	8	5	8	10	4	65
Not Tested	6	1	2	1	0	0	5	1	1	2	2	12	2	3	3	41
Refusal	4	10	6	15	18	27	11	27	49	56	49	70	91	47	21	501
Total	33	59	42	75	116	154	131	218	272	282	311	313	342	566	270	3184

## STATE DRUG TRENDS — VERMONT DECP

	2015	2016	<mark>2017</mark>	2018*
Tox positive				
THC	56	73	68	85
Avg. / Mean	3.5 ng/ml	4.3 ng/ml	4.74 ng/ml	4.96 ng/ml
Highest	16 ng/ml	24 ng/ml	15 ng/ml	28 ng/ml
Lowest	0.50 ng/ml	0.52 ng/ml	.064 ng/ml	.055 ng/ml
Under 5 ng	43	54	40	55
Over 5 ng	13	19	28	30
Cannabis only	22	43	41	38

<u>2019: 4.76 ng/ml</u>

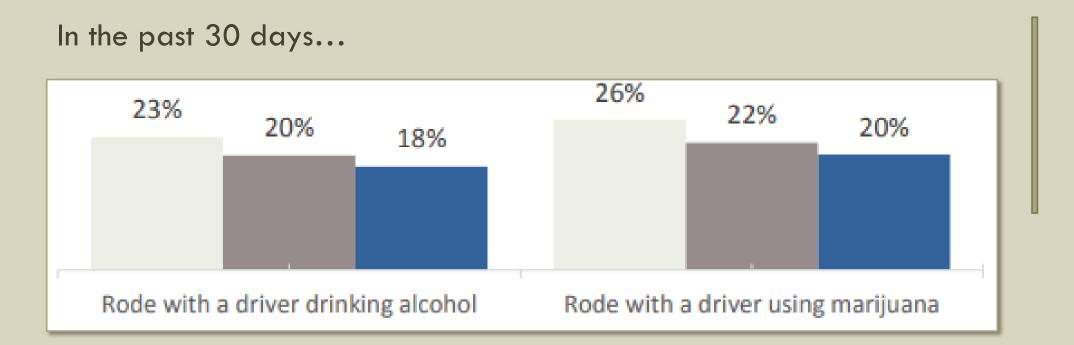
## **VPR AND VPT POLL**

Is the fact that you are very or somewhat likely to use marijuana in the coming year due to the fact that the Vermont legislature legalized the possession of small amounts of marijuana for personal use, or is that law irrelevant to your decision?

23% Because of law

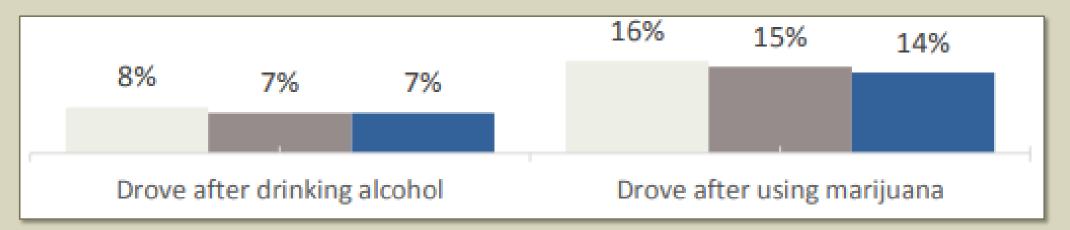
- 73% Irrelevant
- 4% Don't know/Refused
- 148 Total Respondents

# VERMONT'S YOUTH RISK BEHAVIOR SURVEY & THE PERCEPTION OF HARM

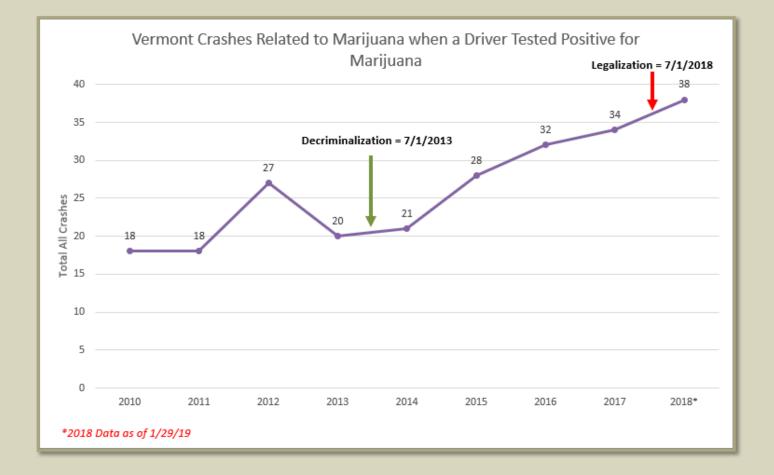


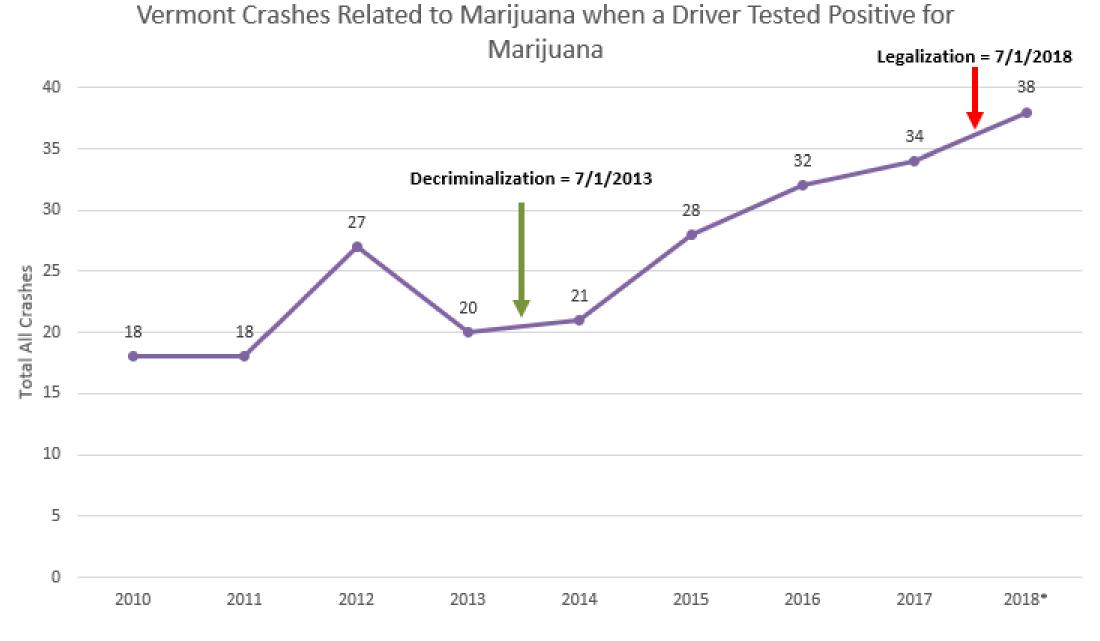
# VERMONT'S YOUTH RISK BEHAVIOR SURVEY & THE PERCEPTION OF HARM

In the past 30 days...



## TRENDS IN HIGHWAY CRASHES - VERMONT





\*2018 Data as of 1/29/19

## **CANNABIS AND PAIN MANAGEMENT**

#### **Opioids**:

- mu Opioid receptor
- Dopamine

#### <u>Cannabinoids</u>:

- CB1 Receptor
- Inhibits GABA

#### NATIONAL DRUG TRENDS: THE ROLE OF GABA

GABA: (gamma-Aminobutyric Acid) •Chief inhibitory neurotransmitter in the Central Nervous System





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# Drug Use and Impairment Symptomatology





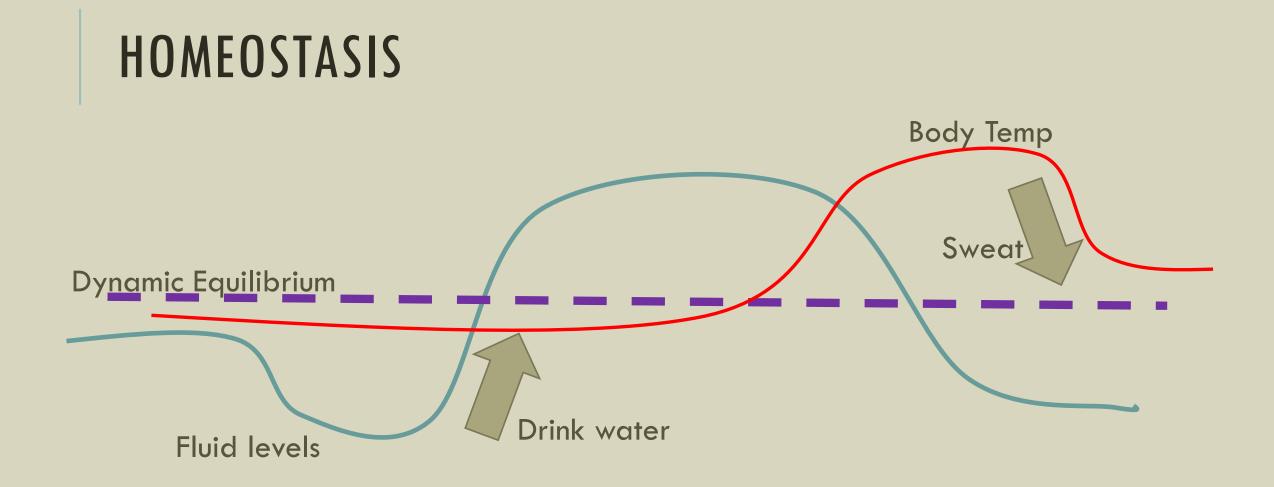




## THE PRINCIPLE OF HOMEOSTASIS

• The dynamic balance involving levels of salts, water, sugars and other materials in the body's fluids

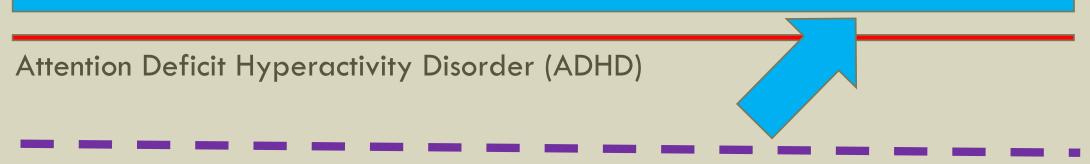
The body's systems are said to be in "dynamic equilibrium"

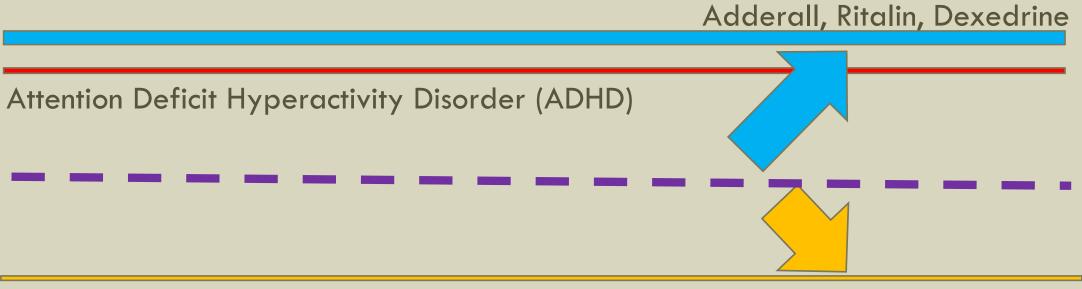




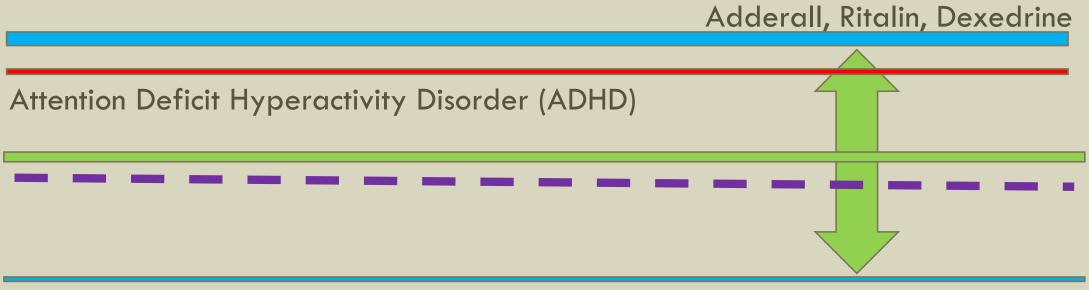
Attention Deficit Hyperactivity Disorder (ADHD)

Sympathomimetic drugs: Adderall, Ritalin, Dexedrine



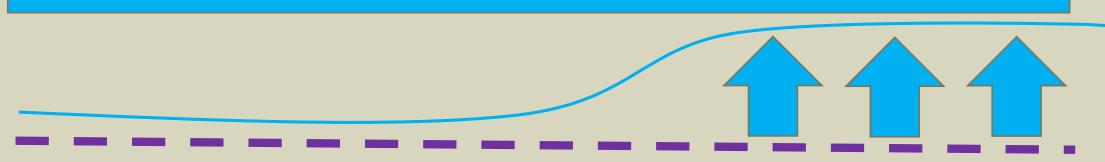


Body's parasympathetic nervous system response



Body's parasympathetic nervous system response





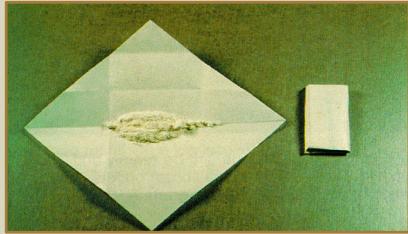
#### **CENTRAL NERVOUS SYSTEM STIMULANTS**











#### **CENTRAL NERVOUS SYSTEM STIMULANTS**

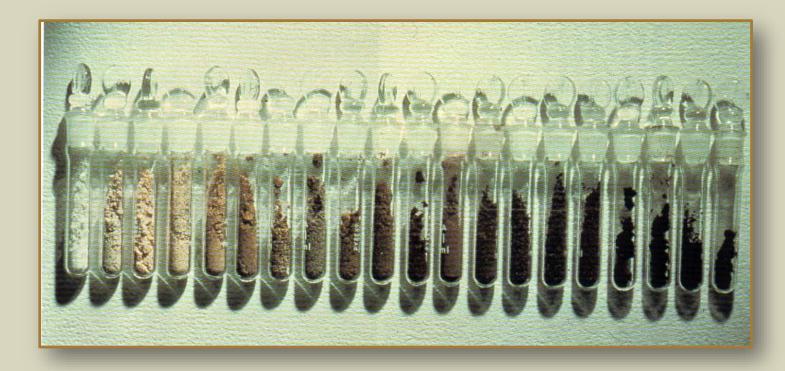


### **DISSOCIATIVE ANESTHETICS**



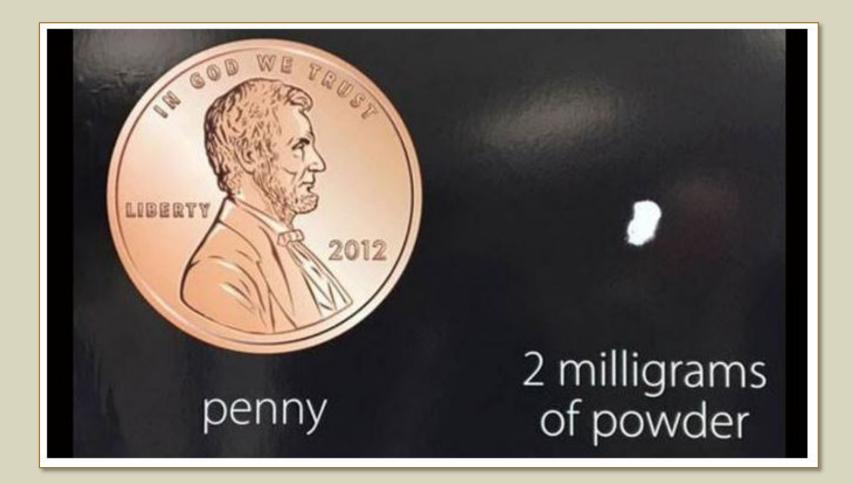






















## INHALANTS





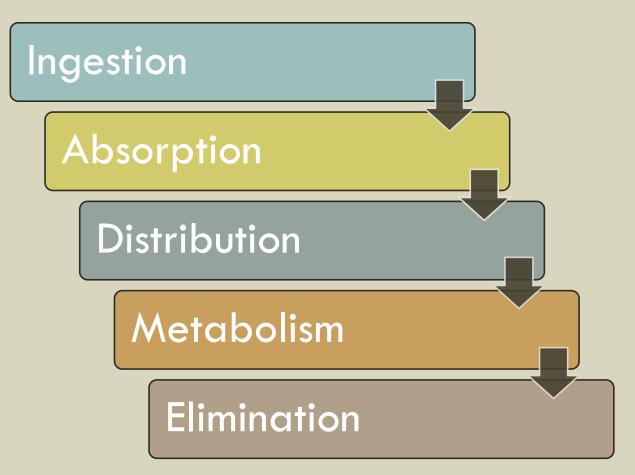








#### Think of drug impairment via the following process:



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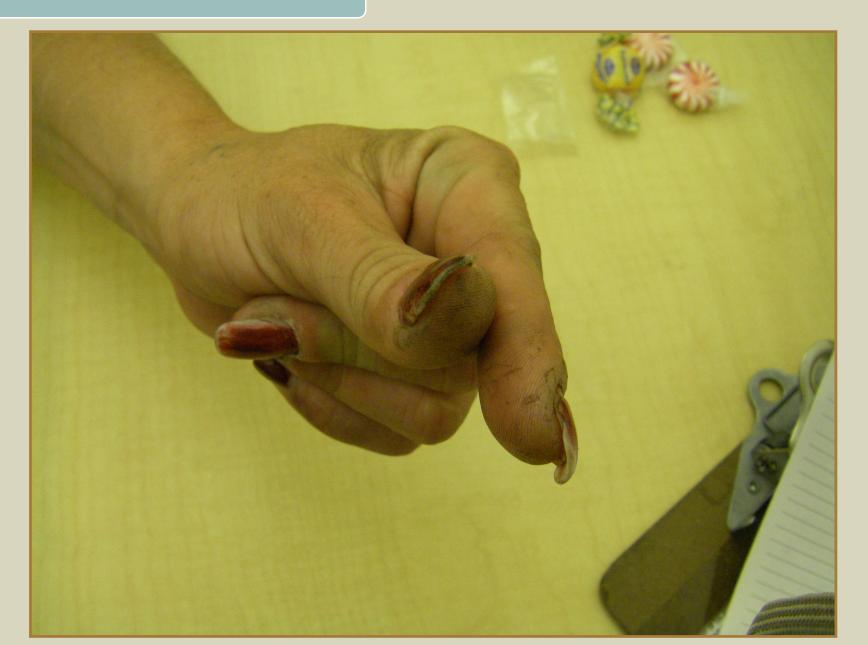
Ingestion

Oral | Smoke | Injection Insufflation | Transdermal | Other?

- Oral
- Smoke
- Injection
- Insufflation
- Transdermal
- Other?













## Ingestion

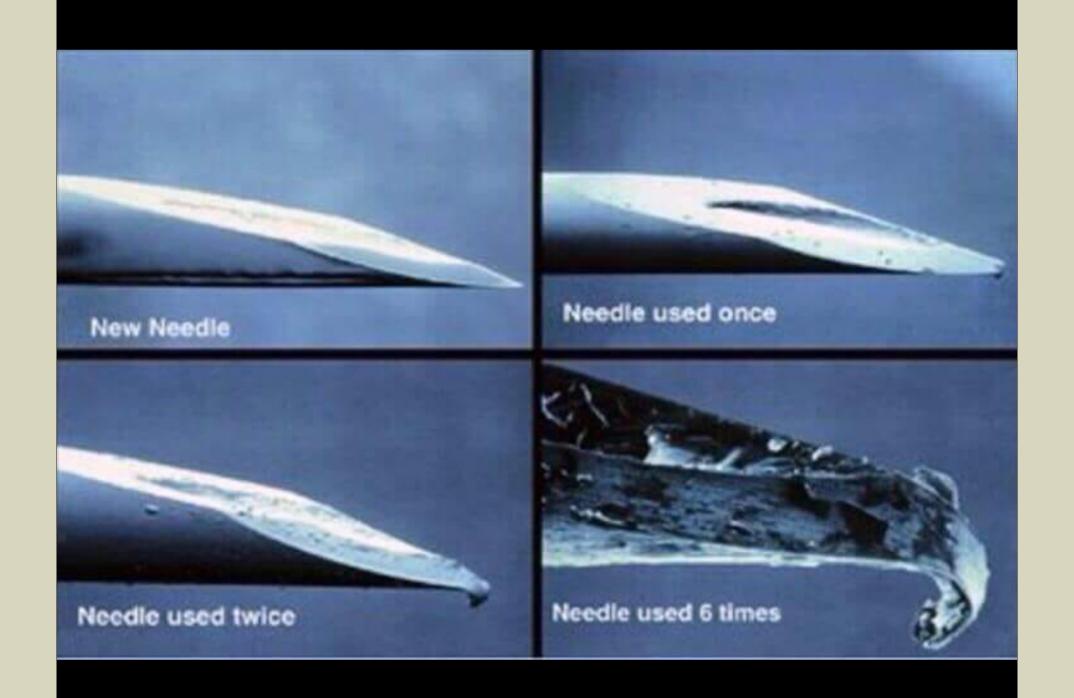


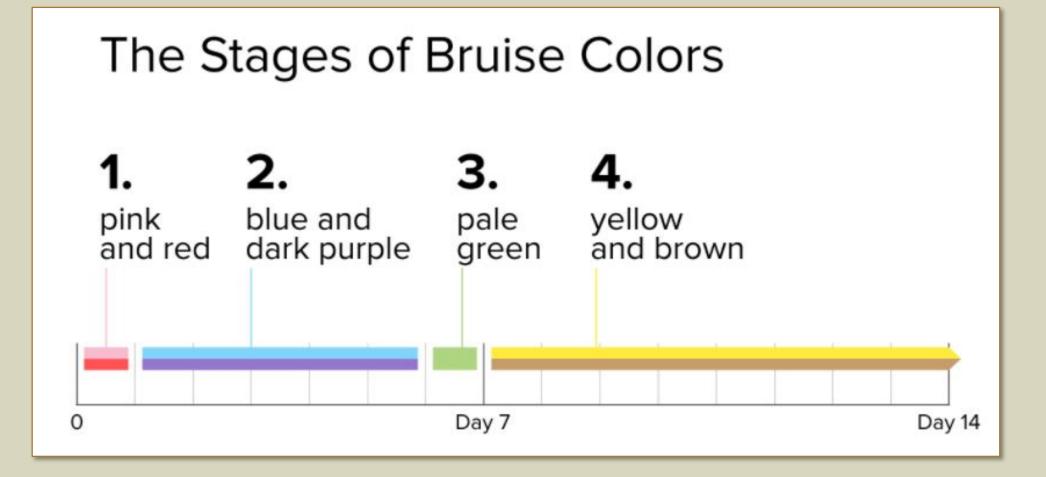
## Ingestion



















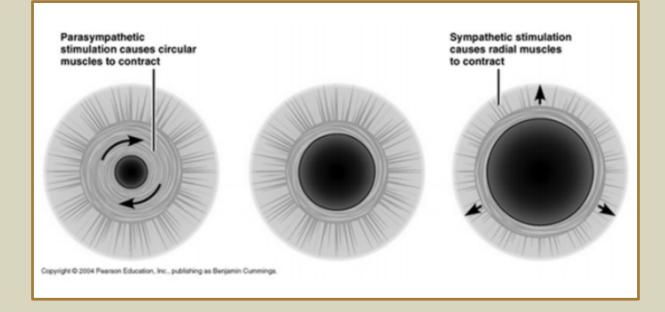


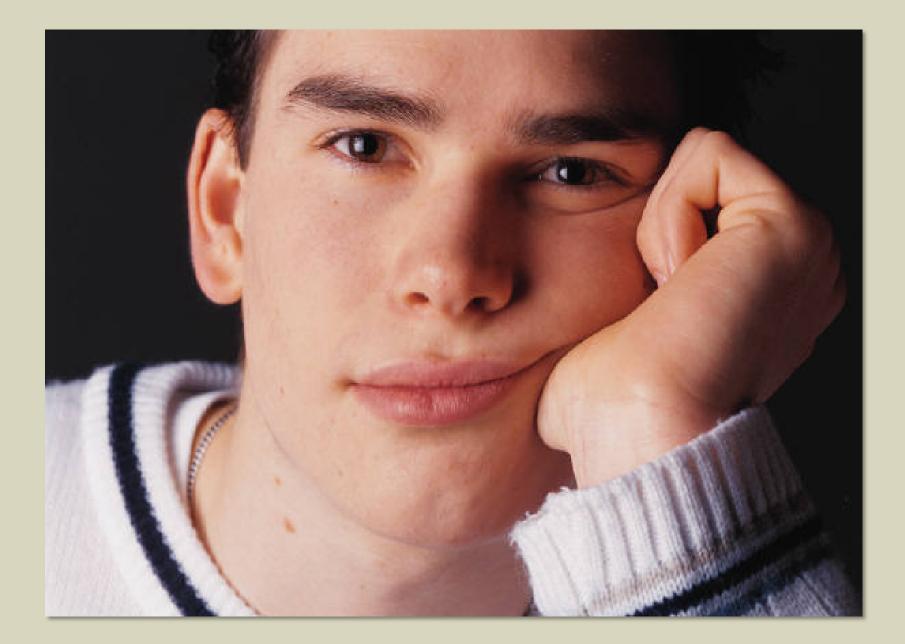


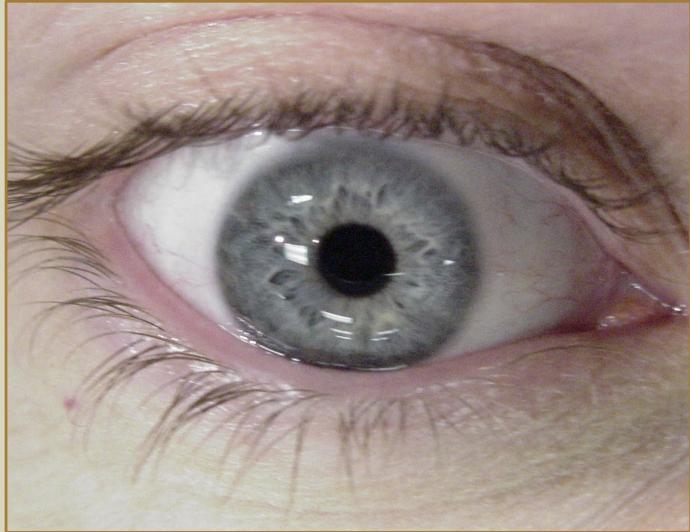


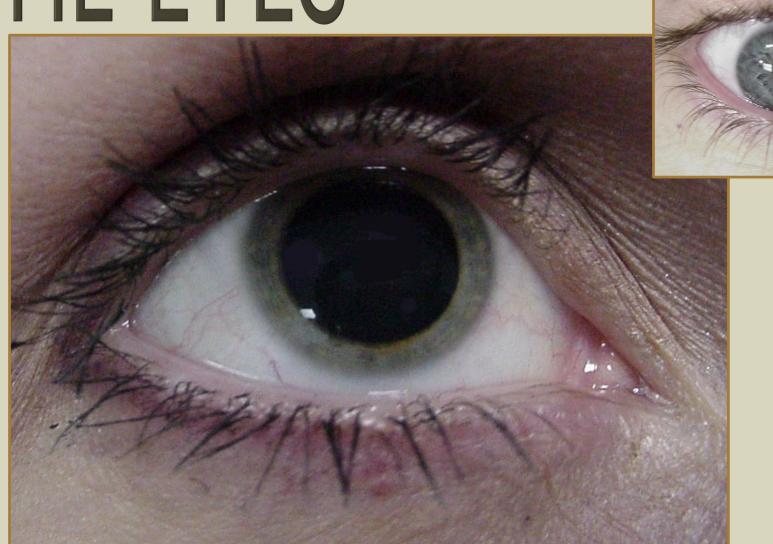
### Absorption

Distribution





















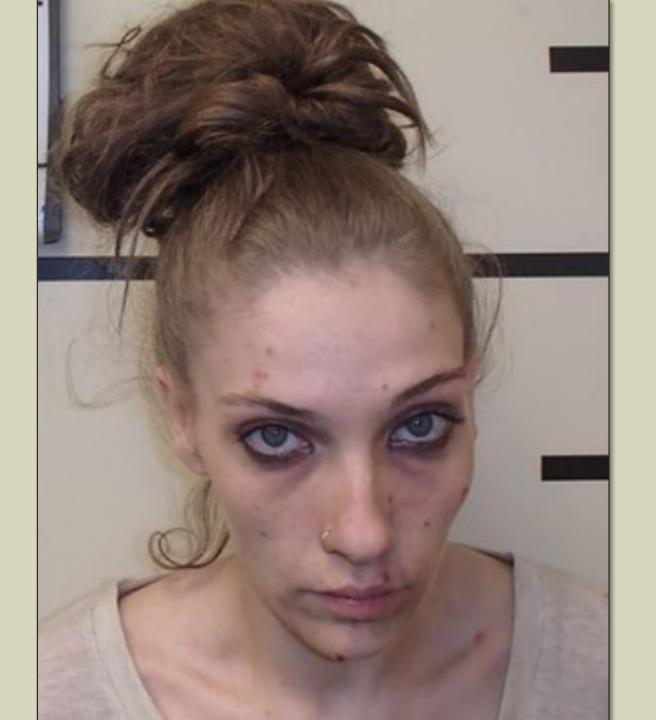




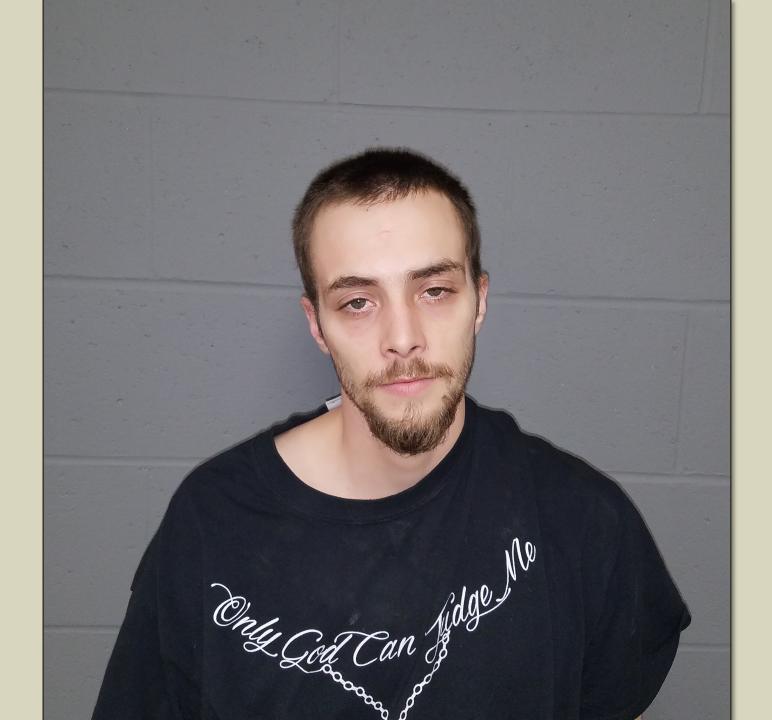










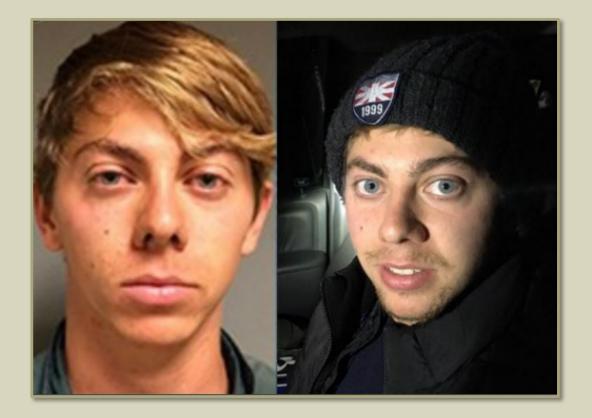


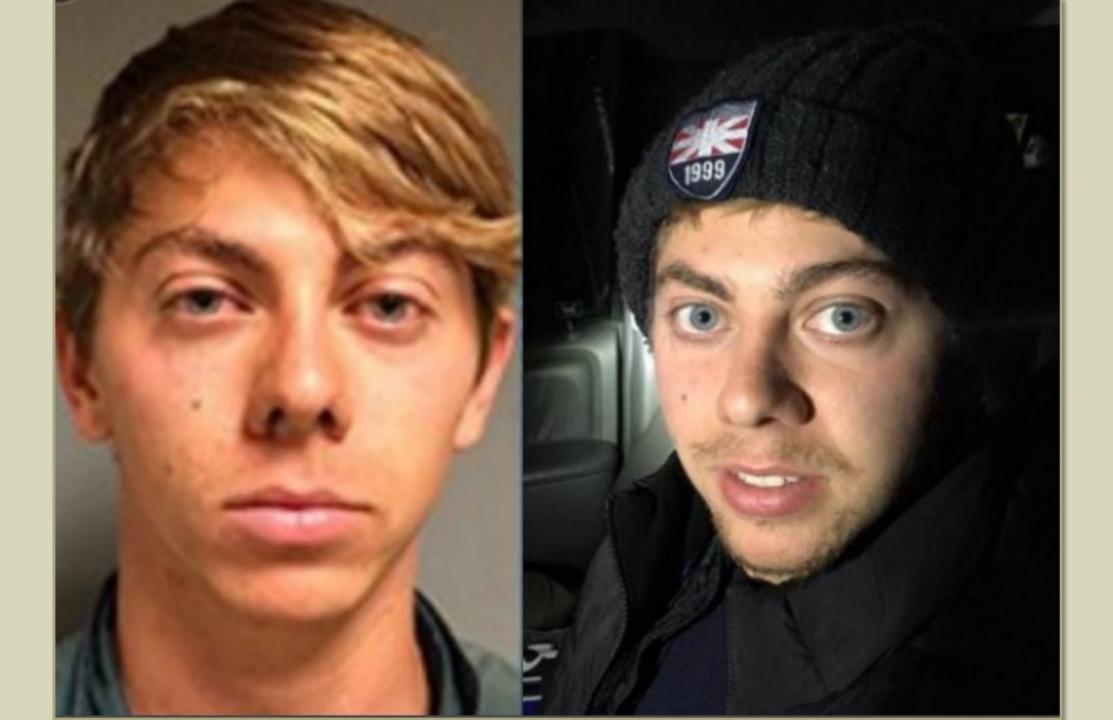






Cannabis Impairment vs. No Impairment





## STRATEGIES OF INTERVENTION

# DON'T not TALK

## STRATEGIES OF INTERVENTION

# ENCOURAGE

- Express Concern
- •"We observed..."
- Describe Appearances
- Describe Behavior

# STRATEGIES OF INTERVENTION

- Diagnosed
- Drugs
- Loaded
- High
- Drunk
- Suspect

- Arrest
- Out of Control
- Crazy
- Jail
- Others?

### Suggested Resources

### What Is Substance Abuse Treatment? A Booklet for Families

Created for family members of people with alcohol abuse or drug abuse problems. Answers questions about substance abuse, its symptoms, different types of treatment, and recovery. Addresses concerns of children of parents with substance use/abuse problems.

### Alcohol and Drug Addiction Happens in the Best of Families

Describes how alcohol and drug addiction affect the whole family. Explains how substance abuse treatment works, how family interventions can be a first step to recovery, and how to help children in families affected by alcohol abuse and drug abuse.

It's Not Your Fault (NACoA) (PDF | 12 KB) ₽

Assures teens with parents who abuse alcohol or drugs that, "It's not your fault!" and that they are not alone. Encourages teens to seek emotional support from other adults, school counselors, and youth support groups such as Alateen, and provides a resource list.

### It Feels So Bad: It Doesn't Have To

Provides information about alcohol and drug addiction to children whose parents or friends' parents might have substance abuse problems. Advises kids to take care of themselves by communicating about the problem and joining support groups such as Alateen.

### After an Attempt: A Guide for Taking Care of Your Family Member After Treatment in the Emergency Department

Aids family members in coping with the aftermath of a relative's suicide attempt. Describes the emergency department treatment process, lists questions to ask about follow-up treatment, and describes how to reduce risk and ensure safety at home.

#### Family Therapy Can Help: For People in Recovery From Mental Illness or Addiction

Explores the role of family therapy in recovery from mental illness or substance abuse. Explains how family therapy sessions are run and who conducts them, describes a typical session, and provides information on its effectiveness in recovery.



## **Questions?**

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## DRUG TRENDS & IMPAIRMENT AND USE SYMPTOMATOLOGY

Sergeant Jay Riggen Vermont State Police

### **2019 NORTHEAST TRANSPORTATION SAFETY CONFERENCE**