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Opioid Misuse in Adolescents: Prevention and Detection

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Acknowledgement

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By March 31

Cardea Staff will send an email to participants by Monday, March 26, with a link to the evaluation. Once the evaluation is completed, participants can request a certificate. The certificate request must be completed by March 31, 2018.



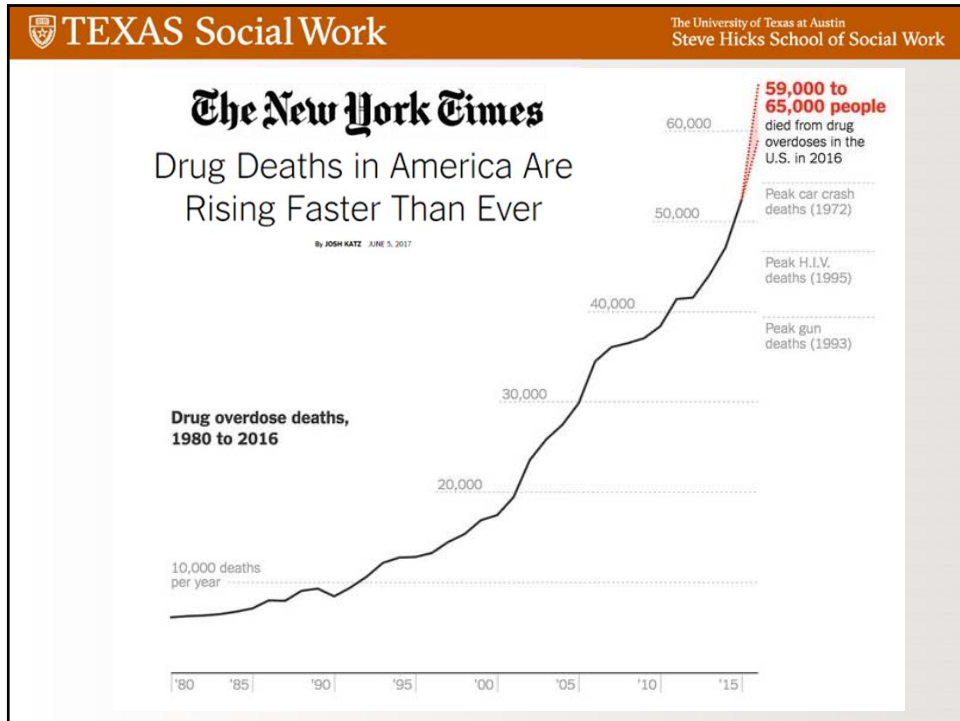
Opioid Misuse and Prevention in Girls Agenda

9:00 – 9:30	Understanding Addiction
9:30 – 9:45	Overview of Opioids
9:45 – 10:15	Opioid Misuse and Consequences in Texas
10:15-10:30	<i>Break</i>
10:30 – 10:45	Risk Factors for Opioid Misuse
10:45 – 11:45	Preventing Opioid Misuse and Related Consequences
11:45 – 12:00	Wrap Up and Final Questions
12:00 – 12:15	Evaluation



Objectives

- Understand the Bio-Psycho-Social aspects of substance misuse/substance use disorders
- Recognize opioids (street names, packaging)
- Describe how opioids are different from other substances
- Articulate the dangers of opioids for youth
- Discuss the risk and protective factors for opioid misuse
- Describe strategies for opioid misuse prevention
- Recognize the indicators/signs of opioid misuse

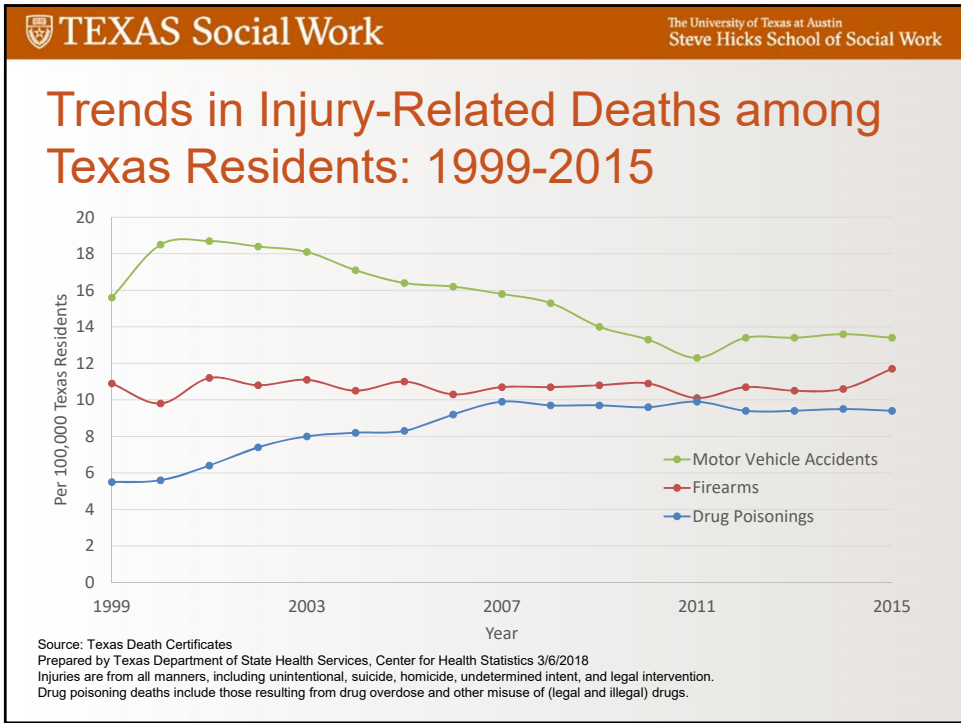


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Drug Overdose in Texas

- In 2016, 2,790 Texans died due to drug overdose
- More than the population of a Texas 6A high school
- More than the population of nearly 60 percent of the cities and towns in Texas

Sources: Texas DSHS Provisional counts of drug overdose deaths, 2/15/2018.
 U.S. Census Bureau (2017). Annual Estimates of the Resident Population in Texas: April 1, 2010 to July 1, 2016.
 Available at: <https://www.census.gov/data/datasets/2016/demo/popest/total-cities-and-towns.html>



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WHAT IS ADDICTION?

Addiction

“Ad-dictum”

In Roman law, a court award of one person to another (e.g. a debtor to a creditor); surrender to a master.

Notion of **slavery**.



Drug Use Starts Early and Peaks in Adolescence

Drug abuse starts early and peaks in teen years



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- Adolescence is a period of profound brain maturation.
- We *thought* brain development was complete by adolescence
- We now know... maturation is not complete until about **age 25**.

INSIDE THE ADOLESCENT BRAIN

The brain undergoes two major developmental spurts, one in the womb and the second from childhood through the teen years, when the organ matures by fits and starts in a sequence that moves from the back of the brain to the front.

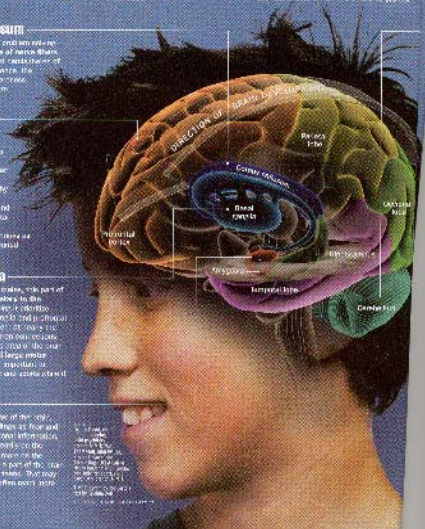
Nerve Proliferation ...
By age 25, the brain will have about the same number of neurons as the 1-year-old brain. About 70% of the neurons are in the cortex. The rest are in the rest of the brain.

Corpus Callosum
Thought as the "bridge" between the two hemispheres, the corpus callosum is a bundle of nerve fibers that connects the two sides of the brain. It is made up of white matter, which is made up of nerve fibers that have lost their outer covering, the myelin sheath. It is the largest and most complex of the brain's white matter tracts.

Prefrontal Cortex
The CEO of the brain, the prefrontal cortex is the seat of executive functions, such as planning, decision-making, and impulse control. It is the last part of the brain to mature, and it is still developing in adolescence.

Basal Ganglia
Large, dark-colored structures in the brain, the basal ganglia are involved in movement, learning, and emotion. They are made up of several different parts, including the striatum, globus pallidus, and subthalamic nucleus.


Amigdala
The almond-shaped part of the brain, the amygdala is involved in emotion, memory, and decision-making. It is the seat of the "fight or flight" response and is highly active in adolescence.



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Developing Brain = Less Brakes on the "Go" System



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Maturation Occurs from Back to Front of the Brain

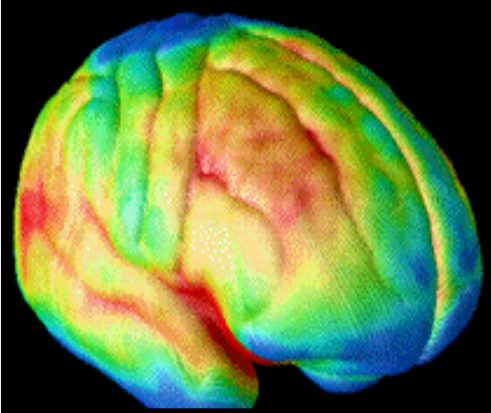
Images of Brain Development in Healthy Youth
(Ages 5 – 20)

Earlier: Limbic system

- Processing emotions
- Processing social info
- Experience reward, punishment

Later: Prefrontal cortex

- Deliberative thinking
- Logical reasoning
- Planning ahead
- Weighing costs and benefits
- Regulating impulses



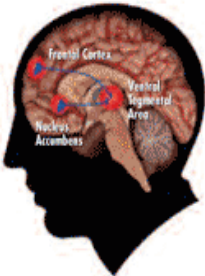
Blue represents maturing of brain areas

Source: PHAS USA 2004 May 25; 101(21): 8174-8179.

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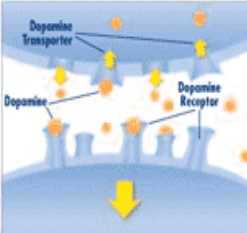
ALL DRUGS OF ABUSE TARGET THE BRAIN'S PLEASURE CENTER

Brain reward (dopamine) pathways

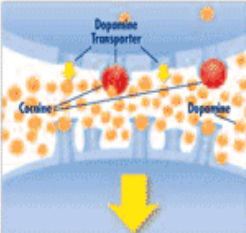


These brain circuits are important for natural rewards such as food, music, and art.

All drugs of abuse increase dopamine

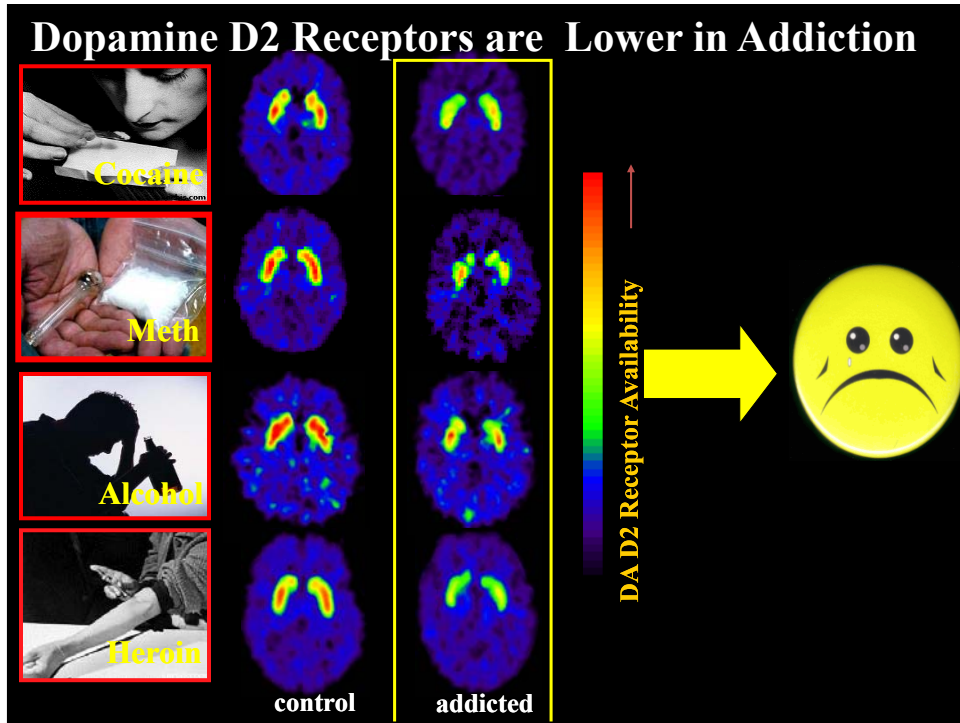


FOOD



COCAINE

Typically, dopamine increases in response to natural rewards such as food. When cocaine is taken, dopamine increases are exaggerated, and communication is altered.



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- During adolescence, the developing dopamine system is “robust”
- This creates a greater risk of the dopamine hijacking process for the developing brain, compared to an adult brain

P = Promote activities that capitalize on the strengths of the developing brain.

A = Assist children with challenges that require planning.

R = Reinforce their seeking advice from adults; teach decision making.

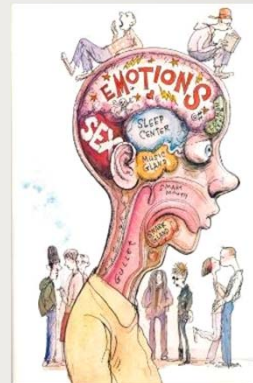
E = Encourage lifestyle that promotes good brain development.

N = Never underestimate the effects of alcohol on the developing brain.

T = Tolerate the “oops” behaviors due to an immature brain.

Recipe for a Healthy Brain

- Good diet
- Vitamins (multi-vitamins)
- Exercise
- Sufficient sleep
- Social connections
- Positive thinking
- Helping others
- New learning
- Drug-free lifestyle
- Seek help if mental/behavioral problems



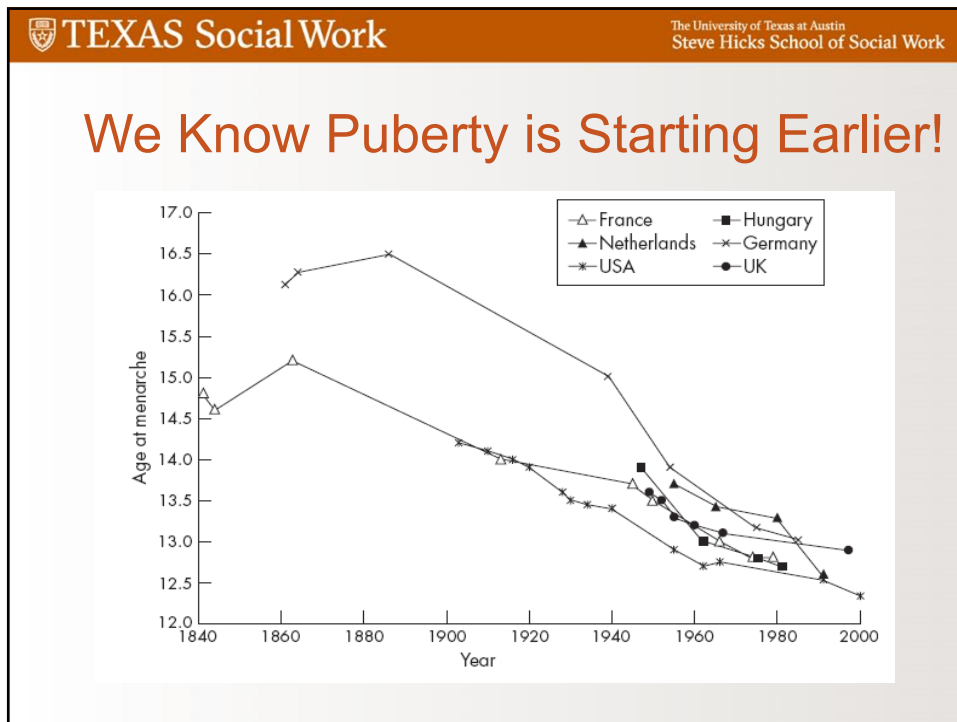
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- **biopsychosocial framework:** an approach to describing and explaining how *biological, psychological* and *social* factors combine and interact to influence physical and mental health

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Why is Puberty a Public Health Issue?

- Puberty is a dynamic interplay of biological, psychological, and social processes
- Feelings range from embarrassment to empowerment
- An adolescent's understanding of their pubertal process is shaped in part by comparisons to and reactions from others

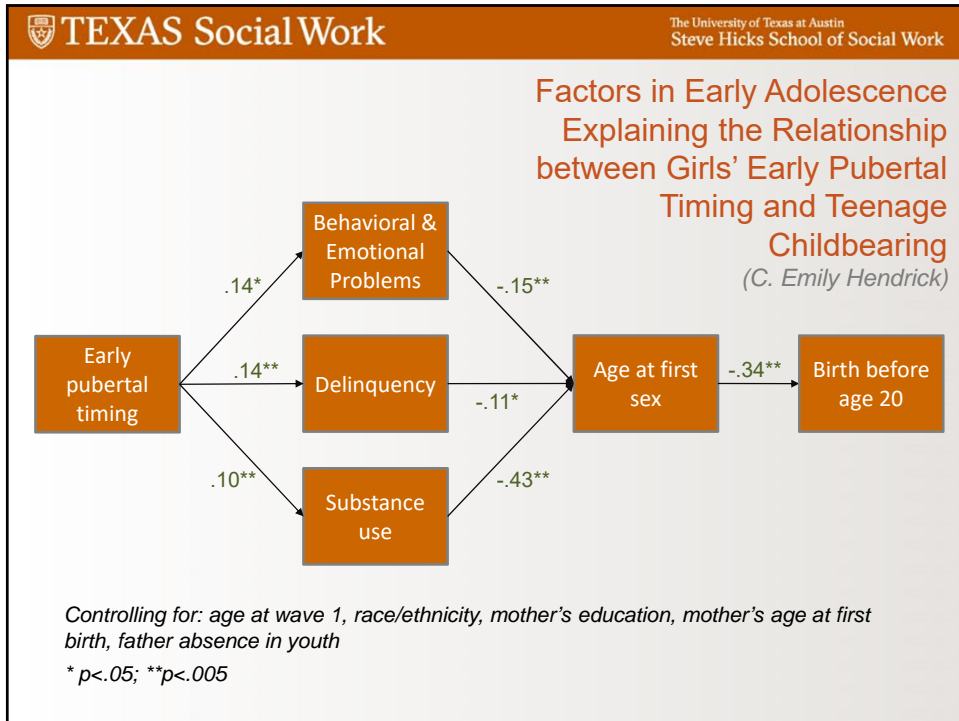


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Pubertal timing and adolescent risk: Two competing hypotheses

- Developmental readiness hypothesis
 - Early developing adolescents are at risk

- Maturational-deviance hypothesis
 - Off-time adolescents (early or late) are at risk



Mexican American Puberty Study

*“To be prepared for challenges like, umm, once you start growing and you’re going to middle and high school, **there’s going to be a lot of challenges like drugs, and alcohol, or skipping**, because I was, for some reason, I was one of the people who had, like, like those challenges, and after I said no again and no, like, they kept on coming to me... **I guess there are a lot of challenges out there, and you would have to not take any of those bad challenges.**”*


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WHAT ARE OPIOIDS?

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The Opioid System

- Controls pain, reward, and addictive behaviors
- Opioids attach to and activate opioid receptor proteins
- Opioids suppress *perception* of pain and calm emotional response to pain



Source:
Gutstein H, Akil H. Opioid Analgesics. In: *Goodman & Gilman's the Pharmacological Basis of Therapeutics*. 11th ed. McGraw-Hill; 2006:547-590.

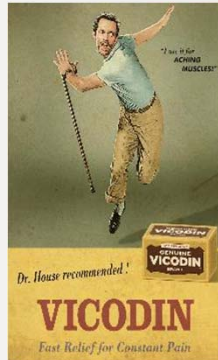
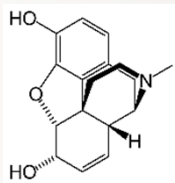
What are Opioids?

Type of Opioid	Examples
Natural opioids (sometimes called opiates)	Morphine, Codeine, Thebaine
Semi-synthetic	Hydromorphone, Hydrocodone, Oxycodone, Heroin
Fully synthetic	Fentanyl, Methadone, Tramadol



Source: National Institute on Drug Abuse

Opioid History



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Pain in the United States

- In 2016, nearly one in five adults had chronic pain in the past six months
- Estimated cost of \$635 billion
- Late 1990s, pain was recognized the fifth vital sign



PAIN ASSESSMENT TOOL

0 1 2 3 4 5 6 7 8 9 10

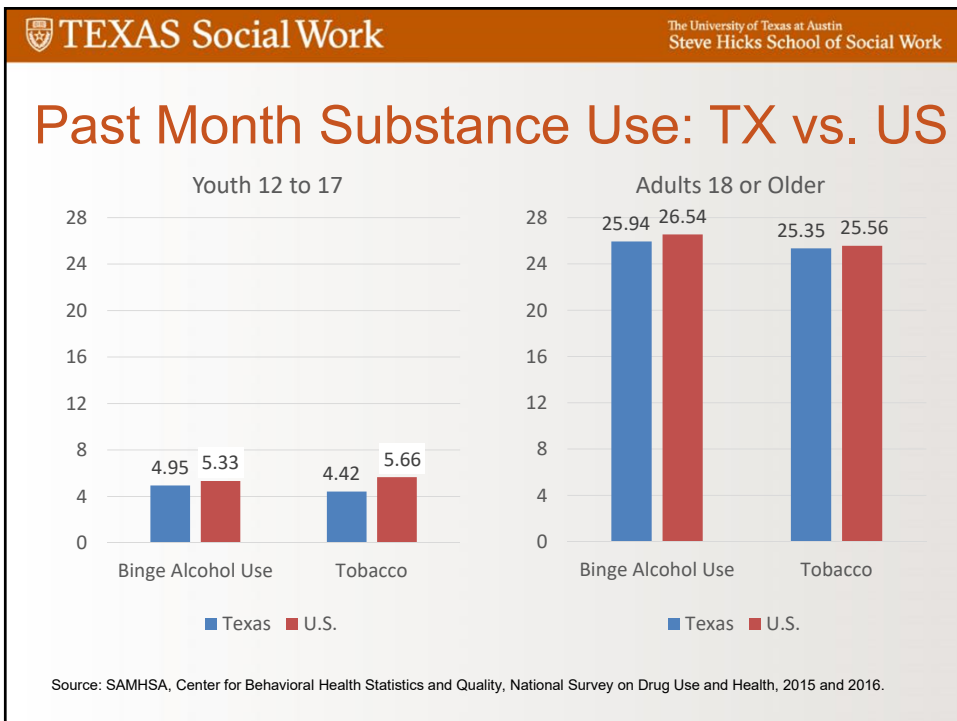
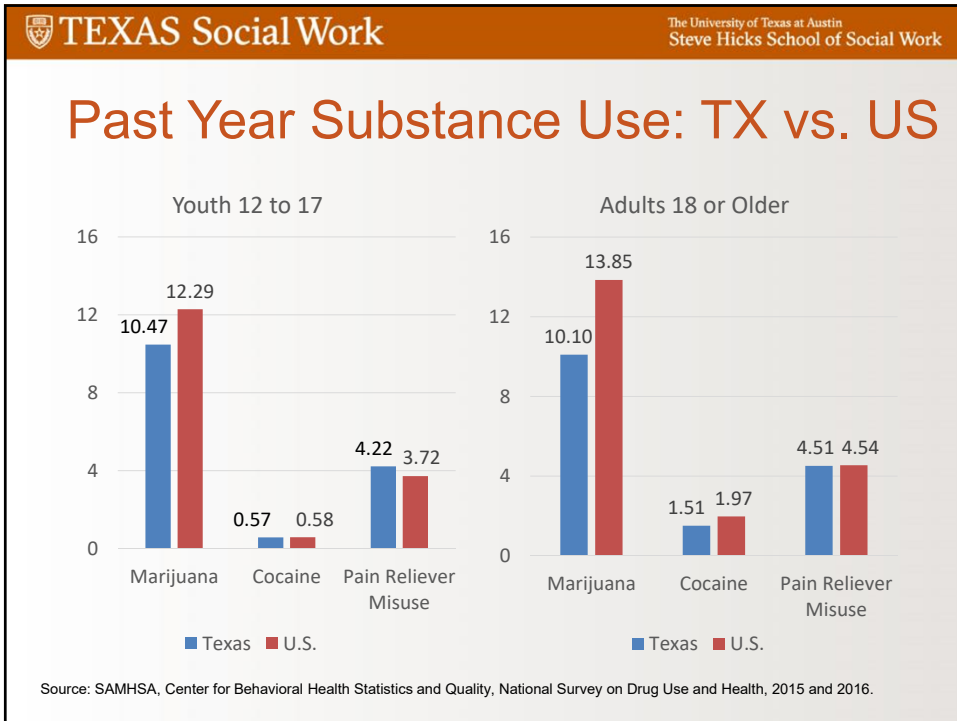
No Pain Mild Moderate Severe Very Severe Worst Pain Possible

0 1-3 4-6 7-9 10

Sources:
QuickStats: Age-Adjusted Percentage of Adults Aged ≥18 Years Who Were Never in Pain, in Pain Some Days, or in Pain Most Days or Every Day in the Past 6 Months, by Employment Status — National Health Interview Survey, United States, 2016. MMWR Morb Mortal Wkly Rep 2017;66:796.
Gaskin, D.J., & Richard, P. (2012). The Economic Costs of Pain in the United States. *The Journal of Pain*, 13 (8), 715.

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OPIOID MISUSE AND CONSEQUENCES IN TEXAS

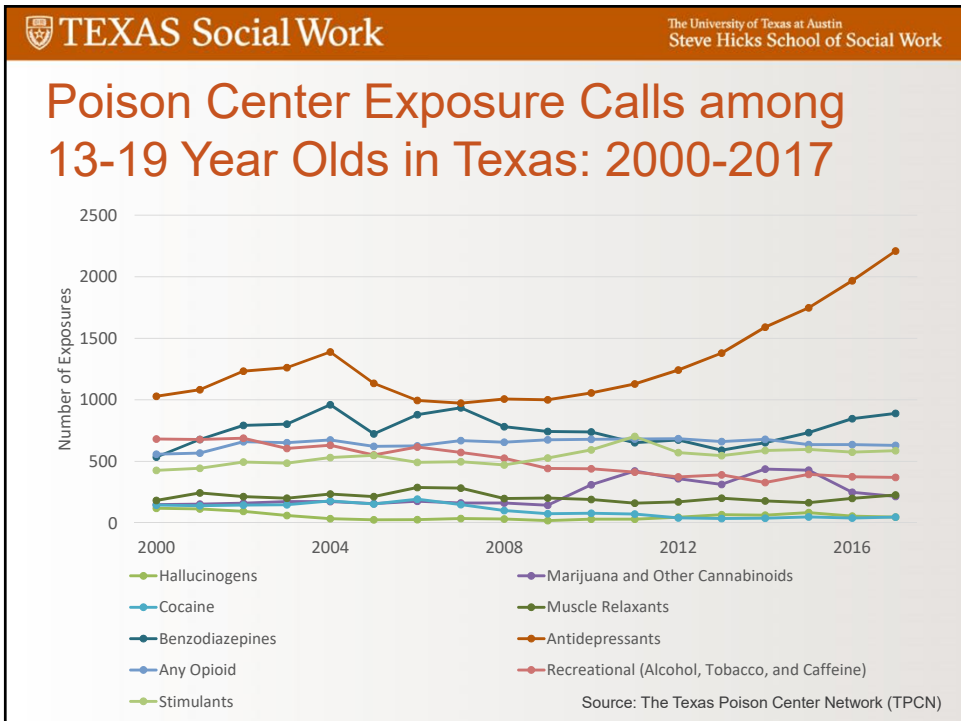


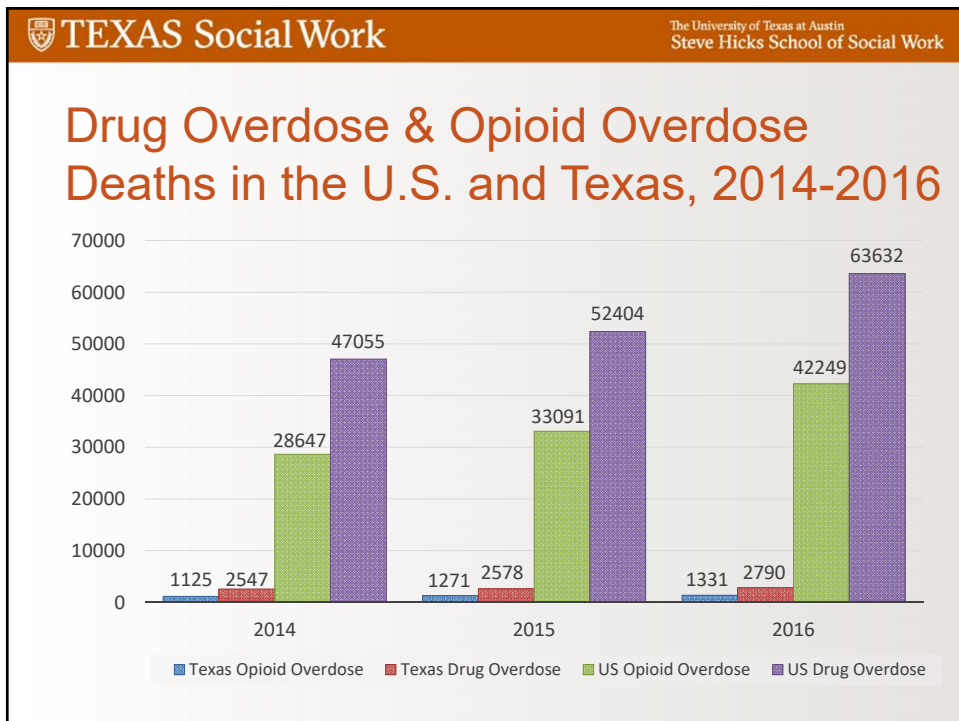
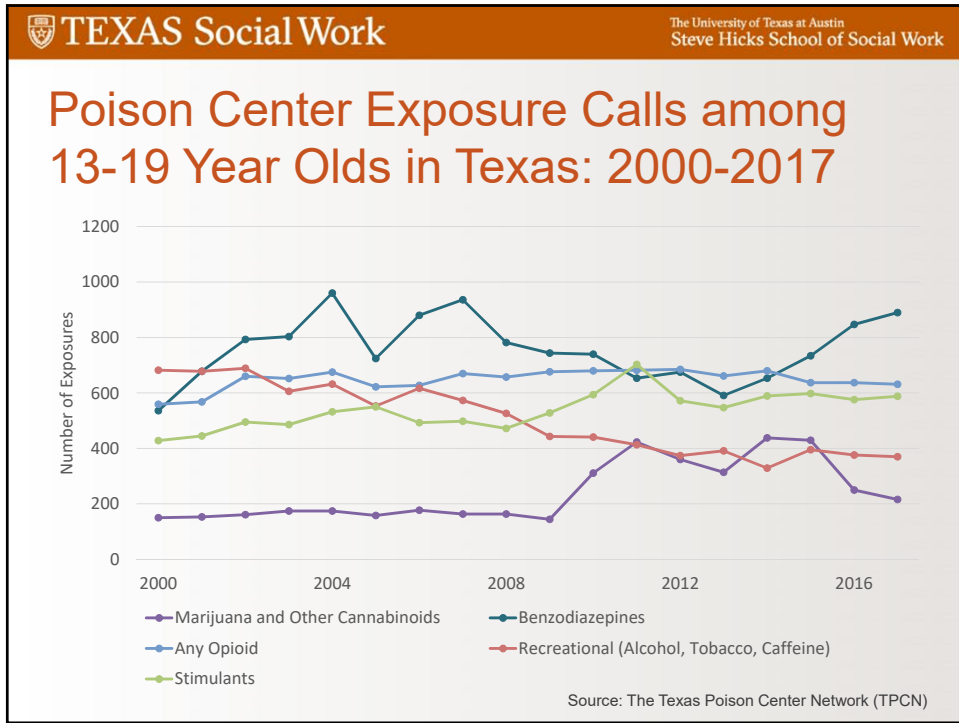
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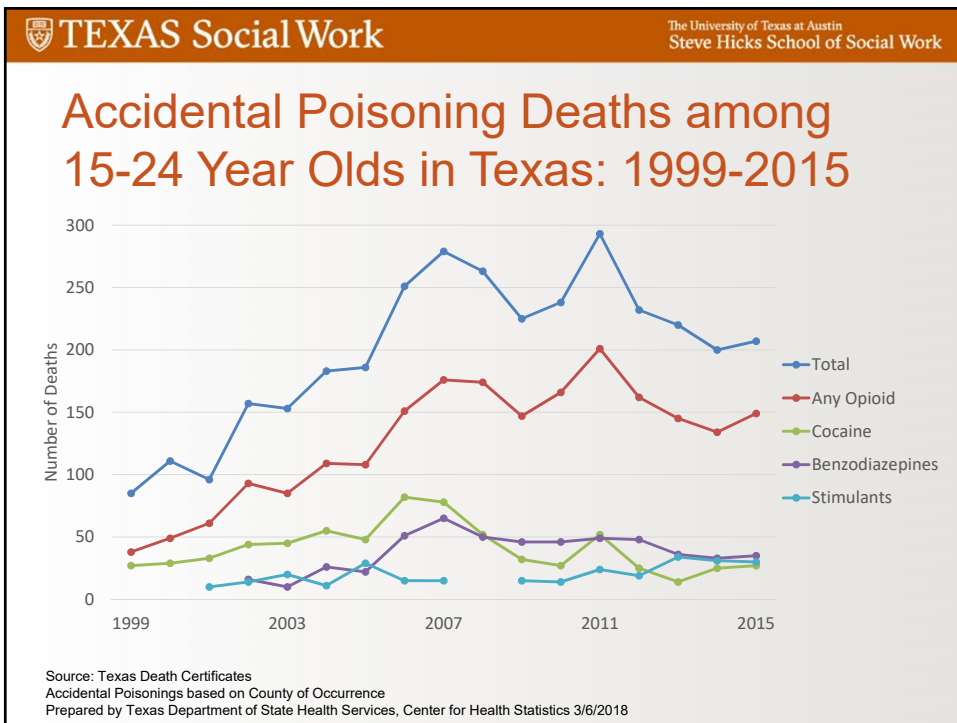
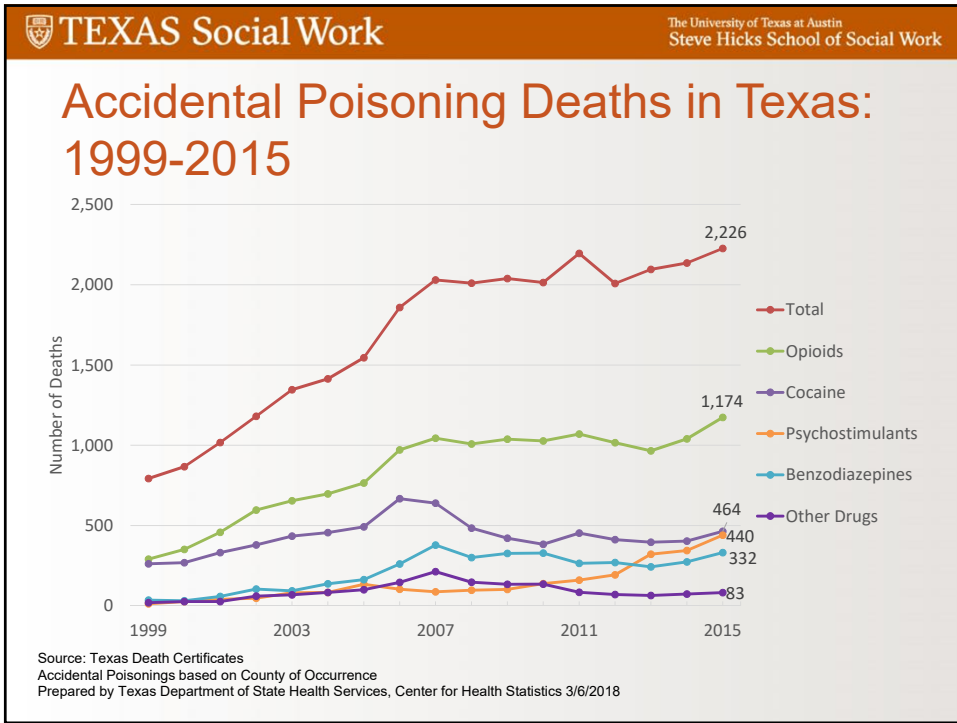
Past Year Opioid Misuse

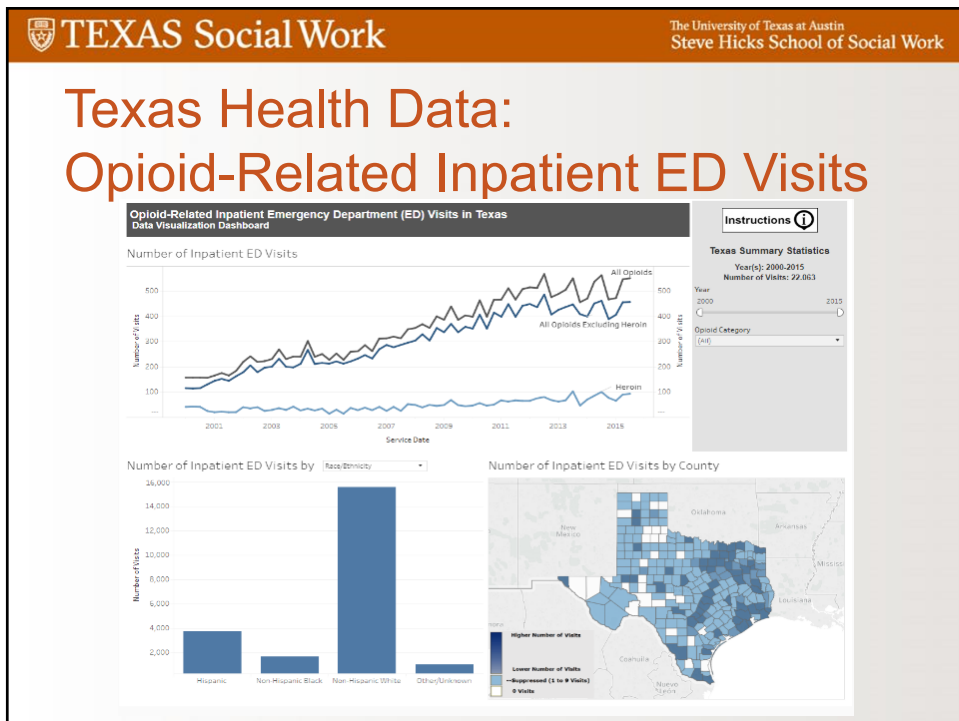
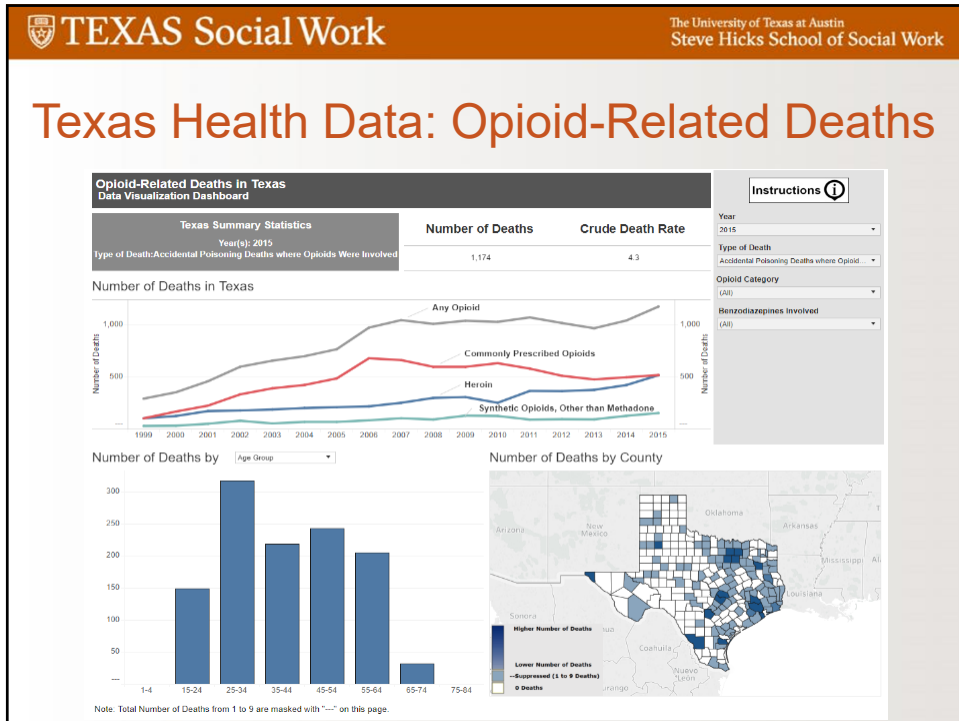
- In 2016, nearly 12 million people aged 12 or older misused opioids in the U.S.
- Among Texas students in grades 7-12
 - 9 percent misused codeine cough syrup
 - 4 percent misused other opioids
- Among Texas college students
 - 4 percent misused opioids (including codeine)

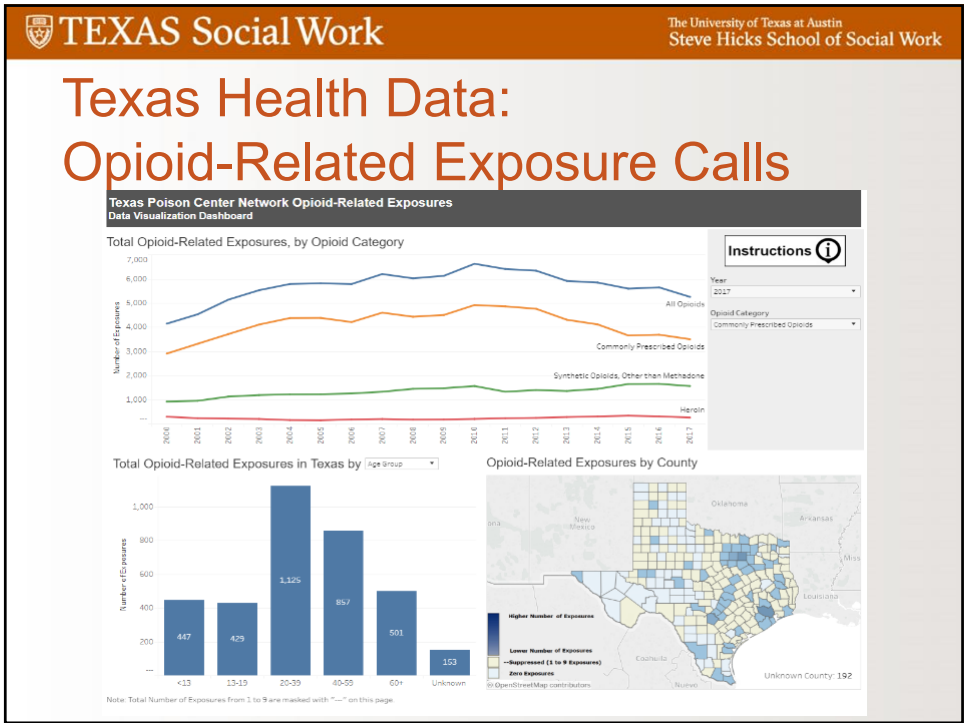
Sources:
SAMHSA, National Survey on Drug Use and Health, 2016
Texas School Survey of Drug and Alcohol Use, 2016
Texas College Survey, 2017











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RISK FACTORS FOR OPIOID MISUSE

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Correlates of Opioid Misuse

Sources: McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education & Behavior*, 15(4), 351-377.
SAMHSA CAPT (2016). Preventing Prescription Drug Misuse: Understanding Who Is at Risk. Available at: <https://www.samhsa.gov/capt/sites/default/files/resources/preventing-prescription-drug-misuse-understanding.pdf>

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Opioid misuse higher in youth with . . .

- History of delinquent activities
- Recent mental health, trauma or emotional problems
- Involvement with the illicit drug market
 - More than one-third (39%) of those who had ever sold illicit drugs self-reported misusing prescription opioids during the previous year
- Lenient attitudes of people their age trying marijuana
- Association with more marijuana-using classmates
- Little attendance at religious services
- Concurrent alcohol and tobacco and nearly endemic among users of illicit drugs

Source: Sung, Richter, Vaughn, Johnson & Thom (2005)

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PREVENTING OPIOID MISUSE AND RELATED CONSEQUENCES

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Public Health 3.0

- Initiative launched by the U.S. Department of Health and Human Services in 2016

Public Health 1.0

- Tremendous growth of knowledge and tools for both medicine and public health
- Uneven access to care and public health

Public Health 2.0

- Systematic development of public health governmental agency capacity across the United States
- Focus limited to traditional public health agency programs

Public Health 3.0

- Engage multiple sectors and community partners to generate collective impact
- Improve social determinants of health

Late 1800s 1988 IOM *The Future of Public Health* report Recession Affordable Care Act 2012 IOM *For the Public's Health* reports

Source: DeSalvo KB, Wang YC, Harris A, Auerbach J, Koo D, O'Carroll P. (2017). Public Health 3.0: A Call to Action for Public Health to Meet the Challenges of the 21st Century. *Preventing Chronic Disease*, 14, 170017.

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Public Health Approach to Preventing Substance Misuse and Addictions

PUBLIC HEALTH PRACTICE PARADIGMS

ACUTE HEALTH EVENT CONTROL AND PREVENTION (Level 3):
Prevent life-threatening adverse outcomes
SNEPs
Naloxone
Ignition Interlock

CHRONIC DISEASE SCREENING AND MANAGEMENT (Level 2):
Diagnose and treat addictions and substance use disorders
Screening and Treatment
Remove Stigma
Understanding of Addiction as a Chronic Condition of the Brain

ENVIRONMENTAL CONTROLS AND SOCIAL DETERMINANTS (Level 1):
Reduce the need to self-medicate, control access to addictive substances, and promote protective factors
Taxation Age Restrictions
Limited Advertising Prevention of ACEs
Personal and Community Resiliency
Adolescent Risk Reduction Promote Mental Wellness
Effective PDMPs and Use of Data
Rational Pain Management Judicious Prescribing

STRATEGIC PRIORITIES

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What is Primary Prevention?

Colorado Stream
Carol Cakalopoulos

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Evidence-Based Prevention Strategies

Prevention Strategies
What should we do? And how?

Risk and Protective Factors
But why here?

Problems and Related Behaviors
What? And why?

Source: Luciani, N. (2016, September 26). *Community-level Strategic Planning to Prevent Non-medical Use of Prescription Drugs in Texas*. Lecture presented at CAPT Training - Fall Prevention Provider Meeting, Austin.

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Community Education

- Youth and Young Adults
- Communities
- Health Providers

A KILLER IN THE CABINET

MEDICATION SAFETY TIPS

- KEEP A WRITTEN INVENTORY TO KEEP TRACK OF MEDICATIONS
- LOCK UP THE MEDICATIONS
- KNOW YOUR KIDS, FRIENDS AND TALK TO THEIR PARENTS ABOUT MEDICATIONS
- DISPOSE OF OLDER/UNUSED MEDICATIONS

2,500 TEENS BEGIN ABUSING PRESCRIPTION DRUGS EACH DAY

BROUGHT TO YOU BY WWW.CPCHEALTH.COM

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Disposal and Storage

- Take-Back Events and Drop-Boxes
- Individual Medication Disposal Pouches
- Lock-Boxes

Source	Percentage
Someone with a Prescription	55
Personal Prescription	38
Someone without a Prescription	27
Home Medicine Cabinet	20
Stealing It	9
On-Line	4

Source: 2017 Texas College Survey of Substance Use: Main Report.
Available at: https://texascollegesurvey.org/wp-content/uploads/2017/08/CDAS_report_final_2017.pdf

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Monitoring

- High Utilization
- Consistent Reporting

Making a Difference: State Successes

New York	Florida	Tennessee
 75% ↓	 50% ↓	 36% ↓
2012 Action: New York required prescribers to check the state's prescription drug monitoring program before prescribing painkillers.	2010 Action: Florida regulated pain clinics and stopped health care providers from dispensing prescription painkillers from their offices.	2012 Action: Tennessee required prescribers to check the state's prescription drug monitoring program before prescribing painkillers.
2013 Result: Saw a 75% drop in patients who were seeing multiple prescribers to obtain the same drugs, which would put them at higher risk of overdose.	2012 Result: Saw more than 50% decrease in overdose deaths from oxycodone.	2013 Result: Saw a 36% drop in patients who were seeing multiple prescribers to obtain the same drugs, which would put them at higher risk of overdose.

Sources: NY, TN; PDMP Center of Excellence at Brandeis University, 2014
FL: Vital Signs Morbidity and Mortality Weekly Report, July 1, 2014

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Texas Prescription Monitoring Program

- Moved from the Department of Public Safety to the Texas Board of Pharmacy in 2016
- Prescriber mandate passed Spring 2017 (House Bill 2561, 85th Regular Session)
 - Registration
 - Requires patient look-up prior to prescribing opioids, benzodiazepines, barbiturates, or carisoprodol

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Opioid Prescribing in Texas

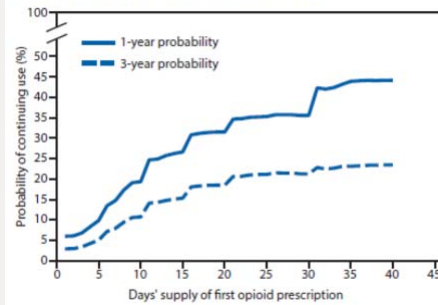
Opioid Category	Number of Prescriptions/Week N (%)	
	June 2, 2014	July 22, 2015
Hydrocodone	254,731 (81.3)	119,748 (40.5)
Schedule II Opioids	35,194 (11.2)	38,753 (13.1)
Codeine/APAP	6,151 (2.0)	58,394 (19.8)
Tramadol	17,299 (5.5)	78,520 (26.6)
Total	313,375 (100.0)	295,415 (100.0)

Source: Texas Prescription Drug Monitoring Program. Analysis by Dr. Marc Fleming

Workforce Development

- Prevention Professionals
- Prescribers and Other Health Care Professionals

FIGURE 1. One- and 3-year probabilities of continued opioid use among opioid-naive patients, by number of days' supply* of the first opioid prescription — United States, 2006–2015



* Days' supply of the first prescription is expressed in days (1–40) in 1-day increments. If a patient had multiple prescriptions on the first day, the prescription with the longest days' supply was considered the first prescription.

Source: Shah, A., Hayes, C.J., & Martin, B.C. (2017). Characteristics of initial prescription episodes and likelihood of long-term opioid use: United States, 2006–2015. MMWR Morb Mortal Wkly Rep 2017; 66:265–269.

What is Secondary Prevention?



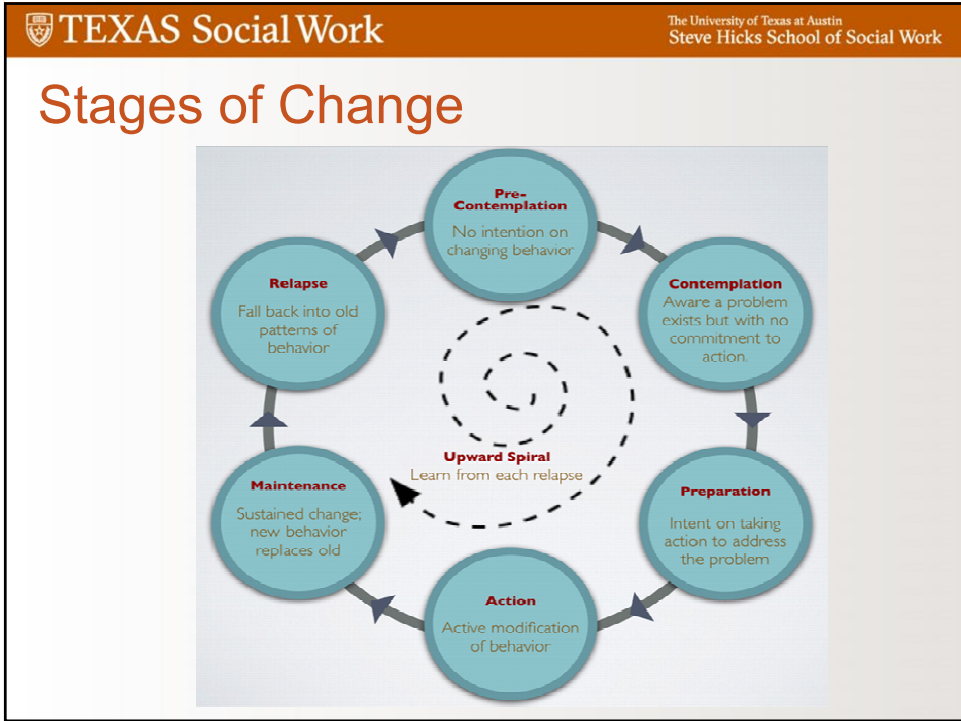
Warning Signs

- family substance abuse
- truancy or sudden grade drop
- change in peer group
- quitting important activities
- legal difficulties
- drug-related paraphernalia
- unknown source of income
- physical changes
- "hanging out" in strange places
- justification of use due to stressors



TOOL KIT: How to talk about drugs

- Set a respectful and inquisitive, intimate and safe tone
- Do not interrupt
- You cannot change someone – they must choose change
- Don't make assumptions – there is no typical "profile" for substance misuse and addiction
- Listen more than talk – reflect what you hear – don't try to FIX
- Be candid and nonjudgmental
- Affirm perspective, feelings, and freedom of choice
- Ask questions tentatively
- Be patient and do not get defensive – people with substance use problems may turn the conversation quickly to make the person asking lose balance
- Use non-stigmatizing language



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Change Conversations

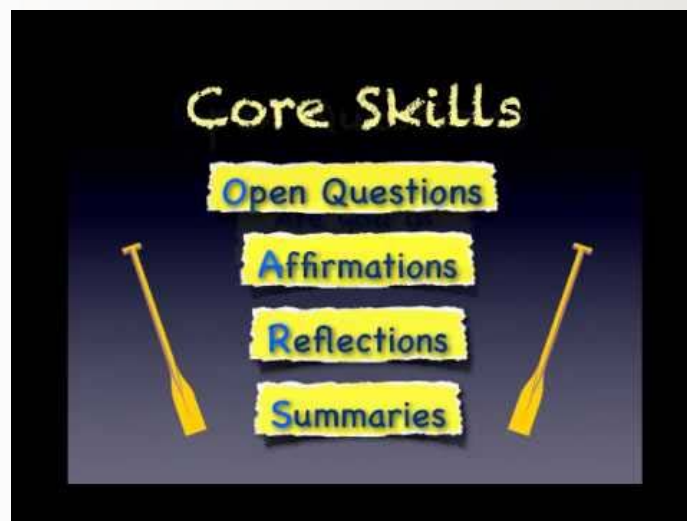
Students can articulate the “payoffs and downsides” of using substances, and this is key for motivational change.

The image shows a 3D illustration of a seesaw. On the left side, the word "PROS" is written in large, blue, block letters. On the right side, the word "CONS" is written in large, red, block letters. The seesaw is balanced on a central fulcrum, which is a question mark. This visual metaphor represents the process of weighing the benefits (pros) and drawbacks (cons) of a behavior, such as substance use, to facilitate a change in motivation.

Screening & Brief Intervention (SBI)

- Designed for use by counselors and professionals who do not specialize in addiction treatment
- Person-centered methodology that uses motivational techniques based on the person's readiness to change
- Gives feedback and recommendations respectfully, without judgment or accusations, in the form of useful information
- Identified by The National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2002) as showing clear evidence of effectiveness with students

Practice MI: Use Your OARS



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Assessment/Screening Tool: CRAFFT

C Have you ever ridden in a **car** driven by someone (including yourself) who was “high” or had been using alcohol or drugs?

R Do you ever use alcohol or drugs to **relax**, feel better about yourself, or fit in?

A Do you ever use alcohol or drugs while you are by yourself, **alone**?

F Do you ever **forget** things you did while using alcohol or drugs?

F Do your **family** or **friends** ever tell you that you should cut down on your drinking or drug use?

T Have you ever gotten into **trouble** while you were using alcohol or drugs?

CRAFFT: Predictive Value
Source: Knight et al. (2006)

CRAFFT score	Dr Abuse or Dependence (%)
1	~30
2	~50
3	~65
4	~80
5	~90
6	~95

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Referrals and Resources

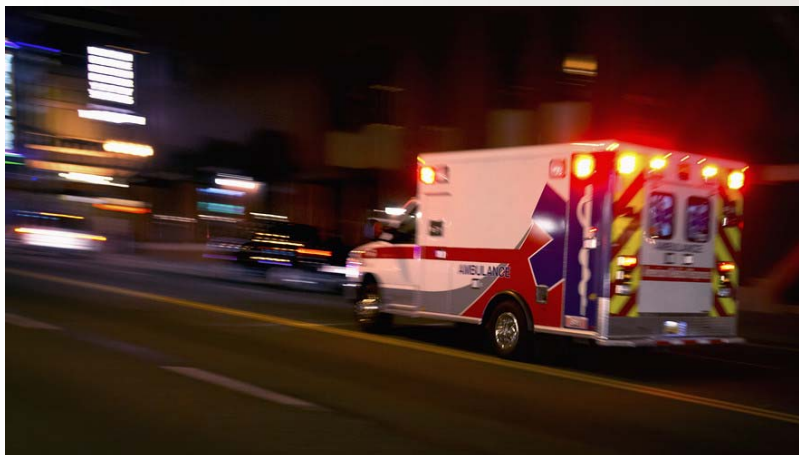
- Outreach, Screening, Assessment, and Referral Centers (OSARs)
 - <https://www.dshs.texas.gov/sa/OSAR/>
- Peer Coaches
- Treatment Centers
- Detox
- Recovery ATX and TONI

Harm Reduction and Abstinence-Based Models

- Medication Assisted Therapies
- Love and Tolerance
- Stages of Recovery
- Saving Lives



What is Tertiary Prevention?



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Overdose Often Occurs Due to Combination of Opioids with Alcohol and Other Drugs

7 out of 10 teen nonmedical users combine Rx opioids with other substances¹

The substances most commonly co-ingested were...

Substance	Percentage
marijuana	58.5%
alcohol	52.1%
cocaine	10.6%
tranquilizers	10.3%
amphetamines	9.5%

McCabe, West, Teter (2012) *Drug & Alcohol Dependence*

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FIGURE 4. NALOXONE MECHANISM OF ACTION⁷

Naloxone has a higher affinity to the opioid receptors than opioids like heroin or oxycodone, so it knocks other opioids off the receptors for 30-90 minutes. This reverses the overdose and allows the person to breathe.

Source: San Francisco Department of Public Health. Naloxone for Opioid Safety. San Francisco Health Network Website. <http://bit.ly/2t8GaKy>



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OPERATION NALOXONE.org

Resources for academic institutions, community organizations, & healthcare providers

Continuing education for pharmacists, prescribers, & social workers

Recommendations

- Elementary and Middle Schools must invest and provide resources to make students aware and prepared
- Teams must find ways to collaborate and achieve effective communication and networking between community experts, teachers, students, staff and administrators
- Overdose Prevention trainings exist and can be tailored for unique cultural groups
- Creatively overcome challenges of weaving policy, practice, and research for further impact on school campuses
- We need to act quickly. There are lives to be saved!

Contact Information and Resources

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Operation Naloxone

OperationNaloxone.org

Texas Overdose Naloxone Initiative (TONI)

<http://www.texasoverdosenaloxoneinitiative.com/>

Texas Health Data

<http://healthdata.dshs.texas.gov/Home>



Questions?



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