# Making Sense of Addiction and Its Treatment

Michael Baca-Atlas, MD
Addiction Medicine Fellow
UNC Department of Psychiatry
Adjunct Assistant Professor – Department of Family Medicine

UNC SCHOOL OF MEDICINE

michael_baca-atlas@med.unc.edu

## Acknowledgement

**James Finch, MD, DFASAM**

Governor's Institute on Substance Abuse
Director of Physician Education
Changes By Choice Medical Director - Durham, NC

## Disclosures

***The presenter has nothing to disclose***

## Objectives

- Provide brief theoretical and public health context for substance use disorders
- Review the process of progressing from initial volitional drug use to substance use disorders
- Provide overview of goals and challenges of behavior change related to addiction treatment
- Outline core elements and support for current evidence-based behavioral and medication assisted treatments.
- Describe the significance and impact of co-occurring mental illness and substance disorders (Dual-diagnosis)

## Definition of Addiction

*Addiction is a primary, chronic and relapsing brain disease characterized by an individual pathologically pursuing reward and/or relief by substance use and other behaviors.*

**"All things are poison, and nothing is without poison. Solely the dose determines that a thing is not a poison."**
**–Paracelsus 1500s**

## How can we make sense of addiction?

- How and why do people use drugs?
- What do we know about the process of addiction and why do we call it a "disease"?
- How and why do some progress from non-problematic use to abuse and some don't?
- What are the core elements of treatment?

## Pivotal Developments in the Approach to Substance Use Disorders

- Public Health "Continuum" Model
- Evidence Based Behavioral Therapies
- Neurophysiologic Research and Pharmacologic Adjuncts (Medication Assisted Therapy)

## Case

- **25-year-old single male**
  - Referred for treatment by his probation officer
  - unemployed, lives with friends in a different location each day because his relationship with his family deteriorated due to addiction
  - Using marijuana from age 14, introduced to heroin by his best friend about five year's ago during a stressful time in his college studies
  - Grandmother supports him financially in order to prevent him from stealing
  - "If you do not admit me today, I will go and get high, and I don't care what happens to me

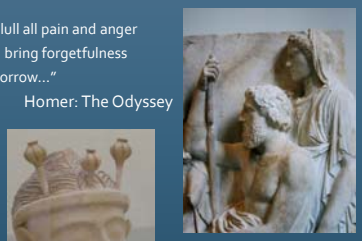
## Why start using alcohol and/or drugs? *("volitional use")*

- To feel good: get ***"high"*** or *"buzzed"* or *"altered"*
- To relax or deal with stress: *"chill"* or ***"mellow out"***
- To treat physical or emotional pain: ***"get relief"***
- To perform better, activate, enhance: **"energize"** or *"rev"* or *"amp up"*
- To be part of a group, socialize, conform: ***"fit in"***
- To disinhibit or enhance intimacy or sexuality: ***"loosen up"***

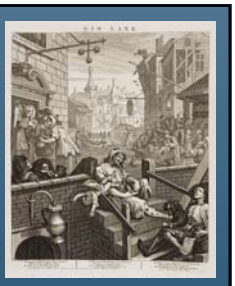
## A Long Cultural Tradition of Seeking Pain and Emotional Relief…

"to lull all pain and anger and bring forgetfulness of sorrow…"

Homer: The Odyssey



JWF: The Vintage Image Gallery



William Hogarth's Gin Lane 1751



"Poppy Goddess" ~1000 BC

## Why do people keep using or escalate their use? (still *volitional*..?)

USE….*POSITIVE EFFECT or REWARD*….RE-USE

- Narrowing of behavioral alternatives/increased reliance on drug
- Ignoring risk or minimizing problems as they develop
- Use continues as long as:

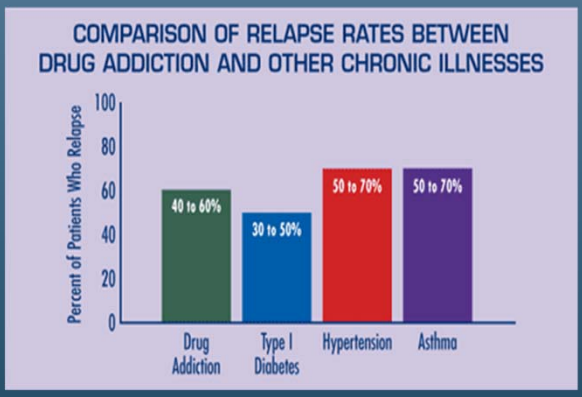
*What's* ***"good"*** *about using outweighs what's* ***"not so good"***

## Progression to Abuse and Addiction (*volitional…habitual…compulsive)*

- Increased frequency of use and time involved ***(Occasional---Frequent---Habitual)***
- Pattern of recurrent problems in multiple domains:
  - Emotional/Interpersonal/Social
  - Physical/Occupational/Legal
- Continued use of the drug in spite of these problems ***(Habitual---Compulsive)***
- Increasing guilt/shame/hiding/ignoring/denying problems
- Increasing risk of physical dependence and withdrawal avoidance

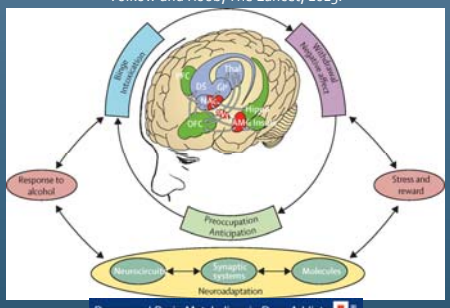
## Lack of Insight to Risk/Problems from Use

- **Risks associated with chronicity:**
  Problems may not show up until after many years of abuse:
  - *Alcoholic liver disease*
  - *Tobacco or marijuana associated lung disease*
- **Risks associated with acute toxicity:**
  Consequence may be potentially severe and immediate but infrequent:
  - *Cocaine and cardiac risk*
  - *Alcohol and accidents*
  - *Opioids and overdose*
- Escalation of medical and psychiatric co-morbidities may be interpreted as the reason for the drug use:
  - *Worsening depression, anxiety, pain, fatigue*




*JAMA, 284:1689-1695, 2000*

Volkow and Koob, The Lancet, 2015.





## Adverse Childhood Experiences (ACEs)

- Kaiser Permanente Study, 17,000 participants

| 33<br>No ACEs | 51<br>1-3 ACEs | 16<br>4-8 ACEs |
|---|---|---|
| WITH 0 ACEs | WITH 3 ACES | WITH 7+ ACEs |
| 1 in 16 smokes | 1 in 9 smokes | 1 in 6 smokes |
| 1 in 69 have alcohol use disorder | 1 in 9 has alcohol use disorder | 1 in 6 has alcohol use disorder |
| 1 in 480 uses IV drugs | 1 in 43 uses IV drugs | 1 in 30 uses IV drugs |
| 1 in 14 has heart disease | 1 in 7 has heart disease | 1 in 6 has heart disease |
| 1 in 96 attempts suicide | 1 in 10 attempts suicide | 1 in 5 attempts suicide |

## Drugs of *Abuse*: Legal and Illegal Activity #1

???

## Drugs of *Abuse*: Legal and Illegal

- Nicotine (cigarettes, smokeless tobacco, e-cigarettes)
- Alcohol
- OTC Meds (Benadryl®, DXM, loperamide)
- Cannabis: Marijuana, hashish, oil, synthetics, CBD products
- Cocaine (powder, "crack")
- Amphetamines, Meth, MDMA ("ecstasy", "molly")
- Heroin, Fentanyl, opioid analgesics (pain pills)
- Sedatives: Benzodiazepines, barbiturates, muscle relaxants
- Inhalants (glue, solvents, gases, nitrous)
- Hallucinogens (LSD, mescaline, psilocybin)
- Other: PCP/Ketamine/Steroids/Kratom…
- NEXT?

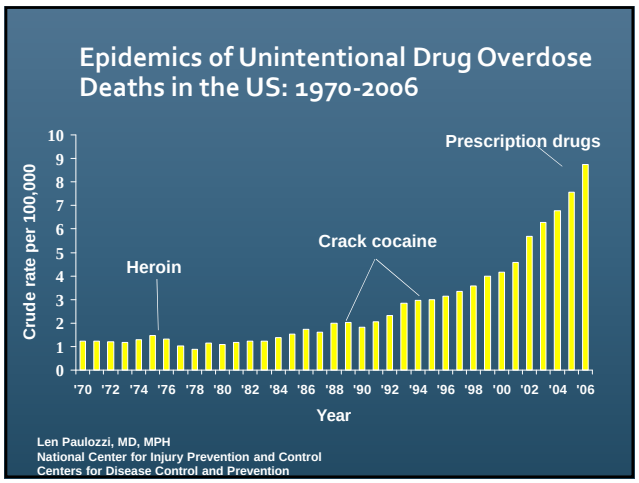
## Deaths/year in US Related to Drug Use

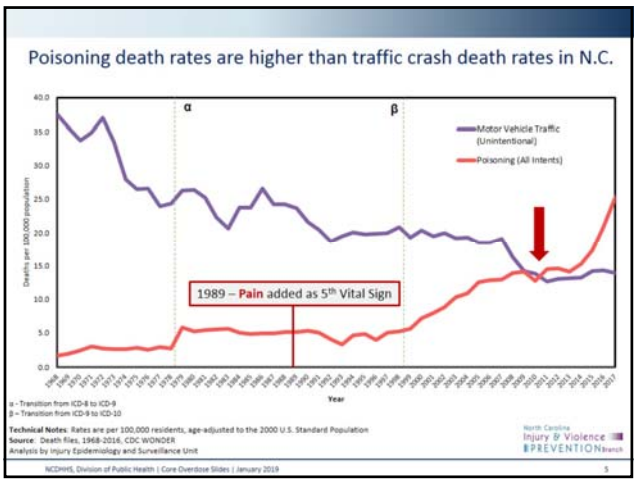
| | |
|---|---|
| • Tobacco | >480,000 |
| • Alcohol | 88,000 |
| • Opioids OD | 47,600 |
| • Benzodiazepines OD | 11,537 (1,527 without opioids) |
| • Cocaine OD | 13,942 (3,811 without opioids) |

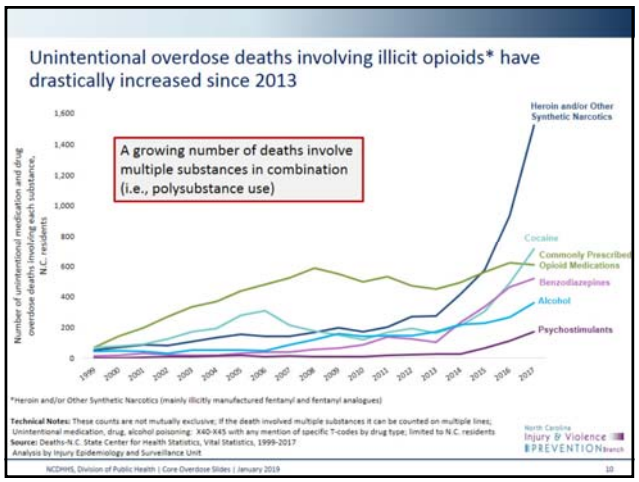
Opioids represent OD deaths from all opioids: analgesics, heroin, illicit synthetics.
Reported by US CDC: Alcohol (2010), tobacco (2014) others (2017).

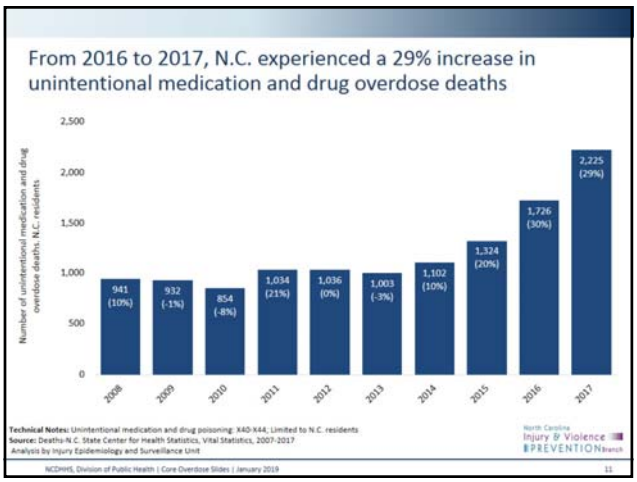
## Commonly Abused Prescription Medications

- **Opioid analgesics**
  - Hydrocodone (Vicodin®)
  - Oxycodone (Percocet®, Oxycontin®)
  - Methadone (Dolophin®)
- **Benzodiazepines**
  - Alprazolam (Xanax®)
  - Clonazepam (Klonopin®)
- **Stimulants**
  - Amphetamine (Adderall®)
  - Methylphenidate (Ritalin®)

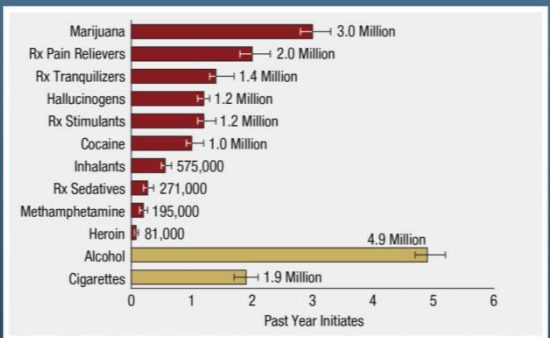

Epidemics of Unintentional Drug Overdose Deaths in the US: 1970-2006
Crude rate per 100,000
Prescription drugs
Crack cocaine
Heroin
'70 '72 '74 '76 '78 '80 '82 '84 '86 '88 '90 '92 '94 '96 '98 '00 '02 '04 '06
Year
Len Paulozzi, MD, MPH
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention


Poisoning death rates are higher than traffic crash death rates in N.C.
α
β
Motor Vehicle Traffic (Unintentional)
Poisoning (All Intents)
1989 – Pain added as 5th Vital Sign
Year


Unintentional overdose deaths involving illicit opioids* have drastically increased since 2013
A growing number of deaths involve multiple substances in combination (i.e., polysubstance use)
Heroin and/or Other Synthetic Narcotics
Cocaine
Commonly Prescribed Opioid Medications
Benzodiazepines
Alcohol
Psychostimulants


From 2016 to 2017, N.C. experienced a 29% increase in unintentional medication and drug overdose deaths
941 (10%)
932 (-1%)
854 (-8%)
1,034 (21%)
1,036 (0%)
1,003 (-3%)
1,102 (10%)
1,324 (20%)
1,726 (30%)
2,225 (29%)

## Numbers of Past Year Initiates of Substances among People Aged 12 or Older: 2017




Rx = prescription.
Note: Estimates for prescription pain relievers, prescription tranquilizers, prescription stimulants, and prescription sedatives are for the initiation of misuse.

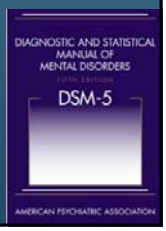
## Diagnostic Statistical Manual (DSM) of Mental Health Disorders

DSM 3 and 4: ***Abuse>>>Dependence***

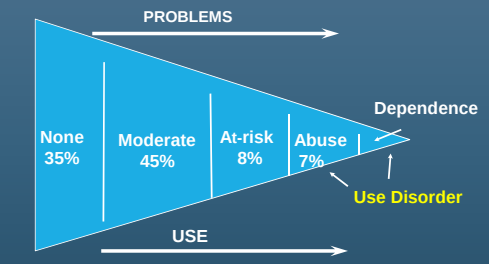
- Defined by specific selected criteria
- Recognized as a continuum
- Recognized variability in presentation and progression
- **"Dependence"** confusing in pain setting

DSM 5: **Substance Use Disorders: Mild/Mod/Severe**

- **Essentially s**ame criteria applied differently




## Drugs Use Extends Along a Continuum from Low Risk Use to Abuse and Dependence




**Alcohol use in primary care patients ≥ 18 years old**

A Guide to SA Services for Primary Care Clinicians, SAMHSA, 1997

## Progression Along the Continuum

**Use->>Misuse>>Abuse>>Substance Use Disorder (Addiction)**

- How does someone get from use to abuse?
- Why some and not others?
- Why them and not me?

- How do you go back?
- How do you prevent or intervene with the progression?
- How do you treat it once it's an *addiction*?

## Models for Addiction: Past and Present

- **Moral:**
  The addict is weak or bad.
  The drug itself is evil.
- **Psychological/Sociological:**
  "Addictive personality"
  Learned behavior: Reward theory
  Family and cultural norms
- **Medical disease:**
  Genetic predisposition
  Neuro-chemical "imbalance" or adaptation

"Three blind men come upon an elephant…
an elephant is like a tree trunk…
an elephant is like a snake…
an elephant is like a fan…"

What does this *elephant* look like to you?

What *model of addiction* makes sense to you?

Why does it matter…?

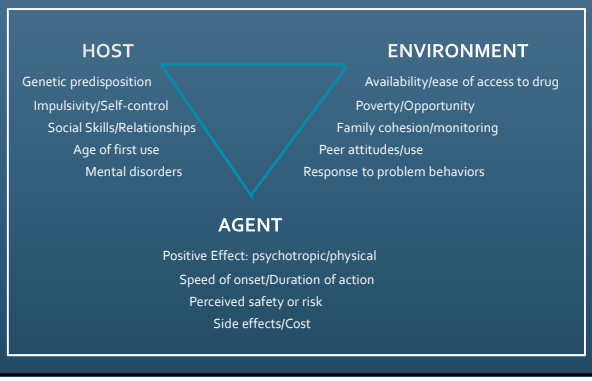
## Public Health GOALS for Drug Related Problems

Public Health goals are:

1. Prevent or delay the onset of use and/or prevent the progression of high-risk or problematic use.
2. Reduce high-risk or problematic use to lower-risk levels.
3. **Promote abstinence in persons with substance use disorders.**

*Presentation will focus on the last of these 3 but is applicable to others…which are equally important.*

## Public Health Model of Disease Applied to Addiction



## Host: Predisposing Factors

- **Susceptibility based on:**
  - -genetics
  - -impulsivity/risk taking
  - -pronounced response to drug
  - -early age of first use


- **Increased risk from co-existing conditions:**
  - -mood disorders
  - -trauma/PTSD
  - -personality disorders
  - -chronic pain

## Environment: Cultural and Economic Factors

- Availability+price of drugs
- Poverty/opportunity
- Family cohesion/monitoring
- Response to problem behaviors
- Availability of treatment
- Peer and family attitudes
- Cultural norms about drug use


## Cultural Ambivalence About Alcohol and Other Drugs

- Source of serious morbidity and mortality

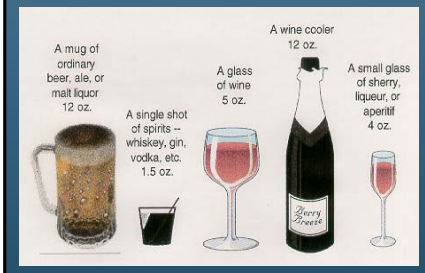
**BUT**

- Often socially acceptable
- Readily available
- Many heavily promoted and advertised
- Consequences tolerated by society

## Agents: Characteristics of Drugs and Medications

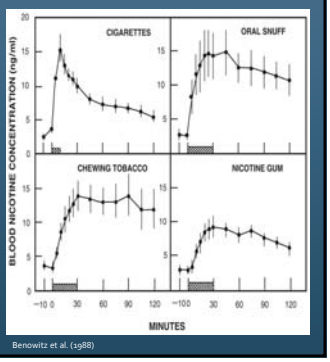
- How do characteristics of certain drugs *enhance or disguise* their abuse potential?
- How do these characteristics *interact* with host and environment?
- How can characteristics of certain opioids even make them *useful* as treatments?

## A "Standard Drink"




## Nicotine Absorption
### Cigs vs. Snuff vs. Chew vs. Gum

Nicotine concentrations in blood:
- Cigarettes
- Snuff (2.5 g)
- Chewing Tobacco (7.9 g)
- Nicotine Gum (two, 2mg pieces)




Benowitz et al. (1988)

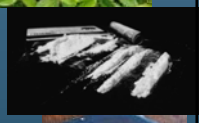
## Cocaine: Forms and How Used

<u>Coca leaves</u> (chewed or as tea)
- 2% cocaine

<u>Coca Paste</u> (occasionally smoked)
- 20% cocaine
- typically not exported

<u>Cocaine Hydrochloride</u> (snorted or injected)
- 90% cocaine
- traditional powder form

<u>Cocaine Base</u> ("crack": smoked)
- 95% cocaine
- small pebble sized/easily marketable



## Onset and Peak Effects of Cocaine and Other Stimulants by Route of Administration

| Route | Onset of Action | Peak Effect |
|---|---|---|
| Inhalation | 7-8 seconds | 1-5 minutes |
| Intravenous | 15-16 seconds | 3-5 minutes |
| Intranasal | 3 minutes | 15-20 minutes |
| Oral | 10 minutes | 45-60 minutes |

## Opioid Characteristics

| | Methadone Buprenorphine | Short acting opioid |
|---|---|---|
| **Route** | Oral Sublingual | Oral, injected (IV), Intranasal (IN) |
| **Onset** | 60 min. or more | IV, IN: seconds Oral: 15-20 min. |
| **Duration** | 8 to 24 hrs. | 2 to 4 hours |
| **Euphoria** | Absent | Present: moderate to pronounced |

## How can we make sense of addiction?

- How and why do people use drugs?
- What do we know about the process of addiction and why do we call it a "disease"?
- **How and why do some progress from non-problematic use to abuse and some don't?**
- **How can this help us understand the core elements of treatment?**

## Potential risk 1: *Works too well…*

**Stressed >>**
Option 1: Time out/exercise/talk….Takes time/practice/patience
Option 2: Couple of drinks/pills….Quick/easy/works fast

**Anxious >>**
Option 1: Practice mood mgmt skills…Time/practice/patience
Option 2: Couple of drinks/pill…Quick/easy/works fast

**Pain>>**
Option 1: Stretching/biofeedback/nonopioid….Time/practice/patience
Option 2: Take an extra analgesic dose…Quick/easy/works fast

## Potential risk 2: *Works for more than intended*

Need: Pain relief
>>> Action: Take med
>>> Consequence: Pain relief: Intended benefit

**Other needs:**
Depressed mood
Fear/anxiety
Fatigue
Unhappiness

**Unintended consequences (benefits)**
Emotional relief
Calm
Activation
Euphoria

## Potential risk 3:
## *Progression to habitual or compulsive use*

Narrowing of behavioral options:
- Increasing reliance on meds for pain relief *("have to have it..")*
- Expansion into other domains (mood, energy, sleep…)
- Seen as "*only thing that helps"* vs multi-modal

Complicated by: Lack of other skills or supports or finances
Tolerance (particularly for unintended "benefits")

Collapsing time between thought and impulsive action…more compulsive

Leading to overuse, misuse….abuse…substance use disorder

## Prescription Medication:
## Risks of Use or Abuse May Be Subtle

- Escalating use seen as attempt to get ***relief*** from poorly treated pain
- ***"Chemical coping":*** Over-reliance on meds for psycho-social relief
- Risk discounted because ***"it's prescribed for me"*** *and "it's safer than street drugs"*
- Even if recognize problems, see as ***"only way to deal with pain or anxiety"***
- **If try to stop**: withdrawal, untreated pain or mood disorders are strong *triggers for relapse…*

## Neuroadaptation and Progression to Addiction

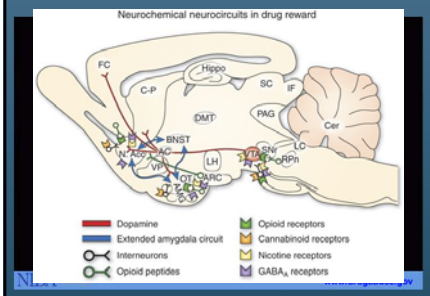
- ***Neuro-adaptation*** in response to repeated drug exposure in three critical areas of the brain:

  **-Limbic system (reward)**
  **-Amygdala (emotional memory)**
  **-Prefrontal cortex (restraint)**

- Deterioration in **pre-frontal cortical** control system and transition from volitional control to compulsive, out of control use.
- Transition from pleasurable use to maintenance use and need to avoid **physical withdrawal and maintain hedonic tone**.

**Progression to Addiction (Substance Use Disorders: Severe)**

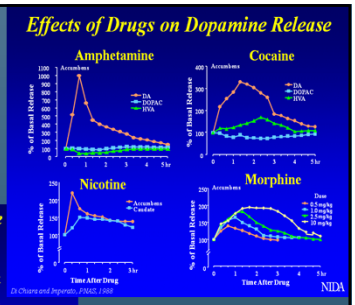
## Brain Reward Pathways

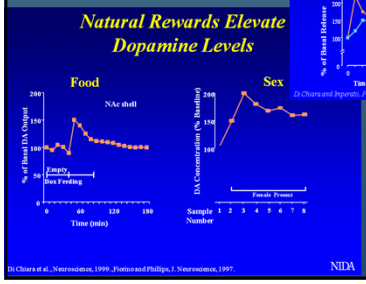



**•The VTA-nucleus accumbens pathway is activated by all drugs of dependence including alcohol.**

**•This pathway is important not only in addiction, but also in essential physiological behaviors such as eating, drinking, sleeping, and sex.**

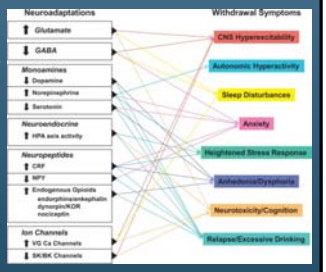
## Effect of Drugs on Dopamine




## Neurotransmitters and Alcohol

- **Dopamine**
  - -mediates motivation and reinforcement
  - -increased release with alcohol
- **Serotonin**
  - -modulates mood, motivation, appetite
  - -influences rewarding effects of alcohol
- **Endorphins**
  - -mediates rewarding effects, relief
  - -activates dopamine release
- **GABA (gamma-amino butyric acid)**
  - -major inhibitory transmitter
  - -enhanced by alcohol
- **Glutamate**
  - -major excitatory transmitter
  - -suppressed by alcohol




## DSM-5 Criteria for SUD

**TABLE 4.4** *DSM-5* Criteria for Substance Use Disorder

A *mild* substance use disorder is diagnosed if 3 of the following criteria are met. People meeting 4 or 5 criteria are classified as having *moderate* substance use disorder, and *severe* substance use disorder is diagnosed in cases where 6 or more of the criteria are met.

1. Taking the substance in larger amounts or for longer than you meant to
2. Wanting to cut down or stop using the substance but not managing to
3. Spending a lot of time getting, using, or recovering from use of the substance
4. Cravings and urges to use the substance
5. Not managing to do what you should at work, home, or school because of substance use
6. Continuing to use, even when it causes problems in relationships
7. Giving up important social, occupational, or recreational activities because of substance use
8. Using the substance again and again, even when it puts you in danger
9. Continuing to use, even when you know you have a physical or psychological problem that could have been caused or made worse by the substance
10. Needing more of the substance to get the effect that you want (tolerance)
11. Development of withdrawal symptoms, which can be relieved by taking more of the substance

Source: American Psychiatric Association, 2013.

*THE MIND'S MACHINE 2e*, Table 4.4
© 2016 Sinauer Associates, Inc.

## *Addiction may be difficult to sort out when dependent on chronic opioids for pain:*

Requires 4-5 for moderate, 6 or more for severe, occurring over 12 months:

1. Tolerance – **YES**
2. Withdrawal/Physical dependence – **YES**
3. Craving or strong desire to use opioids-MAYBE
4. Taken in larger amounts or over longer period - **MAYBE**
5. Wanting to cut down or quit but unable - **MAYBE**
6. Great deal of time spent to obtain substance - **MAYBE**
7. Recurrent use in physically hazardous situation-LIKELY
8. Important activities given up or reduced - **MAYBE**
9. Continued use despite interpersonal, emotional or physical problems - **MAYBE**

American Psychiatric Association DSM 5 2013

## Co-occurrence of Psychiatric Disorders with Substance Use Disorders

- Psychiatric symptoms and disorders frequently co-occur with substance use
  - 20-60% of persons entering addiction treatment may have co-occurring psychiatric disorders
- Co-occurring psychiatric symptoms may represent:
  - Psychiatric symptoms resulting from drug/alcohol use
  - Independent/autonomous psychiatric disorders
  - Substance-induced disorders (including toxicity, withdrawal, protracted abstinence syndromes)
  - Psychiatric disorders triggered/unmasked by substance use

Nunes et al, 2004; Sacks & Ries, 2005; CSAT TIP 42

## *"Just say no…"*


*(just snap out of it…just get over it…)*

**In the setting of addiction…**
**clear *commitment* to behavior change (abstinence)…**
**…is *necessary …but seldom sufficient*.**

**And *ambivalence* toward *sobriety*…**
**as well as the active steps necessary to maintain it…**
**… is an *ongoing* challenge.**

## Treatment Elements Needed to Reverse Process "Bio-psycho-social-spiritual"

- Increased time abstinent: re-set neuroadaptation/restore cortical function
- Mitigate or diminish craving: MAT and behavioral interventions
- Address initial or ongoing reasons for use
- Identify and learn how to respond to and avoid triggers and cues
- Decrease social risks: situations/settings/associates ("people, places, things")
- Develop alternate means of coping with craving, distress and dysphoria

## Treatment Elements: continued

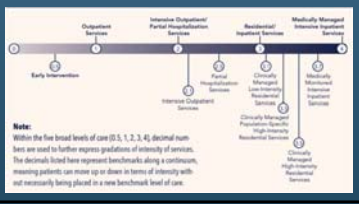
- Increase access and use of non-drug related activities and fun
- Increase social support for sobriety: Connect or reconnect
- Reinforce other sources of reward, pleasure and positive self-image
- Re-establish connection with spiritual or other source of meaning (god/family/community/meaningful work)

**Applied and reinforced over time…**

## Treatment of Substance Use: ASAM Placement Criteria

Bases on 6 dimensions to identify needed level of care:

| Dimensions: | Levels of Care (5): | |
|---|---|---|
| Acute intoxication/withdrawal | 0.5 | Early intervention |
| Biomedical conditions | I | Outpatient Services |
| Emotional or cognitive condition | II | Intensive Outpatient/PHP |
| Readiness to change | III | Residential/Inpatient |
| Relapse, continued problems | IV | Med Managed Inpatient |



## FDA Approved Medication Assisted Treatment (MAT)

**Alcohol:**
- Disulfiram
- Naltrexone (PO and IM)
- Acamprosate

**Nicotine:**
- nicotine replacement therapy (gum, patch, inhaler, etc)
- buproprion, varenicline

**Opioids:**
- Agonist treatments: methadone, buprenorphine (SL, SC)
- Antagonist treatment: naltrexone (IM)

**Cannabis and cocaine:** no FDA approved medications

*(Studies of efficacy all in combination with behavioral treatment)*

## Adjunctive Medications for Cocaine and Other Stimulants

- **Disulfiram (Antabuse®)**
  Clearest efficacy in co-morbid alcohol/cocaine abuse by eliminating the use of alcohol
- **Stimulant agonist medications:**
  Modafinil (Provigil®)
  Methylphenidate (Ritalin®)
- **GABA active agents:**
  Baclofen (Lioresal®)
  Topiramate (Topamax®)
  Gabapentin (Neurontin®)

Vocci FJ et al. American J of Psychiatry. 2005
Kenna GA et al. CNS Drugs. 2007

## Behavioral Treatment to Facilitate Recovery

*Studies of MAT efficacy all in combination with behavioral treatment;*
MAT outcomes best when integrated with behavioral interventions

Mutual support/self-help groups
AA, NA, Smart Recovery, Women for Sobriety

Psychosocial and non-pharmacologic treatments
Cognitive Behavioral Therapy
Dialectical Behavioral Therapy
Motivational Enhancement Therapy
Contingency or Incentive Based Therapy
Community Reinforcement and Couples Based Therapies

## What do you know about Mutual/Peer Support Groups?

**Activity #2**

## Participation in 12-Step or other Peer Support Groups

"12-step" programs:
- Alcoholics Anonymous / Narcotic Anonymous
- Al Anon / Nar Anon
- ACOA (Adult Children of Alcoholics)

Other national support groups:
- Smart Recovery
- Women for Sobriety

Local and/or less formalized programs
- Church groups
- Treatment program groups

## AA/NA Rationale and Core Concepts:

Core concepts:
- **Abstinence:** From all drugs of abuse (tobacco?)
- **Acceptance**: Working through *"denial"* and accepting *"powerlessness"*
- **Spirituality**: Surrender to "higher power"
- **Pragmatism**: Actively working the program

Why we need to be familiar with this model?
- Widely available, inexpensive
- Traditional foundation of SA treatment in US
- Dominant model in influential treatment centers
- Works for many people

## AA Research support

- Widely accepted and reinforced as a core element of treatment:
  Project MATCH showed comparable outcomes with CBT and MI
  Miller WR, et al. NIAAA 1992
- Quality of research on effectiveness has been variable:
  *AA and other 12-step programs for alcohol dependence. Cochrane Database Syst Rev. 2008; 3:1-25.* Ferri, Amato, Davoli.
- Evidence does support that attendance at self-help groups is associated with better outcomes **over time**:
  *Self-help organizations for alcohol and drug problems: toward evidence-based practice and policy.*
  Humphreys, Wing, McCarty. *J Subst Abuse Treat 2004*

## Behavioral Approaches to Treatment:

## Motivational Interviewing

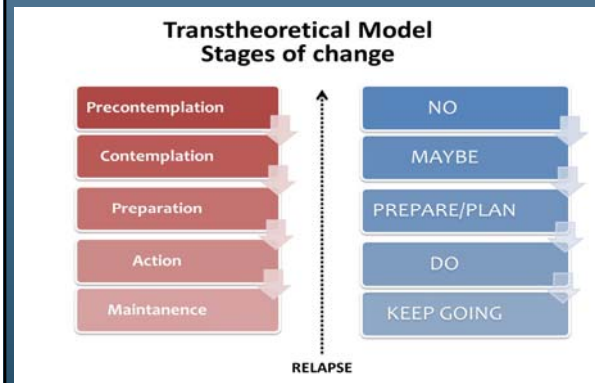
**A directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence.**

- Recognizes that people make changes when:

  They see themselves vulnerable to negative consequences and regard them as serious.

  They see the benefits of change outweighing the costs of change.

***Trans-theoretical Stages of Change Model***




## Strategies Appropriate to Stage of Change

**Precontemplation:**

*"Let me give you some information about how this drug might be affecting your life…putting you at risk…"*

*"As someone trying to help you with your….here's how I see it as a potential problem…"*

**Contemplation:**

*"What's good about drinking/use of this drug…and what's not so good?"*

*"What would be good about decreasing or stopping?"*

**Preparation**:

*"That's a great decision…How can you plan for that change…let's think about medications or other supports that might be helpful…?"*

## Cognitive Behavioral Therapy (CBT)

- Cognitive-Behavioral Treatment (CBT) models are among the most **extensively evaluated** interventions for alcohol- or illicit-drug-use disorders
- In 2009, Butler et al. reviewed 16 meta-analyses of CBT and found **support for the efficacy** of CBT across many disorders
- Based primarily on Marlatt and Gordon's1985 (Marlatt and Donovan, 2005) model of relapse prevention, these treatments:
  - -target **cognitive, affective, and situational triggers** for substance use
  - -provide **skills training** specific to coping alternatives

## Cognitive Behavior Therapy: Basic Treatment Components (1):

- Identification of **high risk** situations
  "people, places, and things"
- Development of **coping** skills
  To manage risk/triggers as well as negative emotional states
- Development of new **lifestyle** behaviors
  To decrease need for/role of substance use
- Development of sense of **self-efficacy**
  Build on small successes in coping

## Cognitive Behavior Therapy: Basic Treatment Components (2)

- Communication skills
  - Drink refusal skills
  - Asking for help
- Preparation for lapses
  - Process to be learned from "lapses"
  - Prevent lapse from becoming relapse
  - Identify and manage patterns of thinking that increase risk
- Dealing with relapse
  - "Lapse" or "Slip Up"
  - Relapse is not a catastrophe
  - Minimize consequences

## Recognize Triggers and Cues:

**External:** *"People/Places/Things"*
*"Playmates/Playgrounds/Playthings"*

**Internal:** *HALT: Hungry-Angry-Lonely-Tired*

"I slipped again…I don't know what happened…"

"I just started craving…I don't know why…"

**Play the tape back**:
"Where were you, who were you with, how did you feel…how is that like other slips?"

## Anticipate and Avoid Risk:

"I get paid and cash in hand is a huge trigger to go buy some dope…"
(**Plan ahead**…*direct deposit, etc)*

"I just ended up at this party…and when it's in front of me I can't say no…"
(**Play the tape back**: When did you still have control?)

"If an old using buddy calls and " wants to hang out", what's the harm?"
(**Play the tape to the end**: What's likely to happen?)

***"It is easier to avoid temptation, than to resist temptation."***

## Connect

**Re-expand** *dormant options to socialize and have fun:*

*"Really, everybody uses?"*
*"Any old, non-using old friends to contact?"*
*"What did you use to do to have fun?*

**Re-connect** *with sources of reward: "hedonic tone":*

*"What do you want out of life?"*
*"What were your goals before you got into drugs?"*
*"What else gives you a charge or a buzz?"*

## Cope

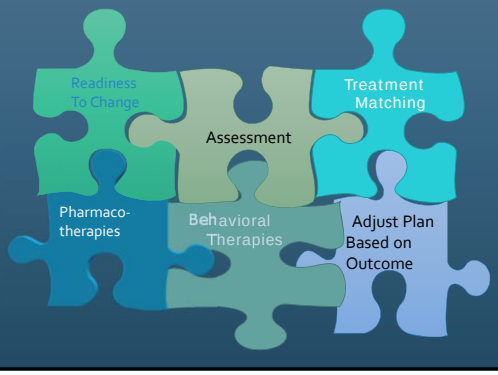
***Attention to basics:***
*Sleep-diet-exercise-having fun*

***Skills to relax/deal with stress:***
*"What's a different option next time you're upset?"*
*"Who can you call…who can you talk to?"*

***Mindfulness:***
*Simple exercises to be in the moment*
*To turn off the wheels*
*To put space between feeling and acting*

***"Thoughts are only thoughts…you don't have to act on them."***

## Assessment and Treatment: Active, Iterative Process




## Monitor for Effectiveness/Outcome

- Not just in terms of sobriety/abstinence…
- In terms of functional improvement:
  - -emotional
  - -interpersonal
  - -medical
  - -occupational
  - -legal
- Is there progress toward patient's identified goals?
- Is there **active** participation/engagement in treatment?

## Process (Behavioral) Addictions

- Gambling disorder (DSM-5)
- Internet gaming disorder (further study)

- Compulsive sexual behavior
- Shopping
- Exercise
- Food


## Tobacco Use Disorder

**True or False, Activity #3**

- "Smoking relaxes me by reducing stress."
- People with Schizophrenia need to smoke and cessation will worsen psychiatric symptoms.
- Tobacco should be addressed after other substance use/mental health issues are addressed.
- Medications for quitting are unsafe and not effective.

## Harm Reduction

- "Policies, programs, and practices that aim primarily to reduce the adverse health, social, and economic consequences of the use of legal and illegal psychoactive drugs **without necessarily reducing drug consumption**. Harm reduction benefits people who use drugs, their families and the community."

- Examples outside of substance use/addiction?
- Examples within addiction?
  - opioid maintenance treatment, needle and syringe exchange, safe injection facilities, and overdose prevention.

PUBLIC HEALTH

Supporters Sue To Open Safe Injection Site In Philadelphia, Citing Religious Freedom

April 13, 2019 · 8:16 AM ET
Heard on Weekend Edition Saturday

## Harm Reduction Overview

- Outreach and peer education
- Needle and syringe exchange programs (SEPs);
- Opioid substitution therapies (OST) for drug dependence
- Confidential counseling and testing for infectious diseases
- Wound care
- Overdose prevention activities: Naloxone & First Aid
- Primary care for HIV/STDs
- Referrals to drug treatment programs

**http://www.nchrc.org/harm-reduction/what-is-harm-reduction/**

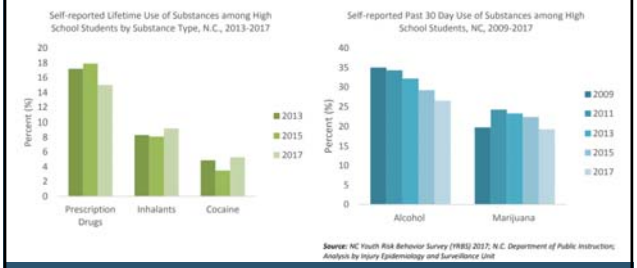
## Stigma

- Health related stigma: individuals are devalued, rejected and excluded on the basis of having a socially discredited health condition.
- Impact on seeking treatment?
- Importance of language and shaping our beliefs?

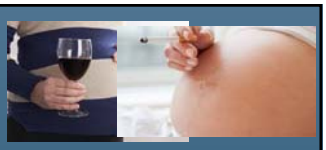
Stereotypes (generalizations) → Prejudices (erroneous beliefs) → Discrimination (unjust treatment)

## Adolescent Substance Use

Self-reported lifetime use of prescription drugs has decreased from 2013-2017, and past 30 day use of alcohol and marijuana have also decreased from 2011-2017 among N.C. high school students.

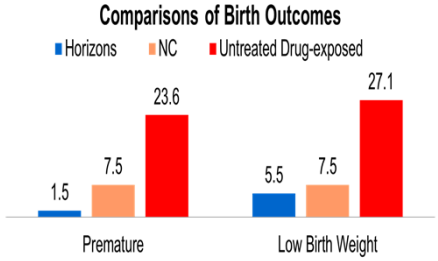



## Pregnancy



- **Tobacco**
  - Maternal/fetal harm – infertility, miscarriage, prematurity, Low wt.
  - Infant/Child – SIDS, ear/respiratory infections, asthma

  **Top cause of infant mortality in NC
- **Alcohol**
  - Fetal Alcohol Spectrum Disorders
  - Leading preventable cause of birth defects, developmental disabilities, and learning disabilities.
- **Opioids**
  - MAT = gold standard of treatment
  - Neonatal Abstinence Syndrome (NAS)
- **Cocaine**
  - Placental abruption, miscarriage, low birthweight, NAS, prematurity




*Untreated sample from: Abdel-Latif et al., Profile of infants born to drug-using mothers: a state-wide audit. J Paediatr Child Health 2013 Jan;49(1):E80-6.

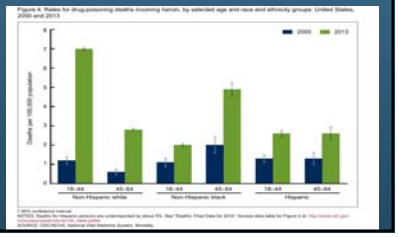
## Trauma History of Women at UNC Horizons

- 45% reported having been homeless at least once
- 83% reported experiencing emotional abuse
- 46% reported experiencing physical abuse
- 59% reported experience sexual abuse/assault (average age of first assault was 12 years)
- 76% reported experiencing domestic violence
- 14% reported forced sex work/trafficking

**Overall, 84% of the new clients reported at least one form of interpersonal violence (physical abuse, sexual abuse/assault, and/or domestic violence)**

## Health Disparities

- Opioid Epidemic
  - Traditionally perceived as a white, suburban issue
  - For African Americans:
    - Emergency room visits increased by 255% (Ford 2015)
    - Overdose deaths doubled in the past 10 years (Ford 2015)
    - Media Influence
    - Historical Mistreatment
- Tobacco Use
  - African Americans and Latinos are less likely than whites to:
    - Be asked about tobacco use
    - Advised to quit
    - Receive/use tobacco-cessation interventions



## "Case Management" Adapting Treatment Based on Outcome

Based on ongoing assessment of outcome, consider need to:

- Increase level of care
- Improve recovery environment
  - Joblessness / Homelessness
  - Substance users in living environment

- Assess and access treatment for co-morbid psych problems
- Assess, and integrate needed medical care
- Is there now a need for medication assisted treatment?
- If on MAT, how is adherence? Can it be improved?

## How Can We Do Better in General?

Pay attention to **motivation and readiness**:

- Attention to ambivalence (language and action) regarding sobriety and active engagement in specific steps
- Adapt intervention to stage of change (contemplation…action…maintenance)

Take advantage of what we know:

- Utilize pharmacologic and non-pharmacologic treatment approaches that research shows are most effective
- Adapt treatments dependent on outcome/progress

Take advantage of all opportunities to:

- Use motivational approach to keep patients engaged: What motivates them?
- Encourage self-efficacy: Look for and build on positive change or behavior!

## NC Resources

**Additional Resources**

**N.C. Department of Social Services**
www.ncdhhs.gov/divisions/dss

**N.C. Governor's Institute**
www.governorsinstitute.org

**N.C. Women's Health Branch**
www.whb.ncpublichealth.com

**N.C. Harm Reduction Coalition**
www.nchrc.org

**N.C. Department of Mental Health, Developmental Disabilities, and Substance Abuse Services**
www.ncdhhs.gov/divisions/mhddsas

**N.C. Recovery Courts**
www.nccourts.gov/courts/recovery-courts

**N.C Attorney General's Office**
www.ncdoj.gov

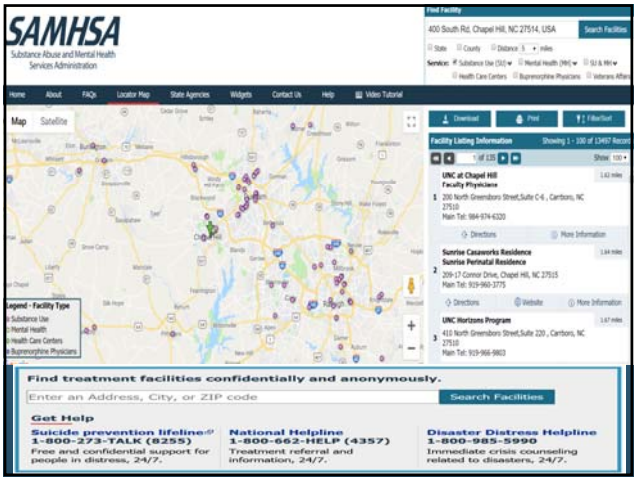
**N.C. Department of Public Instruction**
www.ncpublicschools.org

**N.C. Opioid Action Plan (OAP)**
Information on the OAP can be found here

**For additional substance use data visit:**
www.injuryfreenc.ncdhhs.gov

ASAM

Substance Abuse and Mental Health Services Administration
SAMHSA




## Summary Points

- Drug use and progression to addiction is variable but has common elements: *No substitution for being curious and a good assessment*
- Core processes: Increased reliance on drug or drugs, other behavioral alternatives and neuro-adaptions:
  *Becomes necessary for hedonic tone: "Only friend /life preserver"*
- Behavioral modalities: Adaptable and combine well with MAT
  *Should be evidence-based and address skills as well as insight.*
  *Best in setting of engagement / therapeutic alliance / peer support*
- *MAT: Strongly evidence-based, particularly for opioid use disorder*

UNC SCHOOL OF MEDICINE

## The Nature of Addiction and Recovery

### *Mental Illness and Substance Use Disorders*

**Joseph B. Williams, M.D.**
**Assistant Professor**
**UNC Department of Psychiatry**
**May 15, 2019**

## *Disclosures*

***The presenter has nothing to disclose***

## Mental Illness

***Clinical definition (APA)***

**A health condition that involves changes in emotion, thinking and/or behavior, and is associated with distress and/or problems functioning in social, work or family activities**

***Legal definition (NCGS)***

**An illness which so lessens the capacity of the individual to use self-control, judgment, and discretion in the conduct of his affairs and social relations as to make it necessary or advisable for him to be under treatment, care, supervision, guidance or control**

## Terminology

**The terms "mental illness" and "psychiatric disorder" can be used interchangeably**

**There are many different psychiatric disorders listed in the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM – 5, published by the American Psychiatric Association in 2013)**

## Categories of Psychiatric Disorders Listed in the DSM-5

| | | |
|---|---|---|
| Neurodevelopmental disorders | Obsessive-compulsive and related disorders | Trauma- and stressor-related disorders |
| Schizophrenia spectrum and other psychotic disorders | Somatic symptom and related disorders | Disruptive, impulse-control, and conduct disorders |
| Bipolar and related disorders | Dissociative disorders | Substance-related and addictive disorders |
| Depressive disorders | Sexual dysfunctions | Neurocognitive disorders |
| Anxiety disorders | Gender dysphoria | Personality disorders |
| Feeding and eating disorders | Paraphilic disorders | |
| Elimination disorders | Sleep-wake disorders | Other mental disorders |

## Mental Illness Basic Statistics

- 20% of US adults experience some form of mental illness in a given year
- 4% of US adults experience a serious mental illness in a given year
- 15-20% of US children ages 13-18 have been diagnosed with a mental illness at some point
- Mental illness account for $200 billion in lost earnings per year in the US (2007 data)
- The total cost associated with serious mental illness is $300 billion per year in the US (2015 data)

## Mental Illness and Addiction

Why is mental illness relevant to a discussion about addiction?

Answers:

- Symptoms of mental illness and addiction can mimic each other
- Mental illness and addiction are highly co-morbid
- Mental illness complicates the treatment of addiction (and vice versa)

## Selected Psychiatric Disorders for Today's Discussion

- Major depressive disorder
- Schizophrenia
- Generalized anxiety disorder

## Major Depressive Disorder

- General definition: a mental illness characterized by the presence of at least 1 major depressive episode (with no history of mania/hypomania) that causes significant distress or impairment in social, occupational, or other important areas of functioning
- Classified as a type of mood (affective) disorder
- Symptoms of a major depressive episode include: a sad mood, diminished interest or pleasure in almost all activities, diminished appetite/weight loss, change in sleep pattern, fatigue/loss of energy, physical agitation or slowing, feelings of worthlessness/guilt, poor concentration, and recurrent thoughts of death

## Major Depressive Disorder …cont'd

- A major depressive episode lasts for at least 2 weeks
- The episode is not attributable to the direct effects of a substance or another medical condition
- Risk factors include: genetic predisposition, a history of adverse childhood experiences, the presence of stressful life events, and negative affectivity (neuroticism)

## Major Depressive Disorder …cont'd

- 12-month prevalence of MDD in the adult US population – 7%
- More common among women than men
- More common among people ages 18-29 years old (peak incidence in early-mid 20s)
- Often recurs (multiple episodes of depression occurring during a person's life)

## Schizophrenia

- General definition: a mental illness that is characterized by disturbances in thought (delusions), perception (hallucinations), and behavior (disorganized speech, catatonia), and by a loss of emotional responsiveness and extreme apathy, and by a noticeable deterioration in the level of functioning in everyday life
- Classified as a type of psychotic disorder
- Active symptoms of the illness must occur for at least 1 month, and continuous signs of the disturbance must persist for at least 6 months

## Schizophrenia …cont'd

- The disturbance is not attributable to the direct effects of a substance or another medical condition
- Other psychiatric disorders that can present with similar symptoms (such as bipolar disorder, major depressive disorder, delirium, autism spectrum disorder) must be ruled out
- Risk factors include: genetic predisposition, a history of pregnancy/birth complications, greater paternal age, season of birth (late winter/early spring), and a history of growing up in an urban environment

## Schizophrenia …cont'd

- Lifetime prevalence of schizophrenia in the US population – 0.3-0.7%
- Occurs equally in men and women
- Peak age of onset for the first psychotic episode – early-mid 20s for men and late 20s for women
- Onset prior to adolescence is rare

## Generalized Anxiety Disorder

- General definition: a mental illness characterized by excessive anxiety and worry about a number of events or activities; the individual has difficulty controlling the worry, and the worry/anxiety causes significant distress or impairment in functioning
- Classified as a type of anxiety disorder
- Symptoms of the illness must occur for at least 6 consecutive months

## Generalized Anxiety Disorder …cont'd

- The anxiety/worry is often associated with restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, and problems with sleep
- The disturbance is not attributable to the direct effects of a substance or another medical condition
- The symptoms are not better explained by another psychiatric disorder (panic disorder, OCD, PTSD)
- Risk factors include: genetic predisposition, a history of parental overprotection, a history of adverse childhood events, and excessive harm avoidance

## Generalized Anxiety Disorder …cont'd

- 12-month prevalence of GAD in the adult US population – 3%
- Women are twice as likely as males to experience GAD
- The prevalence of GAD peaks in middle age

## Addiction and Mental Illness

Substance use disorders can mimic psychiatric disorders – How?

- ❑ Substance intoxication and/or withdrawal can resemble symptoms of mood disorders (depression, mania), psychotic disorders (hallucinations, paranoia), and anxiety disorders (panic attacks)
- ❑ The stress and loss associated with substance use promotes depression and anxiety
- ❑ The neurobiological dysfunction caused by substance use can predispose someone to developing mood disorders, psychotic disorders, and anxiety disorders

## Addiction and Mental Illness …cont'd

How to differentiate between psychiatric disorders and symptoms associated with substance use?

An individual likely suffers from a primary psychiatric disorder if:

- ❑ The symptoms precede the onset of substance use
- ❑ The symptoms persist for a substantial period of time (over 1 month) after cessation of acute withdrawal or intoxication
- ❑ There is evidence suggesting the existence of an independent, non-substance use related psychiatric disorder (such as a prior history of recurrent depressive episodes occurring when substance use is not occurring)

## Addiction and Mental Illness …cont'd

What is the connection between substance use and mental illness?

- ❑ The presence of a substance use disorder at least doubles the odds of a mood disorder or anxiety disorder being present
- ❑ The presence of a psychiatric disorder increases the odds of a substance use disorder being present
- ❑ A current diagnosis of a mood disorder or psychotic disorder is associated with worse outcomes of substance use problems over periods ranging from 6 months to 5 years (and perhaps longer)

## Addiction and Mental Illness …cont'd

Why does mental illness negatively affect substance use treatment outcomes?

- ❑ Mental illness can affect someone's willingness to seek treatment
- ❑ Mental illness can affect someone's ability to fully benefit from certain forms of addiction treatment (CBT)
- ❑ Mental illness can affect someone's compliance with addiction treatment
  - ▪ Anosognosia
- ❑ The socioeconomic sequelae of mental illness (poverty, homelessness, unemployment, limited social support) interfere with addiction treatment

## *Case Scenarios*

## Case Scenario #1

Bob was referred for court-ordered substance abuse treatment following an arrest for DWI. Bob indicated that he had been a "social drinker" for several years and never had a problem with alcohol until 2 months ago, when his alcohol use pattern dramatically increased. Like his mother and his sister, Bob has experienced bouts of depression in the past. Bob noticed that 3-4 months ago his mood began to worsen; he experienced sadness, crying spells, feelings of hopelessness, loss of interest, and problems with sleep. Bob started to drink more heavily (6-7 alcoholic beverages/day) to "take the edge off my sorrows" and "so that I could get some sleep." Bob indicated that "it seemed to help at first, but after awhile things were no better than they had been…maybe even worse. My drinking just got out of control."

## Case Scenario #2

Adam was brought to the local MH crisis center by law enforcement for evaluation after the police were called to investigate a man who was wandering down the street looking into several parked cars at night. When the LEO questioned him, Adam was talking incoherently and mentioning a need to get into the cars in order to remove the "surveillance chips" that had been placed by "Russian intelligence." The LEO noticed that Adam appeared flushed and was drenched with sweat. At the crisis center Adam provided the contact information for his sister. His sister was contacted for collateral information, and she indicated that Adam has a "bad drug problem" and "had been on a crystal meth binge" during the past week. His sister stated that Adam has no prior history of mental illness, and that no other family members have suffered from mental illness. A urine toxicology screen performed at the crisis center was positive for amphetamines.

## Case Scenario #3

Tina described herself as "always being a big worrier; my family even noticed it being a problem for me when I was growing up." She indicated that her anxiety worsened when she got her "first real job" following college graduation. Tina stated that she felt intense pressure to keep up with the demands of her job, and that "it wasn't long before the anxiety was paralyzing; I was always on edge, irritated, restless… and I couldn't stay focused." Tina told a friend about this, and her friend gave her some alprazolam (Xanax) tablets she had been prescribed for anxiety. Tina began taking these and they seemed to really help. Before long, Tina was taking 6-7 tablets per day "just so I could function," and she noted that her anxiety would acutely worsen when she tried to go without them. It became increasingly difficult for Tina to stay in supply of the pills. Tina ended up losing her job and did not have the money necessary to pay for the illicit pills. She thought about going to a doctor to try to get them prescribed to her, but she lost her insurance after being terminated from work and couldn't afford it. Eventually, Tina was arrested after breaking into a home in order to steal valuables she intended to pawn for money to buy more pills.

## Addiction and Mental Illness …cont'd

Previous school of thought – an individual's addiction must be treated and stabilized before treatment of co-occurring mental illness can commence (sequential treatment model)

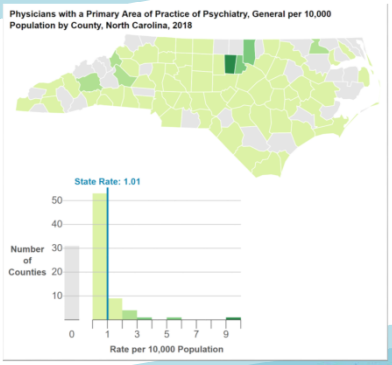
Current paradigm – the integrated treatment model

- Treat the substance use disorder and the psychiatric disorder simultaneously, utilizing multiple treatment modalities (medication management and psychotherapy for both SUD and MI)
- Example: An individual with co-occurring alcohol use disorder and major depressive disorder – prescribed naltrexone and sertraline while engaged in SAIOP; treatment being managed by an addiction specialist and a psychiatrist
- Studies have consistently shown that the outcomes for both the substance use disorder and the psychiatric disorder are improved with this treatment model
- It requires the availability of addiction specialists and psychiatrists

## Mental Health Services/Psychiatry Shortage

***According to federal guidelines, 58 counties in North Carolina qualify as Health Professional Shortage Areas, due to shortages of mental health providers (2014 data, ECU)***

## Mental Health Services/Psychiatry Shortage




https://nchealthworkforce.unc.edu/supply/

## Mental Health Services/Psychiatry Shortage

**How to combat the lack of access to psychiatry services, if this is often necessary for effective addiction treatment?**

***One solution – Telepsychiatry***

## Telepsychiatry

***Definition***

**Per the NCGS: The delivery of acute mental health or substance abuse care, including diagnosis or treatment, by means of two-way real-time interactive audio and video by a consulting provider at a consultant site to an individual patient at a referring site; the term does not include the standard use of telephones, facsimile transmissions, unsecured electronic mail, or a combination of these in the course of care**

## Telepsychiatry

**First utilized in 1964 – NIMH provided a grant for the Nebraska Psychiatric Institute to link to the Norfolk State Hospital via closed-circuit television**

**Different Technologies Utilized in Telepsychiatry**

- ❑ **Telephone**
- ❑ **E-mail**
- ❑ **Electronic health record (EHR)**
- ❑ **Mobile health applications (mHealth)**
- ❑ **Internet-based psychotherapy**
- ❑ **Videoconferencing (VC)**

## Telepsychiatry

**Benefits of Telepsychiatry (ECU, 2011)**

- ❑ **Increased access to psychiatric services**
- ❑ **Increased consumer convenience**
- ❑ **Enhanced recruitment and retention of psychiatrists in underserved areas**
- ❑ **Decreased professional isolation**
- ❑ **Reduced geographic and SES health disparities**
- ❑ **Reduced stigma associated with receiving MH services**
- ❑ **Improved coordination of care across the MH system**
- ❑ **Improved consumer compliance with treatment**

## Telepsychiatry - Effectiveness

**A substantial amount of the published research supports the conclusion that MH treatment delivered by synchronous VC has clinical outcomes and user satisfaction that are on par with those services provided via in-person care**

- ❑ **Conditions studied: depression, anxiety, PTSD, panic disorder, ADHD, substance use disorders, as well as developmental disabilities and dementia**
- ❑ **The published RCTs have demonstrated that telepsychiatry is statistically equivalent to in-person psychiatric services with respect to efficacy**

**Questions?**

joseph_williams@med.unc.edu