SUBSTANCE USE DISORDER

Lecture Series -
Stimulants & Series Summary

Session IV

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United Healthcare®

Agenda

- Define stimulants
- Methamphetamine intoxication
- Methamphetamine short- and long-term effects
- Cocaine intoxication and toxicity
- Treatment of stimulant addiction
- Case presentation
- Summary of SUD Lecture Series

Disclosure

Dr. Levy and Dr. Gallegos have no actual or potential conflict of interest in relation to any product or service mentioned in this program or presentation.

Stimulants

What Do We Mean by Stimulants?

- Simply, drugs that speed up the brain and body
- Amphetamines, cocaine, caffeine (most commonly used stimulant), nicotine, ephedrine
- Effects include increased alertness, increased energy, elevated heart rate, euphoria, increased libido
- Used both legally…
  - ADHD (e.g., Adderall), nasal congestion (e.g., Sudafed), narcolepsy (e.g., Modafinil)
- And illegally…
  - e.g., Methamphetamine, cocaine

Stimulant Intoxication

- Rapid heart rate
- Dilated pupils
- Elevated blood pressure
- Sweating, chills
- Nausea, vomiting
- Psychomotor agitation
- Muscle weakness or jerking
- Chest pain
- Confusion
- Seizure

Stimulant Withdrawal

- Dysphoric mood
- Fatigue
- Vivid dreams
- Insomnia or hypersomnia
- Increased appetite
- Psychomotor agitation or retardation

Methamphetamine

What Does it Look Like?

- Powder or chunky rock-like crystals that are smoked, injected or snorted
- Colors: white, yellow, brown, pink

What Does it Look Like?

How is it Made?

"Household Ingredients"

- Cold medications: pseudoephedrine, ephedrine
- Hydrochloric acid
- Ammonia
- Drain cleaner
- Battery acid
- Lye
- Lantern fuel
- Antifreeze
- Red phosphorus (e.g., from matchbook covers)

Methamphetamine Intoxication

- Release of high levels of dopamine in the brain --> elevated mood
- Smokers and IV users experience an immediate rush (“flash”) that lasts minutes, then a high that can last 6-24 hours
- Oral use or snorting produces euphoria without the rush
- Addiction is quick

Methamphetamine – Short-term Effects

After the high…

- Agitation/aggression
- Irritability
- Paranoia
- Anxiety/nervousness
- Racing heart, shortness of breath
- Insomnia
- Decreased appetite
- Violence
- Convulsions

Methamphetamine – Long-term Effects

Cognitive

- Over time meth destroys dopamine receptors, making it impossible to feel pleasure.
- Although these pleasure centers can heal over time, research suggests that damage to users' cognitive abilities may be permanent.
- Chronic abuse can lead to psychotic behavior, including paranoia, insomnia, anxiety, extreme aggression, delusions and hallucinations, and even death.

Methamphetamine – Long-term Effects

Physical health

- Strokes
- Heart attacks
- Hep B/C → Liver damage
- HIV/AIDS
- Death

Appearance

- Sores from acne/skin picking
- “Meth mouth”
- Severe weight loss

What is “Meth Mouth”?

http://www.facesofmeth.us/images/facesOFmeth.poster.pdf

Cocaine

Cocaine Intoxication and Toxicity

- Increased alertness, energy, heart rate, itching, blurry vision
- The high can lead to toxicity:
  - Stage I: high BP, fast respiratory rate, skipped heart beats, dilated pupils, headache, hyperthermia, confusion, euphoria, aggression, nausea, vertigo, pseudo hallucinations, twitching
  - Stage II: increased reflexes, seizures, incontinence, high BP, arrythmias, irregular beathing, hyperthermia
  - Stage III: no reflexes, fixed/dilated pupils, coma, very low BP, life threatening abnormal heart rhythm (“ventricular fibrillation”), blue tinge to skin, respiratory failure

Case Vignette

Case Vignette: Gerald

Gerald is a 24-year-old male who has been using methamphetamine regularly for the last 2 years.

He initially began abusing the oral stimulants his doctor gave him for ADHD when he was 18 and struggling to keep up in college.

He discovered methamphetamine at a party during junior year of college and would use in weekend binges.

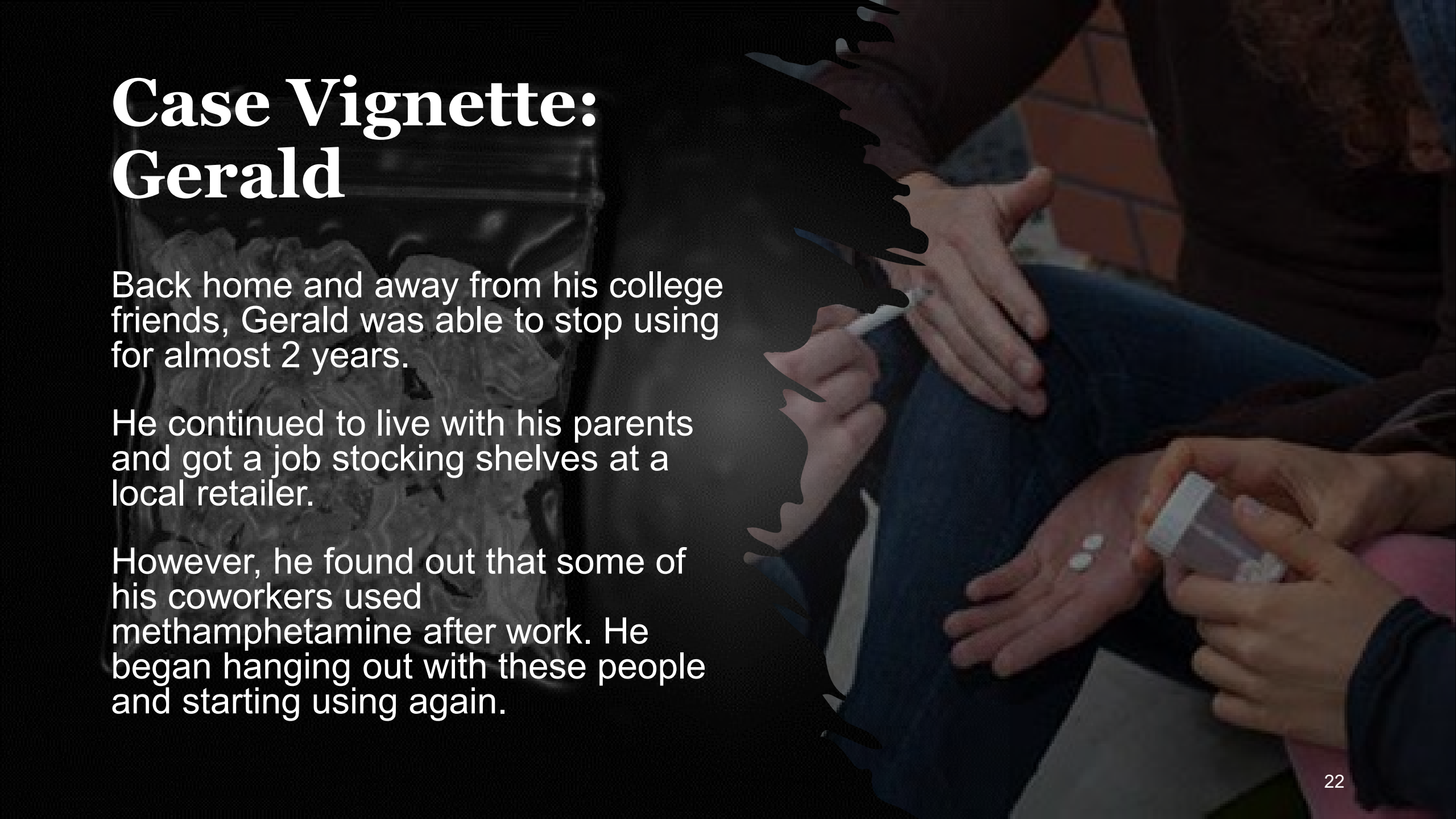
After one semester of this pattern, he stopped going to classes, dropped out of school and moved back in with his parents.

Case Vignette: Gerald

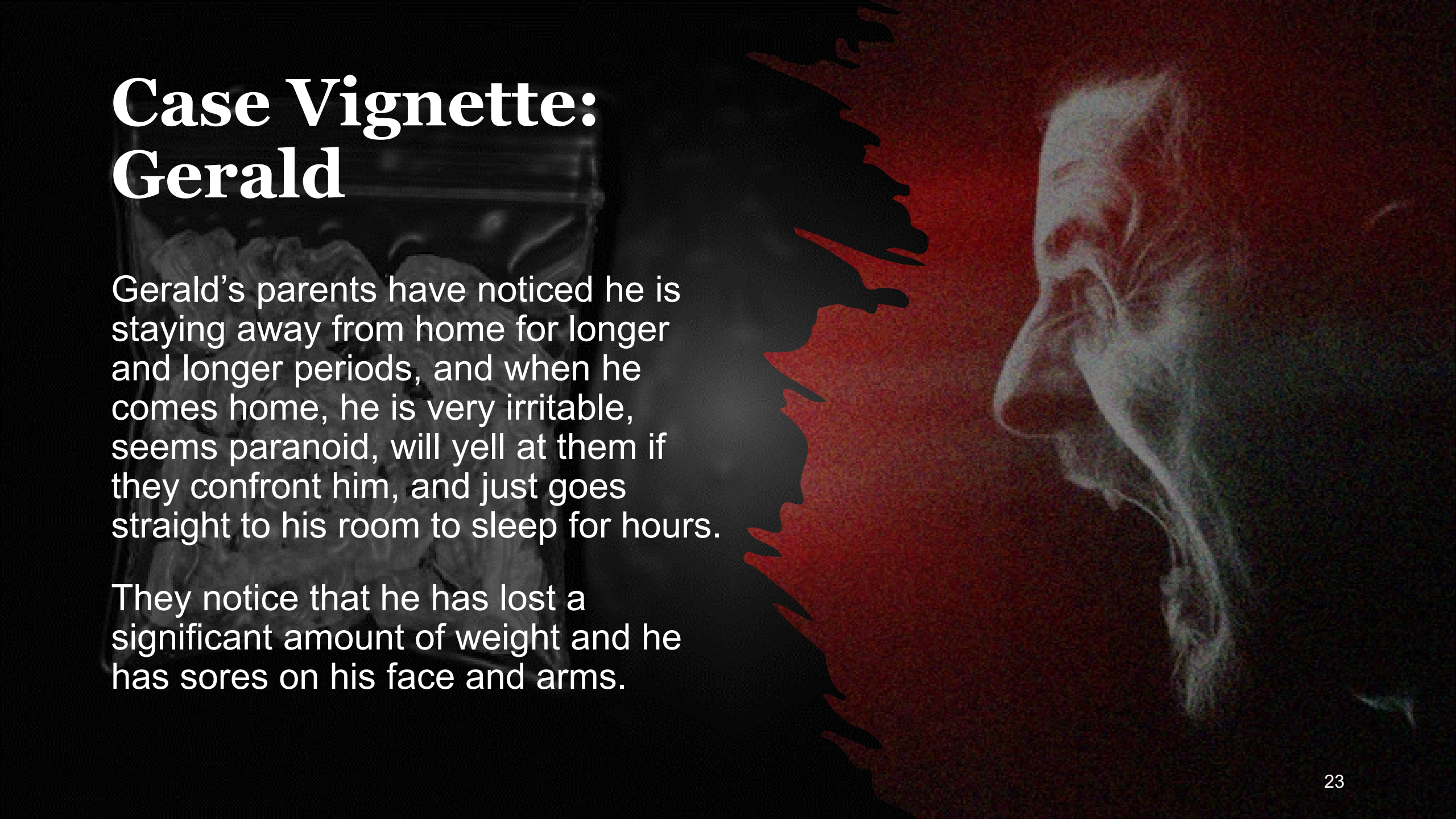
Back home and away from his college friends, Gerald was able to stop using for almost 2 years.

He continued to live with his parents and got a job stocking shelves at a local retailer.

However, he found out that some of his coworkers used methamphetamine after work. He began hanging out with these people and starting using again.



Case Vignette: Gerald



Gerald's parents have noticed he is staying away from home for longer and longer periods, and when he comes home, he is very irritable, seems paranoid, will yell at them if they confront him, and just goes straight to his room to sleep for hours.

They notice that he has lost a significant amount of weight and he has sores on his face and arms.

Case Vignette: Gerald

Gerald's parents find a moment when he seems calm and more like himself, confront him, and he confides in them about his methamphetamine use.

They discuss options and he agrees to get SUD treatment.

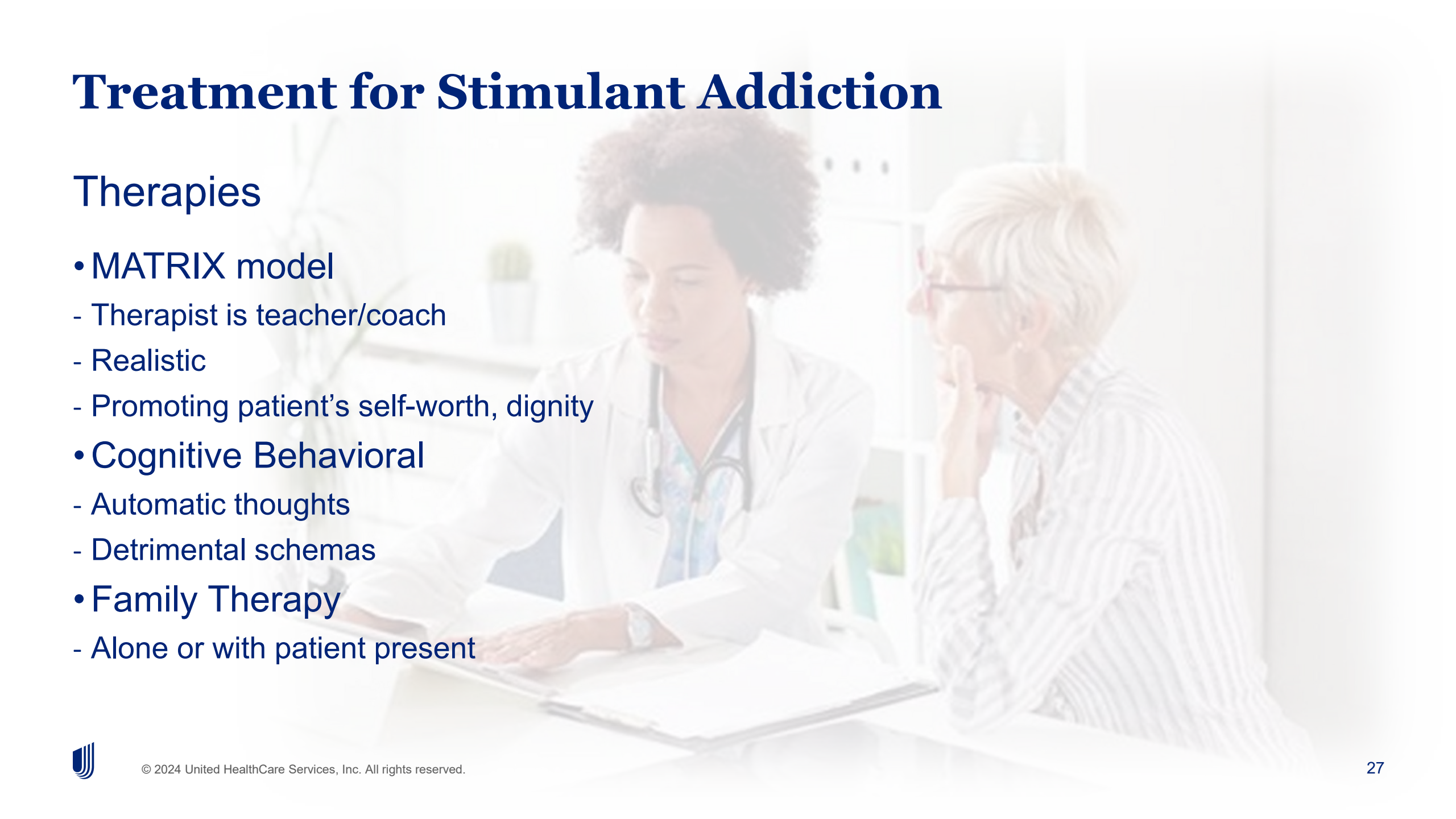
Treatment

Treatment for Stimulant Addiction

Therapies

- Relapse prevention
  - Recognizing triggers
  - Planning for relapses
- Motivational Enhancement Therapy
  - Use motivational interviewing techniques
  - Client-centered
  - Evokes and strengthens patient's own motivation
  - Encourages commitment to change

Treatment for Stimulant Addiction



Therapies

- MATRIX model
  - Therapist is teacher/coach
  - Realistic
  - Promoting patient's self-worth, dignity
- Cognitive Behavioral
  - Automatic thoughts
  - Detrimental schemas
- Family Therapy
  - Alone or with patient present

Treatment for Stimulant Addiction

Self-help Resources

- 12-Step Based (AA, NA, Al-Anon)
- SMART Recovery (**S**elf-**M**anagement **A**nd **R**ecovery **T**raining)

- Change self-defeating thinking, etc.
- Self-empowerment, self-reliance

- Rational Recovery

- Learning to recognize and defeat the “Addictive Voice,” etc.
- Goal is that addiction is “over”, rather than addict in “recovery”

SUD Lecture Series
Summary

Substance Use Disorder - Review

In general, a condition in which an individual continues to take a substance (e.g., drug, alcohol) despite social, psychological and/or physical problems that are directly or indirectly caused by taking that substance.

Why Focus on Substance Use Disorders?

- 1 in 7 will develop a SUD at some point – here is one stat:
  - In 2015 - SUD affected 20 million Americans – 8% (Adolescents/Adults combined)
  - This is similar to the number of people affected by diabetes
  - Of these, 15 million needed alcohol treatment, 7-8 million needed illicit drug treatment
- Economic Impact to U.S. is over $400 BILLION a year
- 30,000 people died from an *opioid overdose* in 2014, increased to 81,000 in 2023
- 20,000 more died from an *unintentional overdose of alcohol, cocaine or non-opioid prescription drugs*
- The current opioid crisis has resulted in 5-fold increase in ***babies*** being born dependent on opioids

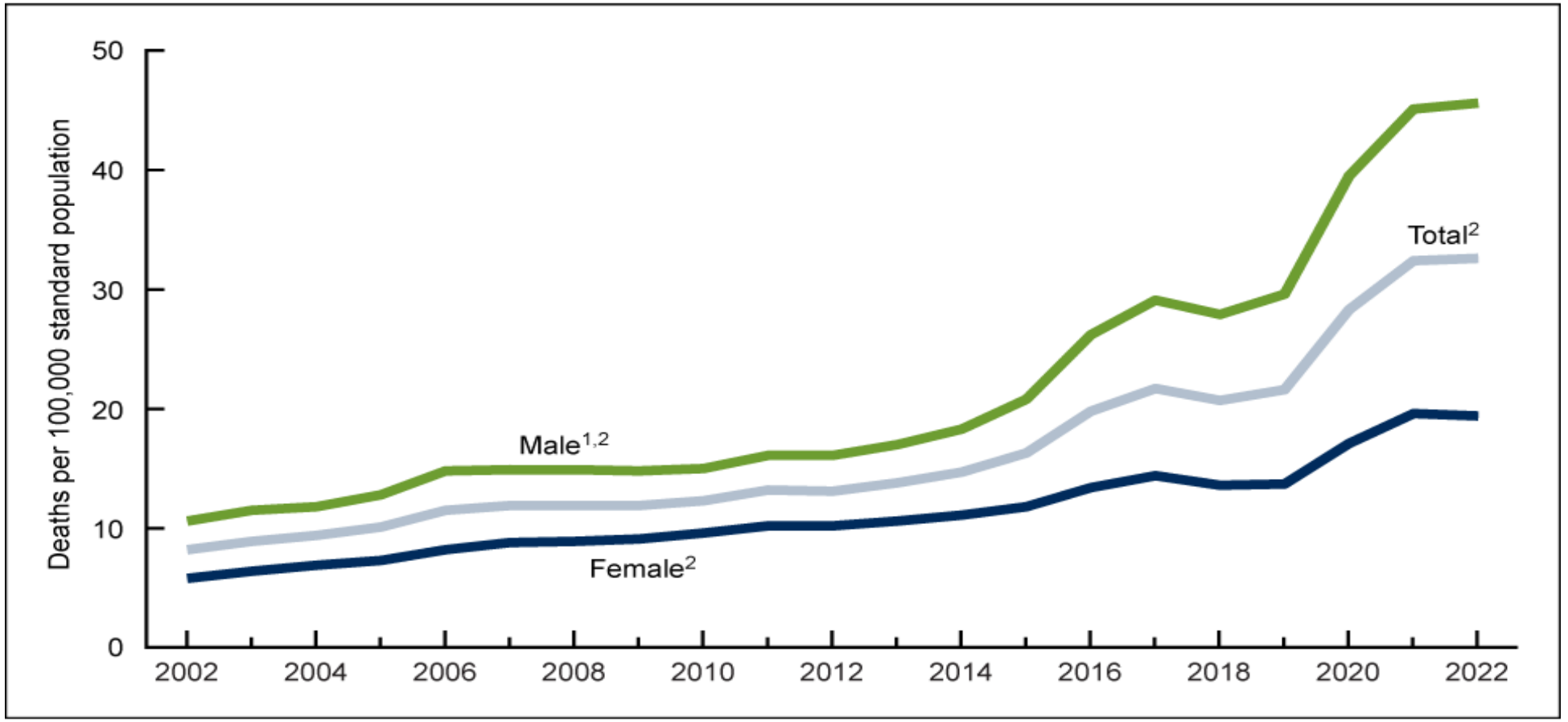
Above data is according to 2016 Surgeon General's Report ,"Facing Addiction in America"

Why Focus on Substance Use Disorders? – Trends (CDC)

- Overdose deaths involving *opioids* decreased from an estimated 84,000 in 2022 to 81,000 in 2023
- Overdose deaths from *synthetic opioids* (primarily fentanyl) decreased in 2023 compared to 2022
- Overdose deaths from *cocaine & other* psychostimulants (e.g. methamphetamine) increased
- There were 106,000 *total drug overdose* deaths in the USA in 2023, a decrease of 3% from 2022

Why Focus on Substance Use Disorders?

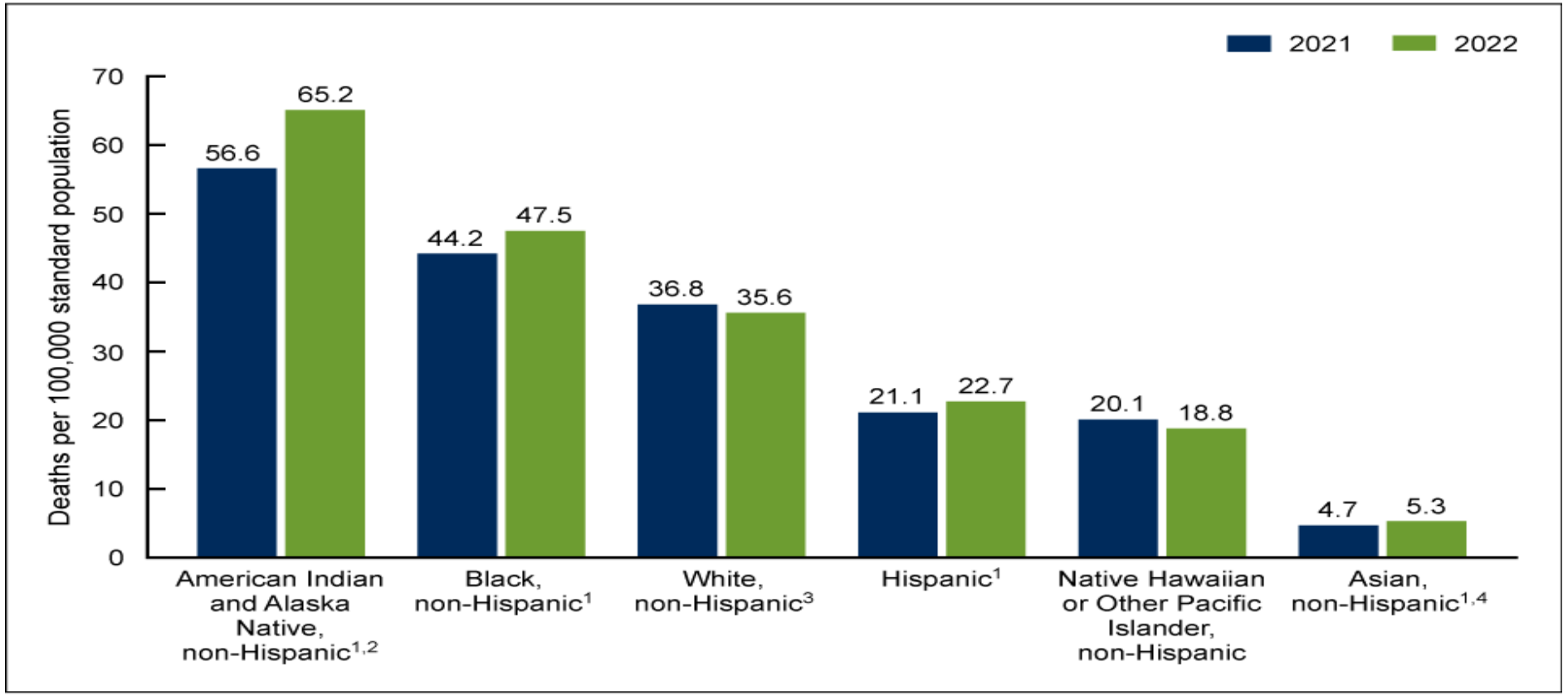
Figure 1. Age-adjusted rate of drug overdose deaths, by sex: United States, 2002–2022



[1]Rate significantly higher than for females for all years, $p < 0.05$.
[2]Significant increasing trend from 2002 to 2022, with different rates of change over time, $p < 0.05$.
NOTES: Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. The number of drug overdose deaths in 2022 was 107,941. Access data table for Figure 1 at: https://www.cdc.gov/nchs/data/databriefs/db491-tables.pdf#1.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Why Focus on Substance Use Disorders?

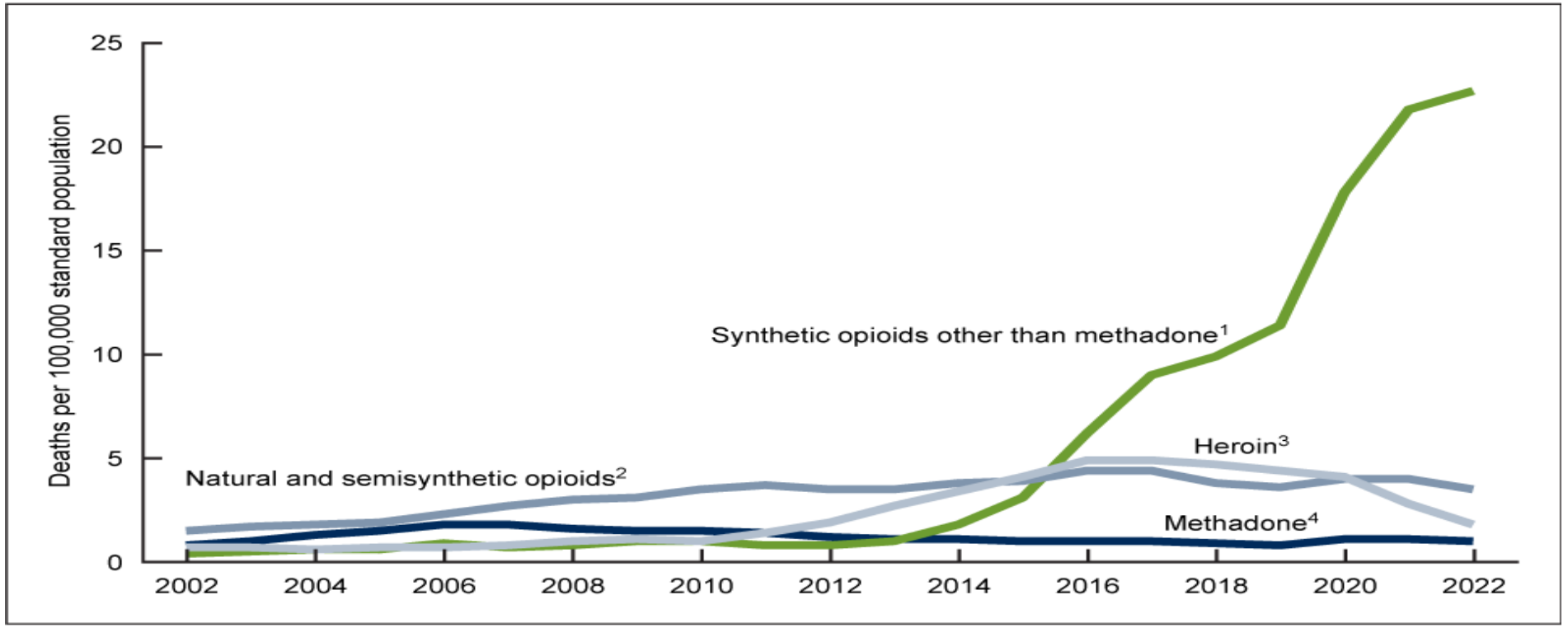
Figure 3. Age-adjusted rate of drug overdose deaths, by race and Hispanic origin: United States, 2021 and 2022



[1]Rate in 2022 significantly higher than in 2021, $p < 0.05$.
[2]Group with highest rate in 2021 and 2022, $p < 0.05$.
[3]Rate for White non-Hispanic people significantly decreased from 2021 to 2022, $p < 0.05$.
[4]Group with lowest rate in 2021 and 2022, $p < 0.05$.
NOTES: Misclassification of race and Hispanic origin on death certificates results in the underestimation of death rates by as much as 34% for American Indian and Alaska Native non-Hispanic people and 3% for Asian non-Hispanic and Hispanic people. People of Hispanic origin may be of any race. Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db491-tables.pdf#3.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Why Focus on Substance Use Disorders?

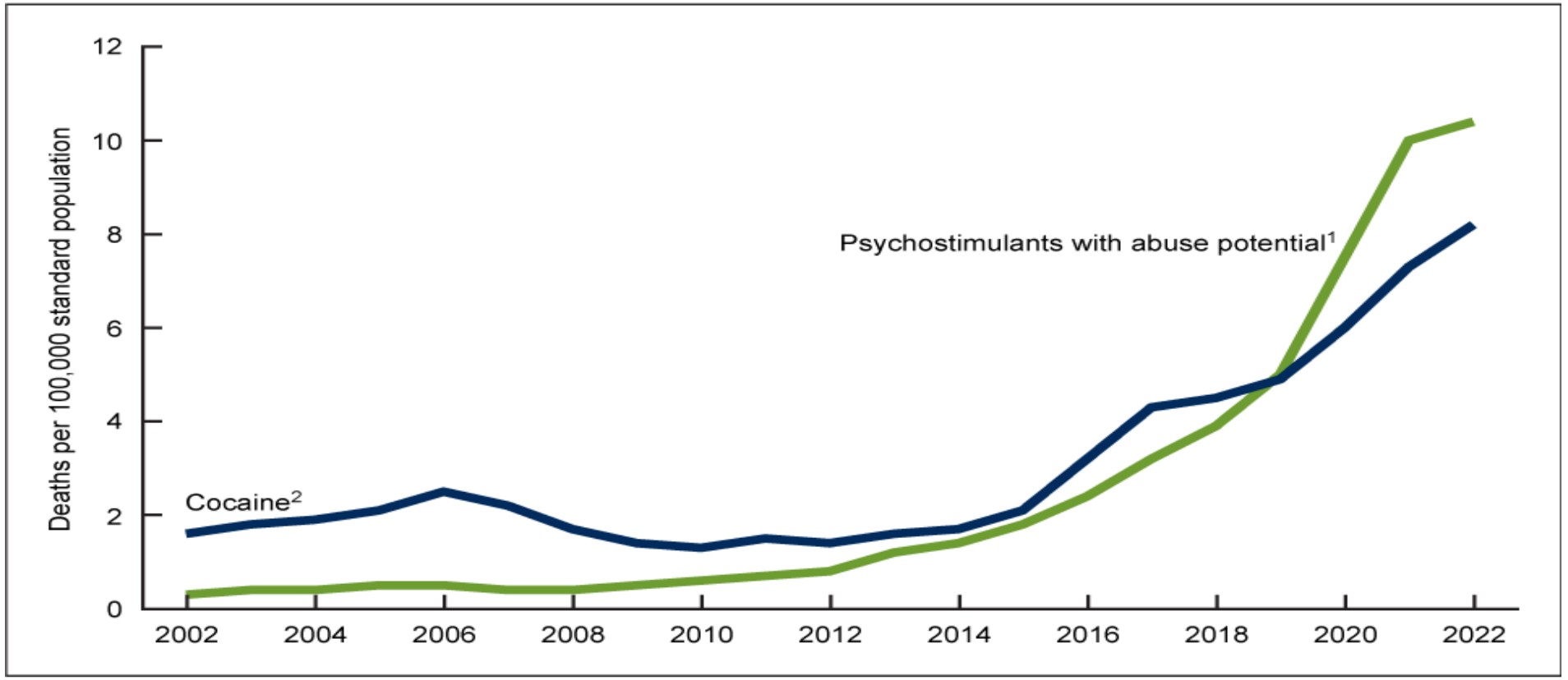
Figure 4. Age-adjusted rate of drug overdose deaths involving opioids, by type of opioid: United States, 2002–2022



[1]Stable trend from 2002 to 2013, then increasing trend from 2013 to 2022, with different rates of change over time, $p < 0.05$.
[2]Significant increasing trend from 2002 to 2016, then stable trend from 2016 to 2022, with different rates of change over time, $p < 0.05$.
[3]Significant increasing trend from 2002 to 2016 with different rates of change over time, stable trend from 2016 to 2020, then significant decreasing trend from 2020 to 2022, $p < 0.05$.
[4]Significant increasing trend from 2002 to 2006, decreasing trend from 2006 to 2018, then stable trend from 2018 to 2022, $p < 0.05$.
NOTES: Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories were identified by multiple cause-of-death codes: T40.1 (heroin), T40.2 (natural and semisynthetic opioids), T40.3 (methadone), and T40.4 (synthetic opioids other than methadone). Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Deaths involving more than one opioid category (for example, a death involving both methadone and a natural or semisynthetic opioid) are counted in both categories. The percentage of drug overdose deaths that identified the specific drugs involved ranged from 75% to 79% from 2002 to 2013, then increased from 81% in 2014 to 96% in 2022. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db491-tables.pdf#4.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Why Focus on Substance Use Disorders?

Figure 5. Age-adjusted rate of drug overdose deaths involving stimulants, by type of stimulant: United States, 2002–2022



[1]Stable trend from 2002 to 2010, then significant increasing trend from 2010 to 2022, $p < 0.05$.
[2]Stable trend from 2002 to 2006, significant decreasing from 2006 to 2012, then significant increasing trend from 2012 to 2022, $p < 0.05$.
NOTES: Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories were identified by multiple cause-of-death codes: T43.6 (psychostimulants) and T40.5 (cocaine). Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Deaths may involve more than one drug. The percentage of drug overdose deaths that identified the specific drugs involved ranged from 75% to 79% from 2002 to 2013, then increased from 81% in 2014 to 96% in 2022. Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db491-tables.pdf#5.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Shifting Our Thinking About Addiction

*When we focus on addiction as a chronic disease rather than a character flaw, then we change **our focus to one of overall health and recovery***:

Character flaw -> stigma and shame -> afraid/ashamed to seek help

CHANGE TO

Chronic disease -> seek help -> continued follow-up to maintain health and recovery goals

Using the Chronic Disease Model to Guide Addiction Treatment

Chronic Disease Treatment Model

1. Clinical **Assessment**
2. **Acute Intervention**
3. **Long-term** Intervention/Maintenance
4. Frequent **Reassessment** During Episodic “Flare-ups”

Using the Chronic Disease Model to Guide Addiction Treatment

As applied to Addiction…

1. Complete Assessment
2. **Acute Treatment** of Intoxication and Withdrawal
3. Address **Co-Occurring** Behavioral Health and General Medical Conditions
4. Develop/Implement **Treatment Plan**
   a. Abstinence/reduction in use
   b. Decrease number/severity of relapses
   c. Increase psychosocial functioning

Targeting Those at Risk –
Who is at Risk? What are the Risk Factors?

Know the risk factors and ask questions regarding these areas:

- **Genetic factors** – parents/siblings who also have a SUD
- **Environment** – home, school, neighborhood where drugs prevalent
- **Age of first use** – the younger, the more at risk for developing a SUD

The Impact of Untreated Addiction

To the health of an individual

- Short-term effects, e.g., overdose/death, psychotic episodes, premature birth, STDs
- Long-term effects, e.g., liver disease, cancer, heart disease

To the health of society

- Decreased workdays, poverty, homelessness, crime, violence, family stress

To Sum Up…

- Substance Use Disorders/addictions need to be treated and managed as other chronic health conditions are
- Working to decrease stigma will lessen shame for those who are ready to seek treatment
- Routine screening of those who may be at risk is important for prevention and treatment of SUDs

Resources for Help!

(DEA.gov)

- Step by Step Guides to Finding Treatment for Drug Use Disorders
- American Society of Addiction Medicine - Patient Resources
- Addiction Treatment Needs Assessment
- American Addiction Centers
- Find Treatment.gov
- Opioid Treatment Program Directory
- Take Action and Prevent Addiction
- Narcotics Anonymous

Buprenorphine Practitioner & Treatment Program Locator

- **SAMHSA's National Helpline**:

1-800-662-HELP (4357); TTY: 1-800-487-4889
https://findtreatment.samhsa.gov
Website: www.samhsa.gov/find-help/national-helpline

- **Drug-Free Workplace:**

1-800-WORKPLACE (967-5752)
Website: www.samhsa.gov/workplace/resources/drug-free-helpline

- **Naloxone**
  - Naloxone Drug Facts | National Institute on Drug Abuse (NIDA)
  - Opioid Overdose Toolkit | SAMHSA
  - Naloxone for Opioid Overdose: Life-Saving Science | National Institute on Drug Abuse (NIDA)
  - Is naloxone accessible? | National Institute on Drug Abuse (NIDA)
  - The Helping to End Addiction Long-term Initiative | NIH HEAL Initiative
  - Medications to Treat Opioid Disorder | National Institute on Drug Abuse (NIDA)

Thank You

Q&A