County-Level Vulnerability Assessment for Overdose and Rapid Spread Hepatitis C in North Dakota

Mary Bruns, Harm Reduction Epidemiologist

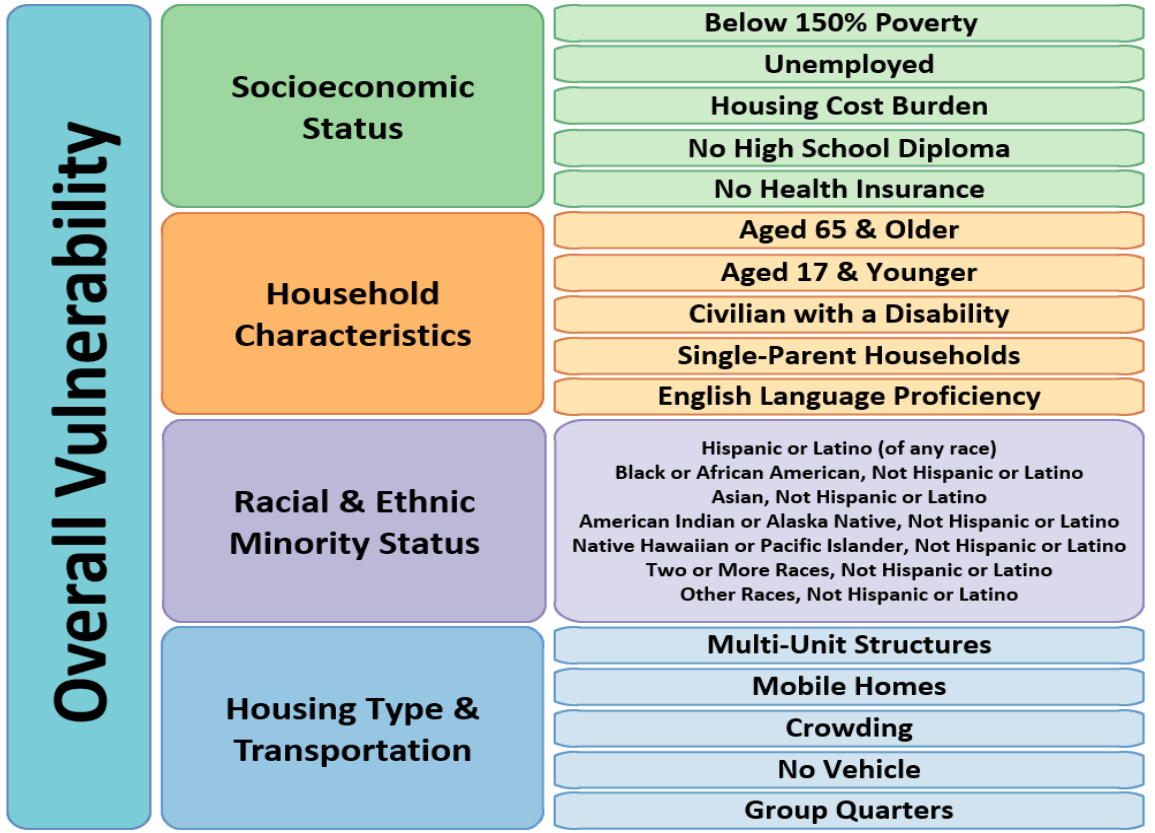
09/24/2025

NORTH Dakota Be Legendary. | Health & Human Services

Social Vulnerability Defined

- Social vulnerability: "demographic and socioeconomic factors that adversely affect communities that encounter hazards and other community-level stressors."[1]
- A **social vulnerability index** refers to a data informed tool to identify counties at risk or vulnerable for adverse outcomes such as disease outbreaks or disasters

This assessment reflects how social and structural factors shape health outcomes. It is meant to highlight modifiable barriers and not pinpoint community level deficits.



[1]CDC/ATSDR, 2024

History & Background

HIV outbreak, Indiana[2]

2015

2017

Social Vulnerability Index, North Dakota

Why Identify At-Risk Counties?

- National trends[3,4]
- State trends
- Emergency/outbreak planning

Aims

- Identify counties at risk for:
  - IDU-related Hepatitis C outbreak
  - All-drug overdose death
  - Opioid overdose death
- Highlight modifiable or preventable factors that may reduce community hazards
- Evaluate change in county risk between ND's previous SVI (2017) and the updated SVI (2025)

Hazards/Outbreak Risk Evaluated

1. Newly diagnosed (including acute, chronic or currently infected) Hepatitis C (HCV) related to IDU among individuals between the ages of 15-34
2. Overdose deaths for all drugs
3. Overdose deaths related to opioids

Factors Considered

- Socioeconomic factors, drug use behavior & healthcare access factors all play a role in determining what areas of North Dakota are most at risk for certain outcomes
- Factor information and data came from a variety of sources including:
  - Federal sources: U.S. Census, CDC, SAMSHA, HRSA
  - State sources: North Dakota Health and Human Services, North Dakota Attorney General, North Dakota Board of Pharmacy
- These factors are essential in determining the areas of vulnerability and what factors play in to that vulnerability

NORTH Dakota | Health & Human Services
Be Legendary.

Factors Considered

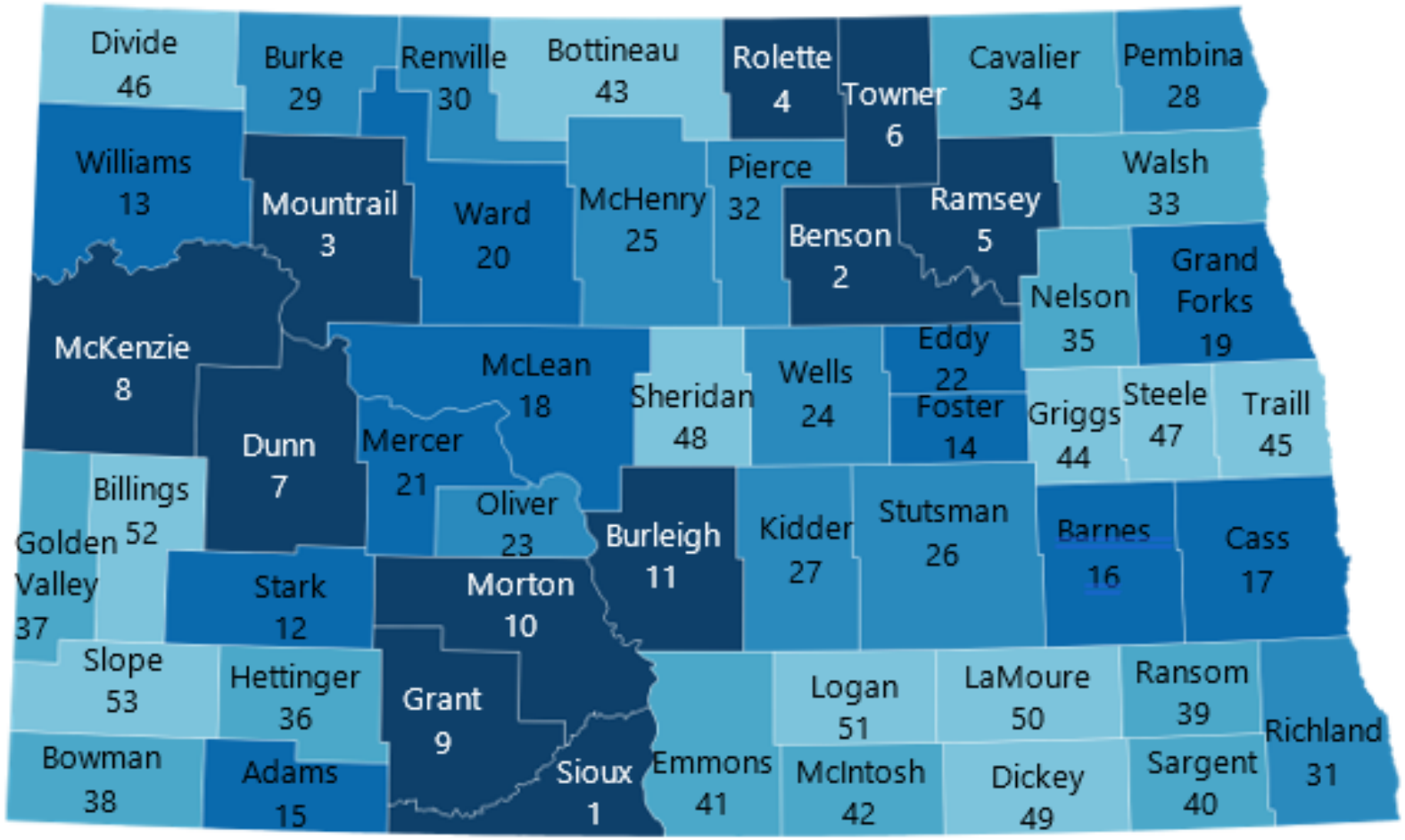
County population[6]	Per capita income & log[6]	Drug crime rate[8]
County population log[6]	Per capita income log[6]	Dentist rate[9]
Percent Black, Indigenous and other People of Color[6]	Teen birth rate[6]	Psychiatrist rate[9]
Percent without insurance[6]	Fatal overdose rate (Model 1 & 3)	ER provider rate[9]
Percent with no HS diploma[6]	Nonfatal overdose rate	Primary Care Provider rate[9]
Percent living in poverty[6]	Opioid overdose rate (Model 1 & 2)	Presence of substance use treatment facility[10]
Percent without vehicle access[6]	Gonorrhea rate	Presence of drug inpatient facility[9]
Percent unemployed[6]	Syphilis rate	Presence of hospital/ER[9]
Percent single parent[6]	HIV rate	Percent <15 years old (Model 1)[6]
Percent disabled[6]	HCV rate (Model 2 & 3)	Percent ≥35 years old (Model 1)[6]
Percent without internet[6]	SSP participation rate	Buprenorphine provider rate[10]
Percent mobile homes[6]	Opioid prescription rate[7]	ER visit rate[9]

*rate per 1,000 population

NORTH Dakota | Health & Human Services
Be Legendary.

Hepatitis C Outbreak Risk Areas

Rank	County
1	Sioux
2	Benson
3	Mountrail
4	Rolette
5	Ramsey
6	Towner
7	Dunn
8	McKenzie
9	Grant
10	Morton



NORTH Dakota | Health & Human Services
Be Legendary.

Hepatitis C Outbreak Risk Areas

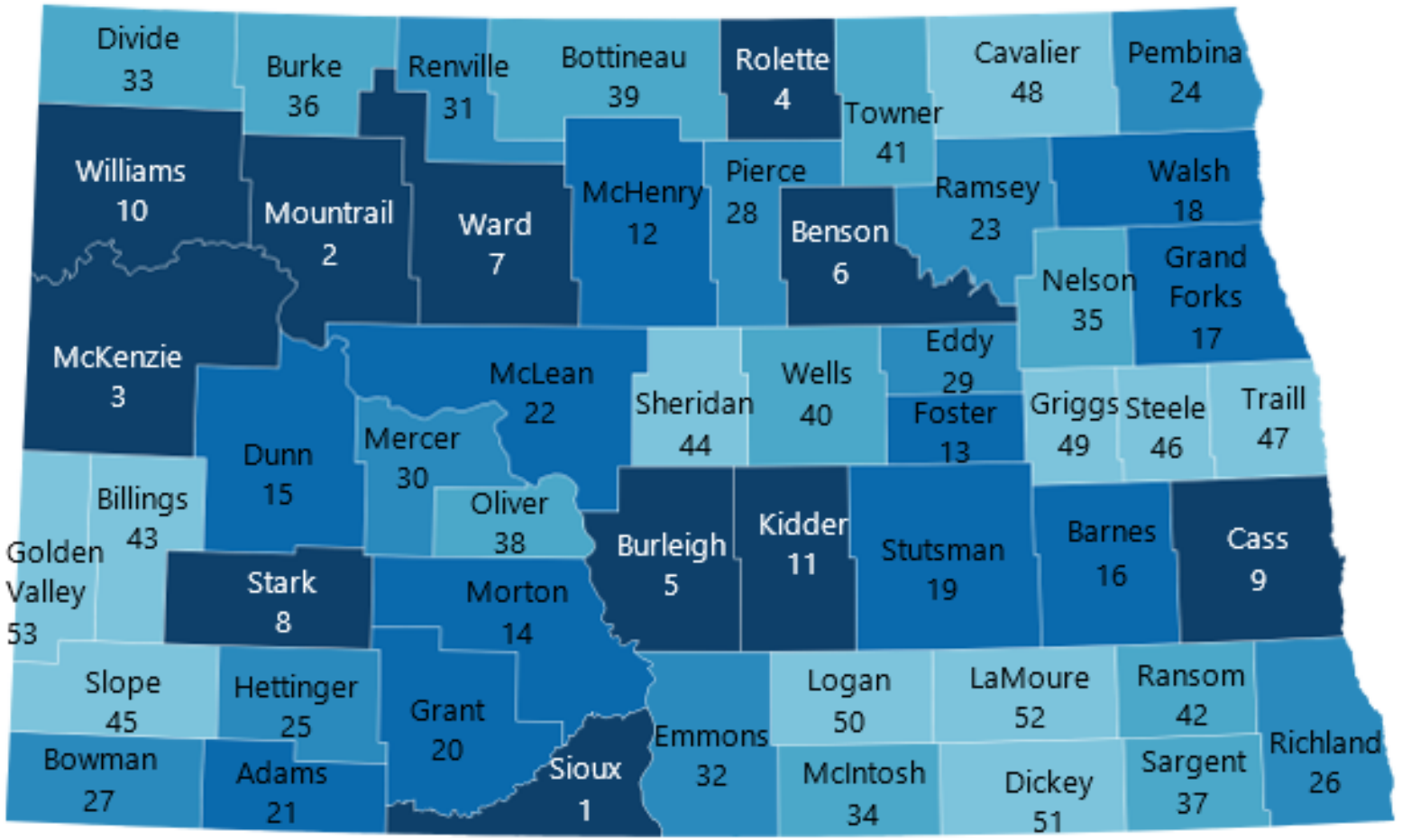
2017 Assessment	
Rank	County
1	Benson
2	Rolette
3	Sioux
4	Mountrail
5	McKenzie
6	Dunn
7	Walsh
8	Ramsey
9	Burke
10	Grant

2025 Assessment	
Rank	County
1	Sioux
2	Benson
3	Mountrail
4	Rolette
5	Ramsey
6	Towner
7	Dunn
8	McKenzie
9	Grant
10	Morton

NORTH Dakota | Health & Human Services
Be Legendary.

All Drug Overdose Death Risk Areas

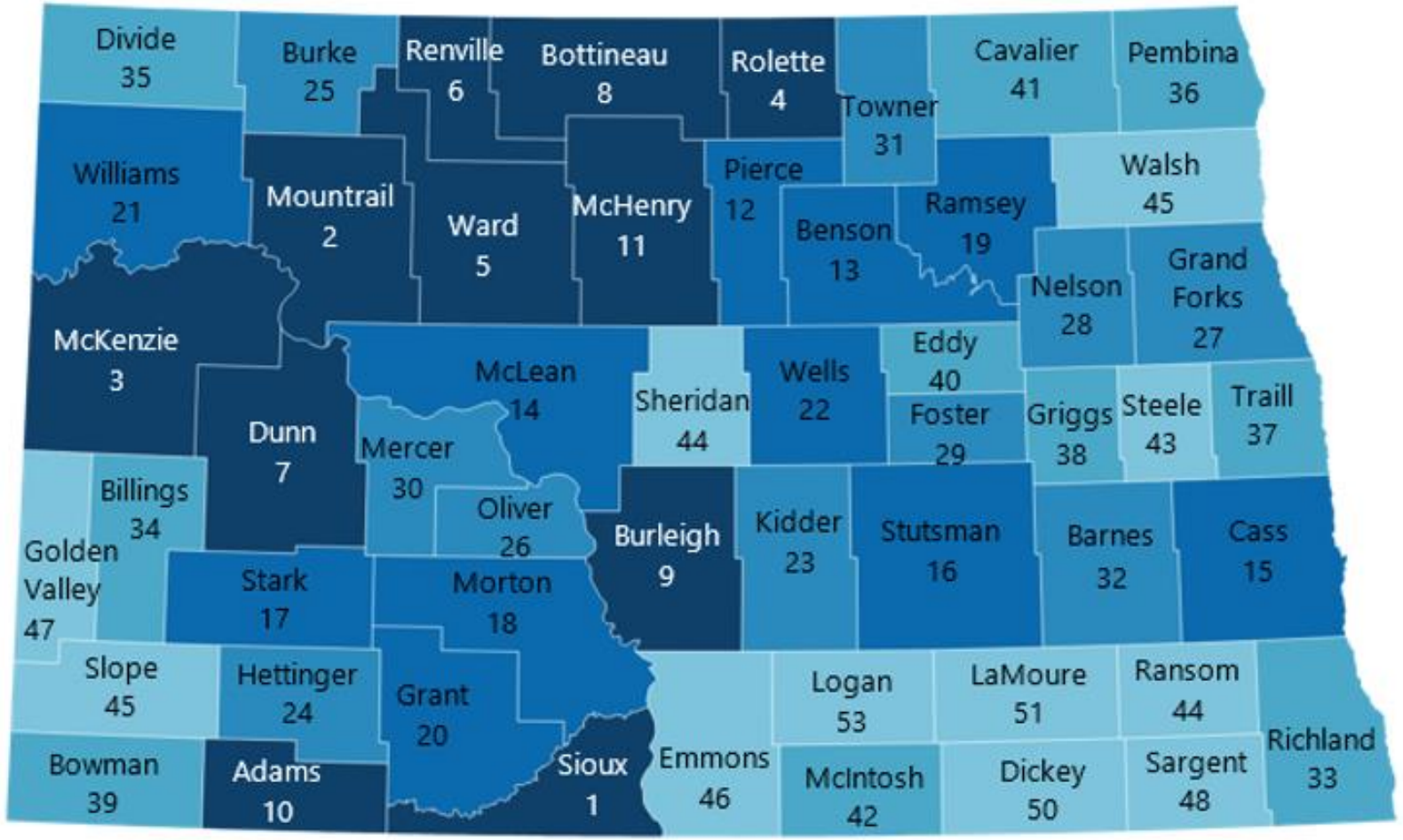
Rank	County
1	Sioux
2	Mountrail
3	McKenzie
4	Rolette
5	Burleigh
6	Benson
7	Ward
8	Stark
9	Cass
10	Williams



NORTH Dakota | Health & Human Services
Be Legendary.

Opioid Overdose Death Risk Areas

Rank	County
1	Sioux
2	Mountrail
3	McKenzie
4	Rolette
5	Ward
6	Renville
7	Dunn
8	Bottineau
9	Burleigh
10	Adams



What Do the Results Mean?

- Rural counties consistently at highest risk
  - 80% of top 10 counties were noncore, rural counties
- Vehicle access and housing (mobile homes) were major drivers increasing risk for outbreaks and overdose deaths
- Syringe Service Programs (SSPs) and hospital presence were protective against overdose death risk
- Mental health provider (psychiatrist) and presence of healthcare are important for preventing overdose outcomes

NORTH Dakota | Health & Human Services
Be Legendary.

What can be done?

- Harm Reduction
  - Commitments to address HIV and Hep C through screening
  - Overdose training (Narcan availability)
  - Combination of harm reduction (SSP, screening, etc.) and substance use treatment

Thank you

Email: mbruns@nd.gov

NORTH Dakota
Be Legendary.
| Health & Human Services

References

1. Social vulnerability index. Centers for Disease Control and Prevention. 2024. Accessed 2025. https://www.atsdr.cdc.gov/place-health/php/svi/index.html.

2. Conrad C, Bradley H, Broz D, Buddha S. Community outbreak of HIV infection linked to injection drug use of Oxymorphone - Indiana, 2015. Centers for Disease Control and Prevention. 2015. Accessed July 8, 2025. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6416a4.htm.

3. CDC. About Overdose Prevention. Overdose Prevention. June 11, 2025. Accessed June 30, 2025. https://www.cdc.gov/overdose-prevention/about/index.html

4. CDC. Viral Hepatitis Among People Who Use or Inject Drugs. Viral Hepatitis. August 12, 2024. Accessed June 30, 2025. https://www.cdc.gov/hepatitis/hcp/populations-settings/pwid.html

5. Conrad C, Bradley H, Broz D, Buddha S. Community outbreak of HIV infection linked to injection drug use of Oxymorphone - Indiana, 2015. Centers for Disease Control and Prevention. 2015. Accessed July 8, 2025. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6416a4.htm.

6. Syringe Service Programs. Health and Human Services North Dakota. Accessed June 30, 2025. https://www.hhs.nd.gov/health/diseases-conditions-and-immunization/syringe-service-programs

7. Bureau UC. American Community Survey Data. Census.gov. Accessed June 30, 2025. https://www.census.gov/programs-surveys/acs/data.html

7. North Dakota Board of Pharmacy. Accessed June 30, 2025. https://www.nodakpharmacy.com/PDMP-index.asp

References

8. Beyond 20/20 Perspective - View report. Accessed June 30, 2025. https://crimestats.nd.gov/public/View/dispview.aspx?ReportId=47

9. Data Downloads. Accessed June 30, 2025. https://data.hrsa.gov/data/download

10. Search For Treatment. FindTreatment.gov. Accessed June 30, 2025. https://findtreatment.gov/locator

11. Assistant Secretary for Public Affairs (ASPA). Harm reduction. Overdose Prevention Strategy. April 2024. Accessed 2025. https://www.hhs.gov/overdose-prevention/harm-reduction.

National Drug Trends and Working with People Who Use Drugs

Kirsten Forseth, Associate Director
Billy Golden, Manager

MISSION

NASTAD's mission is to advance the health and dignity of people living with and impacted by HIV/AIDS, viral hepatitis, and intersecting epidemics by strengthening governmental public health and leveraging community partnerships.

VISION

NASTAD's vision is a world committed to ending HIV/AIDS, viral hepatitis, and intersecting epidemics.

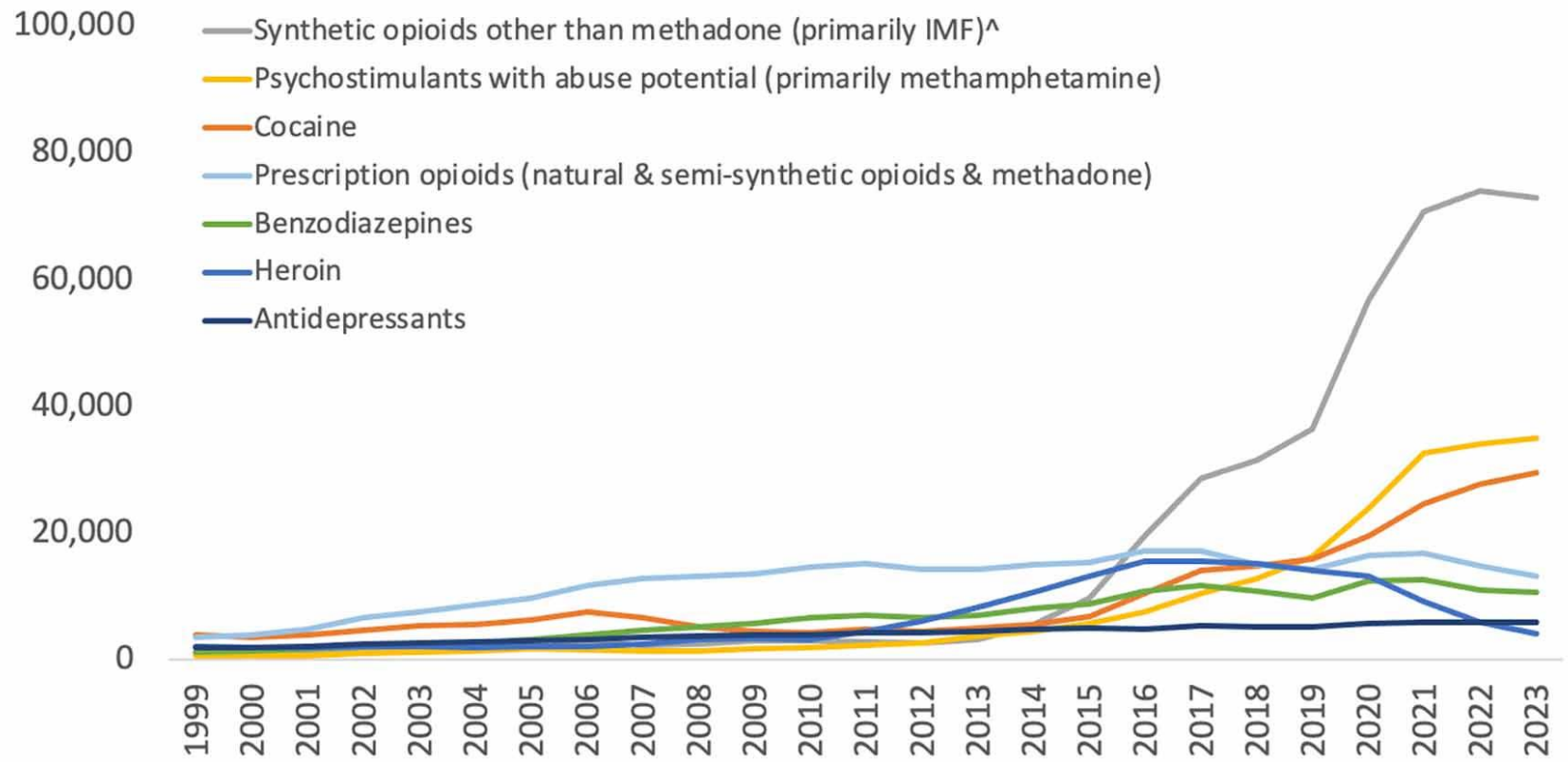
about NASTAD

WHO: A non-partisan non-profit association founded in 1992 that represents public health officials who administer HIV and hepatitis programs in the U.S.

WHERE: NASTAD represents all 50 U.S. states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, seven local jurisdictions receiving direct funding from the Centers for Disease Control and Prevention (CDC), and the U.S. Pacific Island jurisdictions.

HOW: We work to advance the health and dignity of people living with and impacted by HIV/AIDS, viral hepatitis, and intersecting epidemics by strengthening governmental public health and leveraging community partnerships through advocacy, capacity building, and social justice.

Figure 2. U.S. Overdose Deaths*, Select Drugs or Drug Categories, 1999-2023



*Includes deaths with underlying causes of unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision. ^Illicitly manufactured fentanyl. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2023 on CDC WONDER Online Database, released 1/2025.

Changing Routes of Administration

Increasingly Adulterated and Unpredictable Drug Supply

- Over the past decade, fentanyl and xylazine have proliferated in the illicit drug supply
- Other new and emerging adulterants:
  - Nitazenes – extremely potent synthetic opioids
  - Medetomidine – animal tranquilizer more potent than xylazine
  - Benzodiazepines – both illicit and prescription benzos have been increasingly detected in overdoses, often also involving opioids

What have you seen in the local drug supply?

About Xylazine

Xylazine is a veterinary sedative that is not approved by the FDA for use in humans. Xylazine's use as a cutting agent in the unregulated drug supply is relatively new in most of the United States. Researchers, medical professionals, people who use drugs and harm reductionists are all still learning about the short-term and long-term impacts of xylazine.

Potential Impact of Xylazine Use

While we are still learning about long term impact of xylazine use in humans, it is being observed to cause:

- Sedation
- Difficulty breathing
- Dangerously low blood pressure
- Slowed heart rate
- Skin and soft tissue wounds
- Severe withdrawal symptoms

Xylazine-Related Wounds

- May appear in areas other than at or near the injection site, typically on limbs..
- Pain at site prior to appearance of wound is possible.
- Initial presentation varies by person but may appear in clusters that resemble blisters or burns. May be more painful than expected.
- Wounds may develop rapidly and can “tunnel” below the surface to surrounding tissue, muscles, and tendons.
- Early treatment using wet wound care techniques can reduce advancement of wound.
- More complex wounds may show granulated tissue as well as eschar and necrotic tissue.
- Wounds may require long term care including debridement, regular cleaning and long-term dressing.
- Monitor closely for signs of infection.

Naloxone and Xylazine-Involved Overdose

- Naloxone will still reverse opioid overdoses, even if xylazine is involved. Continue to encourage people to carry and use naloxone.
- Xylazine sedation may still occur once the opioid overdose is reversed.
- Because naloxone will reverse the opioid overdose, a person's normal color may return and they may resume breathing without returning to consciousness.
- Encourage people to learn and use rescue breathing if supplemental breath is needed.

Managing Sedative Effects

- Try to lay people on flat and smooth surfaces without wrinkles.
- Change recumbency every two hours.
- Provide padding under bony body parts.
- Avoid skin friction.
- Advise people to use with others they feel safe with; sedation may put people at greater risk of sexual assault or robbery.
- In extreme heat or cold, advise people to use in a place where they can be protected from the elements.

Xylazine Withdrawal

People that have developed dependance on xylazine may experience severe withdrawal.

- Symptoms are not always well-defined. May include severe anxiety and agitation. People may also experience elevated blood pressure and heart rate. May begin within 6-12 hours after discontinued use.
- People seeking medication for opioid use disorder may opt to discontinue treatment, as MOUD does not ease symptoms of xylazine withdrawal.
- Medical facilities are learning how to medically manage xylazine withdrawal, with medical professionals working on creating best practices.

Treatment Underutilization

- Few people with opioid use disorder (OUD) get any treatment (about one-third in any year)—a gap that has existed for decades.
- The gold standard for treatment is medications for OUD (MOUD), particularly buprenorphine and methadone, **yet most people with OUD never receive these lifesaving medications**.

Are there opportunities to increase access to buprenorphine and methadone in your state or jurisdiction?

The Role of SSPs

- For those for whom prevention has failed and treatment is not yet sought or available, SSPs and other low-threshold community-based services are crucial to improving health and healthcare access.

- SSPs can provide:
  - Education
  - HIV/Hepatitis/STI testing
  - Linkage to infectious disease care and treatment
  - Navigation to other services and resources (primary care, substance use treatment, housing, food, transportation, etc.)
  - Wound care
  - Sterile syringes and other supplies
  - Sexual health services
  - Peer support

The Role of SSPs

- Development of trusting relationships with people who use drugs
- Creates a channel of communication to find out about changes in the drug supply and what people are experiencing
- Provide general preventative health services and facilitate connection to other care

- *Are there ways to more closely partner with SSPs, to co-locate services, or to streamline access and reduce barriers to services for people who use drugs?*

TA and Training Available from ORN and NASTAD

- The SAMHSA-funded *Opioid Response Network (ORN)* assists states, tribes, organizations and individuals by providing the resources and technical assistance they need locally to address the opioid crisis and stimulant use.
- Technical assistance is available to support the evidence-based prevention, treatment, recovery and harm reduction of opioid use disorders and stimulant use disorders.

To ask questions or submit a technical assistance request:

Visit
www.OpioidResponseNetwork.org

Email
drugus tad.org

Opioid Response Network

Thank you!

Questions?

kforseth@nastad.org
bgolden@nastad.org
druguserhealthTA@nastad.org