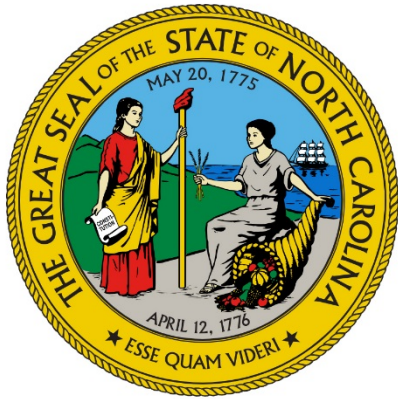




NC Department of Health and Human Services

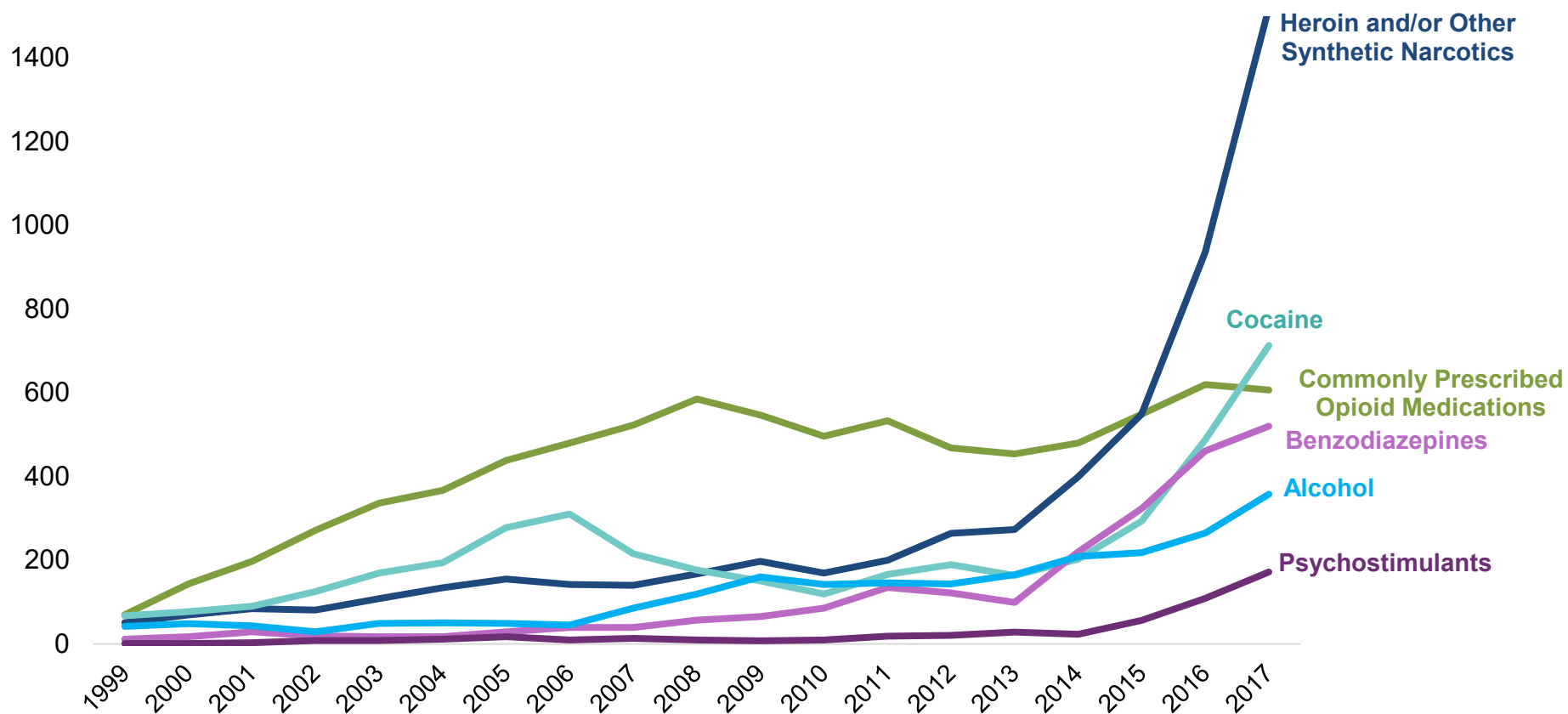
Connecting the Dots: Alcohol and Overdose Deaths in North Carolina

**Kendall Knuth, MPH
CSTE Applied Epidemiology Fellow**

February 13, 2020

Background

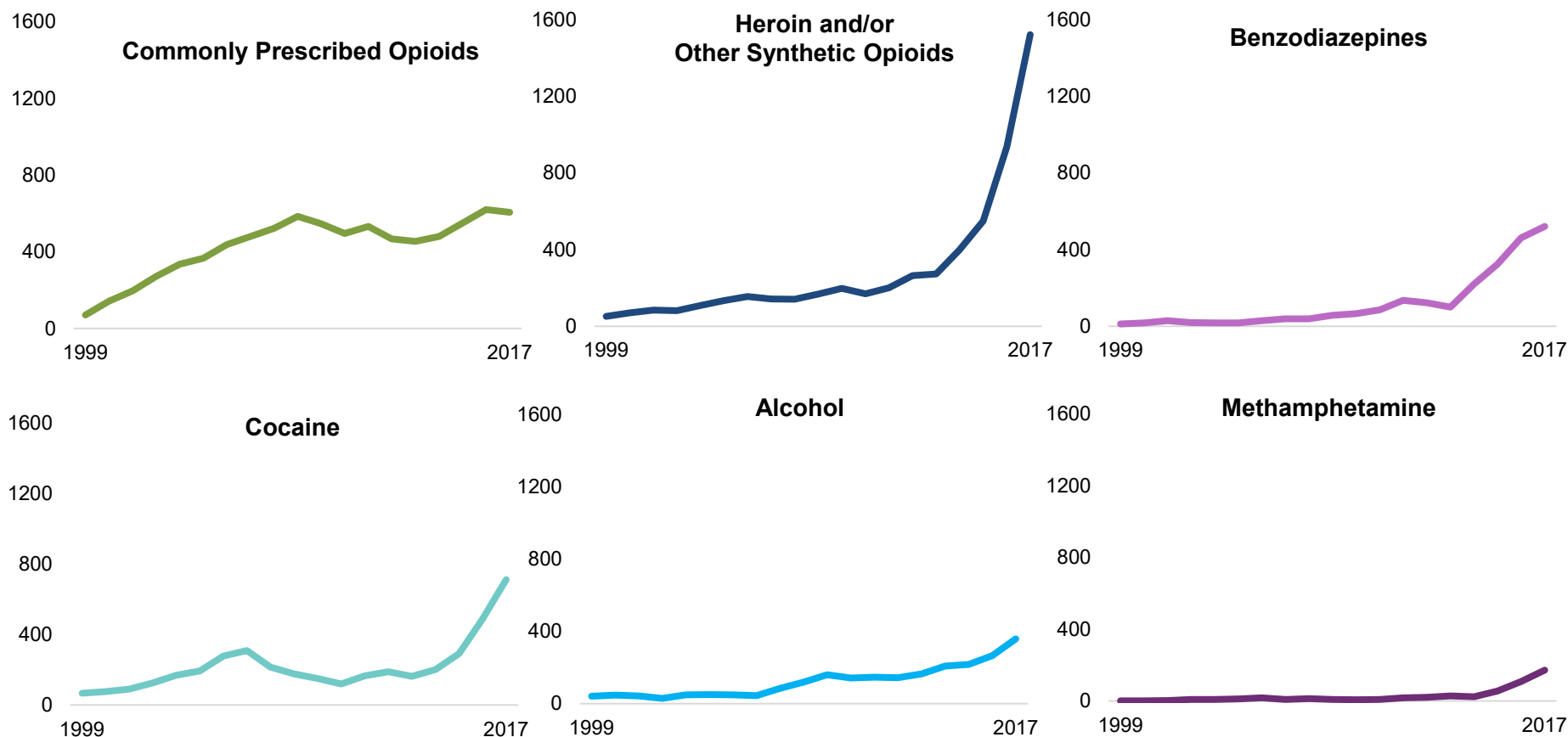
Substances^ Contributing to Unintentional Medication, Drug, and Alcohol Poisoning Deaths, North Carolina Residents, 1999-2017



^These counts are not mutually exclusive. If the death involved multiple substances it can be counted on multiple lines.

Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2017,
Unintentional medication, drug, alcohol poisoning: X40-X45 with any mention of specific T-codes by drug type
(Commonly Prescribed Opioids, Heroin, Other Synthetics, Benzodiazepines, Cocaine, and Alcohol).
Analysis by Injury Epidemiology and Surveillance Unit

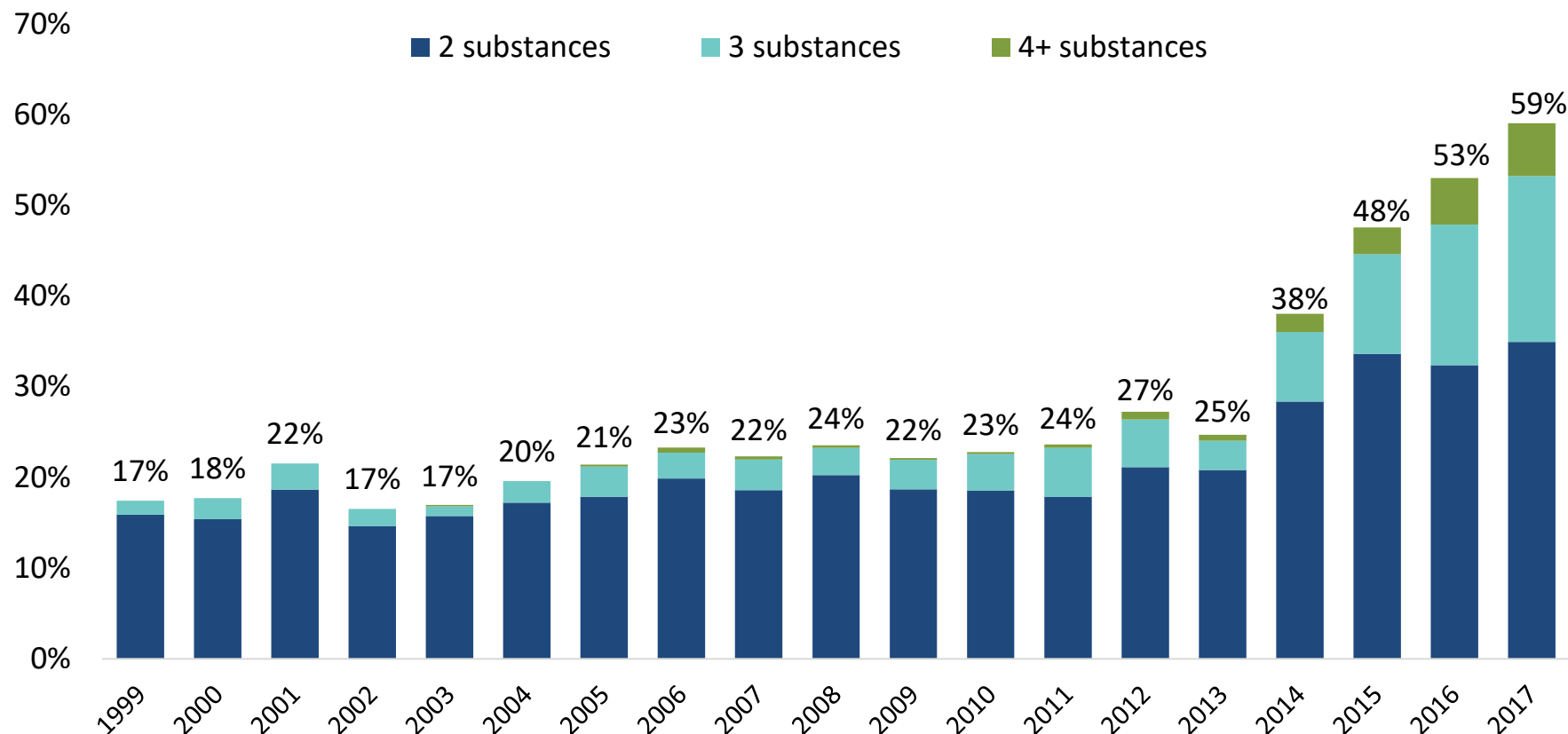
Unintentional overdose deaths increasing across all substances



*These counts are not mutually exclusive. If the death involved multiple substances it can be counted on multiple lines.

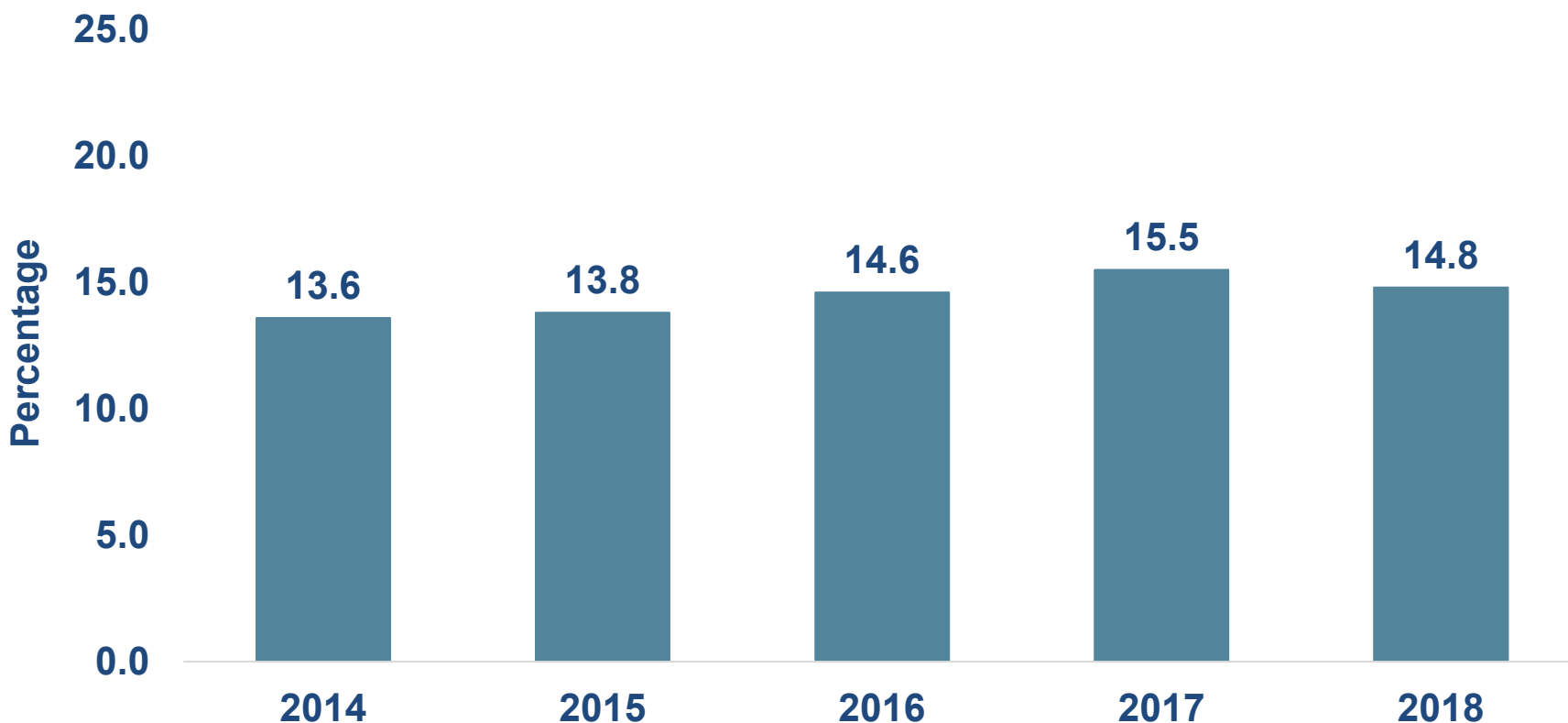
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Analysis by Injury Epidemiology and Surveillance Unit

Percent of Unintentional Medication, Drug, and Alcohol Poisoning Deaths involving Multiple Substances, NC Residents, 1999-2017



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2017, Unintentional medication, drug, or alcohol poisoning: X40-X45 with any mention of specific T-codes by drug type (Commonly Prescribed Opioids, Heroin, Other Synthetics, Benzodiazepines, Cocaine, and Alcohol). Analysis by Injury Epidemiology and Surveillance Unit

Reported Binge Drinking*, NC Adults, 2014-2018



*Binge drinking: adult men having five or more drinks on one occasion; adult women having four or more drinks on one occasion.

Source: NC State Center for Health Statistics, BRFSS 2014-2018
Analysis by Injury Epidemiology and Surveillance Unit

Dangers of Opioids and Alcohol

PREVENTING AN OPIOID OVERDOSE

Signs and Symptoms of an Opioid Overdose

During an overdose, breathing can be dangerously slowed or stopped, causing brain damage or death. It's important to recognize the signs and act fast. Signs include:

- Small, constricted "pinpoint pupils"
- Falling asleep or loss of consciousness
- Slow, shallow breathing
- Choking or gurgling sounds
- Limp body
- Pale, blue, or cold skin



Life-threatening signs of alcohol poisoning include:

 Inability to wake up

 Vomiting

 Slow breathing
(fewer than 8 breaths per minute)

 Irregular breathing
(10 seconds or more between breaths)

 Seizures

 Hypothermia
(low body temperature),
bluish skin color, paleness

<https://www.cdc.gov/drugoverdose/pdf/patients/Preventing-an-Opioid-Overdose-Tip-Card-a.pdf>
<https://www.cdc.gov/vitalsigns/alcohol-poisoning-deaths/infographic.html#infographic>



CDC's Safe Prescribing Guidelines

People who drink excessively who use prescription opioids are at **greater risk of overdose and death** due to the depressant effects of alcohol on the respiratory system and central nervous system. The risk of harm increases with the amount of alcohol consumed, but there is **no safe level of alcohol use for people using opioids**.

ALCOHOL SCREENING AND BRIEF INTERVENTION FOR PEOPLE WHO CONSUME ALCOHOL AND USE OPIOIDS

Healthcare providers can use alcohol screening and brief intervention (ASBI) before prescribing opioids to reduce opioid overdose deaths involving alcohol.

Alcohol was involved in 22% of deaths caused by prescription opioids and 18% of emergency department visits related to the misuse of prescription opioids in the United States in 2010.¹ Screening and brief intervention for excessive alcohol use (ASBI) is an effective clinical prevention strategy for reducing excessive drinking, but it is underused in clinical settings. The purpose of this document is to familiarize health departments and healthcare providers with ASBI, discuss its usefulness for helping people who drink excessively who may be prescribed an opioid to drink less or stop drinking altogether while using opioid medications, and assist state health departments in supporting health systems and other community partners carrying out ASBI in various settings as a part of routine practice. A reference for routinely implementing ASBI in health systems is also included.

Why Is It Important to administer a screening and brief intervention for reducing alcohol use before prescribing opioids?

People who drink excessively who use prescription opioids are at greater risk of overdose and death due to the depressant effects of alcohol on the respiratory system and central nervous system. The risk of harm increases with the amount of alcohol consumed, but there is no safe level of alcohol use for people using opioids.^{2,3}

- The [2015–2020 Dietary Guidelines for Americans](#) recommend that if alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and two drinks per day for men—and only adults of legal drinking age.⁴ In addition, the Dietary Guidelines for Americans indicate that some people should not drink at all, including those who take certain prescription medications that could interact with alcohol.
- The [U.S. Food and Drug Administration](#) indicates that healthcare professionals should avoid prescribing opioids to people using central nervous system depressants, including alcohol.⁵

Excessive alcohol use includes

- Binge drinking: consuming 5 or more drinks for men or 4 or more drinks for women, per occasion.
- Heavy drinking: consuming 15 or more drinks per week for men or 8 or more drinks per week for women.
- Any drinking by pregnant women or people younger than the minimum legal drinking age of 21.

What Is ASBI?

ASBI can be delivered in person via a conversation, which is the traditional method, or electronically.⁶

- Traditional ASBI involves several steps:
 - Administering a [standardized set of screening questions](#) to assess the patient's drinking patterns.⁷
 - Providing individuals who drink excessively with face-to-face feedback about the risks of this behavior.
 - Talking with people who are drinking excessively about changing their drinking behavior, and referring those with a severe alcohol use disorder to specialized treatment.



Centers for Disease
Control and Prevention
National Center for Injury
Prevention and Control

LEARN MORE | www.cdc.gov/drugoverdose/prescribing/guideline.html

July 11, 2018

CS-201706



Morbidity and Mortality Weekly Report (MMWR)

[MMWR](#)



Alcohol Involvement in Opioid Pain Reliever and Benzodiazepine Drug Abuse-Related Emergency Department Visits and Drug-Related Deaths – United States, 2010

Weekly

October 10, 2014 / 63(40);881-885

Christopher M. Jones, PharmD¹, Leonard J. Paulozzi, MD², Karin A. Mack, PhD³ (Author affiliations at end of text)

Discussion

Alcohol was commonly involved in ED visits resulting from the abuse of OPRs or benzodiazepines as well as in deaths related to these drugs. Nearly one fifth of OPR abuse-related ED visits and more than one fourth of benzodiazepine abuse-related ED visits involved alcohol. Slightly more than one fifth of drug related deaths involved OPRs and alcohol and the same proportion applied to benzodiazepines and alcohol. Alcohol was more likely to be involved in single-drug class ED visits and deaths involving benzodiazepines compared with OPRs.

Alcohol involvement was higher in single-drug class ED visits for benzodiazepines compared with all ED visits involving benzodiazepines as well as single drug-class deaths for both OPRs and benzodiazepines compared with all deaths involving these drugs; this was especially pronounced for the benzodiazepine single-drug class deaths, for which 72.1% involved alcohol. This finding is consistent with the well characterized increase in central nervous system depression and overdose risk that results when alcohol is combined with these types of substances (5). It also indicates that benzodiazepines and weaker OPRs are less likely to cause such events without the additive effect of alcohol.

The percentage of alcohol involvement in ED visits for both OPRs and benzodiazepines was higher for men compared with women. Men report higher prevalence, frequency, and intensity of binge drinking compared with women, and this might have contributed to the higher percentage of alcohol involvement in ED visits among men seen in this study (3).

Center for Disease Control. Morbidity and mortality weekly report : MMWR. [Atlanta, Ga.] :U.S. Dept. of Health, Education, and Welfare, Public Health Service, Center for Disease Control. Jones CM, Paulozzi LJ, Mack KA; 65(40); 881-885

Methods

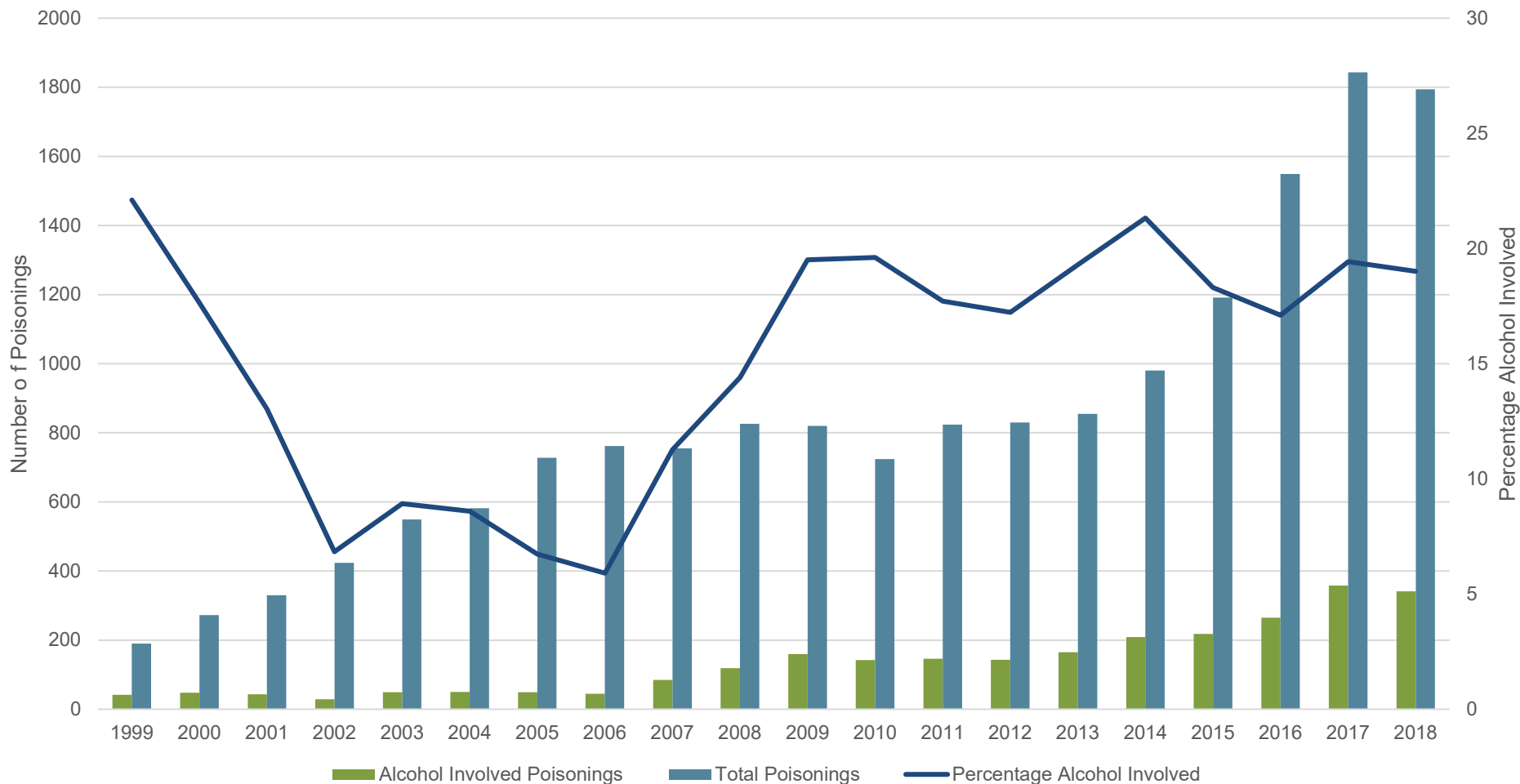
Methods

- **1999-2018 (20 years) Vital Records death certificate data**
- **ICD-10 underlying cause of death codes X40-X44**
 - **Heroin – T40.1**
 - **Prescription opioids – T40.2, T40.3**
 - **Other synthetic narcotics – T40.4**
 - **Cocaine – T40.5**
 - **Benzodiazepines – T42.2**
 - **Methamphetamine – T43.6**
 - **Alcohol – T51.0, T51.1, T51.9**

Results

Results

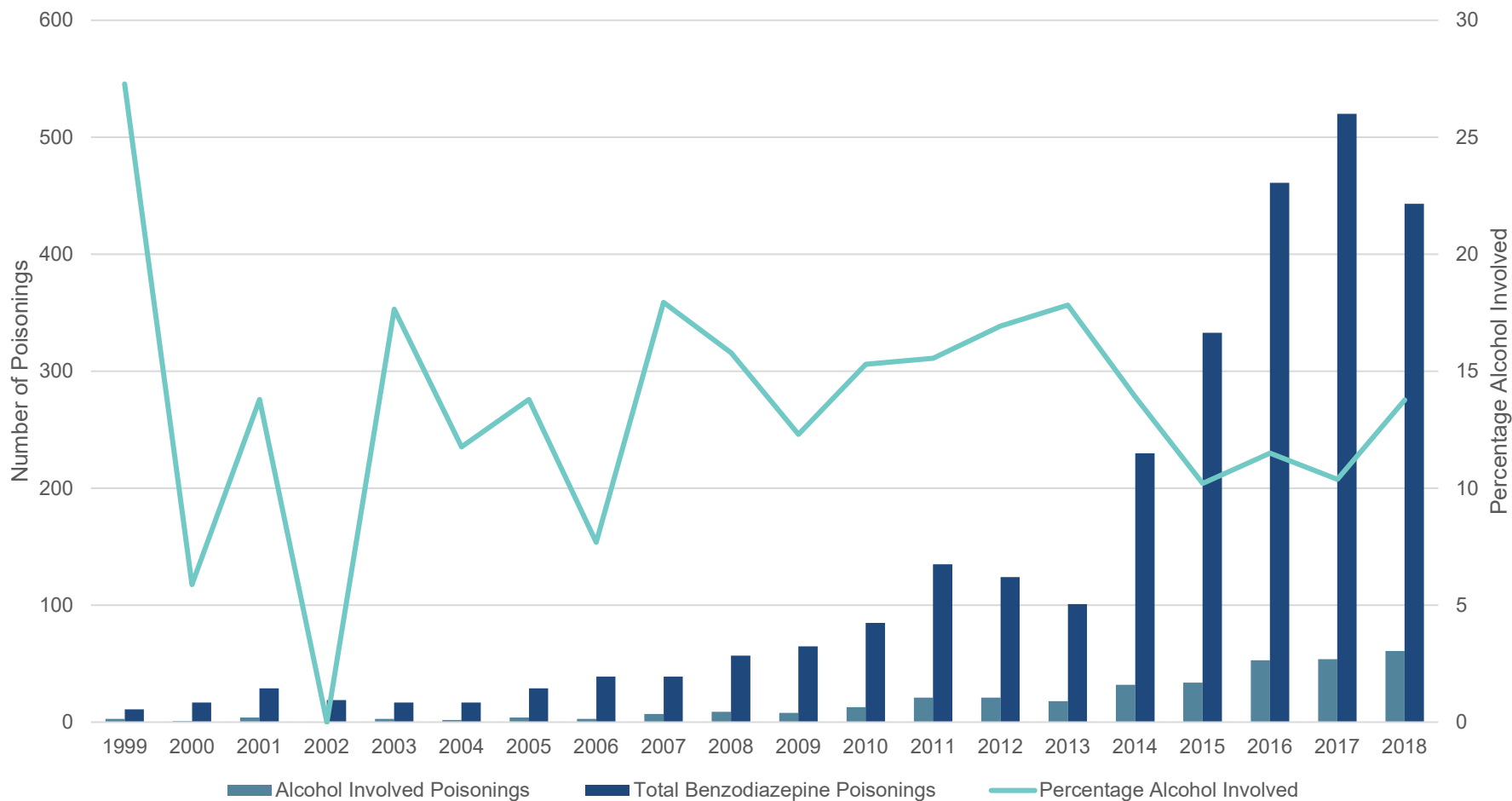
Alcohol Involvement in Drug Poisonings, North Carolina, 1999-2018



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2018,
Analysis by Injury Epidemiology and Surveillance Unit

Results

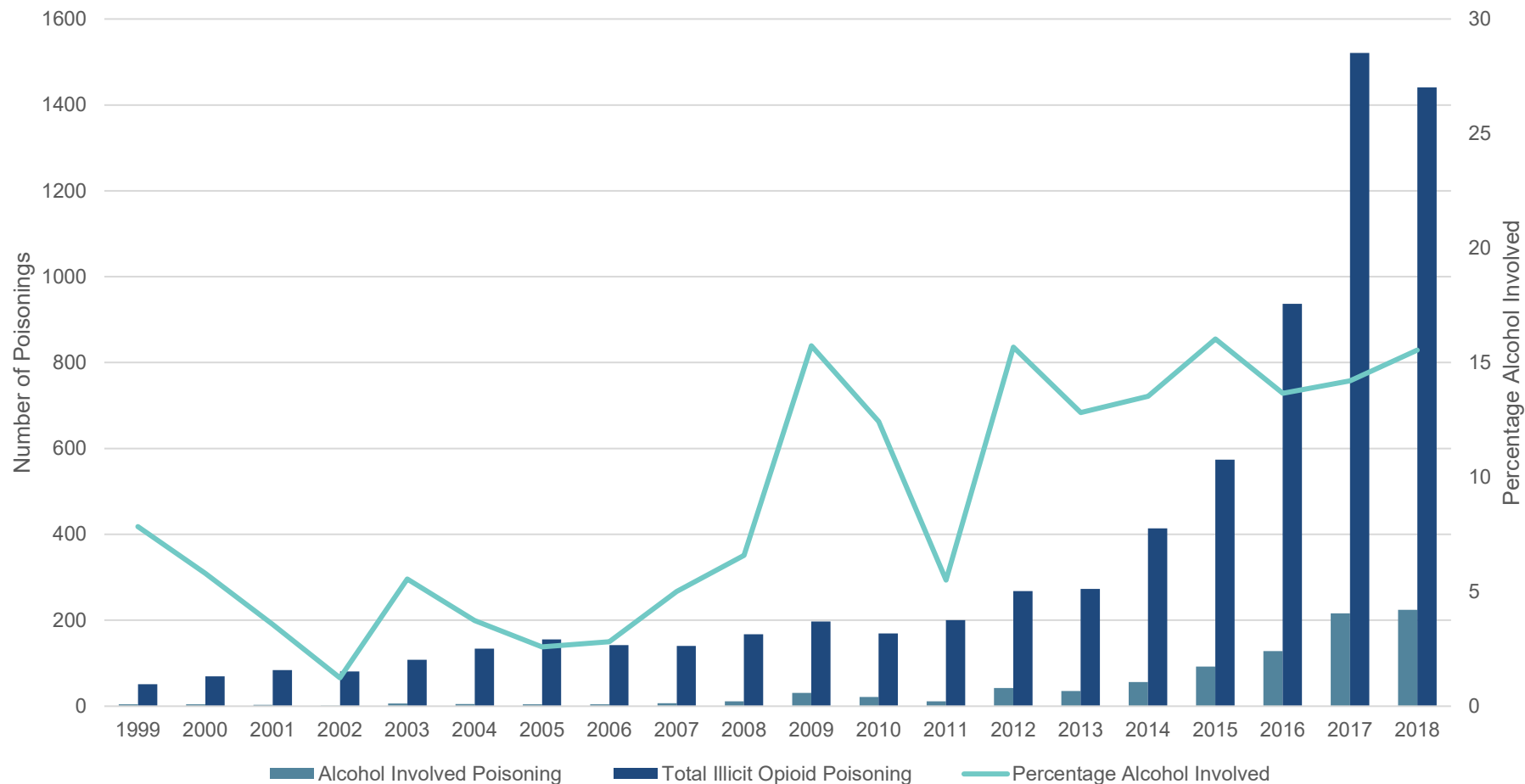
Alcohol Involved Benzodiazepine Poisonings, North Carolina, 1999-2018



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2018,
Analysis by Injury Epidemiology and Surveillance Unit

Results

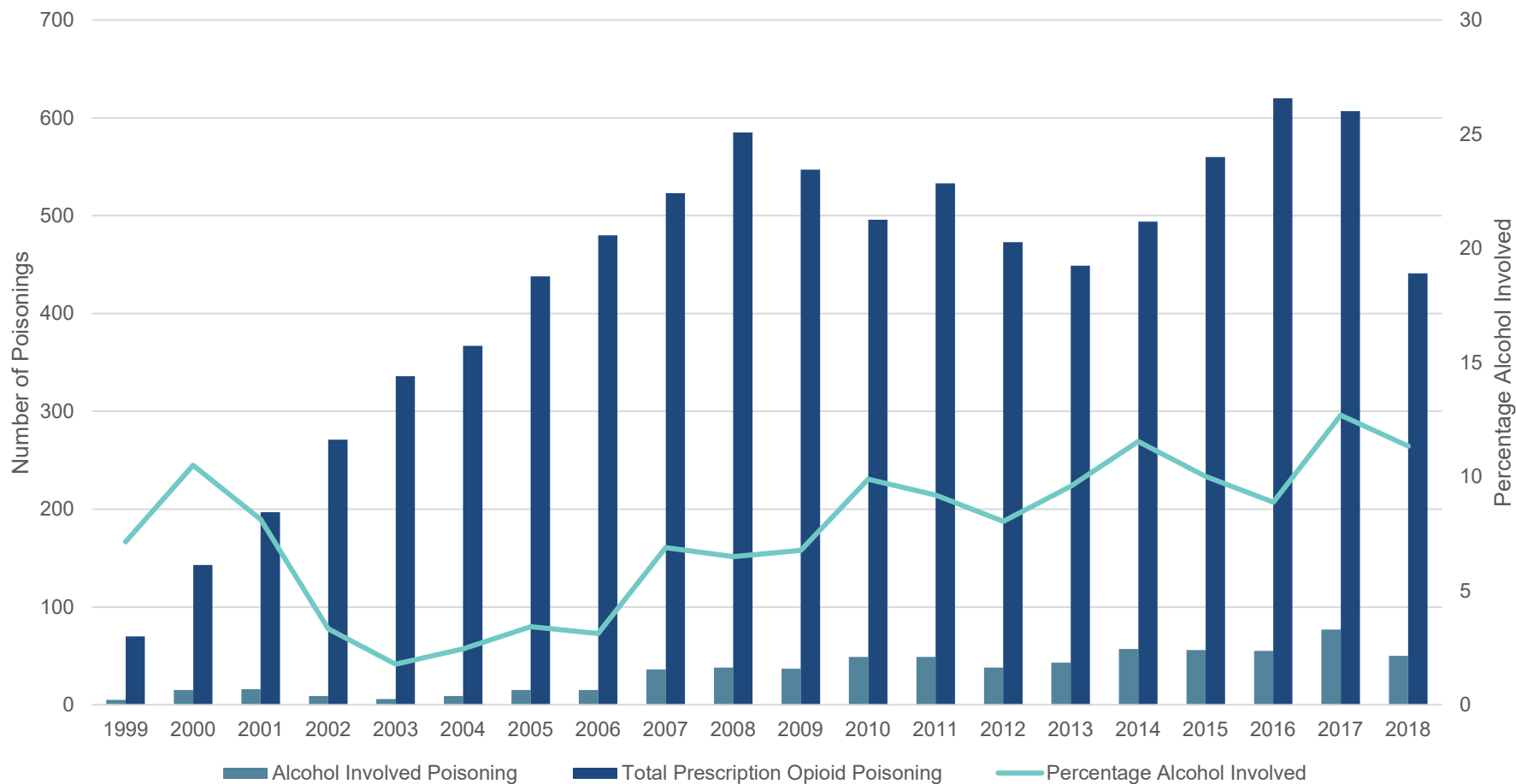
Alcohol Involvement in Illicit Opioid Poisonings, North Carolina, 1999-2018



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2018,
Analysis by Injury Epidemiology and Surveillance Unit

Results

Alcohol Involved Prescription Opioid Poisonings, North Carolina, 1999-2018



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2018,
Analysis by Injury Epidemiology and Surveillance Unit

Conclusions

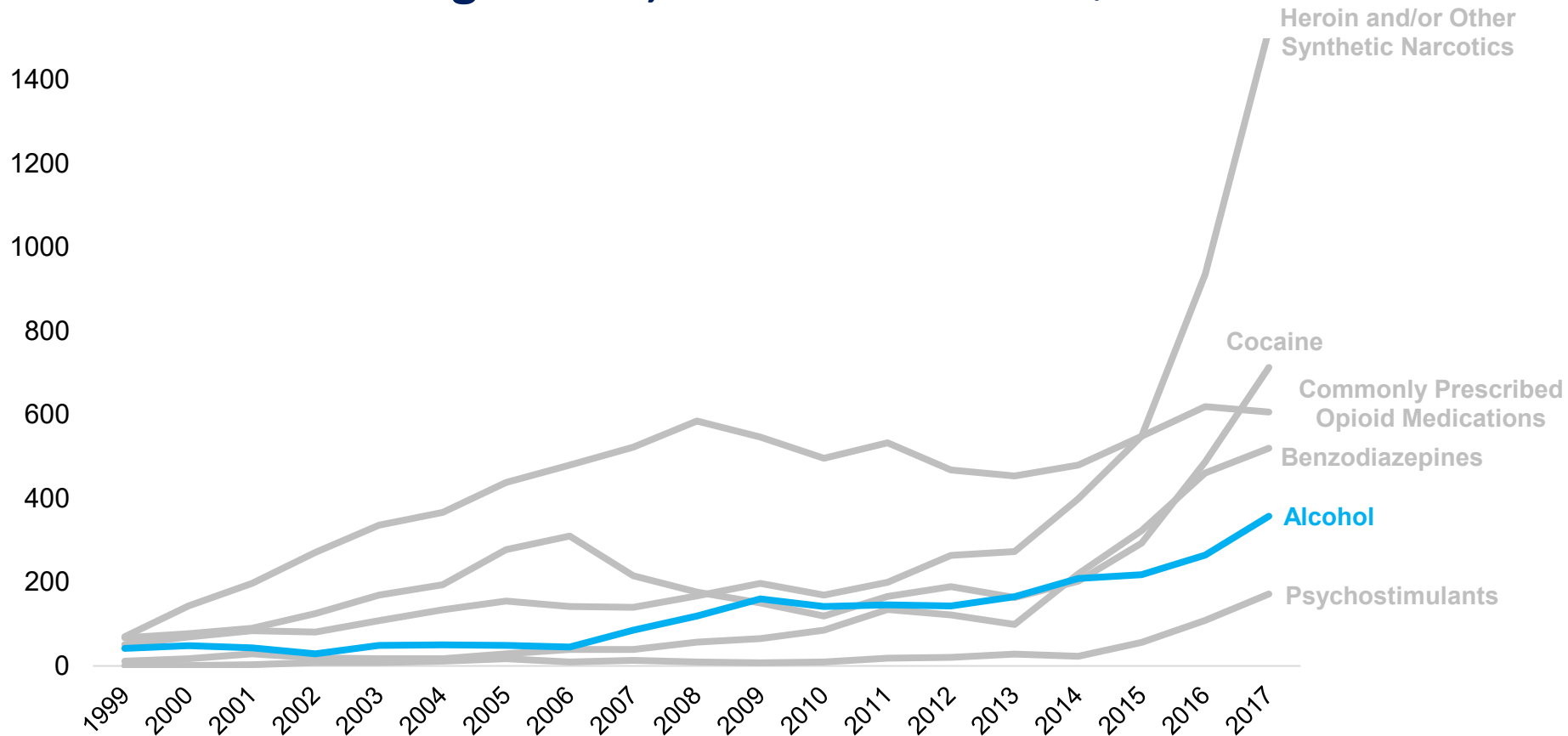
Conclusions

- Increasing percent of fatal poisonings also attributed to alcohol
- Largest percent increase seen among opioid poisonings involving illicit opioids (heroin and/or fentanyl/fentanyl analogues)

Final Thoughts...

- **Alcohol attributed vs alcohol detected?**
- **3+ Substances?**
 - Alcohol, Opioids, Benzodiazepines?
- **Differences in toxicology and death certificate coding?**
 - Expansion of ICD codes used?
- **Deaths are just the tip of the iceberg!**
 - What does alcohol involvement look like in our ED data?
Hospitalization?

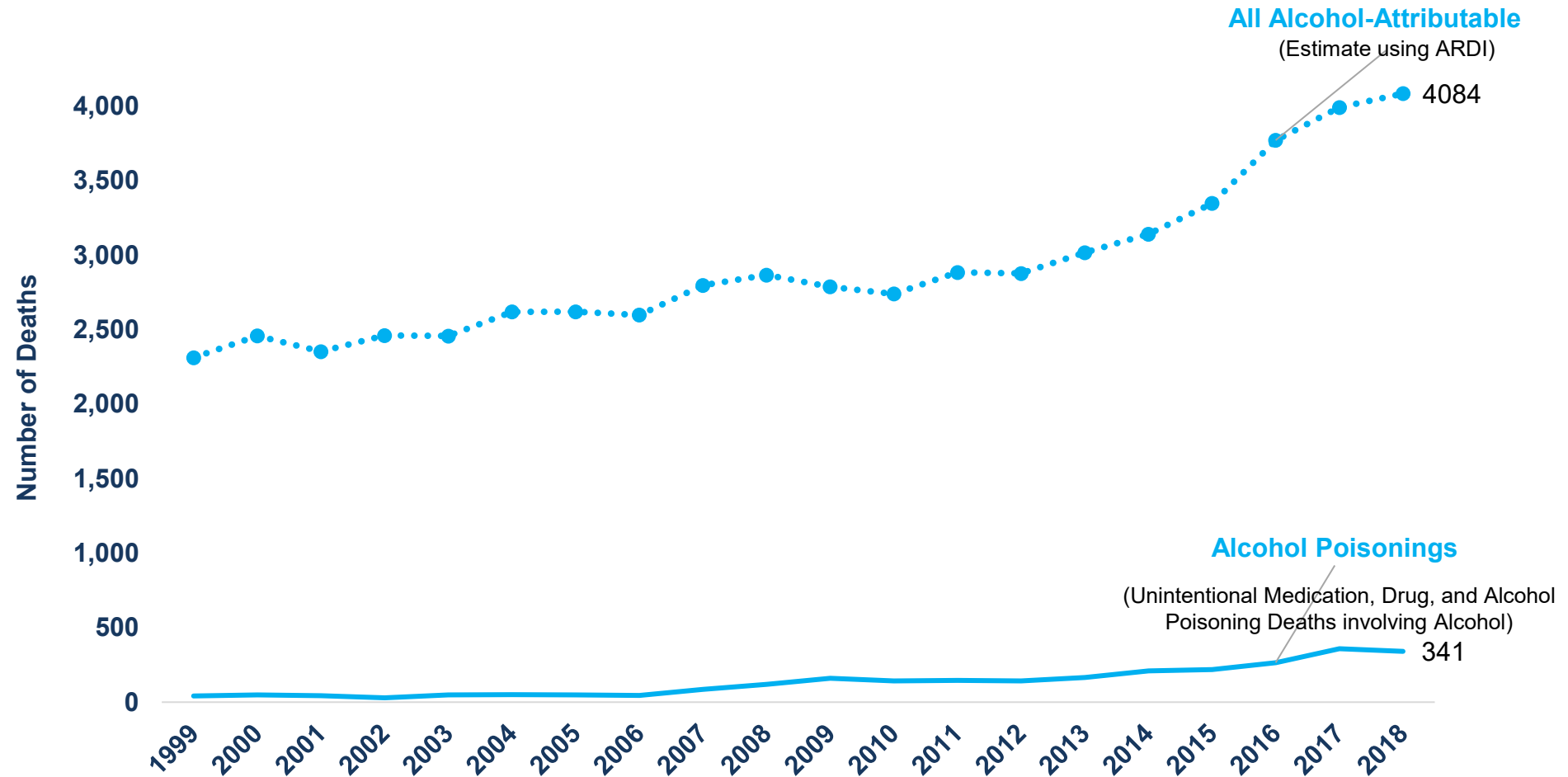
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Analysis by Injury Epidemiology and Surveillance Unit

Estimate of All Alcohol-Attributable Deaths (ARDI), North Carolina Residents, 1999-2018



Source: N.C. State Center for Health Statistics, Vital Statistics-Deaths, 1999-2018, Unintentional medication, drug, alcohol poisoning: X40-X45 with any mention of specific T-code for alcohol, and CDC's Alcohol-Related Disease Impact (ARDI).
Analysis by Injury Epidemiology and Surveillance Unit

Dashboard Layout

<https://public.tableau.com/profile/nc.injury.and.violence.prevention.branch#!/vizhome/NCAlcoholDataDashboard/Story>

Conceptual Model illustrating proposed relationships between access, consumption & exposure, and public health outcomes

Factors Influencing Alcohol Outcomes in North Carolina

Level of consumptions has been associated with alcohol-related health outcomes and economic costs in previous research (insert citations/footnotes). Two factors that influence level of alcohol consumption include alcohol control policies and alcohol retailer density



Low alcohol retailer density (for off-premise consumption) limits access to liquor/spirits, which then reduces consumption and thus reduces likelihood of excessive drinking in low density communities. Similarly, alcohol control policies have been shown to successfully limit availability of off-premise consumption of liquor, which then reduces consumption and thus negative outcomes (cite CDC).

Dashboard Layout

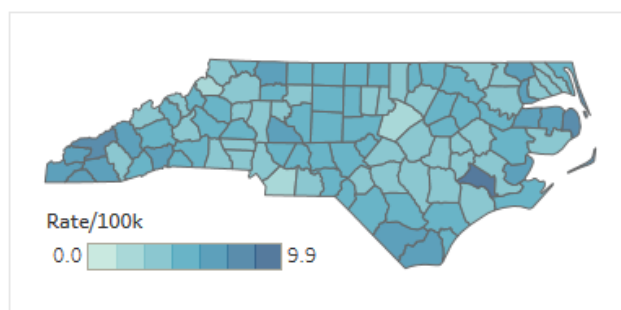
Data Tab

Available data stratified by county will be available here. Includes ED, death, density, and possibly cost of excessive alcohol use.

MAPS

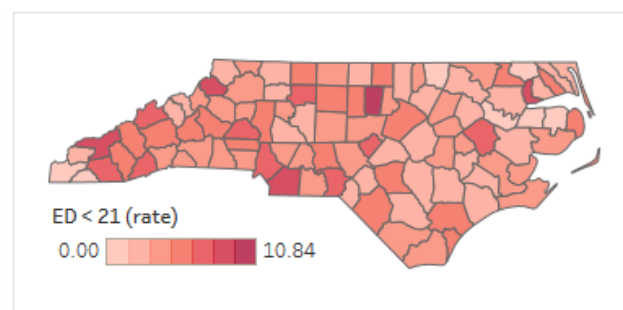
Alcohol-Related Deaths

3,994 NC deaths in 2,017



Emergency Department Visits (<21)

2,235 ED Visits, age < 21 in 2017 (2017 data only)

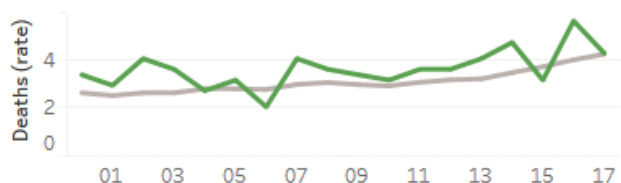


COUNTY DATA

Alcohol-Related Deaths

McDowell County

■ McDowell
■ NC



County Data Table

	McDowell	NC
Total Death #	289	52,137
Deaths (rate)	5.56	3.95
Deaths (count)	25	3,770
ED < 21 (rate)	5.6	5.0
ED < 21 (count)	25	4,746
Economic Cost	\$33M	\$7,034M

Footer text. Injury Epi. Etc.



Questions?

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