

# Deaths related to opioids and other drugs

## Annual Report 2021

### *Berrien County*

**This report is in memory of those who lost their life or a loved one to substance use. These losses must motivate us all to prevent future deaths.**

**Purpose:** This data was collected by the Office of the Medical Examiner (MEO) in the Department of Pathology at Western Michigan University Homer Stryker M.D. School of Medicine (WMed). Unless otherwise noted, data is from 2021 and includes deaths where drugs were the immediate cause of death. This report is meant to provide up to date statistics to those involved in efforts to reduce the number of drug-related deaths.

**Sections with the following headings are approximations and frequencies may be higher than what is reported:** Health Factors, Mental Health Factors, Social Factors, Children and Substance Use History.

**Sources:** All data was extracted from a Medical Examiner database, law enforcement (LE) reports, EMS runsheets, death certificates, obituaries, medical records, toxicology reports, and autopsy reports.

**Note:** B=Black/African American; H=Hispanic; ME=Middle Eastern; W=White; F=Female; M=Male

Please email questions to [pathology@med.wmich.edu](mailto:pathology@med.wmich.edu)

Office of the Medical Examiner  
Department of Pathology  
Homer Stryker M.D. School of Medicine

Deaths Related to Opioids and Other Drugs

Berrien County

All drug-related deaths

| Age | Race | Sex | Death certificate: Substances contributing to death                              | Injury Zip code |
|-----|------|-----|--|-----------------|
| 22  | W    | M   | cocaine metabolites, ethanol, fentanyl, promethazine                             | 49106           |
| 27  | W    | M   | fentanyl, para-fluorofentanyl, methamphetamine                                   | 49038           |
| 29  | B    | M   | fentanyl   | 49022           |
| 30  | W    | M   | fentanyl, methamphetamine  | 49085           |
| 32  | W    | F   | acetyl-fentanyl, fentanyl, methamphetamine, para-fluorofentanyl                  | 49117           |
| 32  | ME   | M   | diazepam, fentanyl, heroin, methamphetamine                                      | 49120           |
| 32  | W    | M   | fentanyl, heroin, methamphetamine  | Unknown         |
| 33  | W    | F   | fentanyl, methadone, methamphetamine, para-fluorofentanyl                        | 49022           |
| 33  | W    | M   | fentanyl, methamphetamine  | 49120           |
| 34  | B    | M   | ethanol, fentanyl, para-fluorofentanyl   | 49022           |
| 34  | W    | M   | fentanyl, para-fluorofentanyl  | 49085           |
| 34  | W    | M   | Pt. I: cardiac tamponade due to hemopericardium; Pt. II: methamphetamine*        | 49107           |
| 35  | W    | M   | ethanol, etizolam, methamphetamine   | 49107           |
| 37  | W    | M   | fentanyl, heroin, methamphetamine  | 49120           |
| 38  | B    | F   | acute ethanol intoxication*  | Unknown         |
| 39  | W    | M   | chlordiazepoxide, ethanol, fentanyl  | 49022           |
| 39  | W    | F   | fentanyl, hydroxyzine, methamphetamine, oxycodone, para-flourofentanyl, tramadol | 49022           |
| 40  | W    | M   | ethanol, methadone   | 49120           |
| 41  | W    | F   | ethanol, fentanyl, methamphetamine, para-flourofentanyl                          | 49120           |

Deaths Related to Opioids and Other Drugs

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All drug-related deaths

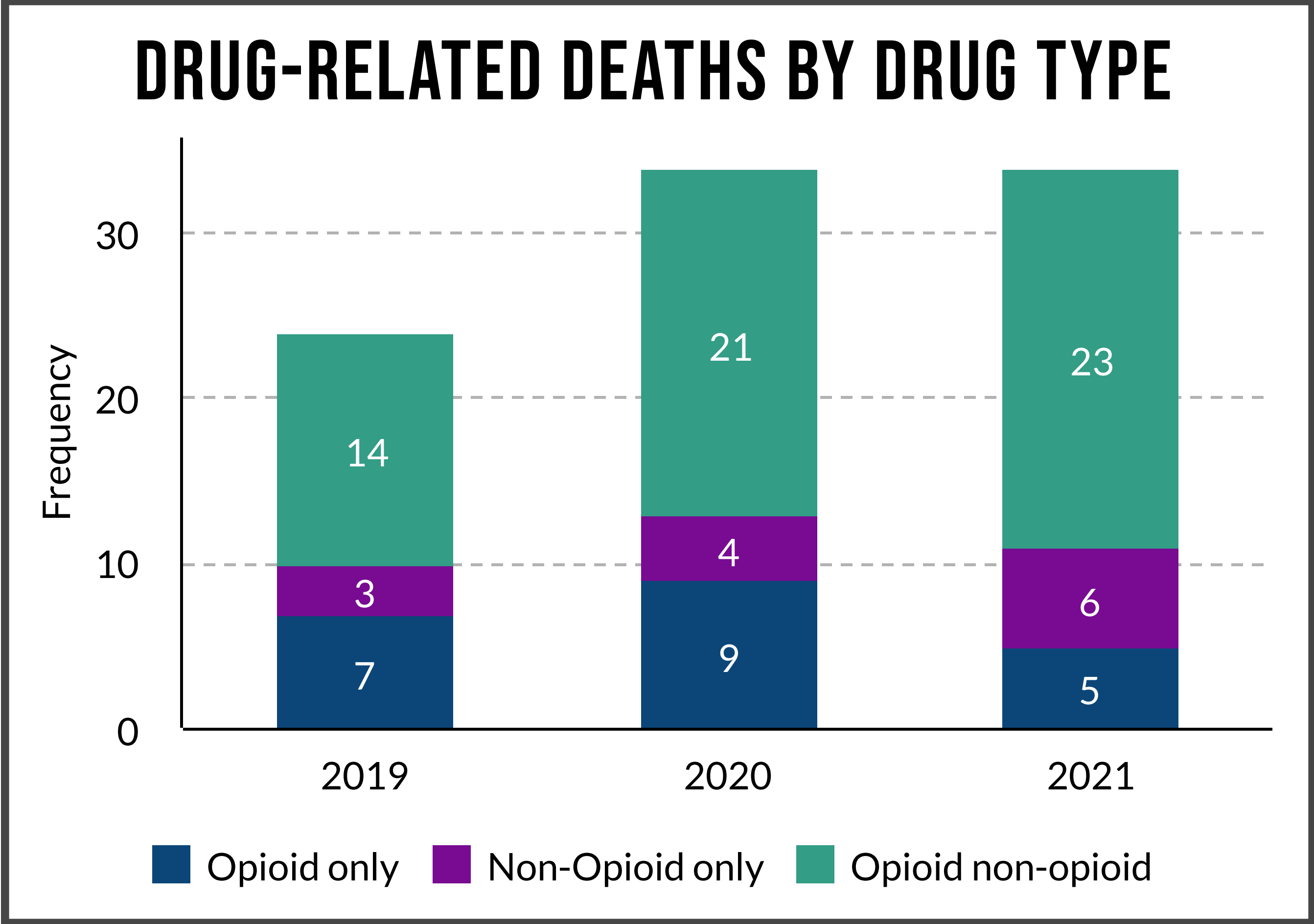
| Age | Race | Sex | Death certificate: Substances contributing to death   | Injury Zip code |
|-----|------|-----|---|-----------------|
| 45  | W    | F   | alprazolam, fentanyl, heroin  | 49107           |
| 45  | W    | M   | cocaine-metabolite, fentanyl, para-fluorofentanyl   | 49127           |
| 48  | W    | F   | methamphetamine   | 49002           |
| 48  | W    | F   | cocaine, methamphetamine  | 49111           |
| 52  | B    | M   | cocaine, fentanyl, tramadol   | 49022           |
| 53  | B    | M   | fentanyl  | 49022           |
| 54  | W    | F   | 7-amino clonazepam, alprazolam, dicyclomine, methadone, olanzapine, paroxetine, venlafaxine | Unknown         |
| 54  | H    | M   | fentanyl  | 49022           |
| 55  | W    | M   | alprazolam, diphenhydramine, fentanyl, hydrocodone, tramadol                                | 49128           |
| 57  | W    | M   | fentanyl, mitragynine   | 49085           |
| 57  | W    | M   | fentanyl, methamphetamine   | 49127           |
| 58  | W    | M   | morphine, oxycodone   | 49038           |
| 58  | W    | M   | methamphetamine   | 49022           |
| 62  | B    | F   | acetaminophen   | 49022           |
| 67  | B    | F   | cyclobenzaprine, diphenhydramine, hydrocodone, gabapentin                                   | 49022           |
| 71  | W    | M   | 7-amino clonazepam, methadone   | 49120           |
| 72  | B    | M   | Pt. I: intracerebral hemorrhage; Pt. II: cocaine*   | 49022           |
| 73  | W    | M   | amphetamine, methamphetamine  | 49128           |

\*Not included in report

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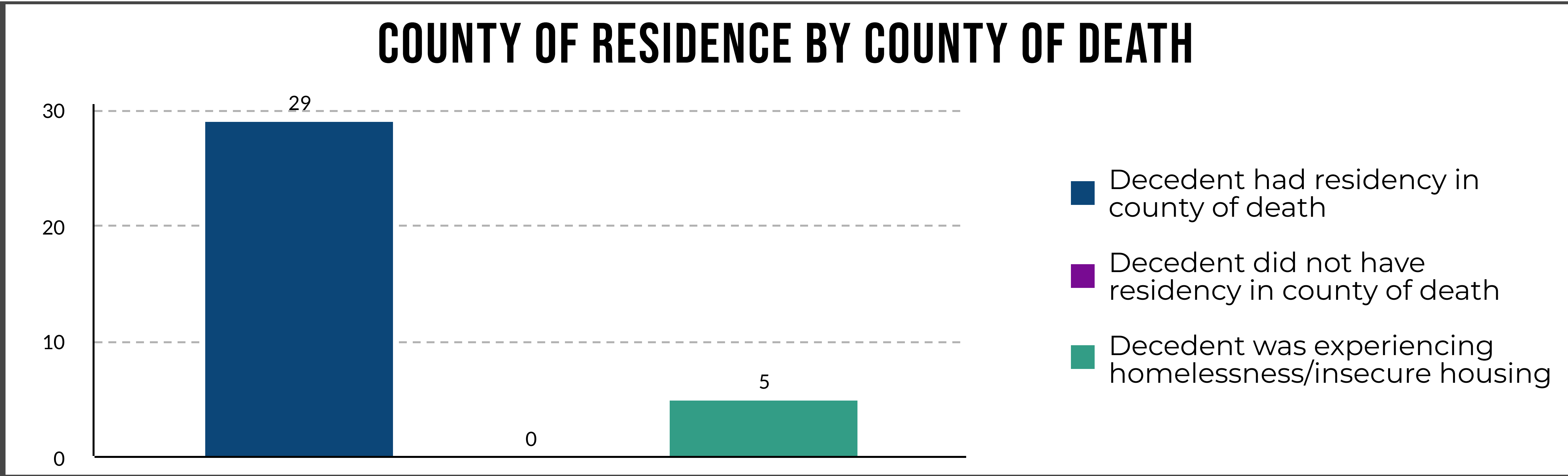
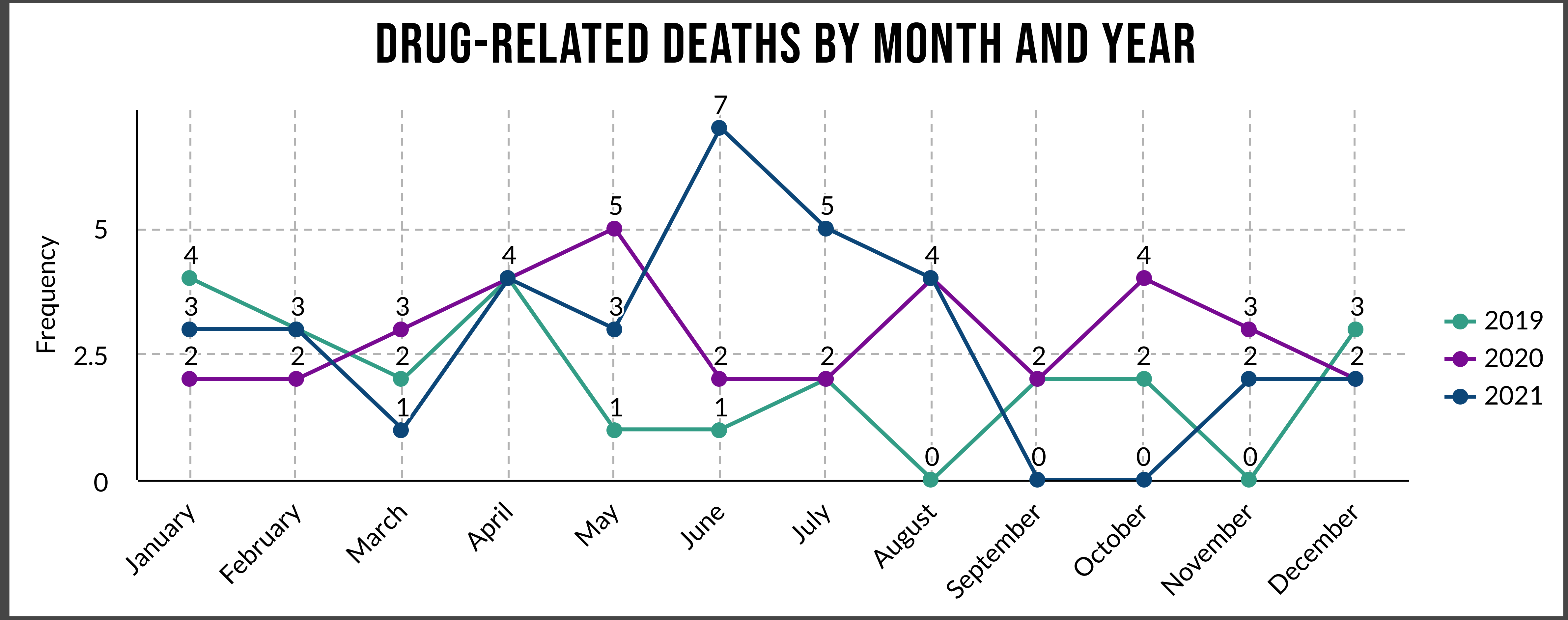
Total Drug-Related Deaths



| Year | Total deaths | Deaths per 10,000 |
|------|--------------|-------------------|
| 2019 | 24           | 1.6               |
| 2020 | 34           | 2.2               |
| 2021 | 34           | 2.2               |

Percent change

0% from 2020 to 2021

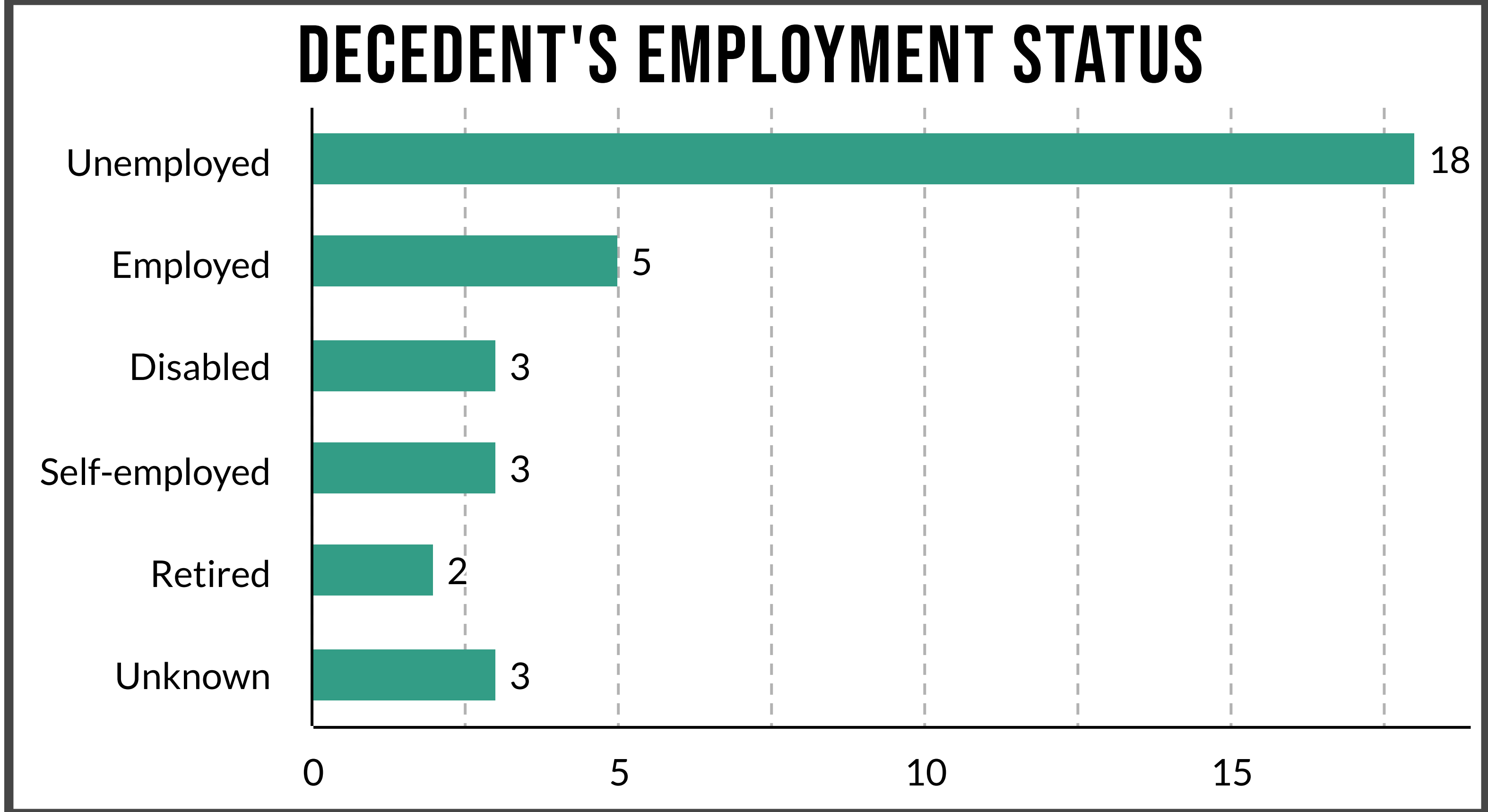


# Deaths Related to Opioids and Other Drugs

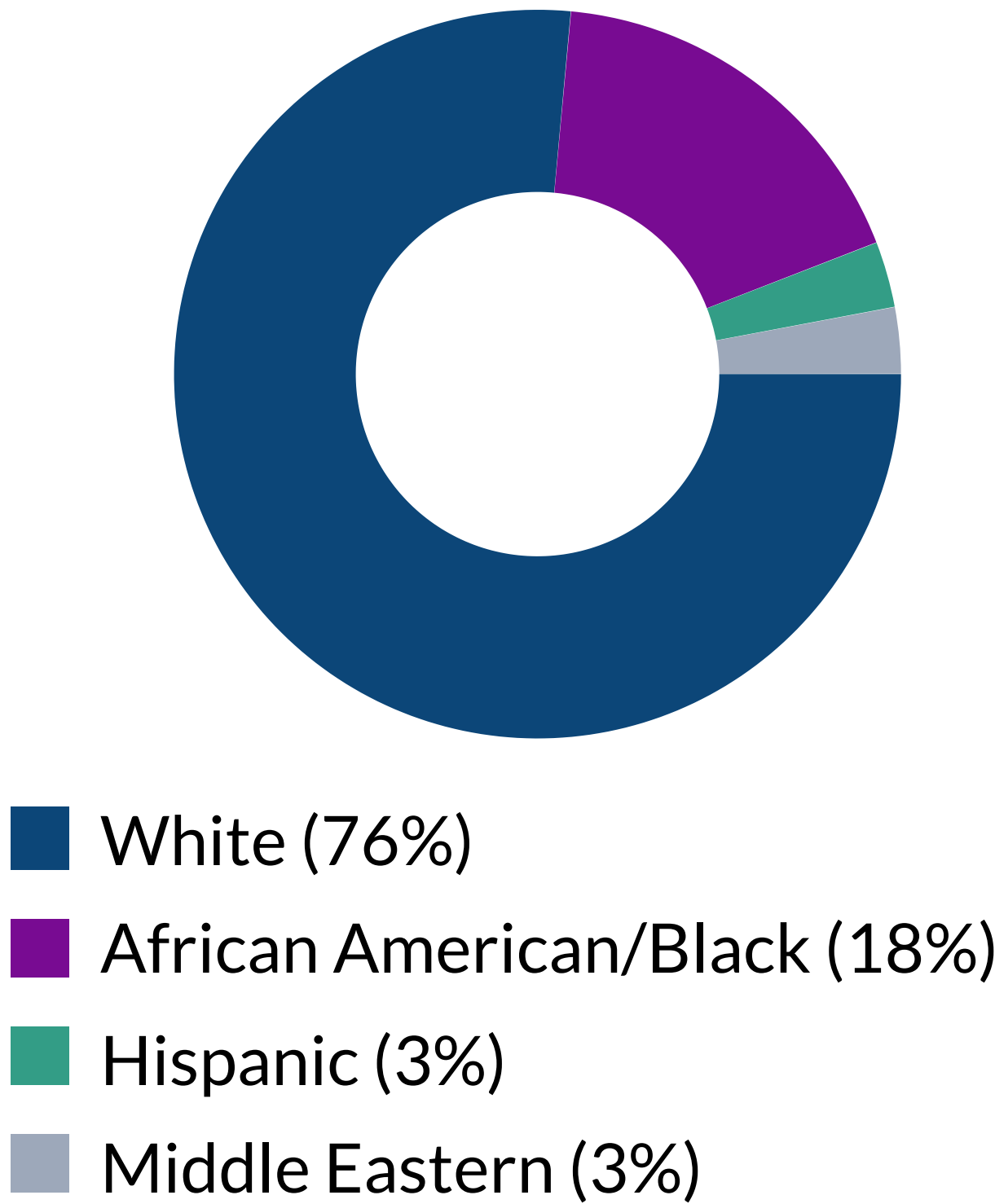
Berrien County

## Demographics

DECEDENT'S EMPLOYMENT STATUS



RACE



SEX

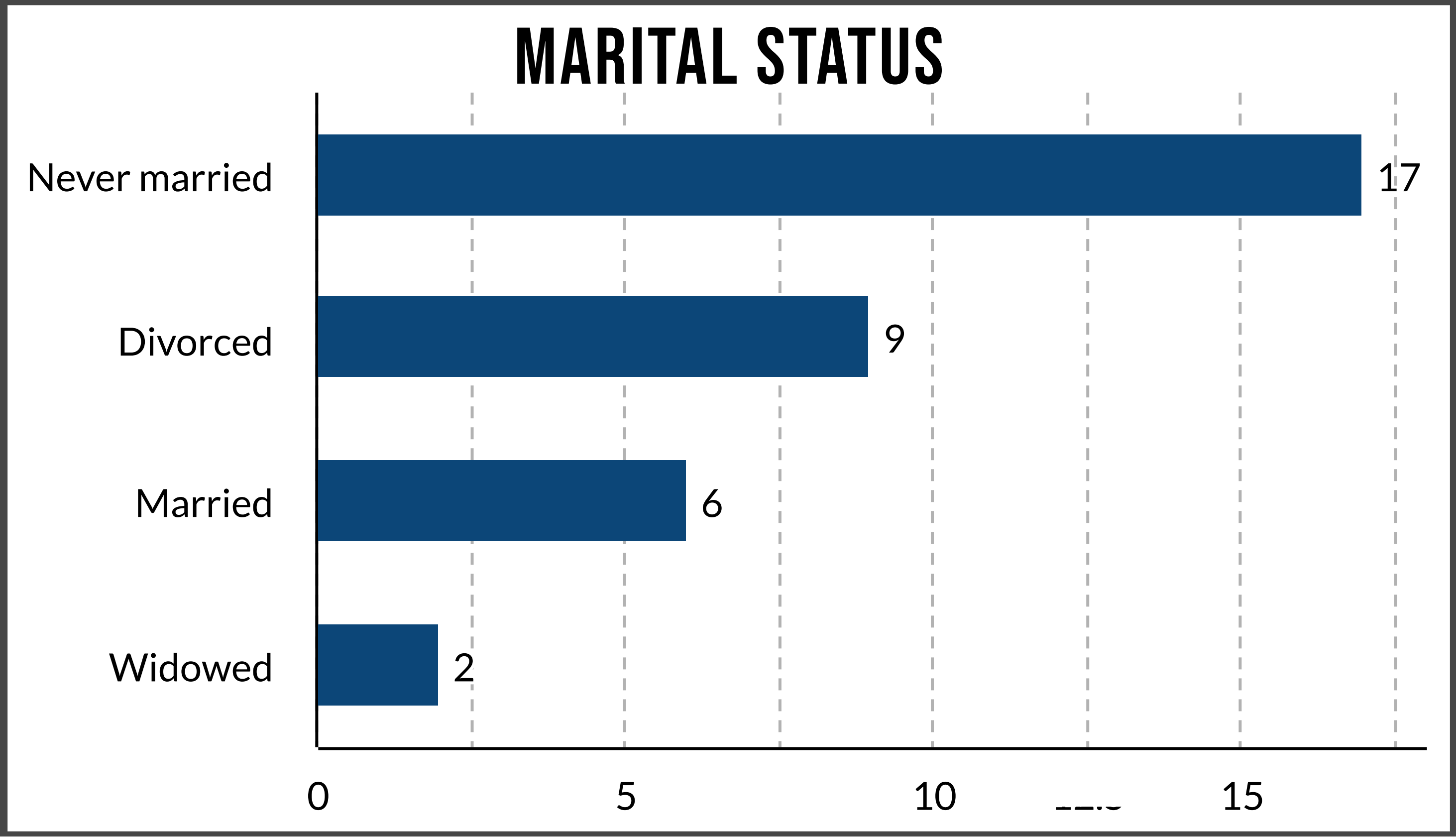


29%



71%

MARITAL STATUS



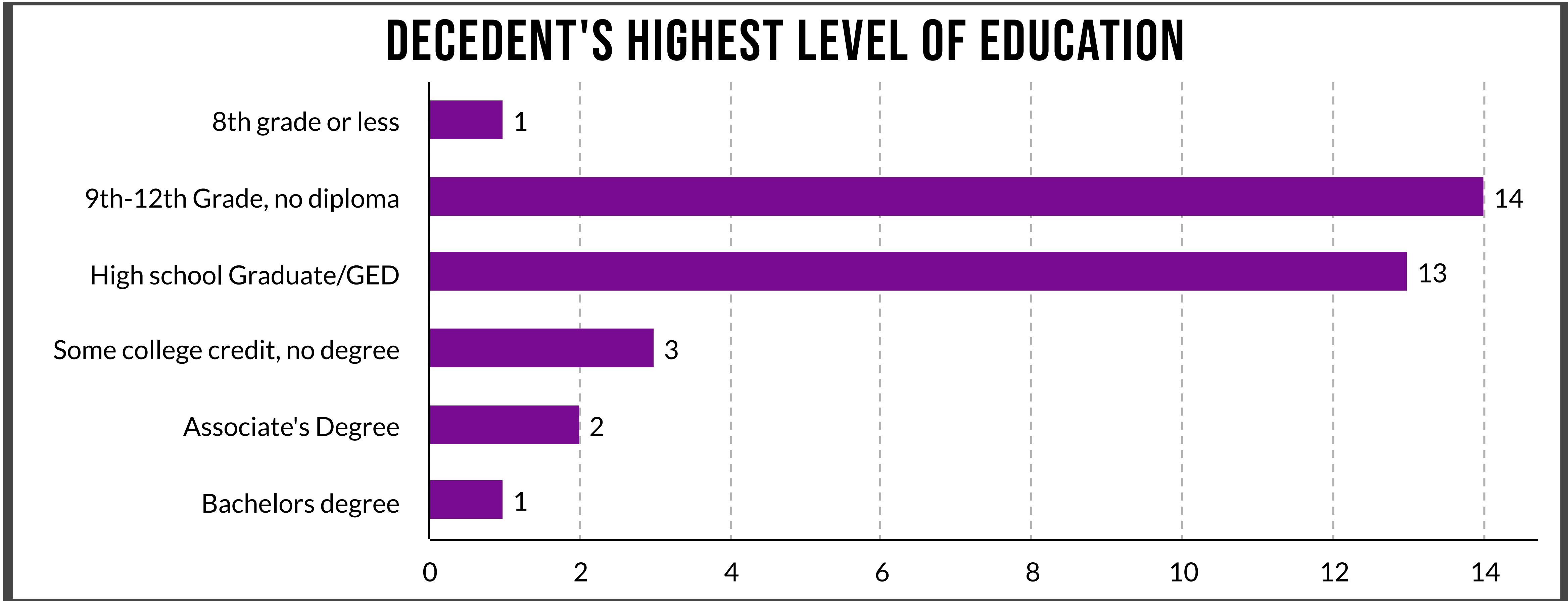
AGE

Minimum Age  
22 years

Maximum Age  
73 years

Average Age  
45 years

DECEDENT'S HIGHEST LEVEL OF EDUCATION



# Deaths Related to Opioids and Other Drugs

Berrien County

## Health Factors

### MOST COMMON AILMENTS\*

Pain (50%)\*\*

Lungs\*\*\* (44%)

Hypertension (32%)

Heart\*\*\*\* (18%)

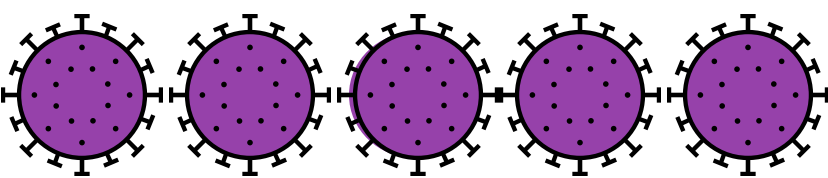
Diabetes (9%)

\*Decedents may be represented in more than one category.  
Only illnesses with diagnosis by a medical professional are included.

\*\*Pain includes knee and back pain, arthritis, neuropathy, migraine

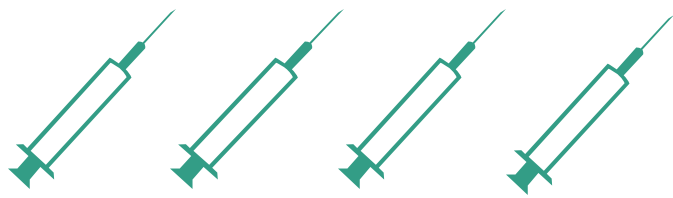
\*\*\*Lung includes asthma and COPD

\*\*\*\*Heart includes CHF, CAS, endocarditis, and MI (see end of page)



At least **4** decedents were **Hepatitis C** positive

**2** of these decedents were known to use **drugs intravenously**



Decedent used tobacco

**74%**



Decedent drank alcohol

**53%**



\*Moderate to heavy use

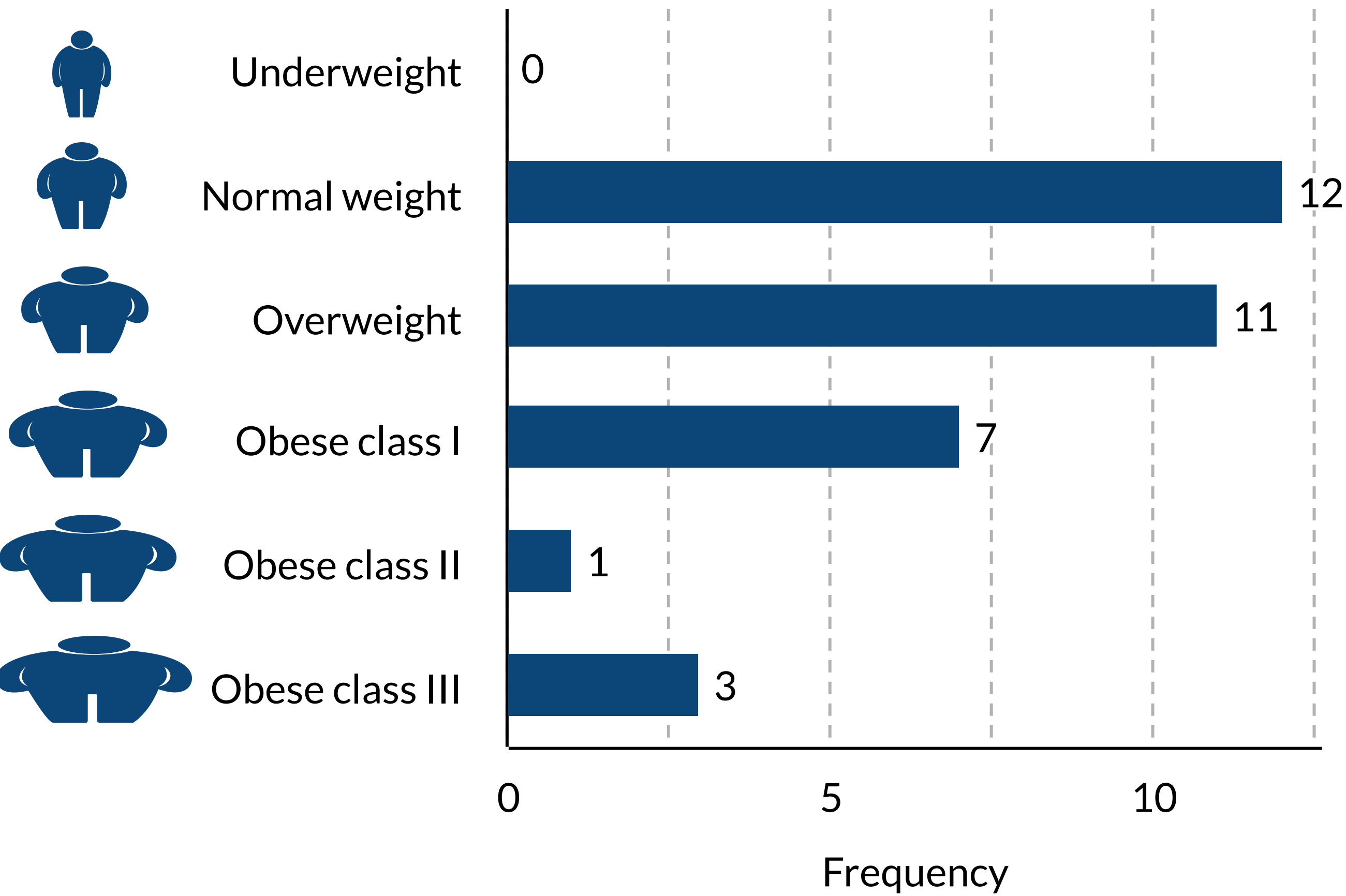
Decedent had a PCP\*

**56%**



\*Primary care physician

### BODY MASS INDEX (BMI)



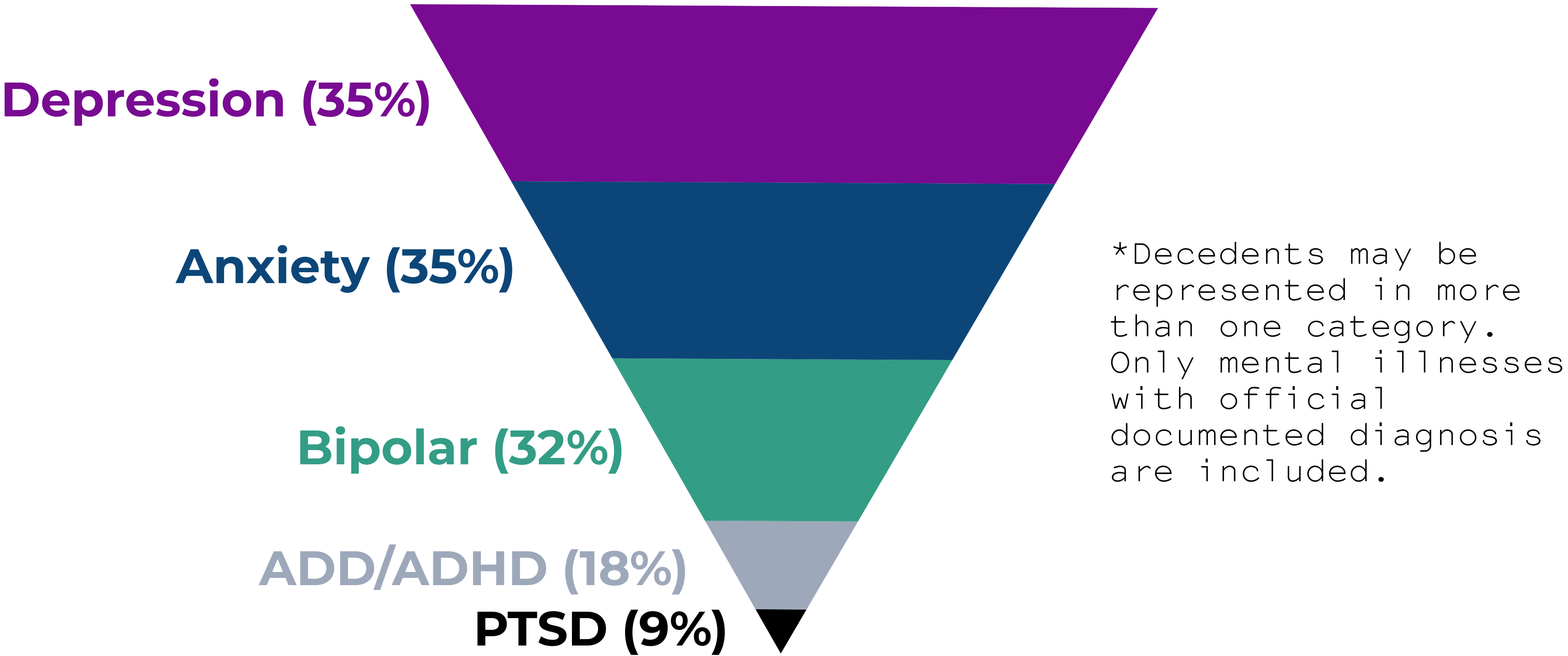
COPD=Chronic obstructive pulmonary disease; MI=Myocardial infarction; CAD=Coronary artery disease; CAS=Coronary artery spasm

# Deaths Related to Opioids and Other Drugs

Berrien County

## Mental Health Factors

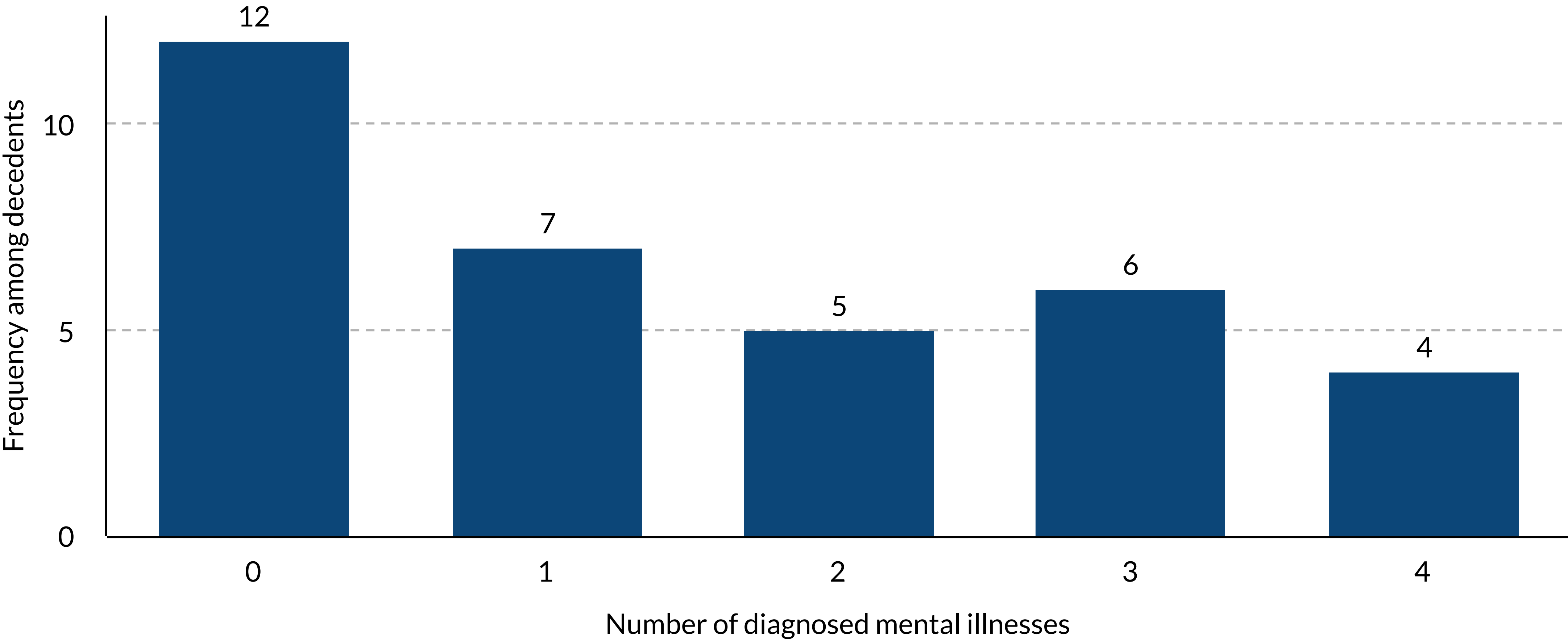
### MOST COMMON MENTAL ILLNESSES



### PERCENTAGE OF DECEDENTS



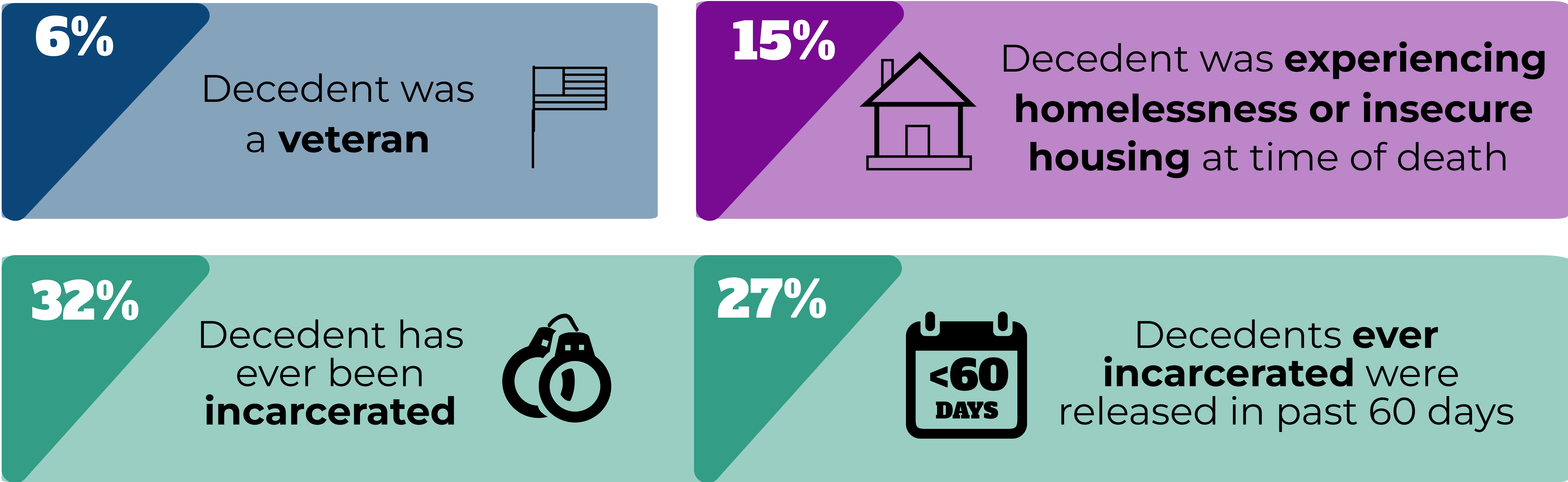
### NUMBER OF DIAGNOSED MENTAL ILLNESSES AMONG DECEDENTS



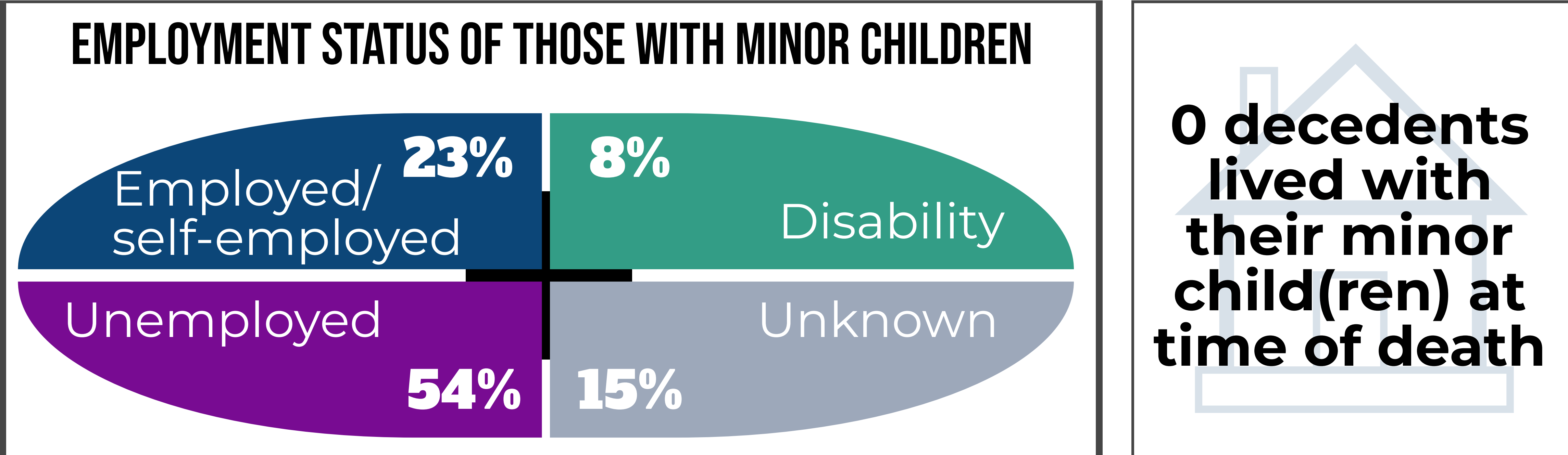
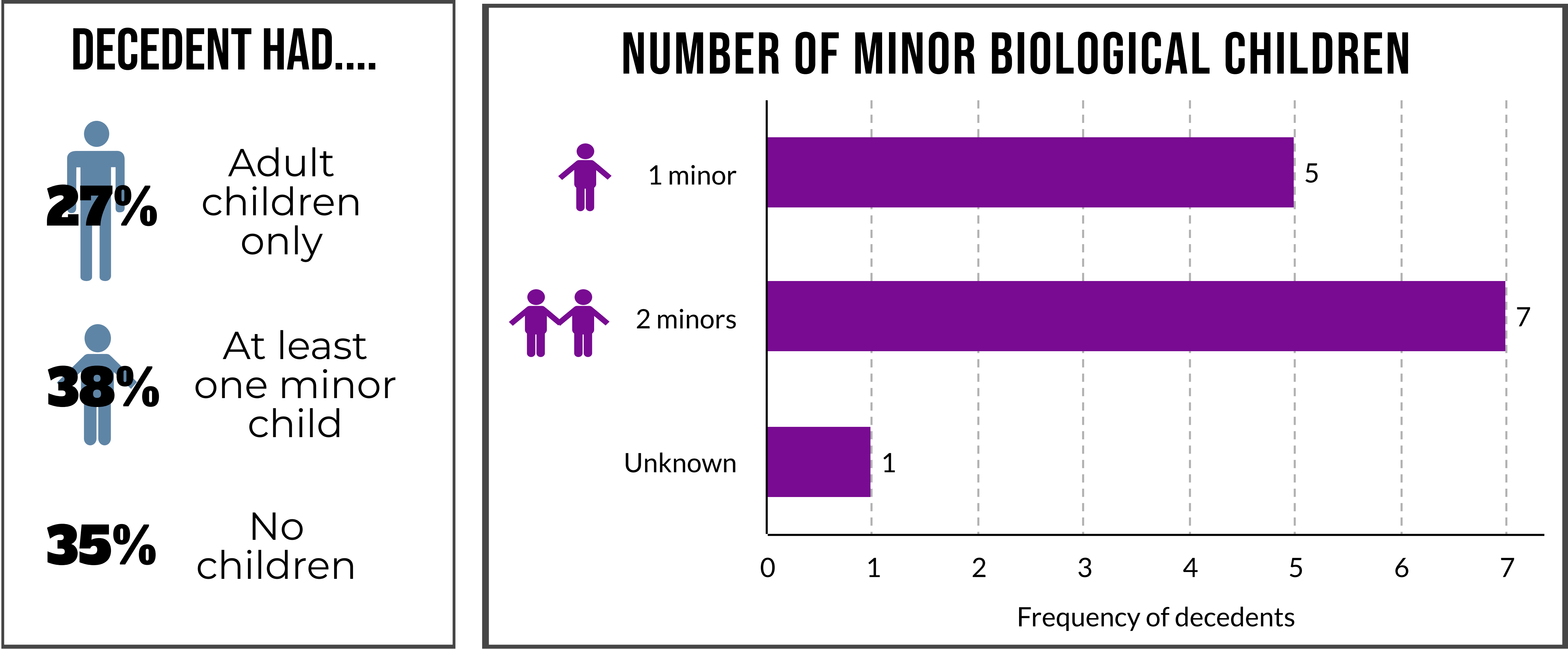
# Deaths Related to Opioids and Other Drugs

Berrien County

## Social Factors



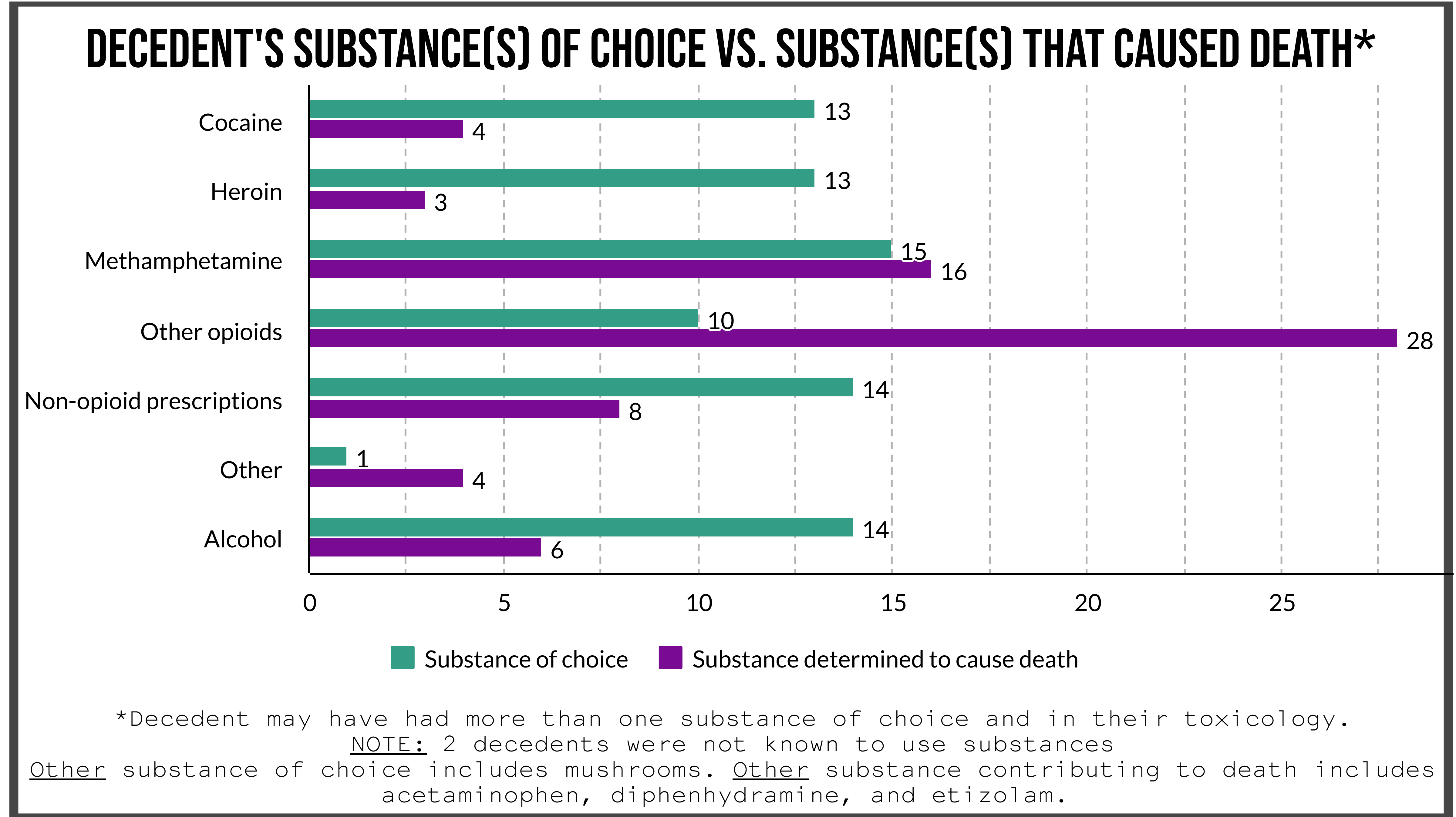
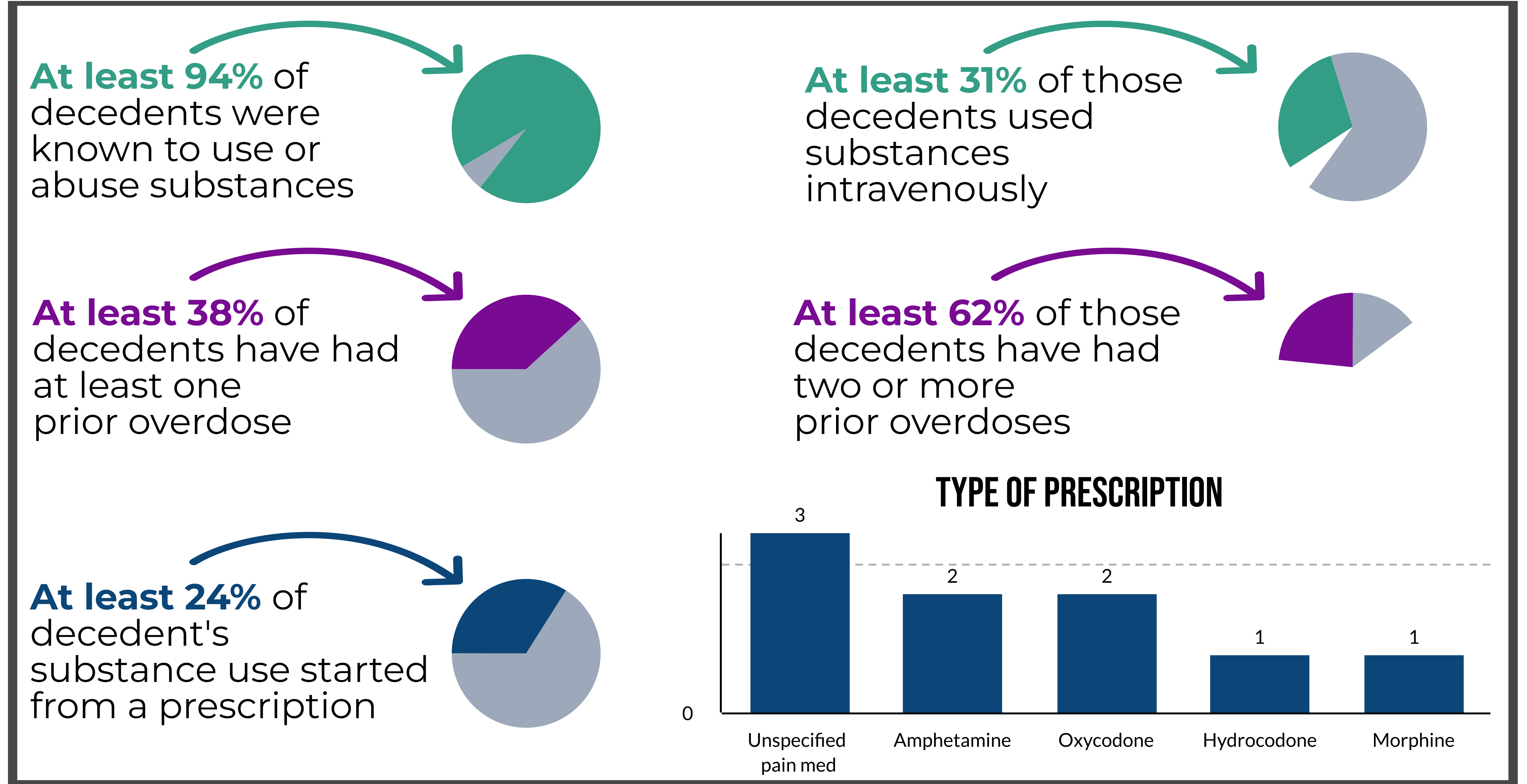
## Children



Deaths Related to Opioids and Other Drugs

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Substance Use History



Deaths Related to Opioids and Other Drugs

Berrien County

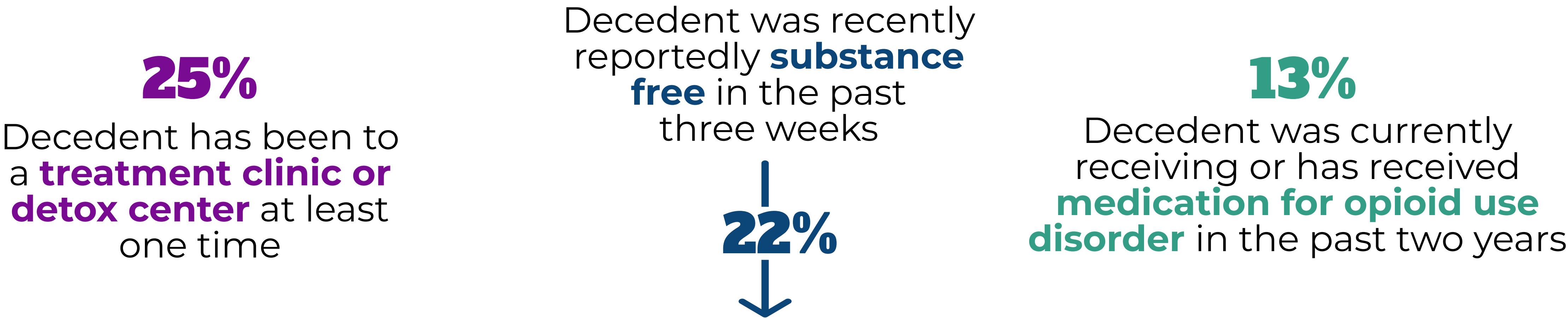
Substance Use History, cont.

PREFERRED METHOD OF ADMINISTRATION\*

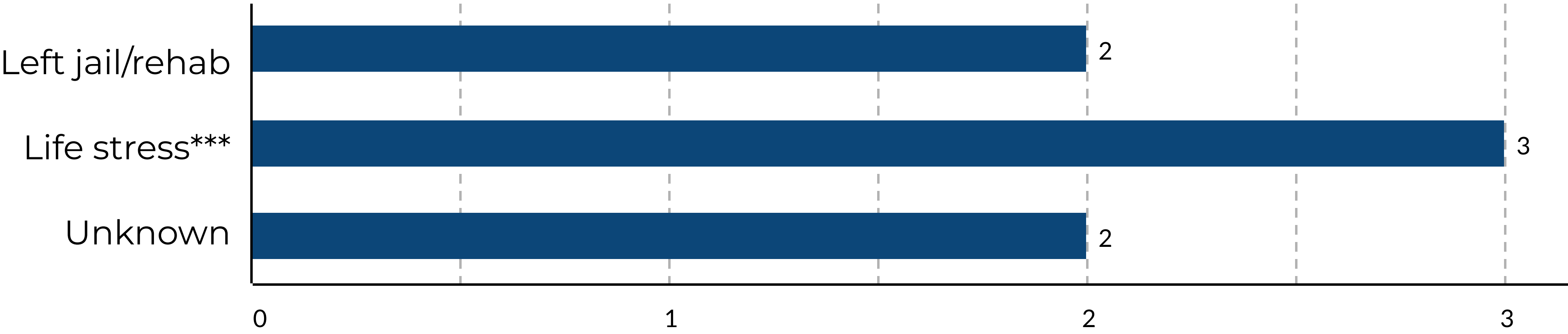
| Method      | Male (n=20) | Female (n=10) | White (n=25) | Black (n=5) | Total (n=30)** |
|-------------|-------------|---------------|--------------|-------------|----------------|
| Intravenous | 6           | 4             | 10           | 0           | 10             |
| Snort       | 5           | 1             | 3            | 3           | 6              |
| Smoke       | 4           | 3             | 7            | 0           | 7              |
| Transdermal | 0           | 0             | 0            | 0           | 0              |
| Huff        | 0           | 0             | 0            | 0           | 0              |
| Oral        | 8           | 3             | 10           | 1           | 11             |
| Unknown     | 2           | 1             | 3            | 0           | 3              |

\*Decedent may have had more than one preferred method of administration. Only includes decedents with a substance use history. \*\*Decedents of Hispanic (n=1) and Middle Eastern (n=1) descent are excluded.

RECOVERY HISTORY (N=32)\*



SUSPECTED REASON FOR RELAPSE\*\*

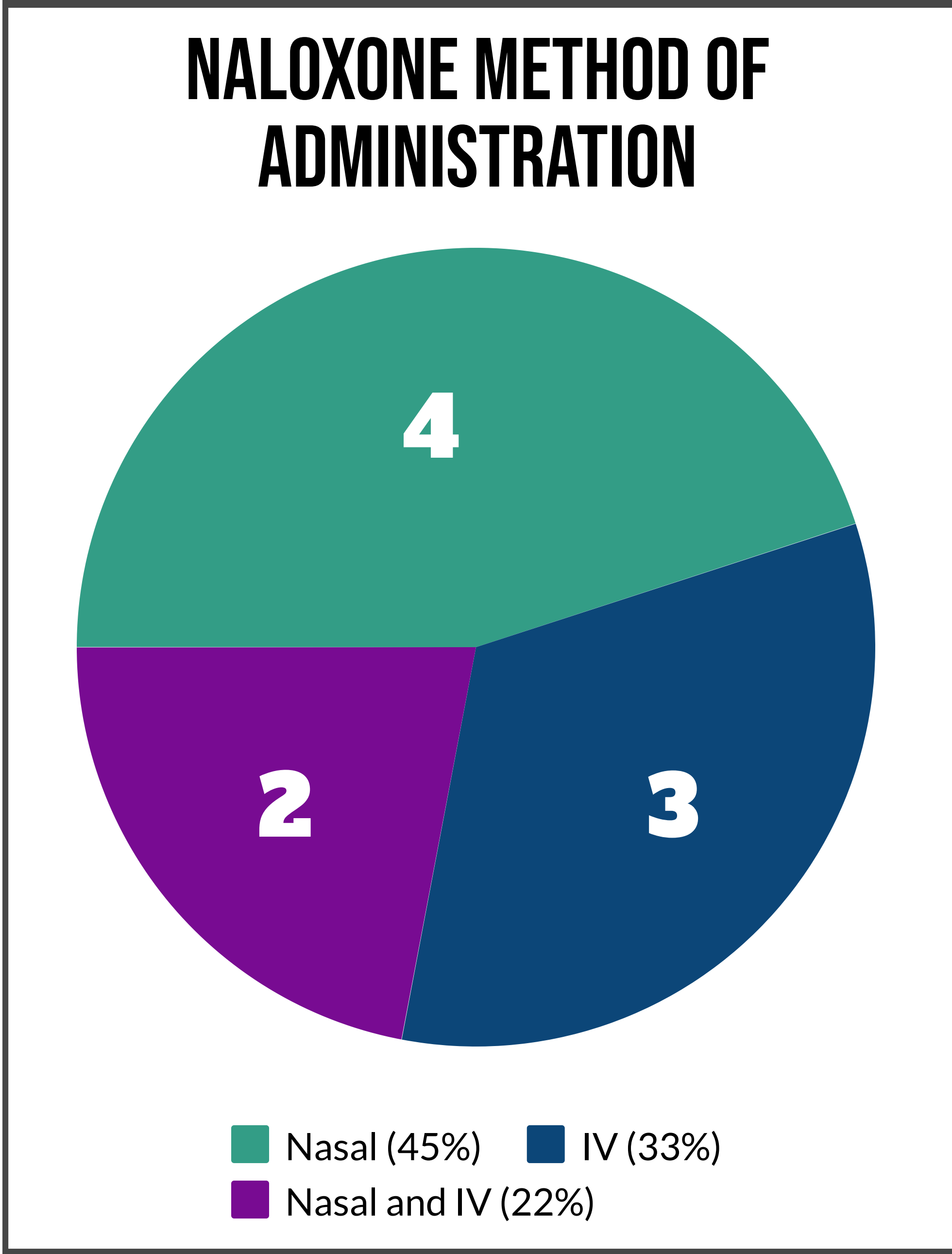
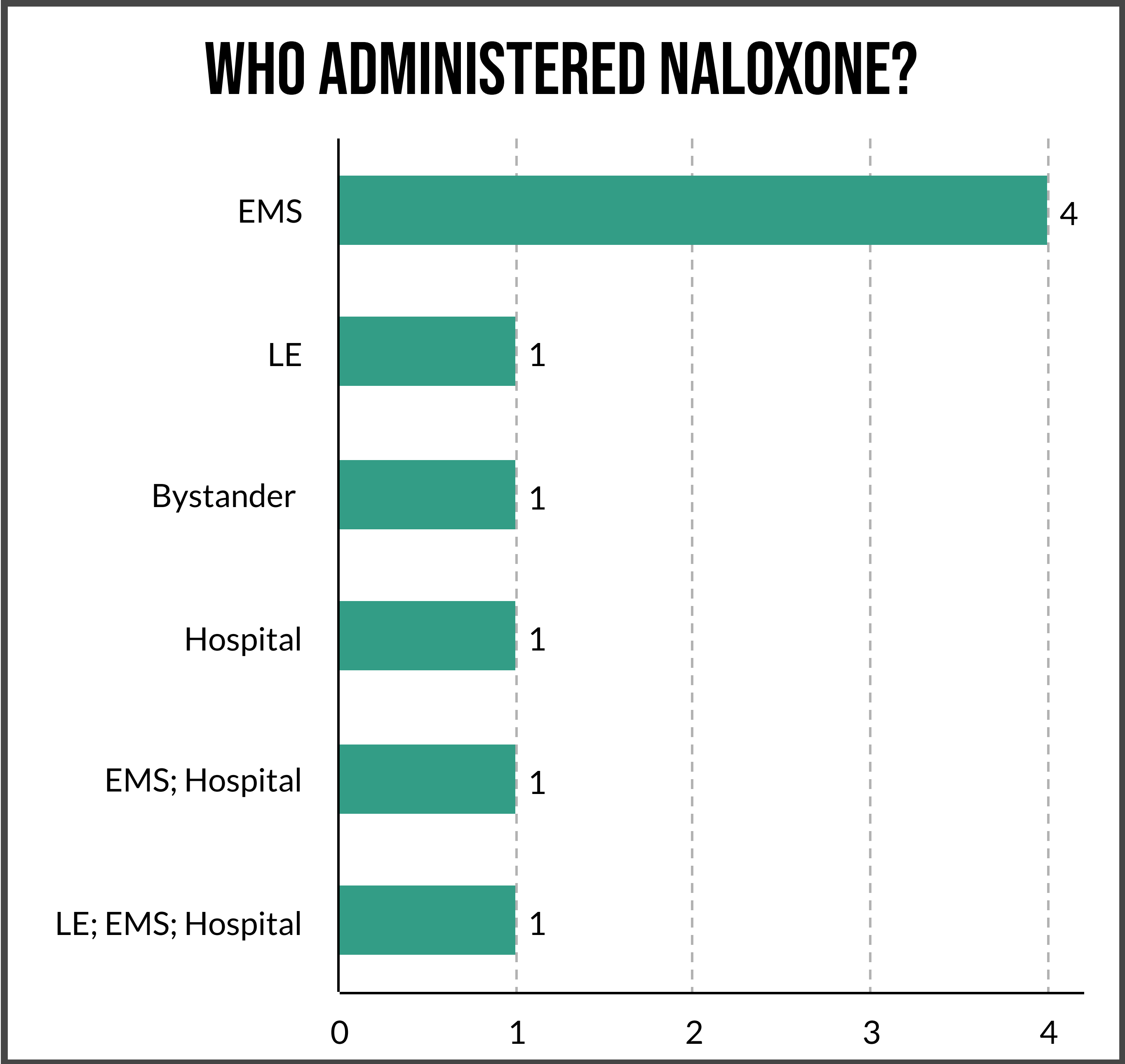
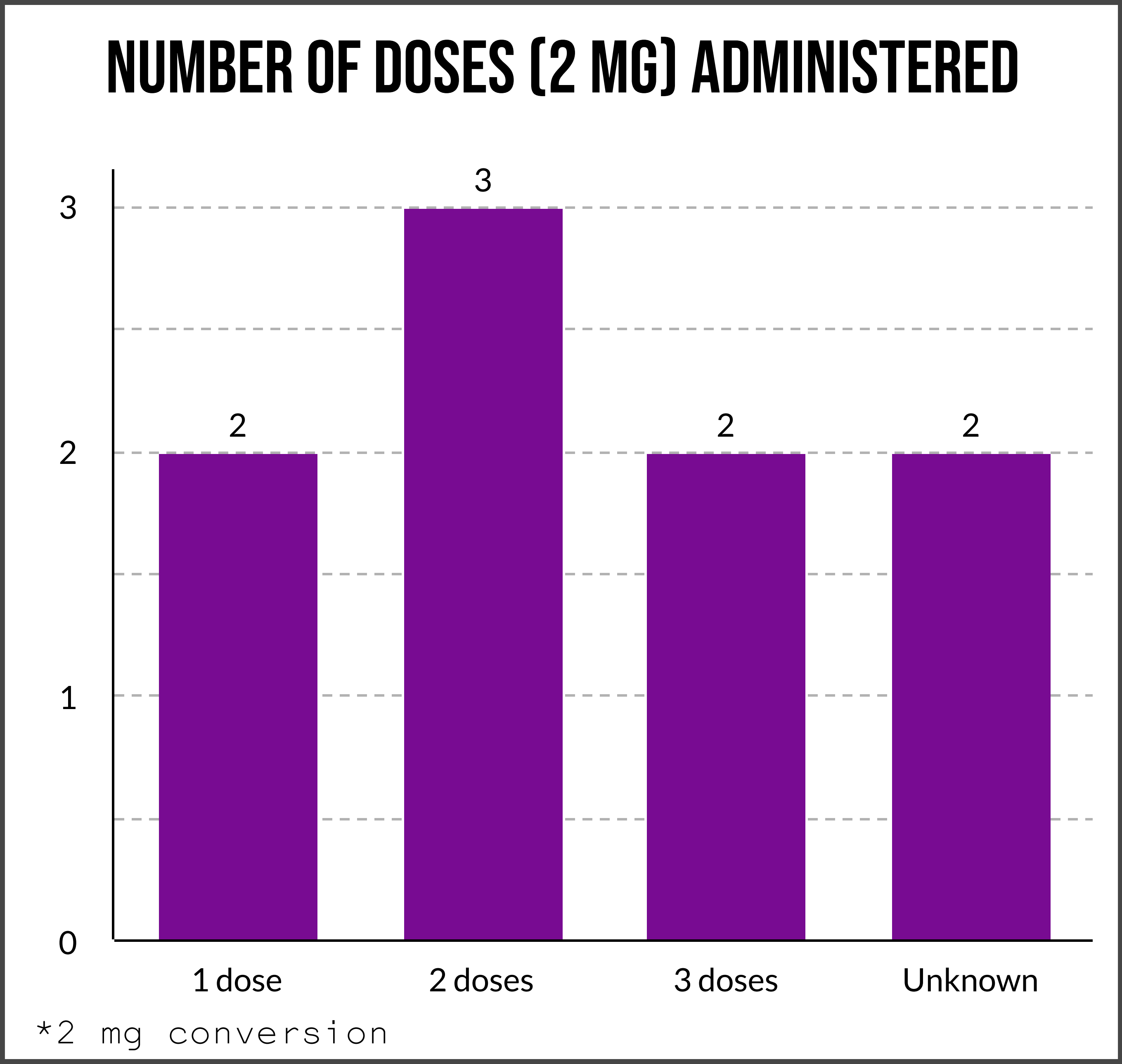
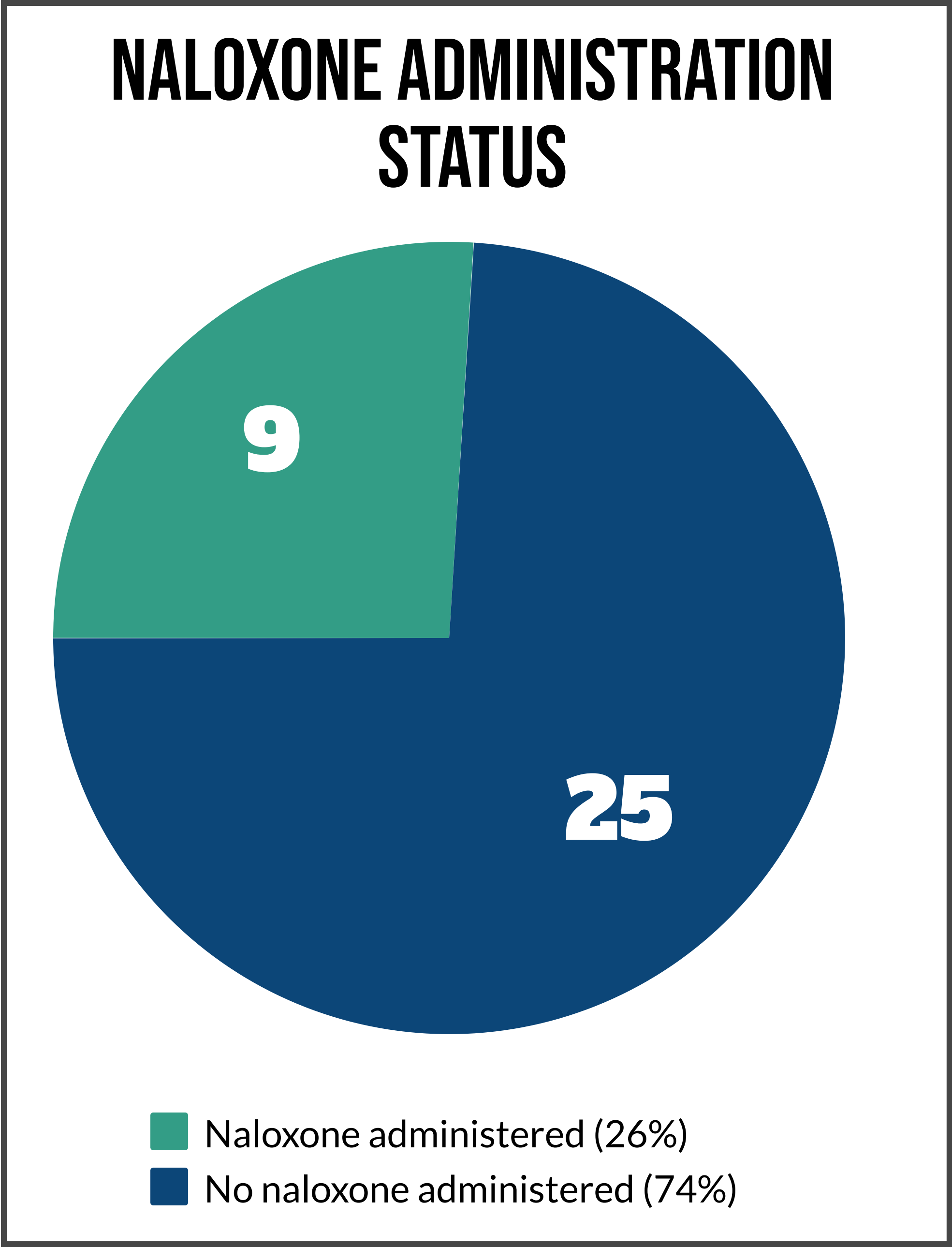


\*ONLY Decedents known to use substances are included.  
\*\*These factors were mentioned by those close to the decedent for why they may have begun to use substances again after being substances free for at least three weeks.  
\*\*\*Life stress includes severe pain and withdrawal.

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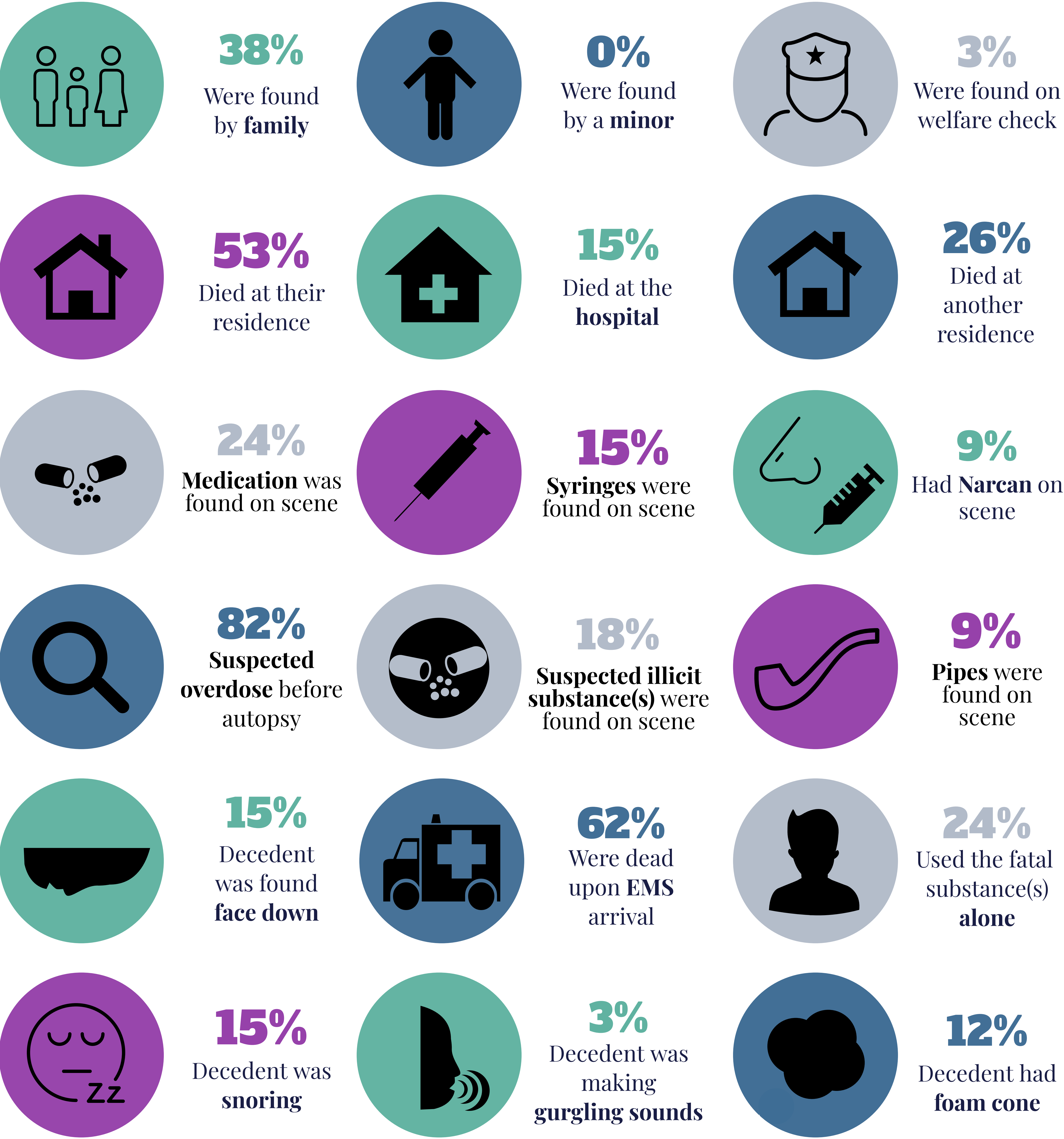
Naloxone Administration



# Deaths Related to Opioids and Other Drugs

Berrien County

## Death Scene Findings

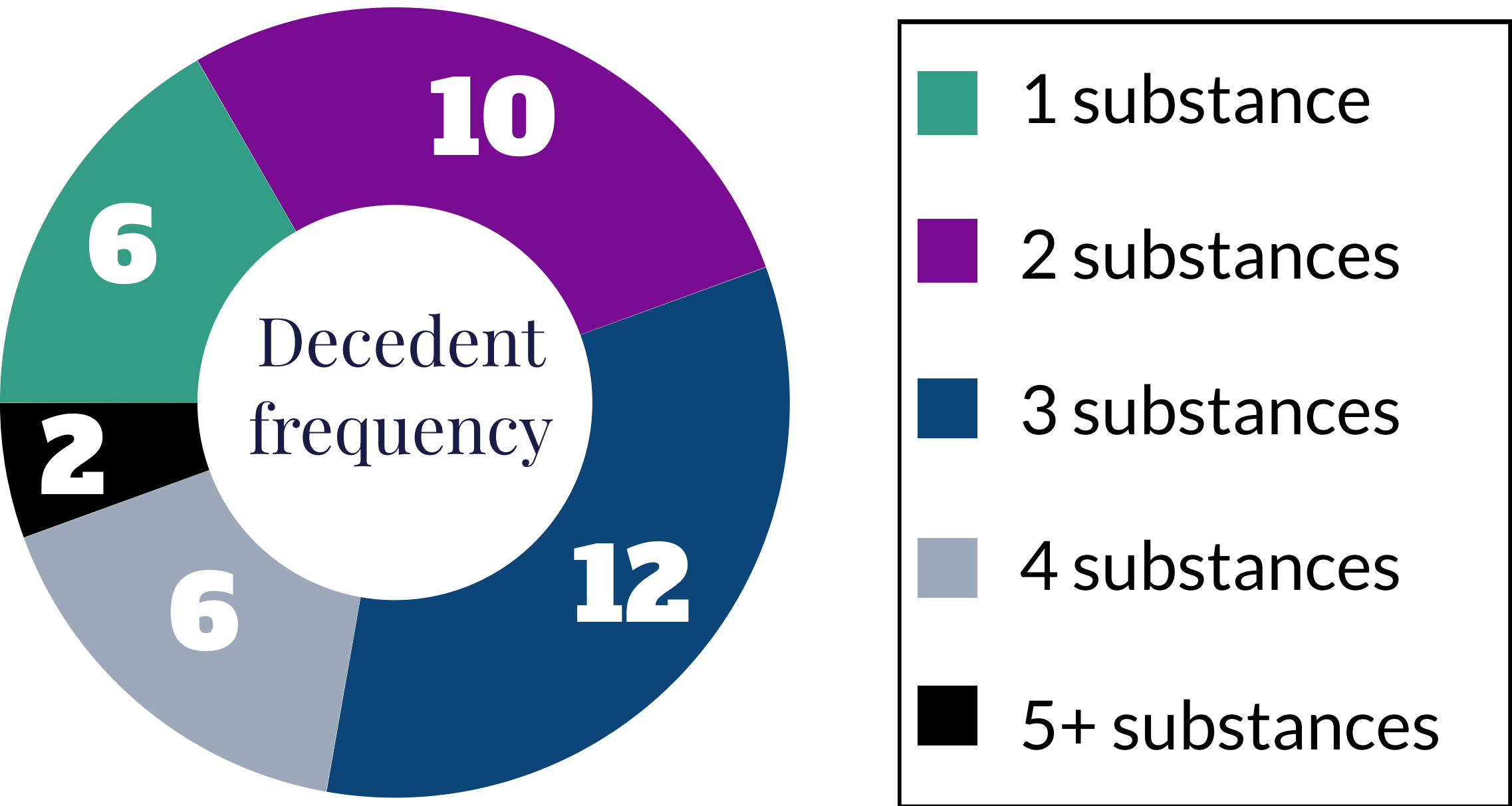


Deaths Related to Opioids and Other Drugs

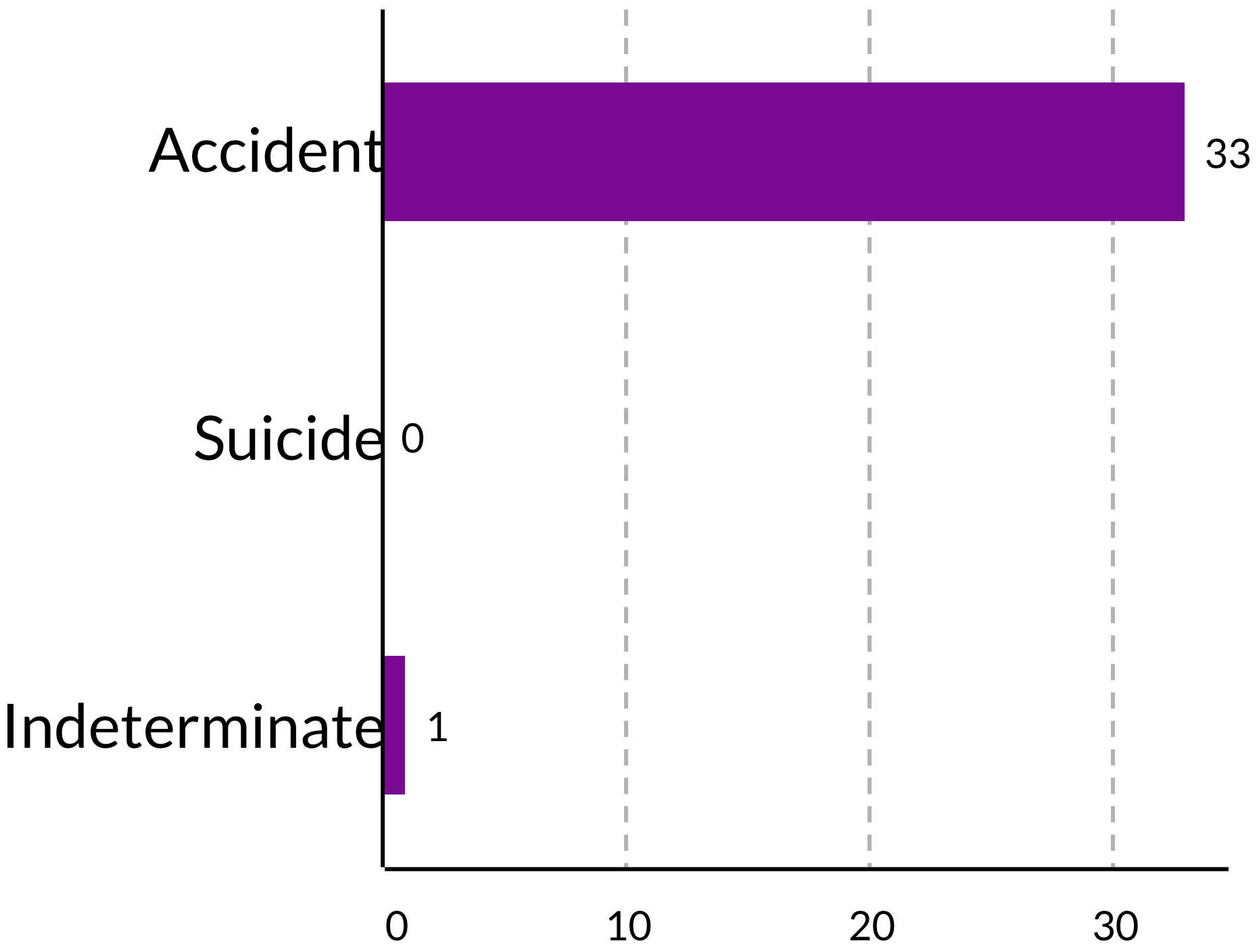
Berrien County

Autopsy and Toxicology Results

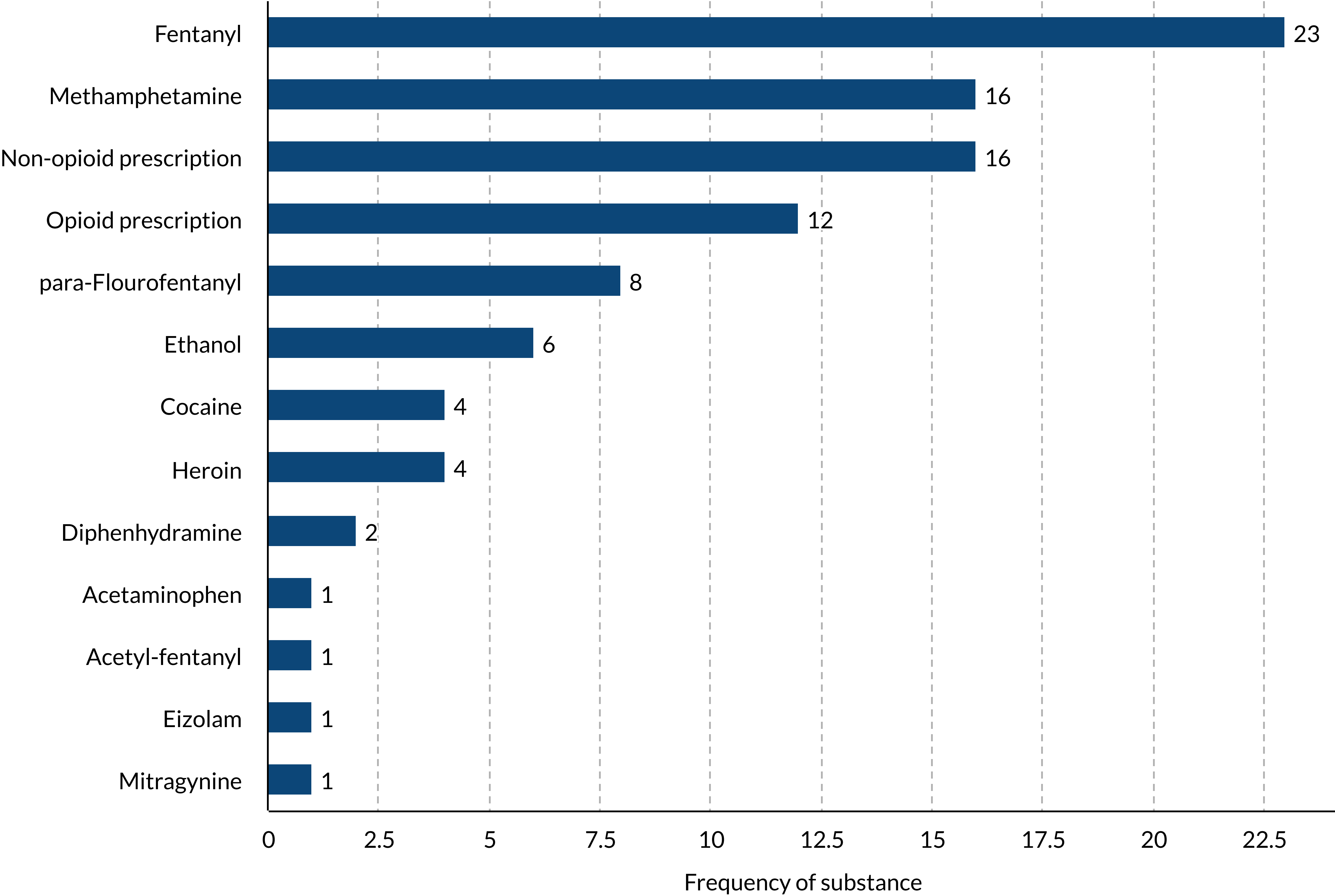
NUMBER OF SUBSTANCES  
CONTRIBUTING TO DEATH



MANNER OF DEATH



SUBSTANCES CONTRIBUTING TO DEATH

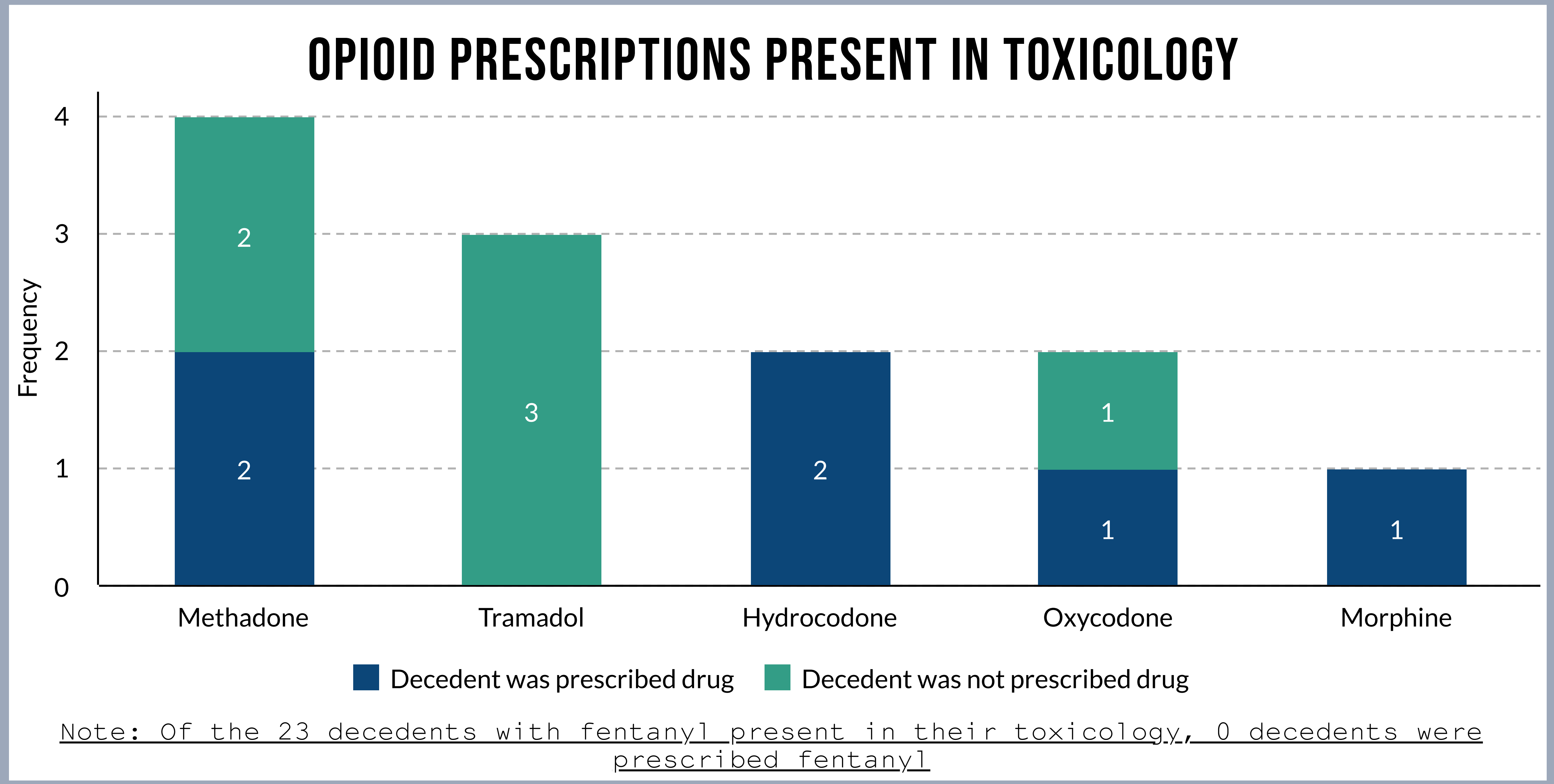
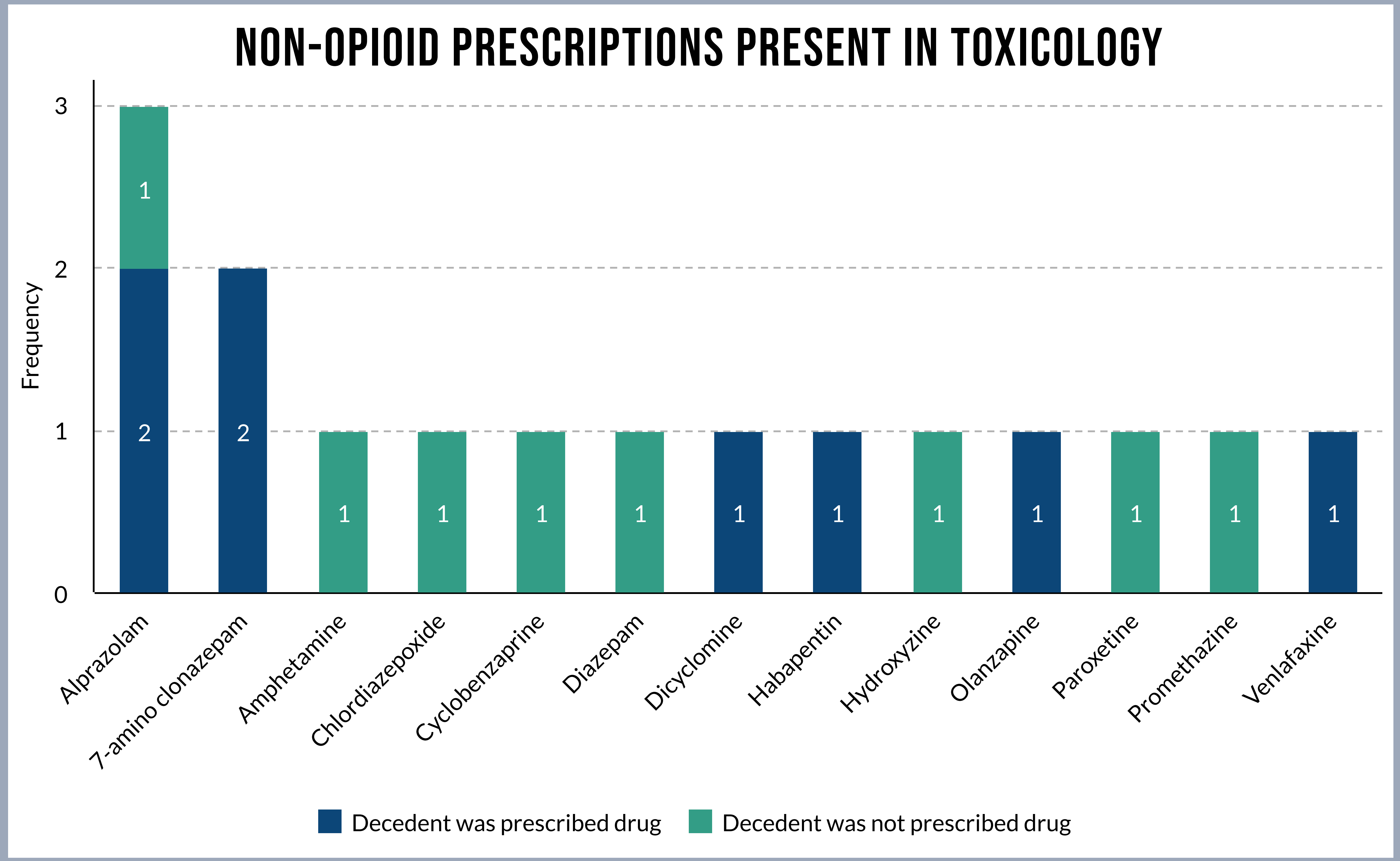


\*Please see graphs on the next page for a list of opioid and non-opioid prescriptions.

Deaths Related to Opioids and Other Drugs

Berrien County

Autopsy and Toxicology Results, cont.



# Deaths Related to Opioids and Other Drugs

Berrien County

## Highlights

### OPIOIDS AND POSITIONAL ASPHYXIA

17% (4 of 24) of decedents who died due an opioid were originally found in a **potentially airway compromising position**

These positions include decedent drowning or decedent found face down on the floor, their bed, or on another surface

20% (1 of 5) of decedents who died due to only non-opioid substance(s) were originally found in a **potentially airway compromising position**

Opioids depress the respiratory system and when coupled with positional asphyxia, there may be an increase risk of death. This MEO suggests that those who use substances not use alone and to ensure they are not at risk for slumping forward onto their face.

### NOVEL SUBSTANCES

**Acetyl-fentanyl**  
1 death

- Analogue of fentanyl that causes similar effects to fentanyl
- Stronger than morphine but weaker than fentanyl
- No approved medical use in the United States

**Para-Fluorofentanyl**  
8 deaths

- Analogue of fentanyl that causes similar effects to fentanyl
- Reportedly more toxic than fentanyl but provides lower levels of pain mitigation
- No approved medical use in the United States

**Etizolam**  
1 death

- Benzodiazepine
- Legal in Japan, Italy, and India
- Used for short term treatment of OCD, anxiety, and insomnia

### SUBSTANCE COMBINATIONS

#### HEROIN & FENTANYL

3 decedents had heroin in their toxicology  
All of these decedents also had fentanyl in their toxicology

#### XYLAZINE & FENTANYL

0 decedents had xylazine in their toxicology

#### BENZODIAZEPINES & OPIOIDS

6 decedents had a benzodiazepine and an opioid in their toxicology  
2 decedents were prescribed the opioid and benzodiazepine

#### METHAMPHETAMINE & OPIOIDS

11 decedents had methamphetamine and opioid(s) in their toxicology  
All 11 decedents had methamphetamine and fentanyl in their toxicology