

Deaths related to opioids and other drugs

Annual Report 2021

Kalamazoo 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: A=Asian; B=Black/African-American; H=Hispanic; W=White; F=Female; M=Male

Please email questions to 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

Kalamazoo County

All drug-related deaths

Age	Race	Sex	Death certificate: Substances contributing to death	Injury Zip code
23	W	F	fentanyl	49008
23	B	M	methamphetamine	Unknown
24	B	M	acetyl-fentanyl, fentanyl, heroin, methamphetamine	49009
25	W	F	fentanyl, methamphetamine	49017
25	W	F	fentanyl, methamphetamine, morphine	49002
25	W	M	Acute and chronic ethanol use*	Unknown
26	B	M	fentanyl, methamphetamine	49048
26	W	M	alprazolam, fentanyl, methamphetamine	49009
27	W	F	fentanyl, methamphetamine, para-fluorofentanyl	49001
27	W	F	alprazolam, fentanyl, heroin, para-fluorofentanyl	49007
30	W	M	methamphetamine	Unknown
30	W	M	fentanyl	49004
31	W	M	Pt. I: cardiac tamponade due to aortic dissection; Pt. II: methamphetamine*	49048
32	B	M	cocaine	Unknown
33	W	M	fentanyl, tramadol	49007
33	W	M	fentanyl, heroin, methadone, para-fluorofentanyl	49024
35	A	F	alprazolam, fentanyl, heroin, methamphetamine, para-fluorofentanyl, sertraline,	49002
35	W	M	acetyl fentanyl, alprazolam, cocaine, fentanyl, hydrocodone, para-fluorofentanyl	49007
35	W	F	fentanyl, methamphetamine	49037
36	W	M	fentanyl	49014

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
36	W	M	ethanol, fentanyl, mitragynine	49006
36	B	F	fentanyl, cocaine, cocaethylene, ethanol	49008
36	W	M	fentanyl	49008
37	W	F	methamphetamine	49008
37	W	M	alprazolam, fentanyl, para-fluorofentanyl	49048
38	W	F	alprazolam, methamphetamine, oxycodone	49245
38	W	F	Pt. I: complications of type I diabetes mellitus; Pt. II: methamphetamine*	49024
39	W	M	fentanyl, para-fluorofentanyl	Unknown
39	B	M	acetyl-fentanyl, fentanyl, methamphetamine, para-fluorofentanyl	49007
39	W	F	fentanyl, fluoxetine, methamphetamine, norfluoxetine	49007
39	W	M	ethanol, fentanyl	49007
40	W	M	Acute and chronic ethanol use*	49009
41	W	M	chlordiazepoxide, diphenhydramine, fentanyl, heroin, para-fluorofentanyl, tramadol, xylazine	49012
41	W	M	cocaethylene, cocaine, ethanol, fentanyl, para-fluorofentanyl	49024
42	W	M	fentanyl, methamphetamine, mitragynine, para-fluorofentanyl	49007
42	B	M	methamphetamine	Unknown
42	B	M	Pt I: hypertensive cardiovascular disease; Pt. II: cocaine*	49001
43	W	M	methamphetamine, nordiazepam, orphenadrine, oxycodone	49093
44	W	M	fentanyl, para-fluorofentanyl, acetyl-fentanyl	49006
45	B	M	butalbital, ethanol, heroin	49008

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All drug-related deaths

Age	Race	Sex	Death certificate: Substances contributing to death	Injury Zip code
45	B	F	cocaethylene, cocaine, ethanol, fentanyl, para-fluorofentanyl	49007
45	W	M	fentanyl, gabapentin	49006
45	B	M	methamphetamine	49001
47	W	F	fentanyl	Unknown
49	W	F	Pt. I: gastrointestinal hemorrhage, uncertain source; Pt. II: chronic alcohol use, methamphetamine*	49001
50	W	F	fentanyl, methamphetamine, para-fluorofentanyl	49048
50	W	M	fentanyl, methamphetamine	49009
50	W	F	diphenhydramine, gabapentin, hydrocodone	49002
50	B	M	cocaethylene, cocaine, ethanol, fentanyl, methamphetamine	49007
50	B	M	methamphetamine	49048
50	W	F	diazepam, fentanyl, gabapentin, morphine	49048
52	W	M	amitriptyline, hydrocodone, methamphetamine	49001
54	W	M	methamphetamine	49007
54	B	M	methamphetamine	49001
54	B	M	acetyl-fentanyl, fentanyl, methamphetamine, para-fluorofentanyl	49007
55	W	M	methamphetamine	49001
55	B	M	cocaethylene, ethanol, fentanyl	49048
55	W	F	alprazolam, diphenhydramine, methadone, trazodone	49001
55	W	F	methamphetamine	Unknown
55	W	F	fentanyl, gabapentin, methadone, para-fluorofentanyl, promethazine, tramadol	49048

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All drug-related deaths

Age	Race	Sex	Death certificate: Substances contributing to death	Injury Zip code
56	W	F	acetyl-fentanyl, fentanyl, gabapentin, hydroxyzine, mitragynine, morphine	49006
56	B	M	methamphetamine	49007
56	W	M	fentanyl, methamphetamine	Unknown
57	W	M	acetaminophen	49002
57	B	F	fentanyl, para-fluorofentanyl, methamphetamine	49048
57	W	F	methamphetamine	49001
58	B	M	hydrocodone	49001
58	W	F	fentanyl, methamphetamine	49009
58	W	F	fentanyl, gabapentin	49079
58	W	M	amlodipine, ethanol, metoprolol, venlafaxine	49009
60	W	F	ethanol, fentanyl	49048
60	W	M	doxepin, duloxetine, methadone	49090
60	B	M	methamphetamine	49007
60	W	F	ethanol, fentanyl, methamphetamine,	49001
60	W	M	acetyl-fentanyl, ethanol, fentanyl, para-fluorofentanyl,	49053
61	W	M	Pt. I: sudden cardiac event; Pt. II: cocaine*	49001
61	W	M	gabapentin, methadone	49001
61	B	F	clonazepam, duloxetine, fentanyl, fluoxetine, morphine	49007
62	W	M	gabapentin, tramadol	49034
62	W	F	1,1-difluoroethane, bromazolam, fentanyl, methamphetamine, para-fluorofentanyl,	49006

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All drug-related deaths

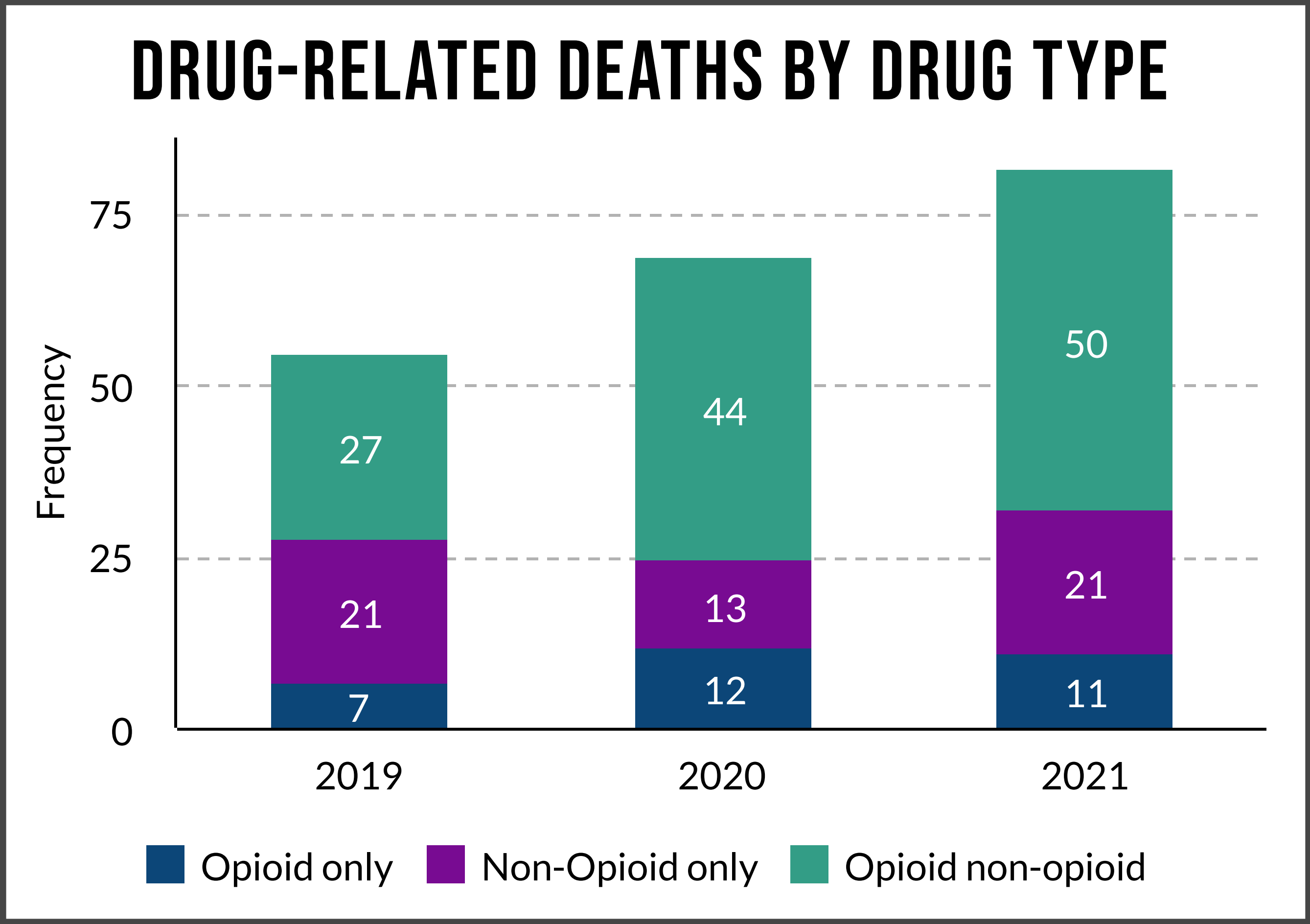
Age	Race	Sex	Death certificate: Substances contributing to death	Injury Zip code
62	W	M	Pt. I: pulmonary thromboemboli; Pt. II: fentanyl, methadone*	49048
63	W	M	1,1-difluoroethane, bromazolam, fentanyl, methamphetamine, para-fluorofentanyl,	49048
63	W	M	Pt. I: pulmonary thromboemboli; Pt. II: fentanyl, methadone*	49007
64	B	M	cocaine	49048
65	W	F	methamphetamine	Unknown
66	B	M	fentanyl, nordiazepam, para-fluorofentanyl	49048
66	B	M	Pt. I: intracerebral hemorrhage; Pt. II: cocaine*	49007
69	W	F	cocaine, ethanol	49048
70	W	F	sertraline	49080
70	B	M	Pt. I: gastric ulcer (perforated); Pt. II: acetyl-fentanyl, fentanyl, heroin*	49001
71	B	F	fentanyl, heroin	49048
76	W	F	methamphetamine	49002

*Not included in report (n=11)

Deaths Related to Opioids and Other Drugs

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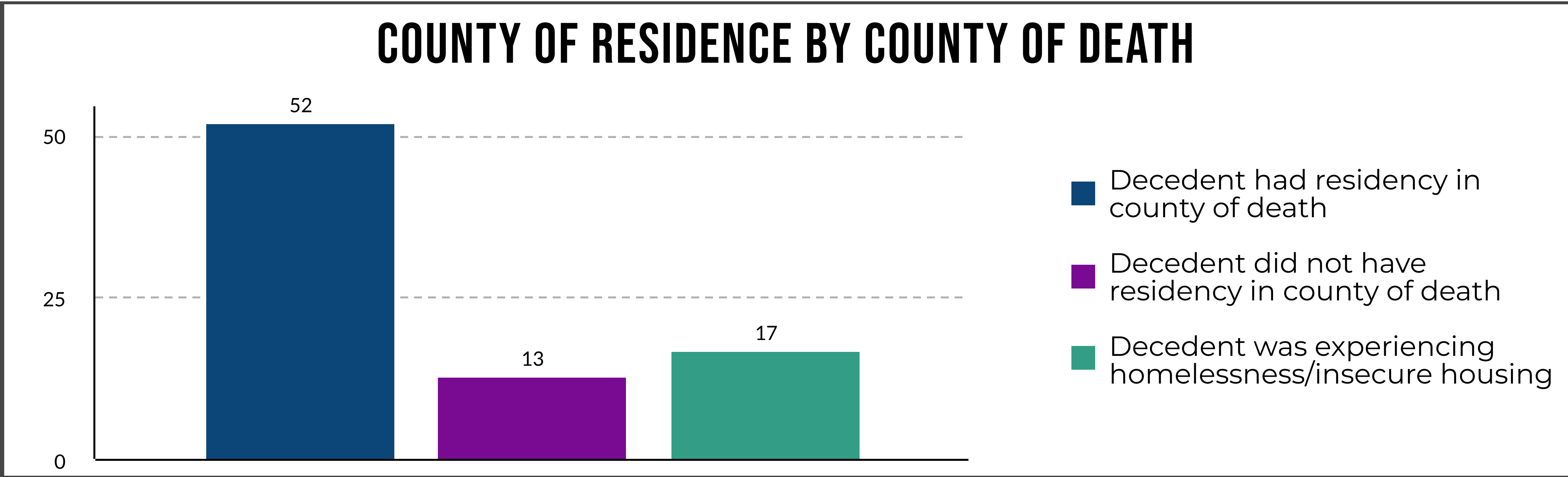
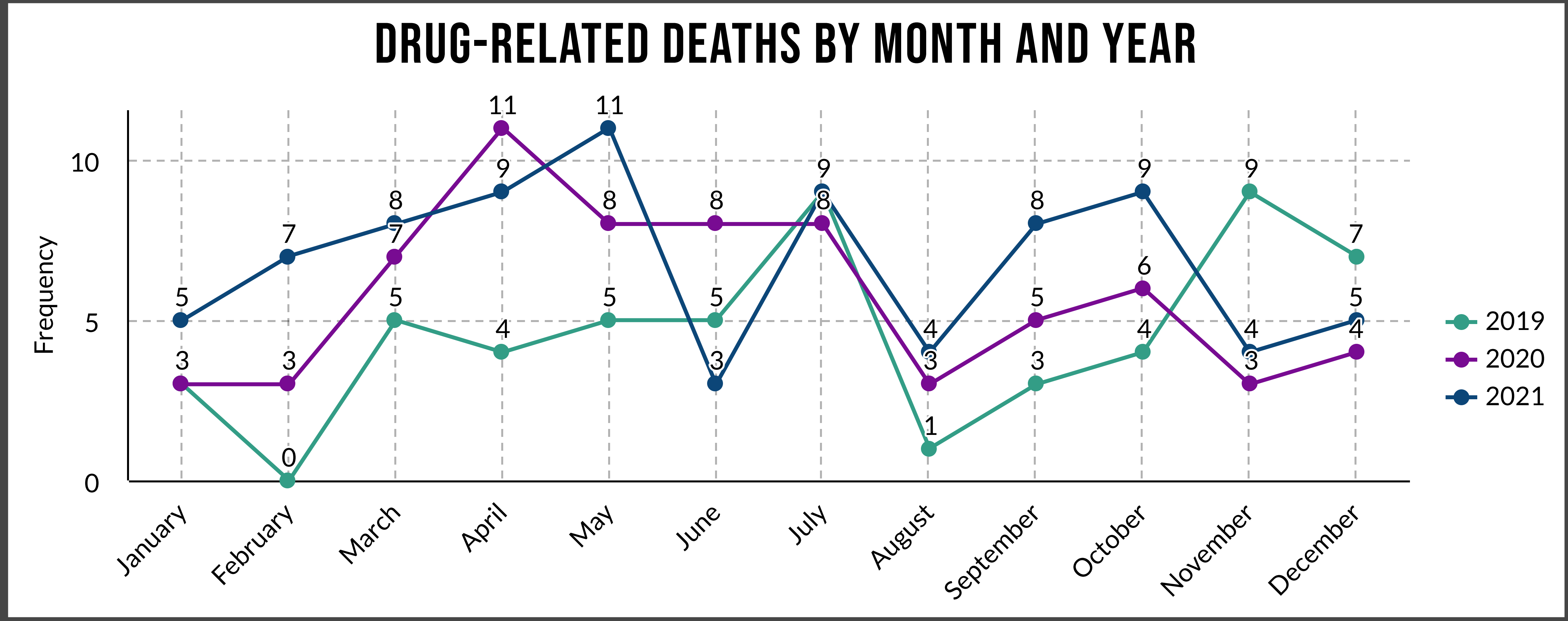
Total Deaths Due to Drugs



Year	Total deaths	Deaths per 10,000
2019	55	2.1
2020	69	2.6
2021	82	3.1

Percent change

 19% from 2020 to 2021

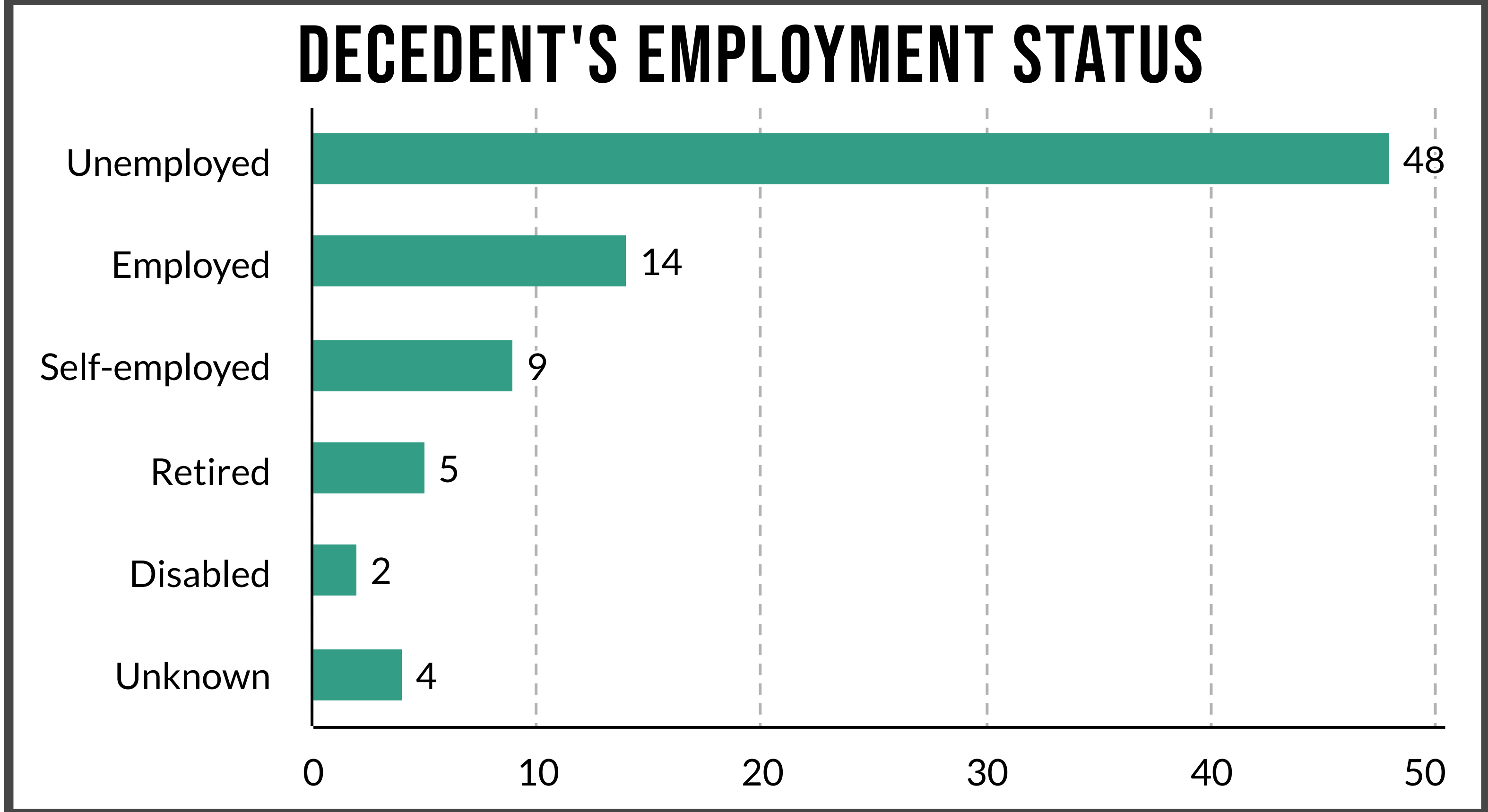


Deaths Related to Opioids and Other Drugs

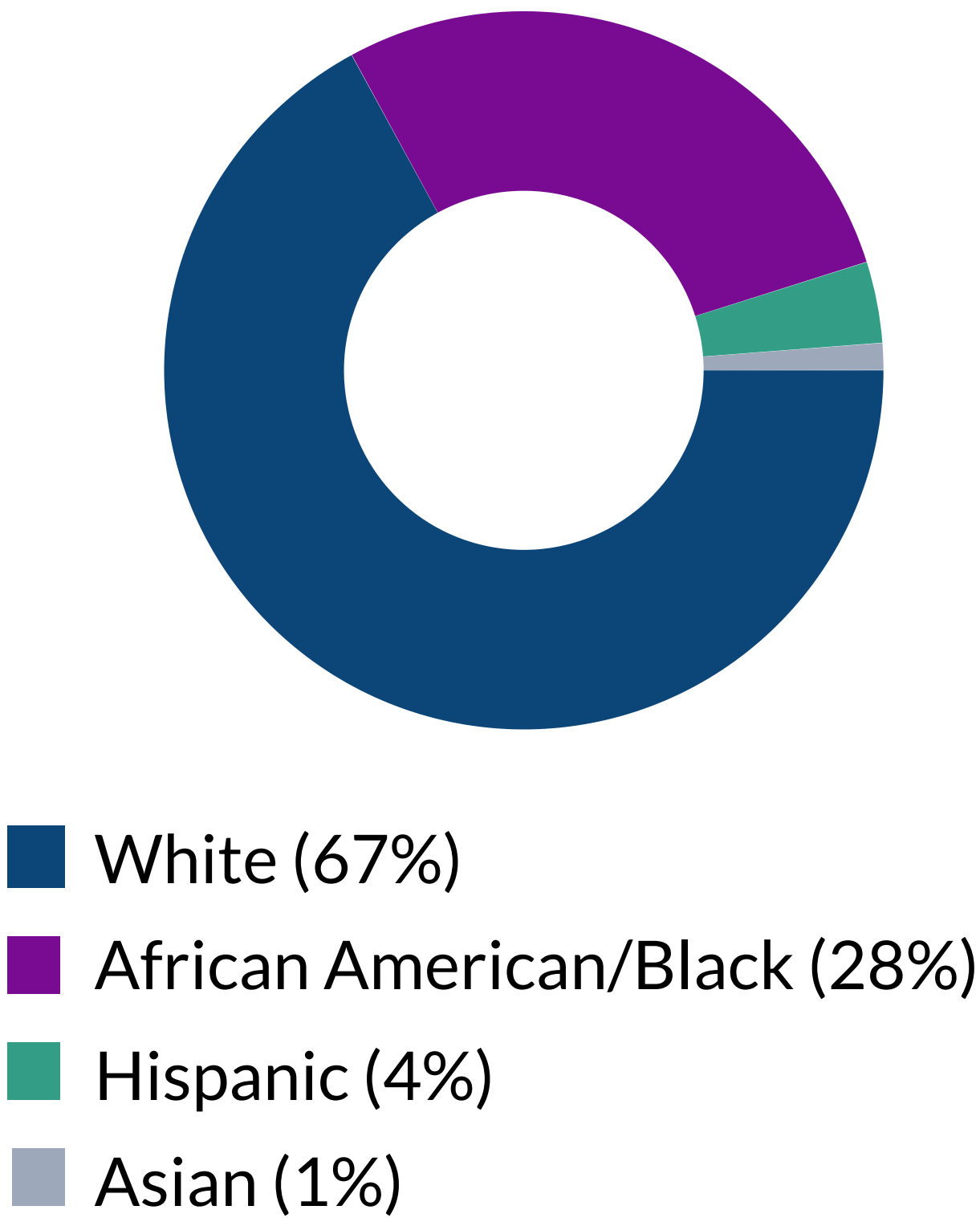
Kalamazoo County

Demographics

DECEDENT'S EMPLOYMENT STATUS



RACE



SEX

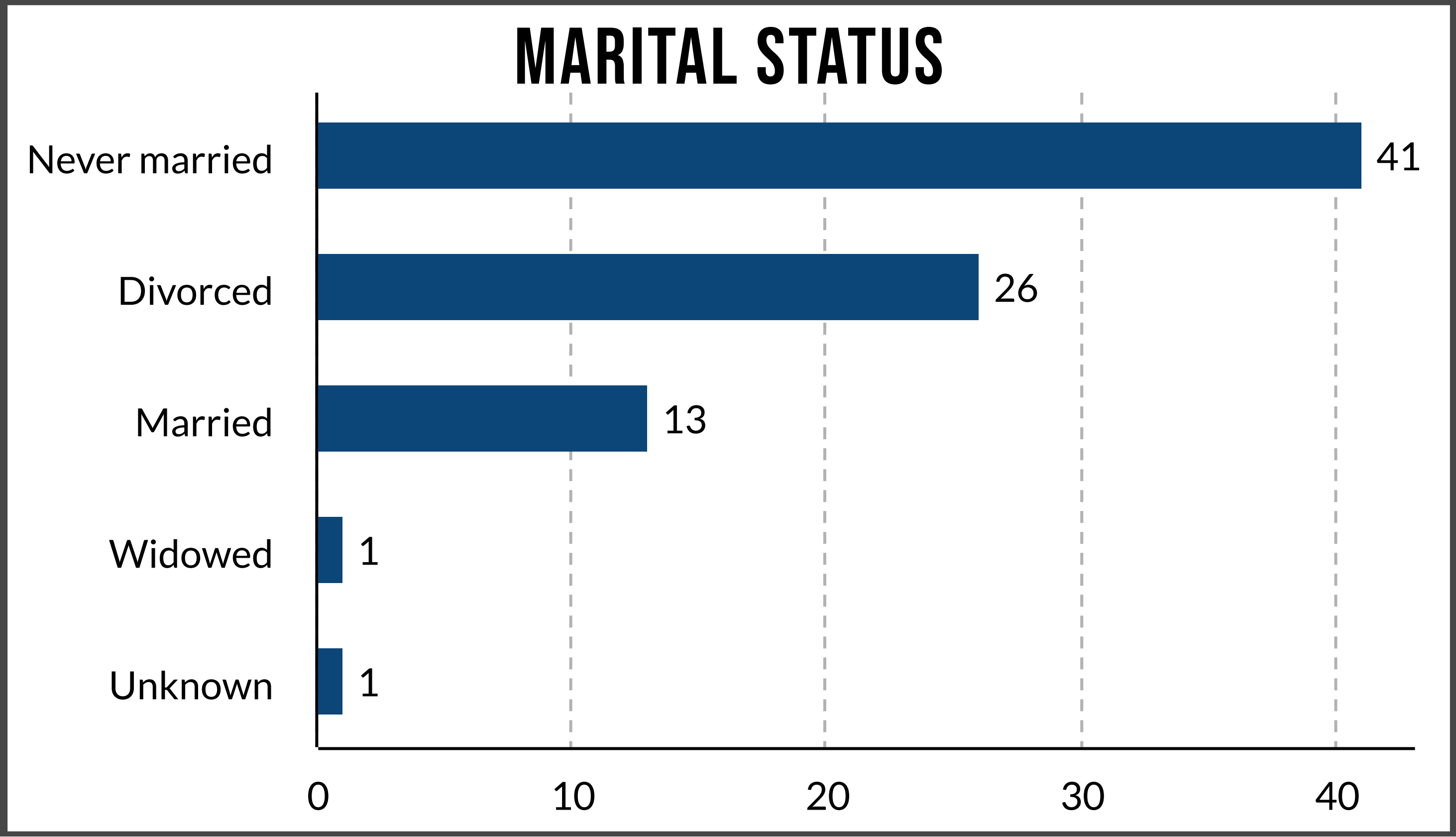


40%



60%

MARITAL STATUS



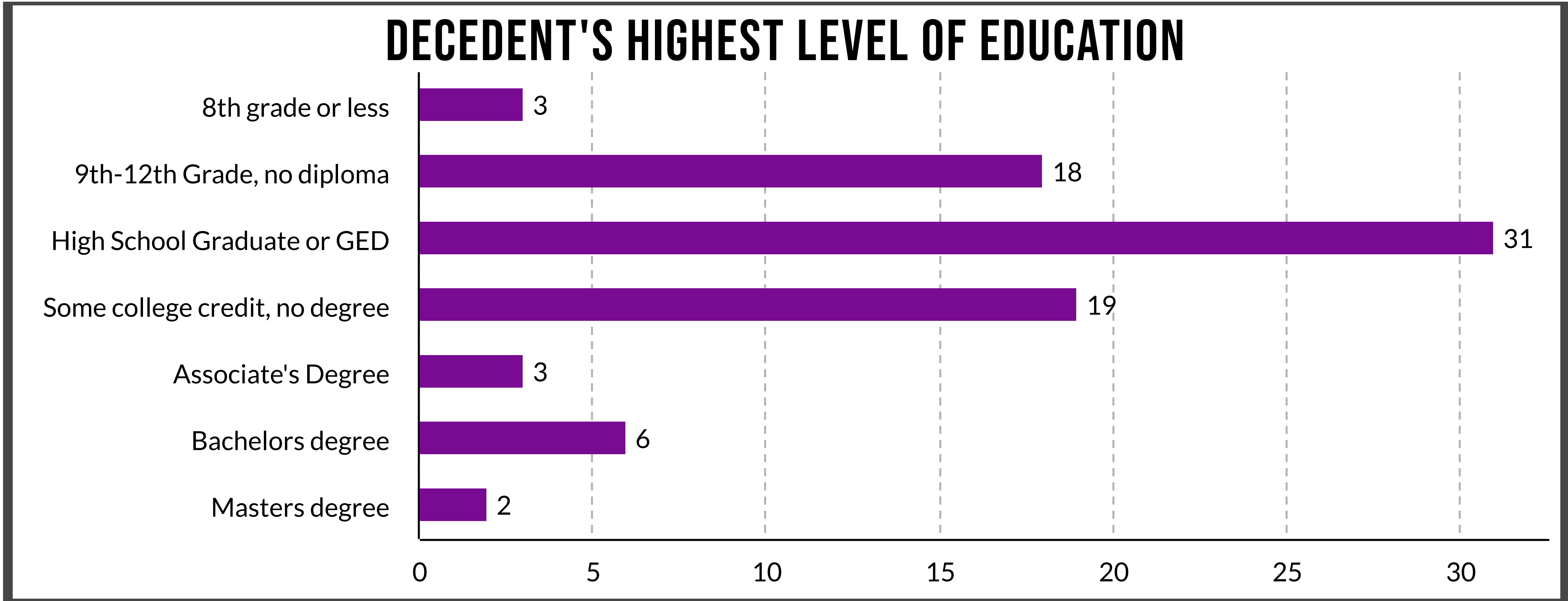
AGE

Minimum Age
23 years

Maximum Age
76 years

Average Age
48 years

DECEDENT'S HIGHEST LEVEL OF EDUCATION

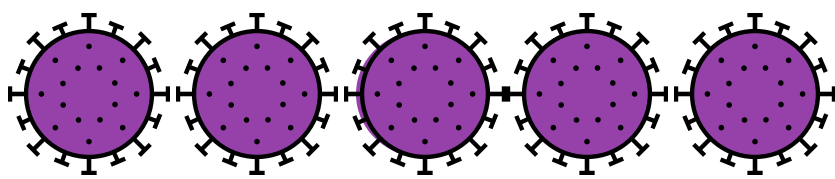
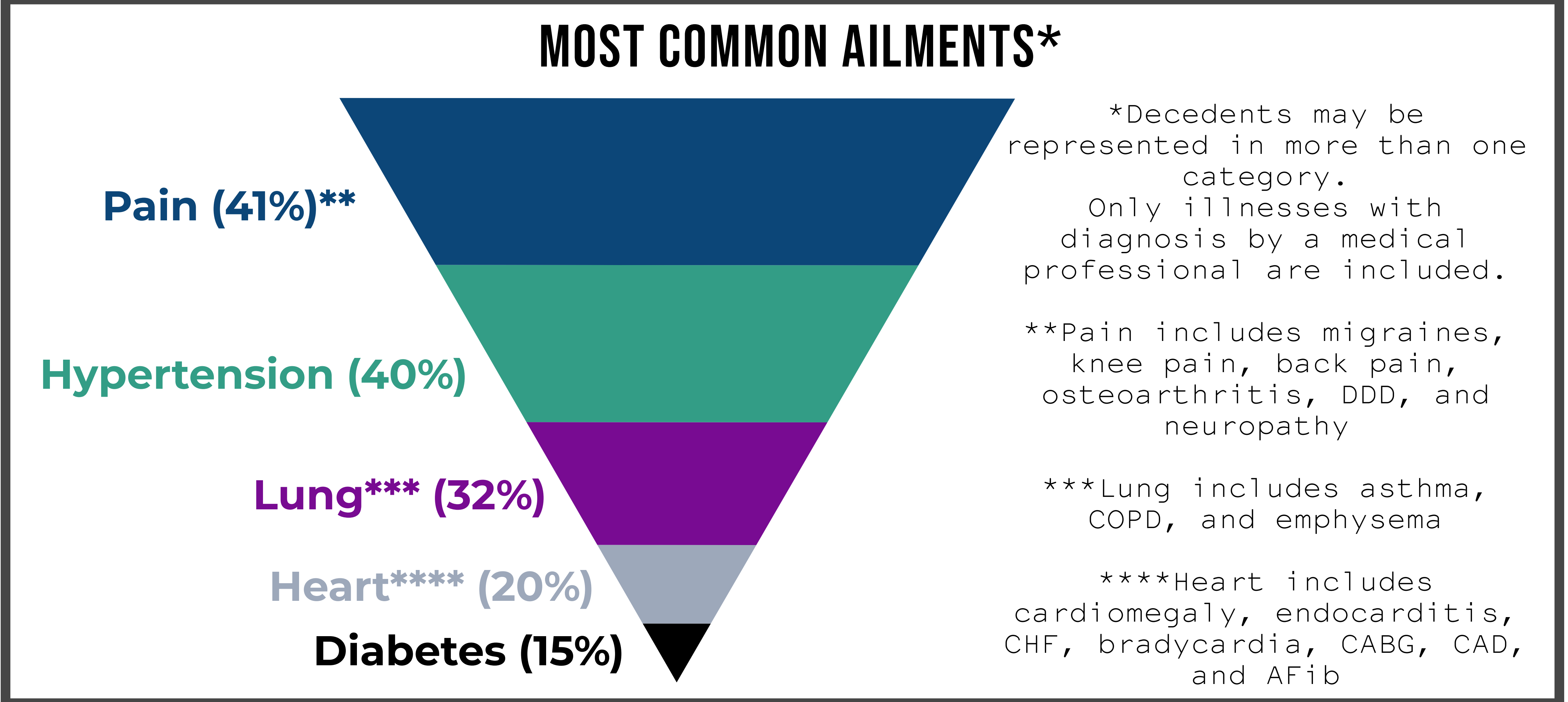


Deaths Related to Opioids and Other Drugs

Kalamazoo County

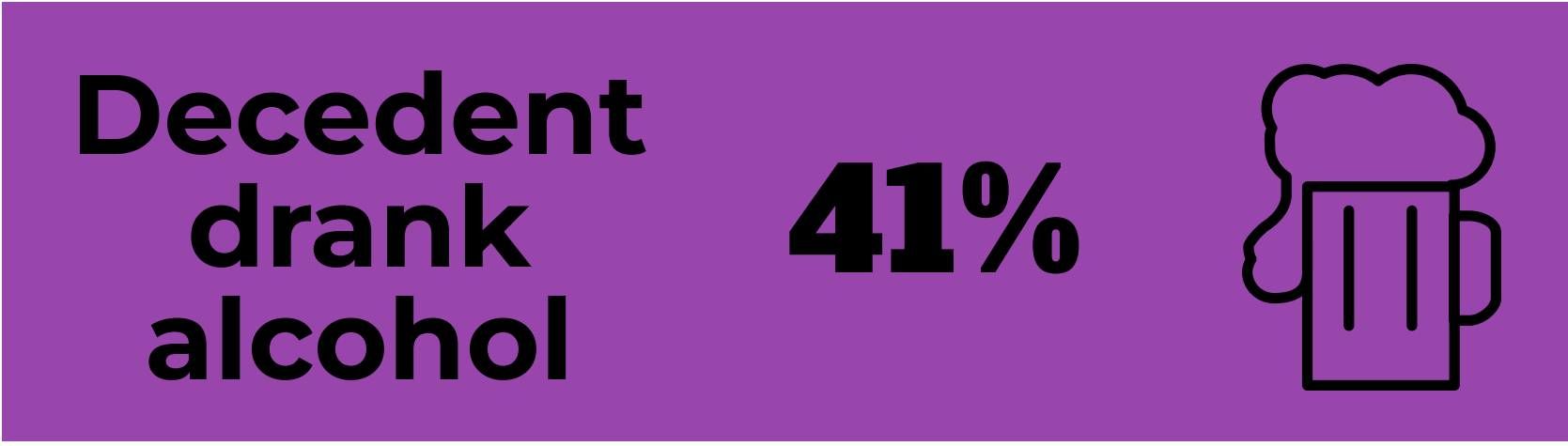
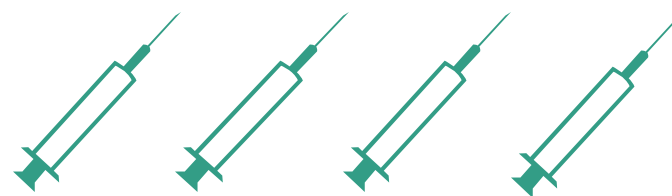
Health Factors

MOST COMMON AILMENTS*

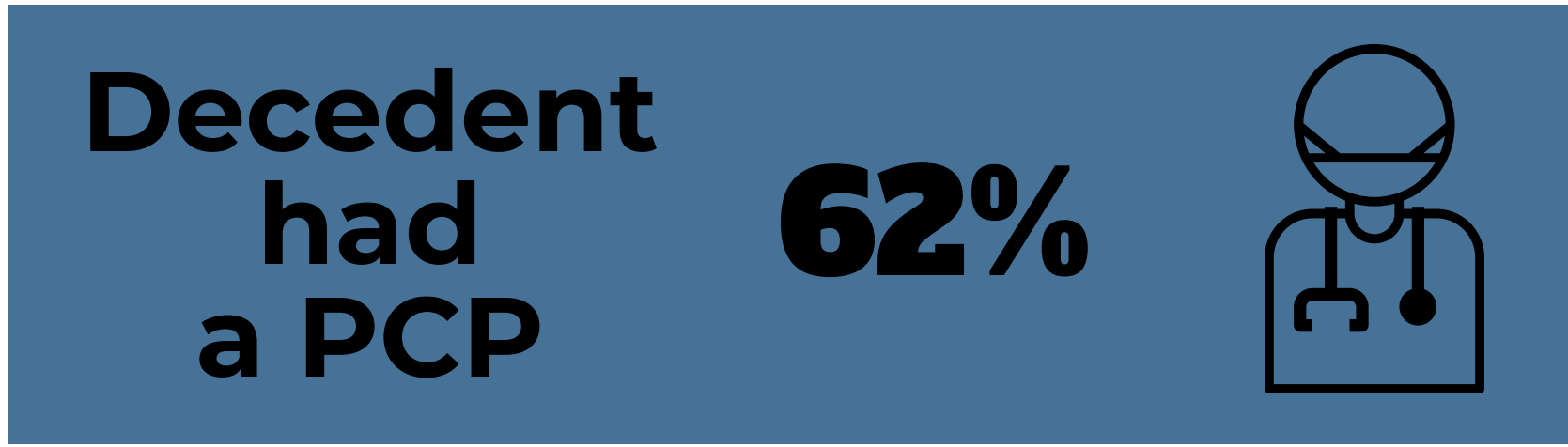


At least **13** decedents were **Hepatitis C** positive

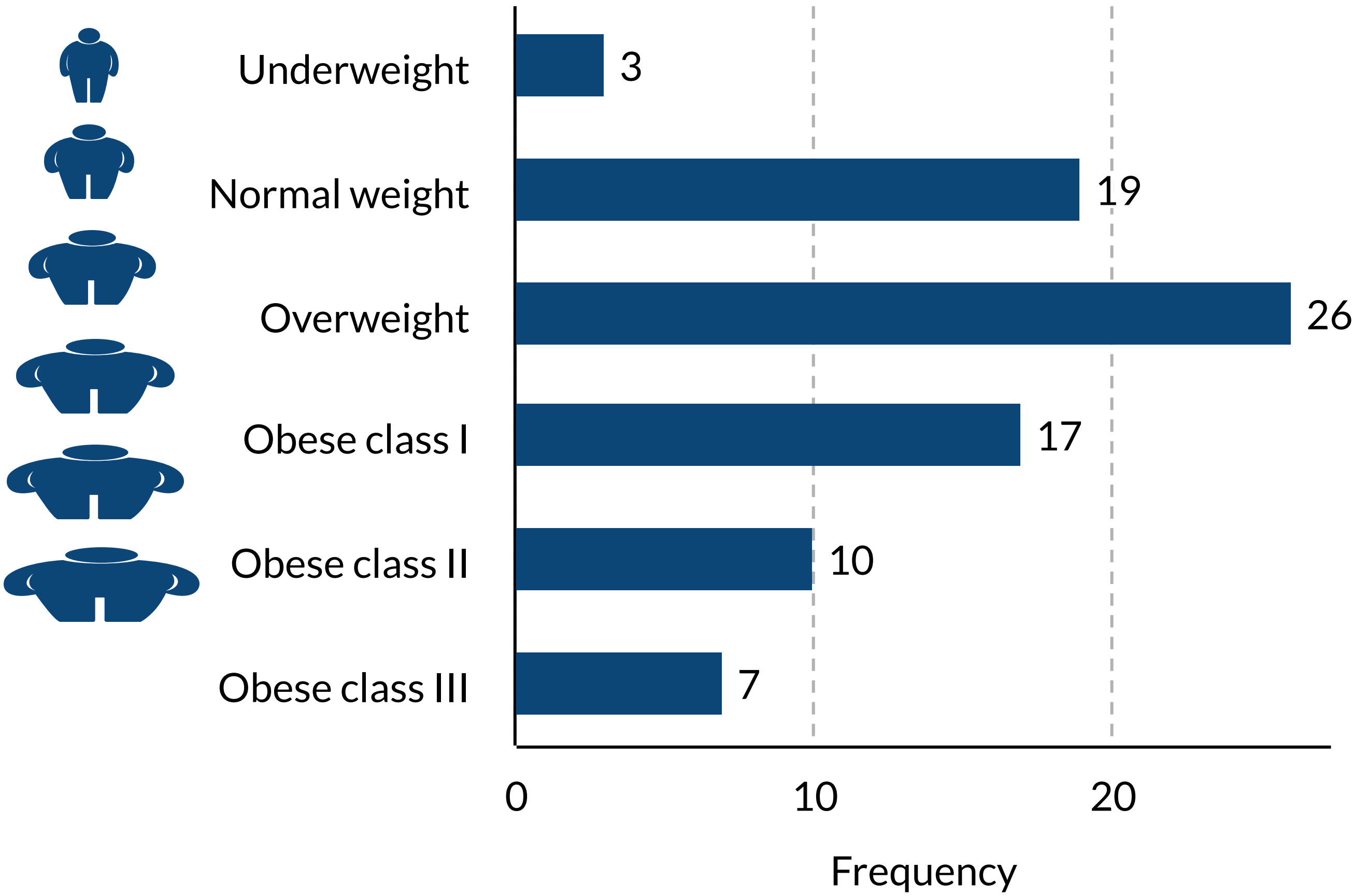
9 of these decedents were known to use **drugs intravenously**



*Moderate to heavy use



BODY MASS INDEX (BMI)



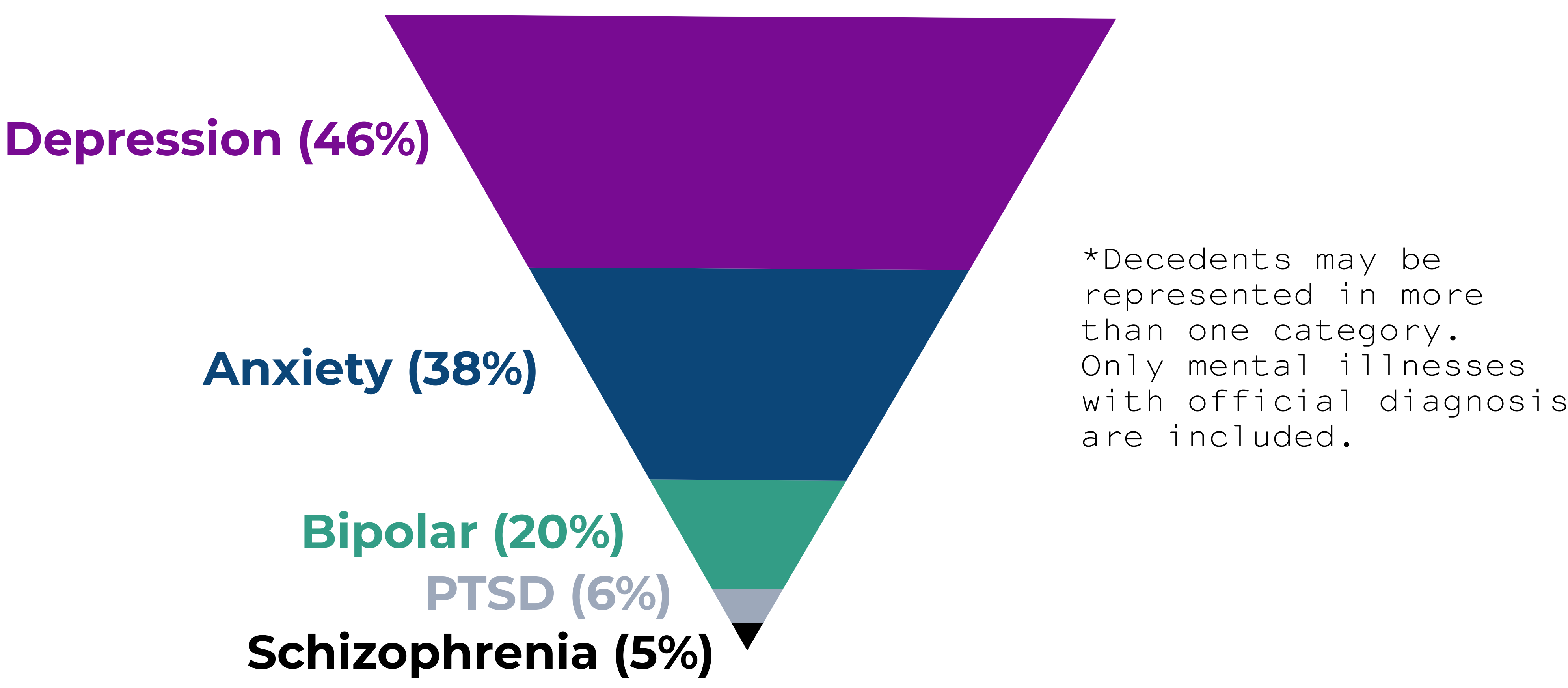
DDD=Degenerative disc disease; COPD=Chronic obstructive pulmonary disease; CHF=Congestive heart failure; CABG=Coronary artery bypass graft surgery; CAD=Coronary artery disease; AFib=Atrial fibrillation

Deaths Related to Opioids and Other Drugs

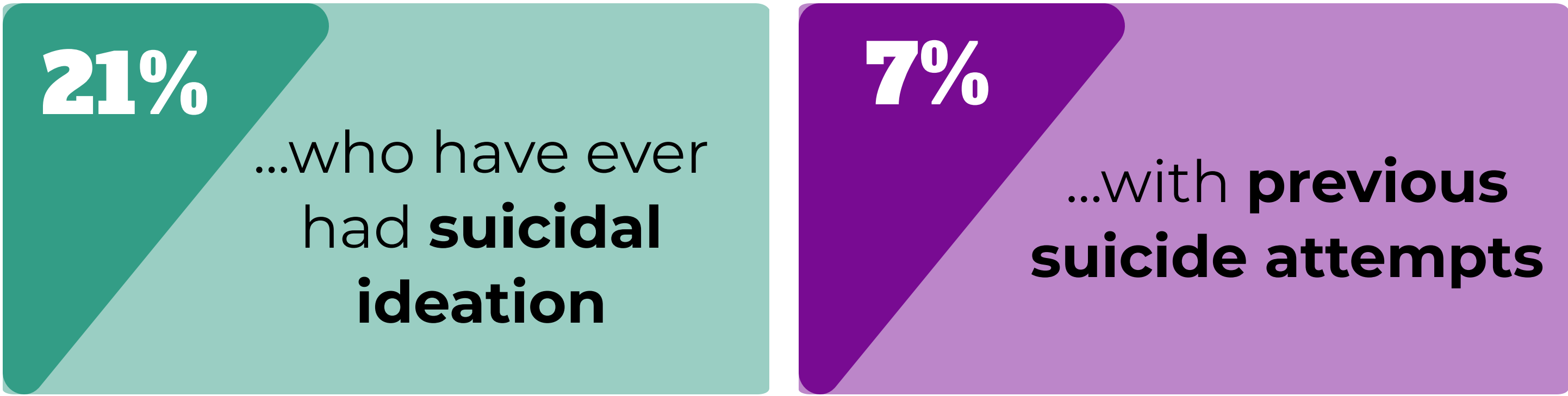
Kalamazoo County

Mental Health Factors

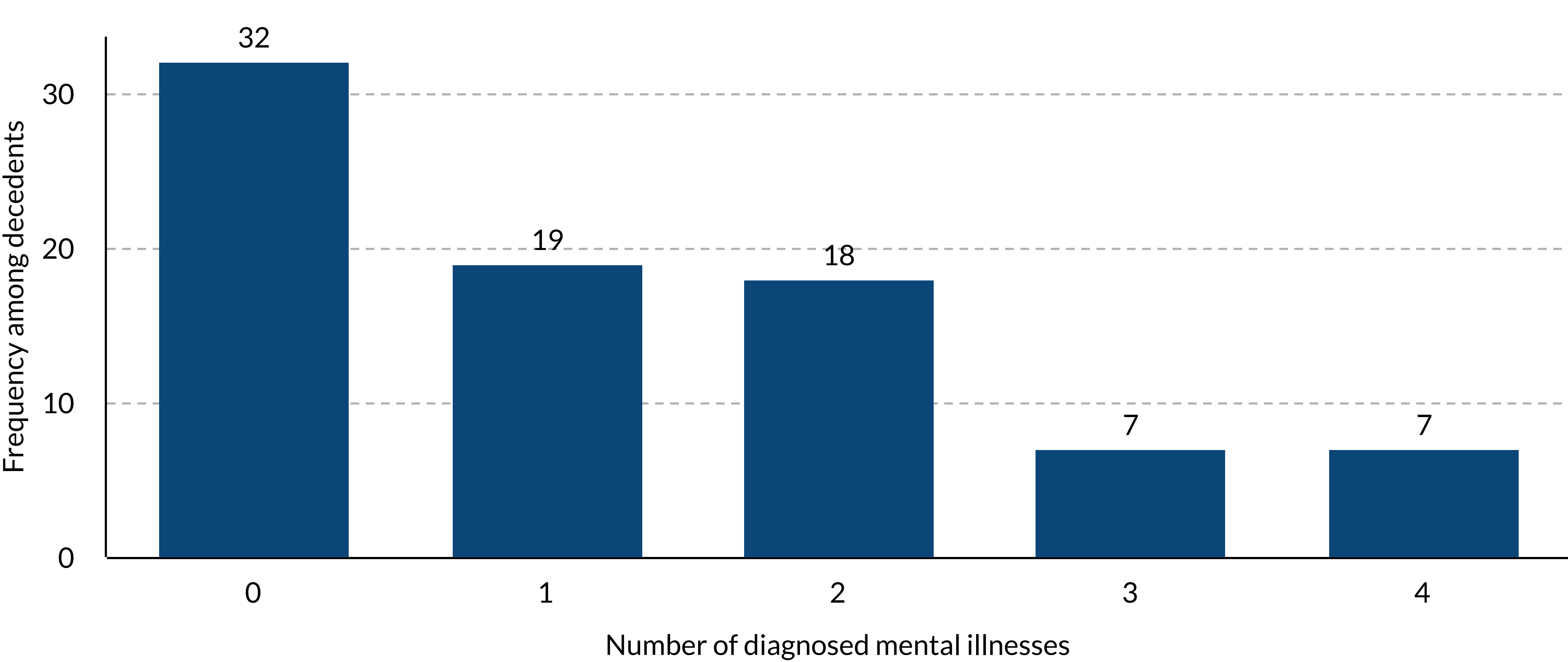
MOST COMMON MENTAL ILLNESSES



PERCENTAGE OF DECEDENTS



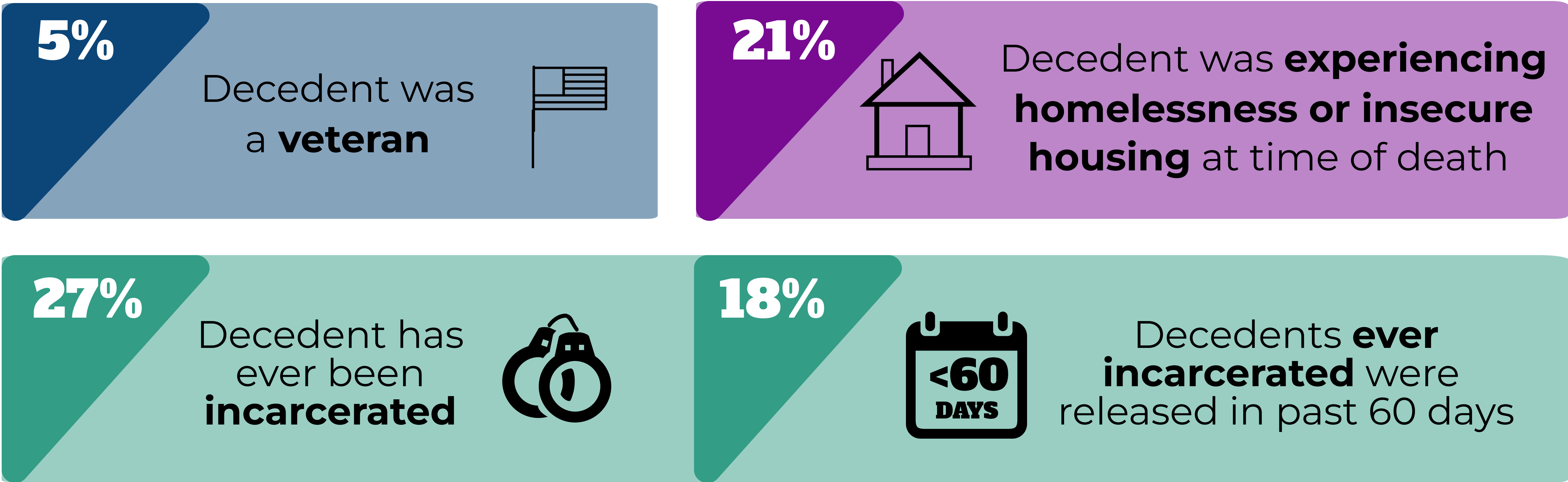
NUMBER OF DIAGNOSED MENTAL ILLNESSES AMONG DECEDENTS



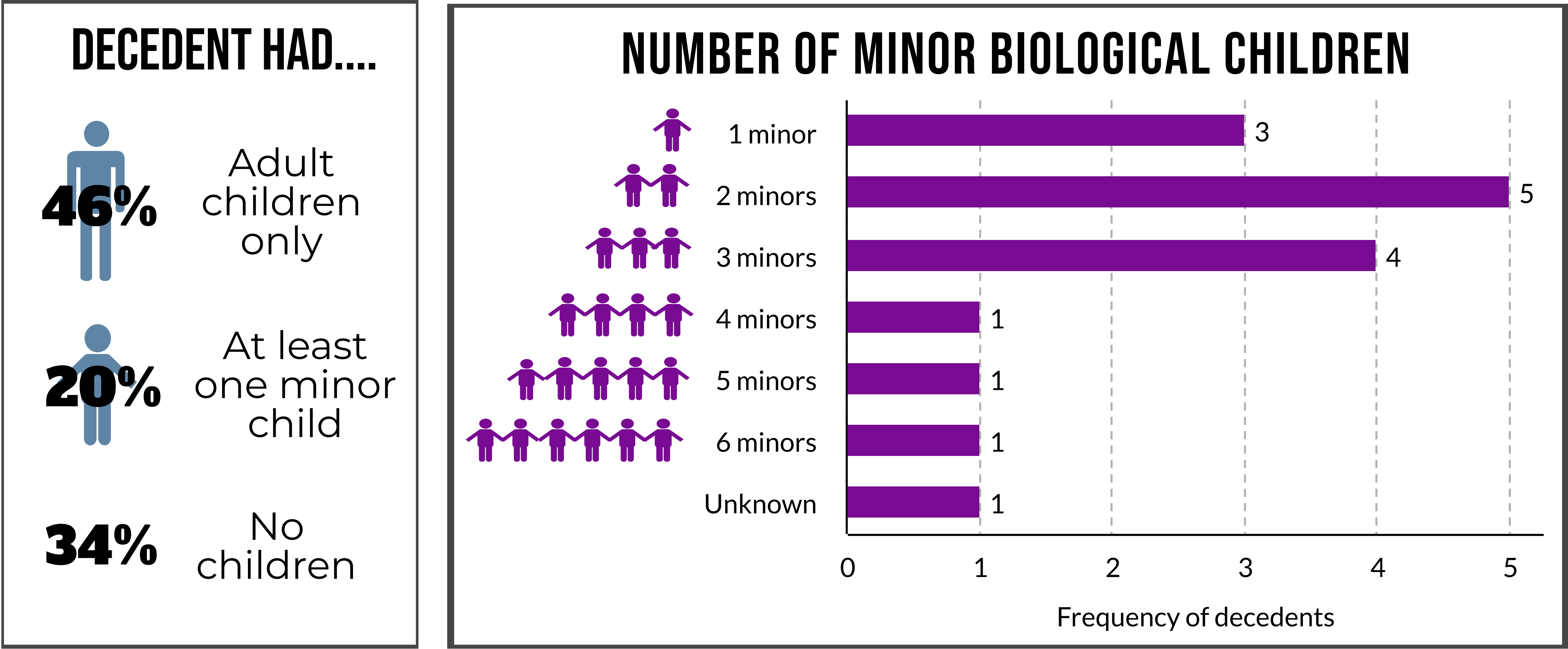
Deaths Related to Opioids and Other Drugs

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Social Factors



Children



Unknown

3

5

4

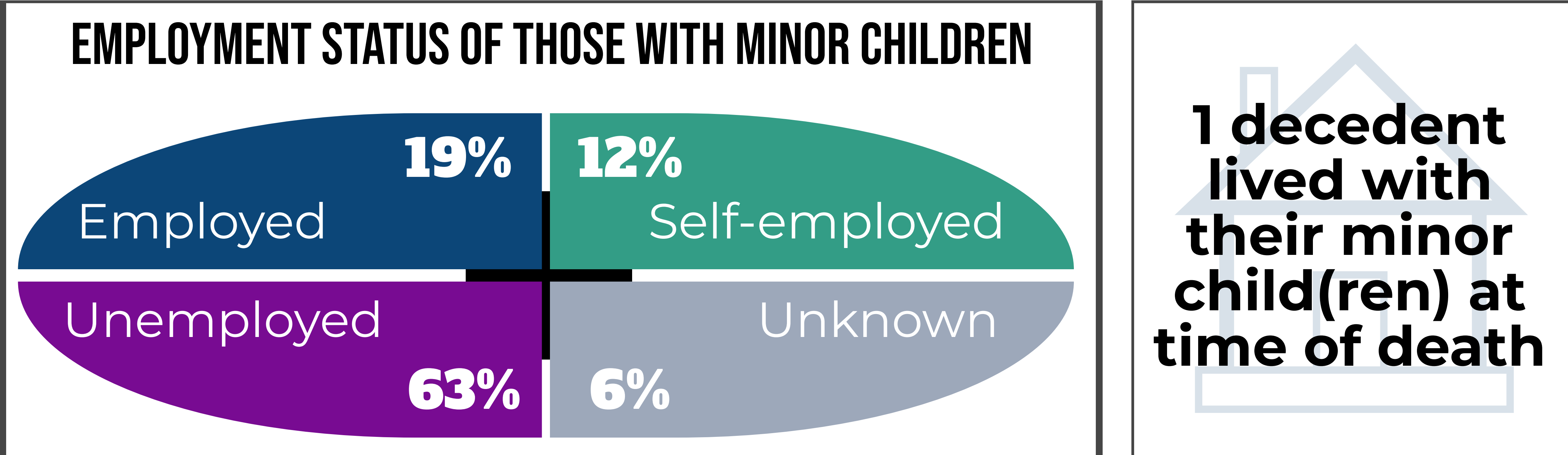
1

1

1

1

Frequency of decedents

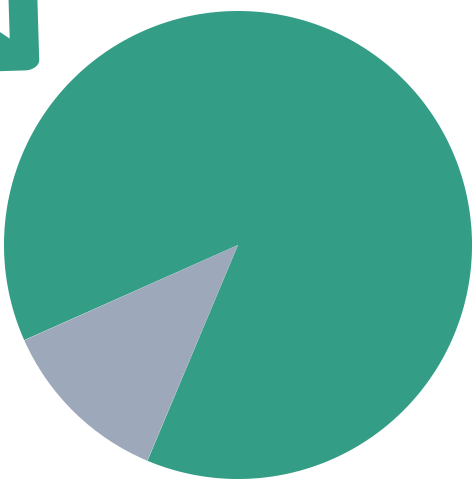


Deaths Related to Opioids and Other Drugs

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Substance Use History

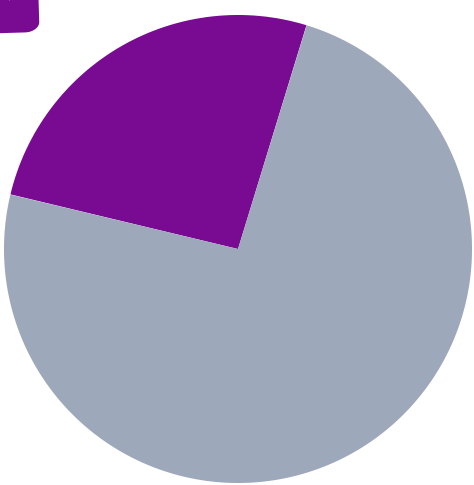
At least 89% of decedents were known to use or abuse substances



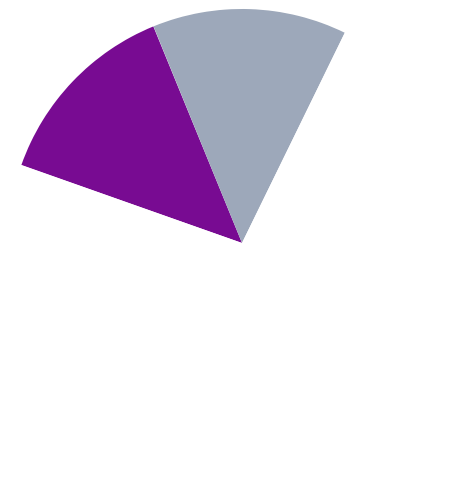
At least 36% of those decedents used substances intravenously



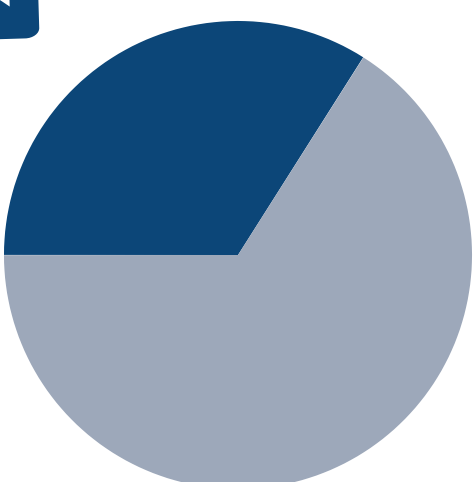
At least 27% of decedents have had at least one prior overdose



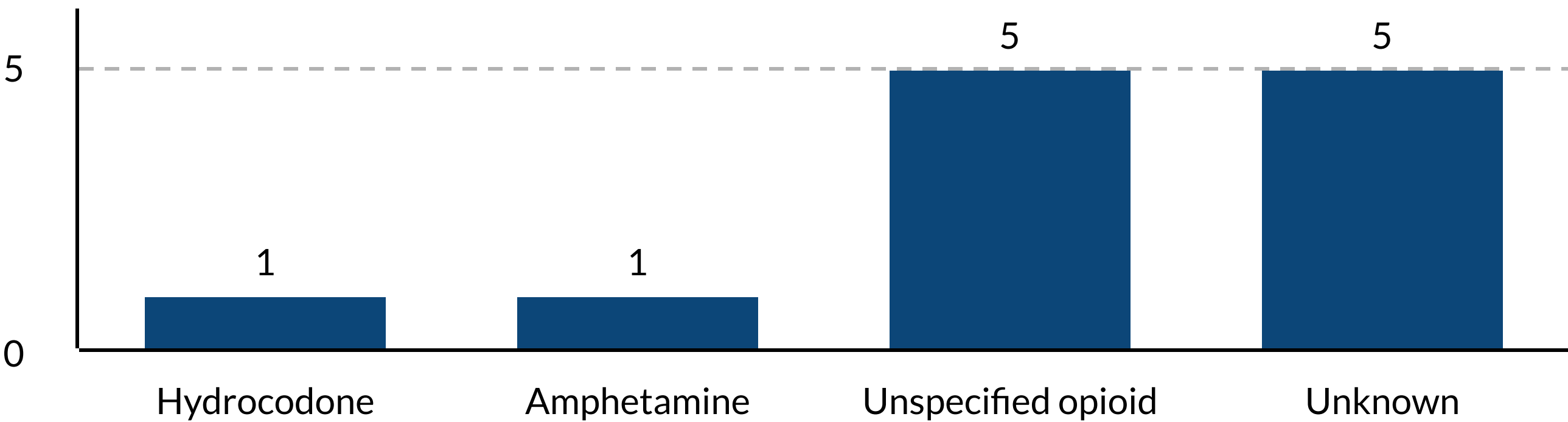
At least 50% of those decedents have had two or more prior overdoses



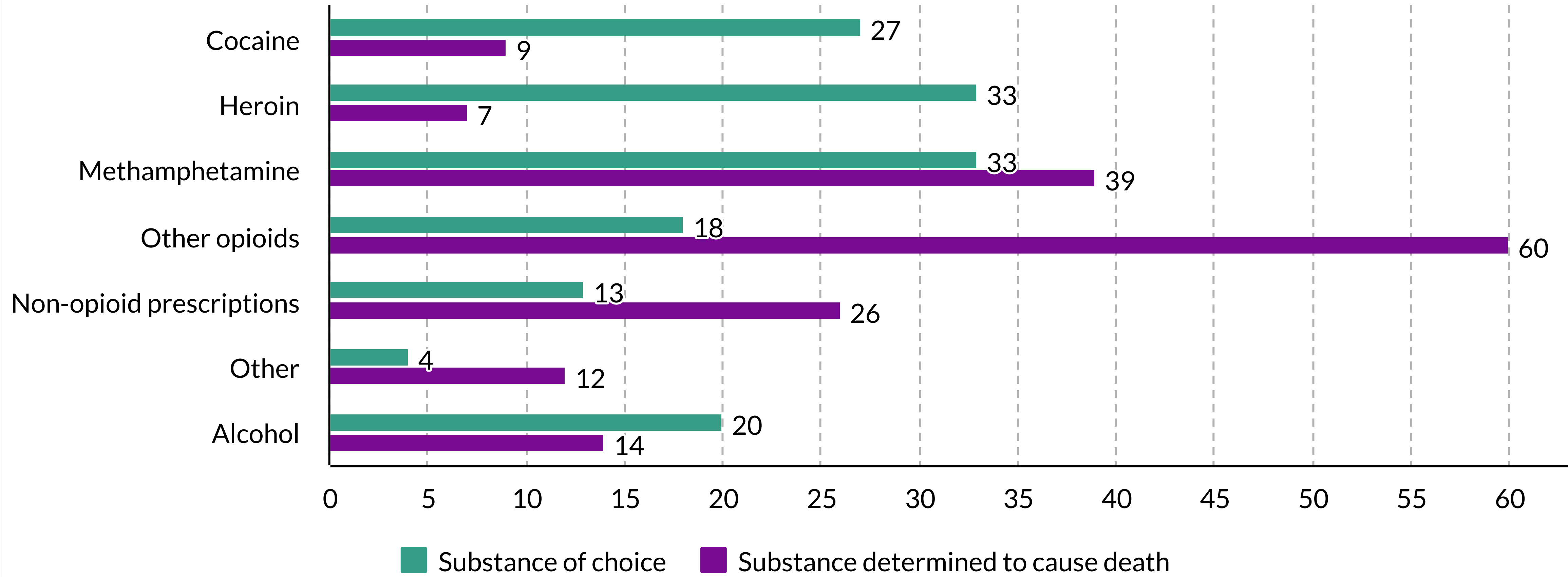
At least 16% of decedent's substance use started from a prescription



TYPE OF PRESCRIPTION



DECEDENT'S SUBSTANCE(S) OF CHOICE VS. SUBSTANCE(S) THAT CAUSED DEATH*



*Decedent may have had more than one substance of choice and more than one substance causing death.

NOTE: 1 decedent would use any substance available, 9 were not known to use substances, & no information regarding substance of choice was available for 2 decedents. Other substance of choice includes LSD, inhalants, and ecstasy; Other substance causing death includes 1, 1-difluoroethane, acetaminophen, butalbital, antihistamines, bromazepam, cocaethylene, and xylazine.

Deaths Related to Opioids and Other Drugs

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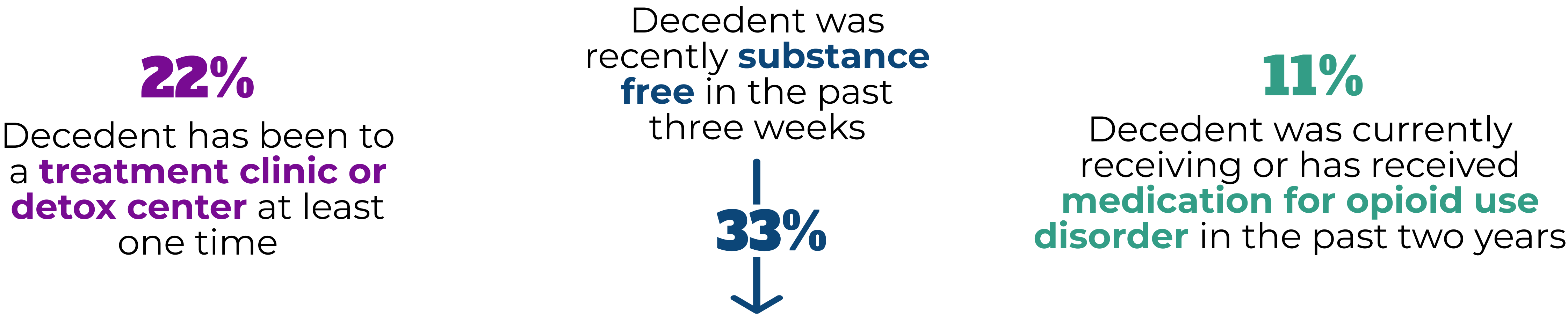
Substance Use History, cont.

PREFERRED METHOD OF ADMINISTRATION*

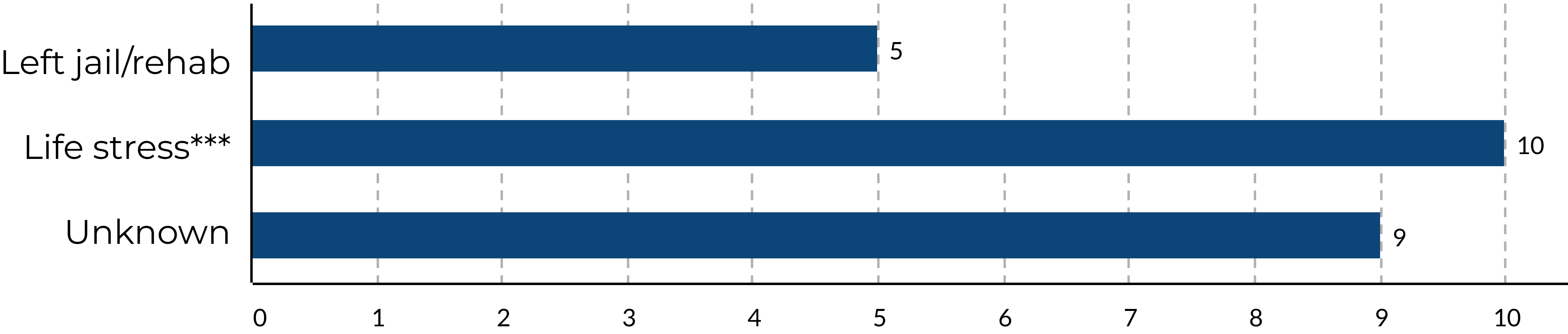
Method	Male (n=46)	Female (n=26)	White (n=48)	Black (n=22)	Hispanic (n=2)	Total (n=72)**
Intravenous	19	8	23	2	2	27
Snort	12	4	9	7	0	16
Smoke	16	6	14	8	0	22
Transdermal	0	0	0	0	0	0
Huff	1	0	1	0	0	1
Oral	7	8	11	3	1	15
Unknown	8	4	8	4	0	12

*Decedent may have had more than one preferred method of administration. Only includes decedents with a substance use history. **Decedent of Asian descent (n=1) is excluded.

RECOVERY HISTORY (N=73)*



SUSPECTED REASON FOR RELAPSE**



*ONLY Decedents known to use substances are included.

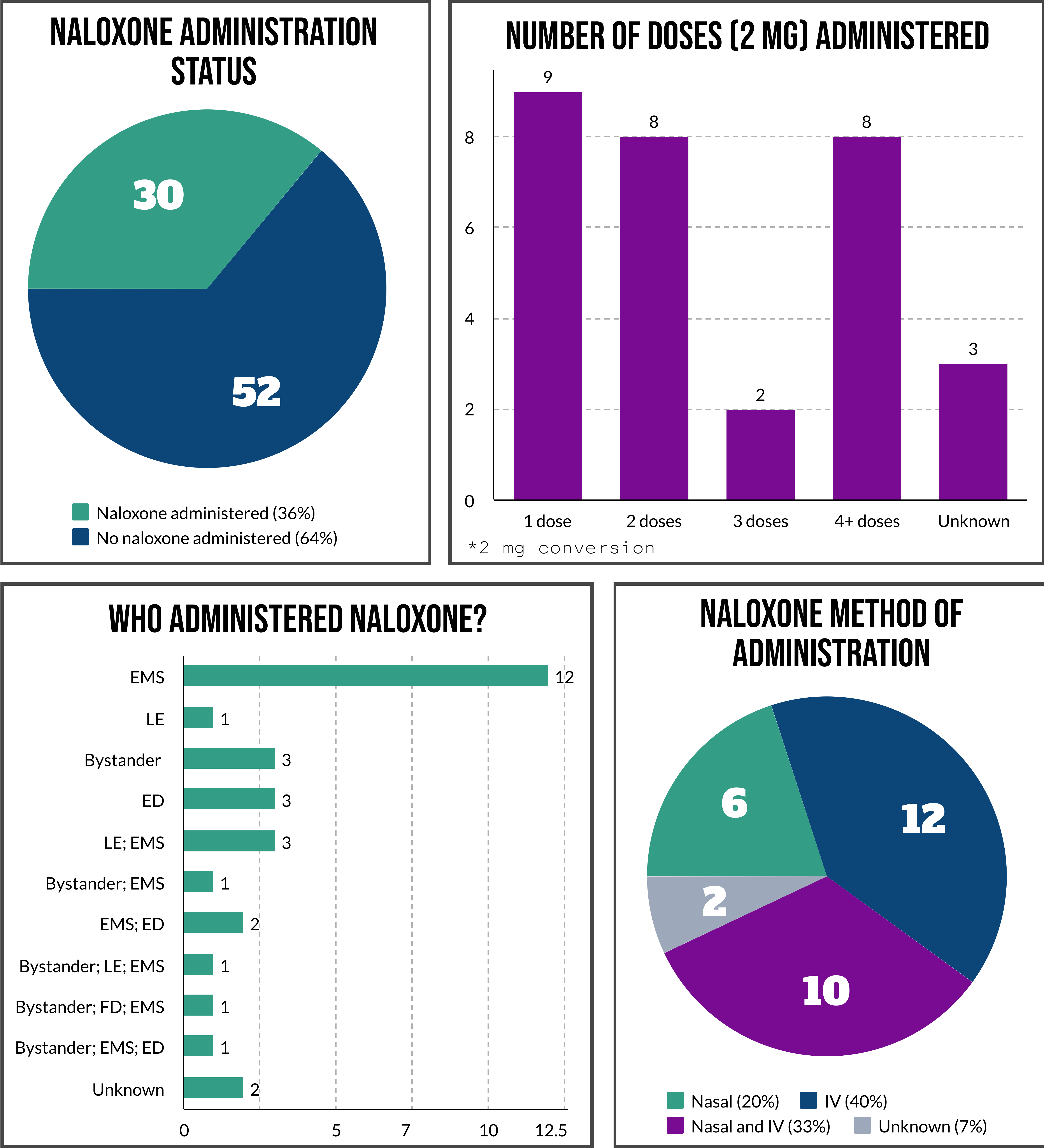
**These factors were mentioned by those close to the decedent for why they may have begun to use substances again after being substances free for at least three weeks.

***Life stress includes the death of someone close to the decedent, break up with S/O, lost housing, first time trying heroin, social circle influence, and losing a job.

Deaths Related to Opioids and Other Drugs

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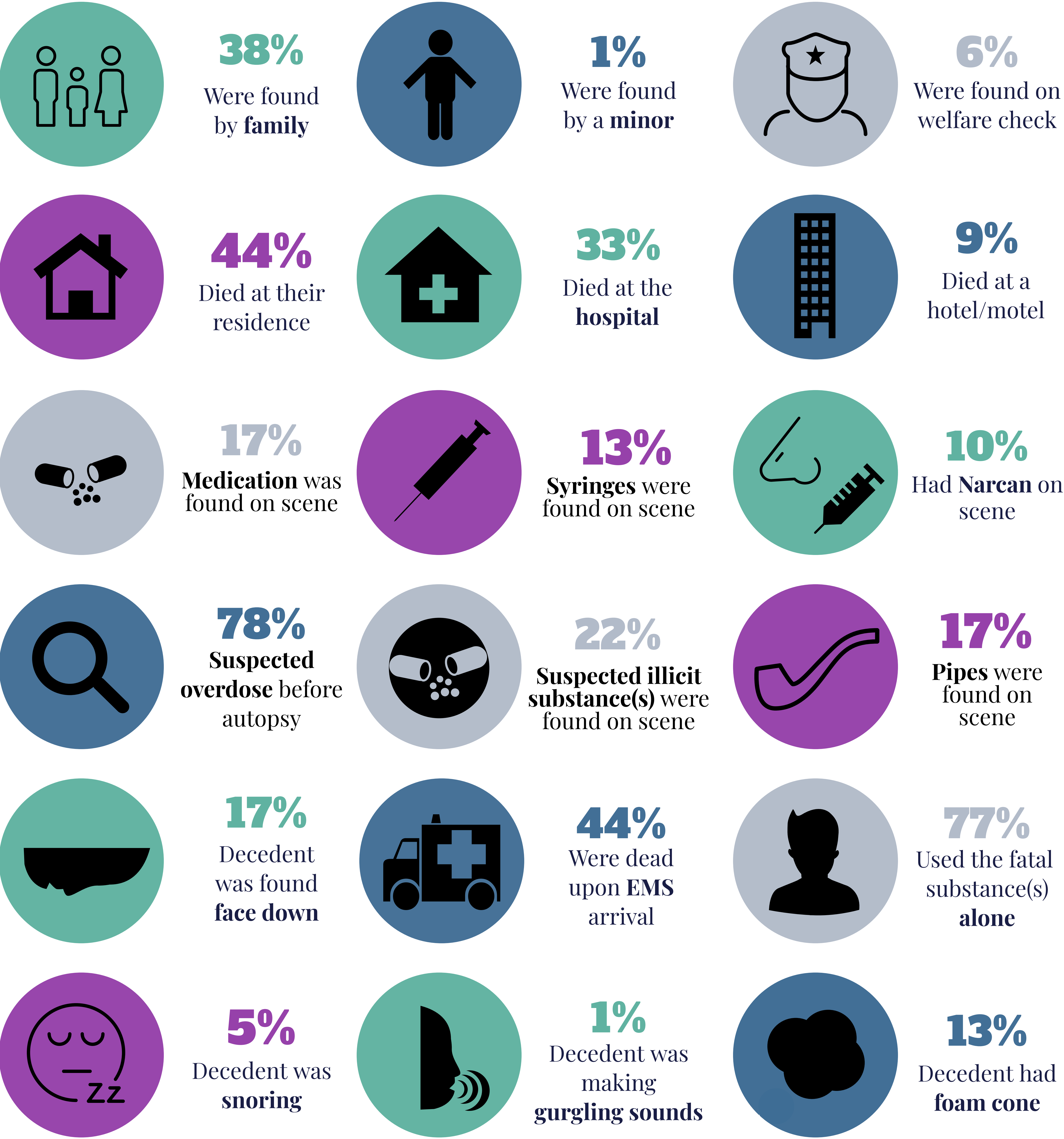
Naloxone Administration



Deaths Related to Opioids and Other Drugs

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Death Scene Findings

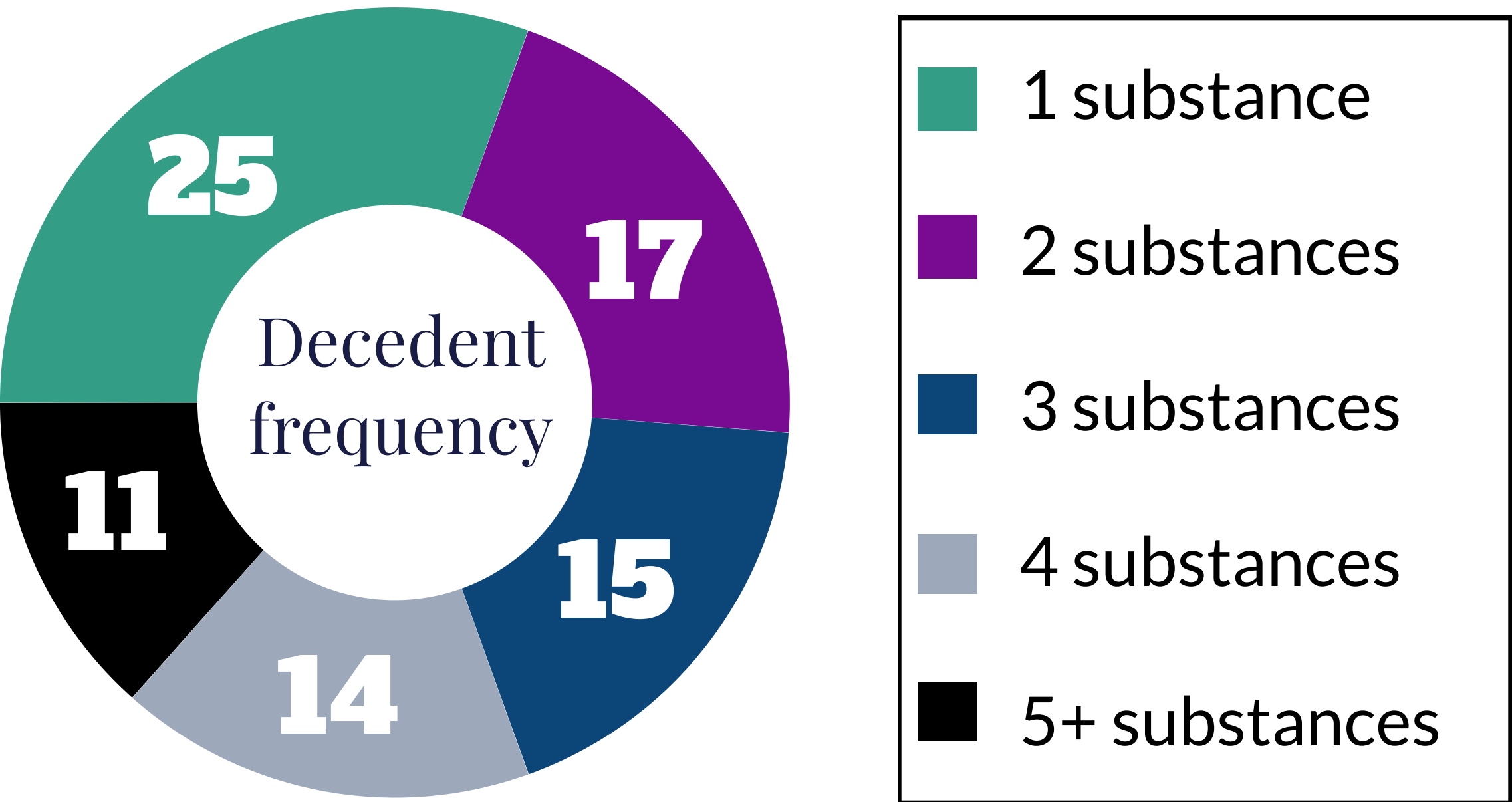


Deaths Related to Opioids and Other Drugs

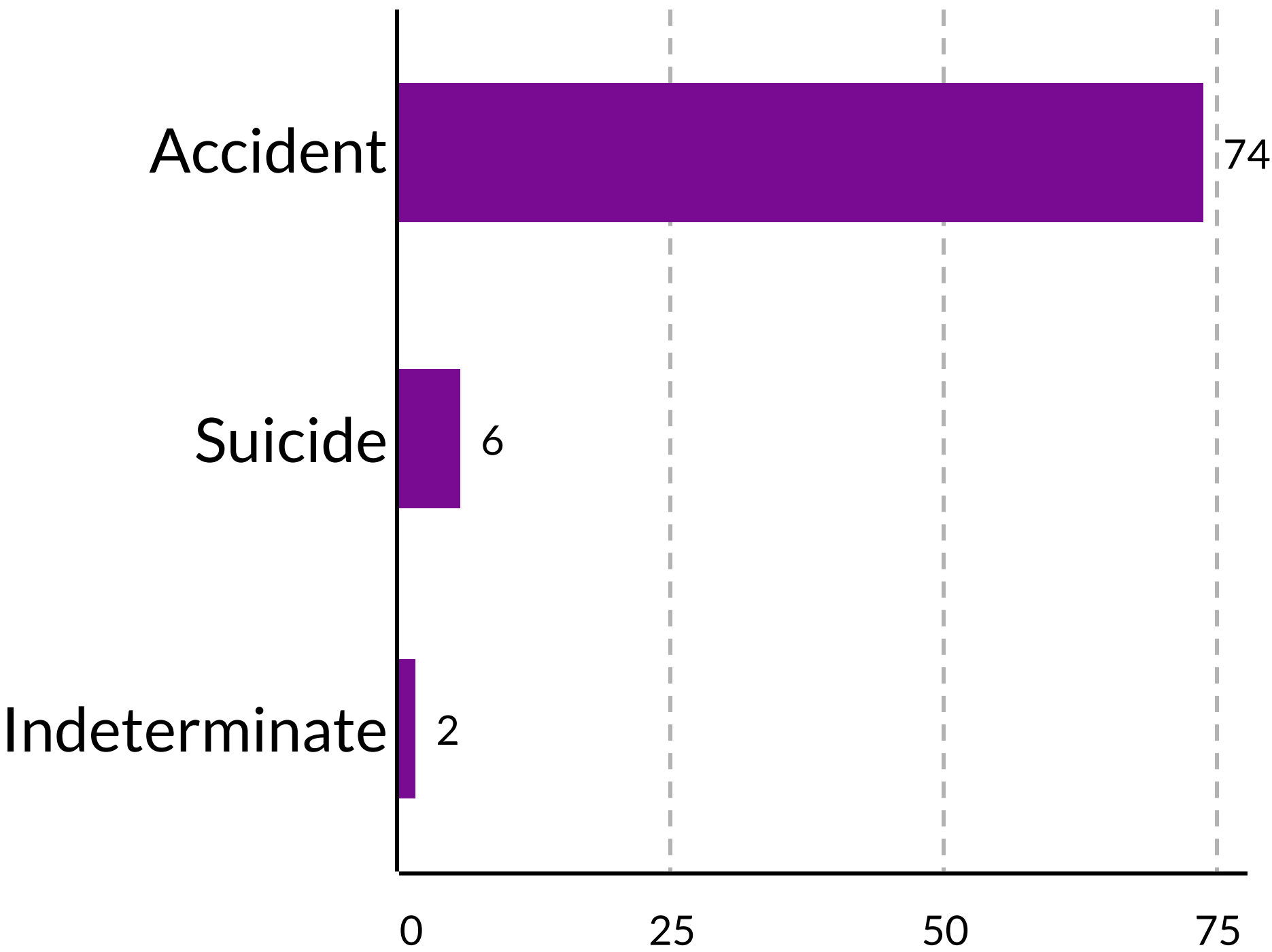
Kalamazoo County

Autopsy and Toxicology Results

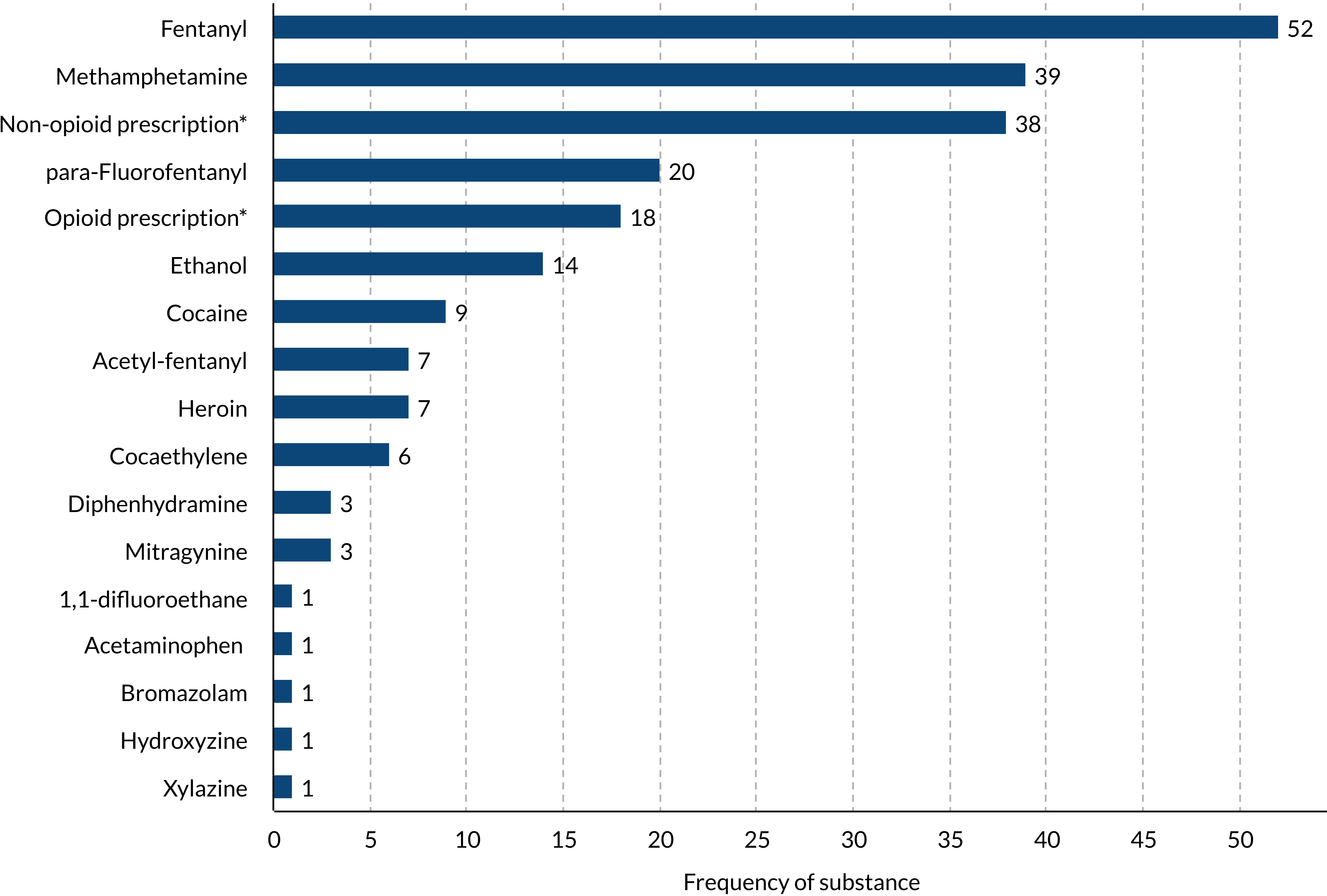
NUMBER OF SUBSTANCES
CONTRIBUTING TO DEATH



MANNER OF DEATH



SUBSTANCES CONTRIBUTING TO DEATH

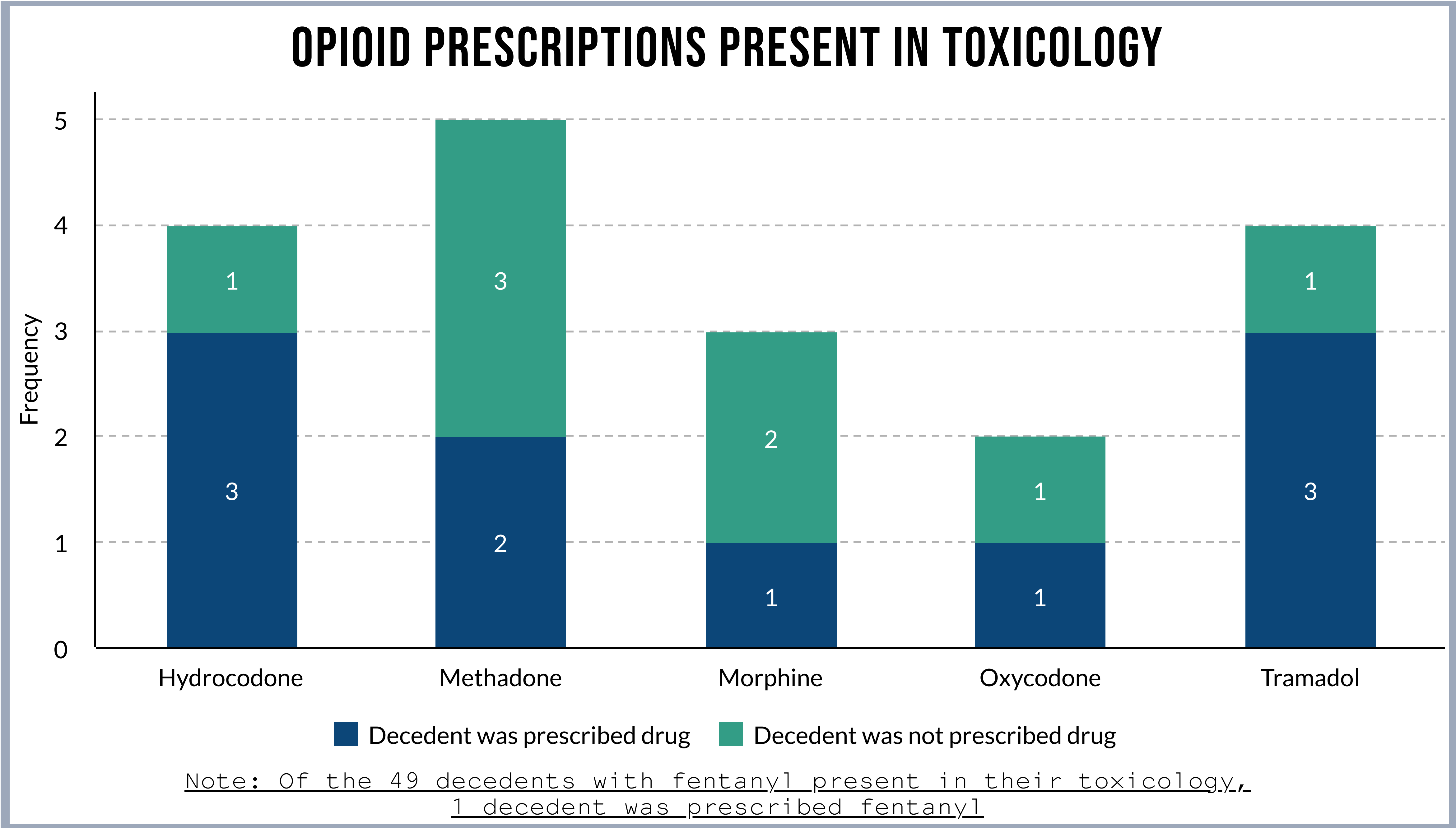
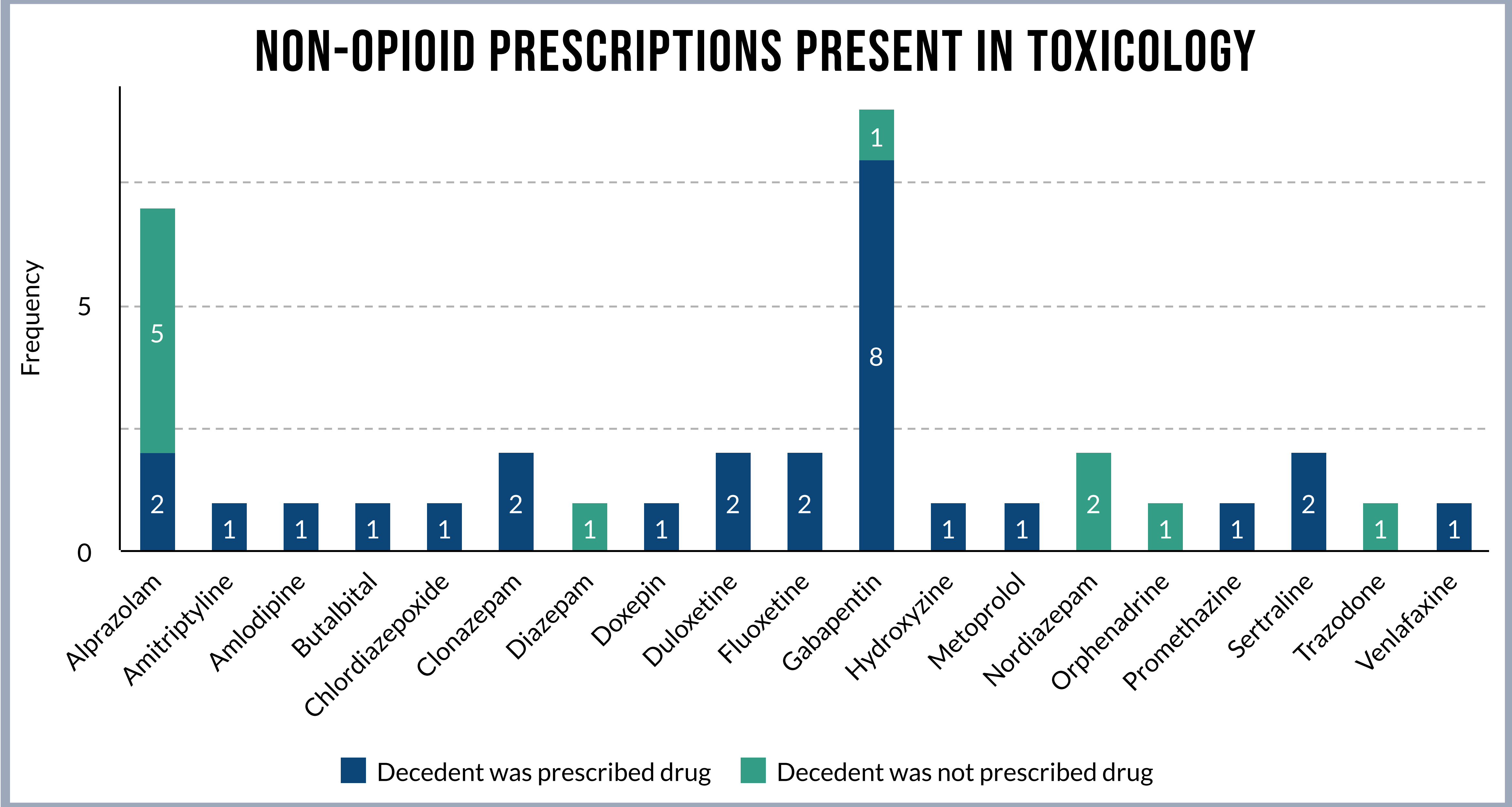


*Please see graphs on the next page for a list of opioid and non-opioid prescriptions

Deaths Related to Opioids and Other Drugs

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Autopsy and Toxicology Results, cont.



Deaths Related to Opioids and Other Drugs

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Highlights

OPIOIDS AND POSITIONAL ASPHYXIA

31% (19 of 61) of decedents who died of an opioid were originally found in a potentially airway asphyxiating position

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

5% (1 of 21) of decedents who died of a non-opioid were originally found in a potentially airway asphyxiating 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

Xylazine

1 death

- Only approved use is for veterinarian medicine in horses, cattle, etc.
- Used for sedation, anesthesia, muscle relaxation, and analgesia

Para-Fluorofentanyl

20 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

Bromazolam

1 death

- Benzodiazepine first created in 1976 but never marketed
- Similar sedative and anti-anxiety effects to other benzodiazepines

SUBSTANCE COMBINATIONS

HEROIN & FENTANYL

- 7 decedents had heroin in their toxicology
- 6 of these decedents also had fentanyl in their toxicology

XYLAZINE & FENTANYL

- 1 decedents had xylazine in their toxicology
- This decedent also had fentanyl in their toxicology

BENZODIAZEPINES & OPIOIDS

- 13 decedents had a benzodiazepine and an opioid in their toxicology
- 1 decedent were prescribed the opioid and benzodiazepine

METHAMPHETAMINE & OPIOIDS

- 24 decedents had methamphetamine and opioid(s) in their toxicology
- 21 decedents had methamphetamine and fentanyl in their toxicology