

Deaths Related to Opioids and Other Drugs (DROOD)

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Disclosure

I have no financial disclosures or conflicts of interest with the material presented. This is a report I generated while at Western Michigan University Homer Stryker M.D. School of Medicine (WMed) and does not necessarily reflect the views of WMed or my current place of work at MDHHS.

Agenda

- Medical Examiner Office process
- Data abstraction process
- Data and prevention

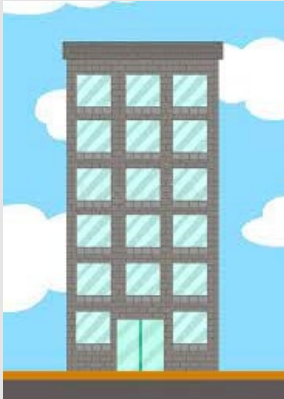
Person-First Language

STIGMATIZING LANGUAGE	PREFERRED LANGUAGE
Addict	Person with a substance use disorder
Addicted to X	Has a X use disorder
Addiction	Substance use disorder
Alcoholic	Person suffering from alcohol use disorder
Clean	In recovery
Clean screen	Substance free
Dirty	Actively using/Return to use
Dirty screen	Testing positive for substance use
Drug habit	Regular substance use
Drug abuser	Person who uses drugs
Reformed addict or alcoholic	Person in recovery
Opioid replacement	Medication for opioid use disorder



**Lots of
resources
online!**

What is the MEO?



MEO (OCME, CME)

Medical Examiner Office

Death investigations (autopsies)



MEI

Medical Examiner Investigator

Investigates death circumstances

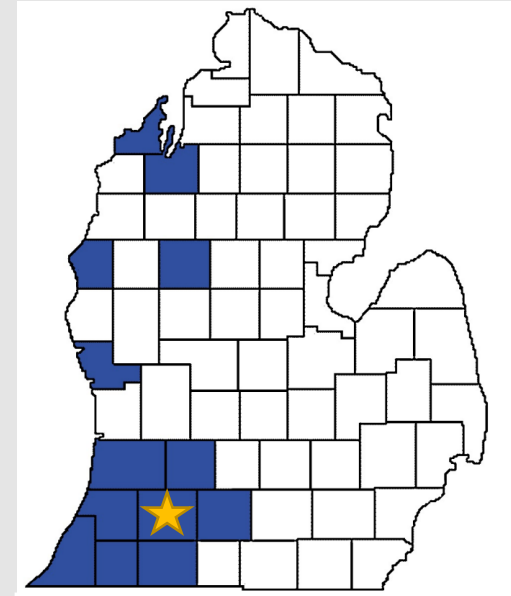
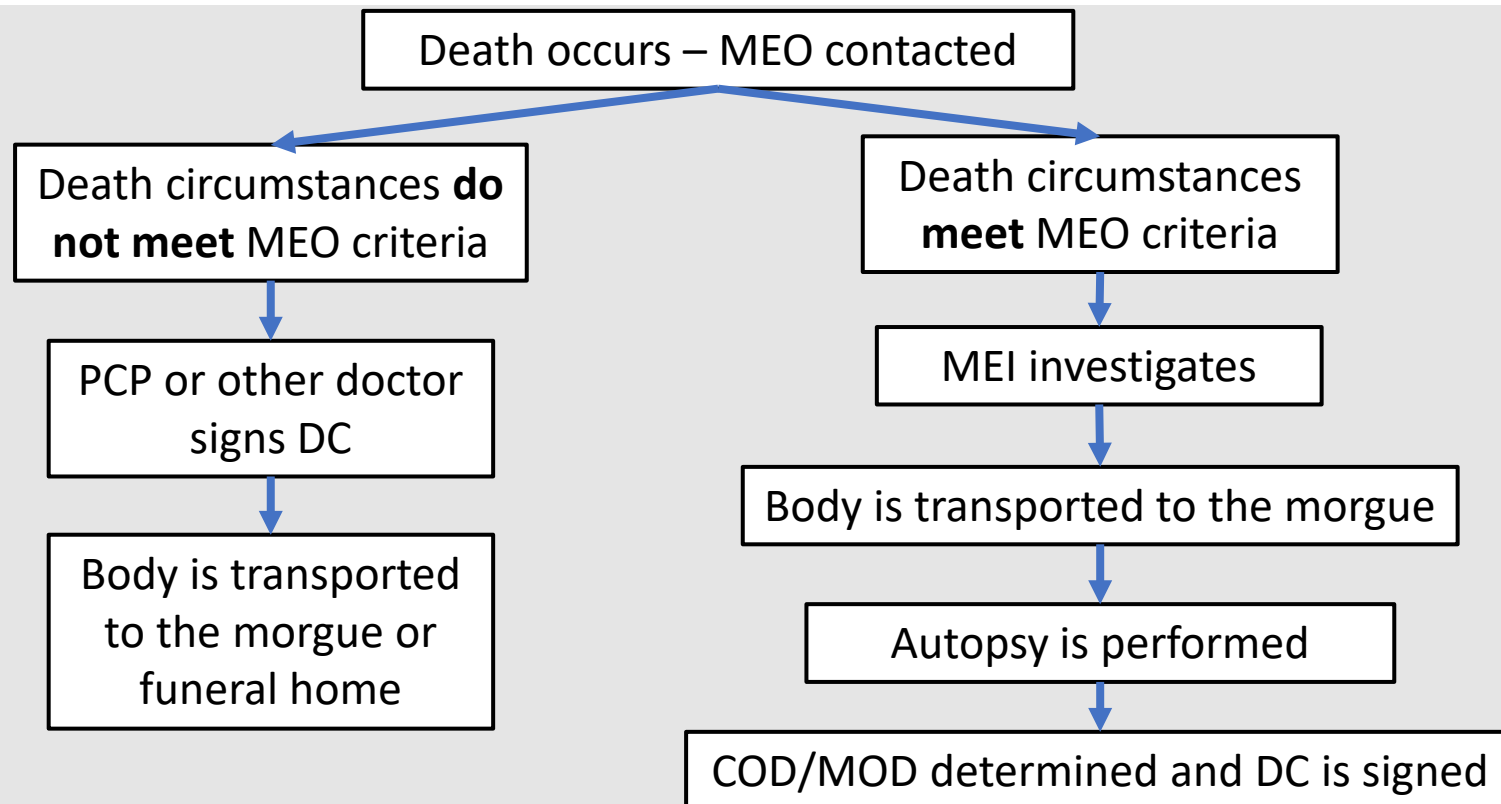


ME

Medical Examiner/ Pathologist

Performs autopsy, signs DC

Death investigation process



Allegan, Barry, Berrien, Calhoun,
Cass (2021), Grand Traverse,
Leelanau, Kalamazoo, Mason,
Muskegon, St. Joseph, Van Buren

DROOD Reports

- Quarterly and Annual Reports from 2020 to 2021
 - Quarterly reports combined 12/13 counties
 - Annual reports by county (low count exception) and combined 12/13 counties
- Reports are found on WMed's MEO website under Annual and Special Reports
 - Google: WMed Medical Examiner and Forensic Services
- We are talking about the 2021 report today

Information gathered

- MEI narrative → Written by MEI
 - Police report
 - EMS runsheet
 - Medical records
 - Toxicology report
 - Autopsy report
 - Death certificate
 - Obituary
- Requested by In House Investigators (IHI)
- Generated from 3rd party lab
- Generated by ME/IHI
- Written by family

Information is
entered into a
spreadsheet
for analysis

Why is this important?

- Grant proposals
- Inform work of community members
 - Presentations, conferences, other meetings
- Inform the community
 - News articles
- Overdose Data to Action → OD2A
 - How does the data inform the action of prevention

Who is included in this report?

- Location of death:
 - Kalamazoo Co
 - Can use substances in Van Buren but die at Borgess
- Manner of death:
 - Accident, Indeterminate, Suicide, or Homicide
- Cause of Death:
 - Died from drugs (Pt. I of DC)

Who is included in the report?

Pt. I, Cause of death:

Pt. II, Other significant conditions:

36. PART I. Enter the chain of events - diseases, injuries, or complications - that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line.				Approximate Interval Between Onset and Death	
<div>If diabetes was an immediate, underlying or contributing cause of death be sure to record diabetes in either Part I or Part II of the cause of death section, as appropriate.</div> <div>IMMEDIATE CAUSE (Final disease or condition resulting in death)</div> <div>Sequentially list conditions, IF ANY, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.</div>					
PART II. OTHER SIGNIFICANT CONDITIONS contributing to death but not resulting in the underlying cause given in Part I.				37. DID TOBACCO USE CONTRIBUTE TO DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> Probably <input type="checkbox"/> No <input type="checkbox"/> Unknown	
39. MANNER OF DEATH - Accident, Suicide, Homicide, Natural, Indeterminate or Pending. (Specify)		40a. WAS AN AUTOPSY PERFORMED? (Yes or No)	40b. WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or No)		38. IF FEMALE <input type="checkbox"/> Not pregnant within past year <input type="checkbox"/> Pregnant at time of death <input type="checkbox"/> Not pregnant, but pregnant within 42 days of death <input type="checkbox"/> Not pregnant, but pregnant 43 days to 1 year before death <input type="checkbox"/> Unknown if pregnant within the past year
41a. DATE OF INJURY (Mo. Day Yr.)	41b. TIME OF INJURY M	41c. DESCRIBE HOW INJURY OCCURRED			
41d. INJURY AT WORK (Yes or No)	41e. PLACE OF INJURY - At home, farm, street, construction site, wooded area, etc. (Specify)	41f. IF TRANSPORTATION INJURY - Driver/Operator, Passenger, Pedestrian, etc. (Specify)	41g. LOCATION - Street or RFD No. City, Village or Twp. State		

Who is included in the report?

Cause of death:

Other significant conditions:

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Who is included in the report?

Cause of death:

Myocardial infarction

Other significant conditions:

Methamphetamine toxicity

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Key take-aways

- Higher rates of fatal overdose for minorities
- High rates of chronic pain
- Mental health
- Return to use reasons
 - Recent release and life stress
- Increase use of naloxone by bystanders
- Substance use alone at home increases risk for fatal overdose
- Opioids and asphyxia
- Methamphetamine use is higher among those who are unhoused
- Prescription medication is most likely to be used attempting suicide

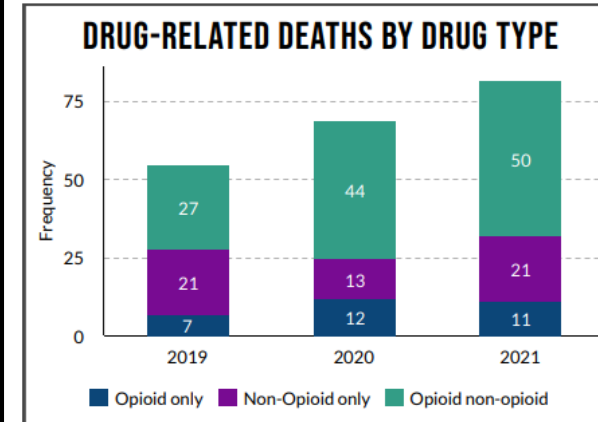
Summary of deaths

- 25% increase 2019 to 2020
- 19% increase 2020 to 2021
- See when spikes typically occur
 - Have more EMS in high-risk areas
 - Provide more naloxone to the community
 - Endless possibilities

Deaths Related to Opioids and Other Drugs

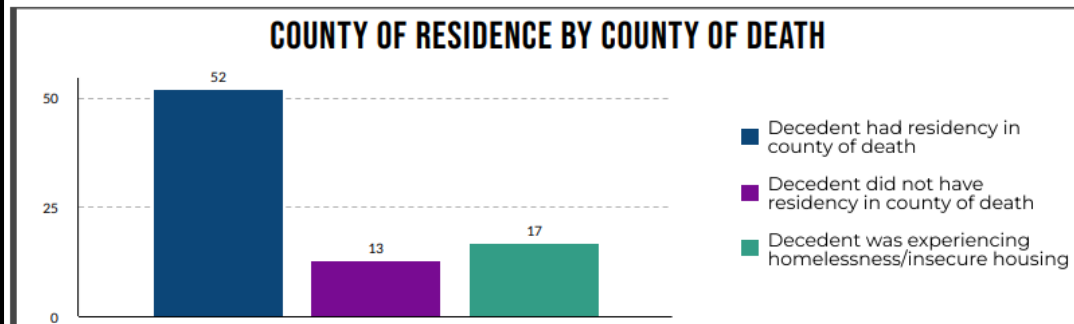
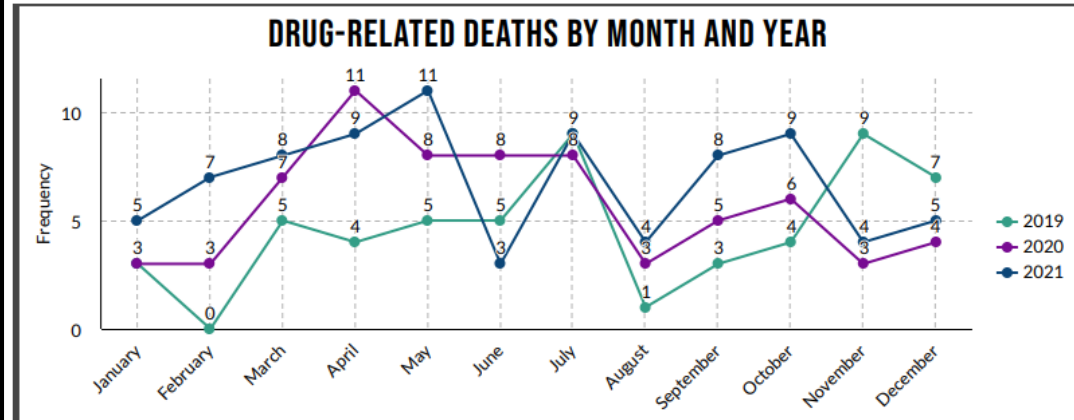
Kalamazoo County

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



Zip code of injury

Zip Code	Frequency
49048	14
49007	14
49001	10
49009	6
49008	6
49002	5
49006	5
49024	2
49080	1
49053	1
49012	1
49004	1
49034	1

Zip Code	Frequency	County
49093	1	St. Joseph
49079	1	Van Buren
49090	1	Van Buren
49037	1	Calhoun
49245	1	Calhoun
49017	1	Calhoun
49014	1	Calhoun

Zip Code	Frequency
Unknown	10

- 49048 and 49007 are most common zip codes
- Most substance use occurs in the same county of death
- If changes occur, data informs Kalamazoo how to distribute resources around the county

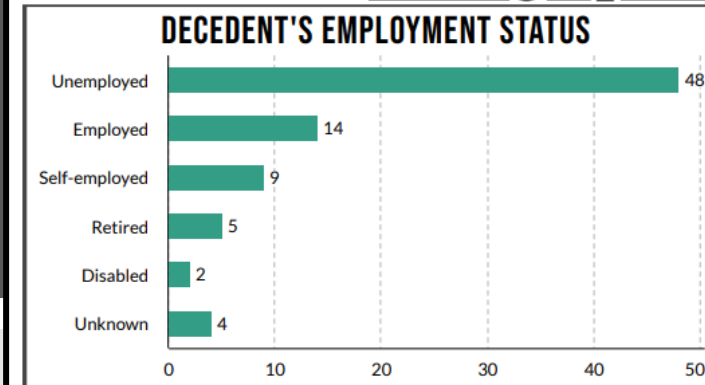
Demographics

- Kalamazoo Co vs Literature/Census
 - Kalamazoo demographics:
 - 81% White (vs 67%)
 - 12% Black (vs. 28%)
 - 6% Latino/Hispanic
 - 3% Asian
 - Employment status during COVID

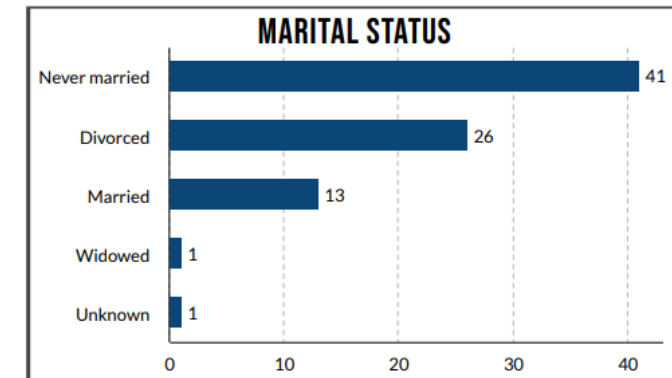
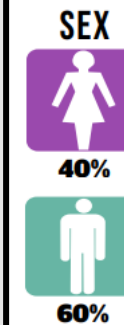
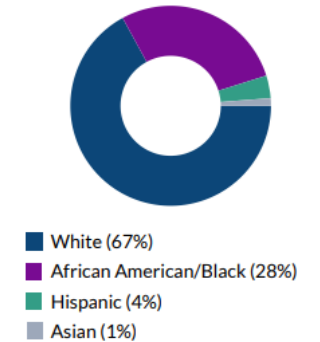
Deaths Related to Opioids and Other Drugs

Kalamazoo County

Demographics



RACE

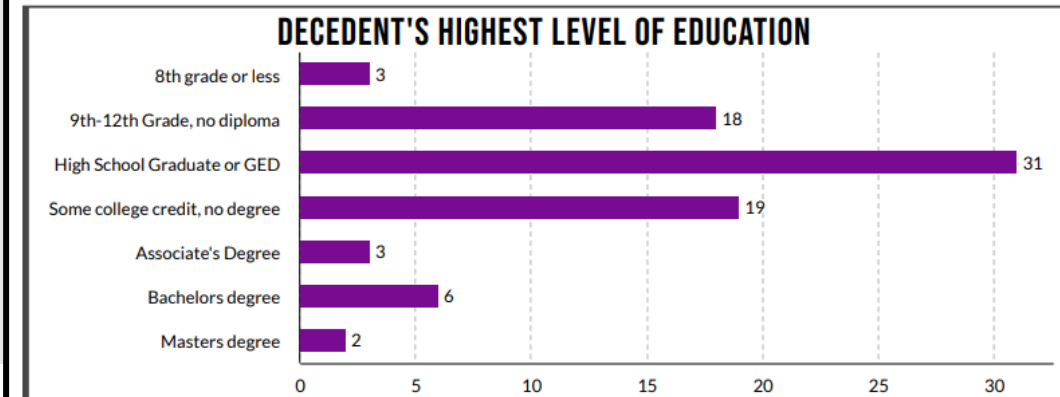


AGE

Minimum Age
23 years

Maximum Age
76 years

Average Age
48 years



Physical Health

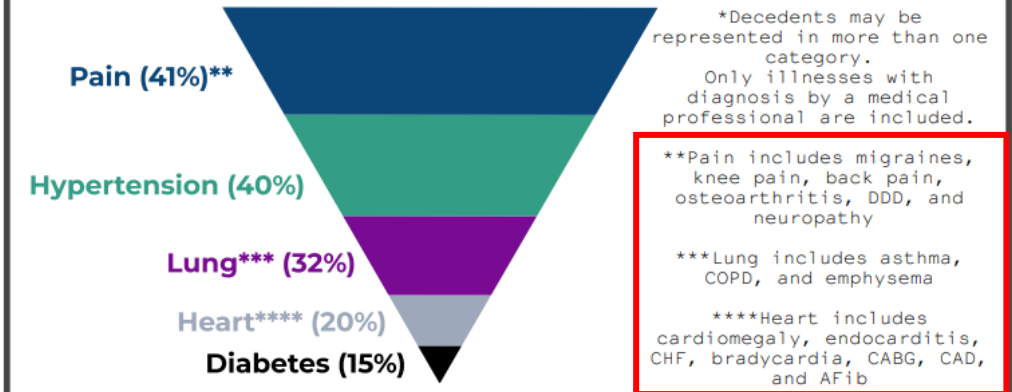
- Pain!!!!!!
- Other substance use
- PCP for intervention

Deaths Related to Opioids and Other Drugs

Kalamazoo County

Health Factors

MOST COMMON AILMENTS*



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

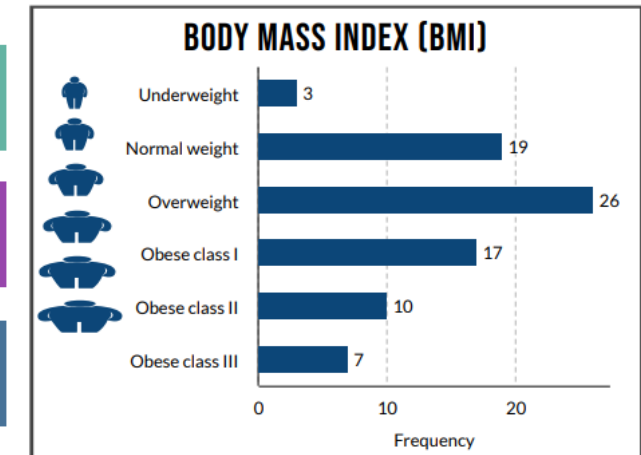
9 of these decedents were known to use **drugs intravenously**

Decedent used tobacco **70%**

Decedent drank alcohol **41%**

*Moderate to heavy use

Decedent had a PCP **62%**



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

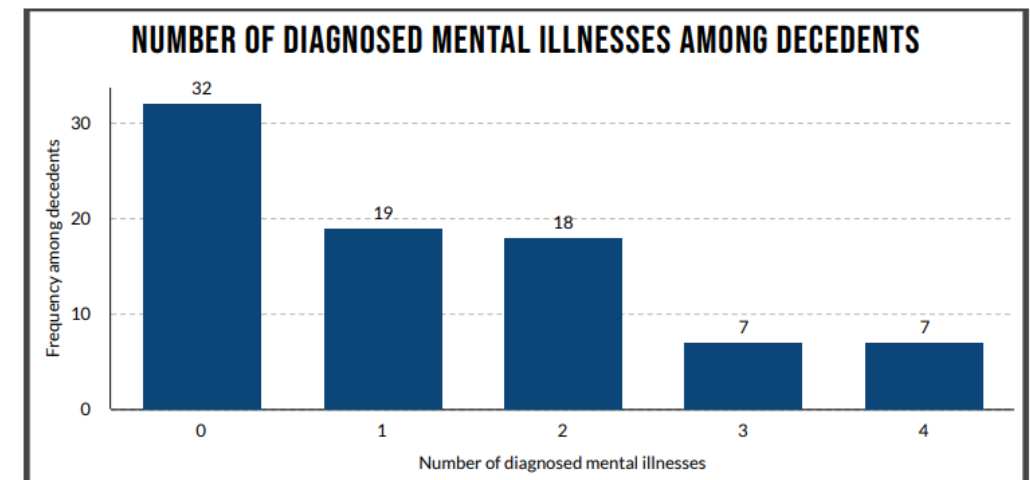
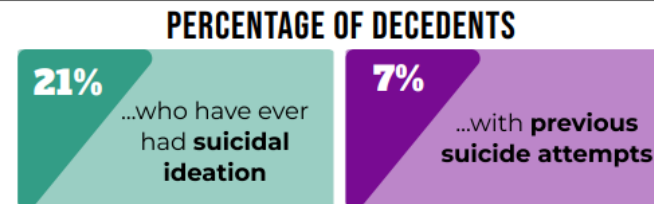
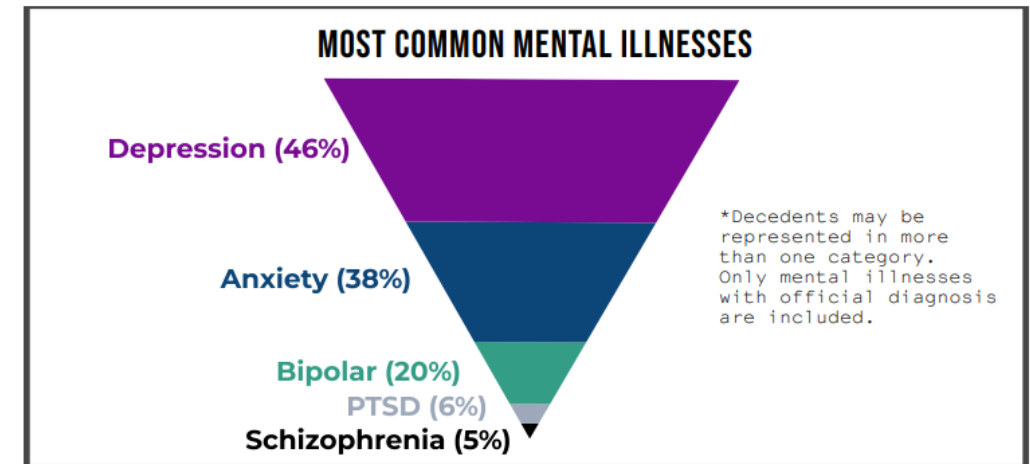
Mental/Behavioral Health

- Compare to general population

Deaths Related to Opioids and Other Drugs

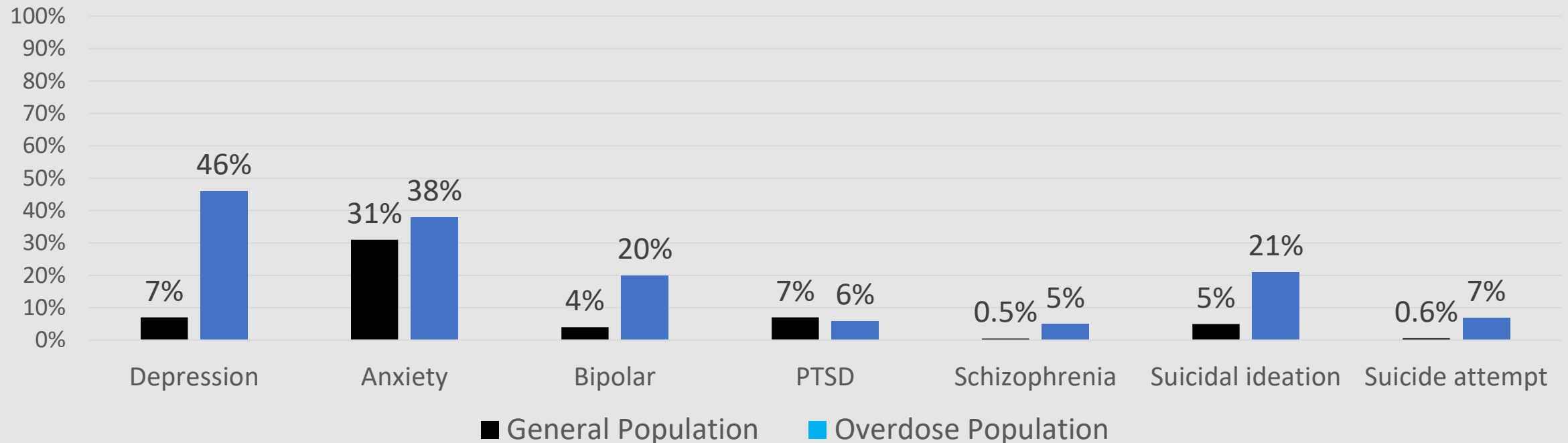
Kalamazoo County

Mental Health Factors



Mental/Behavioral Health

Mental Illness in the General vs. Fatal Overdose Population



Social/Children

- Unhoused rate
- Incarceration rates and COVID
 - WSU research
- Children

Deaths Related to Opioids and Other Drugs

Kalamazoo County

Social Factors

5%

Decedent was a **veteran**



21%



Decedent was **experiencing homelessness or insecure housing** at time of death

27%

Decedent has ever been **incarcerated**



18%



Decedents **ever incarcerated** were released in past 60 days

Children

DECEDENT HAD....



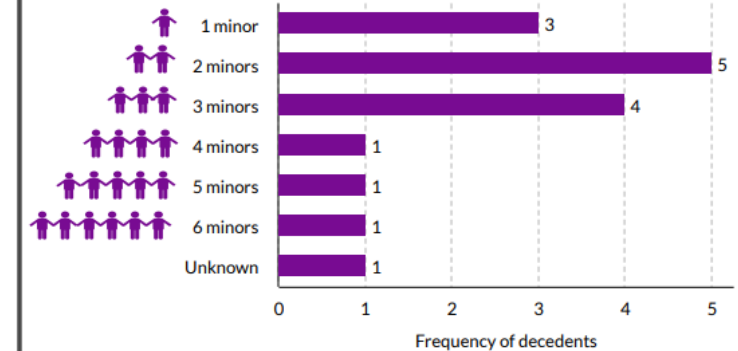
46% Adult children only



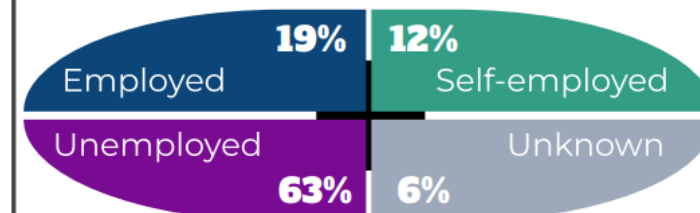
20% At least one minor child

34% No children

NUMBER OF MINOR BIOLOGICAL CHILDREN



EMPLOYMENT STATUS OF THOSE WITH MINOR CHILDREN



1 decedent lived with their minor child(ren) at time of death

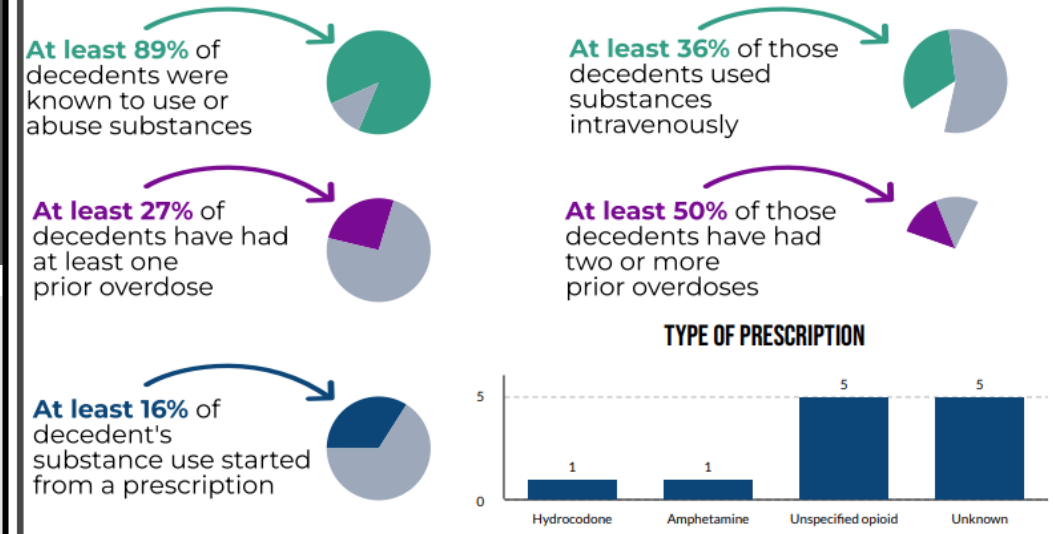
SUD history

- First time use or first overdose or long history?
- How did SUD start?
- Substance trends

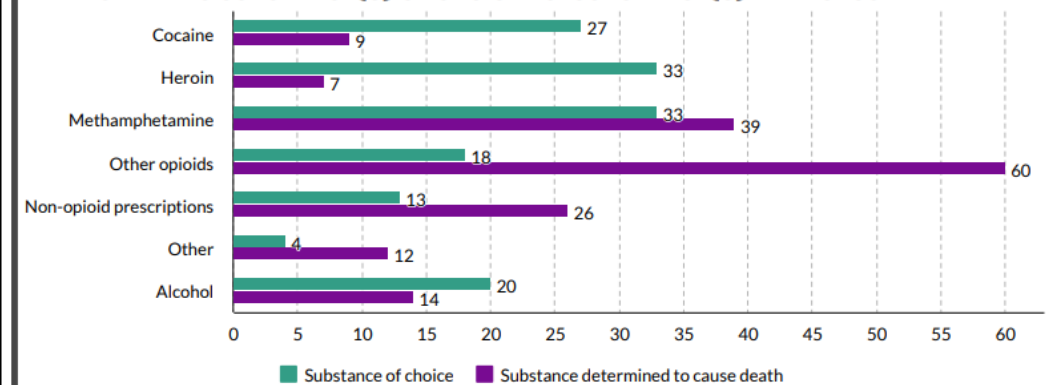
Deaths Related to Opioids and Other Drugs

Kalamazoo County

Substance Use History



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

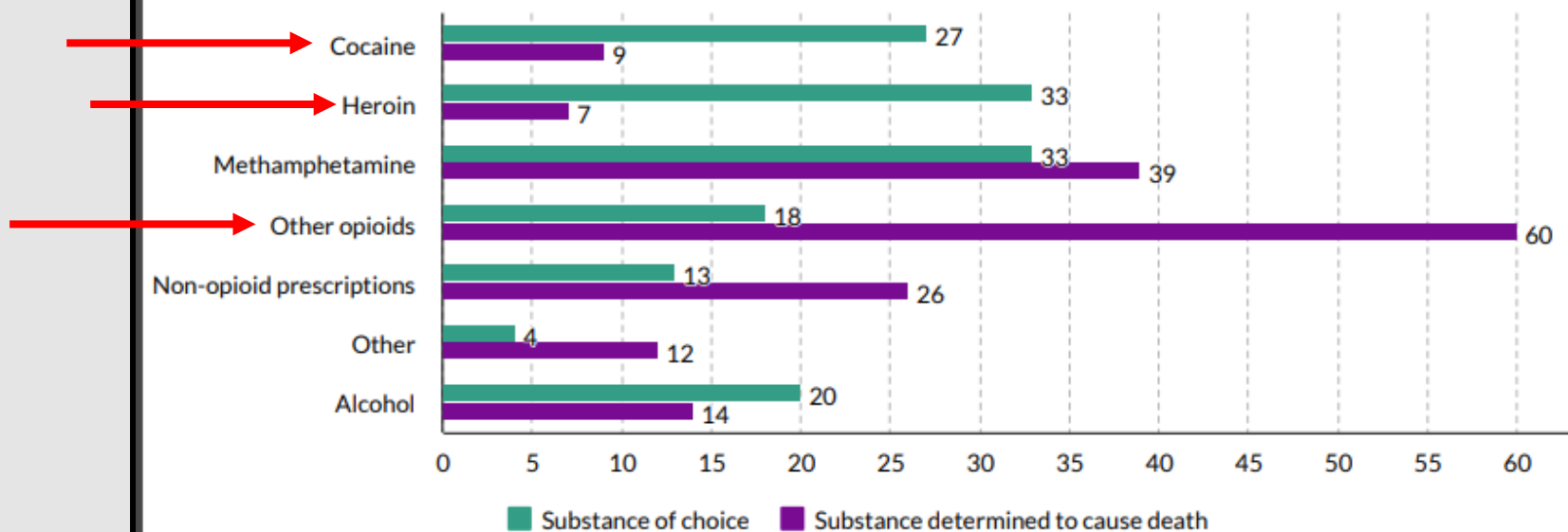


*Decedent may have had more than one substance of choice and more than one substance causing death.

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.

SUD history

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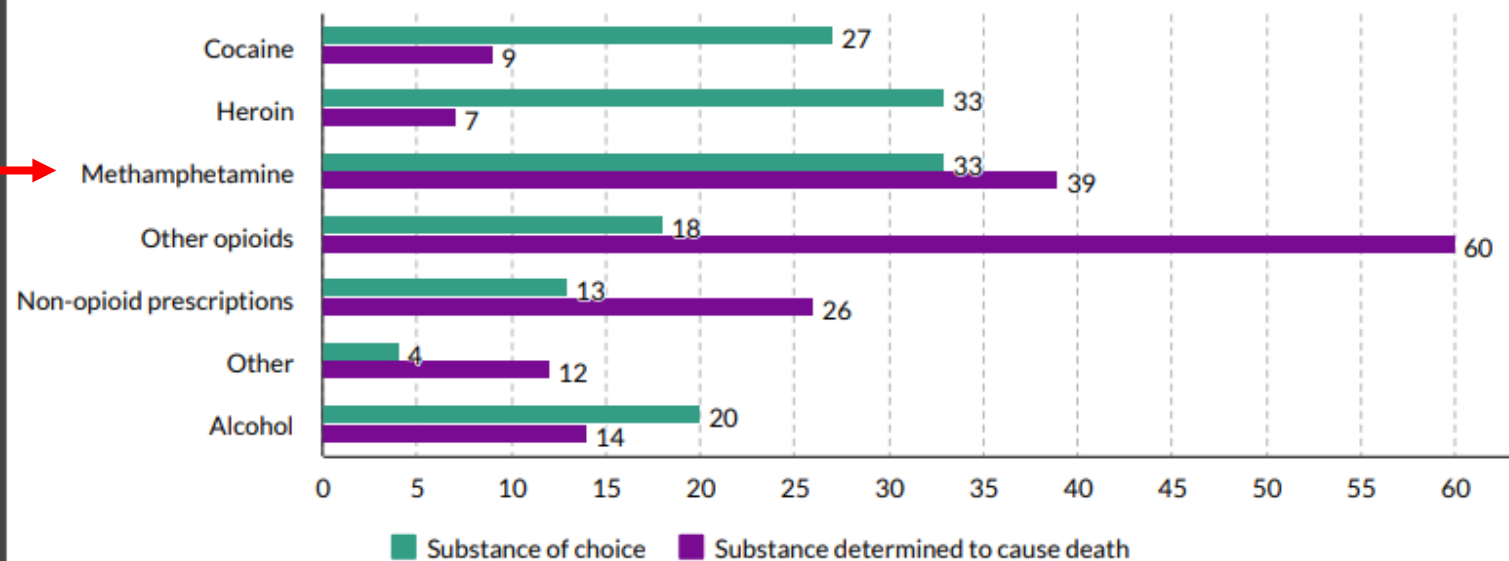


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SUD history

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SUD history

- Most common ways to use substances
- Return to use and COVID

Deaths Related to Opioids and Other Drugs

Kalamazoo County

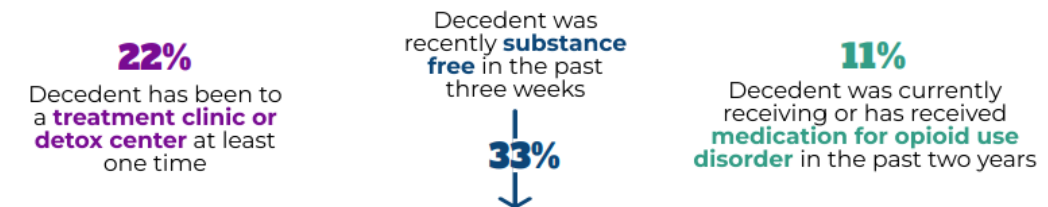
Substance Use History, cont.

PREFERRED METHOD OF ADMINISTRATION*

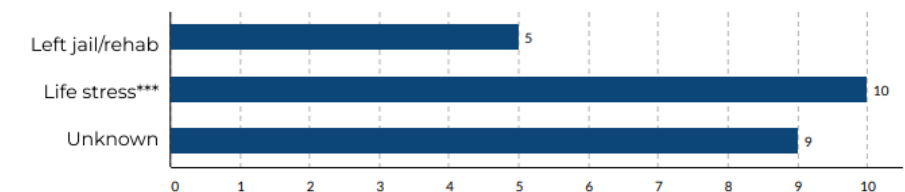
Method	Male (n=46)	Female (n=26)	White (n=48)	Black (n=22)	Hispanic (n=2)	Total (n=72)**
Intravenous	19	8	23	2	2	27
Snort	12	4	9	7	0	16
Smoke	16	6	14	8	0	22
Transdermal	0	0	0	0	0	0
Huff	1	0	1	0	0	1
Oral	7	8	11	3	1	15
Unknown	8	4	8	4	0	12

*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.

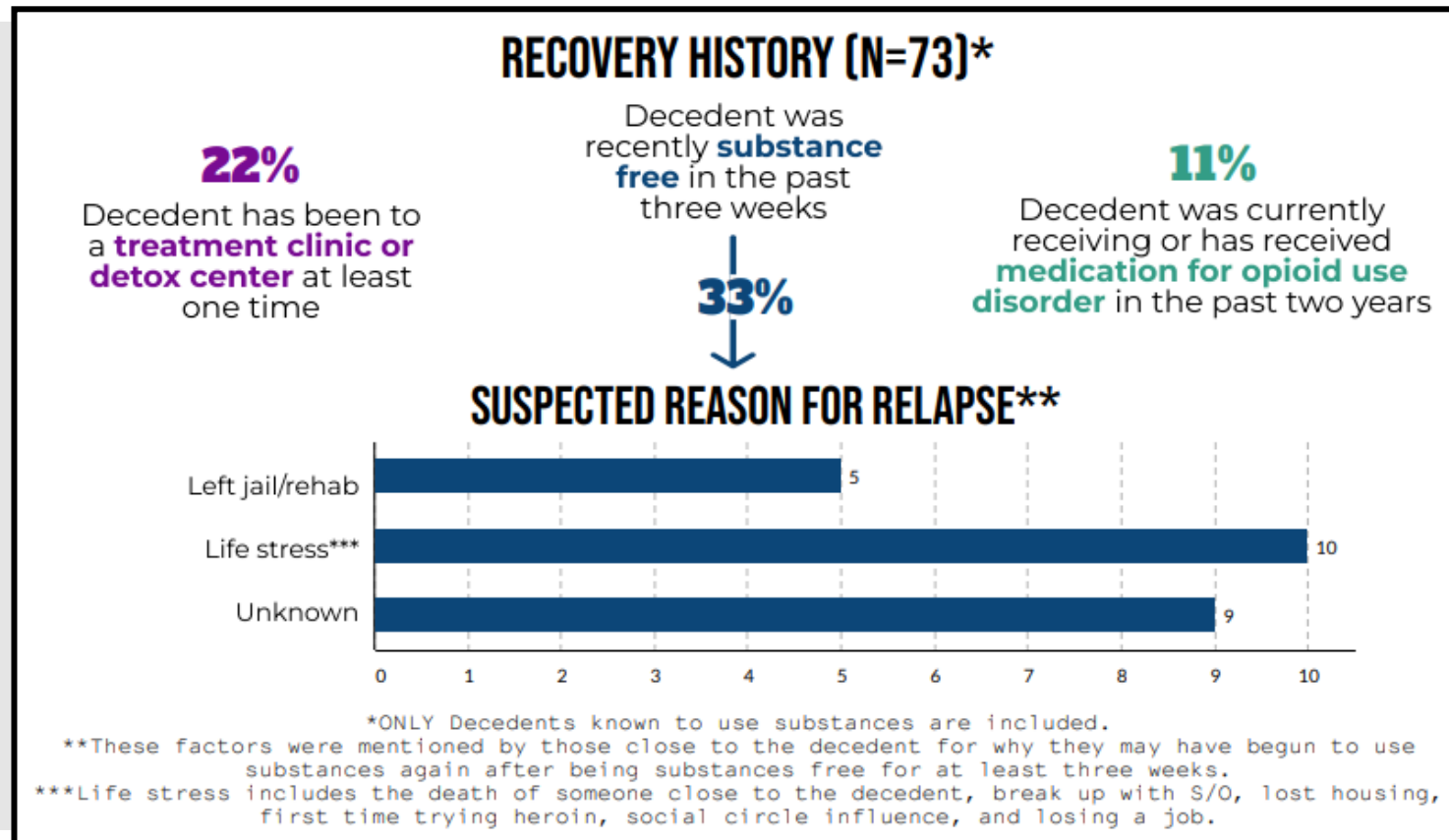
**These factors were mentioned by those close to the decedent for why they may have begun to use substances again after being substances free for at least three weeks.

***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.

SUD history

	Male	Female	White	Black	Total
Intravenous	41%	31%	48%	9%	38%
Snort	26%	15%	19%	32%	26%
Smoke	35%	23%	29%	36%	31%
Transdermal	0%	0%	0%	0%	0%
Huff	2%	0%	2%	0%	1%
Oral	15%	31%	23%	14%	21%
Unknown	17%	15%	17%	18%	17%

SUD history



Naloxone

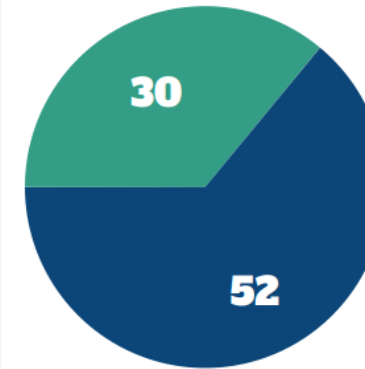
- Increase bystander Naloxone administration
 - Takes time for EMS and LE to get to scene

Deaths Related to Opioids and Other Drugs

Kalamazoo County

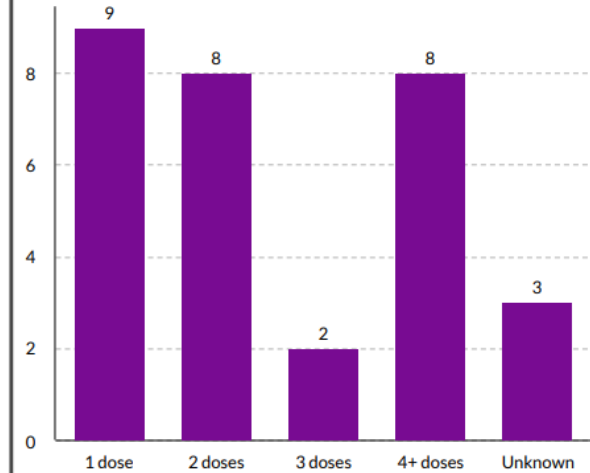
Naloxone Administration

NALOXONE ADMINISTRATION STATUS



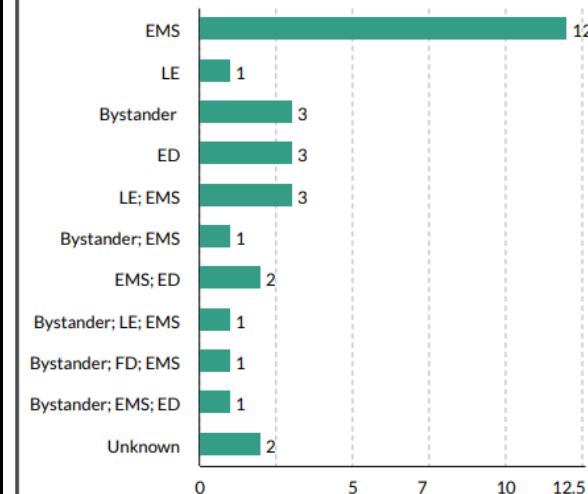
■ Naloxone administered (36%)
■ No naloxone administered (64%)

NUMBER OF DOSES (2 MG) ADMINISTERED

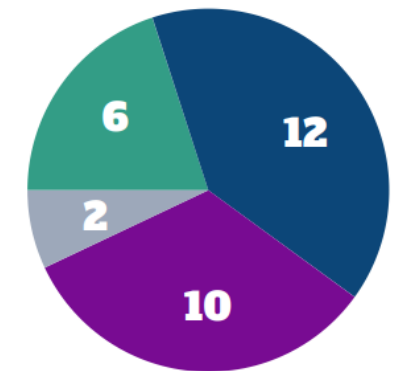


*2 mg conversion

WHO ADMINISTERED NALOXONE?



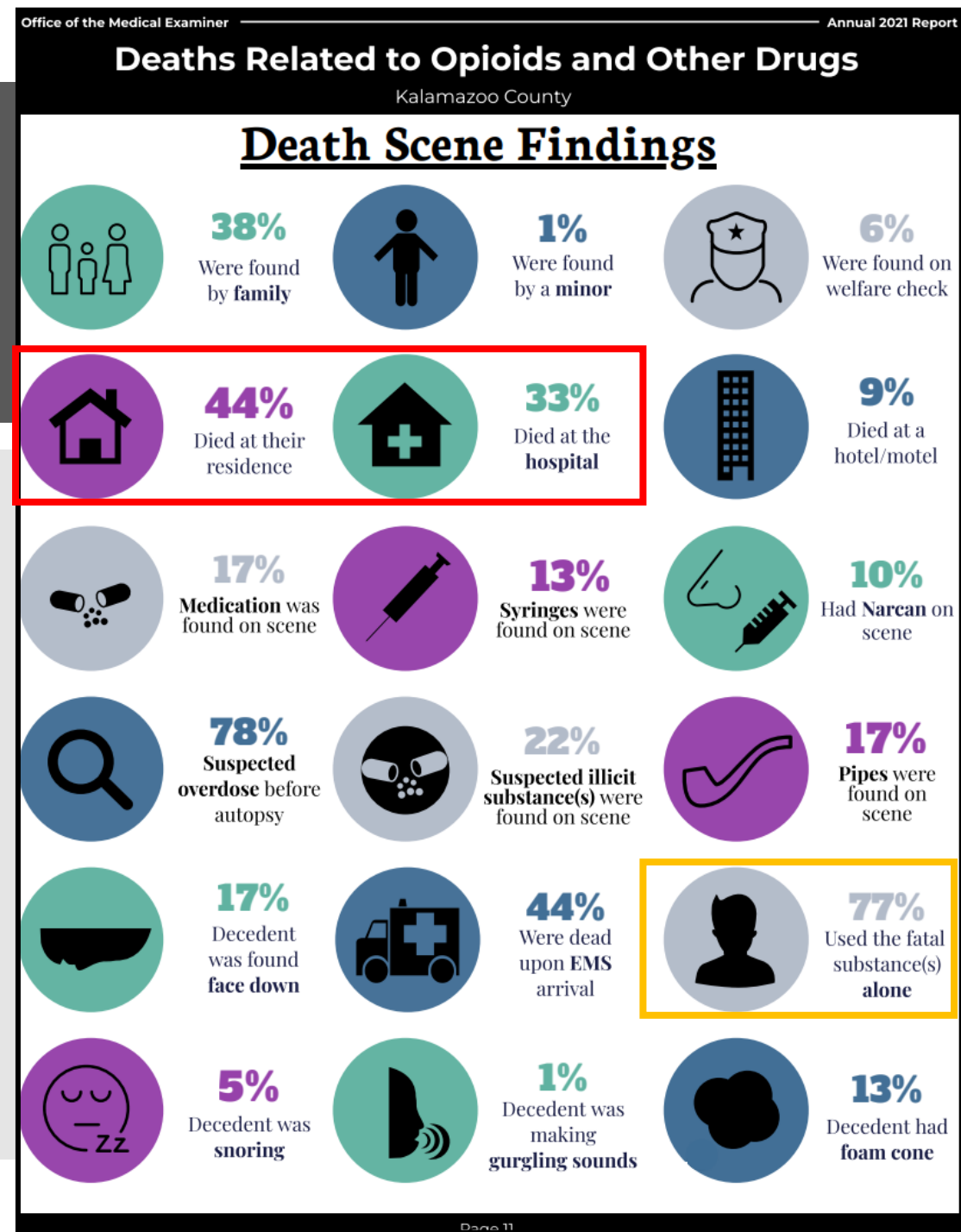
NALOXONE METHOD OF ADMINISTRATION



■ Nasal (20%) ■ IV (40%)
■ Nasal and IV (33%) ■ Unknown (7%)

Death Scene

- Most overdoses happen at home and are unwitnessed
 - Tell someone you are using, hotlines, use in small quantities, test before use



Autopsy and Tox

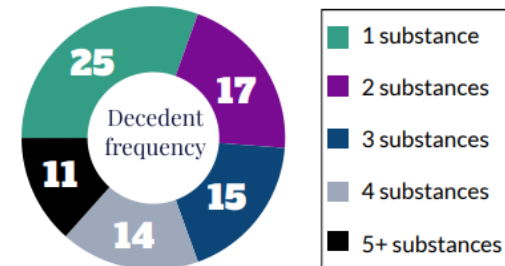
- COD and MOD

Deaths Related to Opioids and Other Drugs

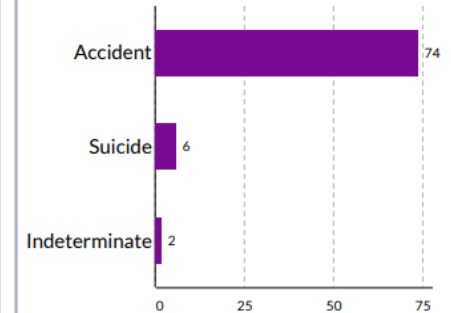
Kalamazoo County

Autopsy and Toxicology Results

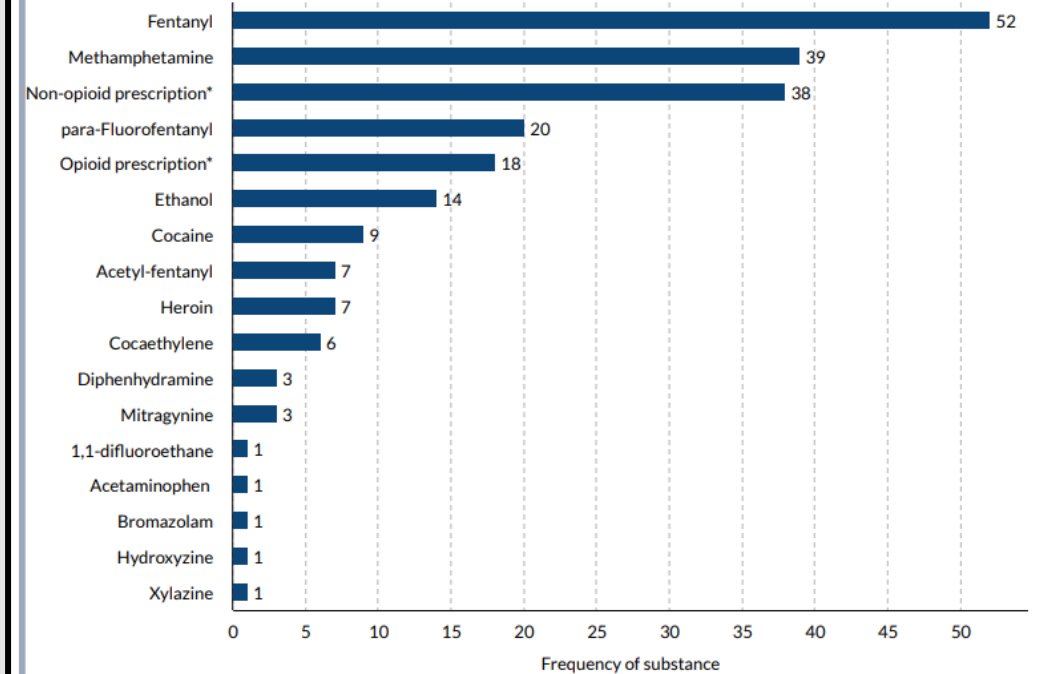
NUMBER OF SUBSTANCES
CONTRIBUTING TO DEATH



MANNER OF DEATH



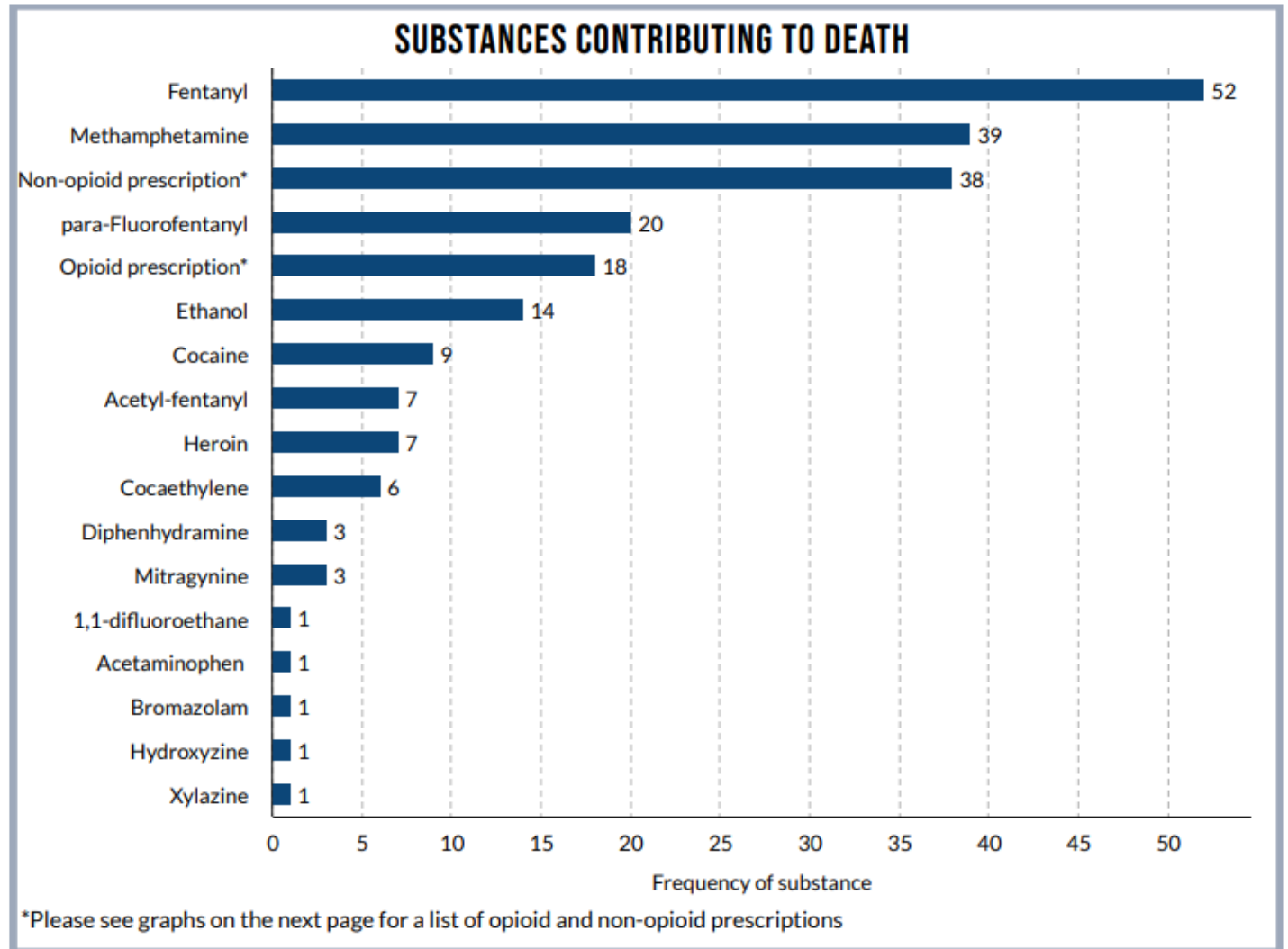
SUBSTANCES CONTRIBUTING TO DEATH



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

Autopsy and Tox

- COD and MOD



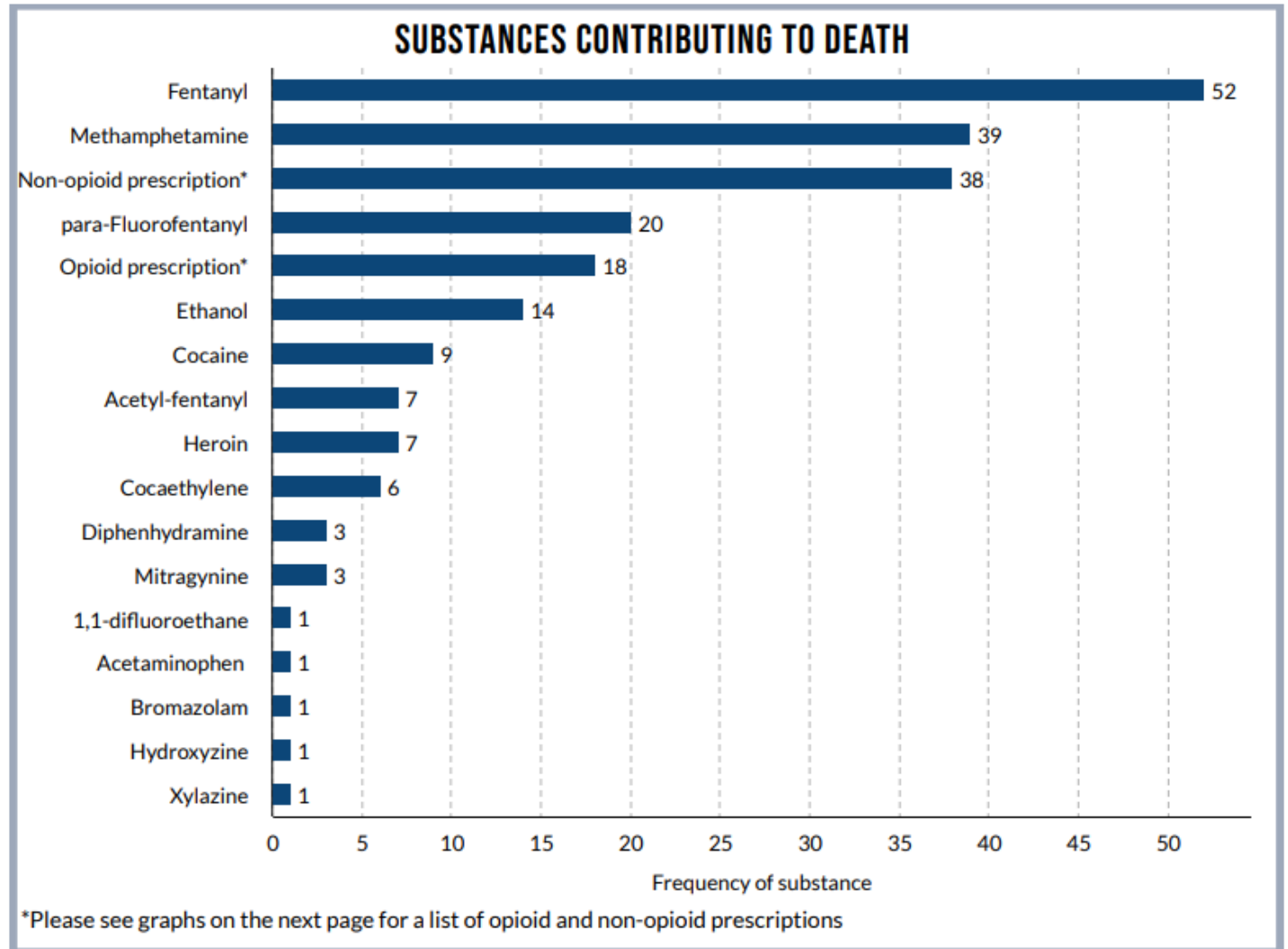
Autopsy and Tox

- 1,1-difluoroethane



Autopsy and Tox

- COD and MOD



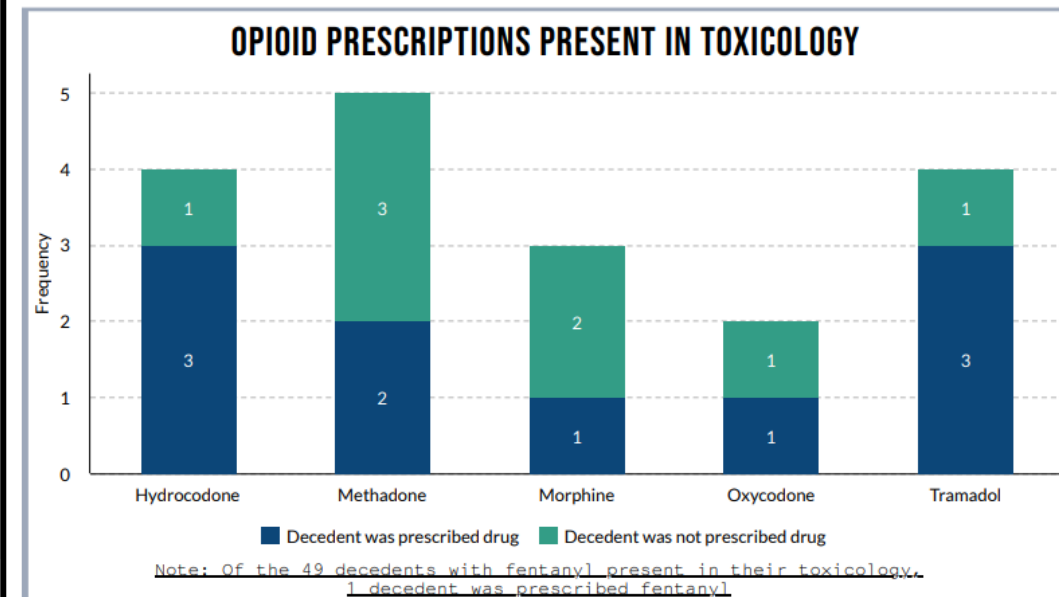
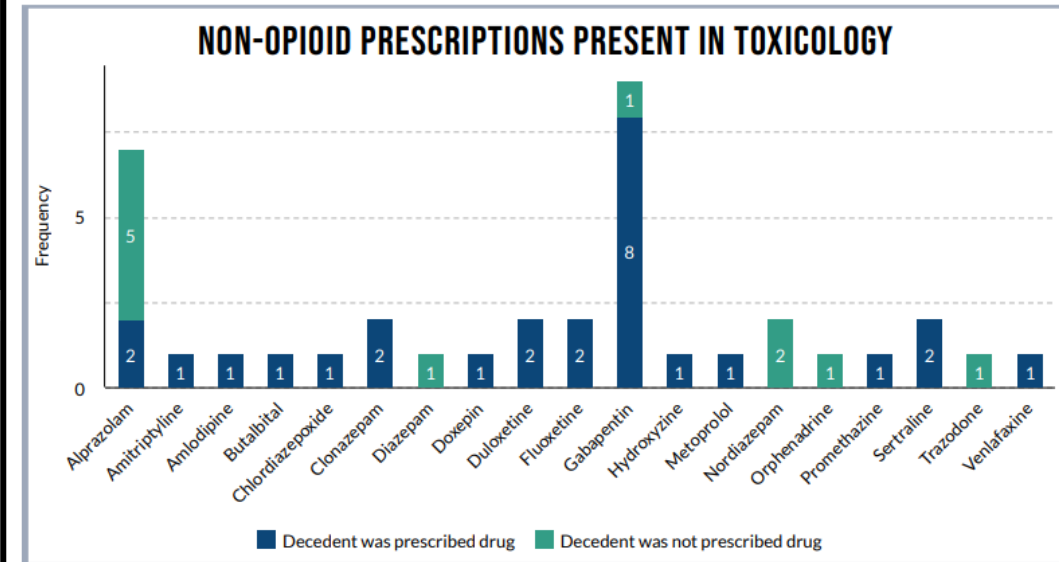
Prescription status

- **Blue** = prescribed
- **Green** = not prescribed
- **Non-opioid**: mostly prescribed
- **Opioid**: about 50/50
 - Fentanyl was only prescribed to one decedent

Deaths Related to Opioids and Other Drugs

Kalamazoo County

Autopsy and Toxicology Results, cont.



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.

Highlights

DECEDENT'S HOUSING STATUS AND METHAMPHETAMINE USE

**63% of decedents
without stable housing
had methamphetamine
contribute to their
overdose**

**37% of decedents with
stable housing had
methamphetamine
contribute to their
overdose**

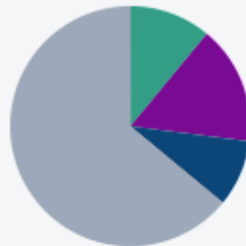
Highlights

DECEDENT'S PRESCRIPTION STATUS AND MANNER OF DEATH

36% of decedents whose death was ruled an accident had prescription medication contributing to death

11% had prescriptions for those medications
16% did not have prescriptions for those medications

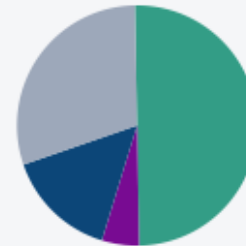
9% had prescriptions for some medications but not for others



70% of decedents whose death was ruled a suicide had prescription medication contributing to death

50% had prescriptions for those medications
5% did not have prescriptions for those medications

15% had prescriptions for some medications but not for others

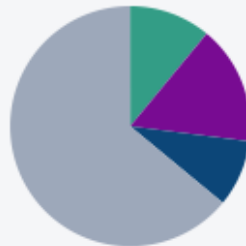


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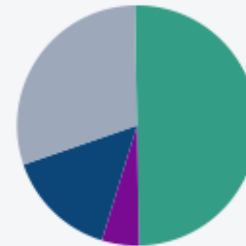
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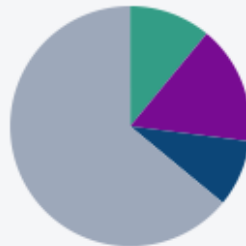
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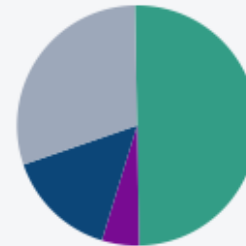
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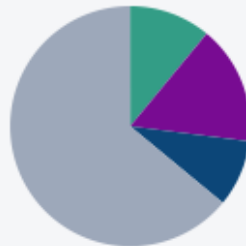
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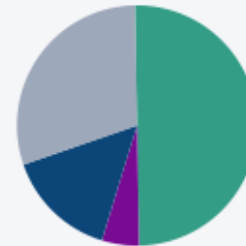


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Key take-aways

- Higher rates of fatal overdose for minorities
 - SSPs, health care access, lack of paraphernalia
- High rates of chronic pain
- Mental health
- Return to use reasons
 - Recent release and life stress
- Increase use of naloxone by bystanders
- Substance use alone at home increases risk for fatal overdose
- Opioids and asphyxia
- Methamphetamine use is higher among those who are unhoused
- Prescription medication is most likely to be used attempting suicide

Thank you!

Questions? Comments? Thoughts?

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