Department of Forensic Pathology

Office of the Medical Examiner

2020 Drug Report

Introduction

Drug-Related Deaths - Defined

We define drug deaths as those which result entirely or partially from the physiologic effects of acute toxicity. Therefore, included here are deaths which resulted from a combination of natural disease and acute intoxication (e.g. lung disease complicated by opioid intoxication). Our definition does not include deaths by violence, in which the violent behavior may have been caused or contributed to by intoxication (e.g. death due to injury from motor vehicle crash in which the at-fault driver was intoxicated). We also do not include deaths related to the effects of chronic substance use (e.g. deaths due to alcoholic liver disease or heart disease which may have been contributed to by chronic cocaine use) if not combined with acute toxicity.

Methods

The majority of the drug deaths reported are due to more than one substance, as you will see in the detailed tables that follow. Often, decedents have even more substances present in their body at the time of death or overdose incident than just the substances listed as having caused or contributed to death. After autopsy and review of records, including toxicology report, the medical examiner assigned to the case determines which of the substances present played a causal role in the death. Thus, there may be substances present in a given case which are not included in the cause of death statement.

Occasionally, intoxicated decedents survive in the hospital for a time prior to death, following acute drug intoxication. In these cases, all efforts are made to obtain and test the earliest blood and urine available from their time in the hospital for the overdose incident, so that the toxicology results reflect what was in the body at the time the overdose occurred.

New information occasionally becomes available after a "final" cause of death was determined, which sometimes, albeit rarely, results in a change to the "final" cause of death. As such, the statistics contained herein may be subject to change at any time.

The extent of toxicology testing is determined by the medical examiner assigned to the case, based upon the circumstances of death. During the period reported, our office used Axis Forensic Toxicology for toxicology testing.[1]

Manner Determination

Drug-related deaths are conventionally certified as accidents (unless otherwise indicated by investigation on a case by case basis) and rarely, if ever, Homicide. A decedent's intentions in the interval immediately preceding death may be impossible to ascertain. A common example is a person who has a well-documented history of suicidal ideation or attempts but also abuses drugs recreationally. In such cases a fatal overdose may be intentional or unintentional, and therefore may be best certified as indeterminate.

[1] If you have questions about what drugs we are currently capable of detecting, please visit www.axisfortox.com or email michelle.fox@sparrow.org

Highlights

Unless otherwise noted, all comparisons here are made to the data from 2019. As stated above, most drug-related deaths are due to a combination of more than one substance. As such, numerous deaths fall into multiple of the below statistical categories (i.e. *all* heroin, fentanyl, methadone, and fentanyl analogue-related deaths are included in the opioid-related deaths category, and many deaths involved both heroin and fentanyl, and are included in both specific categories).

- Total drug-related deaths **increased** by 22% (33 more)
- Opioid-related deaths **increased** 30% (37 more)
- Heroin-related[2] deaths **decreased** by 42% (15 less)
- Fentanyl-related deaths **increased** by 47% (43 more)
- Methadone-related deaths **were unchanged** (steady at 15)
- Cocaine-related deaths **decreased** by 25% (10 less)
- Amphetamine/Methamphetamine-related[3] deaths **increased** by 59% (17 more)
- Benzodiazepine-related deaths **were unchanged** (steady at 31)
- **73%** of all drug-related deaths were due to two or more substances (-6% from 2019)
- **19%** of all opioid-related deaths also involved at least one benzodiazepine (-1% from 2019)
- **18%** of all opioid-related deaths also involved ethanol (alcohol) (+1% from 2019)

[2] Heroin is rapidly metabolized to morphine. As such, this may result in some under-reporting of heroin, and over-reporting of morphine

[3] Methamphetamine is metabolized to amphetamine in the body, thus, it is not always clear what the presence of amphetamine indicates (illicit methamphetamine use vs. prescription amphetamine use)

Eaton County

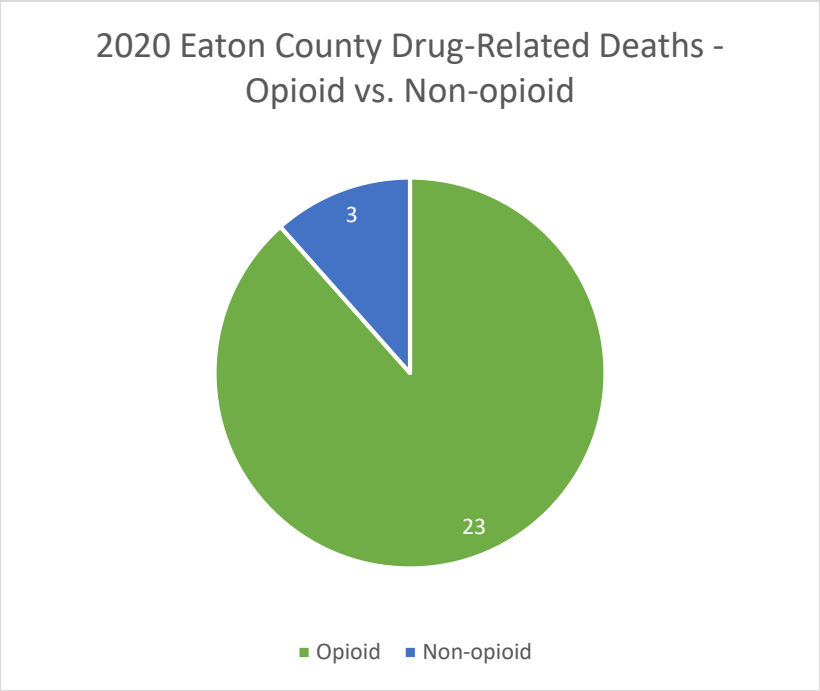
Drug-Related Deaths

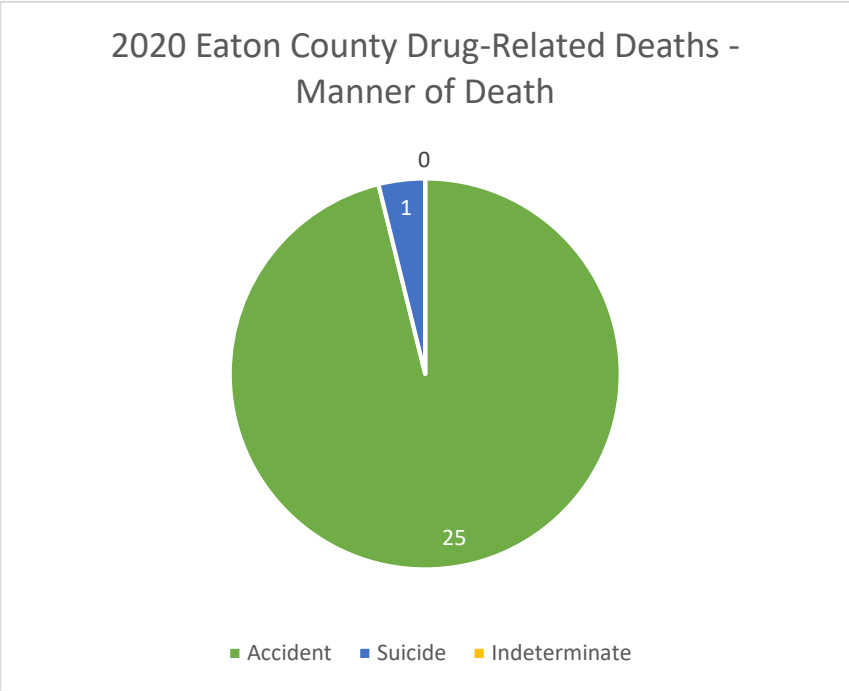
2020 Eaton County Drug-Related Deaths			
Sex	**Age**	**Substance(s) Causing Death**	**Manner of death**
Male	19	fentanyl	Accident
Male	21	fentanyl	Accident
Male	21	fentanyl, methamphetamine	Accident
Female	22	fentanyl	Accident
Female	23	fentanyl, hydrocodone	Accident
Male	24	fentanyl, gabapentin, lorazepam	Accident
Female	24	methamphetamine, fentanyl	Accident
Male	25	fentanyl, heroin, cocaine, alprazolam, clonazepam, cyclobenzaprine, ethanol	Accident
Male	26	1,1-difluoroethane	Accident
Male	28	cocaine, heroin, bupropion, gabapentin	Accident
Female	29	fentanyl, acetylfentanyl, alprazolam	Accident
Female	31	methamphetamine, alprazolam, hydrocodone, tramadol	Accident
Male	35	bupropion, venlafaxine, clonidine	Suicide
Male	35	fentanyl, mitragynine, tramadol	Accident
Female	38	dextromethorphan, methadone	Accident
Male	39	methadone, clonazepam, amitriptyline, pregabalin, haloperidol	Accident
Male	42	fentanyl	Accident
Male	46	cyclobenzaprine, ethanol, fentanyl, hydroxyzine	Accident
Female	47	fentanyl, methamphetamine	Accident
Female	48	alprazolam, cocaine, fentanyl	Accident
Female	51	heroin, fentanyl, doxylamine	Accident
Female	57	alprazolam, methamphetamine, morphine	Accident
Male	58	fentanyl, xylazine	Accident
Male	59	methamphetamine	Accident

Male	62	fentanyl, mitragynine	Accident
Male	67	fentanyl	Accident

Eaton County

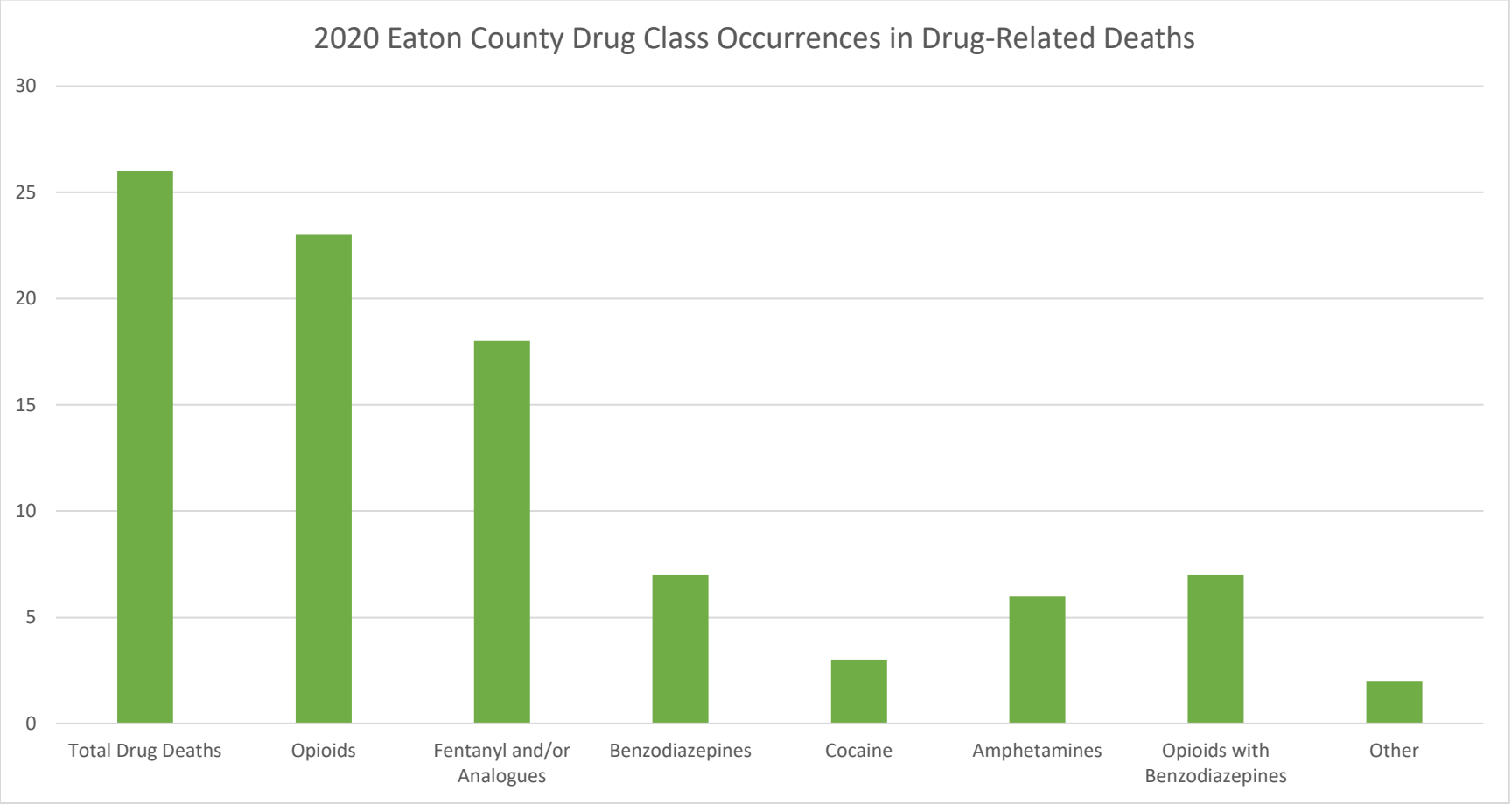
Drug-Related Deaths





Eaton County

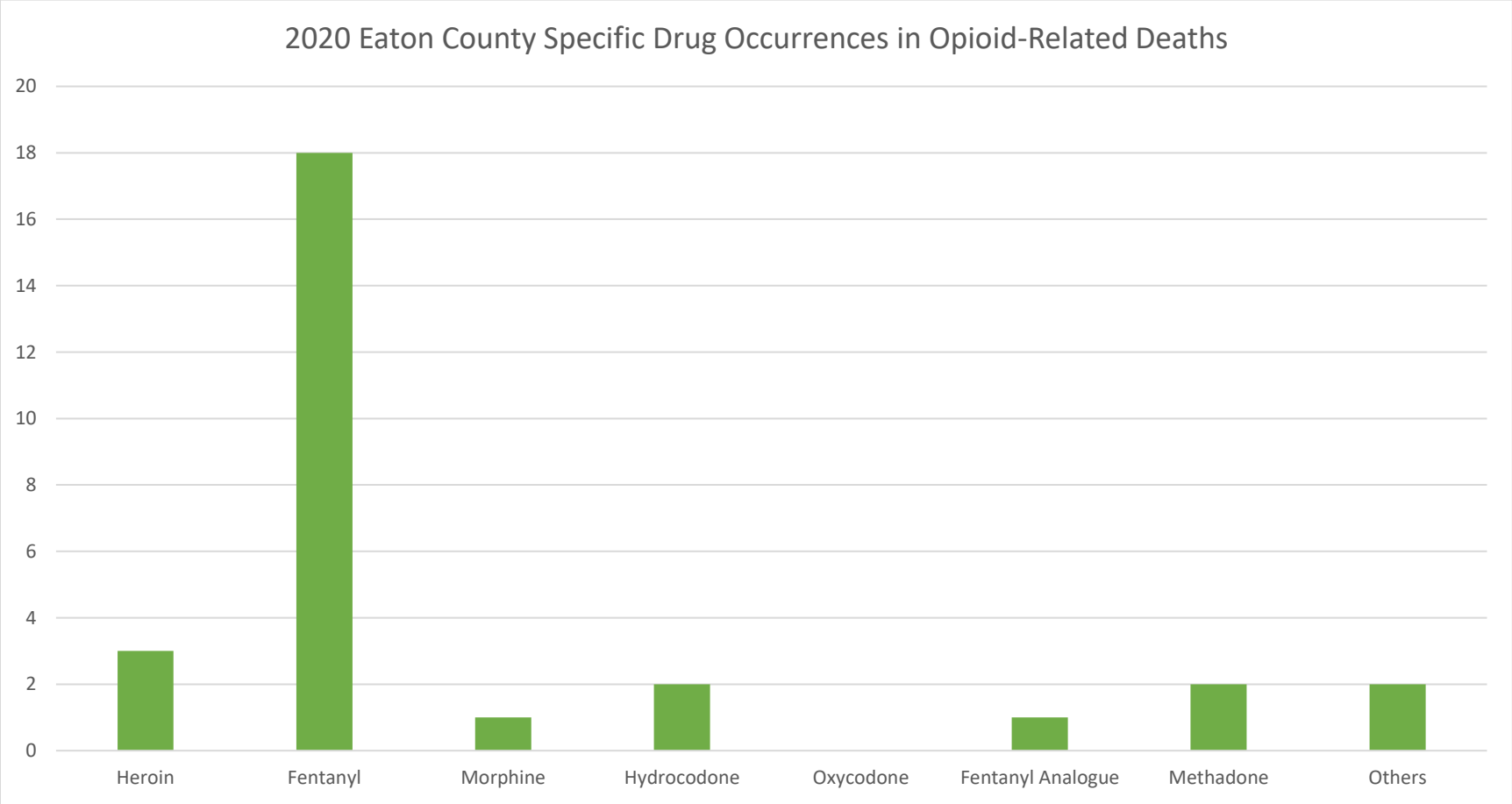
Drug-Related Deaths



This chart describes occurrences in one death of a given class of drug. As most drug-related deaths are due to two or more substances, the same death may fall into multiple categories (e.g. death due to fentanyl and alprazolam intoxication falls into the opioids, benzodiazepines, and opioids with benzodiazepines categories). Multiple of the same class of drug in the same death counts as only one occurrence of that class of drugs (e.g. death due to fentanyl and hydrocodone intoxication – both of these are opioids, so this death falls only in the opioids category, as one occurrence). The "other" category is for occurrences of drug-related deaths due *solely* to drugs which do not fall into the other listed categories.

Eaton County

Drug-Related Deaths



This chart describes occurrences in one death of a specific opioid drug. As most drug-related deaths are due to two or more substances, the same death may fall into multiple categories (e.g. death due to fentanyl and heroin intoxication falls into both the fentanyl and heroin categories). The "other" category is for occurrences of other less-frequently observed opioids, including (but not limited to) tramadol, hydromorphone, buprenorphine.

Ingham County

Drug-Related Deaths

2020 Ingham County Drug-Related Deaths			
Sex	**Age**	**Substance(s) Causing Death**	**Manner of death**
Female	1	fentanyl	Indeterminate
Male	18	fentanyl	Accident
Female	19	fentanyl, amphetamine, dextromethorphan, hydroxyzine	Accident
Male	19	fentanyl, methamphetamine	Accident
Male	20	fentanyl, alprazolam	Accident
Male	21	fentanyl, cocaine, adinazolam, etizolam, ethanol	Accident
Male	21	fentanyl, cocaine	Accident
Female	22	fentanyl, heroin, alprazolam	Accident
Male	23	methamphetamine	Accident
Female	23	cocaine, fentanyl	Accident
Female	24	fentanyl	Accident
Male	24	cocaine, ethanol, oxycodone	Accident
Female	24	diphenhydramine, fentanyl	Accident
Female	25	methadone	Indeterminate
Male	26	fentanyl, ethanol	Accident
Male	26	methamphetamine, fentanyl	Accident
Male	26	fentanyl, heroin, methamphetamine	Accident
Female	27	ethanol, oxycodone, tramadol	Accident
Male	27	methadone, alprazolam, clonazepam, promethazine	Accident
Male	28	fentanyl	Accident
Male	28	fentanyl, methamphetamine	Accident
Male	29	fentanyl	Accident

Female	29	fentanyl	Accident
Male	29	alprazolam, diphenhydramine, fentanyl, tramadol	Indeterminate
Male	29	fentanyl, methamphetamine	Accident
Male	29	hydrocodone, oxycodone	Accident
Male	29	methamphetamine, fentanyl	Accident
Male	30	methadone	Accident
Male	30	methamphetamine, cocaine	Accident
Male	30	morphine	Accident
Female	30	fentanyl, cocaine, ethanol	Accident
Male	31	fentanyl, heroin	Accident
Male	31	fentanyl, heroin	Accident
Male	31	fentanyl, mitragynine, cyclobenzaprine, gabapentin	Accident
Male	31	methamphetamine, fentanyl, dextromethorphan	Accident
Female	33	fentanyl, methamphetamine, ethanol	Accident
Male	33	fentanyl, methamphetamine	Accident
Male	33	fentanyl, heroin	Accident
Male	33	fentanyl, methamphetamine, cocaine	Accident
Male	34	clonazepam, fentanyl	Accident
Female	34	fentanyl	Accident
Male	34	fentanyl	Accident
Male	34	fentanyl, heroin, hydrocodone	Accident
Male	34	fentanyl, cocaine, clonazepam, alprazolam, cyclobenzaprine	Accident
Male	35	fentanyl	Accident
Female	35	diazepam, fentanyl, heroin	Accident
Male	35	fentanyl, sertraline	Accident
Female	35	fentanyl, methamphetamine	Accident
Male	35	fentanyl, morphine, xylazine, loperamide, alprazolam, clonazepam, diphenhydramine	Accident
Female	35	fentanyl	Accident
Male	36	fentanyl, alprazolam, hydrocodone, gabapentin, ethanol	Accident
Male	36	methamphetamine, fentanyl	Accident

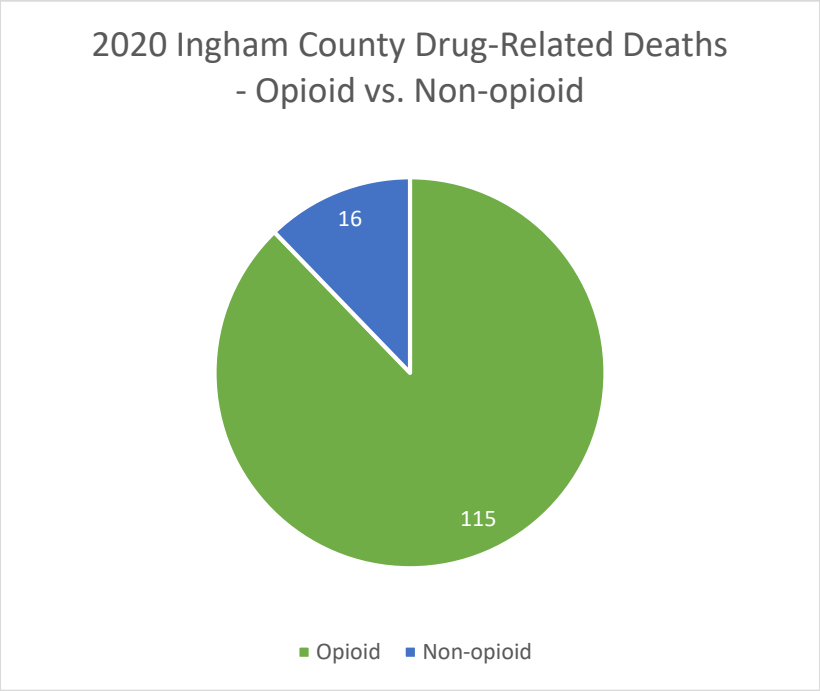
Female	36	fentanyl	Accident
Female	36	fentanyl, alprazolam, cocaine, methylphenidate	Accident
Female	36	amlodipine, cyclobenzaprine, diphenhydramine, duloxetine, metoprolol	Suicide
Male	37	diazepam, fentanyl	Accident
Male	37	fentanyl	Accident
Female	37	cocaine, fentanyl, heroin, ethanol	Accident
Male	37	cocaine, diphenhydramine, ethanol	Indeterminate
Male	37	fentanyl, ethanol	Accident
Male	38	methamphetamine	Accident
Male	38	acetylfentanyl, fentanyl, methamphetamine	Accident
Male	38	methamphetamine, codeine, morphine	Accident
Female	39	methamphetamine, fentanyl	Accident
Male	39	cocaine, methamphetamine	Accident
Female	39	methamphetamine, fentanyl	Accident
Male	40	cocaine, fentanyl, xylazine	Accident
Male	40	mitragynine	Accident
Male	40	fentanyl, oxycodone	Accident
Female	41	methamphetamine, fentanyl, morphine, xylazine	Accident
Male	41	fentanyl, methamphetamine, cocaine	Accident
Male	42	diphenhydramine, fentanyl	Accident
Male	42	fentanyl, methamphetamine	Accident
Male	42	fentanyl	Accident
Female	43	fentanyl, hydrocodone, gabapentin, citalopram	Accident
Male	43	fentanyl	Accident
Male	43	ethanol, fentanyl, mitragynine, cyclobenzaprine	Accident
Male	44	cocaine, fentanyl, ethanol	Accident
Male	44	methadone, fentanyl, alprazolam, clonazepam	Accident
Female	44	fentanyl	Accident
Female	45	amphetamine, diphenhydramine, fentanyl	Accident
Male	46	ethanol, fentanyl, heroin, methadone	Accident

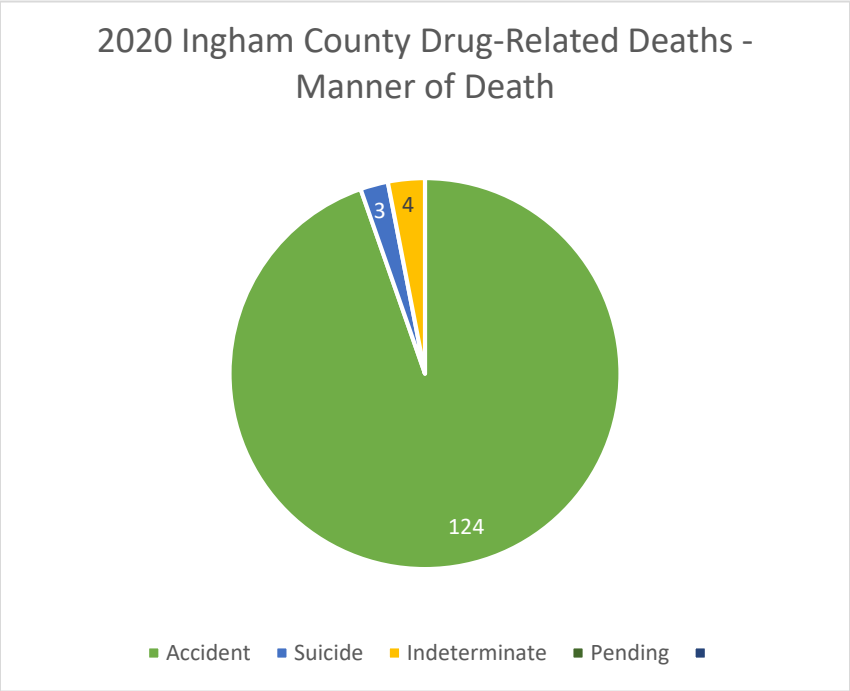
Male	46	ethanol, fentanyl	Accident
Male	46	fentanyl	Accident
Female	47	cocaine	Accident
Male	49	hydrocodone, ethanol	Accident
Female	49	cocaine, fentanyl	Accident
Male	49	ethanol, fentanyl	Accident
Female	50	fentanyl, methadone	Accident
Female	50	fentanyl, heroin, methamphetamine, cocaine, clonazepam	Accident
Male	50	cocaine	Accident
Female	51	insulin	Suicide
Male	52	fentanyl, morphine, ethanol	Accident
Female	52	fentanyl, hydrocodone, alprazolam	Accident
Male	52	fentanyl, heroin, xylazine, alprazolam	Accident
Male	52	ethanol, fentanyl	Accident
Female	53	cocaine, cyclobenzaprine, hydrocodone	Accident
Female	54	fentanyl, cocaine, cyclobenzaprine, sertraline, ethanol	Accident
Female	55	cyclobenzaprine, hydrocodone	Suicide
Female	56	fentanyl, ethanol	Accident
Male	56	fentanyl, heroin, methamphetamine	Accident
Male	57	fentanyl, cyclobenzaprine, ethanol	Accident
Female	57	fentanyl, gabapentin	Accident
Male	57	ethanol	Accident
Male	58	fentanyl, methamphetamine, clonazepam, ethanol	Accident
Male	58	hydrocodone, cyclobenzaprine, meprobamate	Accident
Male	59	cocaine, fentanyl	Accident
Male	60	methadone	Accident
Male	60	fentanyl, clonazepam, ethanol	Accident
Female	60	methamphetamine	Accident
Male	61	methamphetamine	Accident
Female	61	fentanyl, methamphetamine	Accident

Male	62	diphenhydramine, fentanyl, heroin, methadone, xylazine	Accident
Female	62	fentanyl, methamphetamine	Accident
Female	63	methadone, bupropion	Accident
Male	63	methamphetamine, fentanyl, morphine	Accident
Male	63	ethanol, fentanyl, morphine, oxycodone	Accident
Male	63	diphenhydramine, methadone	Accident
Female	64	amphetamine, zolpidem, amitriptyline, diphenhydramine, duloxetine, lamotrigine, ethanol	Accident
Male	64	fentanyl, heroin	Accident
Female	65	hydrocodone, carisoprodol	Accident
Female	65	alprazolam, ethanol, fentanyl, methamphetamine	Accident
Female	65	cocaine	Accident
Male	66	alprazolam, fentanyl, hydrocodone	Accident
Male	67	fentanyl, hydrocodone, morphine	Accident
Male	68	cocaine	Accident
Male	70	fentanyl, morphine, ethanol	Accident
Male	70	morphine	Accident
Male	70	fentanyl, morphine, xylazine, ethanol	Accident
Male	72	fentanyl	Accident
Male	74	diazepam, methadone	Accident

Ingham County

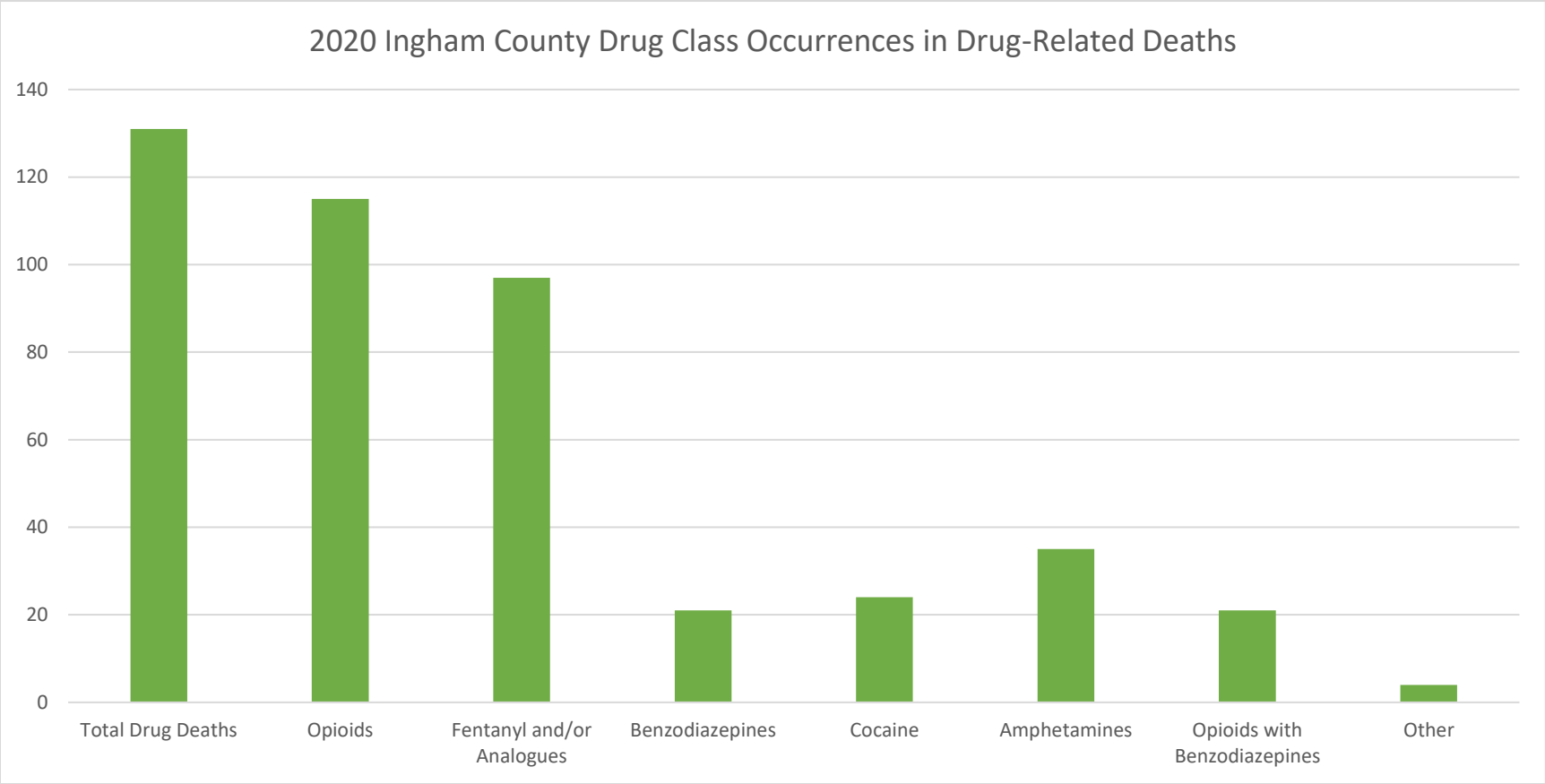
Drug-Related Deaths





Ingham County

Drug-Related Deaths[4]



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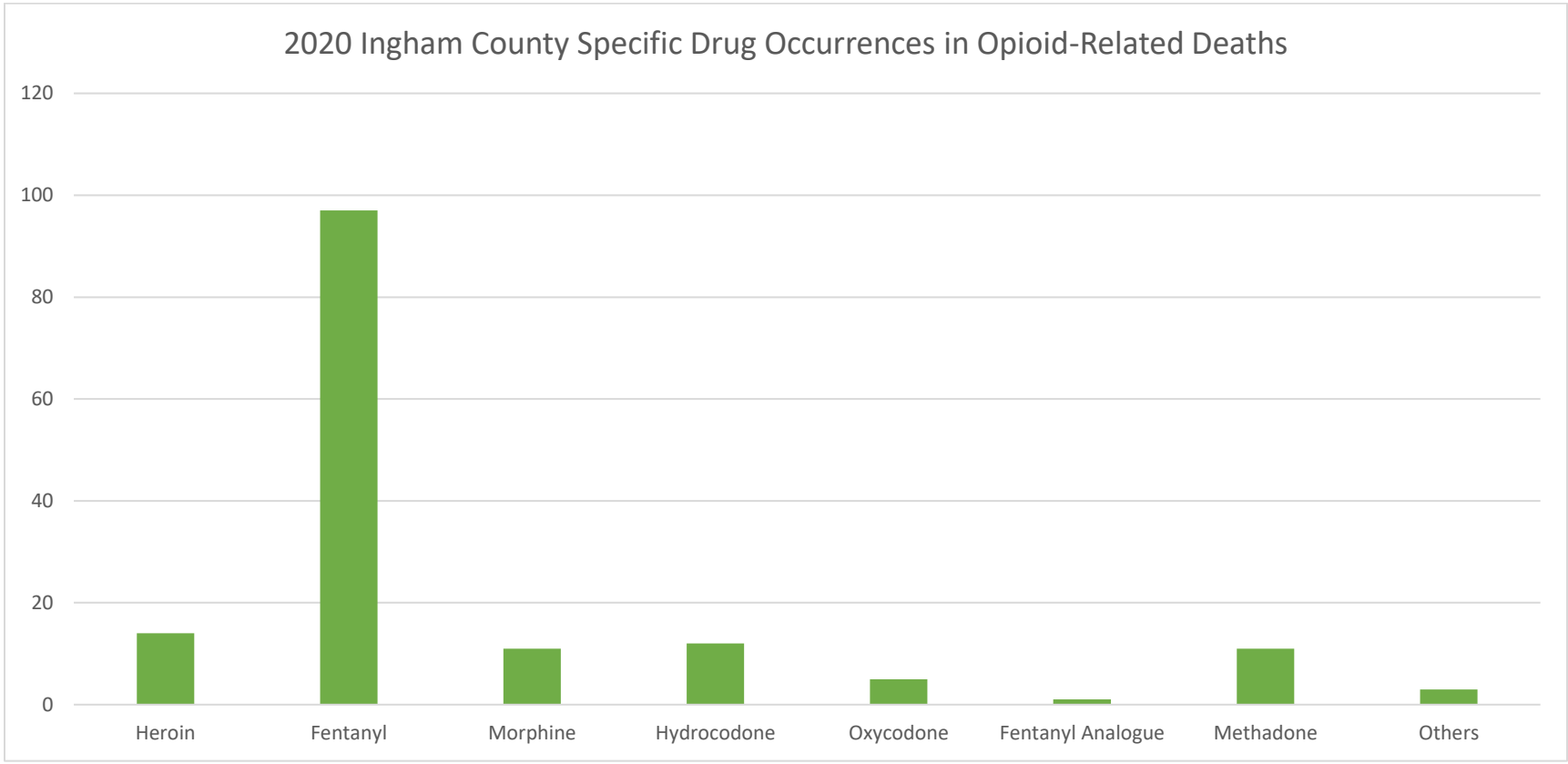
[4] (1) Morphine death not previously identified in 2020 Q2 has been added to final totals changing benzodiazepines and benzodiazepines with opiates from 20 to 21.

Ingham County

Drug-Related Deaths



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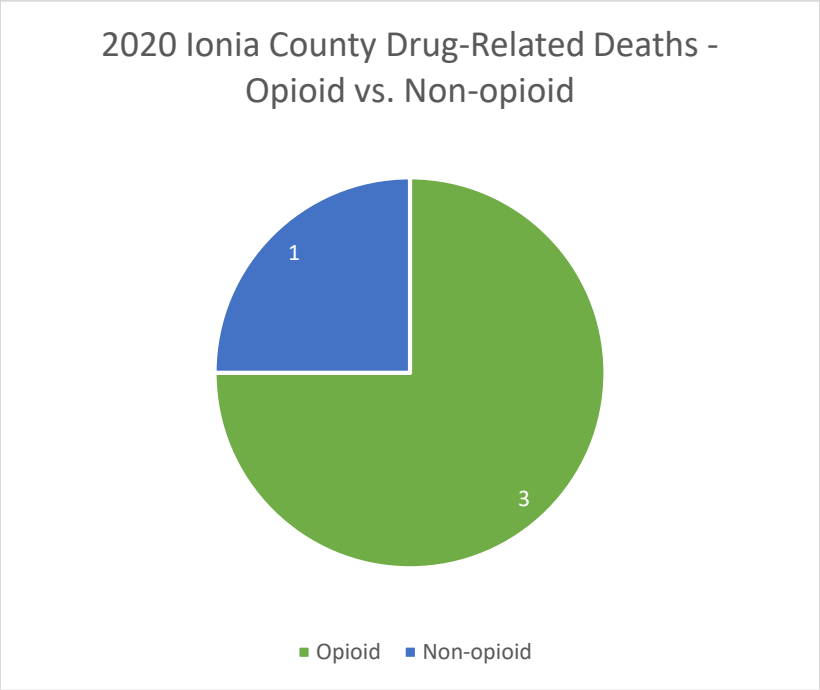
Ionia County

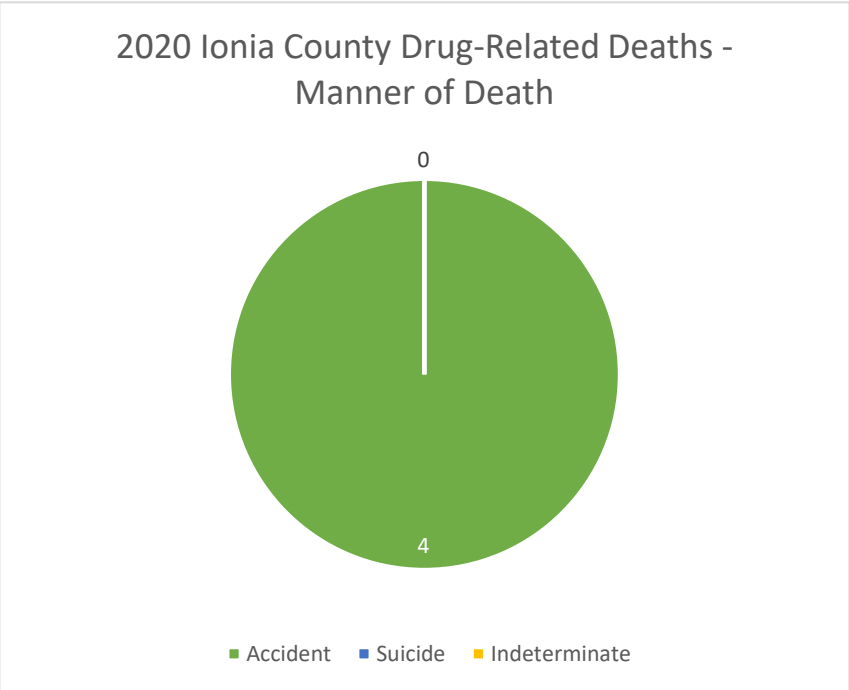
Drug-Related Deaths

2020 Ionia County Drug-Related Deaths			
Sex	**Age**	**Substance(s) Causing Death**	**Manner of death**
Male	24	methamphetamine	Accident
Female	42	fentanyl	Accident
Male	55	methamphetamine, oxycodone	Accident
Male	57	cocaine, fentanyl, morphine	Accident

Ionia County

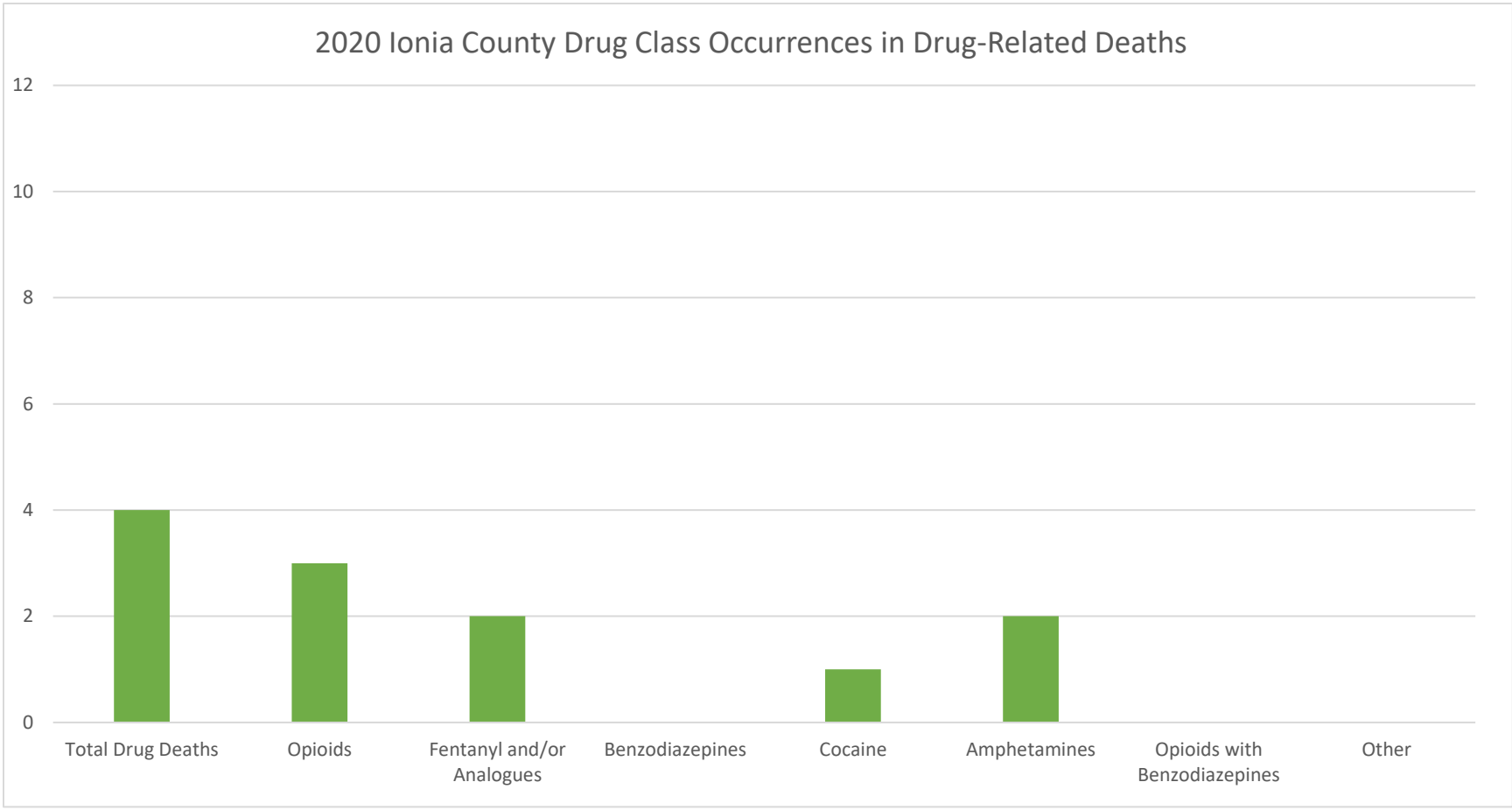
Drug-Related Deaths





Ionia County

Drug-Related Deaths



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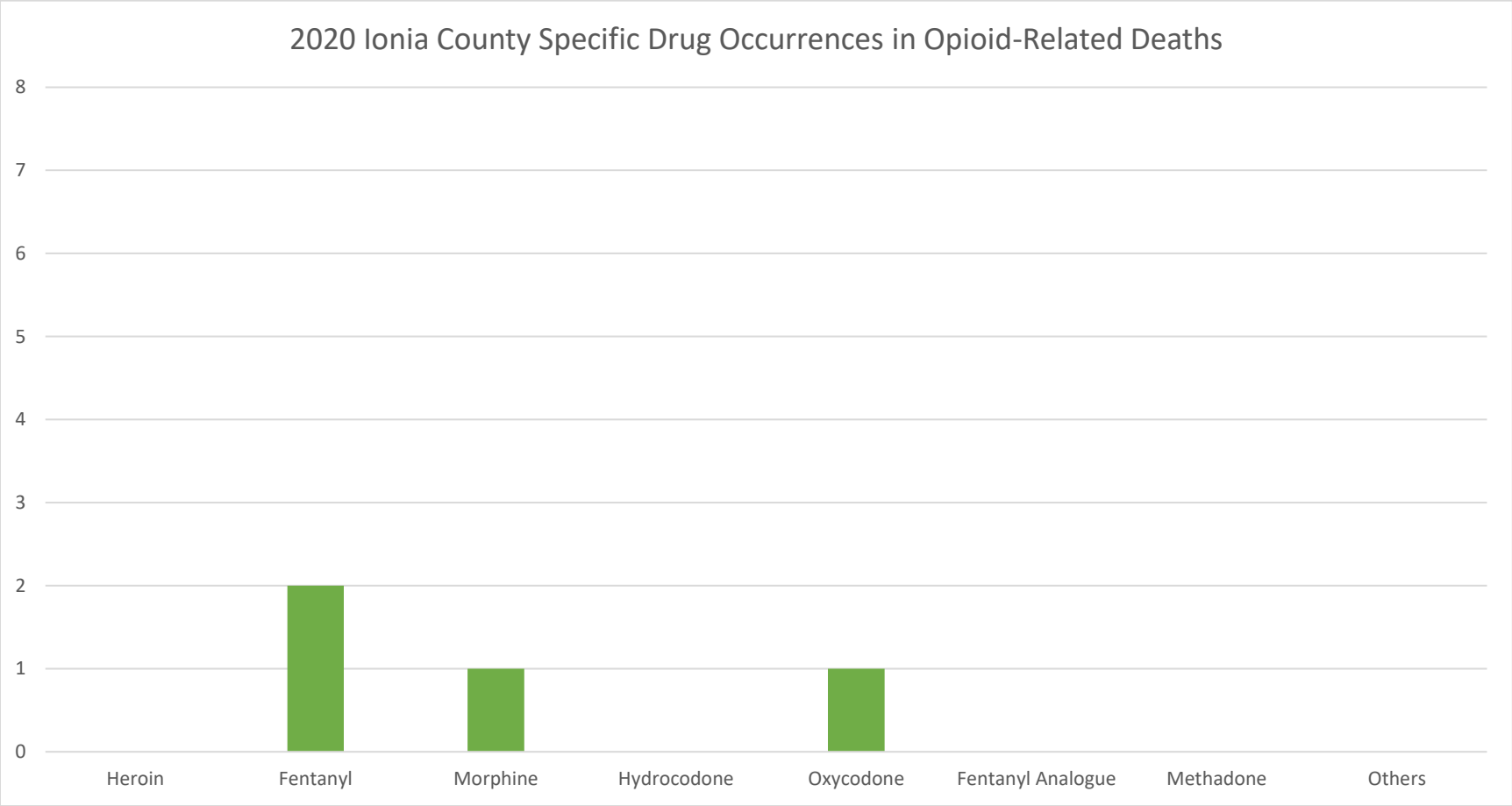
Ionia County

Drug-Related Deaths



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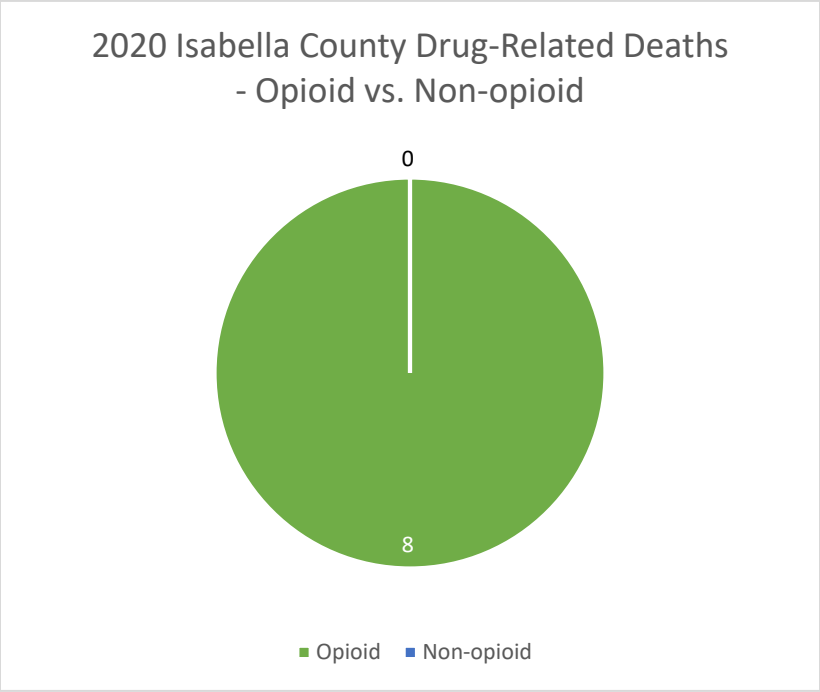
Isabella County

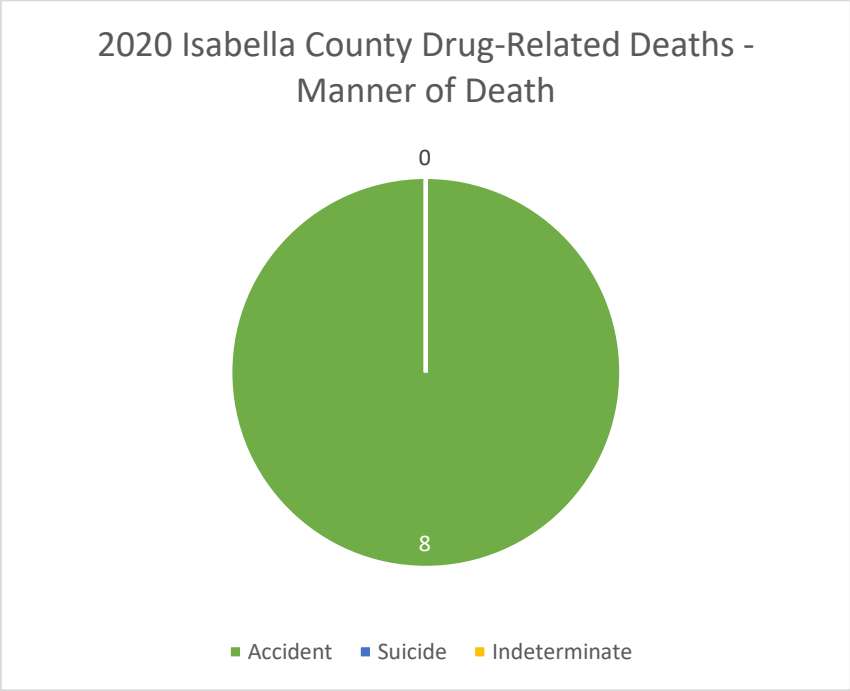
Drug-Related Deaths

2020 Isabella County Drug-Related Deaths			
Sex	**Age**	**Substance(s) Causing Death**	**Manner of death**
Male	23	fentanyl	Accident
Female	24	alprazolam, diphenhydramine, fentanyl	Accident
Female	26	fentanyl	Accident
Female	30	fentanyl, heroin	Accident
Female	34	methadone, gabapentin, hydroxyzine	Accident
Male	39	fentanyl, heroin, methamphetamine	Accident
Male	43	fentanyl	Accident
Male	45	fentanyl	Accident

Isabella County

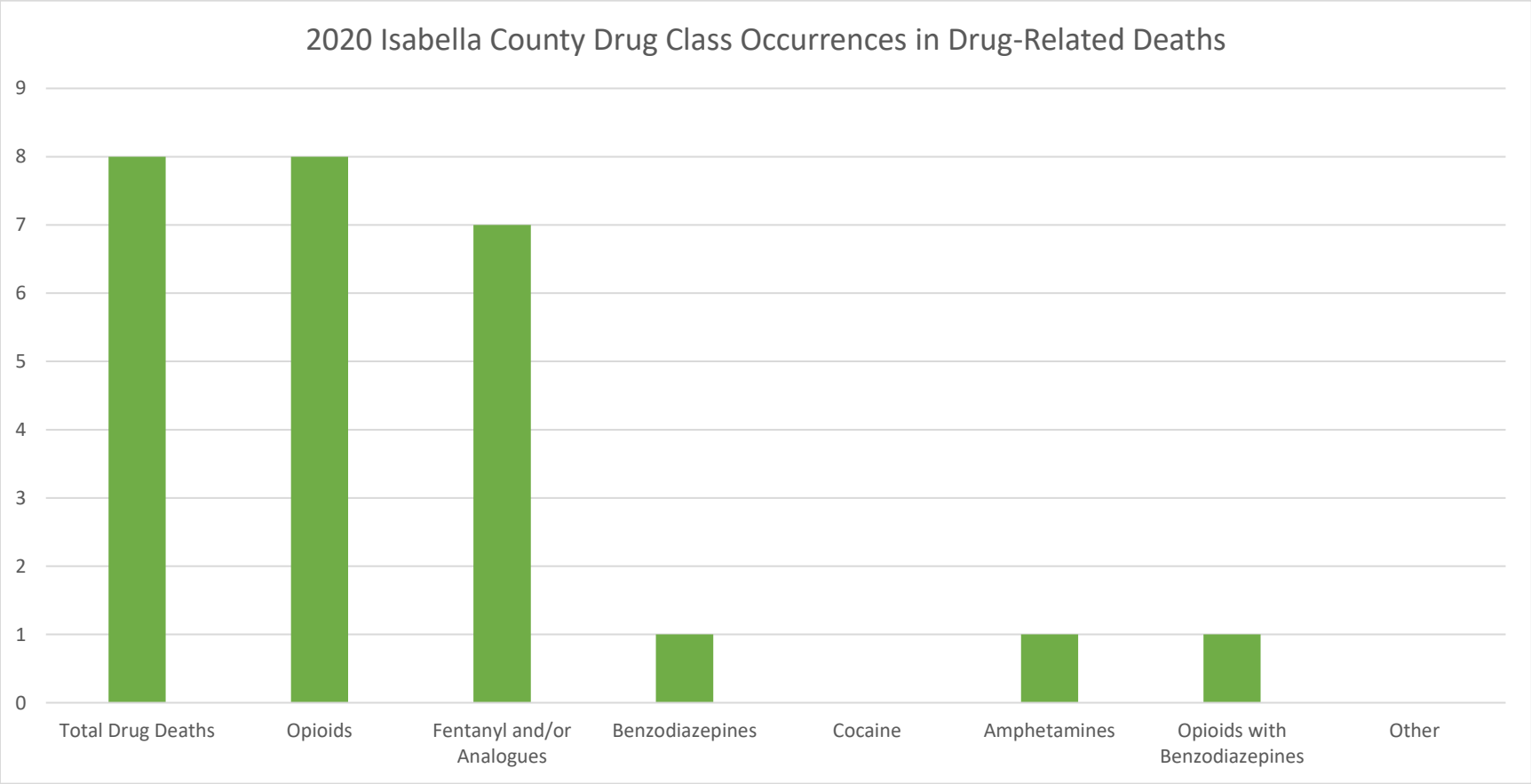
Drug-Related Deaths





Isabella County

Drug-Related Deaths



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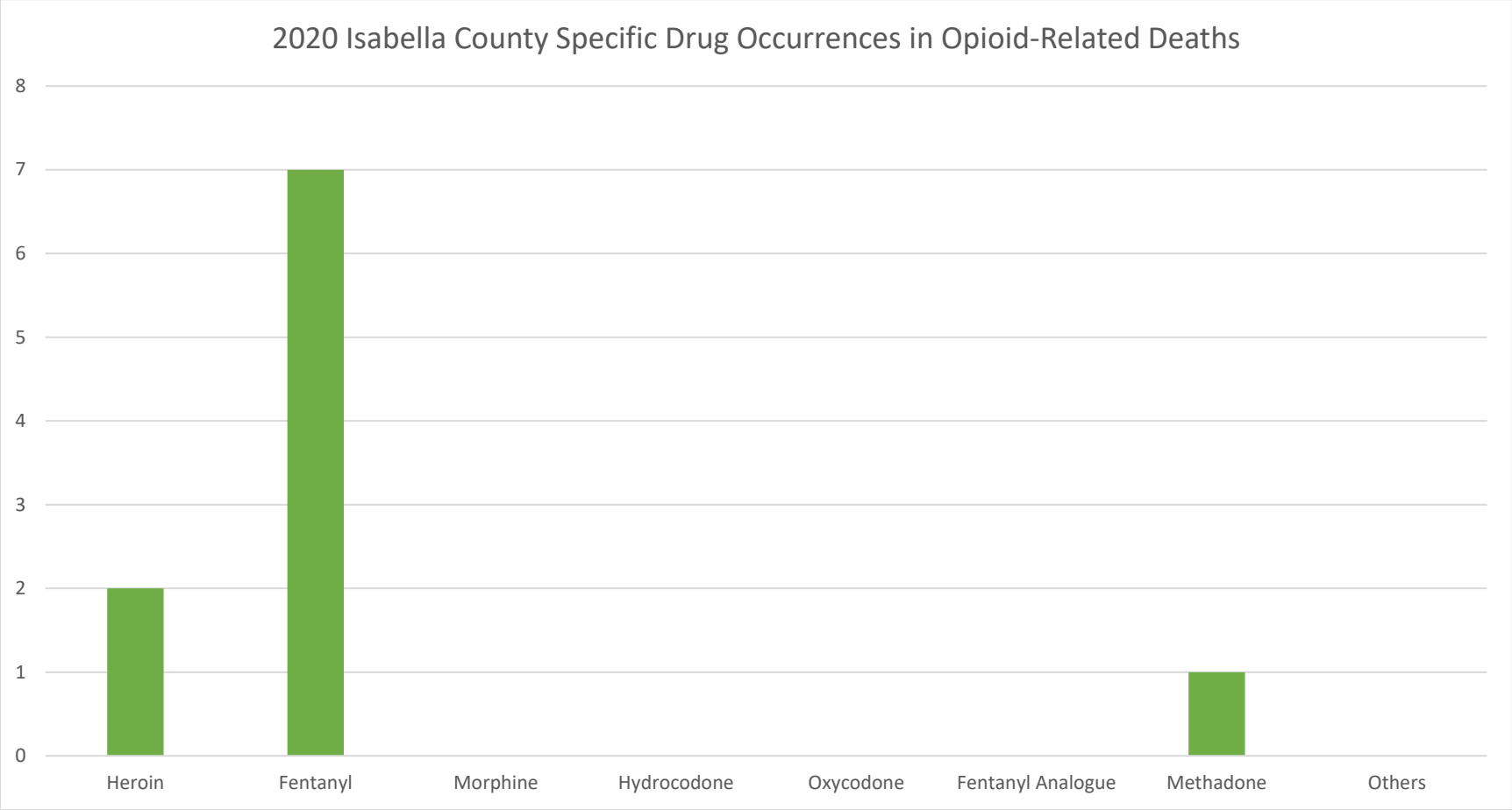
Isabella County

Drug-Related Deaths



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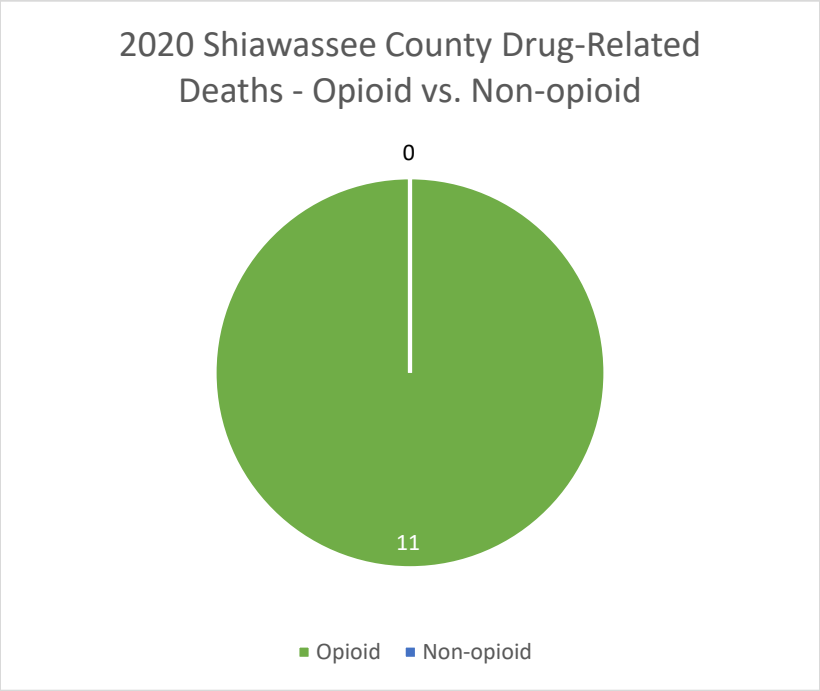
Shiawassee County

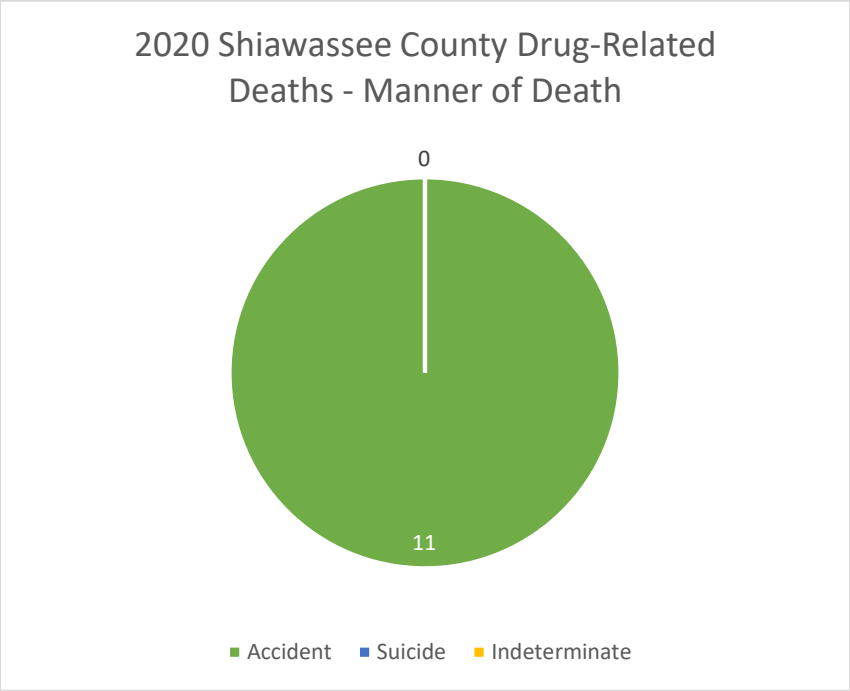
Drug-Related Deaths

2020 Shiawassee County Drug-Related Deaths			
Sex	**Age**	**Substance(s) Causing Death**	**Manner of death**
Male	24	fentanyl	Accident
Male	29	fentanyl, methamphetamine	Accident
Male	29	fentanyl, heroin, diazepam	Accident
Male	33	fentanyl, cocaine	Accident
Female	35	methadone, ethanol	Accident
Male	36	fentanyl, cyclobenzaprine, amitriptyline	Accident
Male	38	fentanyl	Accident
Male	40	fentanyl	Accident
Male	46	fentanyl, methamphetamine, cocaine, clonazepam, diazepam, sertraline	Accident
Male	49	fentanyl, heroin	Accident
Male	53	fentanyl, ethanol	Accident

Shiawassee County

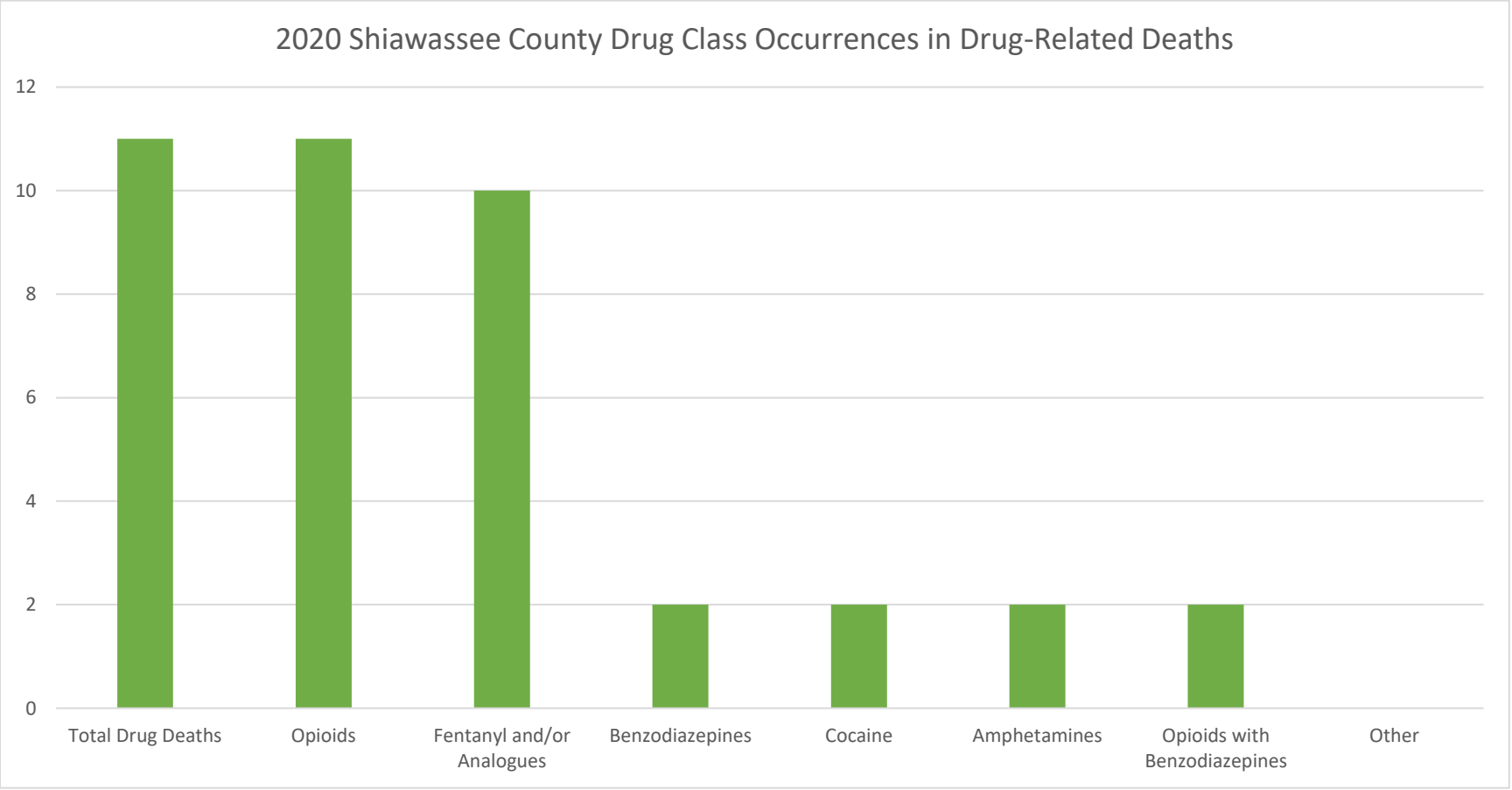
Drug-Related Deaths





Shiawassee County

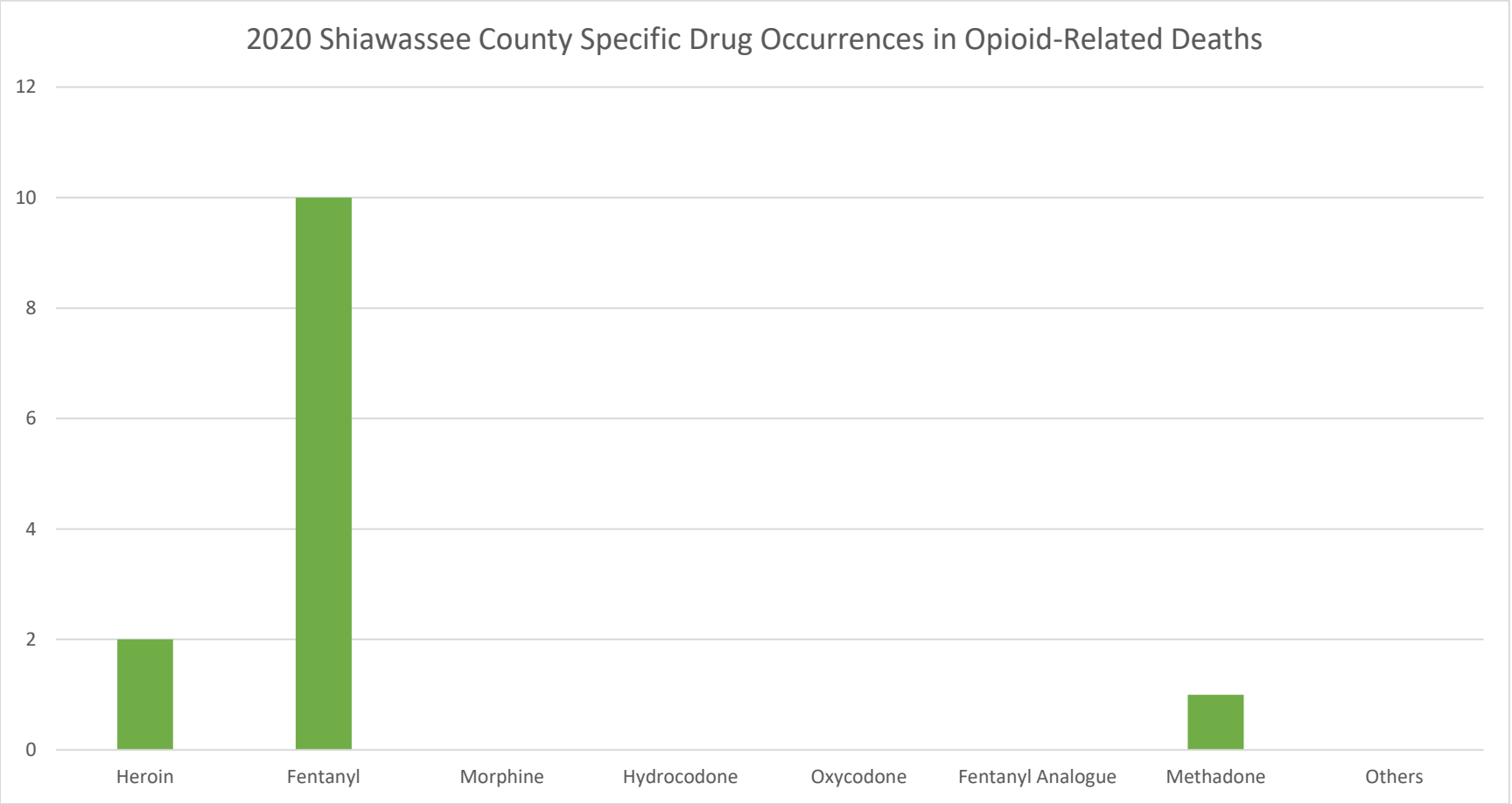
Drug-Related Deaths



This chart describes occurrences in one death of a given class of drug. As most drug-related deaths are due to two or more substances, the same death may fall into multiple categories (e.g. death due to fentanyl and alprazolam intoxication falls into the opioids, benzodiazepines, and opioids with benzodiazepines categories). Multiple of the same class of drug in the same death counts as only one occurrence of that class of drugs (e.g. death due to fentanyl and hydrocodone intoxication – both of these are opioids, so this death falls only in the opioids category, as one occurrence). The "other" category is for occurrences of drug-related deaths due *solely* to drugs which do not fall into the other listed categories.

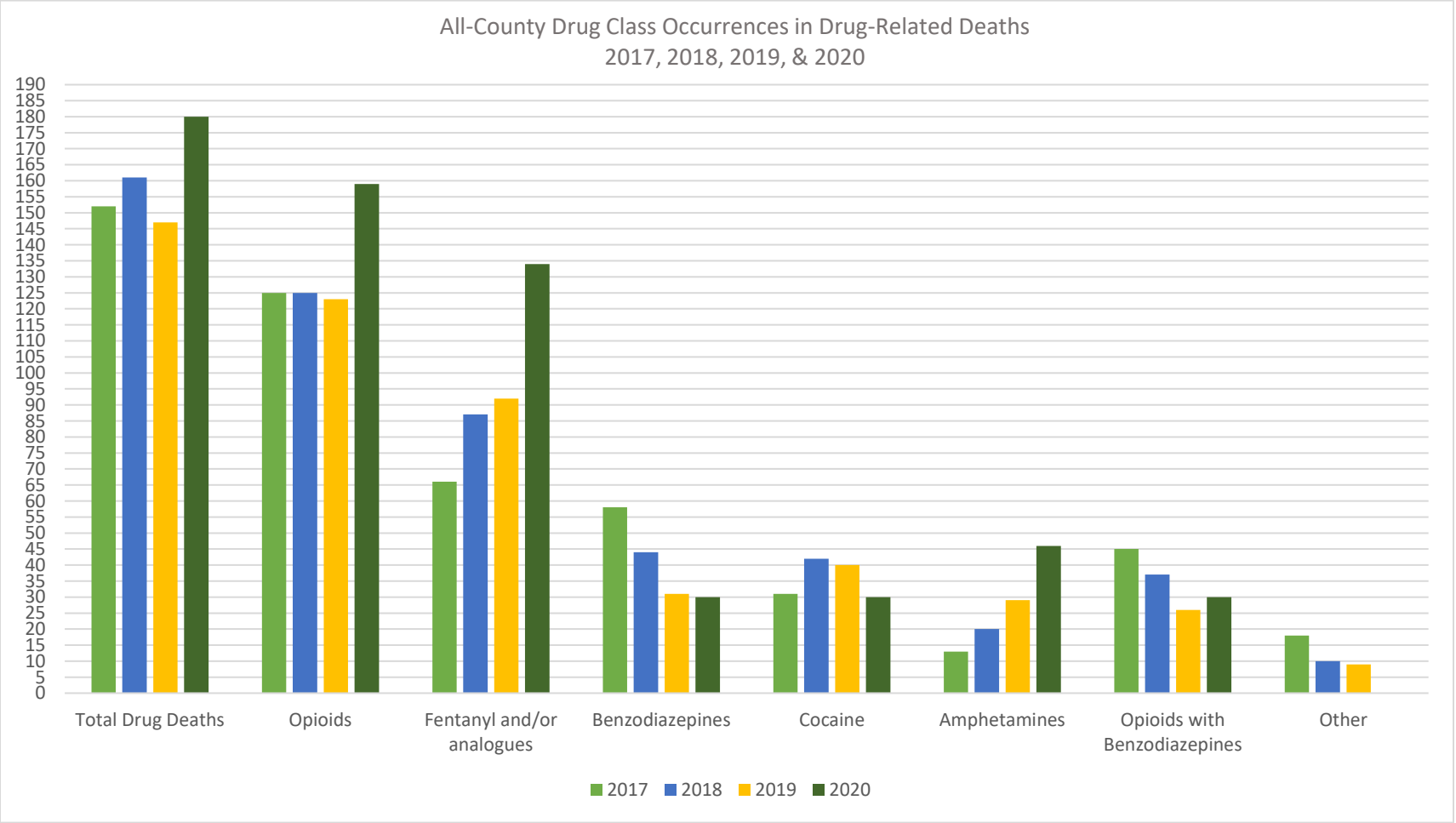
Shiawassee County

Drug-Related Deaths



This chart describes occurrences in one death of a specific opioid drug. As most drug-related deaths are due to two or more substances, the same death may fall into multiple categories (e.g. death due to fentanyl and heroin intoxication falls into both the fentanyl and heroin categories). The “other” category is for occurrences of other less-frequently observed opioids, including (but not limited to) tramadol, hydromorphone, buprenorphine, etc.

Historical Data



This chart describes occurrences in one death of a given class of drug. As most drug-related deaths are due to two or more substances, the same death may fall into multiple categories (e.g. death due to fentanyl and alprazolam intoxication falls into the opioids, benzodiazepines, fentanyl and/or analogues, and opioids with benzodiazepines categories). Multiple of the same class of drug in the same death counts as only one occurrence of that class of drugs (e.g. death due to heroin and hydrocodone intoxication – both of these are opioids so this death falls only in the opioids category, as one occurrence). The "other" category is for occurrences of drug-related deaths due *solely* to drugs which do not fall into the other listed categories

Historical Data

2017-2020 Total Drug Deaths for Eaton, Ingham, Ionia, Isabella, and Shiawassee Counties

- The total drug death trend has continued on an upward trajectory from 2017 (152) to 2020 (180); the lowest total in the four year span was in 2019 (147) suggesting the beginning of a downward trend, however the number rose steeply in 2020 (180).
- Opioid drug deaths have been relatively stable over the years 2017 to 2019 (125,125,123) with a steep increase in 2020 (160).
- Opioid deaths involving fentanyl and/or fentanyl analogues has continued a steady increase over the four years 2017 to 2020, more than doubling from 66 in 2017 to 134 in 2020.
- Deaths involving benzodiazepines have steadily decreased over the four years from 2017 to 2020.
- Drug deaths involving amphetamines (primarily methamphetamine) have steadily increased in the four years 2017 to 2020, more than tripling from 13 in 2017 to 46 in 2020.