



Multi-Drug Toxicology Report Summary

Indiana State Department of Health, Division of Trauma & Injury Prevention
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WAYNE STATE
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Center for Behavioral Health and Justice

*Prepared for the
Division of Trauma & Injury Prevention
at the Indiana State Department of Health*



Indiana State
Department of Health

ABSTRACT

The following report summary provides a breakdown of the Enhanced State Toxicology Surveillance System that was conducted by the Division of Trauma and Injury Prevention at the Indiana State Department of Health. Forty-six counties contributed to the database since January 2018.

Data collected are from all suspected accidental fatal overdoses as indicated by the following International Classification of Diseases (ICD) codes: X40-X44. This report will provide the toxicology findings from these cases and visually present the trends in the substances detected across the state by participating counties.

The information within this report is not fully representative of all the fatal overdoses within the counties. This snapshot of the opioid crisis in Indiana will be more accurate as the surveillance system obtains additional toxicology reports and participation from each county.

KEY FINDINGS

- Opioids were involved in over 85% (n=820) of accidental overdoses deaths.
- Fentanyl was present in over 60% (581 cases) of all deaths and part of 22 different drug combinations.
- Only 11% (103 cases) of all deaths were undercounted as opioid-involved overdoses.

DATA INFORMATION

The data we received have all toxicology test results from NMS Labs from January 1, 2018 to August 25, 2019 and are record linked (via Management Performance Hub (MPH)) to the ICD codes contained in vital records data. There are a total of 2,307 persons with NMS results, located across 58 counties, and 41.6% (n=961) of these are accidental drug overdose deaths (ICD code X40-X44). Among those 961 cases, 53.6% (n=515) were determined to contain the unspecified ICD code (T50.9); however, many of these also had other contributing ICD codes specific to substances associated with the death and would not be truly unspecified deaths based on the Centers for Disease Control and Prevention (CDC) criteria we discussed with Margaret Warner, Epidemiologist at the National Center for Health Statistics in the Division of Vital Statistics. Out of all these accidental overdose deaths (n=961), we found that only 8.4% of cases (n=88) were unspecified—they had the unspecified ICD code and no other contributing substance code.

It is important to note that the linked NMS-vital records data (n=961) do not necessarily represent all the accidental overdose deaths during the reported time frame. For example, there may be a time lag in receiving the NMS data, the county may be using a different toxicology provider, the coroner might not have run a toxicology test, or the coroner may have submitted a preliminary underlying cause of death (such as ICD code R99 which is an ill-defined and unknown cause of mortality) on the death certificate before final certification. For preliminary cases, we will be able to update future reports as they are released quarterly to include any accidental overdose deaths that were certified between report releases. Any deaths that do not involve NMS Labs will not be included in this report.

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Figure 1. Total Number of Drug-Related Deaths by County
Date of Death: Jan. 2018 – August 2019

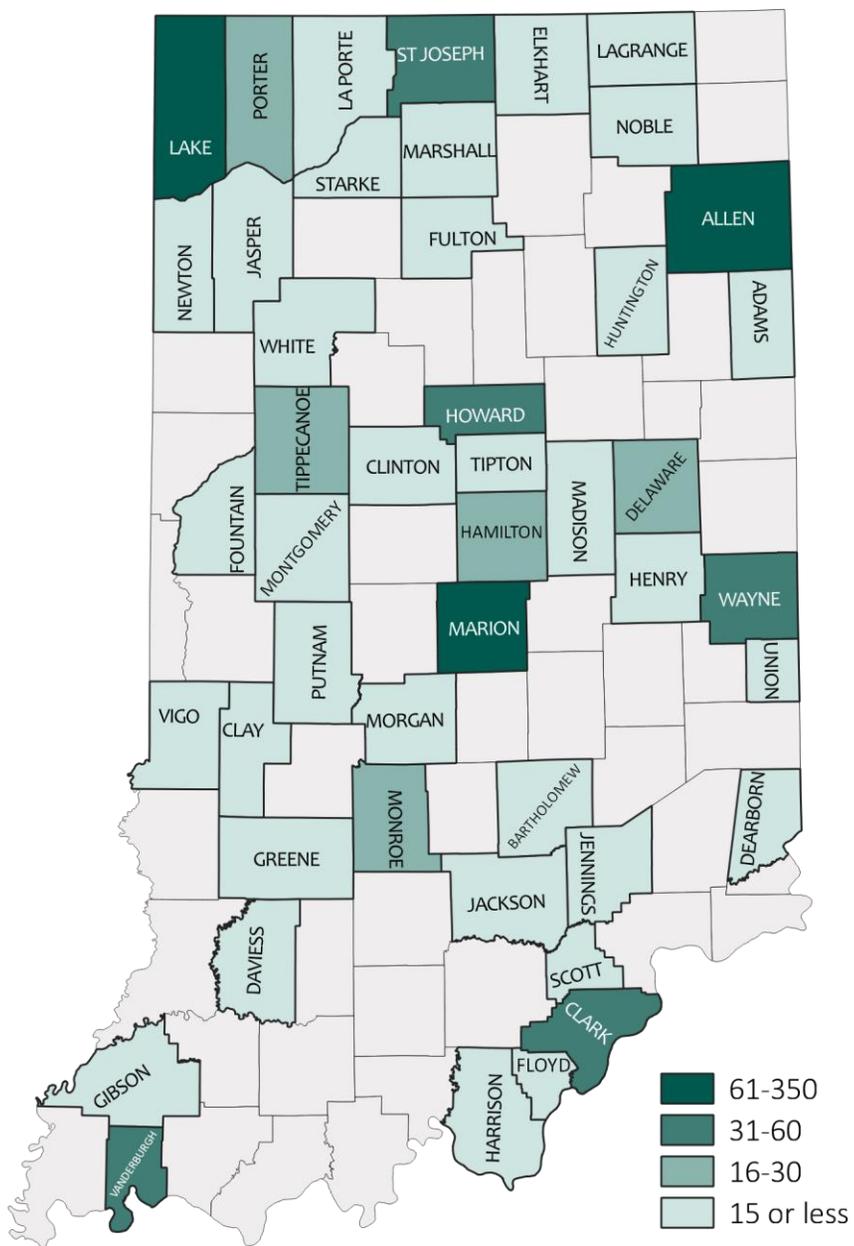


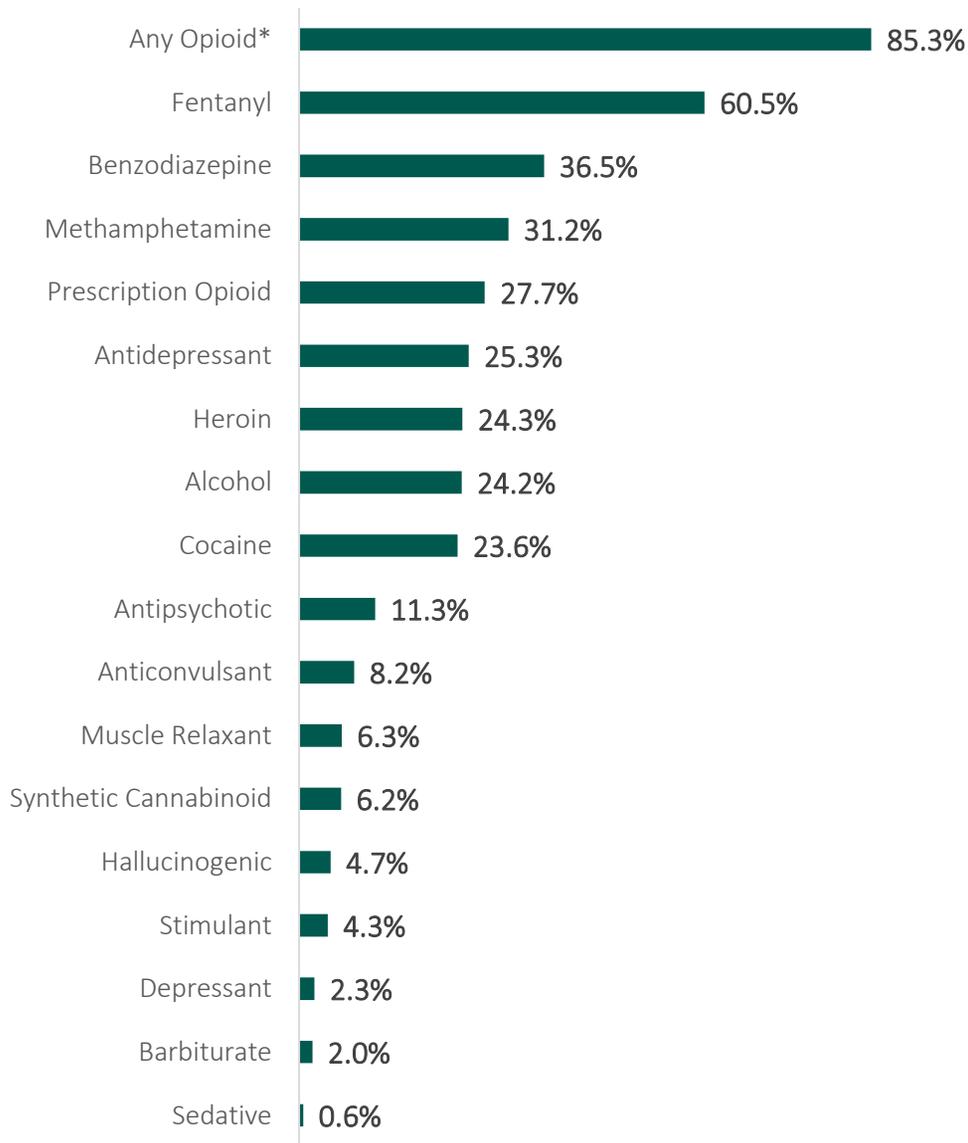
Table 1. Total Toxicology Reports in Database
Date of Death: Jan. 2018 – August 2019

County	Count	County	Count
Adams	2	LaGrange	3
Allen	76	Lake	90
Bartholomew	12	LaPorte	14
Clark	33	Madison	5
Clay	2	Marion	350
Clinton	6	Marshall	1
Daviess	1	Monroe	17
Dearborn	7	Montgomery	6
Delaware	25	Morgan	11
Elkhart	12	Newton	1
Floyd	7	Noble	1
Fountain	3	Porter	30
Fulton	4	Putnam	2
Gibson	2	St Joseph	33
Greene	2	Scott	5
Hamilton	20	Starke	2
Harrison	4	Tippecanoe	27
Henry	4	Tipton	2
Howard	31	Union	2
Huntington	2	Vanderburgh	38
Jackson	6	Vigo	13
Jasper	1	Wayne	35
Jennings	10	White	1

NOTE: Maps represent the 46 counties that contributed to the database from January 2018 to August 2019

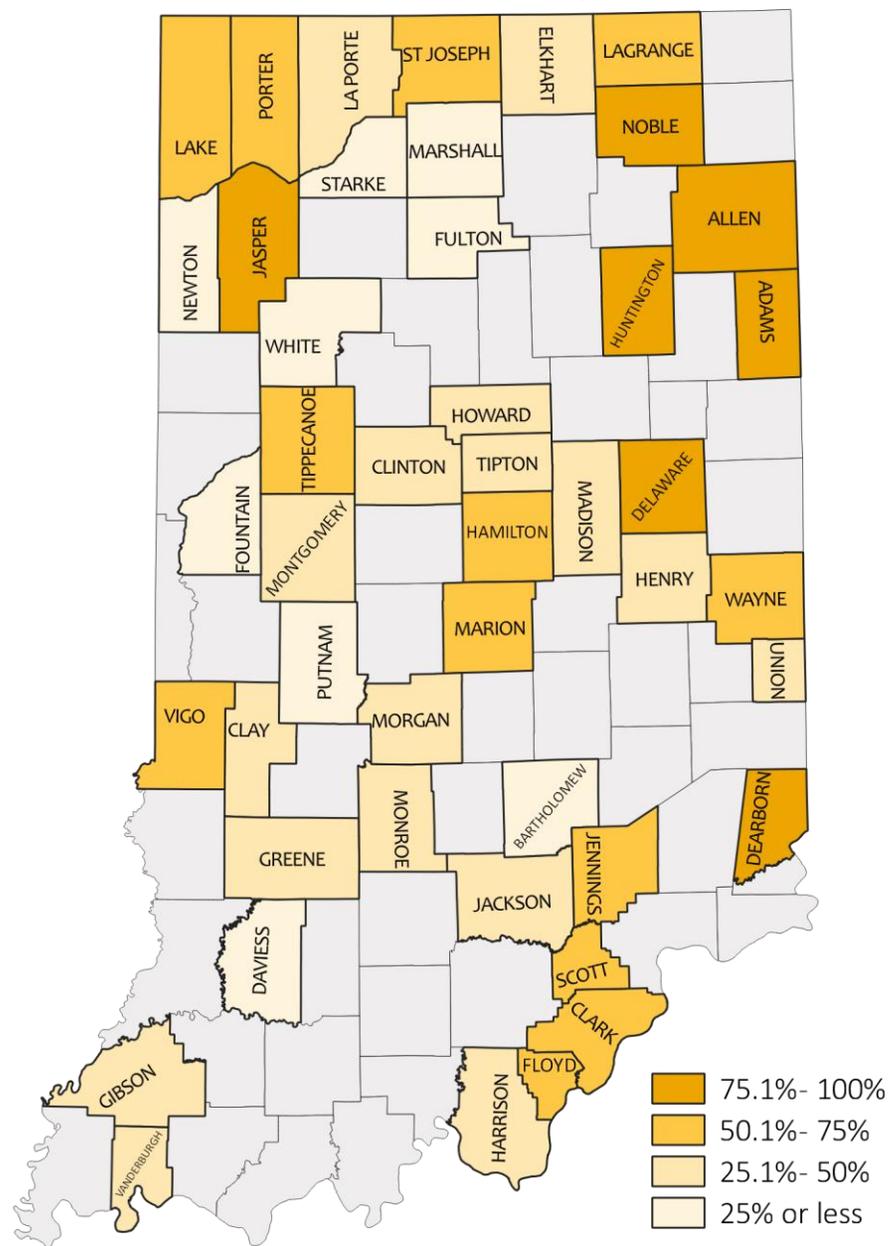
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Figure 2. Frequency of Positive Results in Post-Mortem Toxicology Tests



*Includes heroin, fentanyl, prescription opioids, and any other opioids

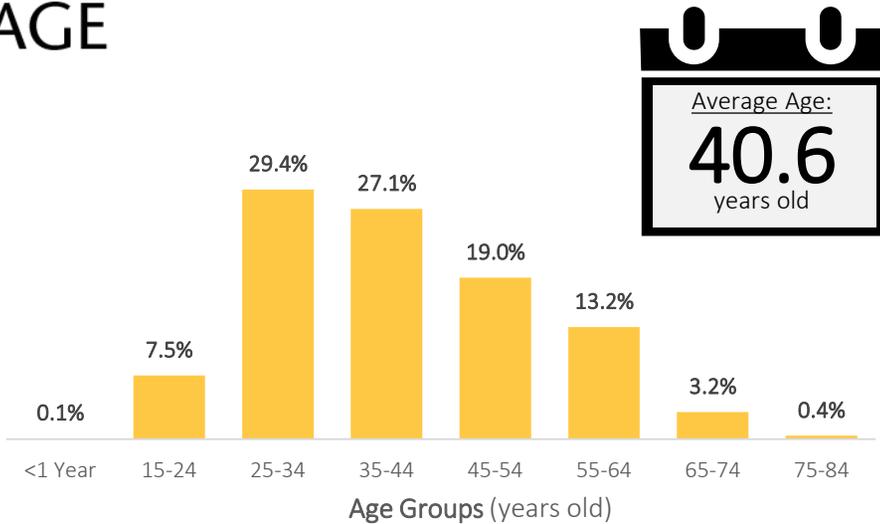
Figure 3. Percent of Drug-Related Deaths with Fentanyl Present. Date of Death: Jan. 2018 – August 2019



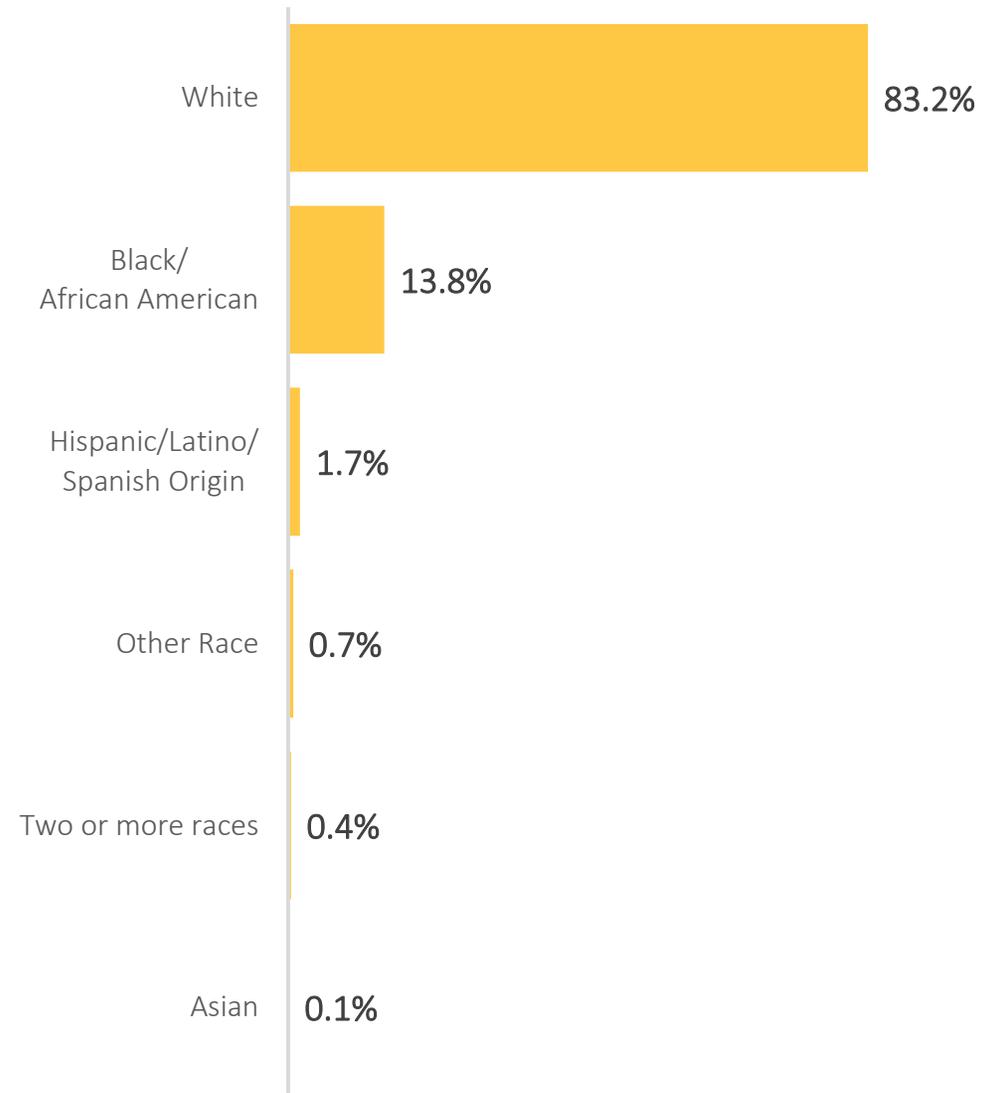
NOTE: Maps represent the 46 counties that contributed to the database from January 2018 to August 2019

Figure 6. Demographics of Suspected Accidental Overdose Deaths.
Date of Death: Jan. 2018 – August 2019

AGE



RACE



GENDER

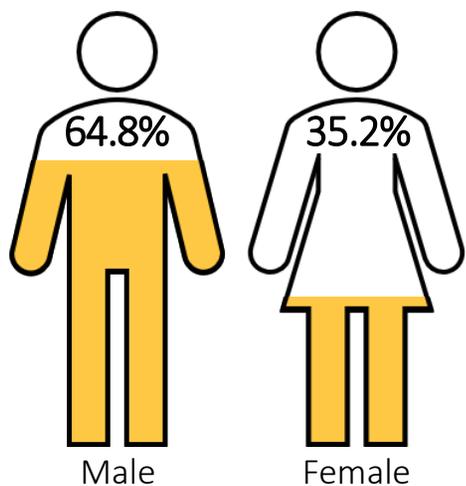
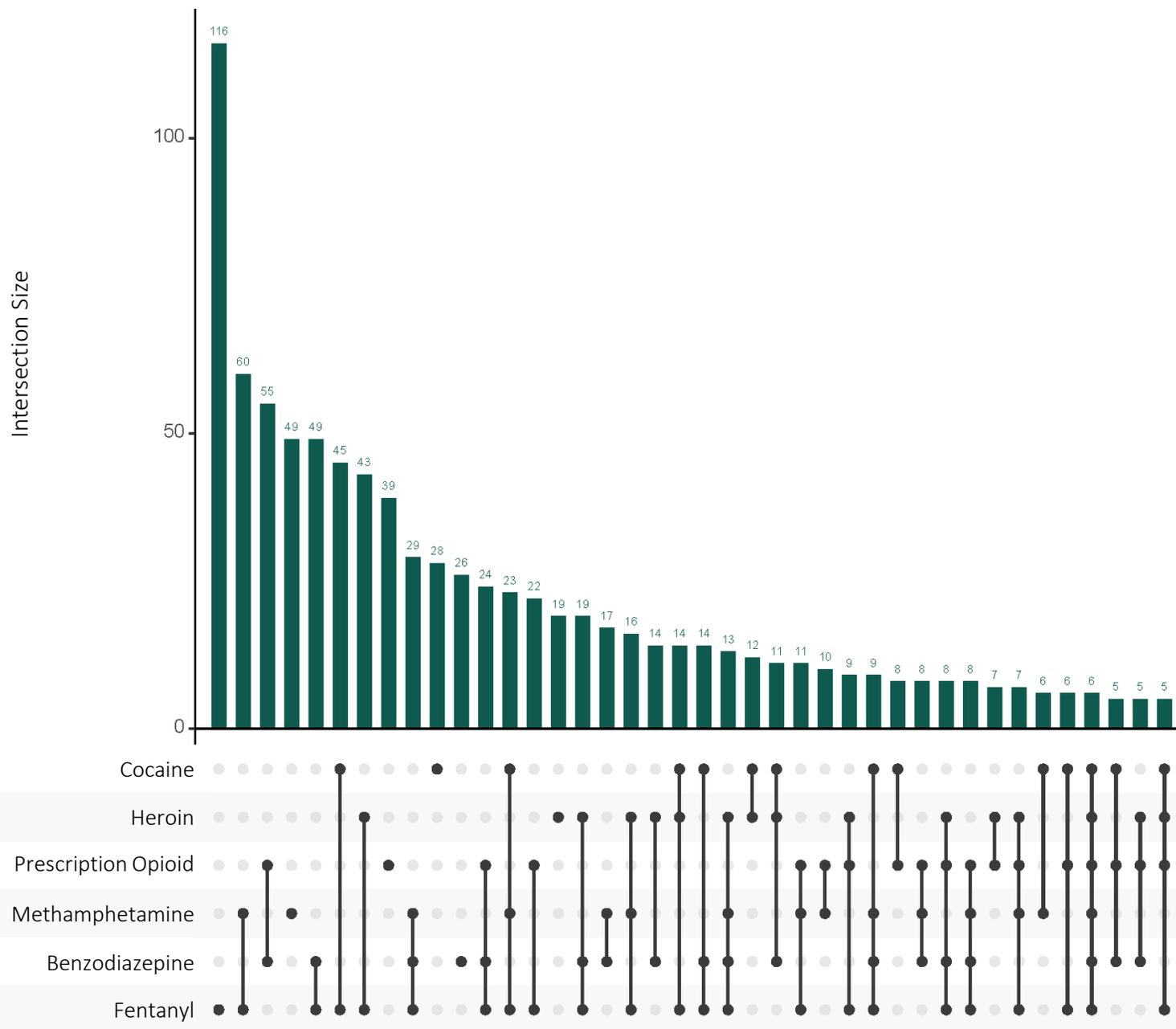


Figure 7. Most Frequent Drugs Found Among Drug Overdose Decedents in Indiana.



HOW TO INTERPRET INTERACTION GRAPH

- Each column and bullet point represents all the instances where the respective substance or combination of substances was detected.
- Single bullet points without any connecting lines to other points are cases in which no other substance was found.
- Multiple bullet points connected by a line indicate the presence of all of those substances and the number of times that combination was detected in all the accidental fatal overdoses.
- *For example, fentanyl alone was found in 116 deaths; methamphetamine and fentanyl together were found in 60 deaths.*

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Figure 8. Undercounting of Opioid-Involved Accidental Drug Overdose Deaths

Missing Opioid-Involved Cases							Unspecified Analysis							
County	Total Number of Reports	Cases with an Opioid ICD Code		Cases with Opioid in Toxicology		Number of Missed Opioid-Involved Cases		County	Total Number of T50.9 Codes		# of T50.9 ICD Codes Without Any other Opioid ICD Codes		T50.9 Code In Place of Opioid ICD Code (Matched by Toxicology)	
		Count	Percent	Count	Percent	Count	Percent		Count	Percent	Count	Percent	Count	Percent
Adams	2	0	0%	2	100%	2	100%	Adams	2	100%	2	100%	2	100%
Jasper	1	0	0%	1	100%	1	100%	Jasper	1	100%	1	100%	1	100%
Henry	4	1	25%	4	100%	3	75%	Henry	4	100%	3	75%	3	75%
Fountain	3	1	33%	3	100%	2	67%	Delaware	25	100%	16	64%	14	56%
Delaware	25	9	36%	23	92%	14	56%	Greene	2	100%	1	50%	1	50%
Greene	2	1	50%	2	100%	1	50%	Union	2	100%	1	50%	1	50%
Union	2	1	50%	2	100%	1	50%	Jennings	8	80%	6	60%	4	40%
Gibson	2	1	50%	2	100%	1	50%	Fountain	2	67%	1	33%	1	33%
Putnam	2	0	0%	1	50%	1	50%	Allen	42	55%	21	28%	20	26%
Jennings	10	3	30%	7	70%	4	40%	Elkhart	8	67%	3	25%	3	25%
Monroe	17	10	59%	15	88%	5	29%	Harrison	2	50%	1	25%	1	25%
Allen	76	48	63%	70	92%	22	29%	Monroe	16	94%	6	35%	4	24%
Elkhart	12	7	58%	10	83%	3	25%	Bartholomew	8	67%	4	33%	2	17%
Harrison	4	2	50%	3	75%	1	25%	Clinton	2	33%	1	17%	1	17%
Bartholomew	12	6	50%	8	67%	2	17%	Porter	18	60%	8	27%	5	17%
Clinton	6	4	67%	5	83%	1	17%	Dearborn	6	86%	1	14%	1	14%
Porter	30	19	63%	24	80%	5	17%	St Joseph	22	67%	6	18%	4	12%
Vigo	13	9	69%	11	85%	2	15%	Lake	68	76%	21	23%	7	8%
Dearborn	7	6	86%	7	100%	1	14%	Wayne	34	97%	6	17%	2	6%
St Joseph	33	25	76%	29	88%	4	12%	Tippecanoe	26	96%	5	19%	1	4%
Vanderburgh	38	24	63%	28	74%	4	11%	Marion	103	29%	10	3%	2	1%
Hamilton	20	16	80%	18	90%	2	10%	Clark	3	9%	0	0%	0	0%
Lake	90	65	72%	73	81%	8	9%	Clay	1	50%	1	50%	0	0%
Wayne	35	29	83%	31	89%	2	6%	Daviess	0	0%	0	0%	0	0%
Tippecanoe	27	21	78%	22	81%	1	4%	Floyd	5	71%	0	0%	0	0%
Howard	31	20	65%	20	65%	1	3%	Fulton	3	75%	1	25%	0	0%
Clark	33	28	85%	29	88%	1	3%	Gibson	1	50%	0	0%	0	0%
Marion	350	307	88%	313	89%	6	2%	Hamilton	1	5%	0	0%	0	0%
Clay	2	1	50%	1	50%	0	0%	Howard	19	61%	4	13%	0	0%
Daviess	1	1	100%	1	100%	0	0%	Huntington	0	0%	0	0%	0	0%
Floyd	7	7	100%	7	100%	0	0%	Jackson	6	100%	1	17%	0	0%
Fulton	4	3	75%	3	75%	0	0%	LaGrange	3	100%	1	33%	0	0%
Huntington	2	2	100%	2	100%	0	0%	LaPorte	13	93%	2	14%	0	0%
Jackson	6	5	83%	5	83%	0	0%	Madison	1	20%	0	0%	0	0%
LaGrange	3	2	67%	2	67%	0	0%	Marshall	1	100%	0	0%	0	0%
LaPorte	14	10	71%	10	71%	0	0%	Montgomery	6	100%	2	33%	0	0%
Madison	5	2	40%	2	40%	0	0%	Morgan	11	100%	3	27%	0	0%
Marshall	1	1	100%	1	100%	0	0%	Newton	1	100%	0	0%	0	0%
Montgomery	6	4	67%	4	67%	0	0%	Noble	0	0%	0	0%	0	0%
Morgan	11	8	73%	8	73%	0	0%	Putnam	1	50%	1	50%	0	0%
Newton	1	1	100%	1	100%	0	0%	Scott	5	100%	1	20%	0	0%
Noble	1	1	100%	1	100%	0	0%	Starke	2	100%	0	0%	0	0%
Scott	5	4	80%	4	80%	0	0%	Tipton	1	50%	0	0%	0	0%
Starke	2	2	100%	2	100%	0	0%	Vanderburgh	24	63%	3	8%	0	0%
Tipton	2	2	100%	2	100%	0	0%	Vigo	5	38%	0	0%	0	0%
White	1	1	100%	1	100%	0	0%	White	1	100%	0	0%	0	0%
Total	961	720	75%	820	85%	101	11%	Total	515	54%	144	15%	80	8%

*Percent calculated among total number of reports by county