

# OAIPH Research

## Years of Lost Life: Overdose Deaths

2009 – 2018



## Ohio Alliance for Innovation in Population Health

*The Ohio Alliance for Innovation in Population Health is a collaborative effort initiated by the Ohio University College of Health Sciences and Professions and University of Toledo College of Health and Human Services. By aligning the resources and expertise of state universities, researchers, hospital associations, healthcare providers and public health experts, the alliance works to solve the most complex and pressing health problems in the state.*









## Project Summary and Key Findings

The Ohio Alliance for Innovation in Population Health has reviewed Ohio overdose death data for the decade beginning January 1<sup>st</sup>, 2009 and ending December 31<sup>st</sup>, 2018. The goal of the study was to determine the extent to which overdose deaths contributed to premature mortality in Ohio for the ten-year period.

Final data from the Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate file from 2009 through 2017 and preliminary for 2018 data were used for the analysis. Years of Life Lost (YLL) were calculated for each decedent by subtracting the age of death from the expected years of life. This calculation is based on period life tables produced by the Social Security Administration.

### 1. Key Findings:

- There were more than 1 million (1,028,005) years of life lost (YLL) accounted for by 26,375 overdose decedents from 2009 through 2018.
- In 2017, the peak year for overdoses, Ohio experienced 188,423 years of life lost due to unintentional overdose deaths. For purposes of comparison, there were 53,720 YLL for the baseline year of 2009.
- In 2017 overdose deaths had the effect of lowering the life span of an average Ohioan by 1.28 years.
- Metropolitan Counties experienced the largest increase in YLL between the baseline and final year (200%), followed by suburban counties (124%), Appalachian counties (114%) and rural non-Appalachia counties (108%).
- Overall males accounted for 64.65% of YLL for the ten-year period. Males also experienced a larger increase between the baseline and final year (170%) than females (149%).
- The highest percentage of overdose death YLL was accounted for by Ohioans between the ages of 20 and 29, (30.8%) followed by Ohioans between the ages of 30 and 39 (24.12%). However, Ohioans older than 60 recorded the highest rate of increase (344%) between the baseline and final year.
- White Ohioans accounted for 89.23% of overdose death YLL, followed by African American Ohioans (9.74%) and other minorities (1.02%). The rate of increase between the baseline year and final year was highest for other minorities (1469%), followed by African Americans (270%) and Whites (147%).
- Opioids Accounted for 80.66% of all years of life lost during the period with a 291% increase between baseline and final year. Opioid mentions co-occurred with a number of other drugs of abuse and were a significant factor in the overall increase in Cocaine and Psychostimulant YLL.

**Table 1: Average Life Span Difference between All Decedents and Non-Overdose Decedents**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Years Lived by Decedents (All Deaths)	7,830,300	7,977,565	8,851,217	8,621,379	8,692,724	8,592,062	8,662,110	8,718,521	9,001,246	9,073,483
Decedent Count	107,062	108,458	111,406	112,418	113,296	114,527	118,014	119,574	123,650	123,596
Average Years Lived	73.14	73.55	79.45	76.69	76.73	75.02	73.40	72.91	72.80	73.41
Total Years Lived by Decedents (Overdose Deaths)	58,076	62,977	72,923	77,746	87,212	102,319	121,953	160,283	198,275	149,200
Decedent Count	1,389	1,511	1,720	1,864	2,064	2,476	2,986	3,939	4,817	3,609
Average Years Lived	41.81	41.68	42.40	41.71	42.25	41.32	40.84	40.69	41.16	41.34
Total Years Lived by Decedents (Non-Overdose Deaths)	7,772,224	7,914,588	8,778,294	8,543,633	8,605,512	8,489,743	8,540,157	8,558,238	8,802,971	8,924,283
Decedent Count	105,673	106,947	109,686	110,554	111,232	112,051	115,028	115,635	118,833	119,987
Average Years Lived	73.55	74.00	80.03	77.28	77.37	75.77	74.24	74.01	74.08	74.38
<b>Average Life Span Difference between All Decedents and Non-Overdose Decedents</b>	<b>-0.41</b>	<b>-0.45</b>	<b>-0.58</b>	<b>-0.59</b>	<b>-0.64</b>	<b>-0.74</b>	<b>-0.85</b>	<b>-1.10</b>	<b>-1.28</b>	<b>-0.96</b>

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 2: Years of Lost Life by Region and Year**

	REGION				
	APPALACHIA	METRO	RURAL	SUBURBAN	Total
	Sum	Sum	Sum	Sum	Sum
2009	8,347	29,319	6,781	9,274	53,720
2010	8,143	33,231	6,825	10,375	58,574
2011	9,687	37,953	7,524	10,530	65,693
2012	8,841	44,143	7,719	11,415	72,117
2013	10,405	48,852	8,608	10,839	78,703
2014	12,402	58,381	11,654	14,159	96,595
2015	15,687	70,768	12,698	18,585	117,738
2016	15,729	99,346	17,410	23,146	155,632
2017	19,790	116,895	23,671	28,067	188,423
2018	17,871	88,011	14,119	20,810	140,810
Total	126,900	626,897	117,008	157,200	1,028,005
Pct Change	114%	200%	108%	124%	162%

**Years of Lost Life by Region and Year****Percent Row**

	REGION				
	APPALACHIA	METRO	RURAL	SUBURBAN	Total
	Sum	Sum	Sum	Sum	Sum
2009	15.50%	54.60%	12.60%	17.30%	100.00%
2010	13.90%	56.70%	11.70%	17.70%	100.00%
2011	14.70%	57.80%	11.50%	16.00%	100.00%
2012	12.30%	61.20%	10.70%	15.80%	100.00%
2013	13.20%	62.10%	10.90%	13.80%	100.00%
2014	12.80%	60.40%	12.10%	14.70%	100.00%
2015	13.30%	60.10%	10.80%	15.80%	100.00%
2016	10.10%	63.80%	11.20%	14.90%	100.00%
2017	10.50%	62.00%	12.60%	14.90%	100.00%
2018	12.70%	62.50%	10.00%	14.80%	100.00%
Total	12.30%	61.00%	11.40%	15.30%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 3: Years of Lost Life by Gender and Year**

	GENDER		
	FEMALE	MALE	Total
	Sum	Sum	Sum
2009	20,090	33,630	53,720
2010	21,838	36,736	58,574
2011	25,704	39,989	65,693
2012	26,417	45,701	72,117
2013	26,825	51,878	78,703
2014	34,058	62,537	96,595
2015	41,092	76,646	117,738
2016	52,199	103,433	155,632
2017	65,122	123,301	188,423
2018	50,053	90,757	140,810
Total	363,397	664,608	1,028,005
Pct Change	149%	170%	162%

**Years of Lost Life by Gender and Year****Percent Row**

	GENDER		
	FEMALE	MALE	Total
	Sum	Sum	Sum
2009	37.40%	62.60%	100.00%
2010	37.28%	62.72%	100.00%
2011	39.13%	60.87%	100.00%
2012	36.63%	63.37%	100.00%
2013	34.08%	65.92%	100.00%
2014	35.26%	64.74%	100.00%
2015	34.90%	65.10%	100.00%
2016	33.54%	66.46%	100.00%
2017	34.56%	65.44%	100.00%
2018	35.55%	64.45%	100.00%
Total	35.35%	64.65%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 4: Years of Lost Life by Age Category and Year**

	AGECAT							Total
	14 & UNDER	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60+	
	Sum	Sum	Sum	Sum	Sum	Sum	Sum	
2009	2,102	5,051	14,609	12,285	14,788	4,183	701	53,720
2010	2,295	6,680	15,421	13,323	14,964	5,222	670	58,574
2011	2,845	6,693	16,560	14,543	18,014	6,137	901	65,693
2012	2,413	7,805	19,934	16,380	17,835	6,749	1,001	72,117
2013	2,420	8,290	22,746	17,271	18,624	8,147	1,205	78,703
2014	2,596	12,529	28,204	23,071	19,074	9,548	1,573	96,595
2015	3,704	14,277	36,190	28,883	21,649	11,167	1,867	117,738
2016	3,887	20,088	49,709	36,535	28,418	14,543	2,452	155,632
2017	4,816	20,904	59,894	47,454	33,965	18,129	3,260	188,423
2018	3,620	13,769	45,941	38,260	22,382	13,721	3,117	140,810
Total	30,698	116,086	309,209	248,006	209,713	97,547	16,747	1,028,005
Pct Change	72%	173%	214%	211%	51%	228%	344%	162%

**Years of Lost Life by Age Category and Year**

**Row Percent**

	AGECAT							Total
	14 & UNDER	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60+	
	Sum	Sum	Sum	Sum	Sum	Sum	Sum	
2009	3.91%	9.40%	27.19%	22.87%	27.53%	7.79%	1.31%	100.00%
2010	3.92%	11.40%	26.33%	22.75%	25.55%	8.91%	1.14%	100.00%
2011	4.33%	10.19%	25.21%	22.14%	27.42%	9.34%	1.37%	100.00%
2012	3.35%	10.82%	27.64%	22.71%	24.73%	9.36%	1.39%	100.00%
2013	3.07%	10.53%	28.90%	21.94%	23.66%	10.35%	1.53%	100.00%
2014	2.69%	12.97%	29.20%	23.88%	19.75%	9.88%	1.63%	100.00%
2015	3.15%	12.13%	30.74%	24.53%	18.39%	9.48%	1.59%	100.00%
2016	2.50%	12.91%	31.94%	23.47%	18.26%	9.34%	1.58%	100.00%
2017	2.56%	11.09%	31.79%	25.19%	18.03%	9.62%	1.73%	100.00%
2018	2.57%	9.78%	32.63%	27.17%	15.90%	9.74%	2.21%	100.00%
Total	2.99%	11.29%	30.08%	24.12%	20.40%	9.49%	1.63%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.



**Table 5: Years of Lost Life by Race and Year**

	RACECAT			
	WHITE	BLACK	OTHER	Total
	Sum	Sum	Sum	Sum
2009	48,685	4,883	152	53,720
2010	53,855	4,588	131	58,574
2011	59,587	5,304	802	65,693
2012	65,991	5,470	656	72,117
2013	71,132	7,173	398	78,703
2014	87,654	7,976	965	96,595
2015	105,817	10,476	1,444	117,738
2016	139,711	14,671	1,250	155,632
2017	164,559	21,520	2,345	188,423
2018	120,349	18,073	2,389	140,810
Total	917,340	100,134	10,531	1,028,005
Pct Change	147%	270%	1469%	162%

**Years of Lost Life by Race and Year  
Row Percent**

	RACECAT			
	WHITE	BLACK	OTHER	Total
	Sum	Sum	Sum	Sum
2009	90.63%	9.09%	0.28%	100.00%
2010	91.94%	7.83%	0.22%	100.00%
2011	90.71%	8.07%	1.22%	100.00%
2012	91.51%	7.59%	0.91%	100.00%
2013	90.38%	9.11%	0.51%	100.00%
2014	90.74%	8.26%	1.00%	100.00%
2015	89.88%	8.90%	1.23%	100.00%
2016	89.77%	9.43%	0.80%	100.00%
2017	87.33%	11.42%	1.24%	100.00%
2018	85.47%	12.83%	1.70%	100.00%
Total	89.23%	9.74%	1.02%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 6: Years of Lost Life by Opioids and Year**

	ALL OPIOIDS		
	No	Yes	Total
	Sum	Sum	Sum
2009	22,605	31,115	53,720
2010	19,881	38,693	58,574
2011	21,339	44,354	65,693
2012	22,642	49,475	72,117
2013	19,587	59,116	78,703
2014	17,716	78,879	96,595
2015	14,249	103,488	117,738
2016	18,250	137,382	155,632
2017	23,291	165,133	188,423
2018	19,289	121,521	140,810
Total	198,849	829,157	1,028,005
Pct Change	-15%	291%	162%

**Years of Lost Life by Opioids and Year**

	Row Percent		
	ALL OPIOIDS		
	No	Yes	Total
	Sum	Sum	Sum
2009	42.08%	57.92%	100.00%
2010	33.94%	66.06%	100.00%
2011	32.48%	67.52%	100.00%
2012	31.40%	68.60%	100.00%
2013	24.89%	75.11%	100.00%
2014	18.34%	81.66%	100.00%
2015	12.10%	87.90%	100.00%
2016	11.73%	88.27%	100.00%
2017	12.36%	87.64%	100.00%
2018	13.70%	86.30%	100.00%
Total	19.34%	80.66%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 7: Years of Lost Life by Heroin and Year**

	HEROIN		
	No	Yes	Total
	Sum	Sum	Sum
2009	41,681	12,039	53,720
2010	44,312	14,262	58,574
2011	48,461	17,232	65,693
2012	44,378	27,740	72,117
2013	39,692	39,011	78,703
2014	48,082	48,514	96,595
2015	60,175	57,563	117,738
2016	99,485	56,147	155,632
2017	150,243	38,180	188,423
2018	114,625	26,185	140,810
Total	691,133	336,872	1,028,005
Pct Change	175%	117%	162%

**Years of Lost Life by Heroin and Year  
Row Percent**

	HEROIN		
	No	Yes	Total
	Sum	Sum	Sum
2009	77.59%	22.41%	100.00%
2010	75.65%	24.35%	100.00%
2011	73.77%	26.23%	100.00%
2012	61.54%	38.46%	100.00%
2013	50.43%	49.57%	100.00%
2014	49.78%	50.22%	100.00%
2015	51.11%	48.89%	100.00%
2016	63.92%	36.08%	100.00%
2017	79.74%	20.26%	100.00%
2018	81.40%	18.60%	100.00%
Total	67.23%	32.77%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 8: Years of Lost Life by Fentanyl and Year**

	FENTANYL		
	No	Yes	Total
	Sum	Sum	Sum
2009	50,912	2,808	53,720
2010	55,672	2,902	58,574
2011	63,014	2,680	65,693
2012	69,389	2,728	72,117
2013	75,554	3,149	78,703
2014	75,604	20,991	96,595
2015	70,942	46,795	117,738
2016	60,976	94,656	155,632
2017	50,300	138,123	188,423
2018	34,446	106,364	140,810
Total	609,615	418,390	1,028,005
Pct Change	-32%	3688%	162%

**Years of Lost Life by Fentanyl and Year  
Row Percent**

	FENTANYL		
	No	Yes	Total
	Sum	Sum	Sum
2009	94.77%	5.23%	100.00%
2010	95.04%	4.96%	100.00%
2011	95.92%	4.08%	100.00%
2012	96.22%	3.78%	100.00%
2013	96.00%	4.00%	100.00%
2014	78.27%	21.73%	100.00%
2015	60.25%	39.75%	100.00%
2016	39.18%	60.82%	100.00%
2017	26.70%	73.30%	100.00%
2018	24.46%	75.54%	100.00%
Total	59.30%	40.70%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 9: Years of Lost Life by Cocaine and Year**

	COCAINE		
	No	Yes	Total
	Sum	Sum	Sum
2009	45,575	8,146	53,720
2010	50,806	7,768	58,574
2011	54,443	11,251	65,693
2012	60,361	11,756	72,117
2013	64,356	14,347	78,703
2014	77,432	19,164	96,595
2015	92,084	25,654	117,738
2016	113,802	41,830	155,632
2017	129,890	58,534	188,423
2018	101,136	39,674	140,810
Total	789,883	238,122	1,028,005
Pct Change	122%	387%	162%

**Years of Lost Life by Cocaine and Year****Row Percent**

	COCAINE		
	No	Yes	Total
	Sum	Sum	Sum
2009	84.84%	15.16%	100.00%
2010	86.74%	13.26%	100.00%
2011	82.87%	17.13%	100.00%
2012	83.70%	16.30%	100.00%
2013	81.77%	18.23%	100.00%
2014	80.16%	19.84%	100.00%
2015	78.21%	21.79%	100.00%
2016	73.12%	26.88%	100.00%
2017	68.93%	31.06%	100.00%
2018	71.82%	28.18%	100.00%
Total	76.84%	23.16%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

**Table 10: Years of Lost Life by Stimulants and Year**

	STIMULANTS		
	No	Yes	Total
	Sum	Sum	Sum
2009	53,396	324	53,720
2010	58,249	325	58,574
2011	64,747	946	65,693
2012	71,112	1,006	72,117
2013	76,998	1,705	78,703
2014	94,305	2,291	96,595
2015	114,019	3,718	117,738
2016	146,588	9,044	155,632
2017	166,629	21,794	188,423
2018	119,730	21,081	140,810
Total	965,773	62,233	1,028,005
Pct Change	124%	6410%	162%

**Years of Lost Life by Stimulants and Year  
Row Percent**

	STIMULANTS		
	No	Yes	Total
	Sum	Sum	Sum
2009	99.40%	0.60%	100.00%
2010	99.45%	0.55%	100.00%
2011	98.56%	1.44%	100.00%
2012	98.61%	1.39%	100.00%
2013	97.83%	2.17%	100.00%
2014	97.63%	2.37%	100.00%
2015	96.84%	3.16%	100.00%
2016	94.19%	5.81%	100.00%
2017	88.43%	11.57%	100.00%
2018	85.03%	14.97%	100.00%
Total	93.95%	6.05%	100.00%

Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.



## Partnerships in the Alliance

- Athens County Health Department • Athens/Hocking/Vinton 317 Board • Buckeye Hills Regional Council • Columbus Springs of Dublin • Genesis Healthcare • Health Recovery Services • Healthcare Collaborative of Greater Columbus • Hocking College • Hopewell Health Centers • Hospital Council of Northwest Ohio • Health Policy Institute of Ohio
- Integrated Services for Behavioral Health InXite • Health Systems • MedMark Treatment Centers • Mercy Health • Molina Healthcare • OhioHealth • Ohio Public Health Association
- **Ohio University** • Portsmouth City Health Department • Public Health Services Council of Ohio • Toledo Lucas County Health Department • United Healthcare • University of Findlay
- **University of Toledo** • Washington/Morgan Community Action Council • Wright State University •

\* *Bold type indicates founding organizations of the Ohio Alliance for Innovation in Population Health*

## Works Cited

Ohio Department of Health. (n.d.). Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File.

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