A Longitudinal Analysis of Ohio Suicide Deaths 2008 - 2017

Prepared by:

The Ohio Alliance for Innovation

in Population Health

May 2019

Ohio Alliance for Innovation in Population Health

The Ohio Alliance for Innovation in Population Health is a collaborative of twenty-seven partner organizations. 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.

OHIO UNIVERSITY
College of Health Sciences and Professions
where everything connects

A Longitudinal Analysis of Ohio Suicides

2008 – 2017

EXECUTIVE SUMMARY

The Ohio Alliance for Innovation in Population Health (OAIPH) has completed a review of suicide fatalities in Ohio from 2008 through 2017. The intent was to determine the scope of suicide fatalities and to identify key demographic characteristics of decedents for this serious and growing problem.

Data were obtained from the Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. Key patterns of mortality for demographics such as county of residence, region of state, age cohort, sex, and race were assessed. Geographic and temporal patterns were also reviewed.

KEY FINDINGS

1. There were 15,246 Ohio suicide fatalities between January 2008 and December 2017. These fatalities accounted for 1.3% of all Ohio deaths.
2. Suicide fatalities were responsible for 526,501 years of lost Ohio life during the study period.
3. The average annual crude suicide rate per 100,000 population for the ten-year period was 13.2.
4. The suicide rate per 100,000 increased by 24% from 2008 to 2017
5. Three Appalachian counties; Meigs (21.5), Jackson (19.9), and Hocking (19.7), had the highest average suicide death rates per 100,000 population.
6. Holmes (6.9), Delaware (9.9) and Hardin (10.3) counties recorded the lowest average suicide rates.
7. Appalachian Ohio reported higher suicide rates per 100,000 population than the remainder of Ohio. Rates in the Suburban, Metropolitan (12.9) and Rural non-Appalachian counties followed (see Table 7).

8. Males were at a much greater risk for suicide with an average ten-year rate of 21.4. The average suicide death rate for females during the study period was 5.4.
9. Suicide rates for the period were highest among persons between the ages of 50 and 59 (19.5), followed by Ohioans between the ages of 40 and 49 (17.2).
10. In 2017, young adults (persons between the ages of 20 and 29) exhibited the highest suicide rate per age group (20.1).
11. Excluding pre-adolescents, the rate of increasing suicide fatalities was highest among the senior citizen age cohort (60+) where fatality rates climbed from 12.4 deaths per 100,000 in 2008 to 19.5 deaths in 2017. This was an overall 57.1% increase.
12. Suicide rates were highest among whites (14.6) followed by African Americans (7.4) and other minorities (4.9).
13. Firearms accounted for 50.9 percent of all suicide fatalities for the ten-year period, followed by other (33.3%) and self-poisoning (15.8%).

Table 1
Suicide Rate by County Sorted from High to Low
2008 -2017

County	Census 2010	Suicides '08 - '17	Avg. Rate Per 100K
Meigs	23,770	51	21.46
Jackson	33,225	66	19.86
Hocking	29,380	58	19.74
Adams	28,550	55	19.26
Ashtabula	101,497	183	18.03
Gallia	30,934	55	17.78
Brown	44,846	79	17.62
Guernsey	40,087	70	17.46
Trumbull	210,312	360	17.12
Muskingum	86,074	145	16.85
Columbiana	107,841	181	16.78
Highland	43,589	72	16.52
Champaign	40,097	66	16.46
Licking	166,492	262	15.74
Stark	375,586	591	15.74
Clermont	197,363	310	15.71
Ross	78,064	122	15.63
Belmont	70,400	110	15.63
Logan	45,858	70	15.26
Montgomery	535,153	816	15.25
Darke	52,959	80	15.11
Jefferson	69,709	105	15.06
Monroe	14,642	22	15.03
Lake	230,041	341	14.82
Clark	138,333	204	14.75
Perry	36,058	53	14.70
Pike	28,709	42	14.63
Morgan	15,054	22	14.61
Pickaway	55,698	81	14.54
Summit	541,781	786	14.51
Preble	42,270	61	14.43
Huron	59,626	86	14.42
Noble	14,645	21	14.34
Sandusky	60,944	87	14.28
Washington	61,778	88	14.24
Lorain	301,356	419	13.90
Erie	77,079	107	13.88

County	Census 2010	Suicides '08 - '17	Avg. Rate Per 100K
Richland	124,475	169	13.58
Williams	37,642	51	13.55
Carroll	28,836	39	13.52
Harrison	15,864	21	13.24
Butler	368,130	484	13.15
Fulton	42,698	56	13.12
Coshocton	36,901	48	13.01
Mahoning	238,823	310	12.98
Tuscarawas	92,582	119	12.85
Ottawa	41,428	53	12.79
Lucas	441,815	564	12.77
Paulding	19,614	25	12.75
Geauga	93,389	119	12.74
Lawrence	62,450	79	12.65
Greene	161,573	204	12.63
Miami	102,506	129	12.58
Crawford	43,784	55	12.56
Marion	66,501	83	12.48
Hamilton	802,374	996	12.41
Henry	28,215	35	12.40
Wyandot	22,615	28	12.38
Seneca	56,745	70	12.34
Madison	43,435	53	12.20
Franklin	1,163,414	1408	12.10
Mercer	40,814	49	12.01
Auglaize	45,949	55	11.97
Medina	172,332	206	11.95
Clinton	42,040	50	11.89
Van Wert	28,744	34	11.83
Portage	161,419	189	11.71
Fairfield	146,156	170	11.63
Defiance	39,037	45	11.53
Allen	106,331	122	11.47
Cuyahoga	1,280,122	1461	11.41
Scioto	79,499	90	11.32
Athens	64,757	73	11.27
Knox	60,921	68	11.16
Wood	125,488	140	11.16
Warren	212,693	235	11.05
Fayette	29,030	32	11.02

County	Census 2010	Suicides '08 - '17	Avg. Rate Per 100K
Putnam	34,499	38	11.01
Hancock	74,782	82	10.97
Wayne	114,520	125	10.92
Morrow	34,827	38	10.91
Ashland	53,139	57	10.73
Shelby	49,423	53	10.72
Union	52,300	56	10.71
Vinton	13,435	14	10.42
Hardin	32,058	33	10.29
Delaware	174,214	172	9.87
Holmes	42,366	29	6.85
Total	11,536,504	15,241	13.2

Table 2
Ohio Suicide Rates per 100,000 Population
by Sex

Year	Male	Female	Ratio Male/Fem.
2008	19.96	4.91	4.06
2009	18.80	4.86	3.87
2010	19.83	4.89	4.05
2011	19.53	4.79	4.07
2012	21.63	5.40	4.00
2013	21.09	5.72	3.68
2014	20.70	5.56	3.73
2015	23.22	5.71	4.07
2016	23.83	6.15	3.88
2017	25.25	5.57	4.53
Pct. Change	26.5%	13.4%	11.5%

Table 3
Ohio Suicide Deaths per 100,000 Population
by Age Cohort

Year	14 & UNDER	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 +
2008	0.66	10.28	14.72	16.22	19.63	15.79	12.42
2009	0.66	9.05	13.00	14.52	17.72	17.06	12.70
2010	0.26	7.46	16.05	14.73	17.61	18.20	13.50
2011	0.35	9.79	14.12	15.07	15.11	19.91	13.31
2012	0.84	8.44	14.79	16.42	16.91	21.75	16.30
2013	0.66	5.87	15.85	15.61	17.20	20.29	17.61
2014	1.10	7.22	14.99	16.69	15.69	19.09	17.09
2015	0.62	9.79	16.78	17.78	16.85	21.88	18.68
2016	0.75	8.81	19.03	17.71	15.98	22.38	20.50
2017	1.19	11.99	20.09	18.66	19.05	19.09	19.52
Pct. Change	80.0%	16.7%	36.5%	15.1%	-2.9%	20.9%	57.1%

Table 4
Ohio Suicide Rates per 100,000 Population
by Race

Year	White	Black	Other
2008	13.48	8.10	2.38
2009	13.06	6.46	1.53
2010	13.77	5.68	2.04
2011	13.48	5.61	5.44
2012	14.75	7.74	5.61
2013	14.52	7.53	8.15
2014	14.28	6.96	5.78
2015	15.86	7.46	4.59
2016	16.24	8.31	6.62
2017	16.52	9.80	6.29
Pct. Change	22.6%	21.1%	164.3%

Table 5
Ohio Suicide Deaths - Percent Total
by Cause of Death

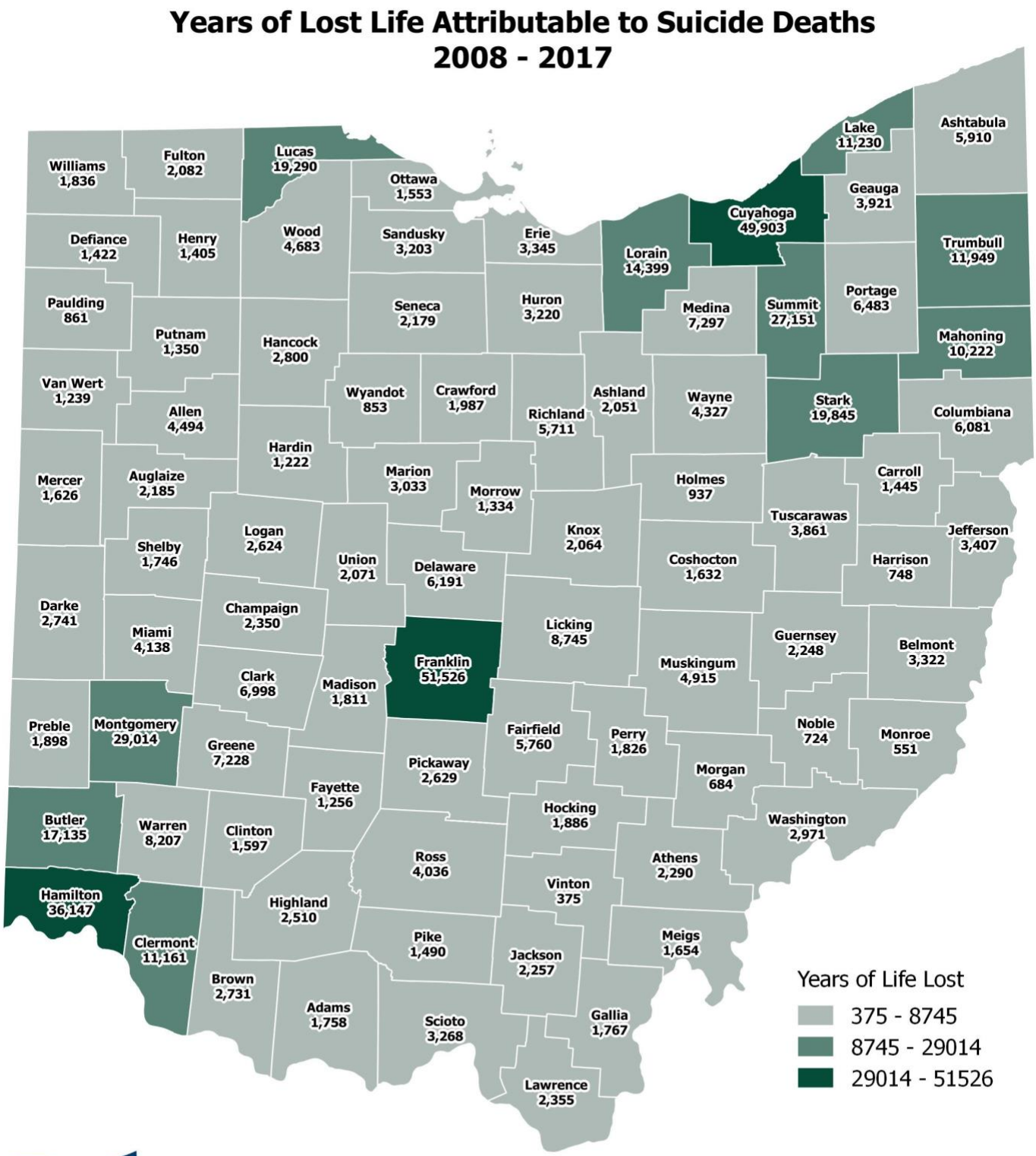
Year	FIREARM	OTHER	POISON
2008	48.4%	32.6%	19.0%
2009	49.2%	32.8%	18.0%
2010	50.3%	32.9%	16.9%
2011	50.3%	33.1%	16.5%
2012	50.5%	35.9%	13.6%
2013	51.9%	32.0%	16.1%
2014	49.5%	35.3%	15.2%
2015	52.3%	33.2%	14.5%
2016	54.1%	31.3%	14.7%
2017	52.6%	34.3%	13.0%
Pct. Change	8.7%	5.2%	-31.2%

Table 6
Ohio Suicide Deaths per 100,000 Population
by Region

Year	Appalachia	Metro	Rural	Suburban
2008	12.94	12.41	11.44	11.97
2009	12.94	11.61	11.01	11.45
2010	14.35	11.94	11.14	12.20
2011	14.62	11.51	12.72	11.54
2012	17.43	12.69	12.41	13.52
2013	16.49	12.99	12.11	13.00
2014	15.29	12.88	12.17	12.11
2015	14.15	14.19	13.93	14.80
2016	16.09	14.36	14.36	15.41
2017	15.82	14.81	15.21	15.78
Pct. Change	22.3%	19.4%	33.0%	31.9%

** **Data Source:** Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. Analysis includes Ohio residents with any of the following ICD-10 codes as the underlying cause of death: X60-X84, Y87.0, *U03.

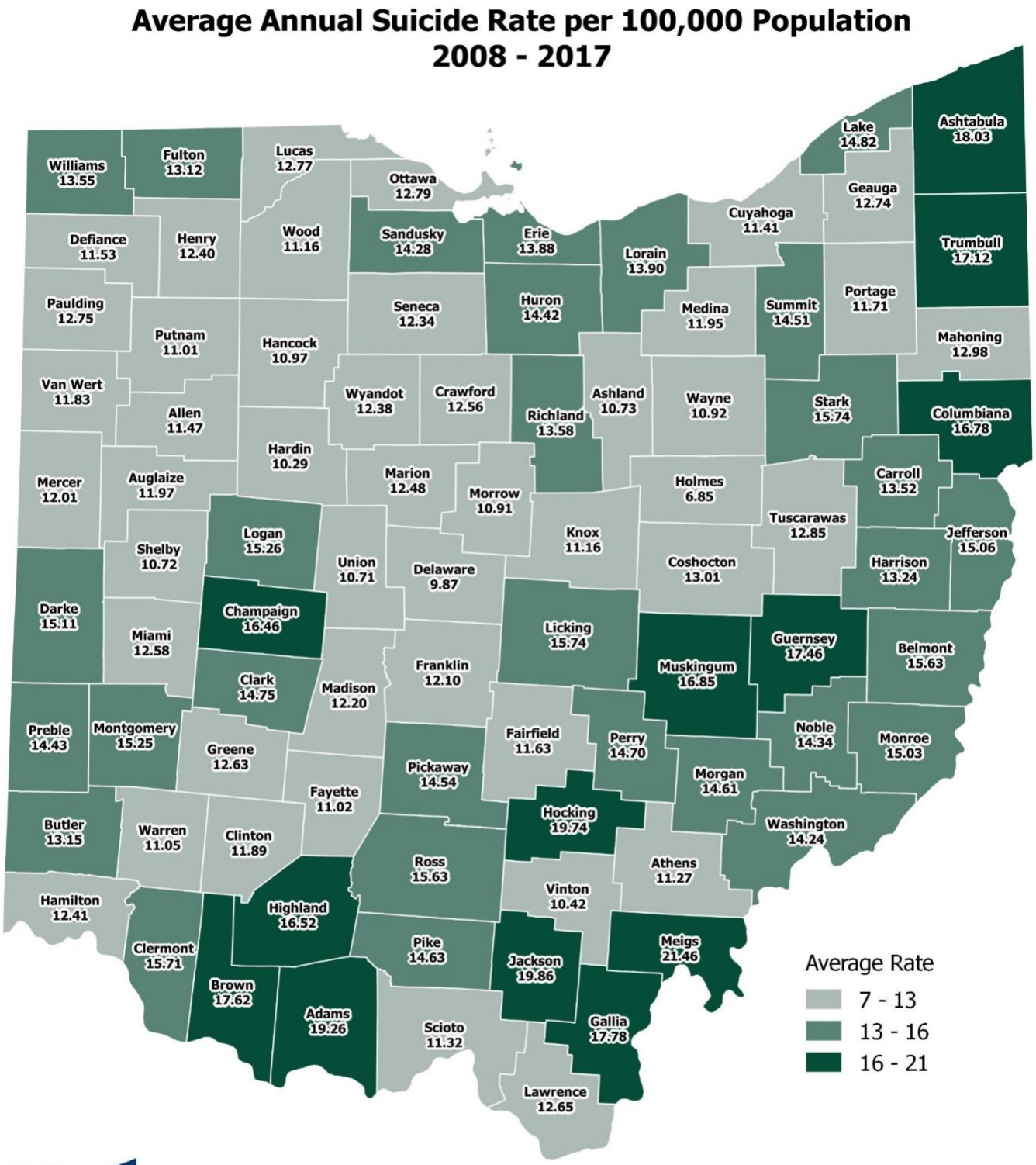
Figure 1



Ohio Alliance for Innovation in Population Health

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.

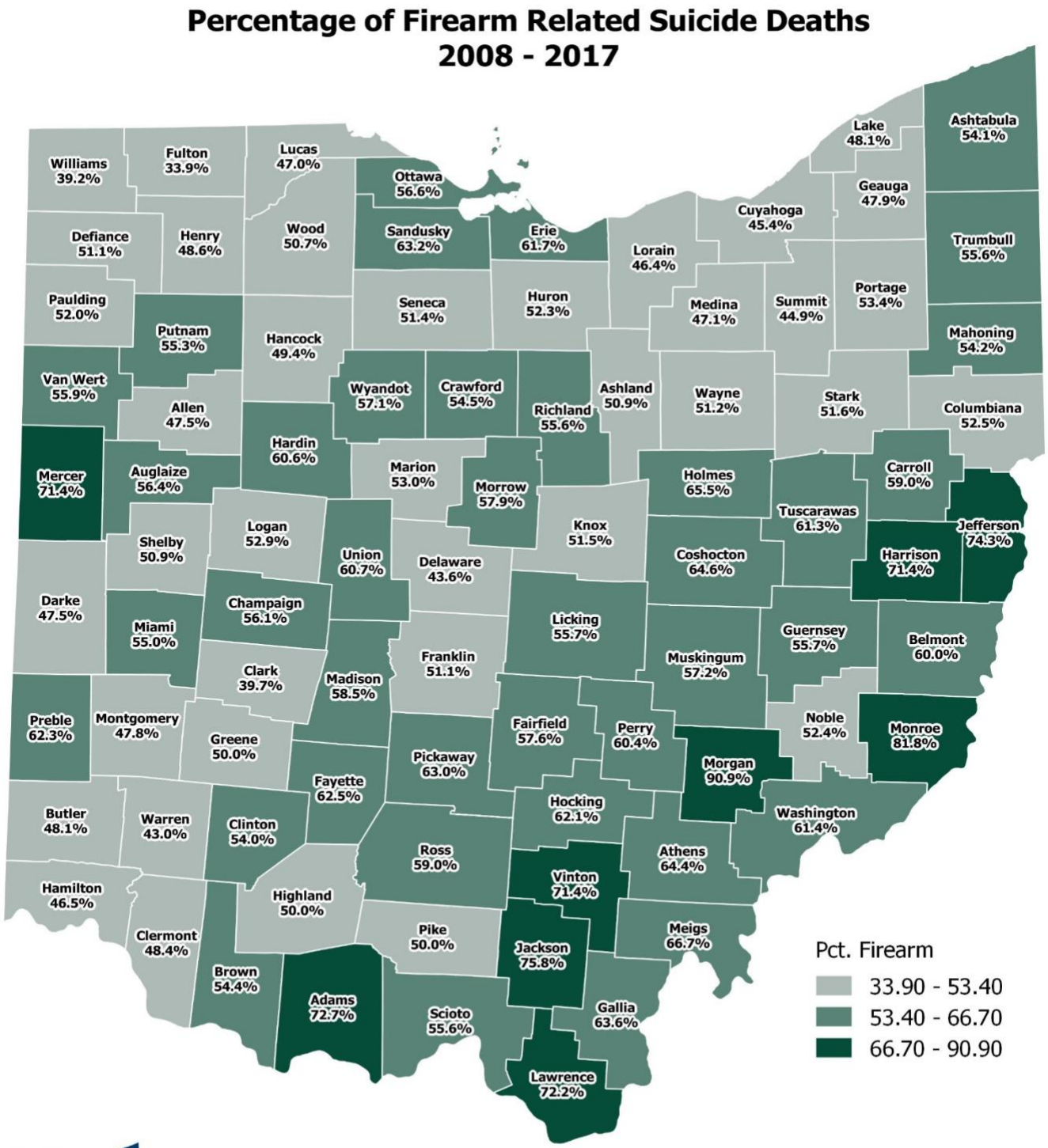
Figure 2



Ohio Alliance for Innovation in Population Health

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.

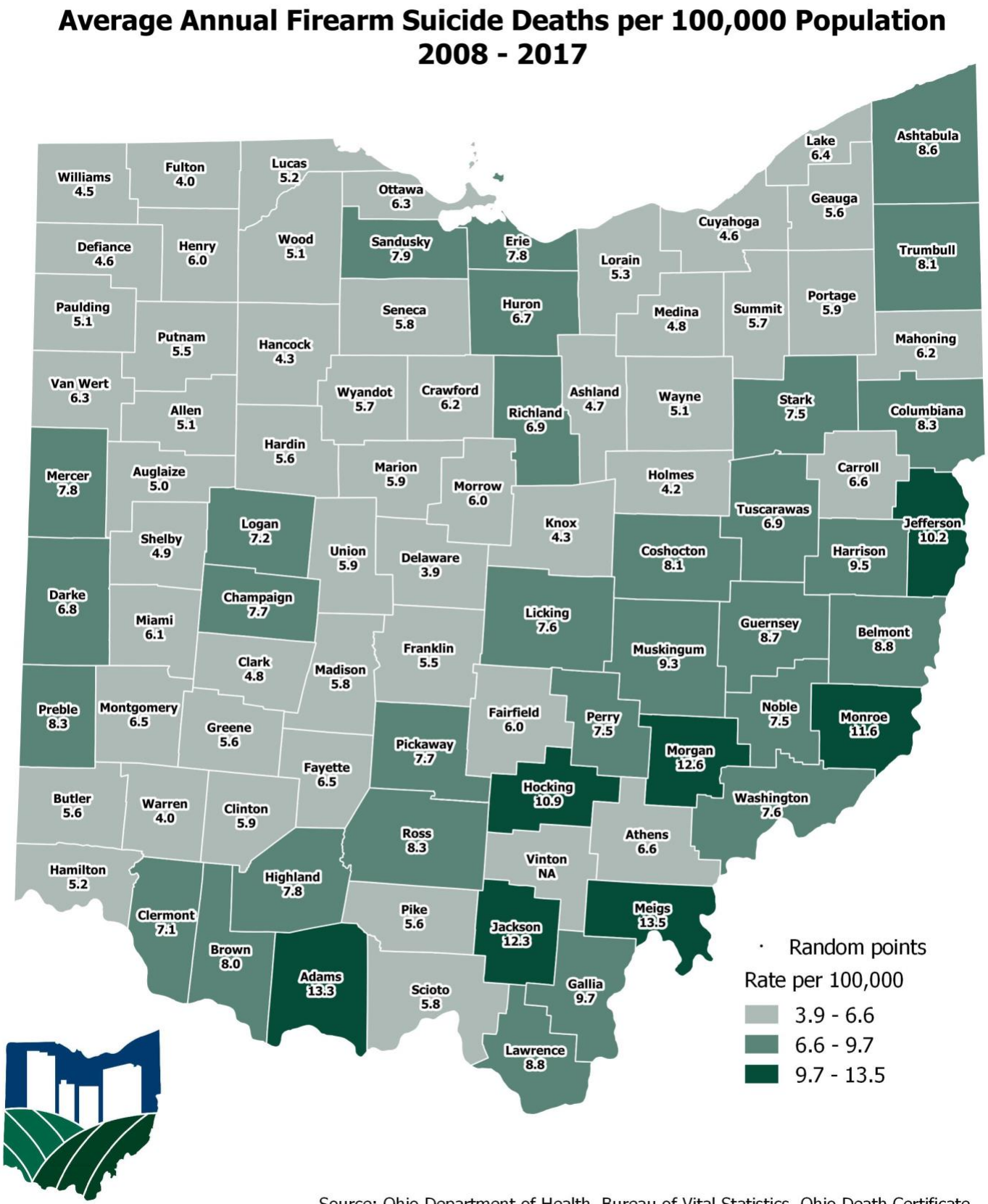
Figure 3



Ohio Alliance for Innovation in Population Health

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.

Figure 4



Ohio Alliance for Innovation in Population Health

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.

Figure 5

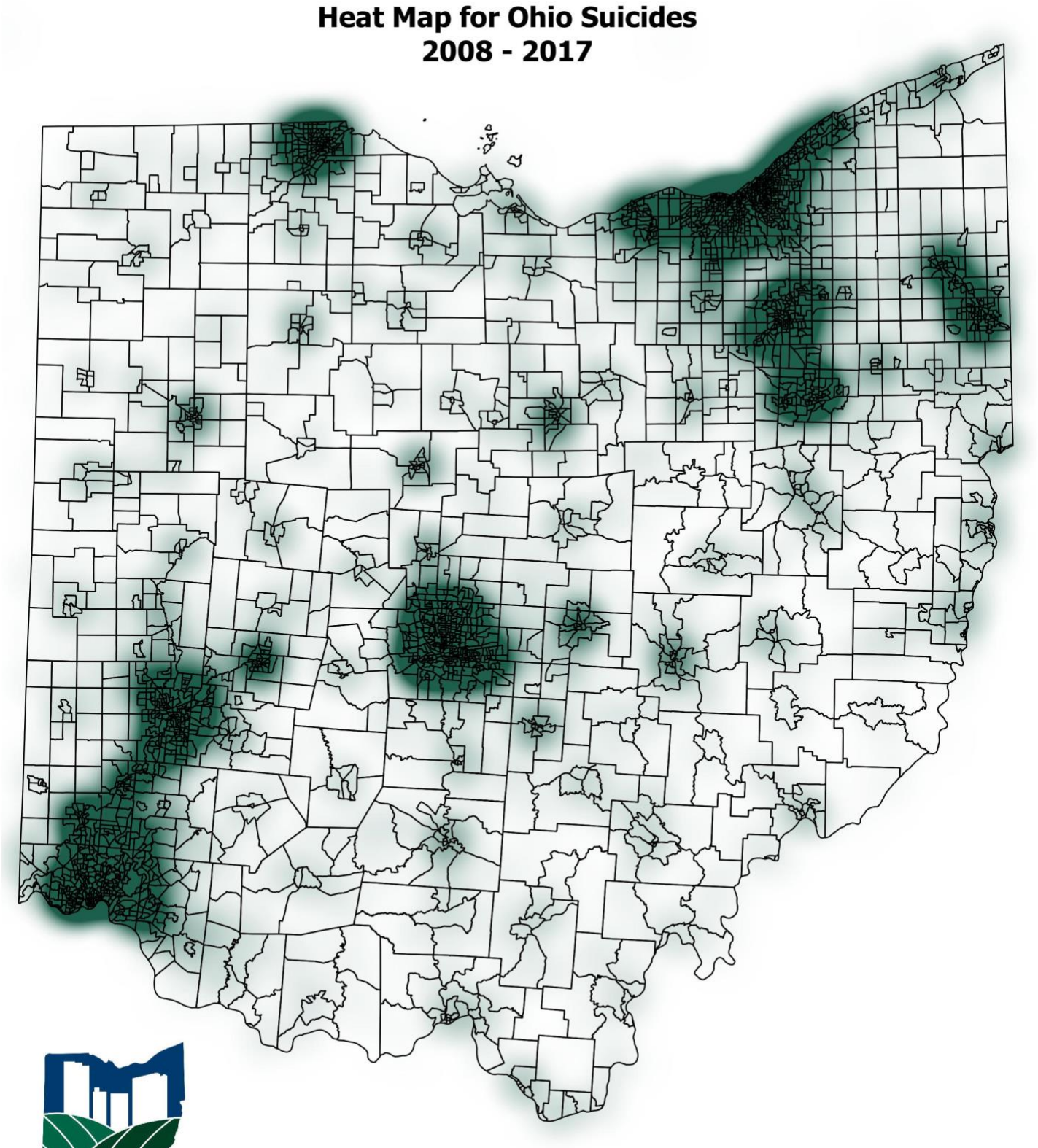

Heat Map for Ohio Suicides
2008 - 2017
Ohio Alliance
for Innovation in
Population Health
Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

Figure 6

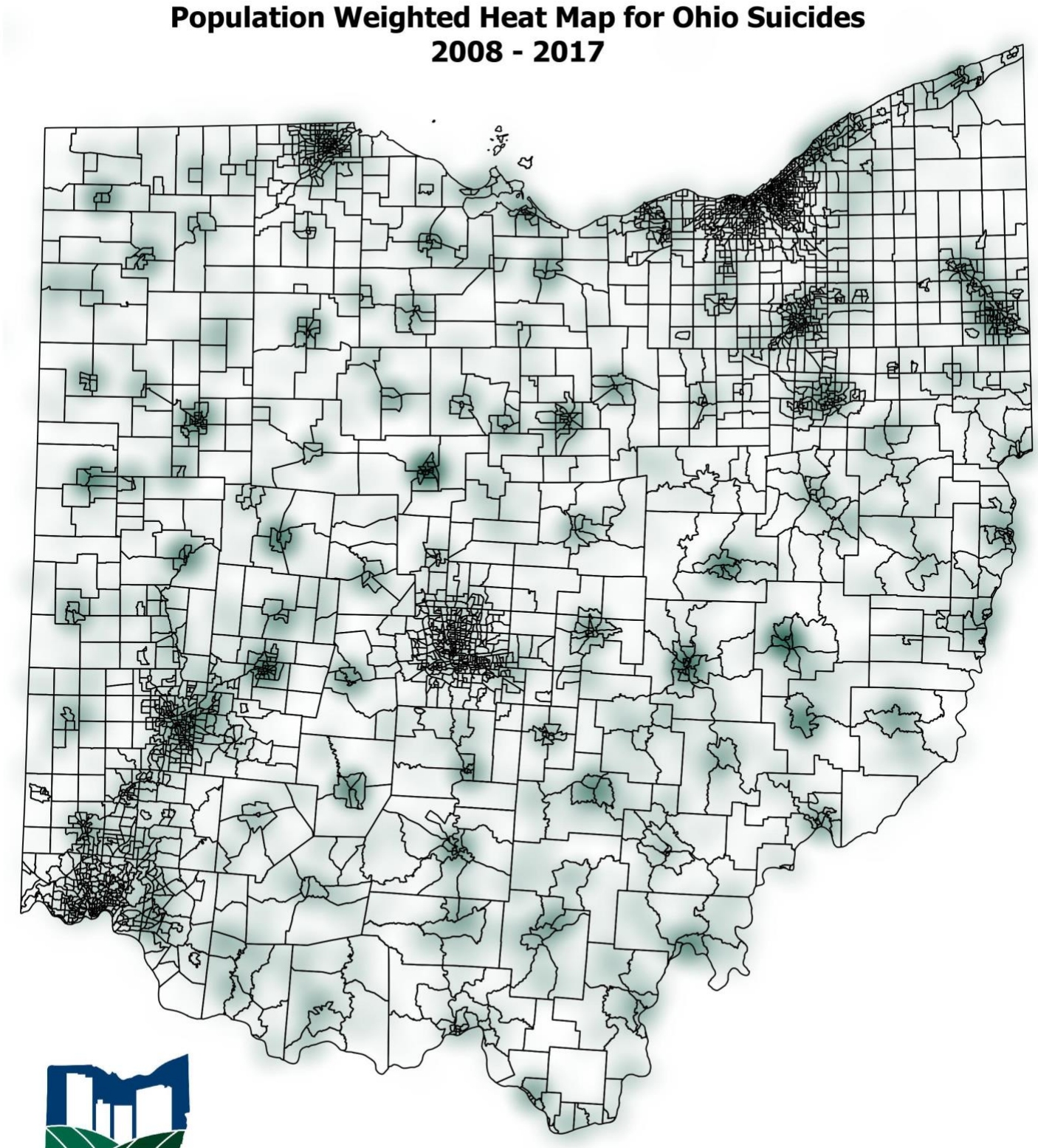

Population Weighted Heat Map for Ohio Suicides
2008 - 2017
Ohio Alliance
for Innovation in
Population Health
Source: Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. These data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

Figure 7

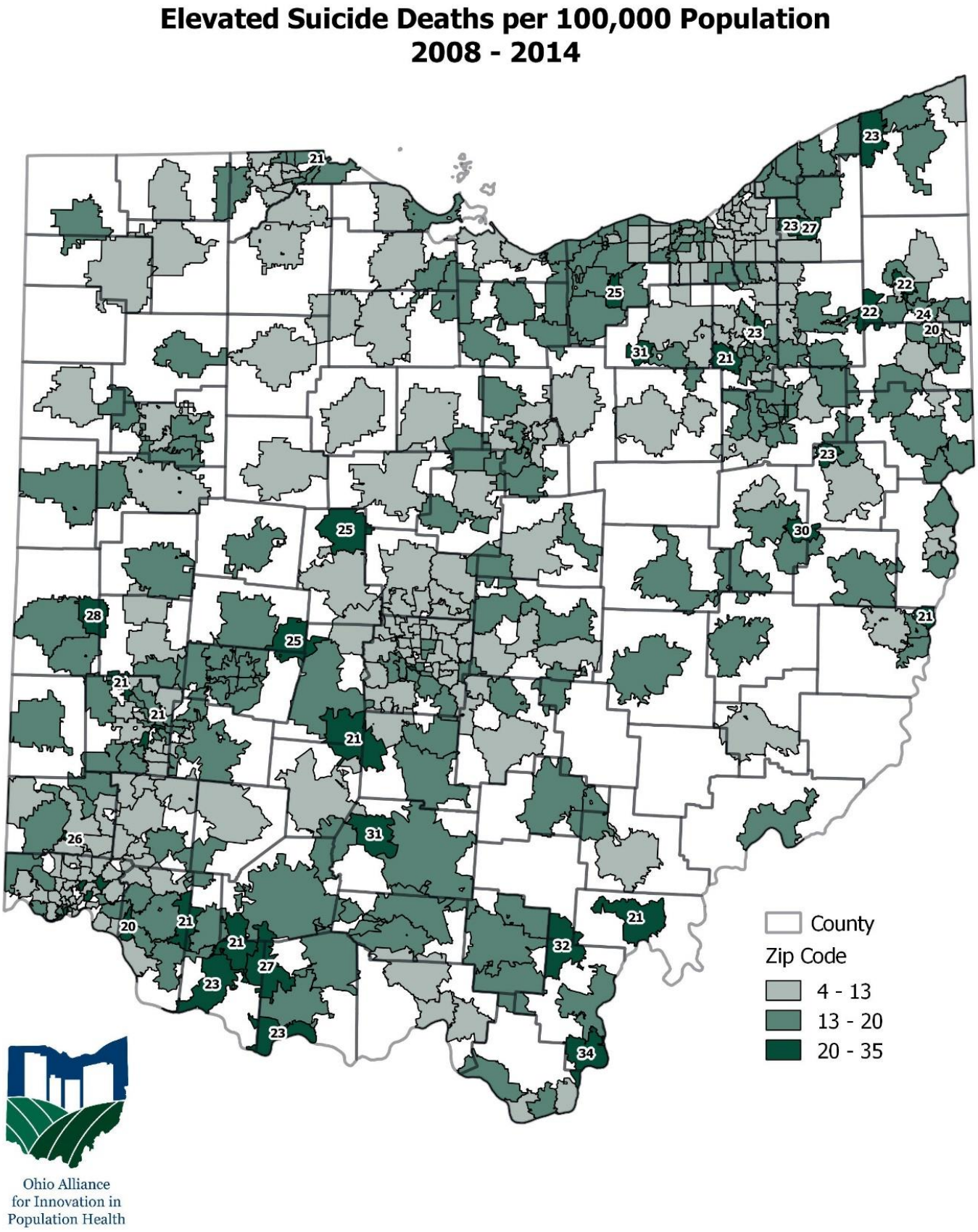
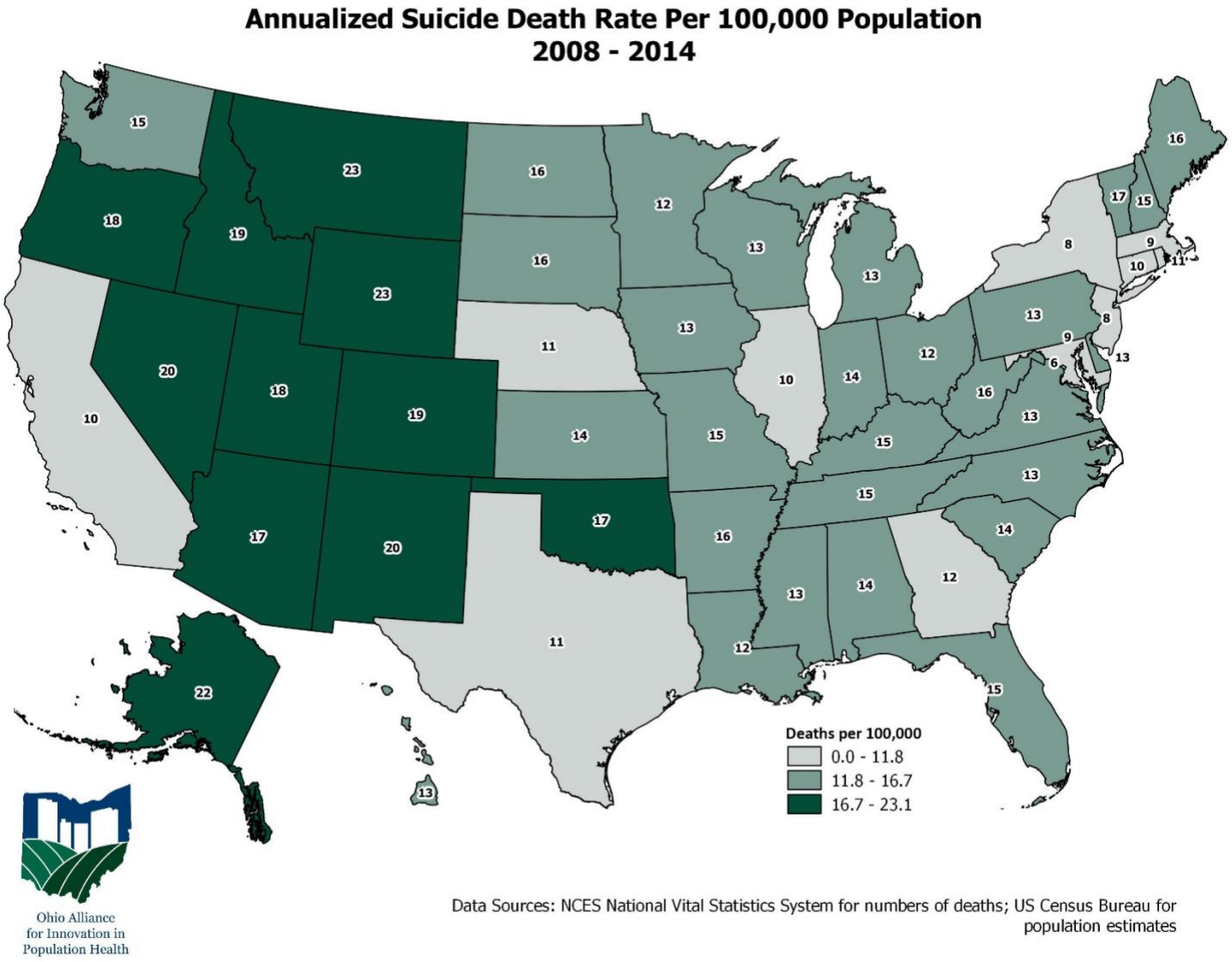

Elevated Suicide Deaths per 100,000 Population
2008 - 2014
County
Zip Code
4 - 13
13 - 20
20 - 35
Ohio Alliance
for Innovation in
Population Health

Figure 8


Annualized Suicide Death Rate Per 100,000 Population
2008 - 2014
Deaths per 100,000
0.0 - 11.8
11.8 - 16.7
16.7 - 23.1
Ohio Alliance
for Innovation in
Population Health
Data Sources: NCES National Vital Statistics System for numbers of deaths; US Census Bureau for population estimates

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

Centers for Disease Control and Prevention. (n.d.). Retrieved from wisquars.ced.gov: https://wisqars.cdc.gov:8443/cdcMapFramework/mapModuleInterface.jsp

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