POLICE SHOOTING FATALITIES: 2015 - 2020

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February 23, 2021

Ohio Alliance for Innovation in Population Health

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About the Alliance

The Ohio Alliance for Innovation in Population Health (The Alliance) is a collaborative effort of Ohio University and more than thirty partner organizations.[1] By aligning the resources and expertise of state universities, researchers, hospital associations, healthcare providers, and public health experts, the Alliance works to solve complex and pressing health problems. A major goal of the Alliance is to help the citizens of Ohio live longer, healthier, and happier lives.

Introduction

The intent of this monograph is to provide insight into deaths attributable to police intervention in Ohio. To accomplish this goal, the Alliance has calculated the average annual fatality rate per 1,000,000 population for police interventions for Ohio and U.S. counties. Data were extracted from the *Washington Post's* Police Shootings Database for the United States. All data represent fatalities that occurred between January 1, 2015 through December 31, 2020.

The Washington Post database tracks more than a dozen data elements per fatality - including race of decedent, the circumstances of the shooting, whether the person was armed and whether the person was experiencing a mental health crisis. The Washington Post documents only those shootings in which a police officer shoots and kills a civilian while in the line of duty.[2]

The research team encoded county of death using the latitude/longitude points included in the Post database and the geospatial software package QGIS.[3] County population estimates were obtained from the census bureau to calculate rates per 1,000,000 fatalities.[4]

To put these numbers in perspective, the Alliance also completed a ten-year comparative analysis of all Ohio mortality data between January 1, 2009 and December 31, 2018.[5] The burden of fifty-two major cause of death categories was estimated in Years of Life Lost (YLL) by subtracting the age at death from the standard life expectancy for each decedent (YLL = standard life expectancy - age at death).

Life expectancy by age and sex was determined from the Social Security Administration Period Life Table.[6].

[1](2021). Retrieved 21 January 2021, from https://www.ohiopopulationhealthalliance.com/

[2](2020). Retrieved 22 December 2020, from https://www.washingtonpost.com/national/how-the-washington-post-is-examining-police-shootings-in-the-united-states/2016/07/07/d9c52238-43ad-11e6-8856-f26de2537a9d_story.html

[3]QGIS.org, 2021. QGIS Geographic Information System. QGIS Association. http://www.qgis.org

[4]Bureau, U. (2021). Population and Housing Unit Estimates. Retrieved 19 January 2021, from https://www.census.gov/programs-surveys/popest.html

[5]Ohio Department of Health, Bureau of Vital Statistics, Ohio Death Certificate File. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.

[6]Social Security Program Data. (2021). Retrieved 19 January 2021, from https://www.ssa.gov/oact/HistEst/PerLifeTablesHome.html

All statistical analyses and graphs were produced using the statistical language R[7] and ggplot2.[8]

[7]R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

[8]H. Wickham. ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York, 2016.

Findings in Brief

1. Overall police intervention fatalities, as measured in the Ohio Department of Health mortality data set, ranked 33rd among fifty-two major causes of death, accounting for .04 percent of Ohio Years of Life lost from 2009 through 2018. Years of life lost (YLL) takes into account the age at which deaths occur by giving greater weight to deaths at younger age and lower weight to deaths at older age.

2. There were 169 fatalities in Ohio from January 1, 2015, through December 31, 2020 attributable to police intervention.

3. Ninety-one of the Ohio decedents were white, sixty-four were black, with the remaining deaths classified as other or unknown.

4. The average annual death rate per 1,000,000 population for all Ohio police interventions between 2015 and 2020 was lower than national average (Ohio rate = 2.40, national rate = 2.98).

5. In Ohio, African American deaths per 1,000,000 were 339 percent higher than white fatalities (Black=6.96, White=1.59)

6. While total Ohio fatalities occurring in rural counties were small in number and rates should be interpreted cautiously, seven non-urban counties demonstrated fatality rates higher than Franklin, the urban county with highest death rate.

7. Franklin had the highest fatality rate among counties with ten or more deaths for the six-year period (deaths = 38, average annual rate = 4.81), followed by Montgomery (deaths = 15, rate = 4.70), Summit (deaths = 11, rate = 3.39), Cuyahoga (17, rate = 2.29), and Hamilton (deaths = 10, rate = 2.04).

8. Franklin County, with 20 percent of Ohio's black population, accounted for 33 percent of Ohio African-American police intervention fatalities. Cuyahoga County had 25 percent of the African-American population and 16 percent of the African-American fatalities, while Hamilton County had 14 percent of the state's African-American population and 11 percent of the state's African-American Police shooting fatalities.

9. Franklin County ranked 18th among the 100 most populous counties in the United States for police intervention fatalities per 1,000,000 population. Cuyahoga and Hamilton Counties ranked 56th and 61st respectively.

10. Fatalities per 1,000,000 population among the 100 most populous U.S. counties was only moderately correlated with percent of population living below the poverty line (r = .322), suggesting that factors other than economic distress and social disintegration may account for variation in fatality rates among the largest urban centers.

11. The average annual police intervention fatality rate per 1,000,000 for the 100 most populous U.S. counties was 2.97 deaths, while the rate for all other U.S. counties was 2.99. This finding suggests that police shooting fatalities is an under-reported problem in non-urban communities.

Figure 1 plots Police Intervention fatalities per 1,000,000 deaths for U.S. States. The blue shaded states highlight elevated levels of police shooting fatalities.

Figure 1
Choropleth Map of U.S. Police Shooting Fatalities, per 1,000,000, 2015 - 2020

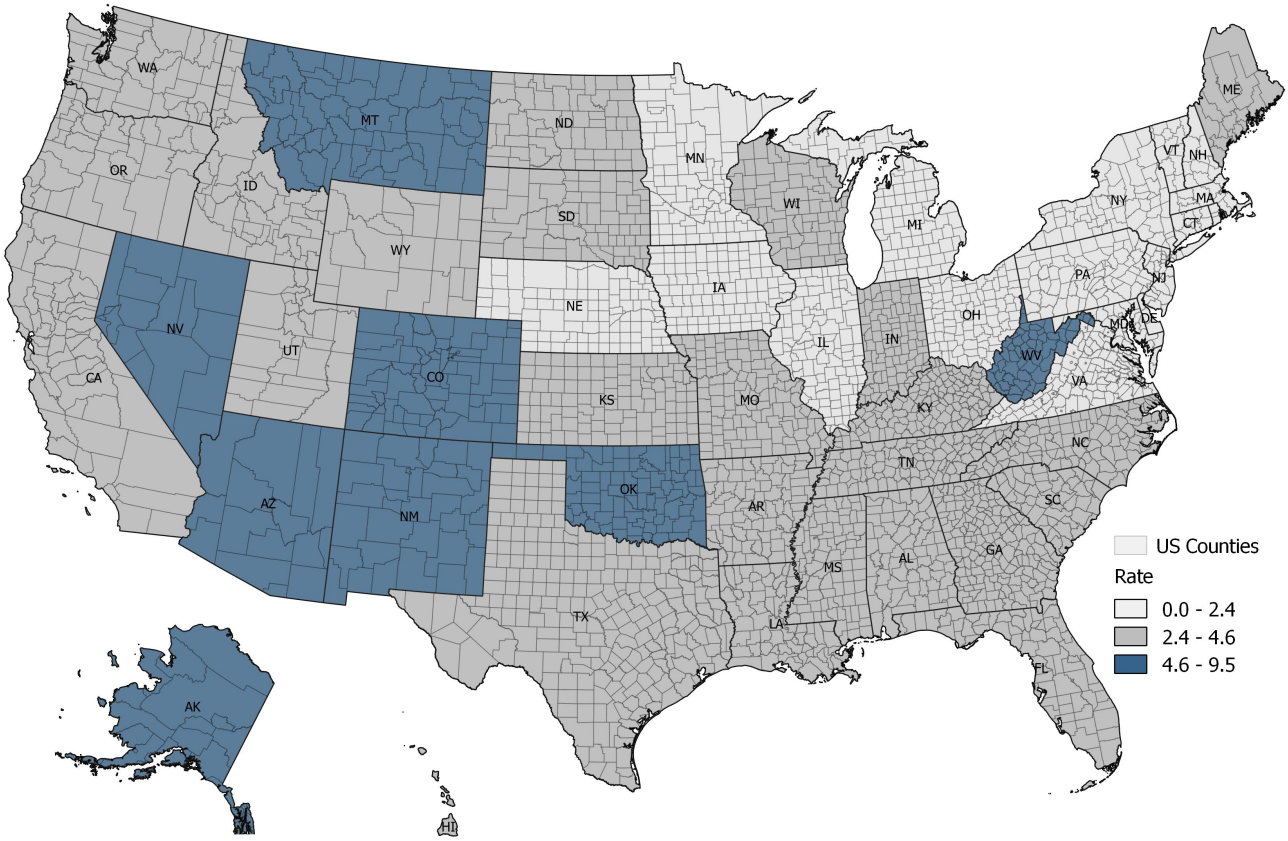


Table 1 summarizes total police intervention fatalities for the 50 states and the District of Columbia sorted from the state with the highest rate of fatalities per 1,000,000 population to the lowest. The estimated 2020 population for each state, number of total fatalities, Populaton, and fatality rate (fatalities divided by population and multiplied by 1,000,000) are displayed. This table shows a remarkable level of variation between states with higher and lower rates.

Table 1
Police Shooting Fatalities for U.S. States

State	Fatalities	Population	Rate	Rank
Alaska	42	734 002	9.54	1
New Mexico	115	2 096 640	9.14	2
Oklahoma	177	3 954 820	7.46	3
Arizona	276	7 378 490	6.23	4
Colorado	213	5 845 530	6.07	5
Nevada	107	3 139 660	5.68	6
Montana	37	1 086 760	5.67	7
West Virginia	59	1 778 070	5.53	8
Arkansas	84	3 039 000	4.61	9
Wyoming	15	567 025	4.41	10
Louisiana	120	4 645 180	4.31	11
Idaho	45	1 826 160	4.11	12
Missouri	150	6 169 270	4.05	13
Mississippi	71	2 989 260	3.96	14
Kentucky	106	4 499 690	3.93	15
Tennessee	157	6 897 580	3.79	16
Utah	73	3 282 120	3.71	17
California	879	39 937 500	3.67	18
Hawaii	31	1 412 690	3.66	19
Alabama	107	4 908 620	3.63	20
Washington	170	7 797 100	3.63	21
Oregon	91	4 301 090	3.53	22
South Dakota	18	903 027	3.32	23
District of Columbia	14	720 687	3.24	24
Georgia	202	10 736 100	3.14	25
Kansas	54	2 910 360	3.09	26
Florida	399	21 993 000	3.02	27
Texas	524	29 472 300	2.96	28
South Carolina	92	5 210 100	2.94	29
Maine	23	1 345 790	2.85	30
Wisconsin	99	5 851 750	2.82	31
Indiana	110	6 745 350	2.72	32
North Carolina	170	10 611 900	2.67	33
North Dakota	12	761 723	2.63	34
Ohio	169	11 747 700	2.40	35
Vermont	9	628 061	2.39	36
Delaware	14	982 895	2.37	37
Maryland	84	6 083 120	2.30	38
Nebraska	26	1 952 570	2.22	39
Virginia	101	8 626 210	1.95	40
New Hampshire	16	1 371 250	1.94	41
Minnesota	66	5 700 670	1.93	42
Iowa	35	3 179 850	1.83	43
Pennsylvania	119	12 820 900	1.55	44

Table 1
Police Shooting Fatalities for U.S. States *(continued)*

State	Fatalities	Population	Rate	Rank
Michigan	92	10 045 000	1.53	45
Illinois	113	12 659 700	1.49	46
New Jersey	71	8 936 570	1.32	47
Connecticut	22	3 563 080	1.03	48
New York	109	19 440 500	0.93	49
Massachusetts	38	6 976 600	0.91	50
Rhode Island	4	1 056 160	0.63	51

Figure 2 is a heat map of all police intervention fatalities recorded in the Washington Post database superimposed over U.S. Counties by state. The shaded areas depict communities which account for fatalities. Communities with darker shades account for disproportionate numbers of deaths. As expected, this illustration shows that higher population density counties are most likely to experience a greater number of fatalities.

Figure 2
Heat Map of U.S. Police Shooting Fatalities, 2015 - 2020

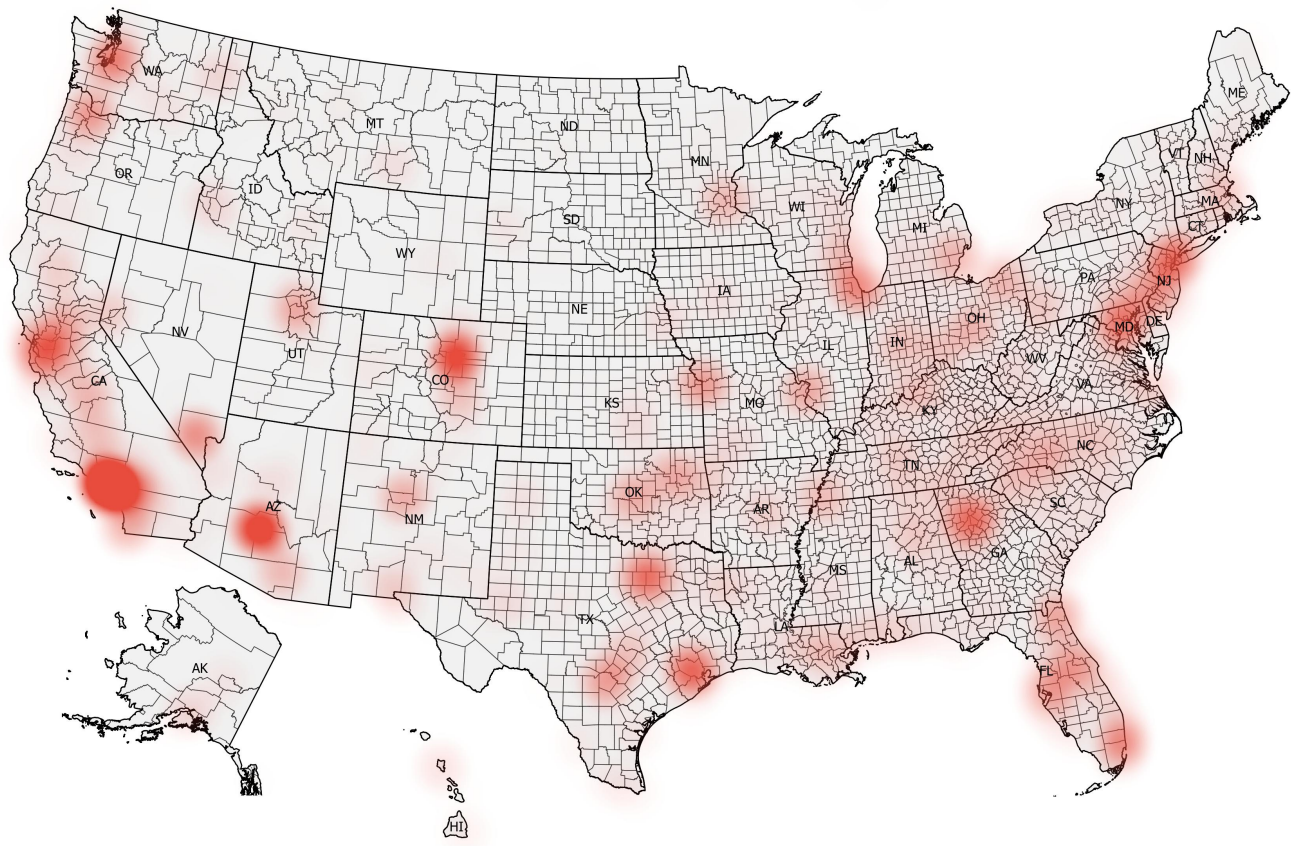


Table 2 summarizes total police intervention fatalities for the 100 most populous counties in the United States sorted from the county with the highest rate of fatalities per 1,000,000 population to the lowest. The estimated 2020 population for each county, number of total fatalities, fatality rate (fatalities divided by population and multiplied by 1,000,000) are displayed. This table shows a remarkable level of variation between those communities with higher and lower rates, suggesting there may be opportunity for improvement in many U.S. cities.

Table 2
Police Shooting Fatalities for 100 Most Populous Counties

State, County	Fatalities	Population	Rate	Rank
NM, Bernalillo	40	679 121	9.82	1
MO, Jackson	37	703 011	8.77	2
CO, Denver	36	727 211	8.25	3
CA, Kern	41	900 202	7.59	4
OK, Oklahoma	35	797 434	7.32	5
MD, Baltimore	36	827 370	7.25	6
MO, St. Louis	42	994 205	7.04	7
AZ, Pima	40	1 047 279	6.37	8
AZ, Maricopa	168	4 485 414	6.24	9
FL, Duval	34	957 755	5.92	10
UT, Salt Lake	39	1 160 437	5.60	11
CA, San Bernardino	73	2 180 085	5.58	12
KY, Jefferson	24	766 757	5.22	13
WA, Pierce	28	904 980	5.16	14
NV, Clark	70	2 266 715	5.15	15
FL, Polk	22	724 777	5.06	16
CO, El Paso	21	720 403	4.86	17
OH, Franklin	38	1 316 756	4.81	18
TX, Bexar	54	2 003 554	4.49	19
CA, Fresno	25	999 101	4.17	20
CA, San Joaquin	19	762 148	4.15	21
GA, Fulton	26	1 063 937	4.07	22
CA, Los Angeles	241	10 039 107	4.00	23
CA, Riverside	59	2 470 546	3.98	24
TN, Shelby	22	937 166	3.91	25
OR, Multnomah	19	812 855	3.90	26
IN, Marion	22	964 582	3.80	27
WI, Milwaukee	21	945 726	3.70	28
CA, Sacramento	34	1 552 058	3.65	29
TX, El Paso	18	839 238	3.57	30
WA, King	47	2 252 782	3.48	31
HI, Honolulu	20	974 563	3.42	32
TX, Travis	26	1 273 954	3.40	33
DC, District of Columbia	14	692 683	3.37	34
FL, Pinellas	19	974 996	3.25	35
CA, Alameda	32	1 671 329	3.19	36
TX, Tarrant	39	2 102 515	3.09	37
GA, Cobb	14	760 141	3.07	38
FL, Miami-Dade	49	2 716 940	3.01	39
FL, Orange	25	1 393 452	2.99	40
TX, Harris	83	4 713 325	2.93	41

Table 2
Police Shooting Fatalities for 100 Most Populous Counties *(continued)*

State, County	Fatalities	Population	Rate	Rank
GA, DeKalb	13	759 297	2.85	42
NC, Mecklenburg	19	1 110 356	2.85	43
CA, San Francisco	15	881 549	2.84	44
CA, Santa Clara	31	1 927 852	2.68	45
CA, Orange	51	3 175 692	2.68	46
TX, Dallas	42	2 635 516	2.66	47
FL, Hillsborough	23	1 471 968	2.60	48
CA, San Diego	52	3 338 330	2.60	49
MI, Wayne	27	1 749 343	2.57	50
MD, Prince George's	14	909 327	2.57	51
NJ, Essex	12	798 975	2.50	52
PA, Philadelphia	23	1 584 064	2.42	53
IL, Lake	10	696 535	2.39	54
FL, Broward	28	1 952 778	2.39	55
OH, Cuyahoga	17	1 235 072	2.29	56
WA, Snohomish	11	822 083	2.23	57
CA, Contra Costa	15	1 153 526	2.17	58
MA, Suffolk	10	803 907	2.07	59
TX, Denton	11	887 207	2.07	60
OH, Hamilton	10	817 473	2.04	61
MN, Hennepin	15	1 265 843	1.97	62
TN, Davidson	8	694 144	1.92	63
IL, Cook	56	5 150 233	1.81	64
PA, Allegheny	13	1 216 045	1.78	65
TX, Hidalgo	9	868 707	1.73	66
NC, Wake	11	1 111 761	1.65	67
GA, Gwinnett	9	936 250	1.60	68
FL, Palm Beach	14	1 496 770	1.56	69
FL, Lee	7	770 577	1.51	70
MA, Essex	7	789 034	1.48	71
TX, Fort Bend	7	811 688	1.44	72
CA, Ventura	7	846 006	1.38	73
NY, New York	12	1 628 706	1.23	74
MI, Oakland	9	1 257 584	1.19	75
CT, Hartford	6	891 720	1.12	76
MD, Montgomery	7	1 050 688	1.11	77
NY, Kings	17	2 559 903	1.11	78
CA, San Mateo	5	766 573	1.09	79
NY, Bronx	9	1 418 207	1.06	80
NJ, Hudson	4	672 391	0.99	81
TX, Collin	6	1 034 730	0.97	82
IL, Will	4	690 743	0.97	83
NY, Monroe	4	741 770	0.90	84
NY, Westchester	5	967 506	0.86	85
MA, Worcester	4	830 622	0.80	86
PA, Montgomery	4	830 915	0.80	87
MI, Macomb	4	873 972	0.76	88
NY, Erie	4	918 702	0.73	89
CT, Fairfield	4	943 332	0.71	90
NY, Suffolk	6	1 476 601	0.68	91
NJ, Middlesex	3	825 062	0.61	92
NY, Queens	8	2 253 858	0.59	93
CT, New Haven	3	854 757	0.58	94

Table 2
Police Shooting Fatalities for 100 Most Populous Counties *(continued)*

State, County	Fatalities	Population	Rate	Rank
IL, DuPage	3	922 921	0.54	95
NJ, Bergen	3	932 202	0.54	96
MA, Middlesex	5	1 611 699	0.52	97
MA, Norfolk	2	706 775	0.47	98
VA, Fairfax	3	1 147 532	0.44	99
NY, Nassau	2	1 356 924	0.25	100

Ohio Statistics

Figure 3 is a map of Ohio police intervention fatalities. The shaded points show the location of actual police intervention fatalities occurring between 2015 through 2020.

Figure 3
Map of Police Shooting Fatalities by County, 2015 - 2020

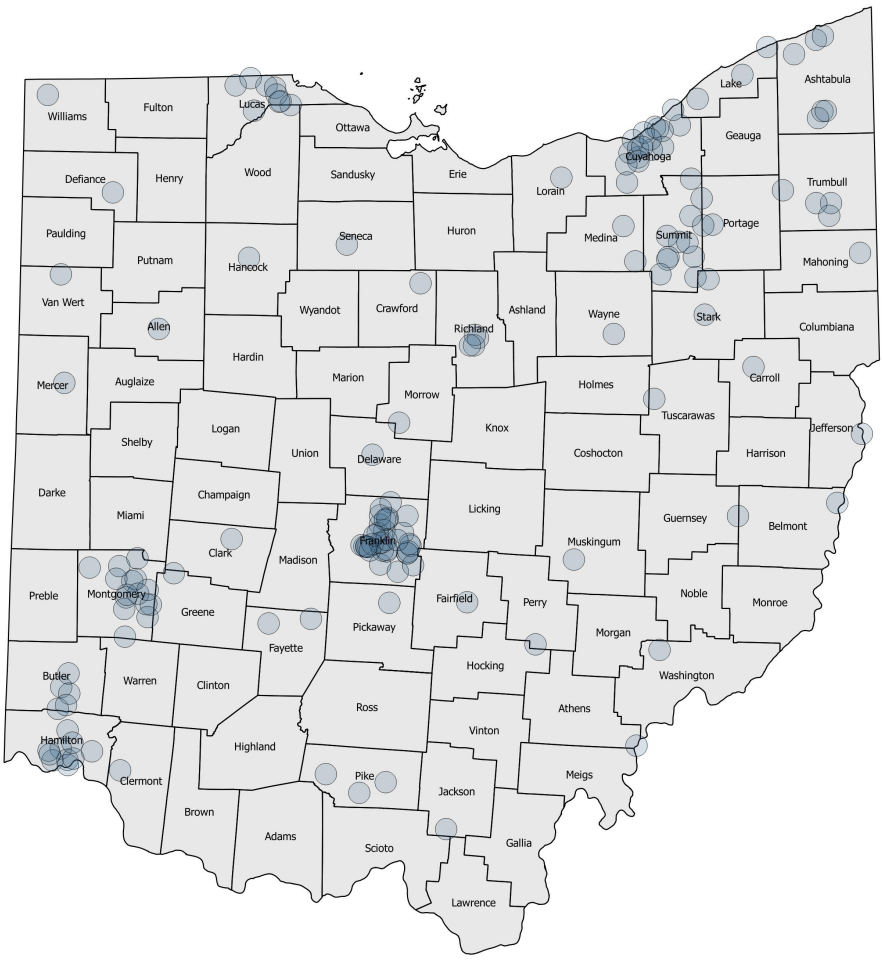


Figure 4 shows the average annual fatality rate per 1,000,000 persons for Ohio Regions. Metropolitan Counties demonstrated the highest fatality rates, followed closely by the Northern Appalachian Region. Southern Appalachia, Rural non-Appalachia and Suburban areas followed distantly.

Figure 4
Rate per 1,000,000 Police Intervention Fatalities for Ohio Regions, 2015 - 2020

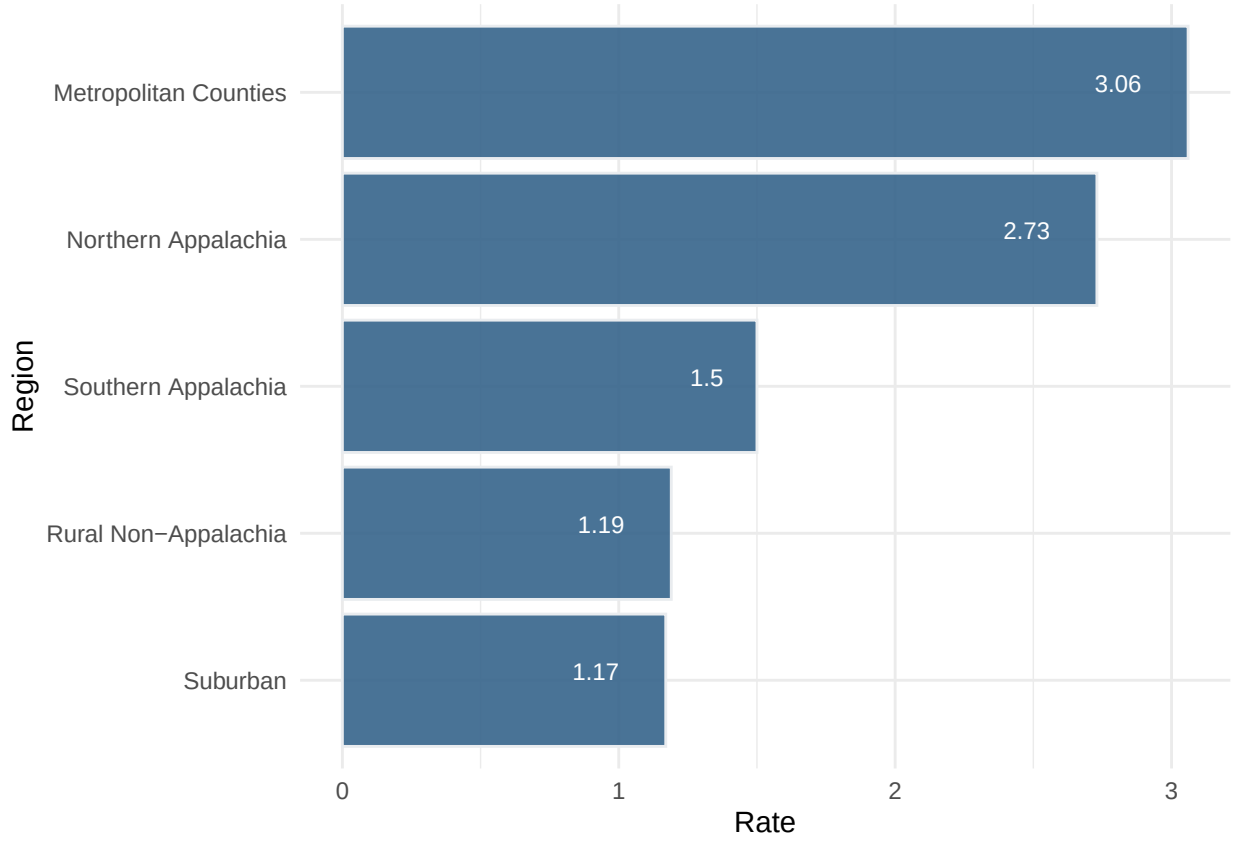


Figure 5 shows total Ohio police intervention fatalities by race and year. This graph shows a dramatic increase in white fatalities in 2017 and then declining white fatalities through the remainder of the period. African American deaths remained more stable during the reporting period.

Figure 5
Total Ohio Police Shooting Fatalities by Race and Year, 2015 - 2020

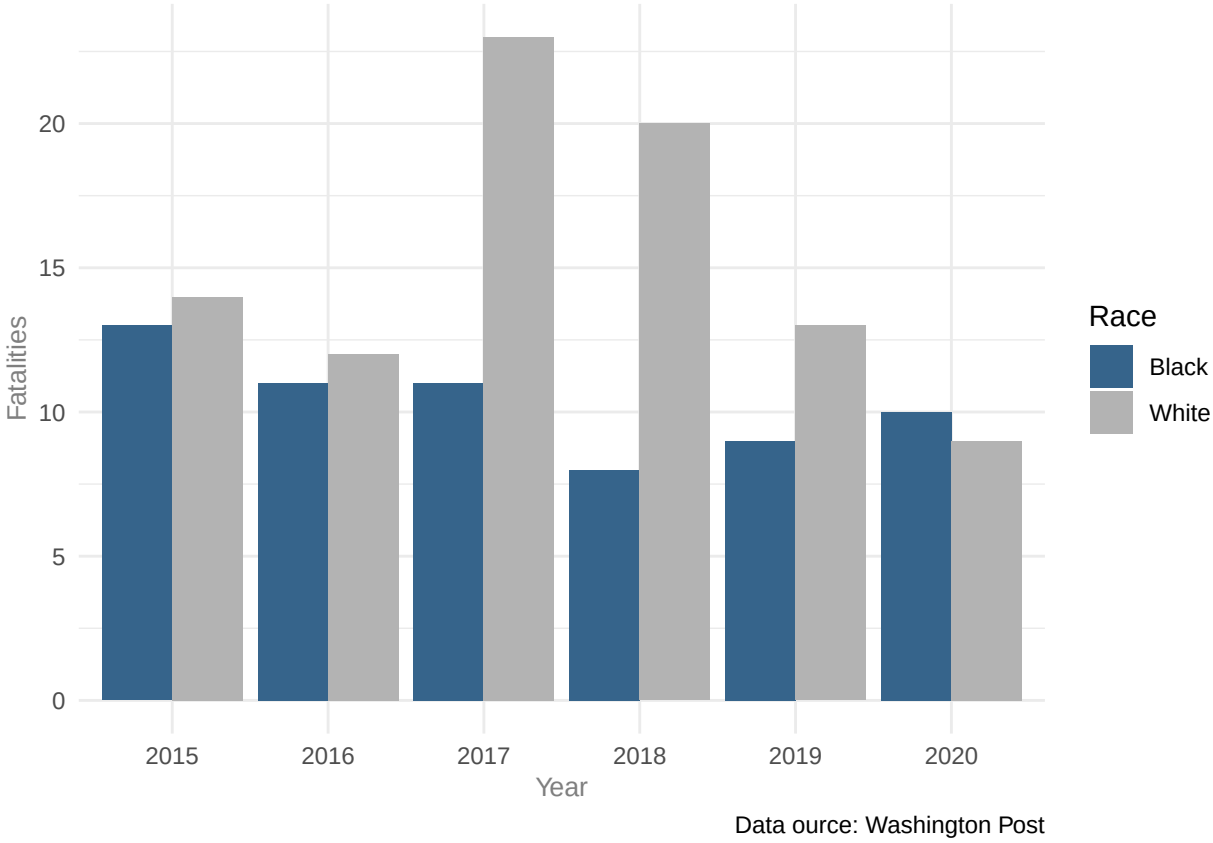
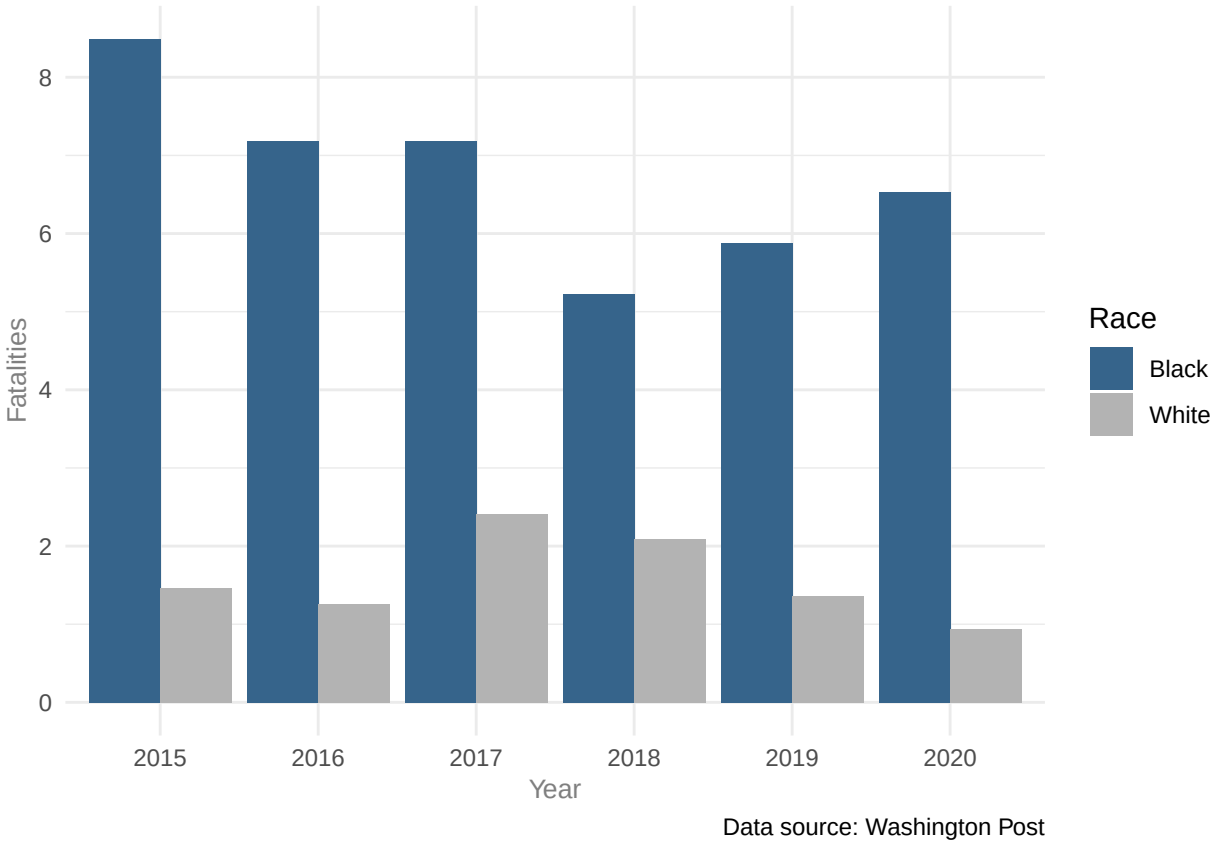


Figure 6 shows that when fatalities are adjusted by population, that African Americans are much more likely to die from police interventions than their white counterparts.

Figure 6

Ohio Rate per 1,000,000 Police Shooting Fatalities by Race and Year, 2015 - 2020



Franklin County Statistics

The following graph shows the average annual fatality rate per 1,000,000 persons for Ohio's three largest counties (Franklin, Cuyahoga, and Hamilton). Cook County, Illinois, which encompassing Chicago is included for purposes of comparison. Franklin County has the highest rate among the four urban comparison group counties.

Figure 7
Rate per 1,000,000 Police Intervention Fatalities for Franklin, Cuyahoga, Hamilton and Cook Counties, 2015 - 2020