

Trends in Homicide and Suicide Among Youth in Richmond, Virginia, 2003-2021

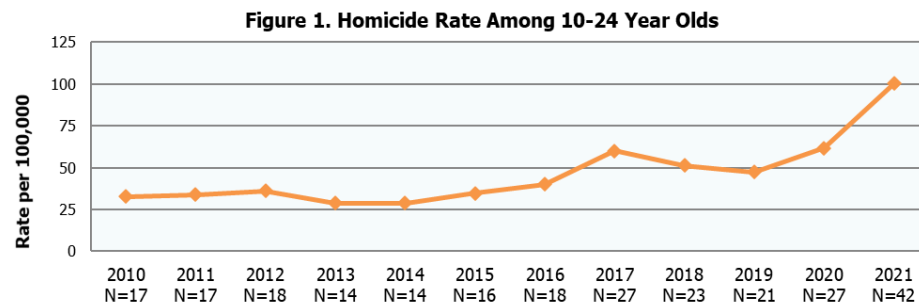
Background

This factsheet examines trends in homicide and suicide deaths using the Virginia Violent Death Reporting System (VVDRS). The VVDRS is a surveillance system that continuously collects data on violence related deaths. The Virginia Department of Health's (VDH) Office of the Chief Medical Examiner (OCME) conducts the VVDRS as part of the National Violent Death Reporting System (NVDRS), which is funded by the Centers for Disease Control and Prevention.

This report summarizes data from the VVDRS, inclusive of calendar years 2003 through 2021. Data includes 10-24 year-olds who resided or were injured in Richmond City. Overall sex- and race-specific rates per 100,000 were calculated using the 5-year population estimates from the American Community Survey that corresponded to the years of death. Victim residence and injury location were geocoded to the U.S. Census block group and mapping was conducted using ArcGIS software. Note that figures and tables in the factsheet are generally limited to 2010-2021; however specific yearly data going back to 2003 are found in the appendix.

Rates of Homicide

There were 457 deaths attributed to homicide between 2003 and 2021 among 10-24 year olds. Most (91%) occurred in Richmond city and were Richmond city residents (79%). The rate of homicide declined significantly from 120.7 per 100,000 in 2003 to 23.2 per 100,000 in 2009. This was followed by stable rates between 2010 and 2014 (range: 28.9 to 32.8 per 100,000), increases through 2017 (60.0 per 100,000) and slight decreases in 2018 and 2019. The rates increased again in 2020 and in 2021 to 100.2 per 100,000. (Figure 1).



Demographic Characteristics

The majority of homicide victims were male, black, non-Hispanic and most were employed or students (Table 1). The average age ranged between 19.6 years and 21.7 years.

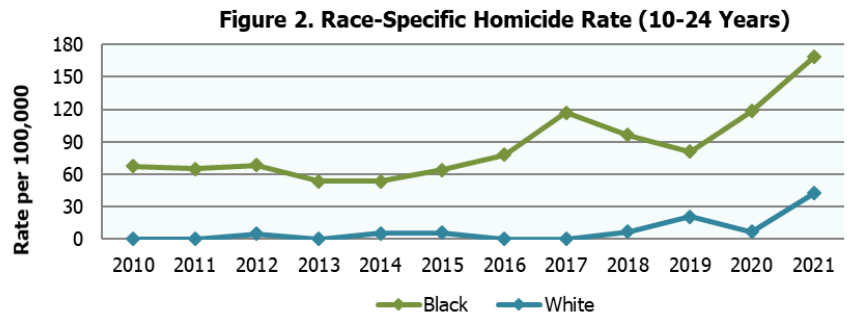
Table 1. Characteristics of Homicide Victims aged 10-24 Years

	Sex (%)		Race (%)			Hispanic Ethnicity (%)	Age Mean (range)	< High school Education ¹ (%)	Employed/ Student (%)
	Male	Female	Black	White	Other				
2010	88	11	100	0	0	0	21.7 (18-24)	35	53
2011	100	0	94	0	6	6	20.8 (18-24)	19	53
2012	89	11	94	6	0	0	20.9 (17-24)	61	50
2013	100	0	93	0	7	0	20.9 (18-24)	29	71
2014	71	29	93	7	0	0	20.4 (15-24)	43	64
2015	88	12	94	6	0	0	20.2 (12-24)	44	77
2016	89	11	100	0	0	0	21.3 (17-24)	24	89
2017	85	15	100	0	0	4	20.6 (15-24)	41	59
2018	78	22	96	4	0	0	20.7 (17-24)	30	87
2019	86	14	86	14	0	1	20.5 (15-23)	29	76
2020	85	15	96	4	0	1	19.9 (14-24)	44	33
2021	85	15	83	14	2	4	19.6 (10-25)	37	74
Overall	90	10	91	7	2	4	20.5 (10-24)	45	69

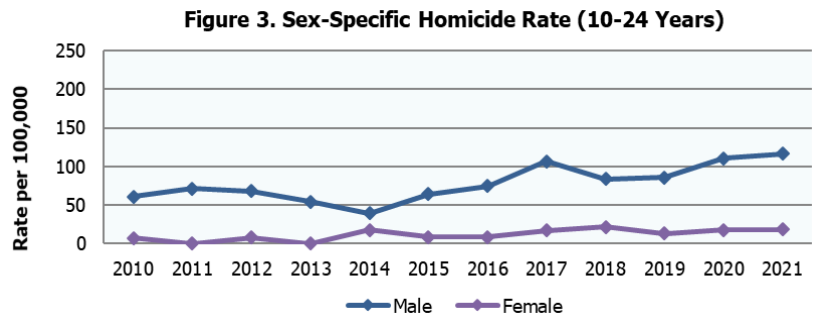
¹ < High School = Less than 12 years of education

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Figure 2 shows the trend in homicide rates by race. The rate of homicide among black youths declined significantly between 2003 and 2008 from 174.2 to 32.6 per 100,000, respectively. Gradual increases followed in 2009 (43.75 per 100,000) and 2010 (67.62 per 100,000) with a subsequent stabilization from 2011 to 2015 (range: 53.6 - 68.6 per 100,000) and increases in 2016 and 2017 up to 117.2 per 100,000. While the rate declined in 2018 and 2019 to 81.1 per 100,000, it increased sharply in 2020 and 2021 to 168.5 per 100,000, the highest rate since 2003. Among white youths, the rate of homicide was relatively stable between 2003 and 2020; however, in 2021 the rate increased to 42.5 per 100,000, the highest rate during this 19-year period.

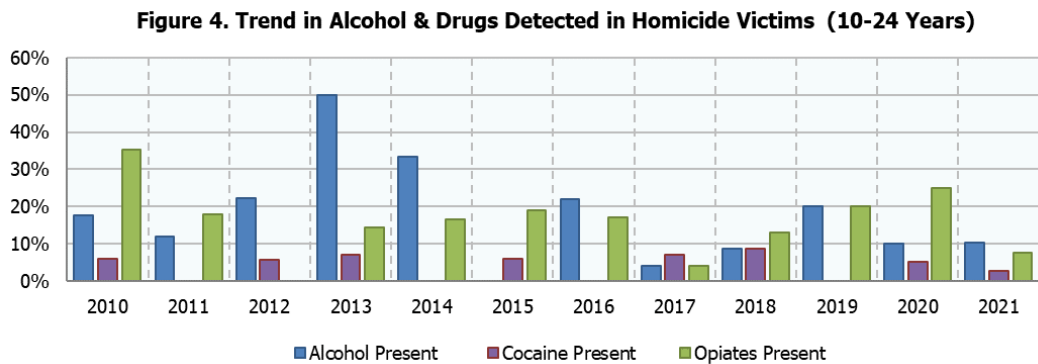


Rates of homicide remained generally stable in females; however, males compose the majority of homicide victims. Similar to the overall rate, a decline in homicide rates among males was observed between 2003 and 2008 (226.8 to 38.7 per 100,000, respectively). The rate then gradually increased between 2009 (48.6 per 100,000) and 2011 (71.16 per 100,000), and declined between 2012 and 2014 (68.1 to 39.0 per 100,000). Between 2015 and 2021, there was an increasing trend overall, up to 168.5 per 100,000 in 2021.



Alcohol and Drugs

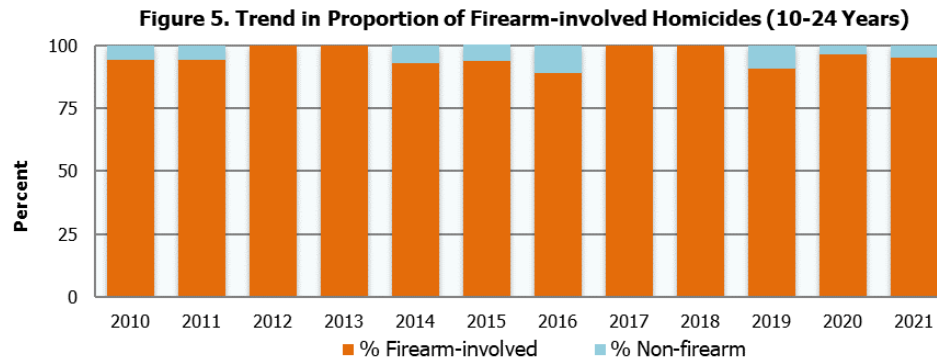
The majority of victims were tested post-mortem for evidence of alcohol (blood alcohol concentration >0.08) or drugs (legal and illicit). As shown in Figure 4, there was yearly variation in the type of substances that tested positive. In 2013 and 2014, the highest proportions of positive alcohol results were observed, among 50% and 33% of victims, respectively. By comparison, in the other years during this time period, the proportion of positive alcohol results ranged from none in 2015 to one-fourth of victims in 2009. The presence of cocaine was observed most frequently in 2009, among 17% of homicide victims; otherwise, the proportion was 9% or less in a year. The proportion of victims testing positive for opiates ranged from none to 11% between 2003 and 2009 and then peaked in 2010 with 35% of homicide victims having opiates detected post-mortem. Between 2011 and 2021, there were yearly fluctuations that tended to be slightly higher than previous years, with proportions of positive detections ranging from none to 25%.



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Injury Characteristics

The majority of homicide deaths between 2003 and 2021 involved firearms. Only in two years did the portion dip below 90% of all homicides; in 2008 (80%) and in 2016 (89%). While there was a slight decreased in firearm-involved firearms between 2014 to 2016, overall, the trend was stable (Figure 5).

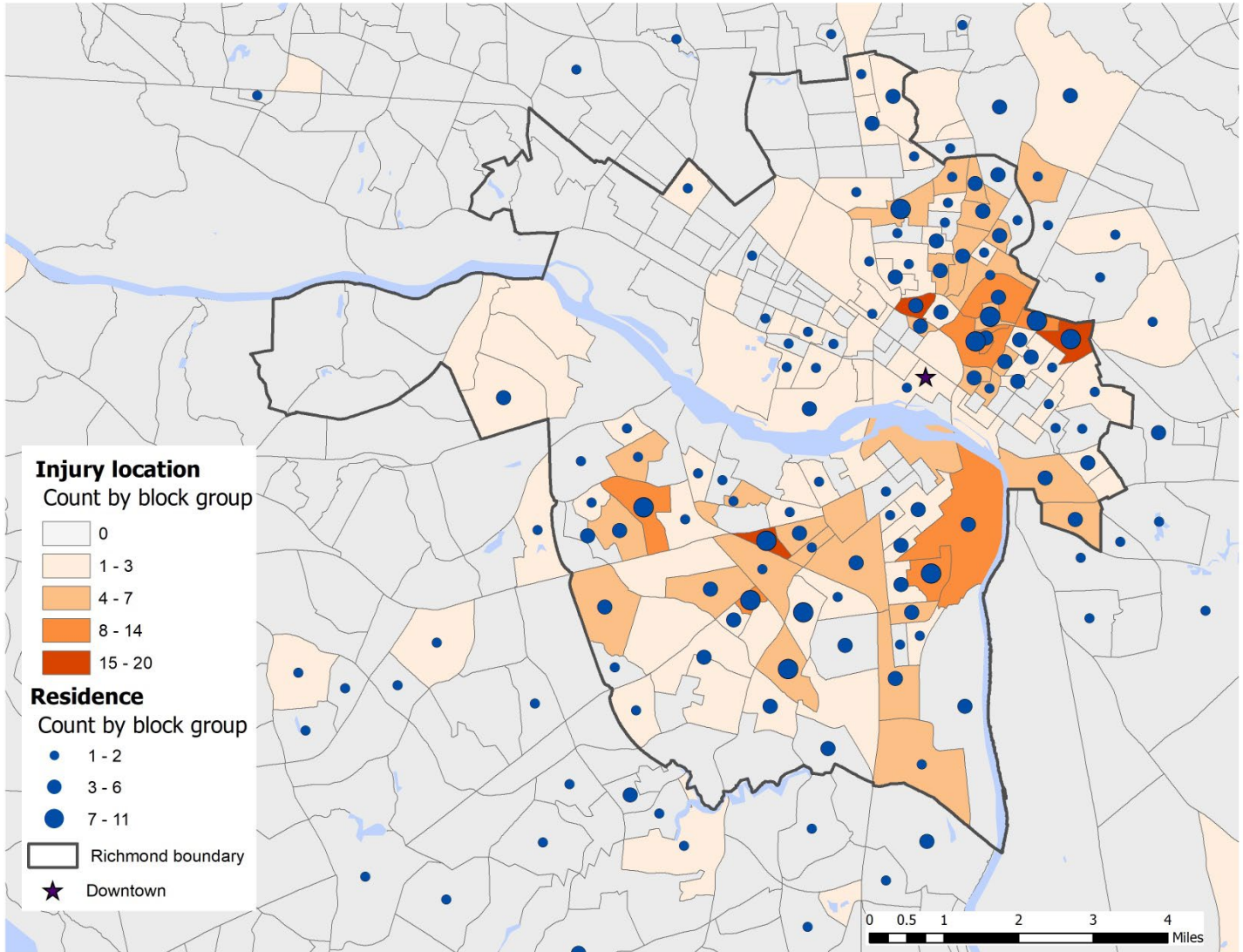


Geographic Distribution

A relatively small proportion of homicides (15%) occurred at the victim's residence. The four most common locations of injuries were on a street/road (39%), in a house/apartment other than their residence (34%), inside a motor vehicle (13%) or in a parking lot/garage (7%). Map 1 shows the distribution of homicides between 2003 and 2021 as well as the victims' residence by census block group; blue circles represent the count of homicide victim residences within block groups. Most injuries that resulted in homicide (i.e., orange shaded block groups) occurred in the north, northeast, southcentral and southeastern parts of the city. The highest concentrations of injuries were located in three block groups located directly north and northeast of downtown and in one block group in the southcentral area. Most victims of homicides (70%) were Richmond city residents who were also injured within the city. Among those fatally injured within Richmond, about one quarter of victims (24%) resided outside of the city (Map 1).

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Map 1. Homicide Injury Location and Residence of Victim by Census Block Group Among 10-24 Year Olds, 2003-2021¹



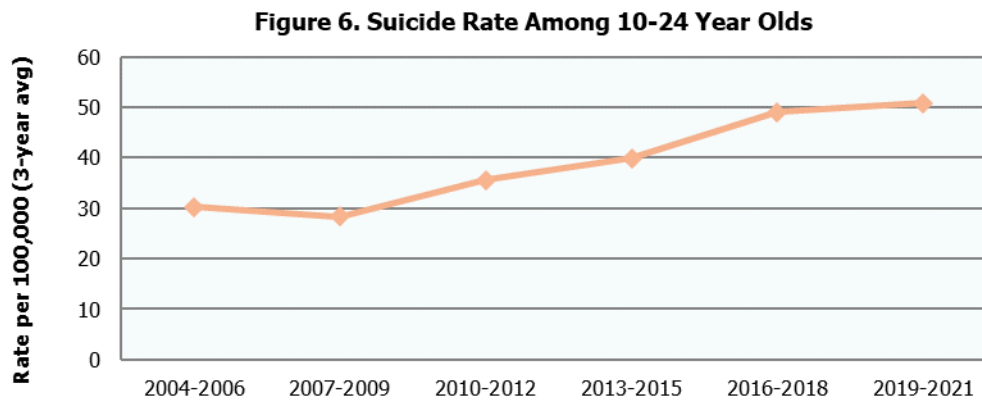
¹ 2020 Census block group boundaries were used for all years of data.

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Suicide Deaths

Between 2003 and 2021, there were 114 deaths attributed to suicide among 10-24 year olds. The majority of these deaths (91%) occurred in Richmond city and nearly three-quarters (73%) were among Richmond city residents. The 3-year rates of suicide were stable during 2004-2006 and 2007-2009 at 30.2 and 28.4 per 100,000, respectively. Increases in the rates of suicide were then observed; 35.5 per 100,000 in 2010-2012, 39.8 per 100,000 in 2013-2015, 48.8 per 100,000 in 2016-2018 and 50.8 per 100,000 in 2019-2021 (Figure 6).

The majority of suicide victims were male (79). Overall, 58% of suicide victims were white, 35% were black, and 7% were of other races; 10% were of Hispanic origin. On average, victims were 20.7 years of age (median 21.0). The majority of suicide victims had 12 or more years of education (79%) and were employed or a student (81%). About half (53%) of suicides were gun-related.



Acknowledgment: The source of the data is the Virginia Violent Death Reporting System, Office of the Chief Medical Examiner, Virginia Department of Health.

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We want to acknowledge the contributions of Saba W. Masho, MD, MPH, DrPH to this project. Although no longer with us, she continues to serve as an inspiration based on the example she set, her passion for this project, and dedication to the Richmond community she served. Without her leadership and guidance, this work would not have been possible.

The VCU Clark-Hill Institute for Positive Youth Development is a National Academic Center of Excellence for Youth Violence Prevention and is funded by the Centers for Disease Control and Prevention (CDC). For more information contact: Derek Chapman, PhD at derek.chapman@vcuhealth.org or Diane Bishop, MPH at diane.bishop@vcuhealth.org

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Appendix: Expanded data tables and data tables as an alternative to figures, 2003 – 2021

	Sex (%)		Race (%)			Hispanic Ethnicity (%)	Age	< High school Education ¹ (%)	Employed / Student (%)
	Male	Female	Black	White	Other		Mean (range)		
2003	91	9	89	9	2	6	20.2 (15-24)	55	68
2004	98	2	93	7	0	5	20.7 (14-24)	50	75
2005	92	8	84	16	0	8	20.8 (13-24)	59	81
2006	94	6	90	7	3	3	20.1 (15-24)	70	65
2007	100	0	95	0	5	5	20.4 (15-24)	65	60
2008	80	20	80	20	0	0	19.2 (14-23)	40	90
2009	100	0	92	0	8	0	21.1 (17-24)	25	83
2010	88	11	100	0	0	0	21.7 (18-24)	35	53
2011	100	0	94	0	6	6	20.8 (18-24)	19	53
2012	89	11	94	6	0	0	20.9 (17-24)	61	50
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	Rate per 100,000
2003	120.7
2004	92.5
2005	85.8
2006	72.7
2007	46.8
2008	23.3
2009	23.2
2010	32.8
2011	33.8
2012	36.0
2013	28.9
2014	28.9
2015	34.8
2016	40.0
2017	60.0
2018	51.3
2019	47.5
2020	61.8
2021	100.2

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**Figure 2 Alternate & Expanded Data Table:
Race-Specific Homicide Rate per 100,000
(10-24 Year Olds)**

	Black	White
2003	174.2	33.5
2004	139.5	20.4
2005	119.5	39.7
2006	111.1	13.0
2007	76.5	0.0
2008	32.6	12.3
2009	43.8	0.0
2010	67.6	0.0
2011	65.1	0.0
2012	68.6	5.0
2013	53.6	0.0
2014	53.6	5.2
2015	64.0	5.7
2016	78.1	0.0
2017	117.2	0.0
2018	96.3	6.8
2019	81.0	20.8
2020	118.7	6.9
2021	168.5	42.5

**Figure 3 Alternate & Expanded Data Table: Sex-Specific Homicide
Rate per 100,000 (10-24 Year Olds)**

	Male	Female
2003	226.8	22.0
2004	188.2	4.4
2005	165.0	13.3
2006	141.4	9.0
2007	97.2	0.0
2008	38.7	9.0
2009	48.6	0.0
2010	60.8	7.4
2011	71.2	0.0
2012	68.2	7.6
2013	54.6	0.0
2014	39.0	17.5
2015	64.0	8.3
2016	74.3	8.5
2017	106.8	17.1
2018	83.5	21.5
2019	85.3	13.0
2020	110.4	17.5
2021	116.4	18.1

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Figure 4 Alternate & Expanded Data Table: Trend in Alcohol & Drugs Detected in Homicide Victims (10-24 Year Olds)

	Alcohol (%)	Cocaine (%)	Opiates (%)
2003	17%	0%	6%
2004	23%	5%	10%
2005	5%	8%	11%
2006	16%	0%	7%
2007	5%	5%	0%
2008	10%	0%	10%
2009	25%	17%	8%
2010	18.0	6.0	35.0
2011	12.0	0.0	18.0
2012	22.0	6.0	0.0
2013	50.0	7.0	14.0
2014	33.0	0.0	17.0
2015	0.0	6.0	19.0
2016	22.0	0.0	17.0
2017	4.0	7.0	4.0
2018	8.7	8.7	13.0
2019	20.0	0.0	20.0
2020	10.0	5.3	25.0
2021	10.3	2.6	7.7

Figure 5 Alternate & Expanded Data Table: Trend in Proportion of Firearm-involved Homicides (10-24 Year Olds)

	Firearm-involved (%)	Non-Firearm (%)
2003	96.2	3.8
2004	95.0	5
2005	100.0	0
2006	93.5	6.5
2007	90.0	10
2008	80.0	20
2009	91.7	8.3
2010	94.1	5.9
2011	94.1	5.9
2012	100.0	0.0
2013	100.0	0.0
2014	92.9	7.1
2015	93.8	6.3
2016	88.9	11.1
2017	100.0	0.0
2018	100.0	0.0
2019	90.5	9.5
2020	96.3	3.7
2021	95.2	4.8

Figure 6 Alternative & Expanded Data Table: Suicide Rate per 100,000 among 10-24 Year Olds in a 3-Yr Average

2004-2006	30.2
2007-2009	28.4
2010-2012	35.5
2013-2015	39.8
2016-2018	48.9
2019-2021	50.8