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Gun Violence in Virginia

Non-Fatal Gun-Related Injuries in Virginia

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VDH, Office of Family Health Services, Division of Population Health Data

Gun-Related Deaths in Virginia

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VDH, Office of the Chief Medical Examiner

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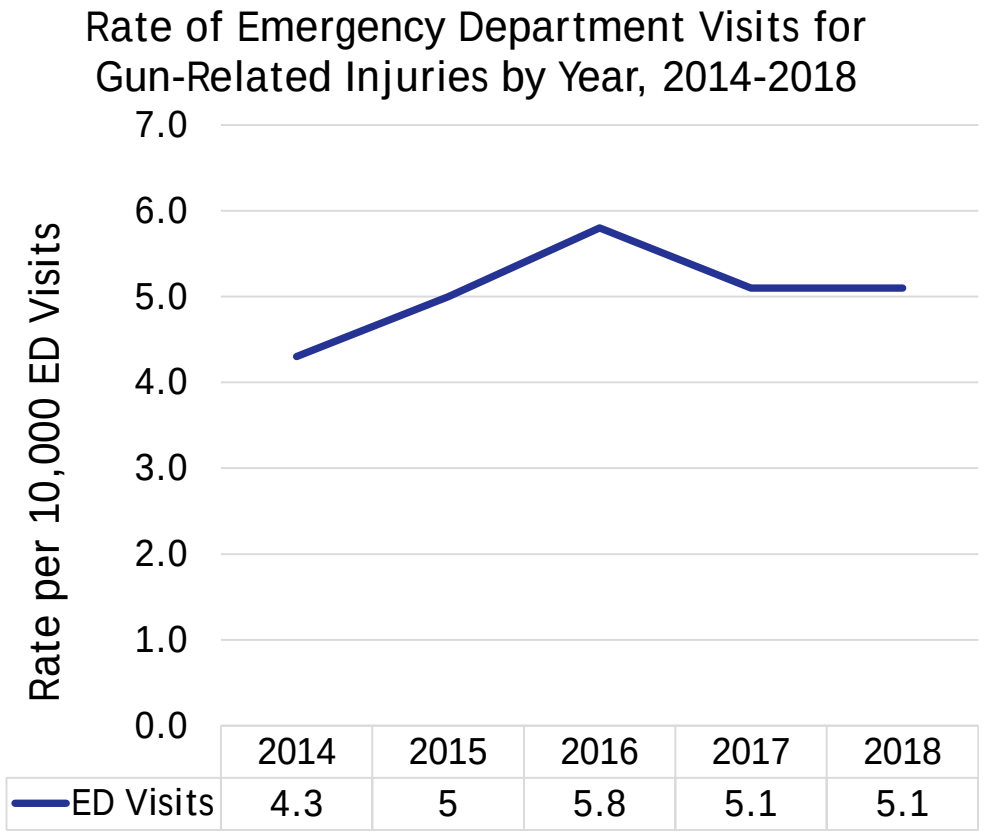
Emergency Department Visits for Gun-Related Injuries, 2018



1,667 ED visits

87% male

Highest proportion among 20-29 year olds (41%)

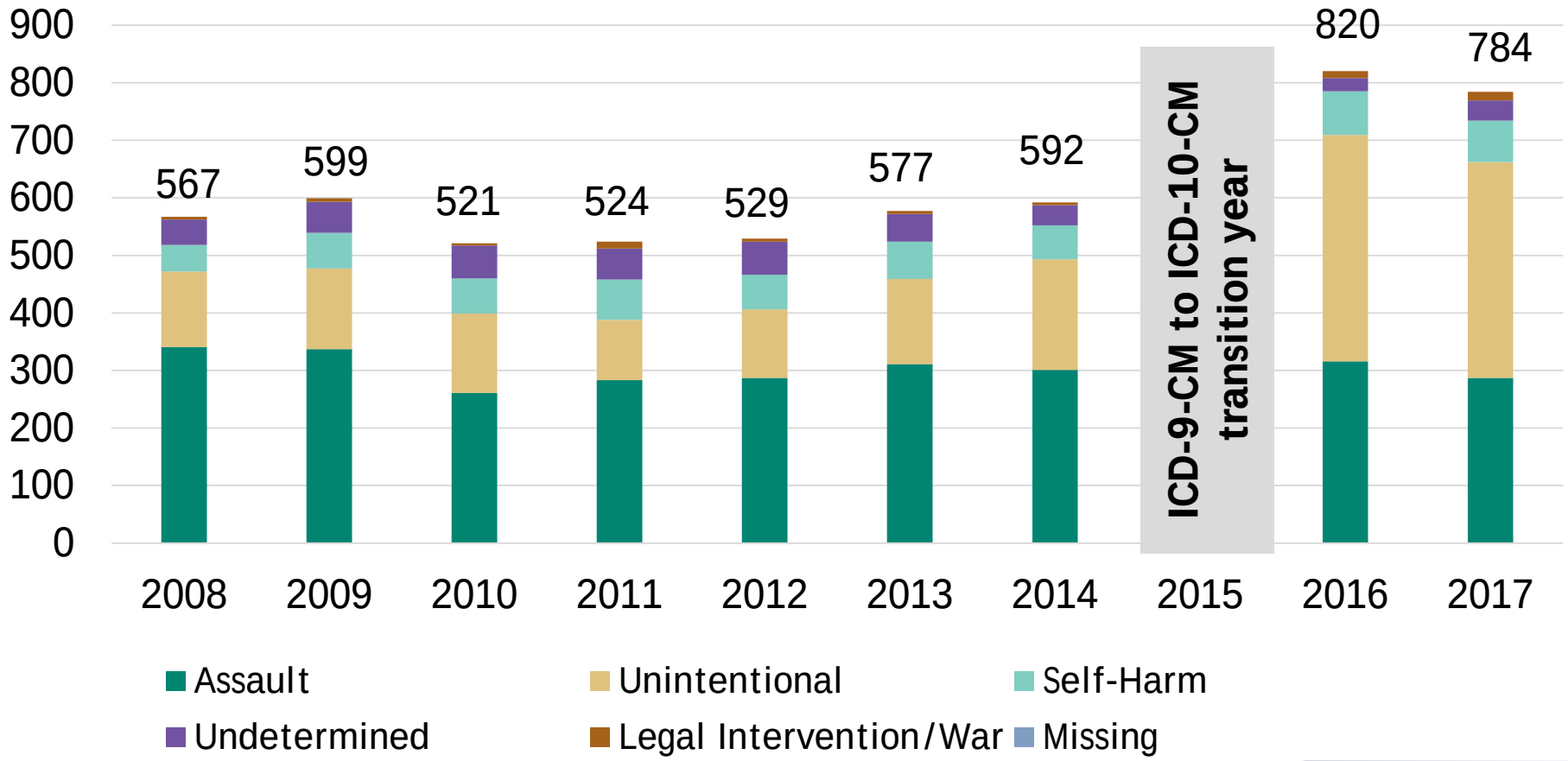
Black/African American patients account for over half of gun-related injury ED visits (53%)

Rate of gun-related injuries per 10,000 ED visits has increased 19% from 2014 to 2018.

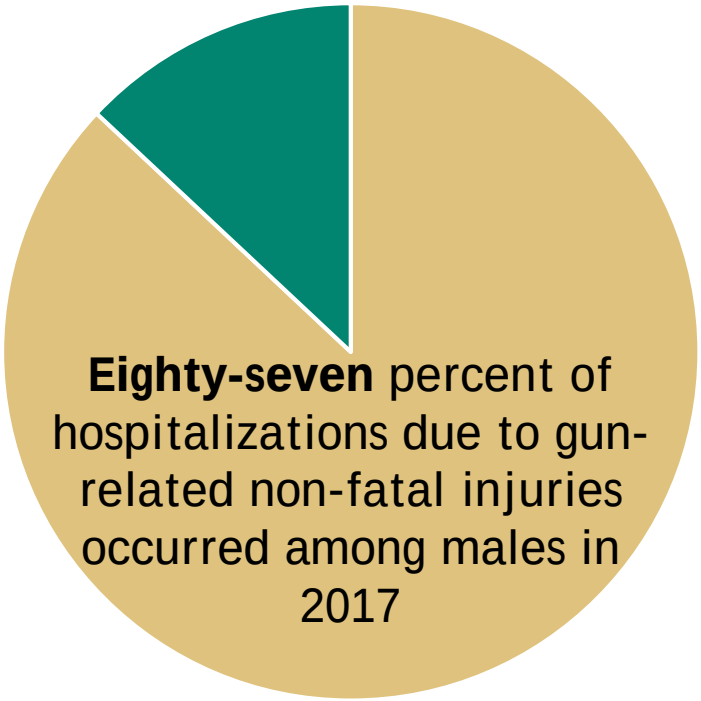
Inpatient Discharge Data

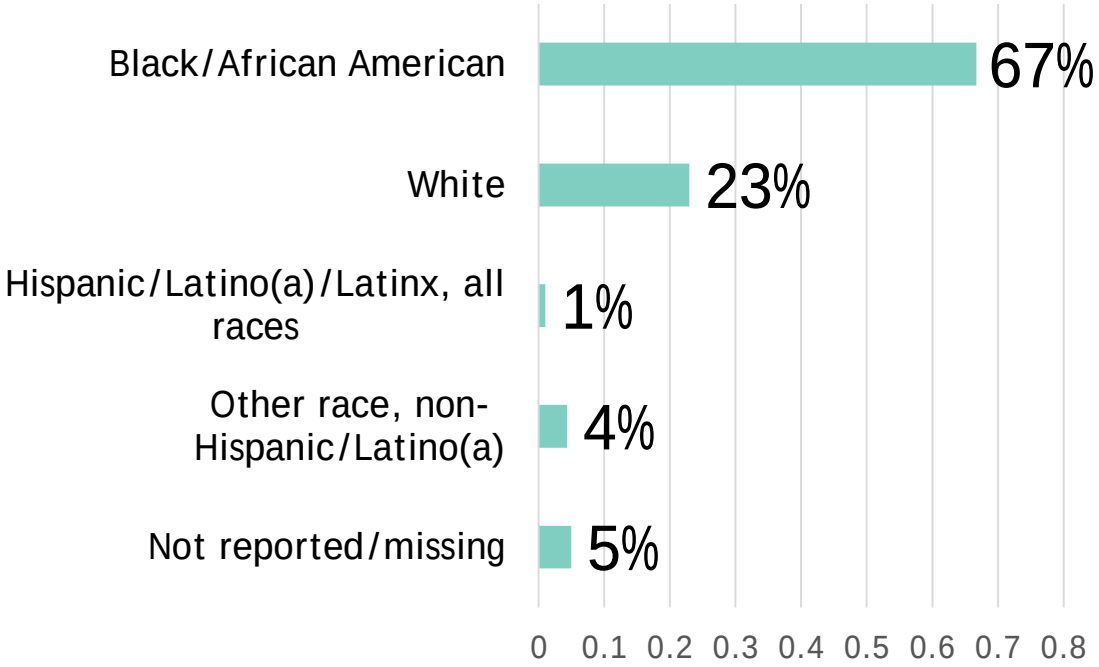
- VDH receives data from Virginia Health Information (VHI)
- Captures discharge billing data on each inpatient, including diagnoses
- Data includes all Virginia-licensed hospitals
- Does not include Veterans Affairs or other federal hospital entities
- Not de-duplicated
- Causes of injury counted in record
- Data limitations:
  - ICD-9-CM to ICD-10-CM transition
  - Hospital/provider reporting on diagnoses may result in variations in case counts
  - Potential under-reporting on Virginia resident hospitalizations who reside in bordering regions of the state since out-of-state hospitalizations are excluded

Hospitalizations due to Gun-Related Non-Fatal Injuries, 2008-2017

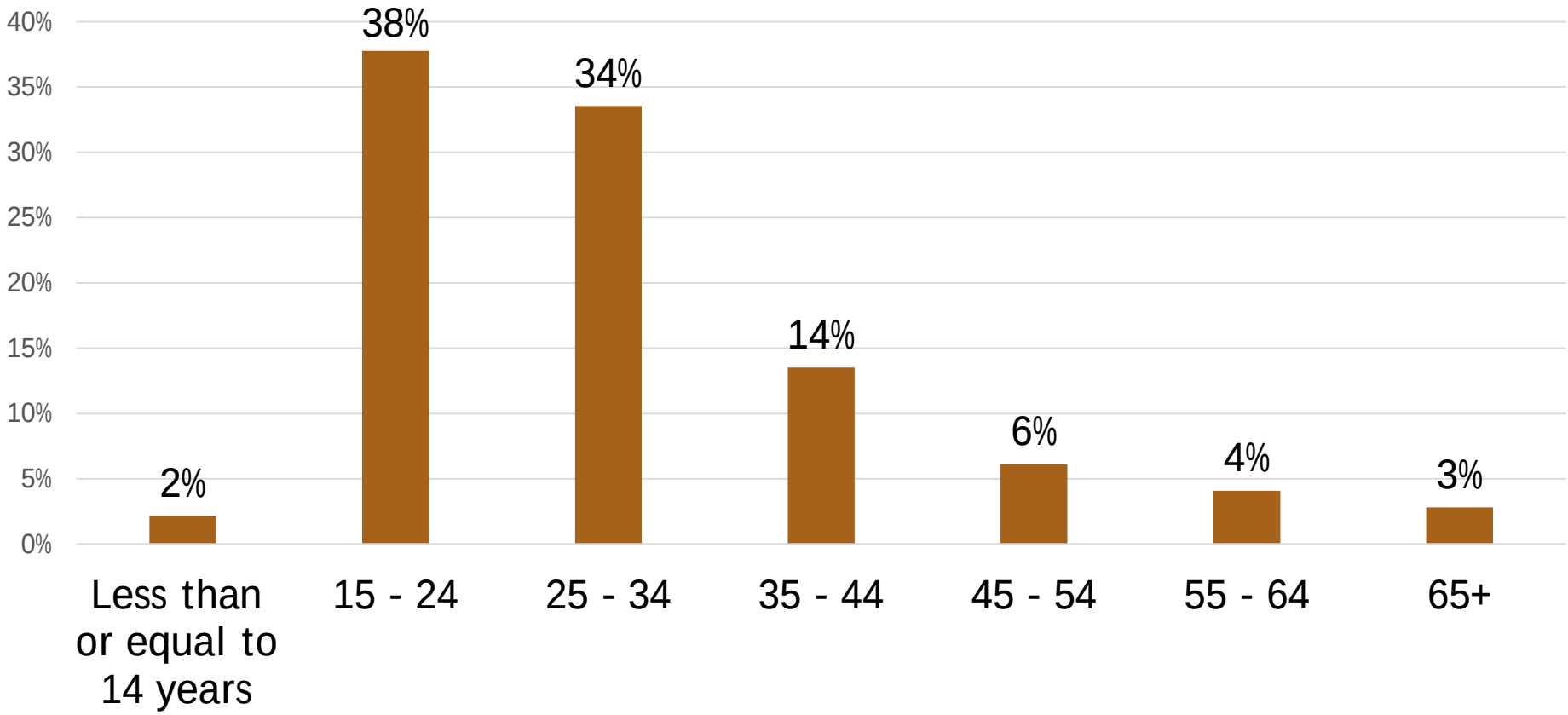


Hospitalizations due to Gun-Related Non-Fatal Injuries by Sex at Birth and Race/Ethnicity, 2017

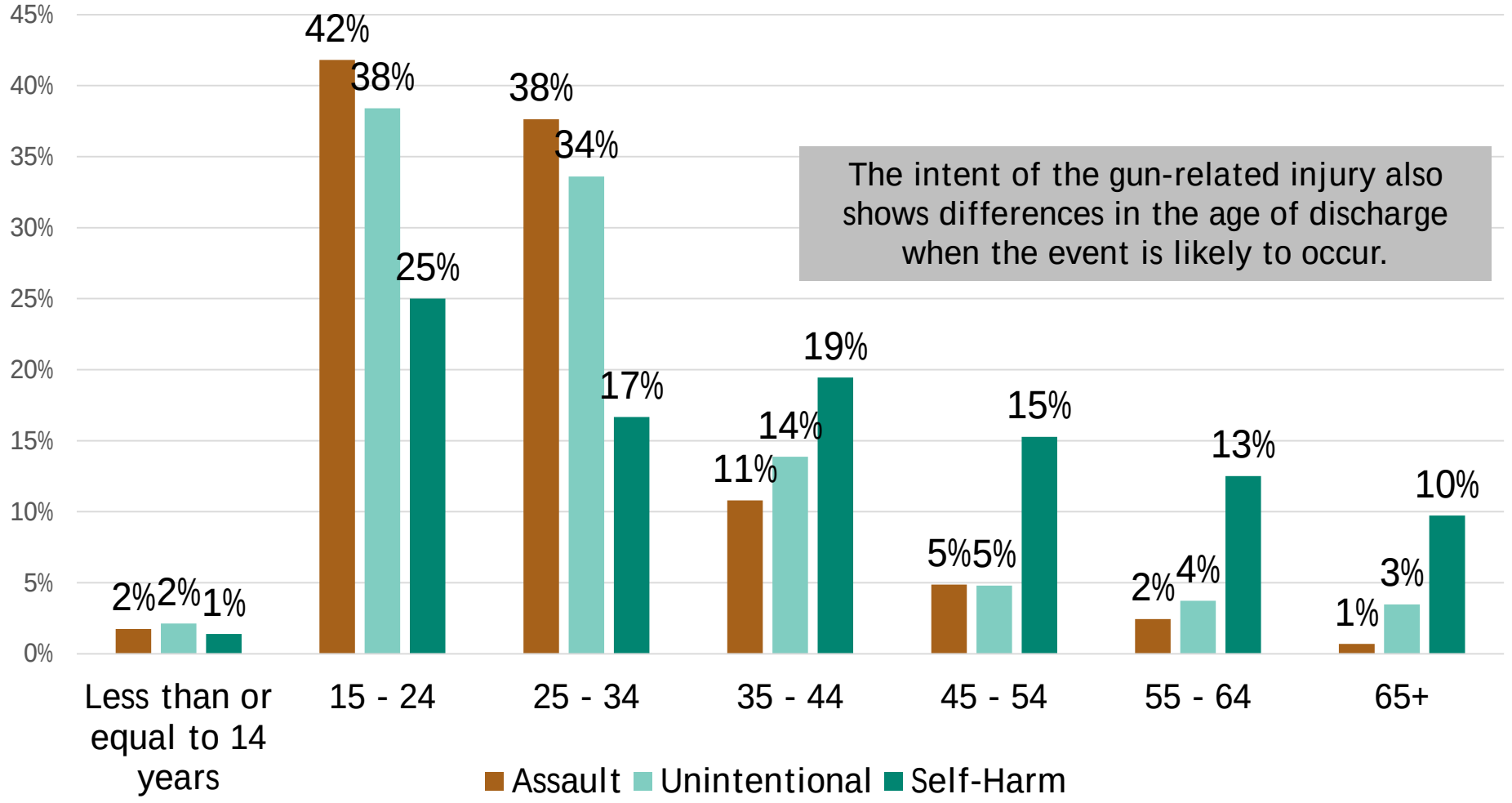




Hospitalizations due to Gun-Related Non-Fatal Injuries by Age at Discharge, 2017



Hospitalizations due to Gun-Related Non-Fatal Injuries by Age at Discharge and Intent, 2017



Hospitalizations due to Gun-Related Non-Fatal Injuries by Intent, 2017

Unintentional

- 72% of gun-related unintentional injuries were among persons aged 15-34 years.
- 88% were male, and 69% were Black/African American.
- 41% occurred in the Central region, followed by 37% in the Eastern region.

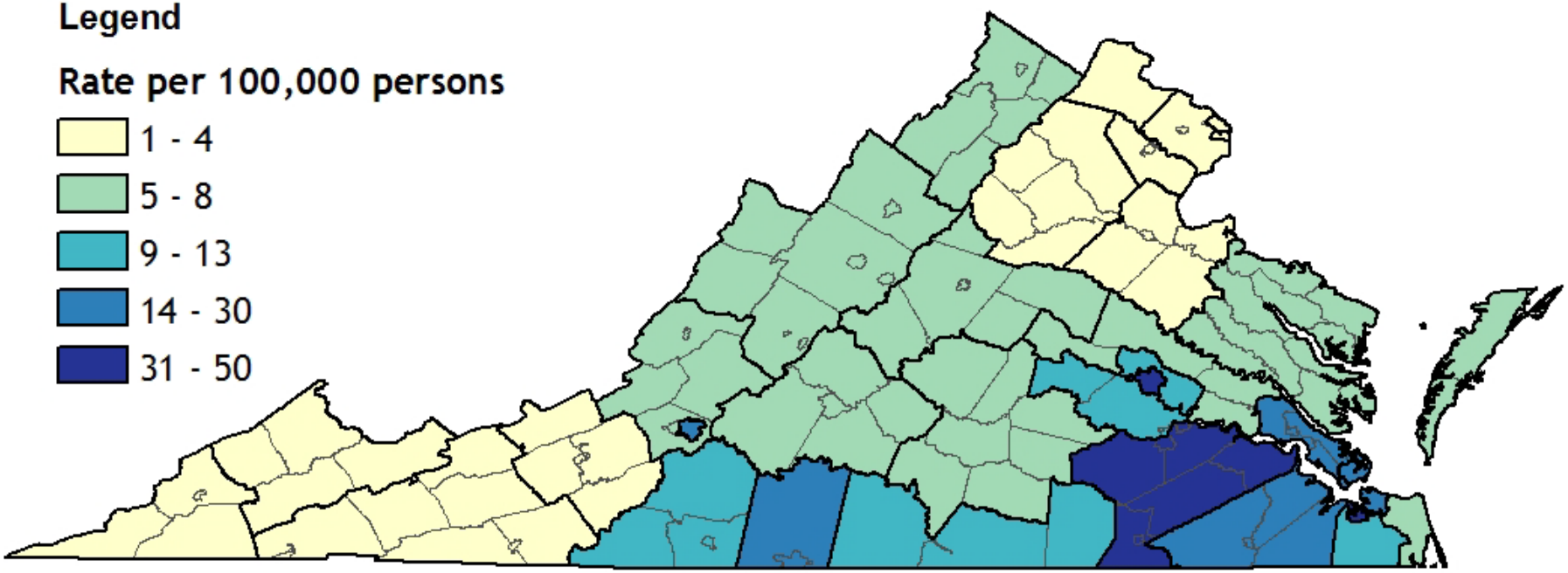
Self-Harm

- 51% of gun-related self-harm injuries were among persons aged 25-54 years.
- 76% were male, and 74% were white.
- 28% occurred in the Southwest region.

Assault

- 79% of gun-related assault injuries were among persons aged 15-34 years.
- 89% were male, and 77% were Black/African American.
- 47% occurred in the Eastern region, followed by 34% in the Central region.

Hospitalizations due to Gun-Related Non-Fatal Injuries by Health District, 2017



Key Points on Gun-Related Non-Fatal Injuries in Virginia

- Gun-related non-fatal injuries affect all Virginians, and the intent of these injuries can vary by demographic and geographic population.
- Although 2016 and 2017 data show higher numbers of gun-related non-fatal injuries, we cannot determine if these numbers are based on actual morbidity or the transition in medical coding.
- Continued monitoring of emergency department and hospitalization data combined with comprehensive injury and violence prevention programming can lead to more timely prevention and intervention of gun-related injuries in Virginia.

For additional information:

Emergency department visit data

- Erin Austin, MPH
- Enhanced Surveillance Coordinator
- Erin.Austin@vdh.virginia.gov or syndromic@vdh.virginia.gov

Hospitalization discharge data

- Lauren Yerkes, MPH
- Injury and Violence Prevention Epidemiologist
- Lauren.Yerkes@vdh.virginia.gov

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Gun-Related Deaths in Virginia

Rosie Hobron, MPH
State Forensic Epidemiologist
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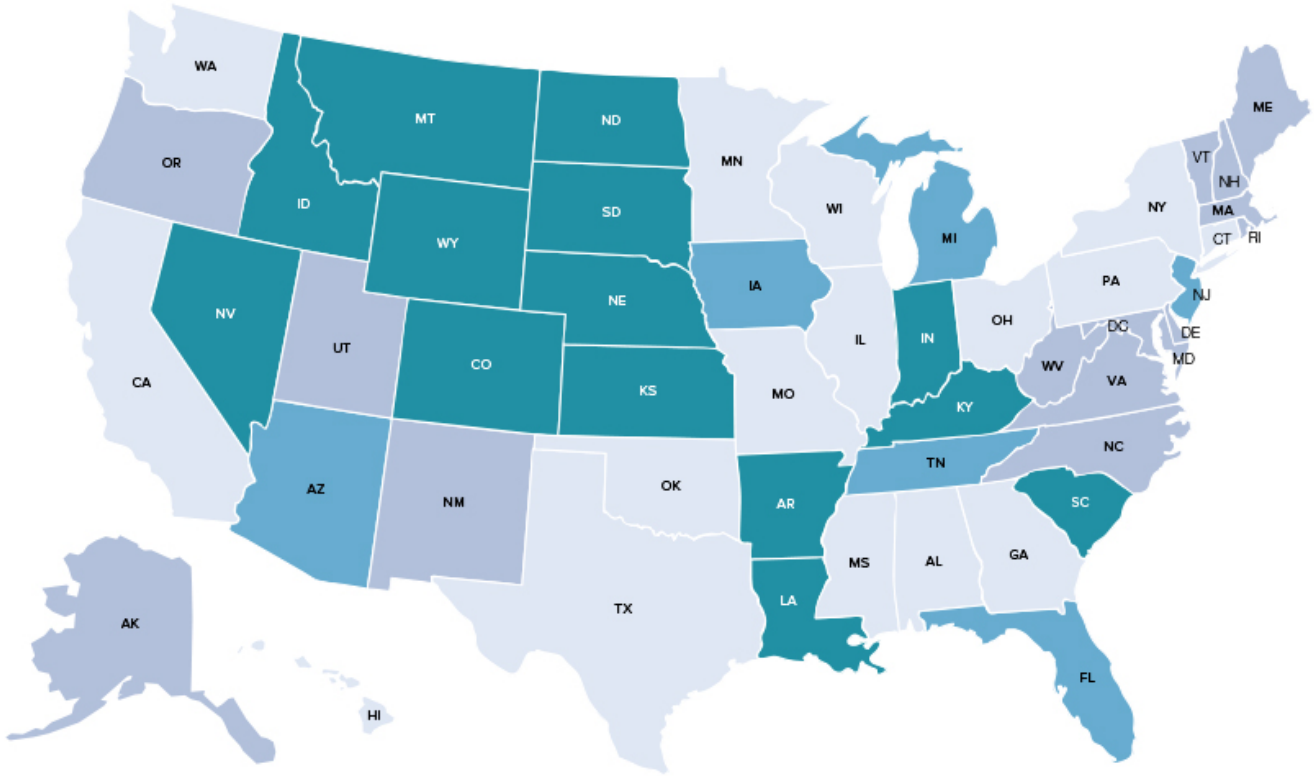
Medical Examiner Vs. Coroner



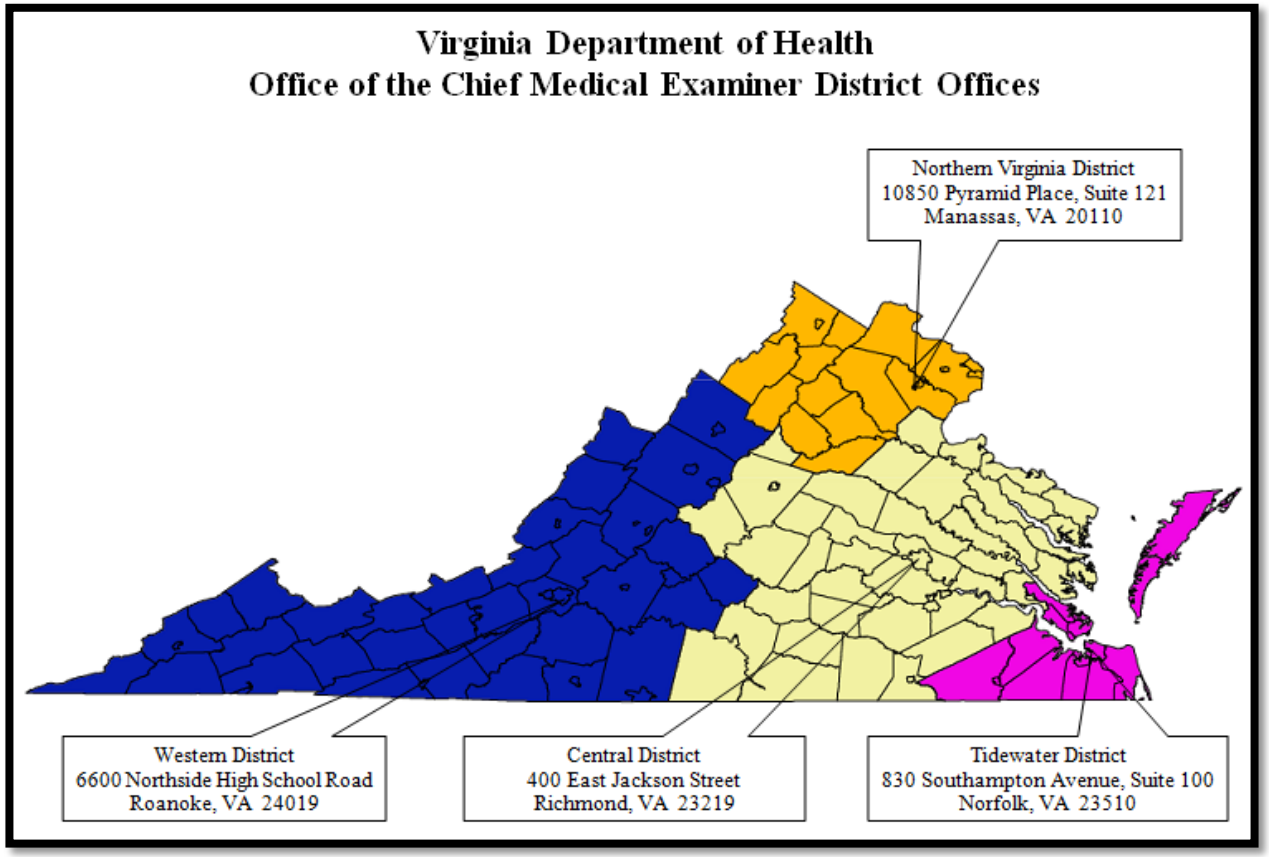
A PATCHWORK SYSTEM

America's system for investigating deaths is a mix of different laws, procedures and job descriptions.

- County-based mixture of medical examiner and coroner offices
- Centralized state medical examiner office
- County/District-based medical examiner offices
- County/District-based coroner offices

CENTERS FOR DISEASE CONTROL AND PREVENTION

'Provide state of the art, high quality, professional medicolegal death investigation for all citizens of the Commonwealth regardless of their geographic location'



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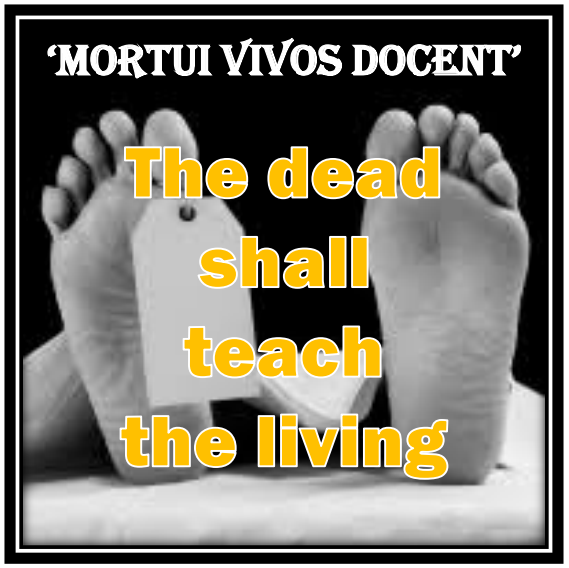
OCME Mission



- Conduct medicolegal death investigations
- Perform exams to certify cause and manner of death
- Provide medical insight/findings in court proceedings of OCME cases
- Educate peers and professionals on subjects related to death investigation
- Mass fatality planning
- Provide statistics on unnatural death in the Commonwealth
- Reduce violent death by conducting surveillance and fatality review
  - Provide support and technical assistance to local fatality review teams
- Administer the State Anatomical Program

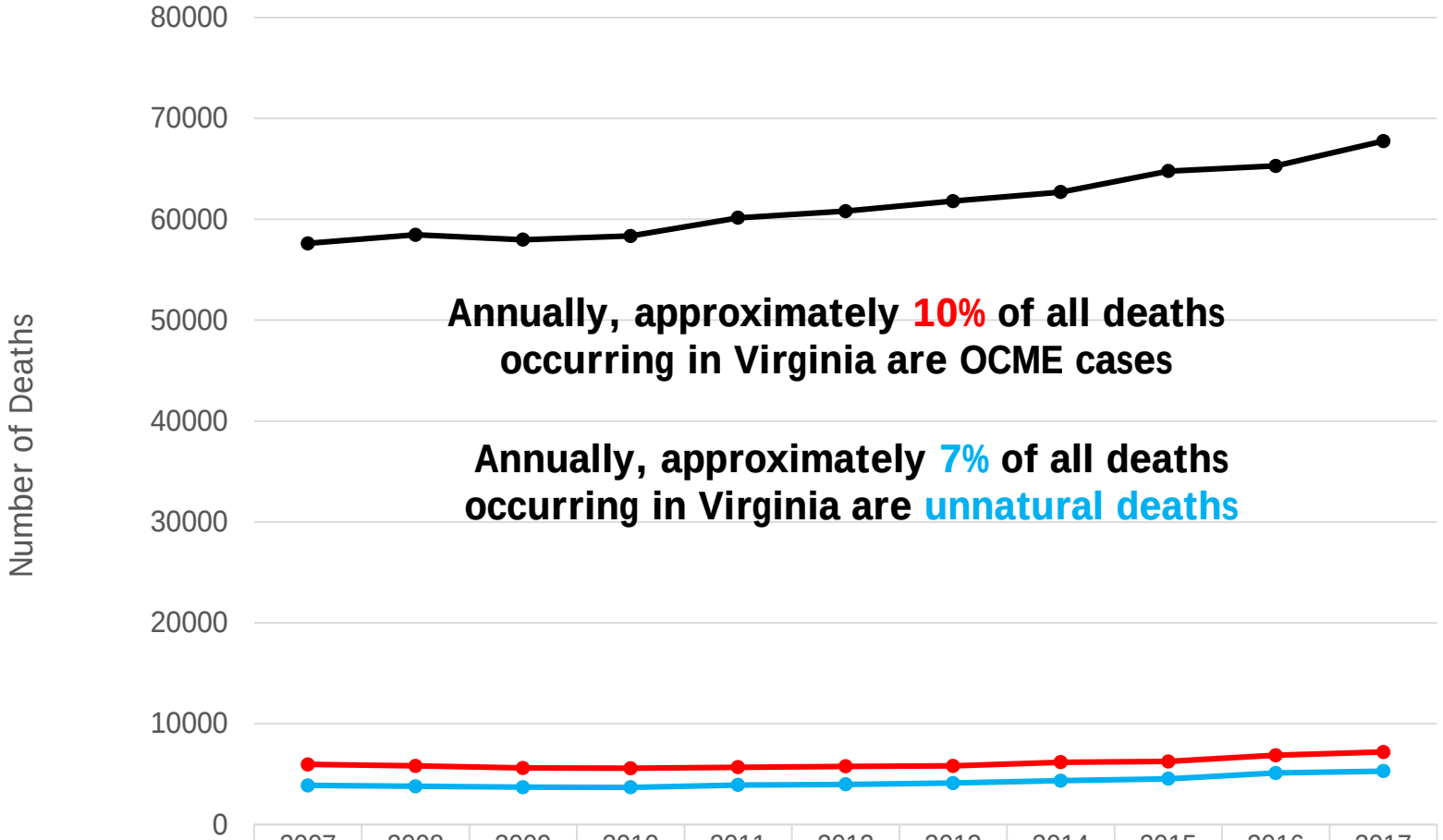
What Makes a Death an OCME Case?

Death must have occurred in VA

Pursuant to § 32.1-283 of the Code of Virginia, all of the following deaths are investigated by the OCME:

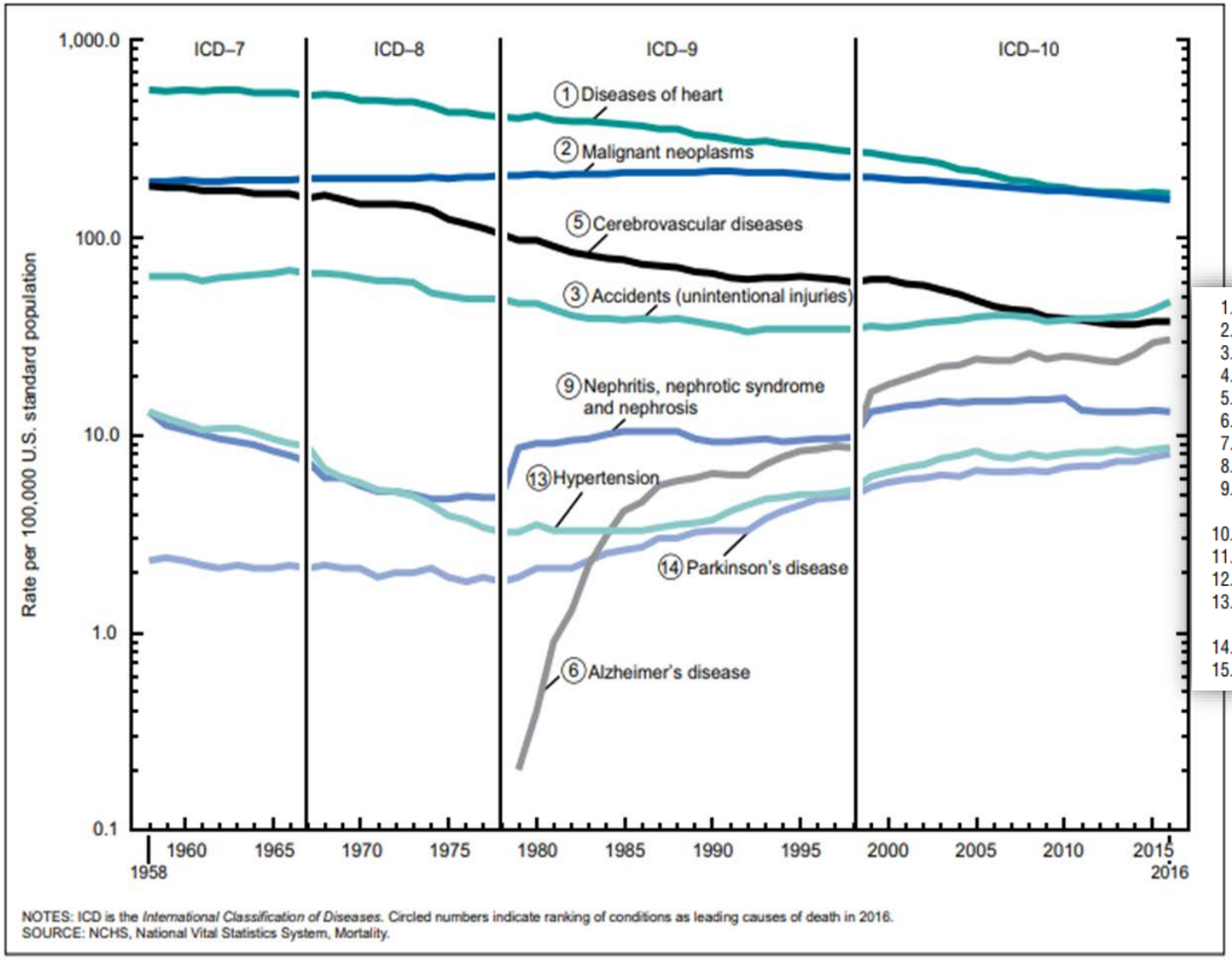
- any death from trauma, injury, violence, or poisoning attributable to accident, suicide or homicide;
- sudden deaths to persons in apparent good health or deaths unattended by a physician;
- deaths of persons in jail, prison, or another correctional institution, or in police custody (this includes deaths from legal intervention);
- deaths of patients/residents of state mental health facilities;
- the sudden death of any infant less than eighteen months of age whose death might be attributable to SIDS or SUID; and
- any other suspicious, unusual, or unnatural death

Number of All OCME Deaths and All Unnatural Deaths Compared to All Deaths in Virginia by Year, 2007-2017



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
OCME Cases (Unnatural manner)	3871	3789	3705	3687	3914	3979	4102	4345	4540	5104	5298
All OCME Cases	5958	5811	5608	5573	5672	5767	5809	6176	6252	6868	7187
Total Virginia Deaths	57609	58468	57980	58353	60157	60808	61800	62694	64787	65288	67762

Leading Causes of Death in US



NOTES: ICD is the *International Classification of Diseases*. Circled numbers indicate ranking of conditions as leading causes of death in 2016.
SOURCE: NCHS, National Vital Statistics System, Mortality.

2016 Rankings:

1. Diseases of heart (heart disease)
2. Malignant neoplasms (cancer)
3. Accidents (unintentional injuries)
4. Chronic lower respiratory diseases
5. Cerebrovascular diseases (stroke)
6. Alzheimer's disease
7. Diabetes mellitus (diabetes)
8. Influenza and pneumonia
9. Nephritis, nephrotic syndrome and nephrosis (kidney disease)
10. Intentional self-harm (suicide)
11. Septicemia
12. Chronic liver disease and cirrhosis
13. Essential hypertension and hypertensive renal disease (hypertension)
14. Parkinson's disease
15. Pneumonitis due to solids and liquids

Source: https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_05.pdf

OCME Data Sources

Forensic Epidemiology

- All OCME cases

- Based on deaths that occur in VA
- Report on recent data
- Restricted details collected during death investigation

Surveillance and Fatality Review (FR)

- Specific types of OCME cases
  - FR-Multi disciplinary stakeholder committee review of cases
- Only residents of VA
- Delayed reporting of data (~2 years behind)
- Strong data collection on risk factors, contributors, and decedents history

Surveillance and Fatality Review Projects

Surveillance Projects

- Family and Intimate Partner Homicide Surveillance
- Virginia Pregnancy-Associated Mortality Surveillance Systems (PAMSS)
- Virginia Violent Death Reporting System (VVDRS)
- Sudden Death in the Young (SDY)
- Infant and Child Mortality Surveillance System

Fatality Review Teams (State Teams)

- Child Fatality Review
- Domestic Violence Fatality Review
- Maternal Mortality Review

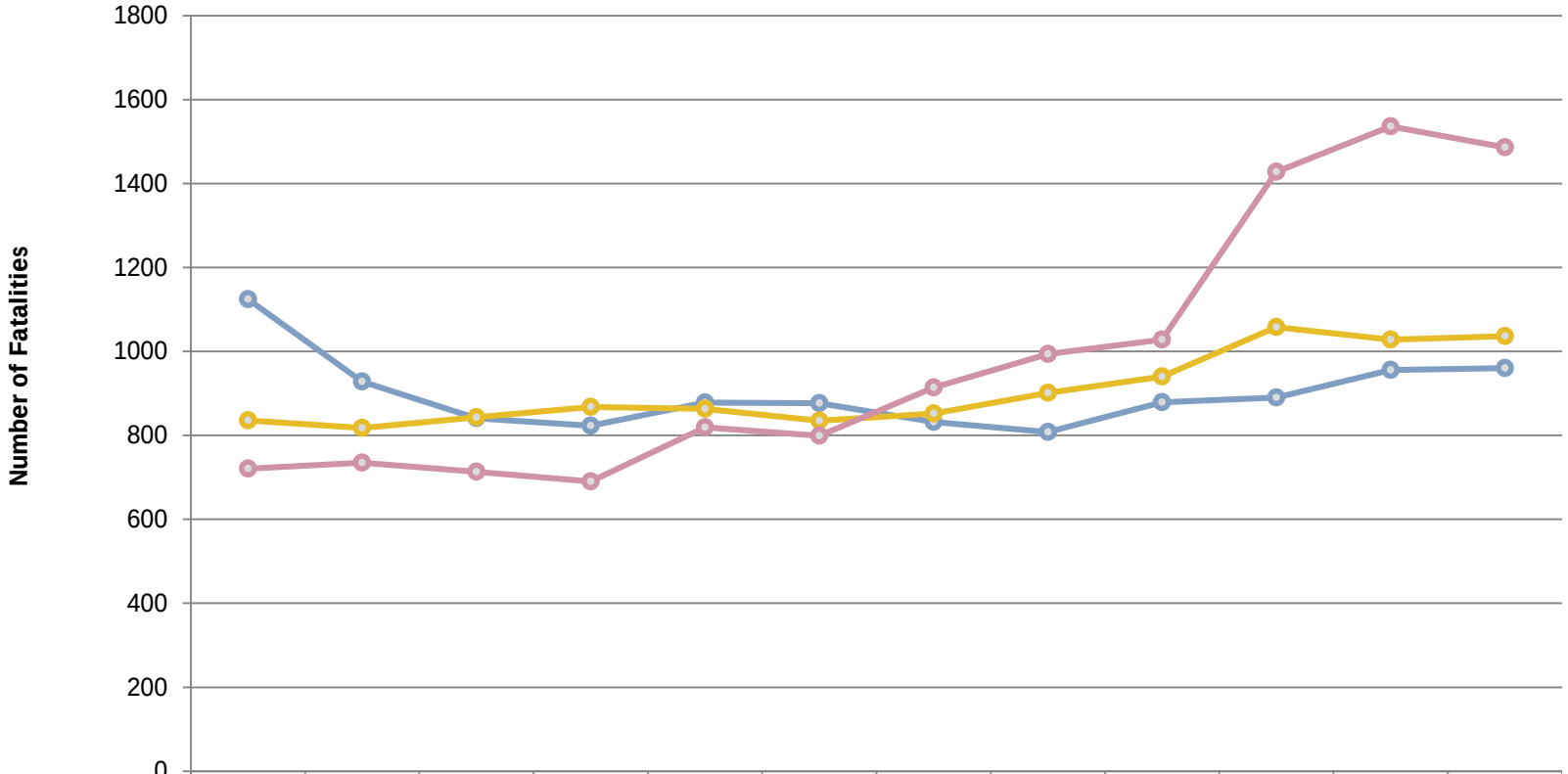
http://www.vdh.virginia.gov/medical-examiner/fatality-review-surveillance-programs-reports/

OCME Data Methods and Limitations

- Deaths that occur in VA, not based on state of residence
- Unique internal OCME coding schema; no ICD-10 codes
- Data elements based on date of death
- Delayed deaths (deaths that occur months or years after event)

Top 3 Methods of Unnatural Death (All Manners) in VA

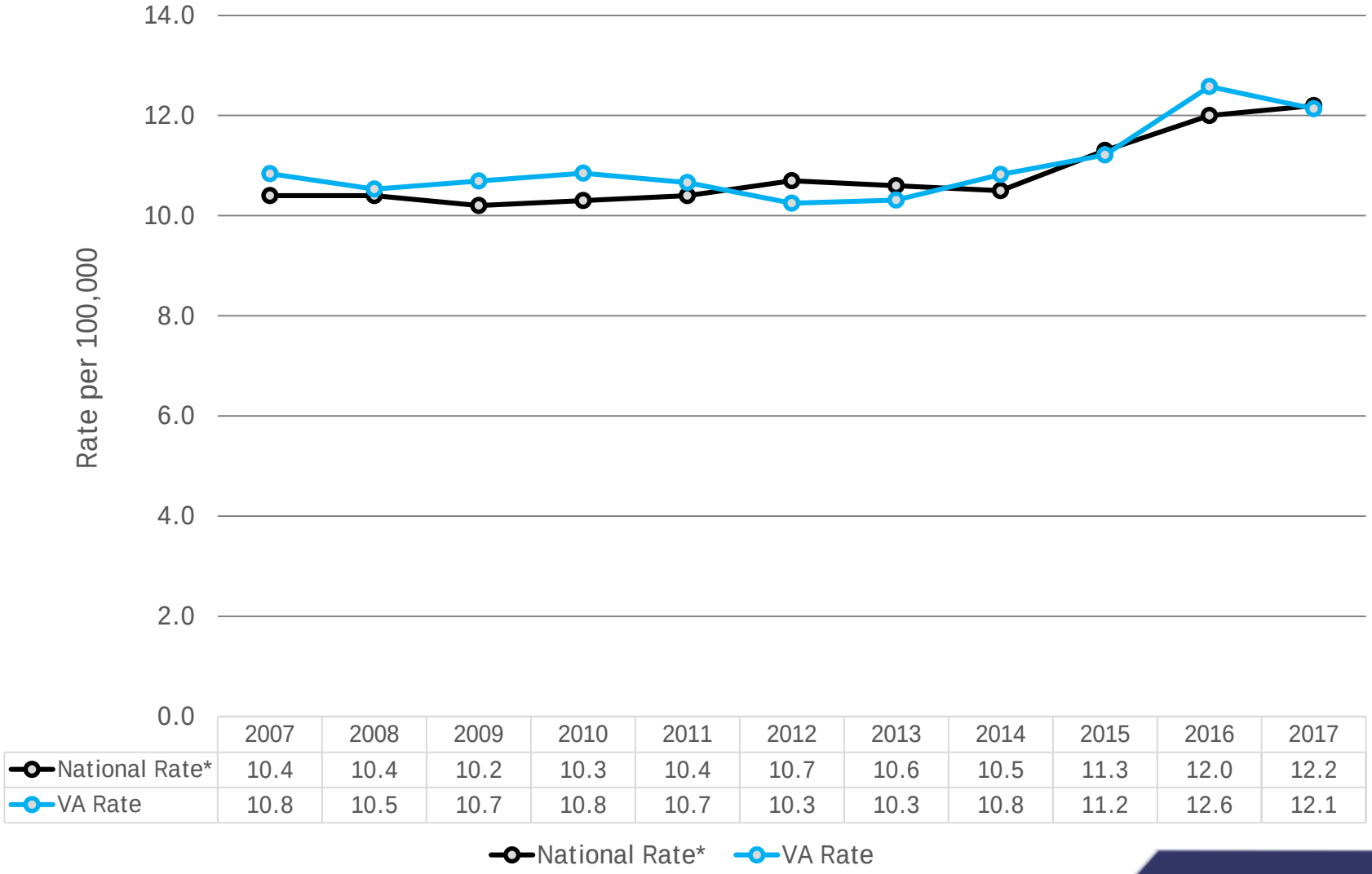
Total Number of Motor Vehicle, Gun, and Drug Related Fatalities by Year of Death, 2007-2018



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
Motor Vehicle Related	1124	928	841	823	878	877	832	808	879	890	956	960
Gun Related	836	818	843	868	863	835	852	901	940	1058	1028	1036
Fatal Drug Overdose	721	735	713	690	819	799	914	994	1028	1428	1536	1486

[1] Top 3 methods of death (motor vehicles, guns, and drugs) include all manners of death (accident, homicide, suicide, and undetermined)

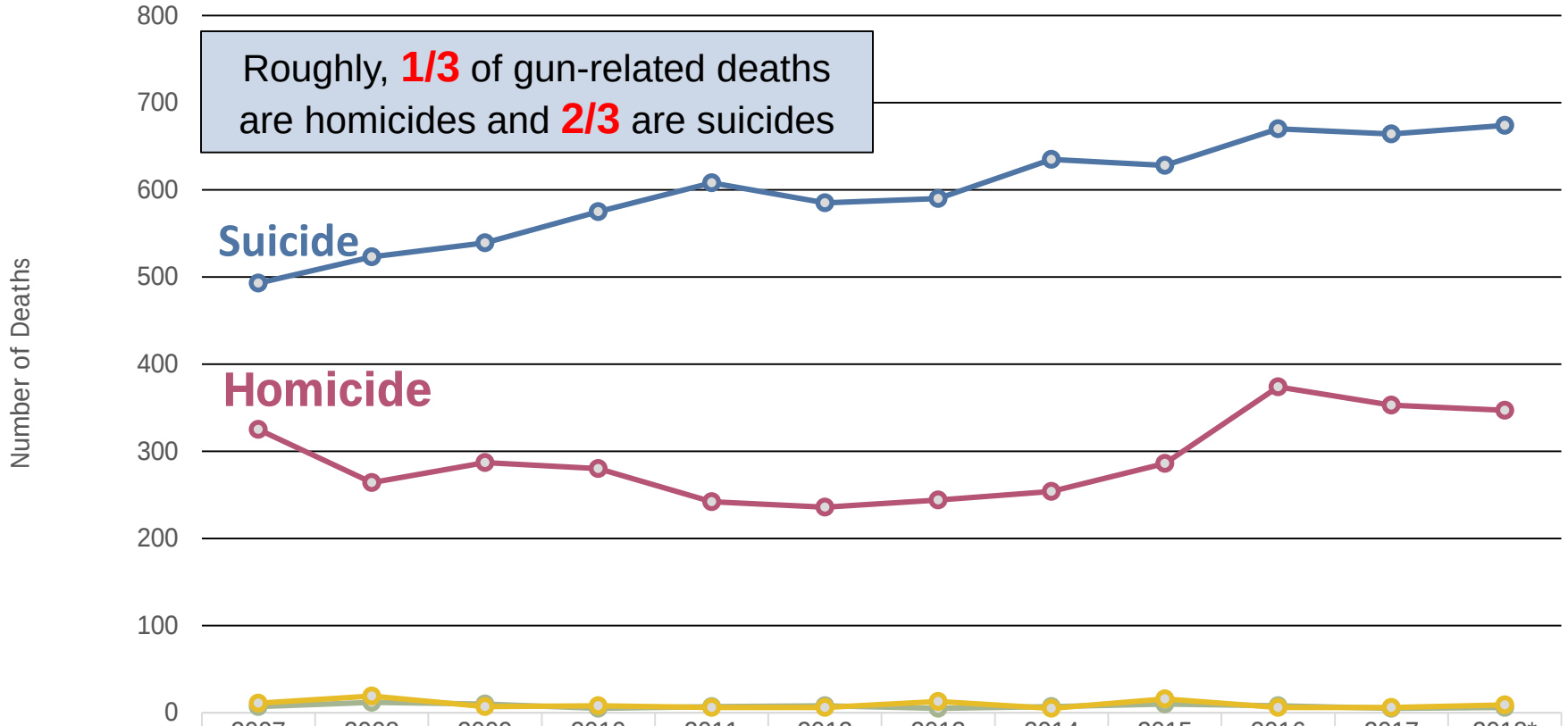
Rates of Gun-Related Death Nationally vs. VA



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
National Rate*	10.4	10.4	10.2	10.3	10.4	10.7	10.6	10.5	11.3	12.0	12.2
VA Rate	10.8	10.5	10.7	10.8	10.7	10.3	10.3	10.8	11.2	12.6	12.1

* National rate source (crude rates, not age-adjusted): https://wonder.cdc.gov

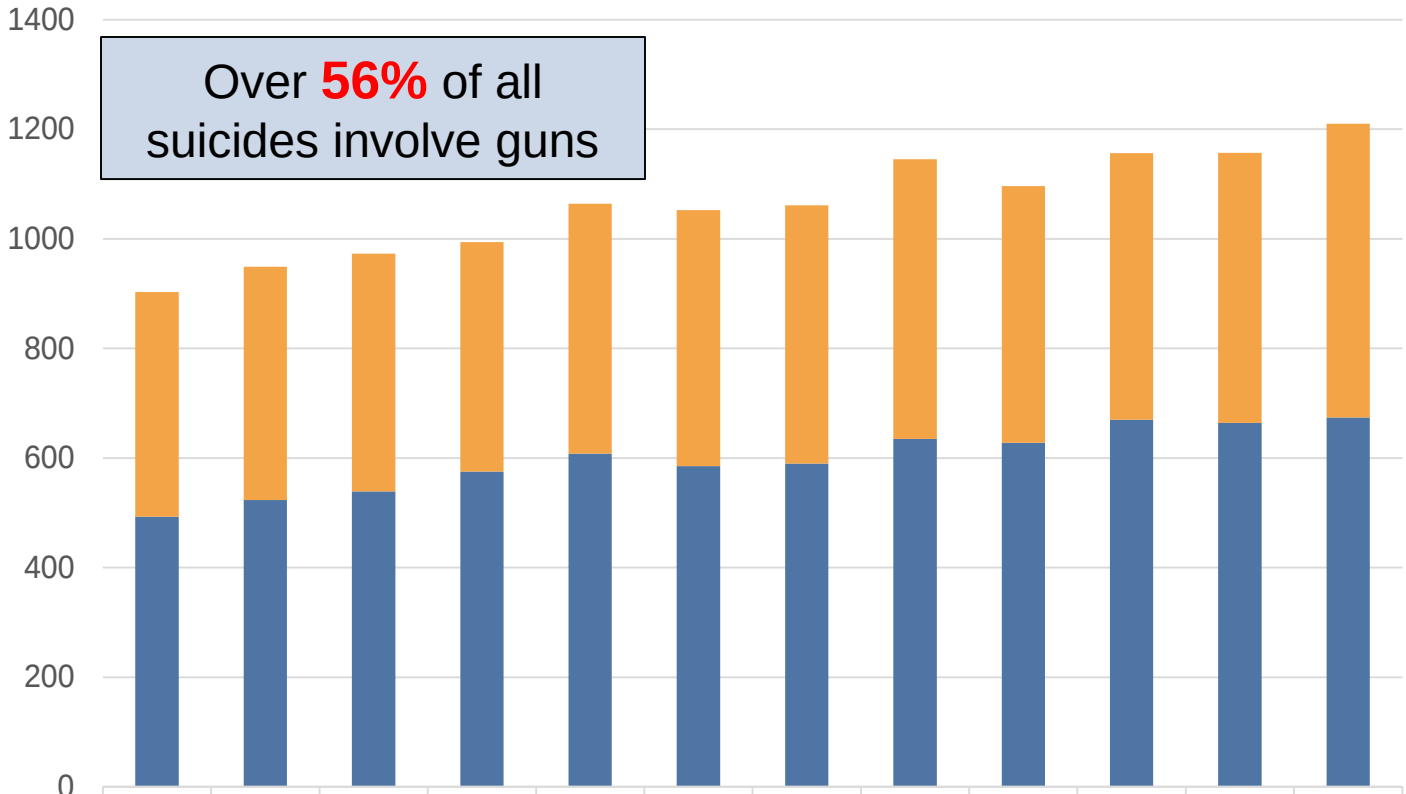
VA Gun-Related Deaths by Manner



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
Accident	7	12	10	5	7	8	5	7	10	8	5	6
Homicide	325	264	287	280	242	236	244	254	286	374	353	347
Suicide	493	523	539	575	608	585	590	635	628	670	664	674
Undetermined	11	19	7	8	6	6	13	5	16	6	6	9

Gun-Related Suicides vs All Other Methods of Suicide

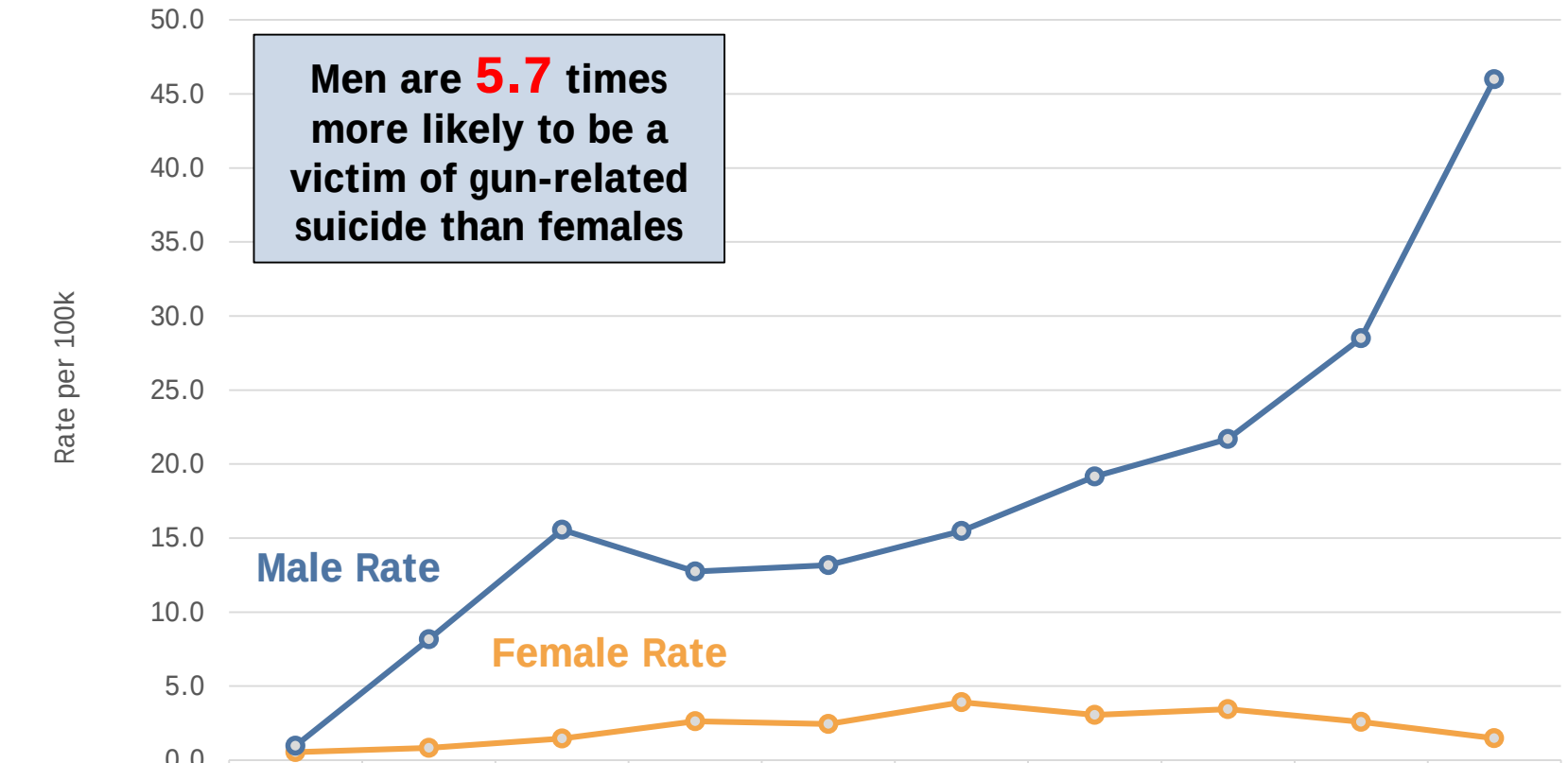
Number of Gun-Related Suicide Compared to All Other Methods of Suicide by Year of Death, 2007-2018*



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Suicides, All Other Methods	410	426	434	419	456	467	471	510	468	486	493	536
Gun-related Suicide	493	523	539	575	608	585	590	635	628	670	664	674

Gun-Related Suicide Demographics (Gender-Age)

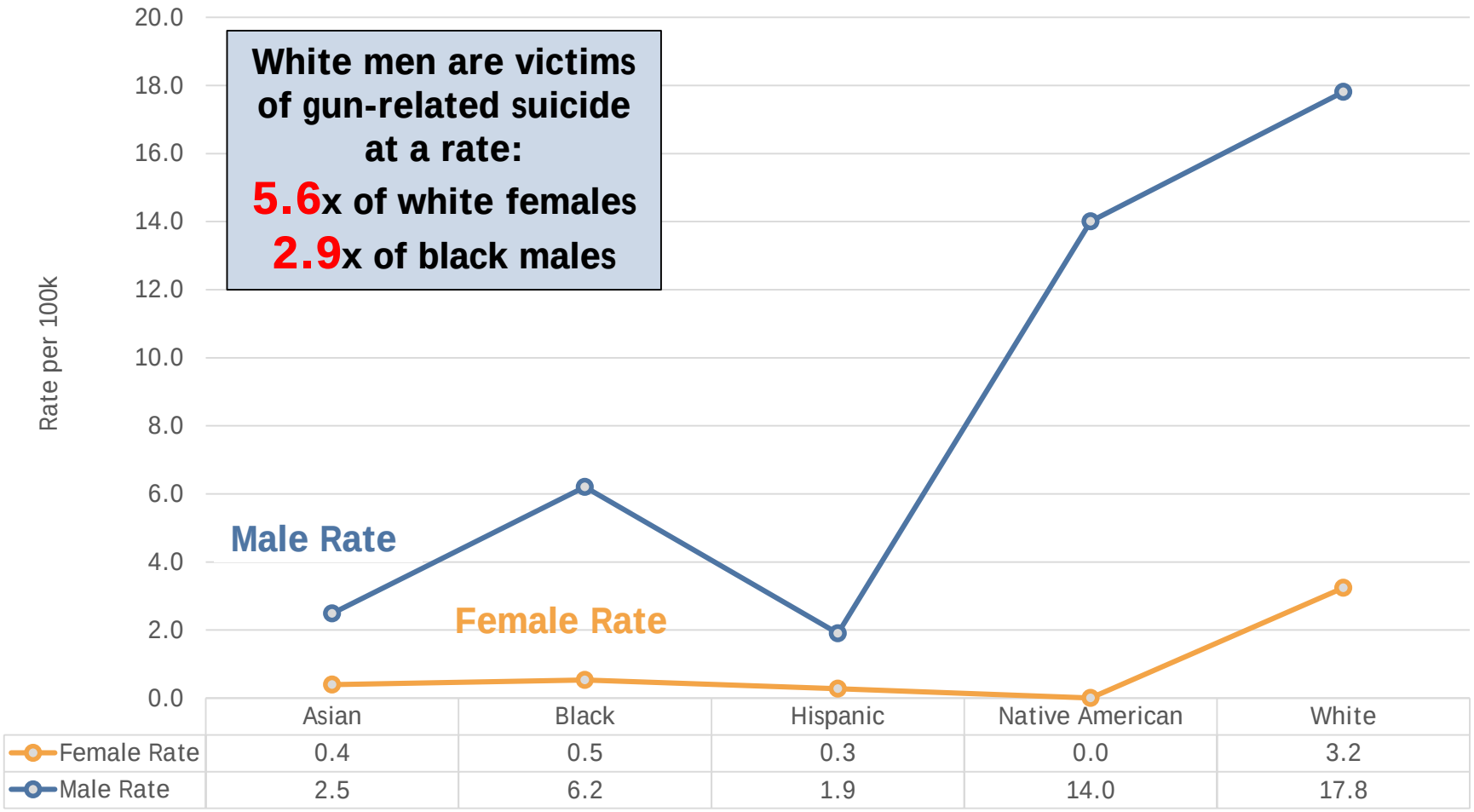
Aggregated Five Year Rate of Gun-Related Suicide by Gender and Age Group, 2013-2017



	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Female Rate	0.5	0.8	1.5	2.6	2.4	3.9	3.0	3.5	2.6	1.5
Male Rate	1.0	8.2	15.6	12.7	13.2	15.5	19.2	21.7	28.5	46.0

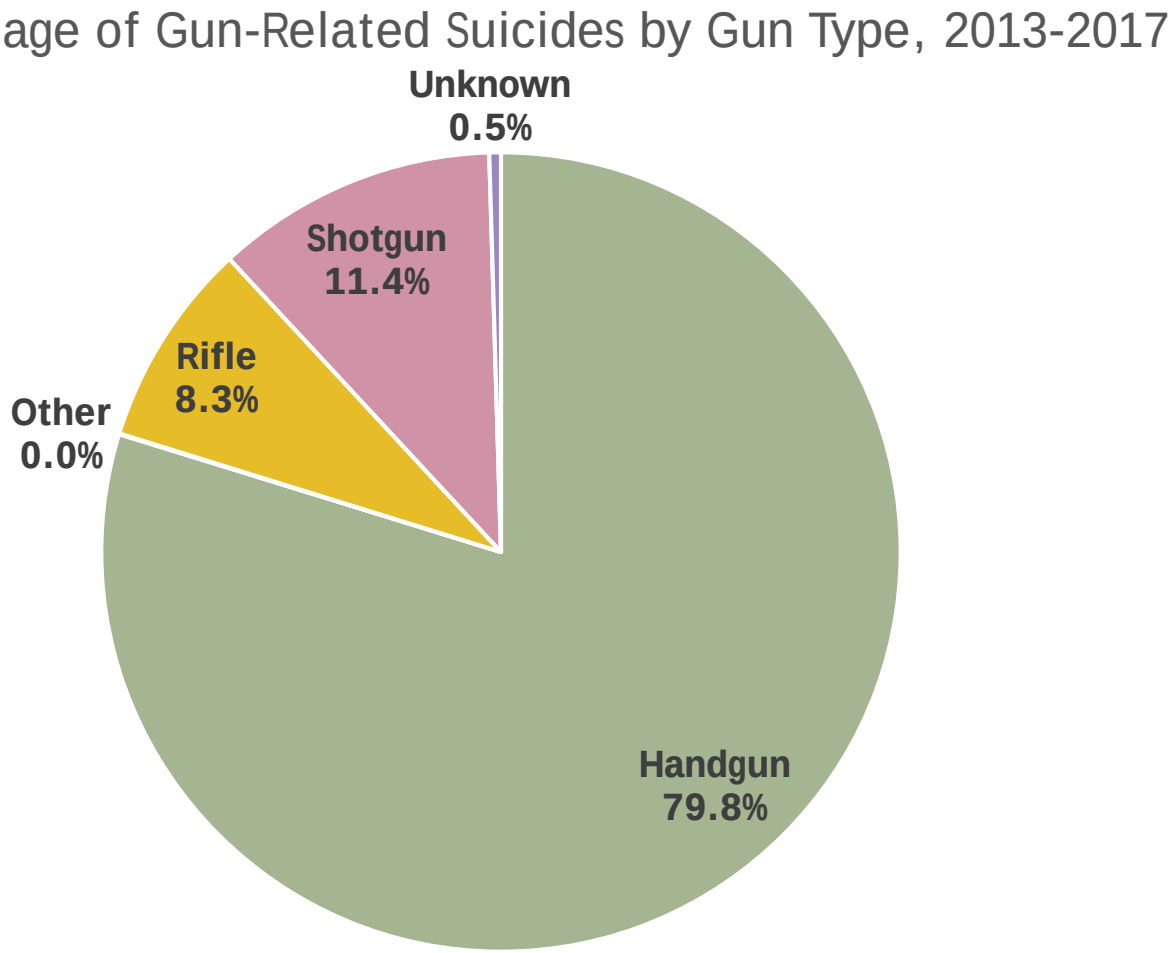
Gun-Related Suicide Demographics (Gender-Race)

Aggregated Five Year Rate of Gun-Related Suicide by Gender and Race/Ethnicity, 2013-2017



	Asian	Black	Hispanic	Native American	White
Female Rate	0.4	0.5	0.3	0.0	3.2
Male Rate	2.5	6.2	1.9	14.0	17.8

Gun-Related Suicide by Gun Type



Gun-Related Suicide #s by Locality of Residence

Top Five Localities with Largest Number of Gun-Related Suicide by Locality of Residence and Year of Death, 2013-2017

Locality of Residence	2013	2014	2015	2016	2017	Average per Year (2013-2017)
Fairfax County	50	40	30	33	40	38.6
Virginia Beach City	21	37	25	41	31	31.0
Chesterfield County	26	27	20	28	26	25.4
Henrico County	19	16	22	25	21	20.6
Out of State	14	27	20	18	21	20.0
Loudoun County	18	20	20	19	22	19.8
Prince William County	18	14	15	22	23	18.4
Norfolk City	17	17	11	17	24	17.2

State Ranking
1st
2nd
3rd
4th
5th

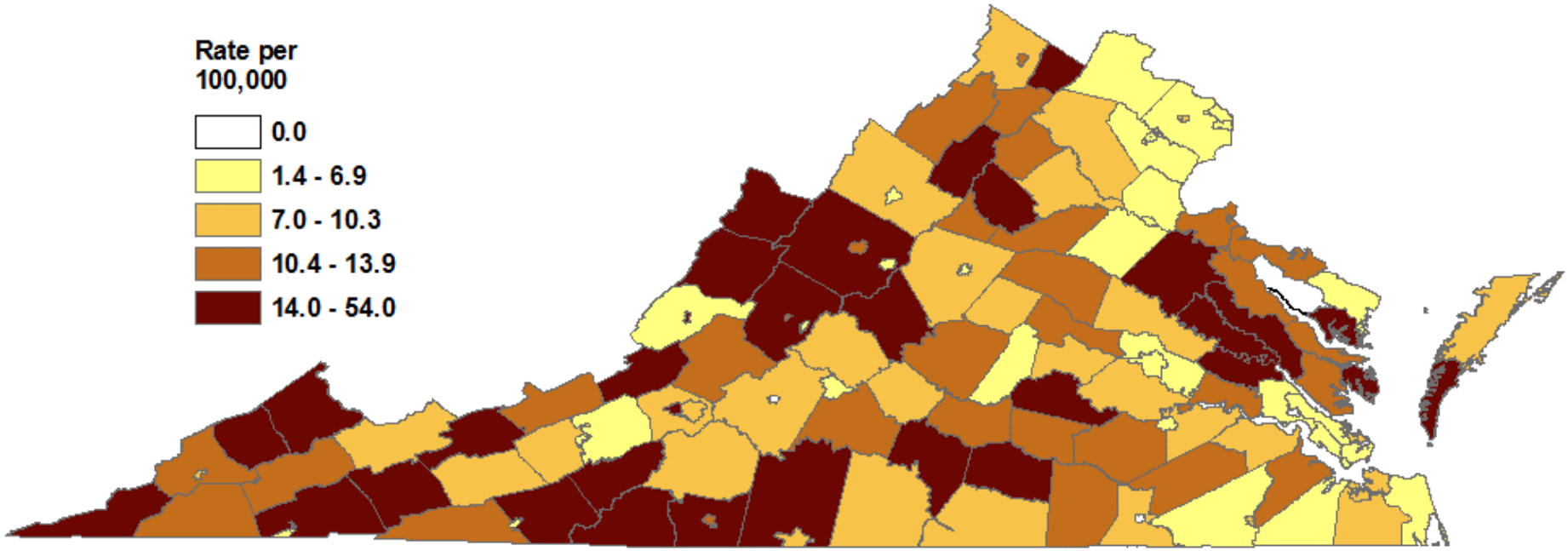
Gun-Related Suicide Rates per 100K by Locality of Residence

Top Five Highest Rates of Gun-Related Suicide by Locality of Residence and Year of Death, 2013-2017

Locality of Event	2013	2014	2015	2016	2017	Aggregated Five Year Rate (2013-2017)
Highland County	90.3	89.0	45.2	45.1	0.0	54.0
Craig County	57.6	0.0	19.2	58.2	19.8	30.9
Amelia County	0.0	31.1	46.5	15.5	23.0	23.3
Bland County	0.0	45.3	15.2	30.7	15.7	21.4
Dickenson County	32.3	19.6	6.6	13.4	33.8	21.1
Lunenburg County	0.0	8.0	24.4	24.4	40.9	19.4
Patrick County	38.1	5.5	22.2	16.7	11.3	18.8
Madison County	0.0	22.8	38.1	22.9	7.5	18.2
Bath County	21.7	43.8	22.4	0.0	0.0	17.8
Floyd County	25.8	38.5	19.2	0.0	0.0	16.6
Smyth County	31.6	9.5	9.5	12.9	13.0	15.3
Rockbridge County	9.0	17.9	8.9	4.5	30.9	14.3
King and Queen County	0.0	13.9	14.0	27.9	14.3	14.0
Wise County	4.9	10.0	12.6	7.6	31.1	13.1
Essex County	17.8	36.0	0.0	9.0	0.0	12.6
Charles City County	0.0	14.2	28.4	0.0	14.3	11.3
Middlesex County	18.6	0.0	28.3	0.0	9.4	11.2
Norton City	0.0	0.0	0.0	25.9	25.4	10.1
Buena Vista City	0.0	0.0	0.0	0.0	31.6	6.1

State Ranking
1st
2nd
3rd
4th
5th

Five Year Aggregated Rate of Gun-Related Suicide by Locality of Residence, 2013-2017

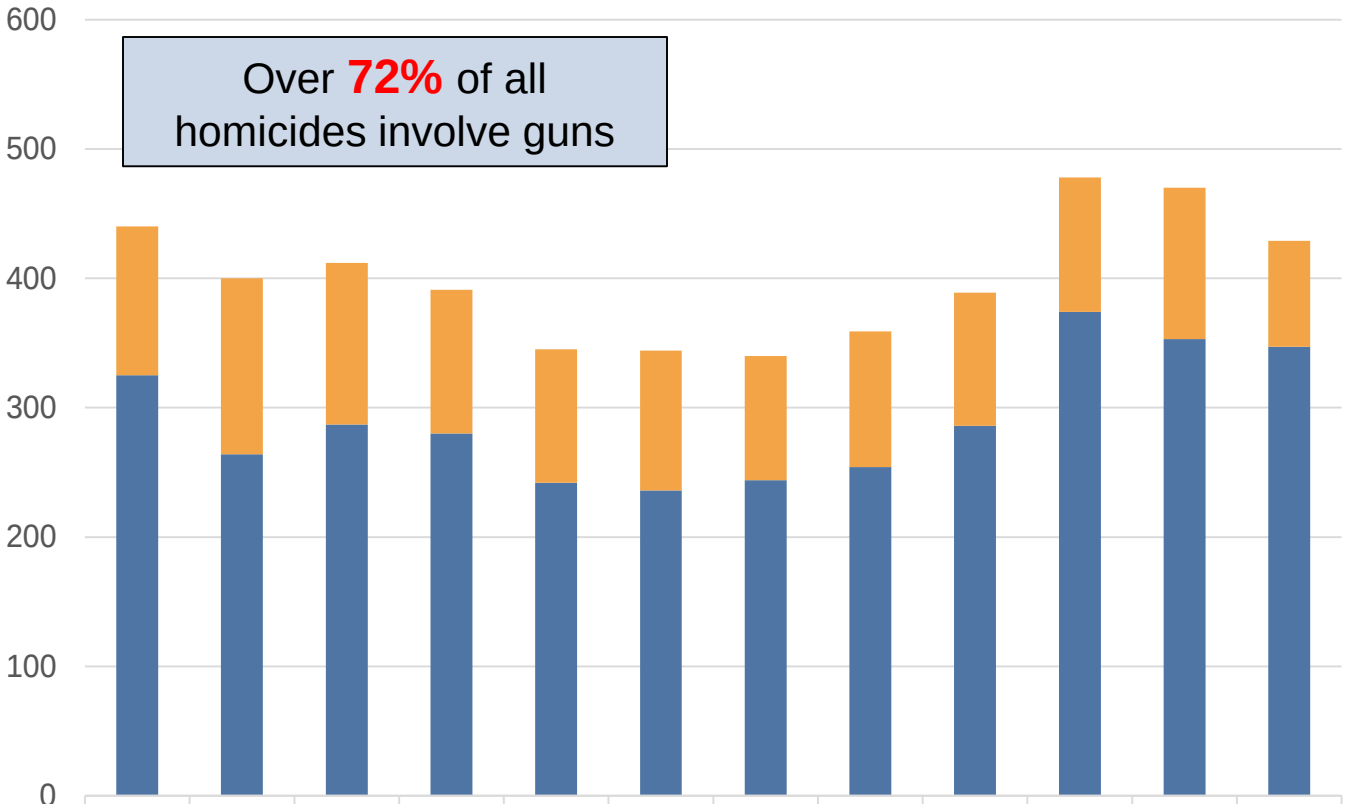


Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate ranges are based upon quartiles

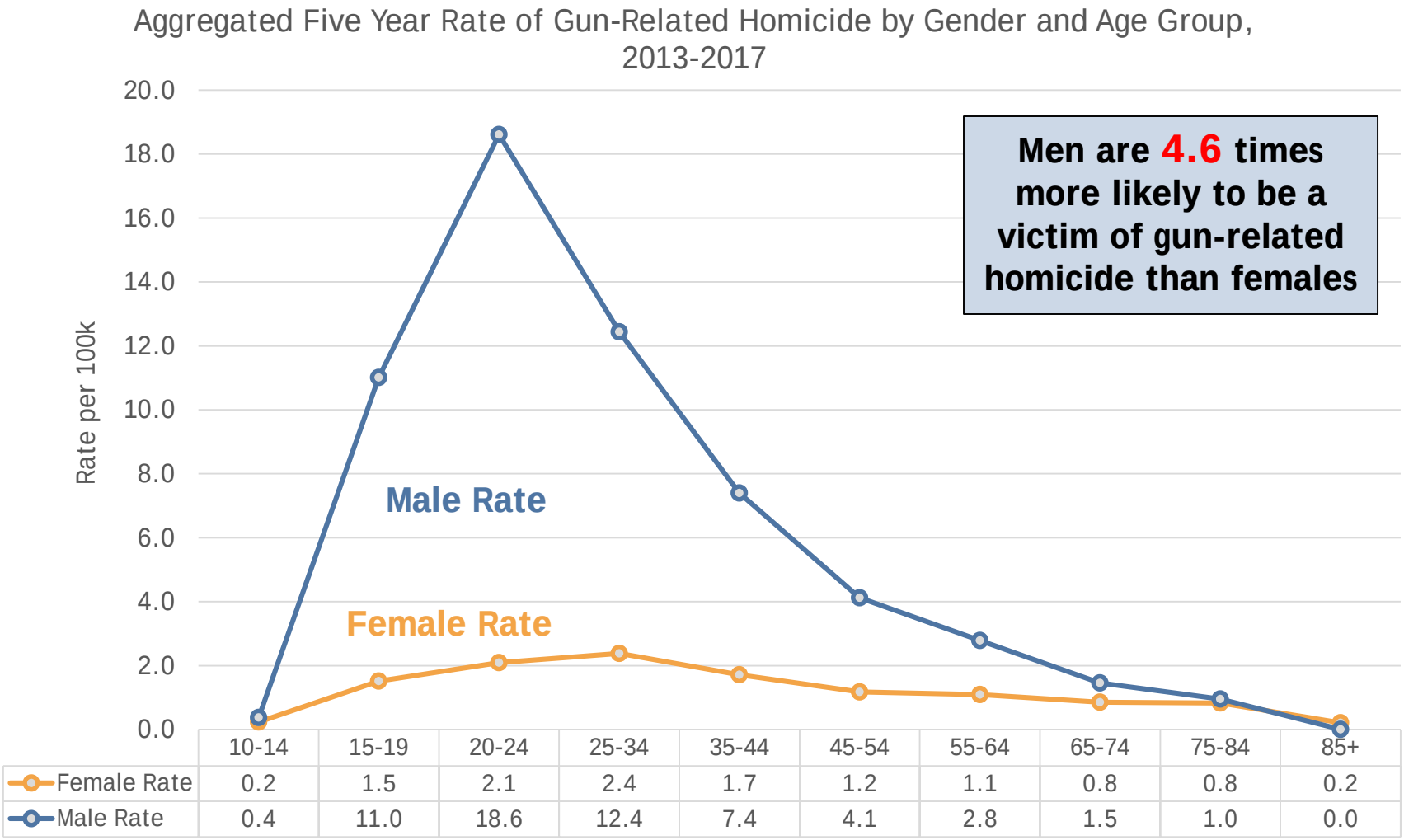
Gun-Related Homicides vs All Other Methods of Homicide

Number of Gun-Related Homicides Compared to All Other Methods of Suicide by Year of Death, 2007-2018*



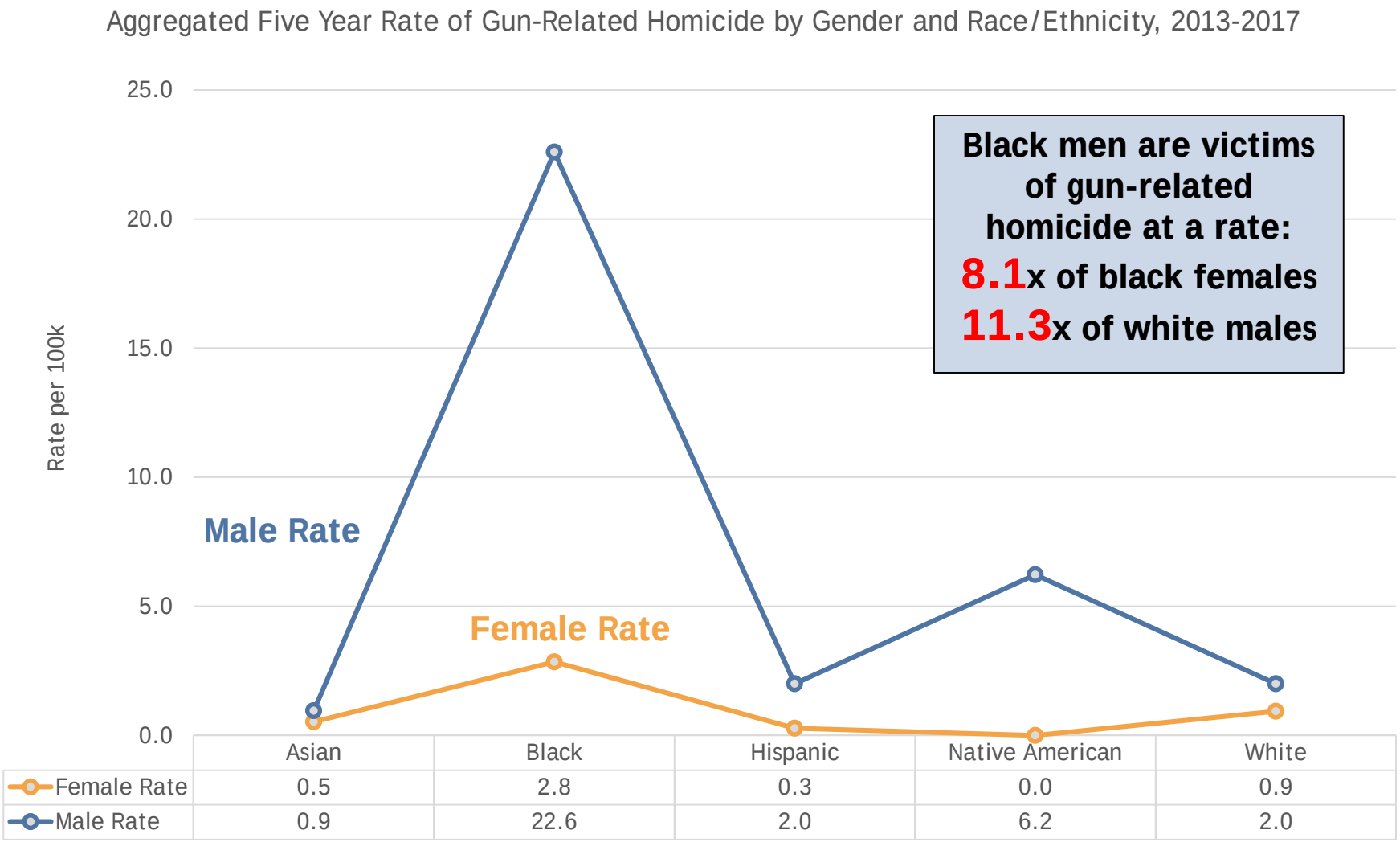
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Homicides, All Other Methods	115	136	125	111	103	108	96	105	103	104	117	82
Gun-related Homicide	325	264	287	280	242	236	244	254	286	374	353	347

Gun-Related Homicide Demographics (Gender-Age)



	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Female Rate	0.2	1.5	2.1	2.4	1.7	1.2	1.1	0.8	0.8	0.2
Male Rate	0.4	11.0	18.6	12.4	7.4	4.1	2.8	1.5	1.0	0.0

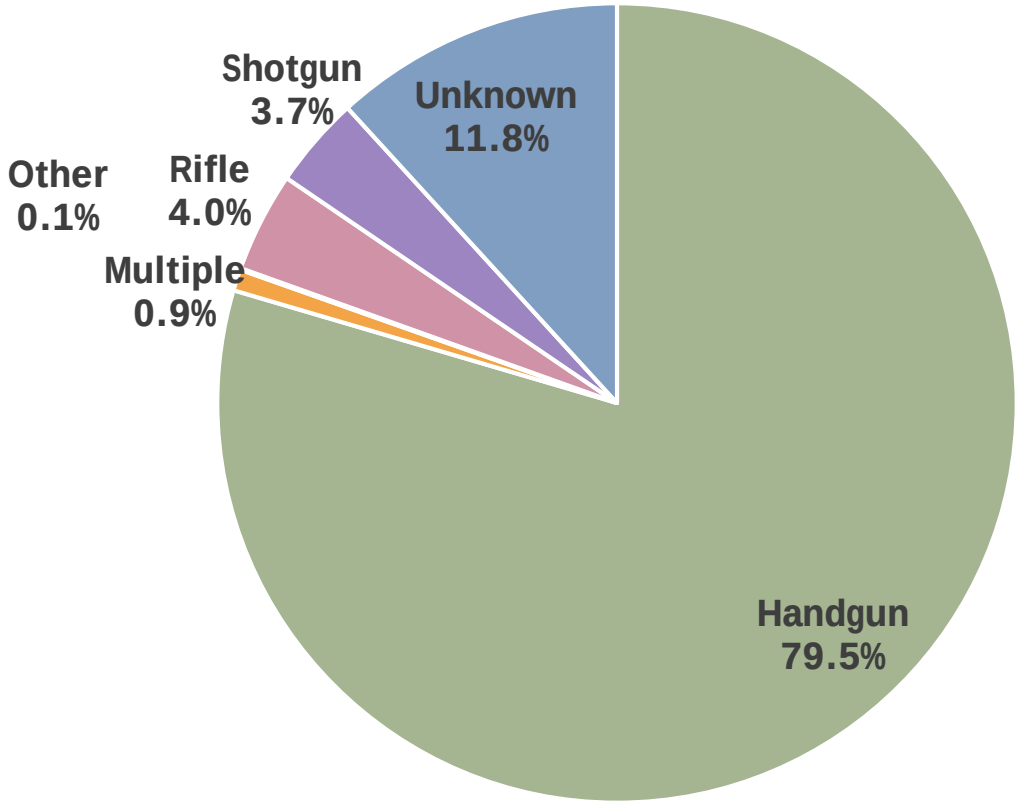
Gun-Related Homicide Demographics (Gender-Race)



	Asian	Black	Hispanic	Native American	White
Female Rate	0.5	2.8	0.3	0.0	0.9
Male Rate	0.9	22.6	2.0	6.2	2.0

Gun-Related Homicide by Gun Type

Percentage of Gun-Related Homicide by Gun Type, 2013-2017



Gun-Related Homicide #s by Locality of Event

Top Five Localities with Largest Number of Gun-Related Homicide by Locality of Event (Shooting) and Year of Death, 2013-2017

Locality of Event (Shooting)	2013	2014	2015	2016	2017	Average per Year (2013-2017)
Richmond City	32	38	40	62	71	48.6
Norfolk City	21	26	31	45	34	31.4
Newport News City	11	20	22	28	23	20.8
Hampton City	19	9	11	23	17	15.8
Virginia Beach City	18	13	15	16	12	14.8
Henrico County	8	7	9	14	21	11.8
Portsmouth City	6	8	20	11	13	11.6
Petersburg City	8	9	14	10	9	10.0
Danville City	3	1	4	16	9	6.6

State Ranking
1st
2nd
3rd
4th
5th

Gun-Related Homicide Rates per 100K by Locality of Event

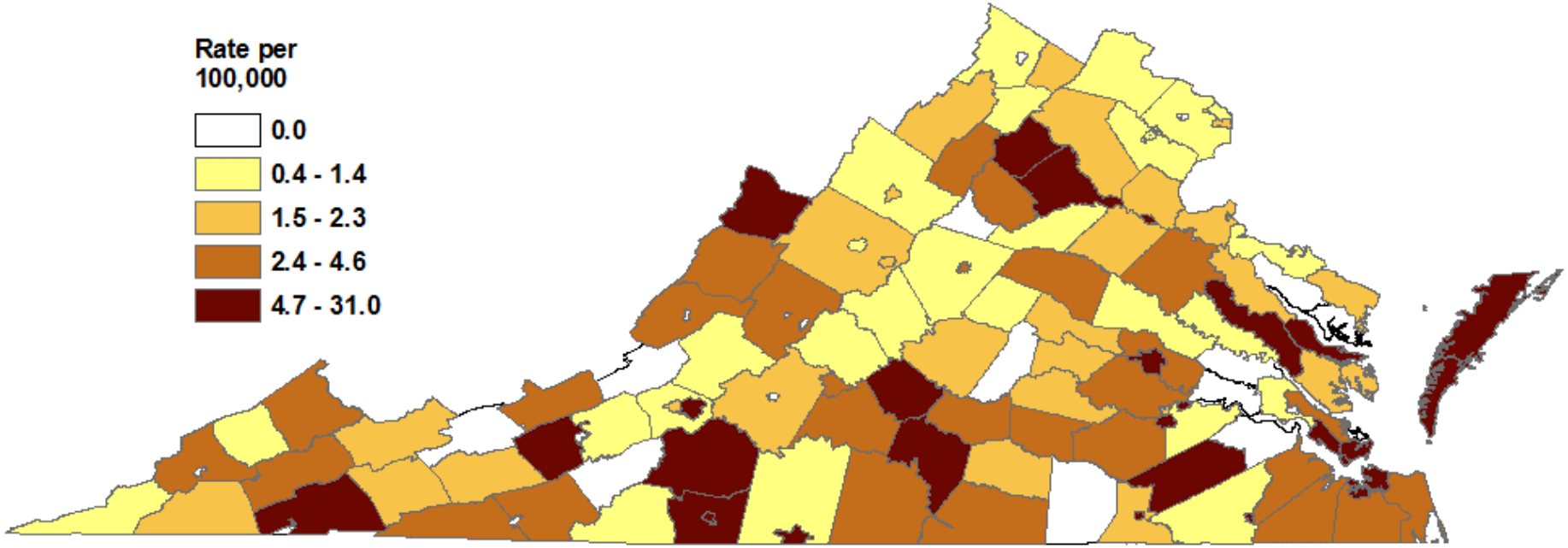
Top Five Highest Rates of Gun-Related Homicide by Locality of Event (Shooting) and Year of Death, 2013-2017

Locality of Event (Shooting)	2013	2014	2015	2016	2017	Aggregated Five Year Rate (2013-2017)
Petersburg City	24.6	27.5	43.1	31.4	28.3	31.0
Richmond City	14.9	17.4	18.2	27.8	31.3	22.0
Danville City	7.0	2.4	9.5	38.2	21.9	15.7
Emporia City	0.0	36.6	18.2	0.0	18.9	14.7
Norfolk City	8.5	10.6	12.6	18.4	13.9	12.8
Hopewell City	9.0	18.0	13.4	17.6	4.4	12.5
Portsmouth City	6.2	8.3	20.8	11.5	13.7	12.1
Northampton County	16.5	0.0	16.5	24.7	0.0	11.6
Highland County	0.0	0.0	0.0	0.0	45.2	9.0
Martinsville City	14.5	14.6	0.0	0.0	7.6	7.4
Appomattox County	0.0	13.1	19.5	0.0	0.0	6.5
Middlesex County	9.3	18.7	0.0	0.0	0.0	5.6
Sussex County	16.9	0.0	0.0	0.0	8.8	5.2
Bath County	0.0	0.0	0.0	0.0	23.3	4.5

* Rates are per 100K population

State Ranking
1st
2nd
3rd
4th
5th

Five Year Aggregated Rate of Gun-Related Homicide by Locality of Event, 2013-2017



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate ranges are based upon quartiles

Key Points on Gun-Related Death in Virginia

- Rates of gun-related death in Virginia (all manners) are very similar to national rates of gun-related death
- Handguns were involved in nearly 80% of homicides and nearly 80% of suicides
- Rates of gun-related suicide among men increase with age
- White men and Native American men had the highest rates of gun-related suicide
- Black males and males age 20-24 years of age had the highest rates of gun-related homicide

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OCME Quarterly Drug Report: http://www.vdh.virginia.gov/medical-examiner/forensic-epidemiology/
Annual Reports: http://www.vdh.virginia.gov/medical-examiner/annual-reports/
Surveillance and Fatality Review links: http://www.vdh.virginia.gov/medical-examiner/fatality-review-surveillance-programs-reports/