

EMERGENCY DEPARTMENT VISITS FOR OVERDOSE BY OPIOID, UNSPECIFIED SUBSTANCE AND HEROIN AMONG VIRGINIA RESIDENTS

December 2018

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Background

The Virginia Department of Health (VDH) currently receives data on visits to 67[¶] acute care hospital emergency departments (EDs) and 13[¶] free-standing EDs in Virginia for purposes of public health surveillance. The purpose of this report is to characterize ED visit trends for unintentional overdose by opioids and heroin among Virginia residents.

Chief complaints and discharge diagnoses of ED visits are analyzed by VDH to identify and monitor issues of public health concern across Virginia. The chief complaint is a free-text field that captures the patient's primary reason for seeking medical care as interpreted by the ED registration staff. The discharge diagnosis is a coded field using standardized values defined by the International Classification of Diseases (ICD) 9th and 10th Revision or SNOMED Clinical Terms (CT) code sets.

Methodology

VDH categorizes ED visits into one of two mutually exclusive case definitions: 1) **unintentional overdose by opioid or unspecified substance** or 2) **unintentional overdose by heroin**. VDH revises these case definitions based on guidance from the Centers for Disease Control and Prevention (CDC) as well as findings from ongoing data quality evaluations. The current case definitions are located in [Appendix 1](#). Information on the case definition revisions, including historic definitions, can be found on the VDH website - <http://www.vdh.virginia.gov/surveillance-and-investigation/syndromic-surveillance/drug-overdose-case-definition/>.

ED visits for unintentional overdose by opioid or unspecified substance and heroin are presented by count or rate per 100,000 population. Rates are calculated using U.S. Census Bureau 2017 population estimates. To protect confidentiality and maintain accurate rate calculations, ED visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed in this report. Counts of 0 are included.

The geographic location is assigned based on the patient's residential zip code provided. A single zip code may span multiple city and county localities in Virginia. If a patient resides in such a zip code, the visit is assigned to the locality where the majority of the population resides. Virginia city and county populations combined to calculate a rate per 100,000 population because of zip codes spanning multiple localities can be found in [Appendix 2](#).

**Please direct questions or comments to the Division of Surveillance and Investigation,
Enhanced Surveillance Team: syndromic@vdh.virginia.gov**

[¶] Refer to [Appendix 3](#) for a summary of data reporting changes that should be considered when interpreting this report.

Highlights for December 2018

Note: A single healthcare system, representing 18% of all ED visits reported to VDH for opioid and heroin overdose, became unable to report beginning November 2018. The healthcare system was **removed from all statistics in this report** in order to display accurate and comparable historical trends. Please use caution when comparing the December 2018 statistics to previously published reports.

Statewide ED visits for overdose by opioid or unspecified substance among Virginia residents decreased by 10% from November 2018 (461 visits) to December 2018 (417 visits) ([Figure 1A](#)). The annual 2018 count of ED visits is 14% lower in 2018 as compared to 2017 and 16% lower as compared to 2016. ([Figure 1B](#)).

- Among the five [VDH Health Planning Regions](#), the rate of visits for overdose by opioid or unspecified substance decreased in four regions: Northern (31%), Northwest (12%), Central (11%) and Southwest (10%). Eastern region increased by 17%. ([Figure 1C](#)). The 2018 annual counts for all health regions are lower than 2017. The annual counts for Eastern and Northern regions have decreased since 2016 ([Figure 1D](#)).
- By sex, males contributed a statistically higher proportion of visits for overdose by heroin compared to females in December 2018 ([Figure 1E](#)).
- By age group, the number of visits for overdose by opioid or unspecified substance among 25-34 year olds decreased by 19% but remained the age group with the highest rate (7.5 per 100,000) in December 2018 ([Figure 1F](#)). Four of the seven age groups experienced a decrease in December 2018.

Statewide ED visits for overdose by heroin among Virginia residents decreased by 19% from November 2018 (88 visits) to December 2018 (71 visits) ([Figure 2A](#)). The annual 2018 count of ED visits is 19% lower in 2018 compared to 2017, and 6% lower as compared to 2016 ([Figure 2B](#)).

- Among the five [VDH Health Planning Regions](#), the rate of visits for overdose by heroin increased in Northern (44%) and Northwest (6%). The Southwest (55%) and Eastern (33%) regions experienced a decrease, while there was no change in Central (0%). ([Figure 2C](#)). The annual 2018 counts for all health regions, except Central region, are lower than 2017 ([Figure 2D](#)).
- By sex, males contributed a statistically higher proportion of visits for overdose by heroin compared to females in December 2018 ([Figure 2E](#)).
- By age group, the rate of visits for overdose by heroin among 25-34 year olds remained the same and the age group with highest rate (2.7 per 100,000) in December 2018 ([Figure 2F](#)). The 45-54 and 55-64 year old age groups saw a visit decrease of 53% (8 fewer visits, rate 0.7 per 100,000) and 50% (4 fewer visits, rate 0.4 per 100,000), respectively.

Emergency Department Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents

Figure 1A. Count of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month, 2016 - 2018.

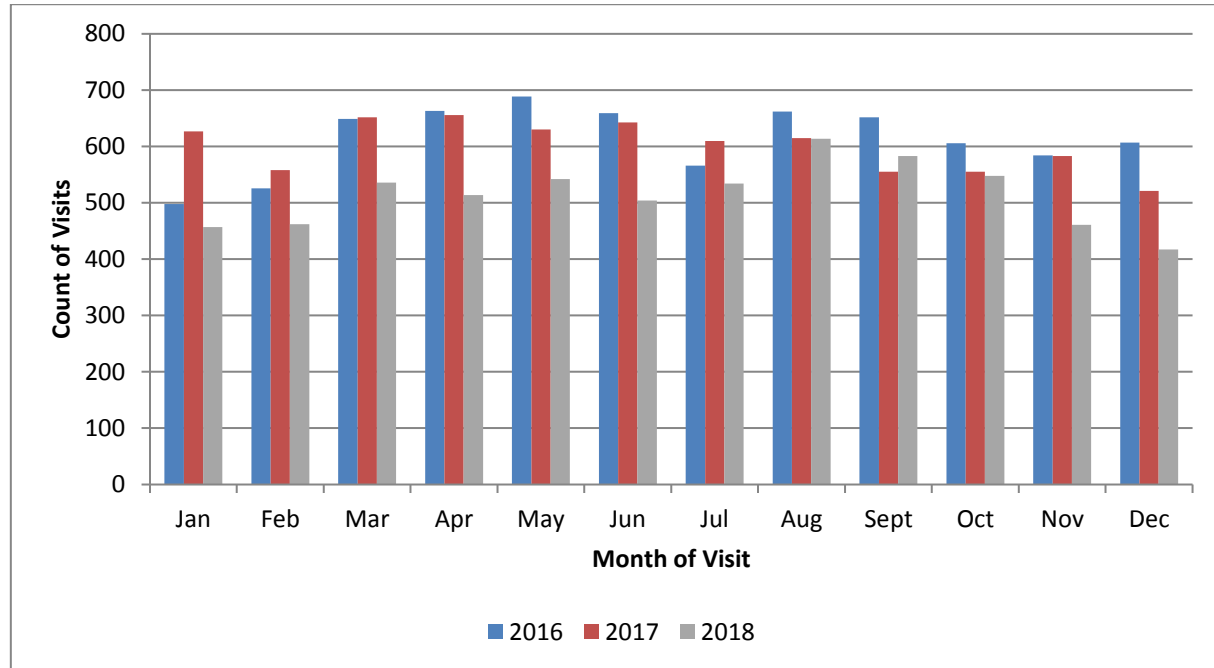


Figure 1B. Year-to-Date Count (January-December) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year.

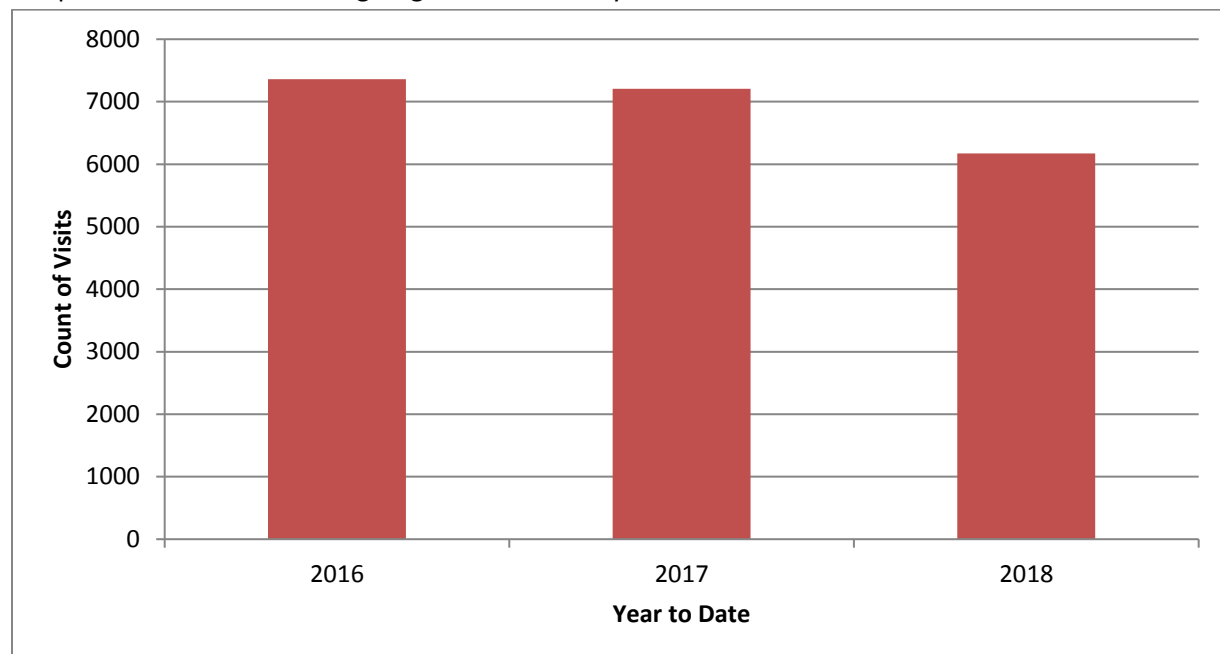


Figure 1C. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health Region, Most Recent 12 Months.

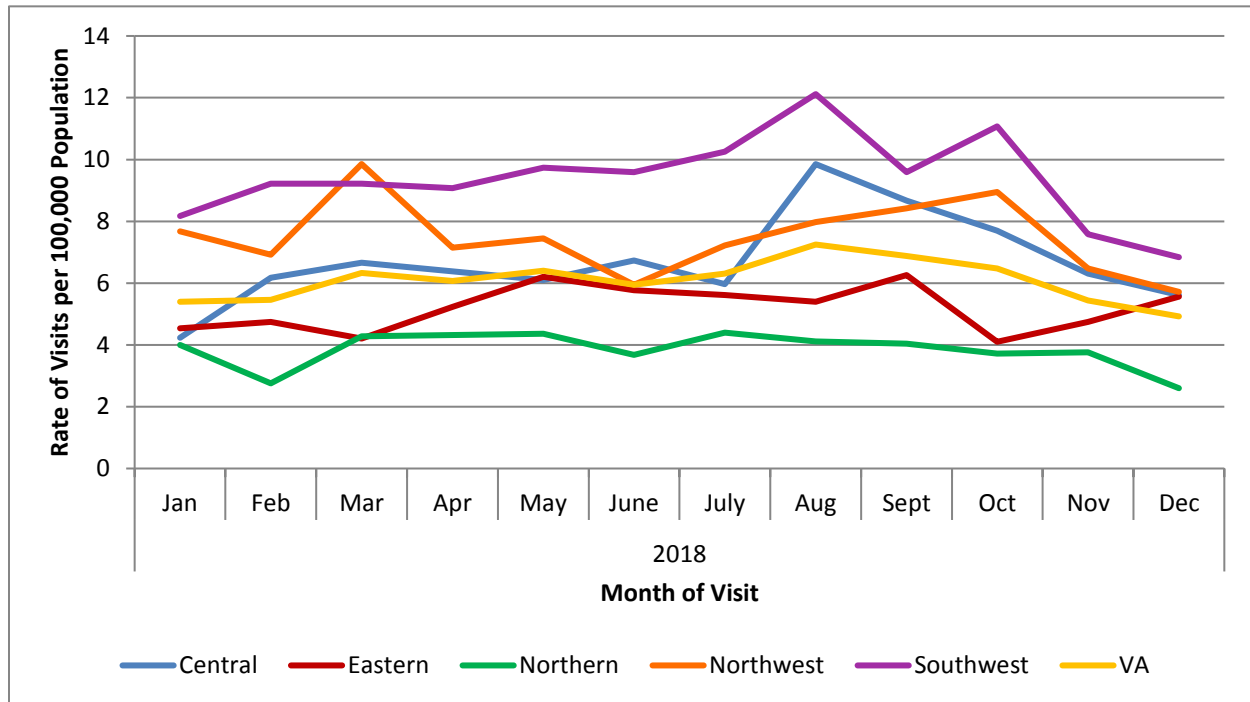


Figure 1D. Year-to-Date Count (January-December) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year and Region.

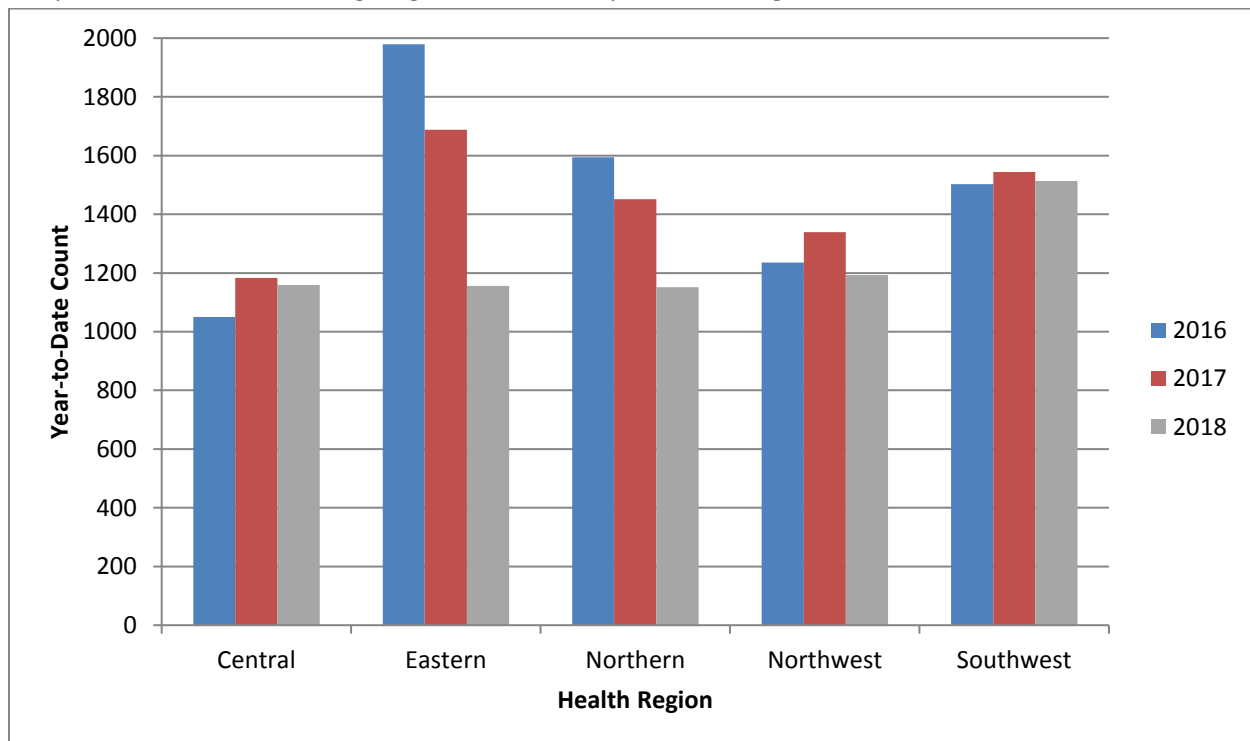


Figure 1E. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Sex, Most Recent 12 Months.

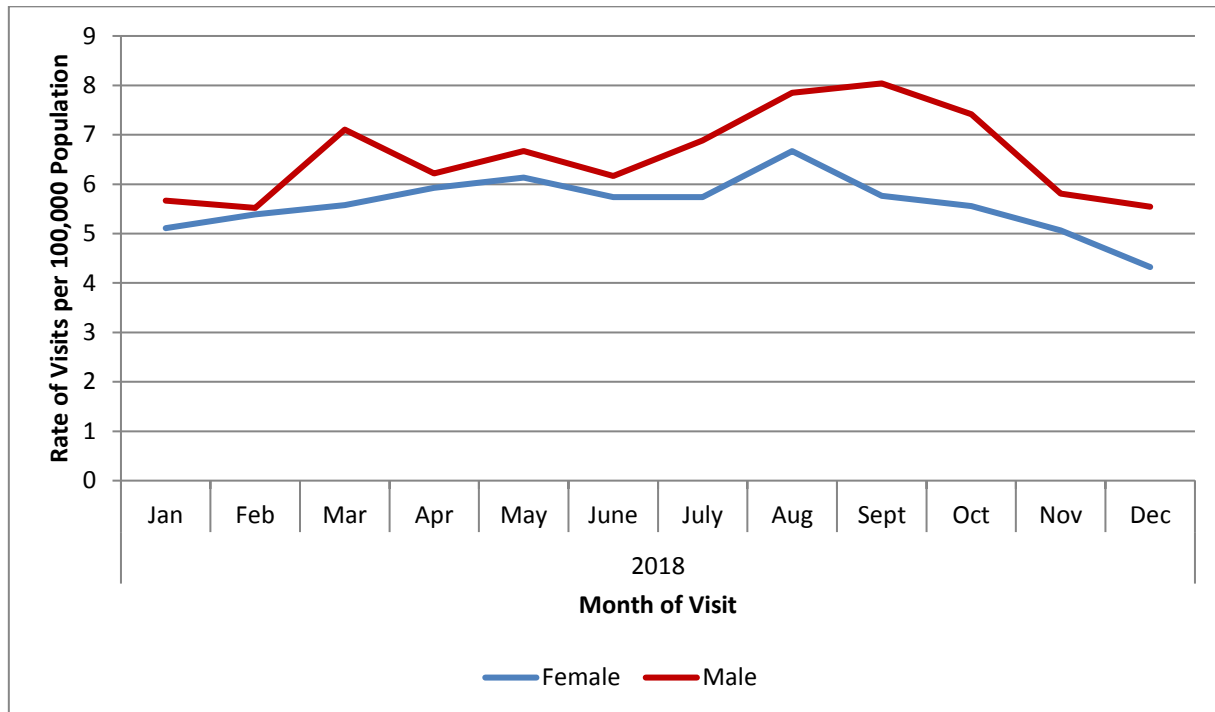


Figure 1F. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

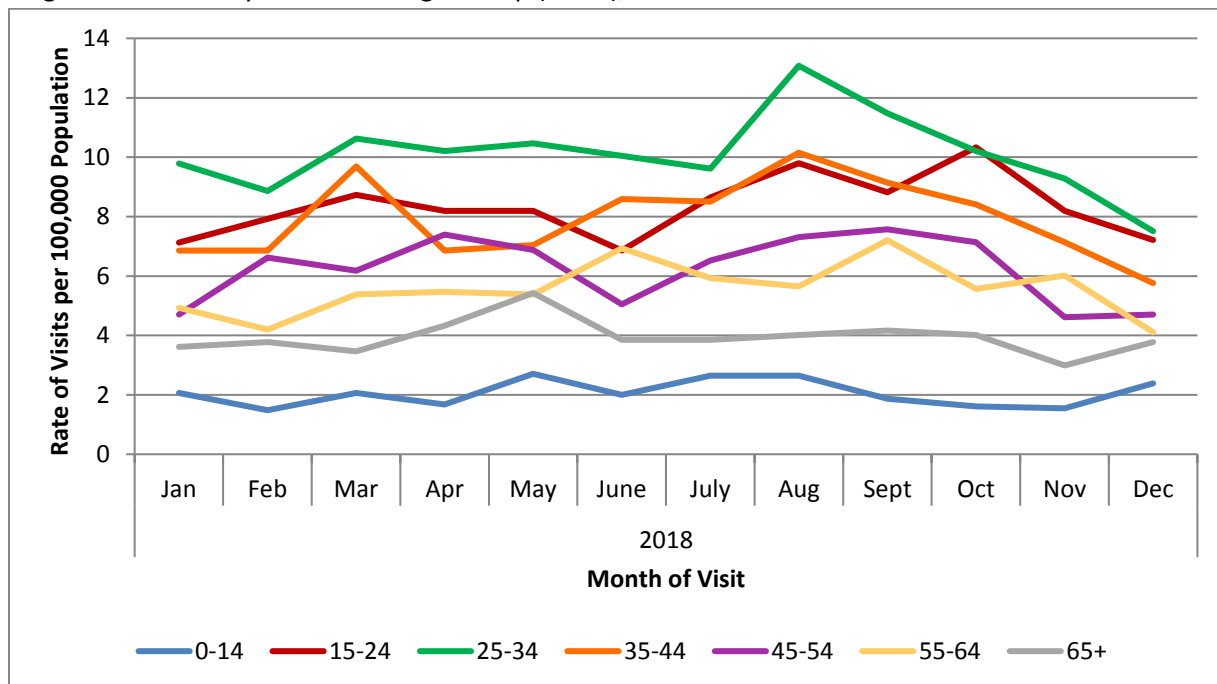


Table 1A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health District, Most Recent 5 Months^{†*}

Health District	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count [^]	Rate
Alexandria	160,035	8	5.0	7	4.4	7	4.4	6	3.7	6	3.7	7	4.2
Alleghany	178,499	12	6.7	5	2.8	12	6.7	11	6.2	6	3.4	9	5.2
Arlington	234,965	7	3.0	*	*	9	3.8	*	*	*	*	6	2.4
Central Shenandoah	299,042	21	7.0	30	10.0	26	8.7	25	8.4	23	7.7	25	8.4
Central Virginia	261,254	25	9.6	32	12.2	29	11.1	11	4.2	8	3.1	21	8.0
Chesapeake	240,397	15	6.2	20	8.3	16	6.7	23	9.6	18	7.5	18	7.7
Chesterfield	390,030	25	6.4	11	2.8	11	2.8	12	3.1	13	3.3	14	3.7
Chickahominy	157,294	10	6.4	15	9.5	11	7.0	8	5.1	7	4.5	10	6.5
Crater	155,262	8	5.2	15	9.7	12	7.7	10	6.4	7	4.5	10	6.7
Cumberland Plateau	104,439	8	7.7	15	14.4	10	9.6	10	9.6	9	8.6	10	10.0
Eastern Shore	44,391	0	0	*	*	*	*	0	0	0	0	0	0.9
Fairfax	1,187,113	48	4.0	55	4.6	44	3.7	46	3.9	31	2.6	45	3.8
Hampton	134,669	5	3.7	12	8.9	*	*	8	5.9	6	4.5	7	5.2
Henrico	327,898	47	14.3	36	11.0	41	12.5	23	7.0	34	10.4	36	11.0
Lenowisco	88,145	8	9.1	5	5.7	6	6.8	*	*	6	6.8	6	6.4
Lord Fairfax	235,443	23	9.8	19	8.1	20	8.5	19	8.1	18	7.6	20	8.4
Loudoun	398,080	16	4.0	14	3.5	19	4.8	14	3.5	16	4.0	16	4.0
Mount Rogers	189,063	21	11.1	17	9.0	8	4.2	15	7.9	15	7.9	15	8.0
New River	182,993	7	3.8	*	*	5	2.7	7	3.8	5	2.7	5	3.0
Norfolk	244,703	19	7.8	20	8.2	11	4.5	13	5.3	17	6.9	16	6.5
Peninsula	349,735	11	3.1	11	3.1	6	1.7	10	2.9	10	2.9	10	2.7
Piedmont	102,387	13	12.7	6	5.9	6	5.9	8	7.8	0	0	7	6.4
Pittsylvania-Danville	102,388	15	14.7	9	8.8	15	14.7	8	7.8	11	10.7	12	11.3
Portsmouth	94,572	21	22.2	11	11.6	10	10.6	13	13.7	21	22.2	15	16.1
Prince William	521,115	24	4.6	21	4.0	14	2.7	24	4.6	8	1.5	18	3.5
Rappahannock	364,840	18	4.9	26	7.1	34	9.3	18	4.9	9	2.5	21	5.8
Rappahannock-Rapidan	177,418	17	9.6	12	6.8	15	8.5	10	5.6	14	7.9	14	7.7
Richmond City	227,032	29	12.8	32	14.1	22	9.7	22	9.7	17	7.5	24	10.7
Roanoke	99,837	33	33.1	19	19.0	39	39.1	20	20.0	19	19.0	26	26.0
Southside	81,493	10	12.3	10	12.3	8	9.8	8	9.8	*	*	8	9.6
Thomas Jefferson	252,588	27	10.7	25	9.9	24	9.5	14	5.5	12	4.8	20	8.1
Three Rivers	141,271	7	5.0	6	4.2	*	*	*	*	*	*	4	3.0
Virginia Beach	450,435	16	3.6	24	5.3	16	3.6	10	2.2	22	4.9	18	3.9
West Piedmont	138,479	34	24.6	24	17.3	25	18.1	17	12.3	13	9.4	23	16.3
Western Tidewater	152,715	6	3.9	11	7.2	9	5.9	9	5.9	6	3.9	8	5.4
VIRGINIA TOTAL	8,470,020	614	7.2	583	6.9	548	6.5	461	5.4	417	4.9	525	6.2

[†] Population based on 2017 U.S. Census estimates available at www.census.gov/popest/

* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

[^] The 5-month average count was rounded to the nearest integer.

Table 1B. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and City/County Locality, Most Recent 5 Months^{†‡*}

Locality	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Accomack County	32,545	0	0	*	*	*	*	0	0	0	0
Albemarle County [†]	155,721	10	10.3	6	10.3	5	9.0	5	5.8	*	*
Alleghany County [†]	20,653	0	0	0	0	0	0	0	0	*	*
Amelia County	13,020	0	0	*	*	*	*	0	0	0	0
Amherst County	31,594	*	*	*	*	*	*	0	0	*	*
Appomattox County	15,681	*	*	*	*	*	*	0	0	0	0
Arlington County	234,965	7	3.0	*	*	9	3.8	*	*	*	*
Augusta County [†]	121,999	7	13.9	5	13.9	6	9.8	10	15.6	8	13.1
Bath County	4,297	0	0	0	0	0	0	0	0	0	0
Bedford County	77,974	9	11.5	14	18.0	14	18.0	*	*	*	*
Bland County	6,350	*	*	0	0	0	0	*	*	0	0
Botetourt County	33,192	0	0	0	0	*	*	*	*	0	0
Brunswick County	16,244	*	*	*	*	*	*	*	*	*	*
Buchanan County	21,514	*	*	*	*	*	*	*	*	0	0
Buckingham County	17,065	*	*	*	*	*	*	*	*	0	0
Campbell County	55,010	*	*	0	0	*	*	*	*	0	0
Caroline County	30,461	*	*	*	*	0	0	*	*	0	0
Carroll County	29,708	6	20.2	5	16.8	*	*	6	20.2	*	*
Charles City County	7,004	0	0	*	*	0	0	0	0	*	*
Charlotte County	12,119	5	41.3	*	*	0	0	*	*	0	0
Chesterfield County [†]	361,429	20	6.6	9	2.8	7	2.5	7	2.8	11	3.0
Clarke County	14,508	*	*	*	*	*	*	0	0	0	0
Craig County	5,062	0	0	0	0	0	0	0	0	0	0
Culpeper County	51,282	*	*	*	*	*	*	6	11.7	7	13.7
Cumberland County	9,811	*	*	*	*	0	0	0	0	0	0
Dickenson County	14,782	0	0	*	*	*	*	*	*	*	*
Dinwiddie County	28,208	*	*	*	*	*	*	*	*	0	0
Essex County	11,028	*	*	0	0	0	0	0	0	0	0
Fairfax County [†]	1,187,113	47	4.0	53	4.6	44	3.7	45	3.9	30	2.6
Fauquier County	69,465	6	8.6	5	7.2	8	11.5	*	*	*	*
Floyd County	15,755	0	0	0	0	*	*	*	*	*	*
Fluvanna County	26,452	*	*	*	*	*	*	*	*	0	0
Franklin County	56,445	9	15.9	5	8.9	6	10.6	5	8.9	*	*
Frederick County [†]	114,416	*	*	6	10.5	8	10.5	*	*	0	0
Giles County	16,837	*	*	0	0	*	*	*	*	*	*
Gloucester County	37,292	*	*	0	0	*	*	0	0	0	0

Locality	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Goochland County	22,685	0	0	0	0	0	0	0	0	0	0
Grayson County [†]	22,290	*	*	*	*	0	0	*	*	0	0
Greene County	19,612	*	*	*	*	0	0	*	*	*	*
Greensville County [†]	16,961	*	*	*	*	5	29.5	*	*	*	*
Halifax County	34,563	*	*	5	14.5	*	*	*	*	*	*
Hanover County	105,923	10	9.4	11	10.4	9	8.5	*	*	*	*
Henrico County	327,898	47	14.3	36	11.0	41	12.5	23	7.0	34	10.4
Henry County [†]	64,369	22	34.2	18	29.5	17	26.4	12	18.6	10	15.5
Highland County	2,212	0	0	0	0	0	0	0	0	0	0
Isle of Wight County	36,552	*	*	*	*	*	*	*	*	*	*
James City County	75,524	*	*	*	*	*	*	*	*	*	*
King and Queen County	7,003	0	0	*	*	0	0	*	*	0	0
King George County	26,337	0	0	*	*	7	26.6	0	0	*	*
King William County	16,708	*	*	*	*	0	0	0	0	*	*
Lancaster County	10,788	*	*	*	*	0	0	0	0	*	*
Lee County	23,758	*	*	*	*	*	*	*	*	*	*
Loudoun County	398,080	16	4.0	14	3.5	19	4.8	14	3.5	16	4.0
Louisa County	35,860	*	*	*	*	5	13.9	*	*	*	*
Lunenburg County	12,235	0	0	0	0	0	0	*	*	0	0
Madison County	13,277	*	*	0	0	*	*	0	0	0	0
Mathews County	8,779	0	0	0	0	0	0	0	0	0	0
Mecklenburg County	30,686	6	19.6	*	*	*	*	*	*	0	0
Middlesex County	10,679	*	*	0	0	0	0	*	*	0	0
Montgomery County [†]	116,217	*	*	0	0	*	*	*	*	0	0
Nelson County	14,943	*	*	*	*	*	*	0	0	0	0
New Kent County	21,682	0	0	*	*	*	*	*	*	*	*
Northampton County	11,846	0	0	0	0	0	0	0	0	0	0
Northumberland County	12,275	*	*	*	*	0	0	0	0	0	0
Nottoway County	15,434	5	32.4	0	0	*	*	*	*	0	0
Orange County	36,073	5	13.9	*	*	*	*	*	*	*	*
Page County	23,731	*	*	0	0	*	*	*	*	*	*
Patrick County	17,665	*	*	0	0	*	*	0	0	0	0
Pittsylvania County [†]	102,388	6	14.7	*	*	*	*	*	*	*	*
Powhatan County	28,601	*	*	*	*	*	*	*	*	*	*
Prince Edward County	22,703	0	0	*	*	*	*	*	*	0	0
Prince George County	92,180	0	0	0	0	*	*	*	*	0	0
Prince William County [†]	521,115	22	4.6	19	4.0	13	2.7	22	4.6	8	1.5
Pulaski County	34,184	0	0	*	*	0	0	*	*	0	0
Rappahannock County	7,321	*	*	0	0	0	0	0	0	0	0
Richmond County	8,939	0	0	0	0	*	*	0	0	0	0

Locality	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Roanoke County [†]	219,429	8	20.5	*	*	7	21.9	6	13.7	*	*
Rockbridge County [†]	36,092	0	0	*	*	*	*	0	0	*	*
Rockingham County [†]	134,442	*	*	7	7.4	10	8.9	6	4.5	*	*
Russell County	27,048	*	*	5	18.5	0	0	*	*	*	*
Scott County	21,865	0	0	0	0	0	0	0	0	*	*
Shenandoah County	43,225	*	*	*	*	*	*	*	*	6	13.9
Smyth County	30,656	*	*	*	*	*	*	*	*	*	*
Southampton County [†]	25,926	*	*	0	0	*	*	*	*	0	0
Spotsylvania County	133,033	6	4.5	8	6.0	8	6.0	6	4.5	6	4.5
Stafford County	146,649	9	6.1	11	7.5	14	9.5	10	6.8	*	*
Surry County	6,540	0	0	*	*	0	0	0	0	0	0
Sussex County	11,373	*	*	*	*	0	0	0	0	0	0
Tazewell County	41,095	*	*	6	14.6	6	14.6	5	12.2	*	*
Warren County	39,563	*	*	*	*	*	*	*	*	*	*
Washington County [†]	71,177	*	*	*	*	*	*	0	0	*	*
Westmoreland County	17,780	0	0	0	0	0	0	0	0	0	0
Wise County [†]	42,522	5	11.8	*	*	*	*	*	*	*	*
Wythe County	28,882	*	*	*	*	*	*	*	*	*	*
York County	67,739	*	*	*	*	*	*	5	7.4	*	*
Alexandria City	160,035	8	5.0	7	4.4	7	4.4	6	3.7	6	3.7
Bristol City [†]	71,177	0	0	*	*	0	0	0	0	0	0
Buena Vista City [†]	36,092	0	0	0	0	0	0	0	0	*	*
Charlottesville City [†]	155,721	6	10.3	10	10.3	9	9.0	*	*	*	*
Chesapeake City	240,397	15	6.2	20	8.3	16	6.7	23	9.6	18	7.5
Colonial Heights City [†]	361,429	*	*	*	*	*	*	*	*	0	0
Covington City [†]	20,653	0	0	0	0	0	0	0	0	0	0
Danville City [†]	102,388	9	14.7	8	8.8	11	14.7	6	7.8	8	10.7
Emporia City [†]	16,961	0	0	0	0	0	0	0	0	0	0
Fairfax City [†]	1,187,113	0	0	0	0	0	0	0	0	0	0
Falls Church City [†]	1,187,113	*	*	*	*	0	0	*	*	*	*
Franklin City [†]	25,926	*	*	*	*	0	0	*	*	*	*
Fredericksburg City	28,360	*	*	5	17.6	5	17.6	*	*	0	0
Galax City [†]	22,290	*	*	*	*	0	0	*	*	*	*
Hampton City	134,669	5	3.7	12	8.9	*	*	8	5.9	6	4.5
Harrisonburg City [†]	134,442	*	*	*	*	*	*	0	0	*	*
Hopewell City [†]	92,180	0	0	*	*	0	0	*	*	0	0
Lexington City [†]	36,092	0	0	0	0	0	0	0	0	0	0
Lynchburg City	80,995	7	8.6	14	17.3	12	14.8	7	8.6	*	*
Manassas City [†]	521,115	*	*	*	*	*	*	*	*	0	0
Manassas Park City [†]	521,115	0	0	0	0	0	0	0	0	0	0

Locality	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Martinsville City [†]	64,369	0	0	*	*	0	0	0	0	0	0
Newport News City	179,388	5	2.8	*	*	*	*	*	*	*	*
Norfolk City	244,703	19	7.8	20	8.2	11	4.5	13	5.3	17	6.9
Norton City [†]	42,522	0	0	0	0	*	*	0	0	0	0
Petersburg City [†]	92,180	*	*	8	9.8	*	*	5	8.7	6	6.5
Poquoson City	12,053	0	0	*	*	0	0	*	*	0	0
Portsmouth City	94,572	21	22.2	11	11.6	10	10.6	13	13.7	21	22.2
Radford City [†]	116,217	*	*	*	*	*	*	*	*	*	*
Richmond City	227,032	29	12.8	32	14.1	22	9.7	22	9.7	17	7.5
Roanoke City [†]	219,429	33	20.5	19	10.9	39	21.9	20	13.7	19	10.9
Salem City [†]	219,429	*	*	*	*	*	*	*	*	*	*
Staunton City [†]	121,999	*	*	7	13.9	5	9.8	5	15.6	6	13.1
Suffolk City	90,237	*	*	6	6.6	6	6.6	*	*	*	*
Virginia Beach City	450,435	16	3.6	24	5.3	16	3.6	10	2.2	22	4.9
Waynesboro City [†]	121,999	7	13.9	5	13.9	*	*	*	*	*	*
Williamsburg City	15,031	0	0	0	0	0	0	0	0	0	0
Winchester City [†]	114,416	9	10.5	6	10.5	*	*	11	10.5	6	5.2
VIRGINIA TOTAL	8,470,020	614	7.2	583	6.9	548	6.5	461	5.4	417	4.9

[†] Population based on 2017 U.S. Census estimates available at www.census.gov/popest/

[‡] The rate per 100,000 population for each locality within a combined group is based on the aggregated total population of the combined group. Refer to [Appendix 2](#) for the list of localities that are combined.

* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

¶ Refer to [Appendix 3](#) for a summary of data reporting changes that should be considered when interpreting this report.

Table 1C. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Virginia State Police Division, Most Recent 5 Months^{†*§}

VSP Division	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,428,275	128	9.0	118	8.3	108	7.6	80	5.6	85	6.0
Division 2	855,345	61	7.1	65	7.6	74	8.7	52	6.1	44	5.1
Division 3	661,189	74	11.2	69	10.4	56	8.5	50	7.6	32	4.8
Division 4	432,668	39	9.0	38	8.8	26	6.0	31	7.2	33	7.6
Division 5	1,819,485	101	5.6	116	6.4	81	4.5	91	5.0	102	5.6
Division 6	771,750	108	14.0	76	9.8	110	14.3	63	8.2	56	7.3
Division 7	2,501,308	103	4.1	101	4.0	93	3.7	94	3.8	65	2.6
VIRGINIA TOTAL	8,470,020	614	7.2	583	6.9	548	6.5	461	5.4	417	4.9

† Population based on 2017 U.S. Census estimates available at www.census.gov/popest/

* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

§ Virginia State Police Divisions available at http://www.vsp.state.va.us/Office_Locations.shtm

¶ Refer to [Appendix 3](#) for a summary of data reporting changes that should be considered when interpreting this report.

Emergency Department Visits for Unintentional Overdose by Heroin among Virginia Residents

Figure 2A. Count of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month, 2016 – 2018.

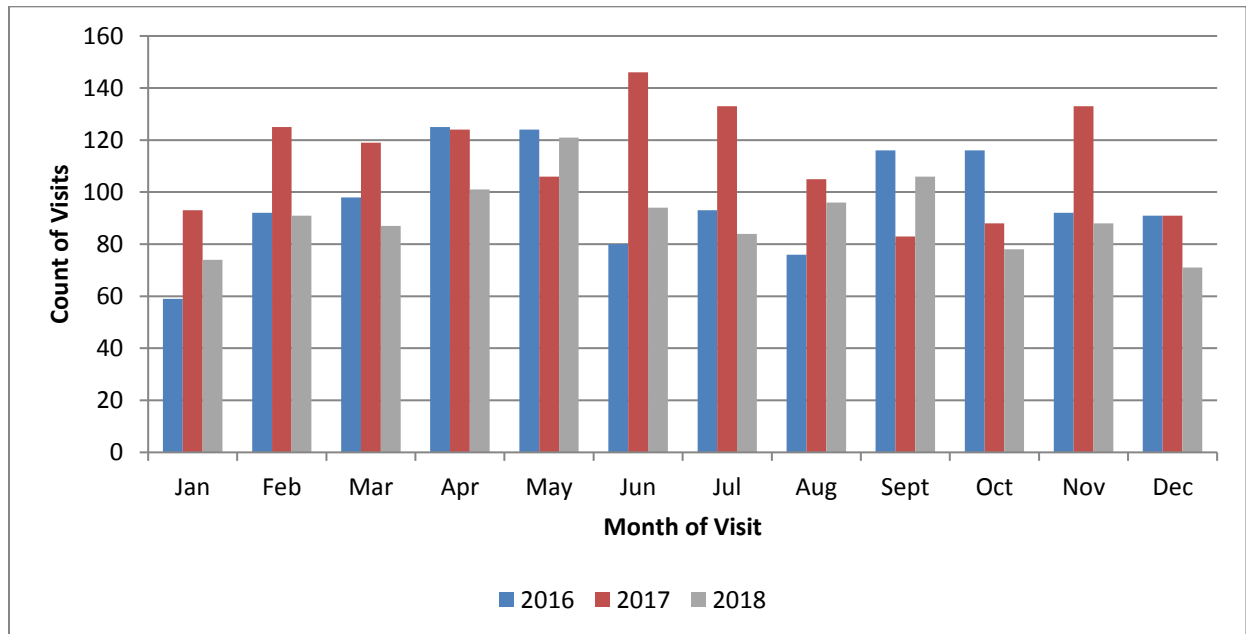


Figure 2B. Year-to-Date Count (January-December) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year.

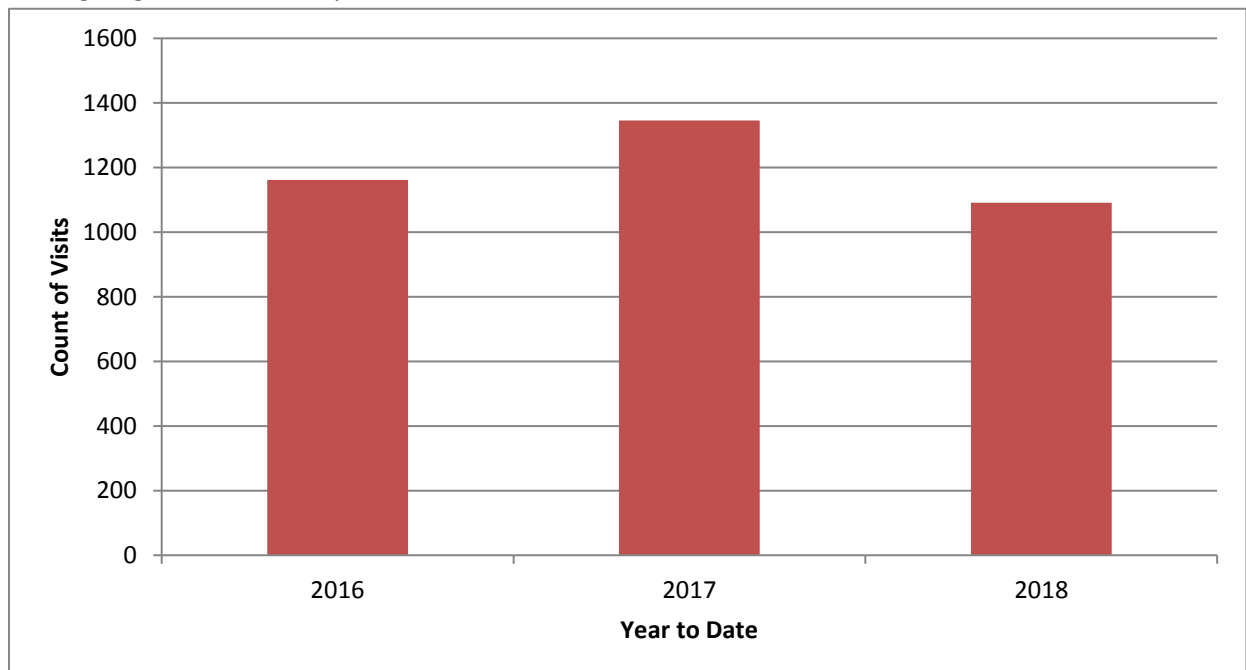


Figure 2C. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health Region, Most Recent 12 Months.

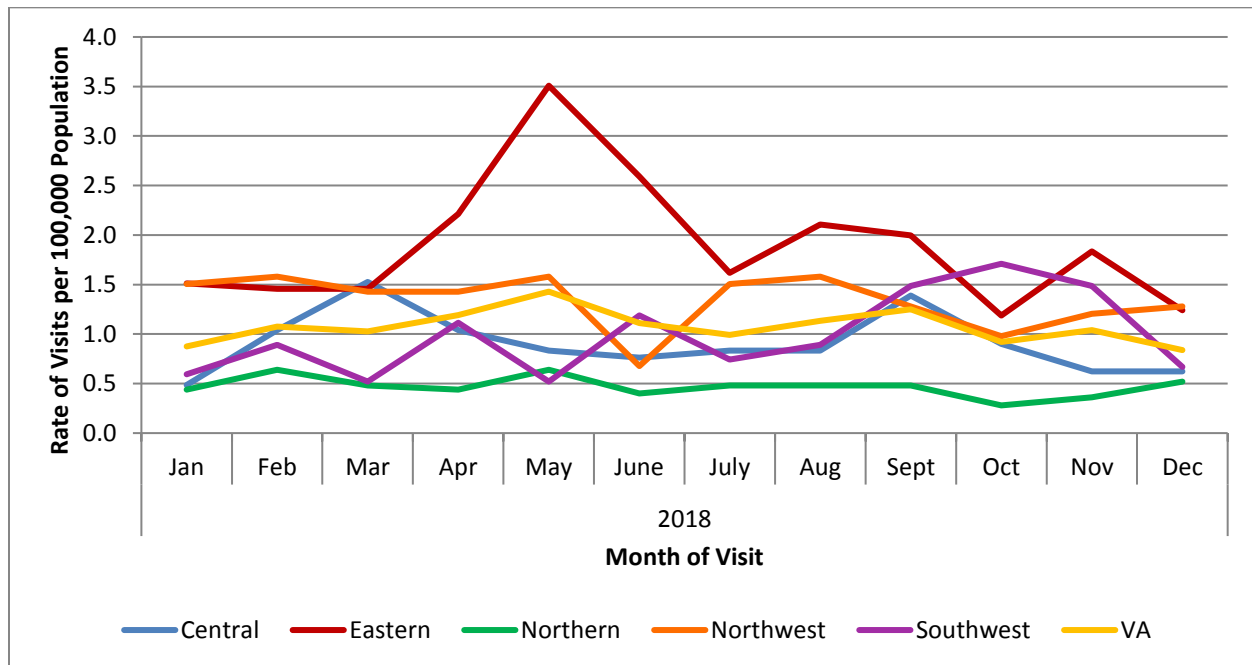


Figure 2D. Year-to-Date Count (January-December) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year and Region.

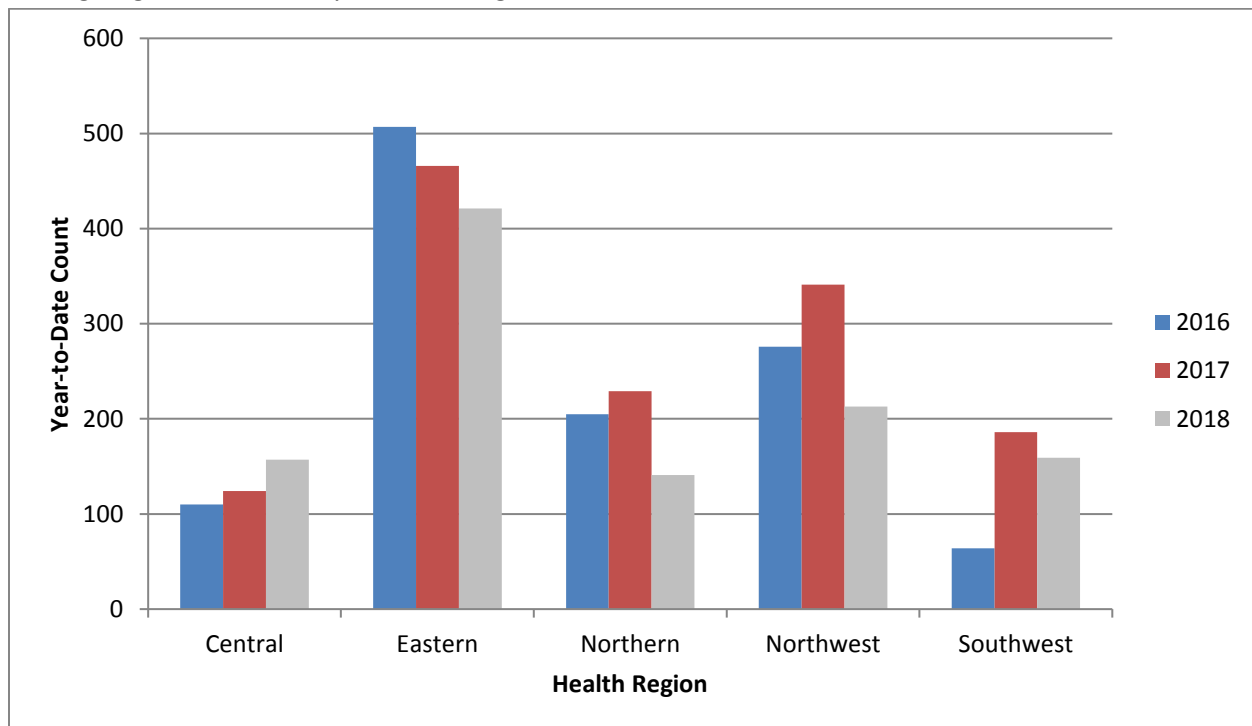


Figure 2E. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Sex, Most Recent 12 Months.

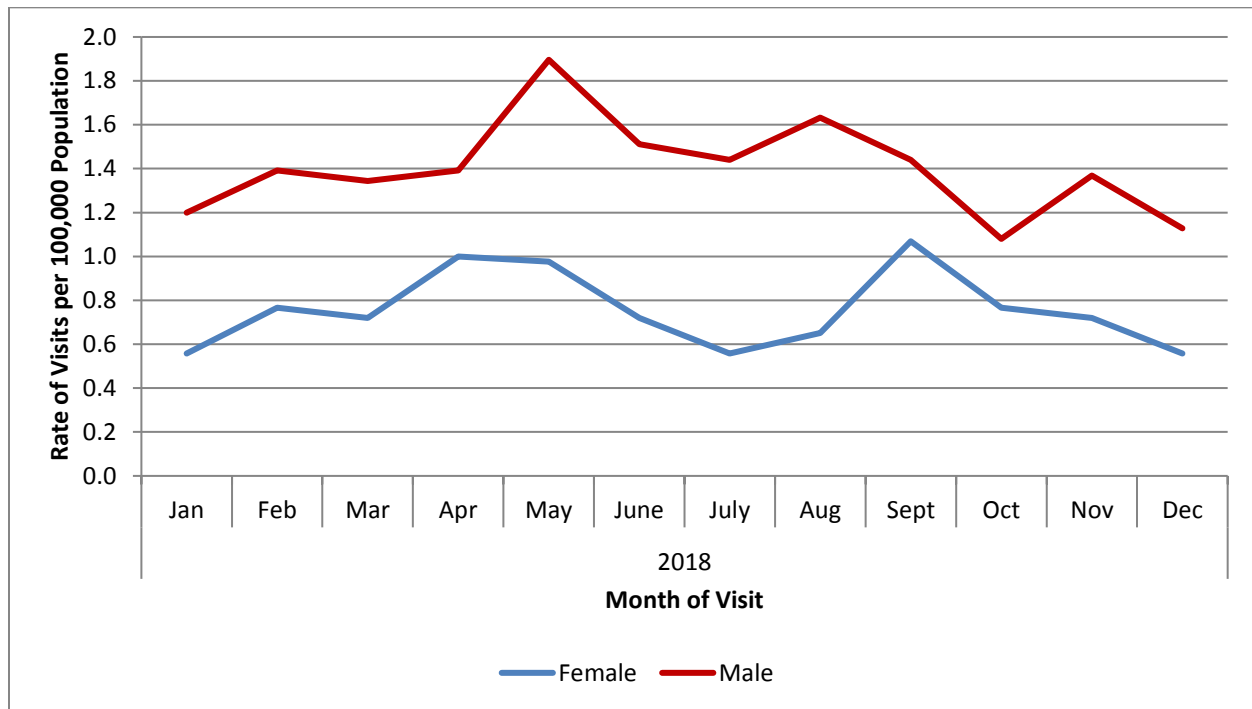


Figure 2F. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

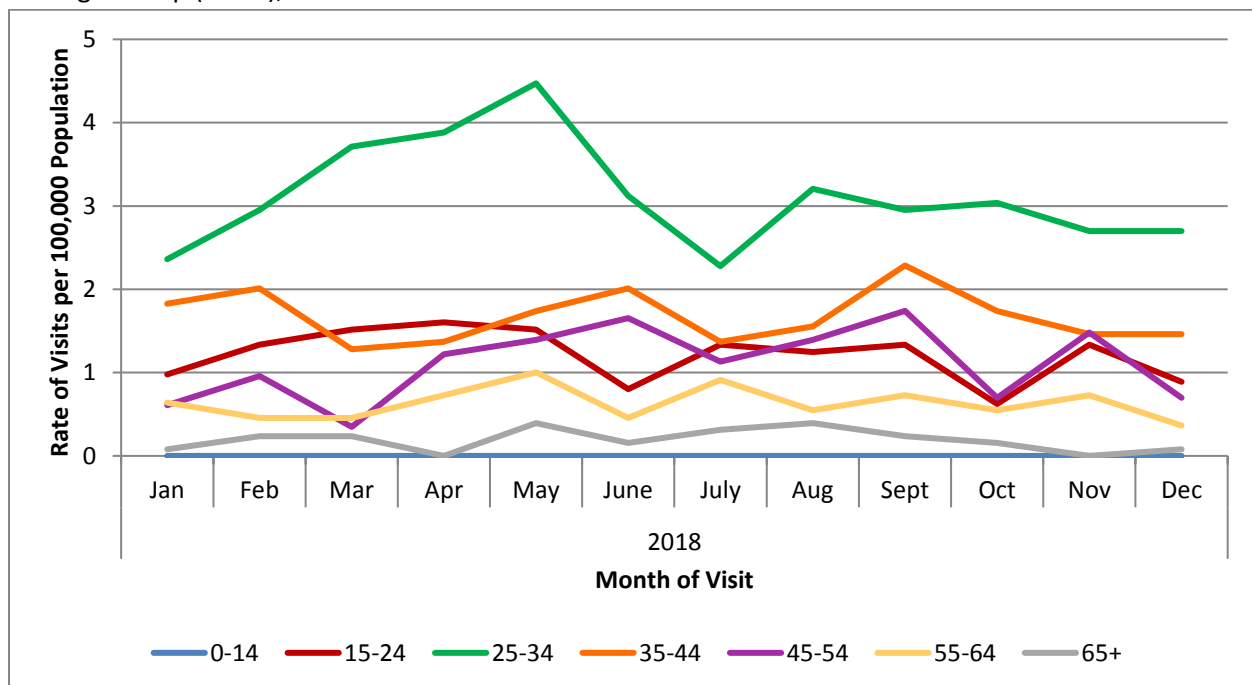


Table 2A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health District, Most Recent 5 Months^{†*}

Health District	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count [^]	Rate
Alexandria	160,035	*	*	*	*	*	*	0	0	0	0	1	0.7
Alleghany	178,499	*	*	6	3.4	*	*	8	4.5	*	*	5	2.6
Arlington	234,965	0	0	0	0	0	0	0	0	*	*	0	0.2
Central Shenandoah	299,042	*	*	*	*	*	*	0	0	*	*	3	0.9
Central Virginia	261,254	*	*	0	0	*	*	0	0	*	*	1	0.2
Chesapeake	240,397	*	*	5	2.1	6	2.5	8	3.3	*	*	5	1.9
Chesterfield	390,030	*	*	*	*	*	*	*	*	*	*	2	0.6
Chickahominy	157,294	*	*	*	*	*	*	0	0	*	*	2	1.1
Crater	155,262	*	*	*	*	0	0	*	*	*	*	2	1.4
Cumberland Plateau	104,439	0	0	0	0	0	0	0	0	0	0	0	0.0
Eastern Shore	44,391	0	0	0	0	0	0	0	0	0	0	0	0.0
Fairfax	1,187,113	*	*	7	0.6	0	0	5	0.4	*	*	4	0.3
Hampton	134,669	5	3.7	5	3.7	*	*	*	*	*	*	3	2.5
Henrico	327,898	*	*	10	3.0	*	*	*	*	*	*	3	1.0
Lenowisco	88,145	0	0	0	0	0	0	0	0	0	0	0	0.0
Lord Fairfax	235,443	5	2.1	0	0	*	*	*	*	*	*	3	1.1
Loudoun	398,080	0	0	0	0	0	0	*	*	*	*	1	0.2
Mount Rogers	189,063	0	0	0	0	*	*	0	0	0	0	0	0.1
New River	182,993	*	*	*	*	*	*	*	*	0	0	2	1.1
Norfolk	244,703	14	5.7	7	2.9	6	2.5	6	2.5	*	*	7	2.9
Peninsula	349,735	*	*	6	1.7	*	*	*	*	*	*	2	0.7
Piedmont	102,387	0	0	0	0	0	0	0	0	*	*	0	0.2
Pittsylvania-Danville	102,388	0	0	*	*	0	0	0	0	*	*	0	0.4
Portsmouth	94,572	7	7.4	*	*	*	*	8	8.5	*	*	4	4.7
Prince William	521,115	7	1.3	*	*	*	*	*	*	5	1.0	4	0.8
Rappahannock	364,840	7	1.9	*	*	*	*	6	1.6	6	1.6	5	1.3
Rappahannock-Rapidan	177,418	5	2.8	*	*	*	*	5	2.8	6	3.4	4	2.5
Richmond City	227,032	*	*	*	*	*	*	*	*	*	*	2	0.8
Roanoke	99,837	6	6.0	9	9.0	14	14.0	6	6.0	*	*	8	7.8
Southside	81,493	*	*	*	*	0	0	*	*	*	*	1	1.2
Thomas Jefferson	252,588	0	0	7	2.8	*	*	*	*	*	*	2	1.0
Three Rivers	141,271	0	0	*	*	0	0	*	*	*	*	1	0.8
Virginia Beach	450,435	5	1.1	9	2.0	*	*	6	1.3	7	1.6	6	1.3
West Piedmont	138,479	*	*	0	0	*	*	*	*	0	0	1	0.9
Western Tidewater	152,715	5	3.3	*	*	*	*	0	0	*	*	2	1.3
VIRGINIA TOTAL	8,470,020	96	1.1	106	1.3	78	0.9	88	1.0	71	0.8	88	1.0

[†] Population based on 2017 U.S. Census estimates available at www.census.gov/popest/

* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

[^] The 5-month average count was rounded to the nearest integer.

Table 2B. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Virginia State Police Division, Most Recent 5 Months^{†*§}

VSP Division	2017 Population Estimate	Aug 2018		Sept 2018		Oct 2018		Nov 2018		Dec 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,428,275	9	0.6	22	1.5	15	1.1	9	0.6	10	0.7
Division 2	855,345	19	2.2	8	0.9	8	0.9	13	1.5	15	1.8
Division 3	661,189	*	*	8	1.2	0	0	5	0.8	*	*
Division 4	432,668	*	*	0	0	*	*	*	*	0	0
Division 5	1,819,485	41	2.3	36	2.0	22	1.2	32	1.8	22	1.2
Division 6	771,750	12	1.6	20	2.6	24	3.1	19	2.5	9	1.2
Division 7	2,501,308	12	0.5	12	0.5	7	0.3	9	0.4	13	0.5
VIRGINIA TOTAL	8,470,020	96	1.1	106	1.3	78	0.9	88	1.0	71	0.8

† Population based on 2017 U.S. Census estimates available at www.census.gov/popest/

* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

§ Virginia State Police Divisions available at http://www.vsp.state.va.us/Office_Locations.shtm

¶ Refer to [Appendix 3](#) for a summary of data reporting changes that should be considered when interpreting this report.

Appendix 1

Case Definitions

Unintentional overdose by opioid or unspecified substance includes medical and non-medical use of a prescription opioid or where the substance is not specified.

- **Inclusion** criteria for Chief Complaint or Discharge Diagnosis:
 - Terms: *overdose, opioid, opiate, opium, morphine, hydrocodone, oxycodone, hydromorphone, oxymorphone, codeine, buprenorphine fentanyl, methadone, naloxone, tramadol, suboxone, or medication and drug brand names (Dilaudid, Narcan, OxyContin, Percocet, Vicodin, etc.)*
 - ICD-9 codes: 965.00, 965.02, 965.09, E850.1, E850.2
 - ICD-10 codes: T40.0X1, T40.0X4, T40.2X1, T40.2X4, T40.3X1, T40.3X4, T40.4X1, T40.4X4, T40.601, T40.604, T40.691, T40.694, F11.10, F11.120, F11.121, F11.122, F11.129, F11.20, F11.220, F11.221, F11.222, F11.229, F11.90, F11.920, F11.921, F11.922, F11.929
 - SNOMED CT codes: 295165009, 242253008, 297199006, 295213004.
- **Exclusion** criteria for Chief Complaint or Discharge Diagnosis:
 - Terms: *withdrawal, detoxification, suicide, intentional, self-harm, or any specified non-opioid medication or drug, heroin, dope, speed ball*
 - ICD-9 codes: E95-97, V62.84, 965.01
 - ICD-10 codes: R45.851, T40.1X1A, T40.1X4A
 - SNOMED CT code: 295174006.

Unintentional overdose by heroin

- **Inclusion** criteria for Chief Complaint or Discharge Diagnosis:
 - Terms: *heroin, speedball, dope*
 - ICD-9 codes: 965.01, E850.0
 - ICD-10 codes: T40.1X1A, T40.1X4A
 - SNOMED CT codes: 295174006, 295175007, 295176008
- **Exclusion** criteria from Chief Complaint or Discharge Diagnosis:
 - Terms: *withdrawal, detoxification, suicide, intentional, self-harm*
 - ICD-9 codes: E95-97, V62.84
 - ICD-10 codes: R45.851

Appendix 2

Virginia Localities Combined for the Purposes of Rate Calculation per 100,000 Population

- Alleghany County and Covington City
- Albemarle County and Charlottesville City
- Augusta County, Staunton City, and Waynesboro City
- Chesterfield County and Colonial Heights City
- Frederick County and Winchester City
- Fairfax County, Fairfax City, and Falls Church City
- Grayson County and Galax City
- Greenville County and Emporia City
- Henry County and Martinsville City
- Montgomery County and Radford City
- Pittsylvania County and Danville City
- Prince George County, Hopewell City, and Petersburg City
- Prince William County, Manassas City, and Manassas Park City
- Roanoke County, Roanoke City, and Salem City
- Rockingham County and Harrisonburg City
- Rockbridge County, Buena Vista City, and Lexington City
- Southampton County and Franklin City
- Washington County and Bristol City
- Wise County and Norton City

Appendix 3

Summary of Data Reporting Changes by Emergency Departments in Virginia

The volume and quality of data reported by emergency departments to the Virginia Department of Health for syndromic surveillance affect the volume and quality of data in this report. In general, volume and quality have improved over time as additional EDs report to the Virginia Department of Health. This general increase in data volume should be taken into consideration when interpreting trends in visit counts and rates over time. Occasionally, EDs stop reporting data, which can lead to a decrease in data volume and a lowering of trends. Other factors that can affect the data are changes in the quality reported by EDs, which can improve or reduce the accuracy of the data. Please consider the following data reporting changes when interpreting the contents of *Emergency Department Visits for Overdose by Opioid, Unspecified Substance and Heroin among Virginia Residents* reports.

Month	Health Region	Description
June 2017	Eastern	A single healthcare system representing five acute care hospital EDs became unable to report data, reducing the quantity and representativeness of the data from this region.
June 2017	Northwest	One acute care hospital ED improved its data quality, supporting more accurate capture of overdose visit data.
February 2018	Central	One additional acute care hospital ED began reporting data to VDH, increasing the quantity and representativeness of data from this region.
March 2018	Central	Four additional free-standing EDs began reporting data to VDH, increasing the quantity and representativeness of data from this region.
April 2018	Southwest	Two additional acute care hospital EDs began reporting data to VDH, increasing the quantity and representativeness of data from this region.
April 2018	Northern	One acute care hospital ED became unable to report data, reducing the quantity and representativeness of the data from this region. Update: This hospital ED began reporting data again to VDH as of the June 2018 report.
June 2018	Northwest	Two acute care hospital EDs and one free-standing ED became unable to report data, reducing the quantity and representativeness of the data from this region. Update: These hospital EDs began reporting data again to VDH as of the August 2018 report.
Sept 2018	Central, Northern, Northwest Southwest	A single healthcare system representing 13 acute care hospital EDs and 4 free-standing EDs became unable to fully report Discharge Diagnosis data among all its facilities. UPDATE: In Oct 2018, affected facilities in this healthcare system began reporting again but at a reduced volume.
Nov 2018	Central, Northern, Northwest Southwest	A single healthcare system representing 13 acute care hospital EDs and 4 free-standing EDs became unable to report data, reducing the quantity and representativeness of data in these regions. Central and Southwest regions are most notably impacted.

Appendix 4

VDH Health Planning Regions and Health Districts Map

