VDH VIRGINIA DEPARTMENT OF HEALTH

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

October 2018

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Background

The Virginia Department of Health (VDH) currently receives data on visits to 80¶ acute care hospital emergency departments (EDs) and 17 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 before 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 November 2018

Note: While the revised case definitions have increased the sensitivity of capturing valid unintentional overdoses among ED visits reported to VDH, the interpretation of the overdose trends and data found in this report are not impacted.

Statewide ED visits for overdose by opioid or unspecified substance among Virginia residents decreased by 10% from September 2018 (719 visits) to October 2018 (649 visits) (Figure 1A). The total Year-to-Date (January to October) count of ED visits is 11% lower in 2018 as compared to 2017 and 2016. (Figure 1B).

- Among the five VDH Health Planning Regions, the rate of visits for overdose by opioid or unspecified substance was highest in the Southwest region (13.3 per 100,000). The Eastern and Central regions saw a visit decrease of 37% (45 fewer visits, rate 6.5 per 100,000) and 19% (38 fewer visits, rate 11.1 per 100,000), respectively (Figure 1C). The Year-to-Date 2018 counts for all health regions, except Southwest, are lower than 2017. The Year-to-Date counts for Eastern and Northern regions have decreased annually since 2016 (Figure 1D).
- By sex, males contributed a statistically higher proportion of visits for overdose by opioid or unspecified substance compared to females in October 2018, and this significant rate difference has been observed since June 2018. (Figure 1E).
- By age group, the number of visits for overdose by opioid or unspecified substance among 25-34 year olds decreased by 21% but remained the age group with the highest rate (12.1 per 100,000) (Figure 1F). Five of the seven age groups experienced a decrease in October 2018.

Statewide ED visits for overdose by heroin among Virginia residents decreased by 29% from September 2018 (131 visits) to October 2018 (93 visits) (Figure 2A). The total Year-to-Date (January to October) count of ED visits is 14% lower in 2018 compared to 2017, and 3% lower as compared to 2016 (Figure 2B).

- Among the five VDH Health Planning Regions, the rate of visits for overdose by heroin was highest in the Southwest region (1.9 per 100,000). The Northern and Eastern regions saw a visit decrease of 42% (5 fewer visits, rate 0.3 per 100,000) and 41% (15 fewer visits, rate 1.2 per 100,000), respectively (Figure 2C). The Year-to-Date 2018 counts for the Eastern, Northern and Northwest health regions are lower than their 2017 visit count (Figure 2D).
- By sex, there was no significant difference in the proportion of visits for overdose by heroin between females and males. This is a change from the previous 5 months where a significant difference was found between females and males (Figure 2E).
- By age group, the rate of visits for overdose by heroin among 25-34 year olds decreased by 7% but remained the age group with highest rate (3.6 per 100,000) in October 2018 (Figure 2F). This age group has been higher than any other age groups since January 2015 when reporting by VDH began. The 45-54 year old age group saw a visit decrease of 57% (12 fewer visits, rate 0.8 per 100,000). Five of the seven age groups experienced a decrease in October 2018.

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.

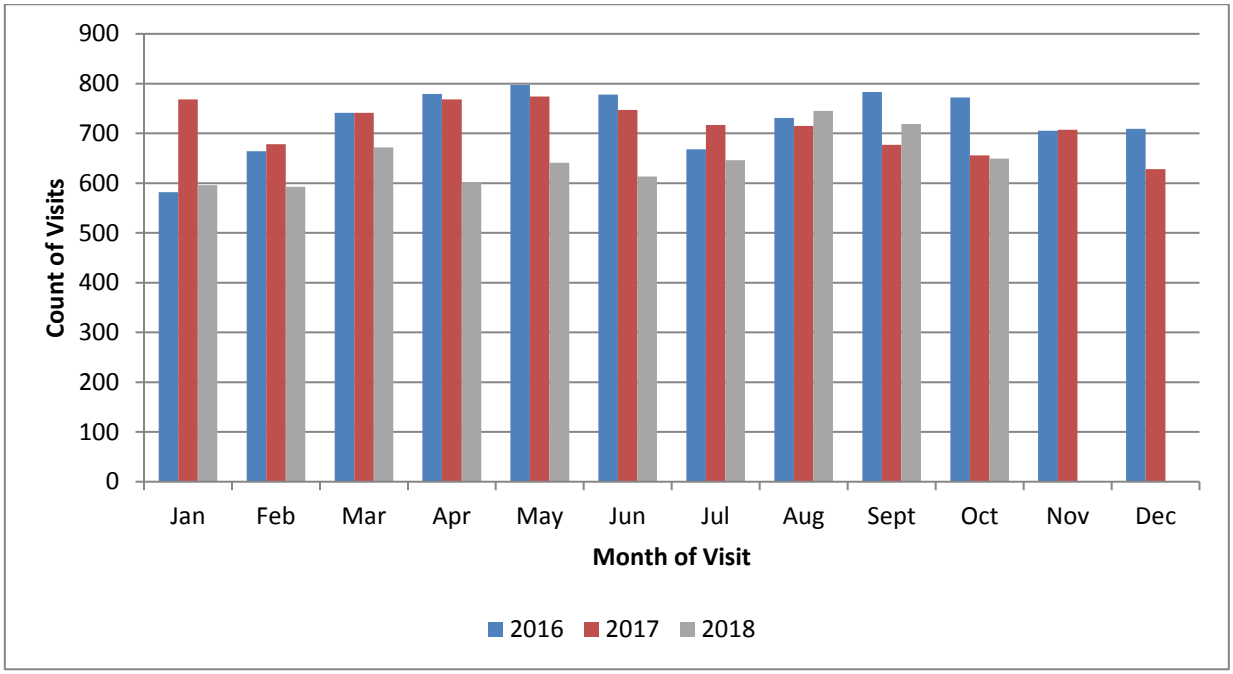

Figure 1B. Year-to-Date Count (January-October) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year.

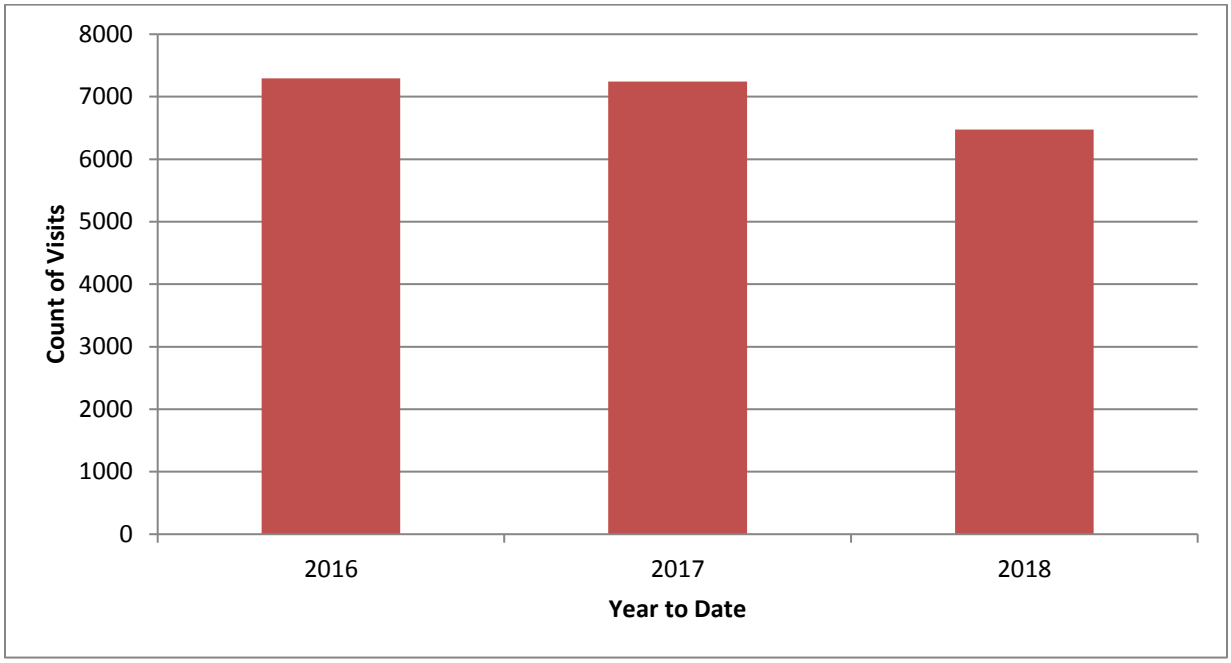

Figure 1C. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health Region, Most Recent 12 Months.

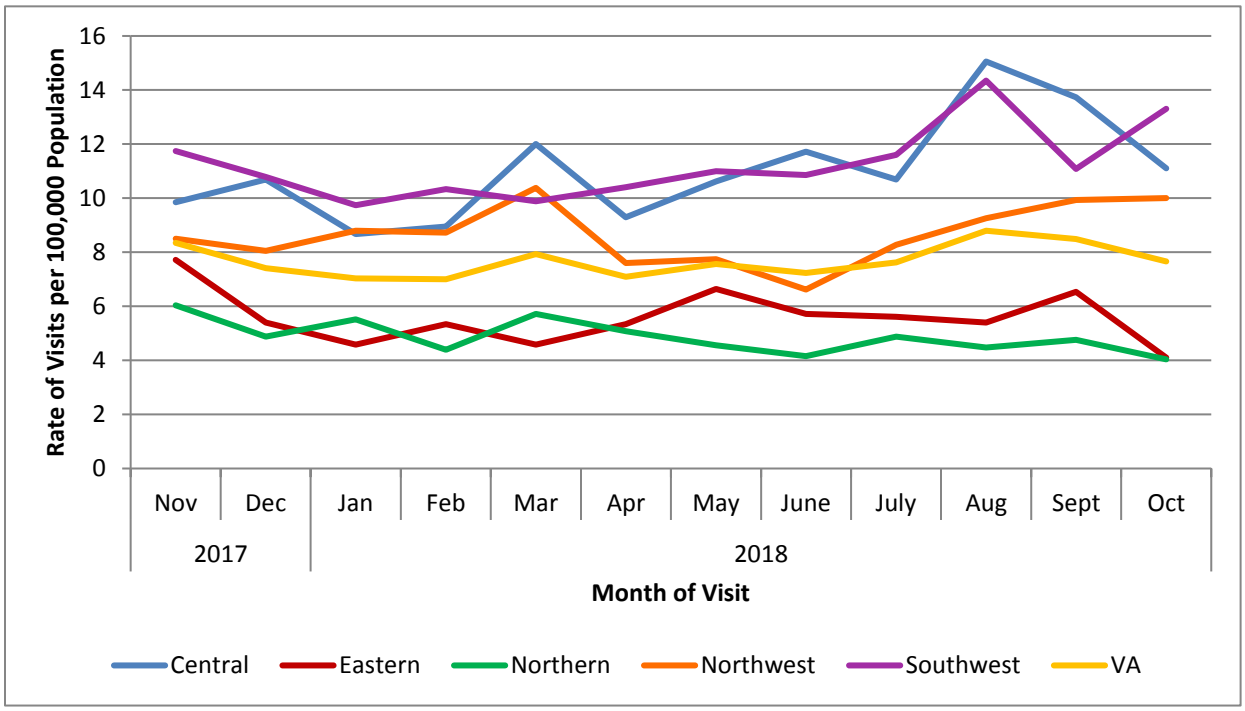

Figure 1D. Year-to-Date Count (January-October) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year and Region.

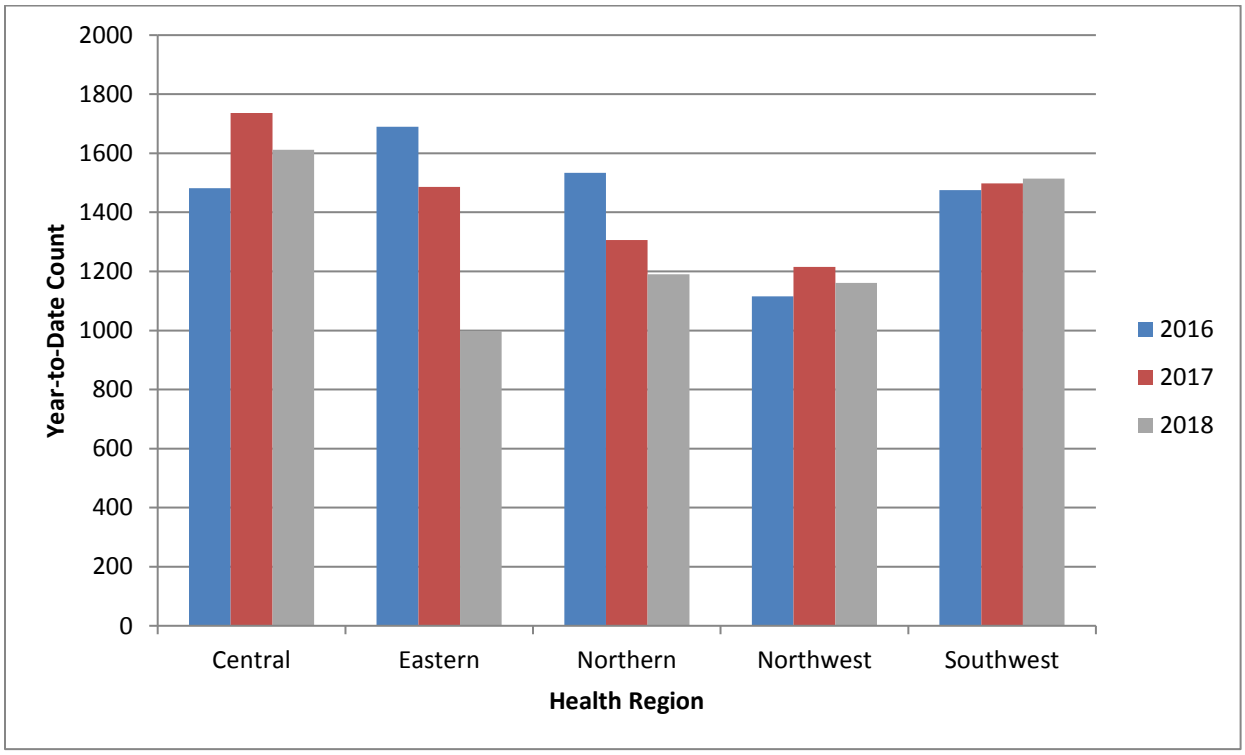

Figure 1E. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Sex, Most Recent 12 Months.

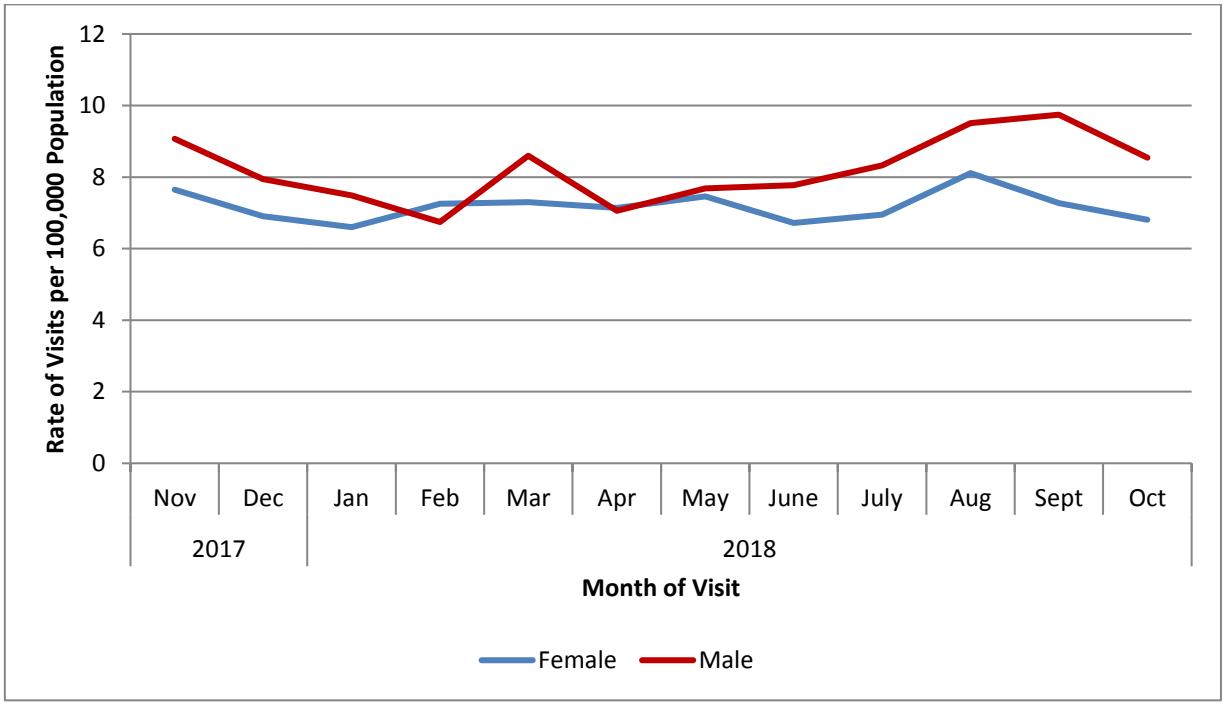

Figure 1F. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

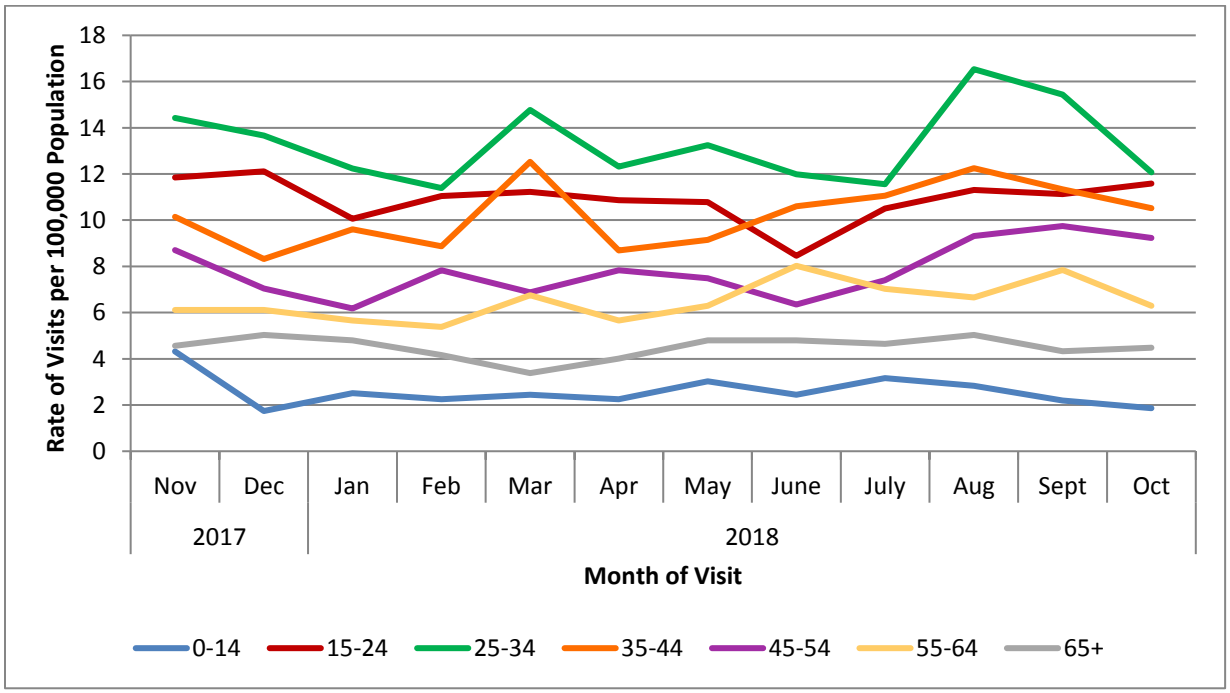

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Table 1A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health District, Most Recent 5 Months[†*]

Health District	2017 Population Estimate	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count[^]	Rate
Alexandria	160,035	*	*	7	4.4	8	5.0	7	4.4	7	4.4	7	4.1
Alleghany	178,499	23	12.9	21	11.8	24	13.4	10	5.6	25	14.0	21	11.5
Arlington	234,965	7	3.0	7	3.0	7	3.0	5	2.1	9	3.8	7	3.0
Central Shenandoah	299,042	19	6.4	27	9.0	21	7.0	30	10.0	27	9.0	25	8.3
Central Virginia	261,254	21	8.0	21	8.0	26	10.0	32	12.2	29	11.1	26	9.9
Chesapeake	240,397	19	7.9	19	7.9	15	6.2	20	8.3	16	6.7	18	7.4
Chesterfield	390,030	47	12.1	44	11.3	52	13.3	40	10.3	34	8.7	43	11.1
Chickahominy	157,294	10	6.4	15	9.5	14	8.9	18	11.4	14	8.9	14	9.0
Crater	155,262	15	9.7	11	7.1	14	9.0	30	19.3	15	9.7	17	10.9
Cumberland Plateau	104,439	11	10.5	10	9.6	8	7.7	15	14.4	9	8.6	11	10.1
Eastern Shore	44,391	0	0	0	0	0	0	*	*	*	*	0	0.9
Fairfax	1,187,113	62	5.2	66	5.6	53	4.5	69	5.8	49	4.1	60	5.0
Hampton	134,669	9	6.7	5	3.7	5	3.7	12	8.9	*	*	7	5.2
Henrico	327,898	45	13.7	36	11.0	64	19.5	44	13.4	52	15.9	48	14.7
Lenowisco	88,145	11	12.5	11	12.5	8	9.1	5	5.7	6	6.8	8	9.3
Lord Fairfax	235,443	19	8.1	9	3.8	23	9.8	20	8.5	20	8.5	18	7.7
Loudoun	398,080	14	3.5	16	4.0	20	5.0	16	4.0	22	5.5	18	4.4
Mount Rogers	189,063	21	11.1	24	12.7	22	11.6	18	9.5	8	4.2	19	9.8
New River	182,993	10	5.5	10	5.5	15	8.2	11	6.0	18	9.8	13	7.0
Norfolk	244,703	28	11.4	18	7.4	19	7.8	20	8.2	11	4.5	19	7.8
Peninsula	349,735	11	3.1	14	4.0	11	3.1	11	3.1	6	1.7	11	3.0
Piedmont	102,387	10	9.8	6	5.9	16	15.6	7	6.8	6	5.9	9	8.8
Pittsylvania-Danville	102,388	16	15.6	17	16.6	15	14.7	9	8.8	15	14.7	14	14.1
Portsmouth	94,572	12	12.7	17	18.0	21	22.2	11	11.6	10	10.6	14	15.0
Prince William	521,115	17	3.3	26	5.0	24	4.6	22	4.2	14	2.7	21	4.0
Rappahannock	364,840	16	4.4	25	6.9	32	8.8	37	10.1	45	12.3	31	8.5
Rappahannock-Rapidan	177,418	16	9.0	28	15.8	20	11.3	16	9.0	16	9.0	19	10.8
Richmond City	227,032	34	15.0	34	15.0	47	20.7	49	21.6	31	13.7	39	17.2
Roanoke	99,837	11	11.0	19	19.0	41	41.1	25	25.0	43	43.1	28	27.8
Southside	81,493	8	9.8	8	9.8	10	12.3	10	12.3	8	9.8	9	10.8
Thomas Jefferson	252,588	18	7.1	21	8.3	27	10.7	29	11.5	25	9.9	24	9.5
Three Rivers	141,271	*	*	*	*	7	5.0	9	6.4	*	*	5	3.4
Virginia Beach	450,435	13	2.9	21	4.7	16	3.6	25	5.6	16	3.6	18	4.0
West Piedmont	138,479	22	15.9	23	16.6	34	24.6	24	17.3	26	18.8	26	18.6
Western Tidewater	152,715	11	7.2	8	5.2	6	3.9	12	7.9	9	5.9	9	6.0
VIRGINIA TOTAL	8,470,020	613	7.2	646	7.6	745	8.8	719	8.5	649	7.7	674	8.0

† 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.

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

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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	June 2018		July 2018		Aug 2018		Sept 2018		Oct 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	*	*	8	7.1	10	10.3	6	10.3	5	9.0
Alleghany County[‡]	20,653	0	0	0	0	*	*	*	*	*	*
Amelia County	13,020	*	*	*	*	*	*	*	*	*	*
Amherst County	31,594	*	*	*	*	*	*	*	*	*	*
Appomattox County	15,681	0	0	*	*	*	*	*	*	*	*
Arlington County	234,965	7	3.0	7	3.0	7	3.0	5	2.1	9	3.8
Augusta County[‡]	121,999	7	9.0	*	*	7	13.9	5	13.9	6	9.8
Bath County	4,297	0	0	*	*	0	0	0	0	0	0
Bedford County	77,974	7	9.0	7	9.0	10	12.8	14	18.0	14	18.0
Bland County	6,350	0	0	0	0	*	*	0	0	0	0
Botetourt County	33,192	*	*	*	*	*	*	0	0	*	*
Brunswick County	16,244	*	*	*	*	*	*	*	*	*	*
Buchanan County	21,514	*	*	*	*	*	*	*	*	*	*
Buckingham County	17,065	0	0	0	0	*	*	*	*	*	*
Campbell County	55,010	*	*	*	*	*	*	0	0	*	*
Caroline County	30,461	*	*	7	23.0	5	16.4	*	*	0	0
Carroll County	29,708	*	*	6	20.2	6	20.2	5	16.8	*	*
Charles City County	7,004	0	0	*	*	0	0	*	*	0	0
Charlotte County	12,119	*	*	*	*	5	41.3	*	*	0	0
Chesterfield County[‡]	361,429	39	11.6	38	11.3	45	13.8	33	10.0	28	8.6
Clarke County	14,508	0	0	*	*	*	*	*	*	*	*
Craig County	5,062	*	*	*	*	*	*	0	0	0	0
Culpeper County	51,282	*	*	12	23.4	*	*	5	9.8	*	*
Cumberland County	9,811	0	0	0	0	*	*	*	*	0	0
Dickenson County	14,782	*	*	*	*	0	0	*	*	*	*
Dinwiddie County	28,208	*	*	*	*	*	*	*	*	*	*
Essex County	11,028	0	0	0	0	*	*	0	0	0	0
Fairfax County[‡]	1,187,113	61	5.2	64	5.6	52	4.5	67	5.8	49	4.1
Fauquier County	69,465	7	10.1	7	10.1	6	8.6	5	7.2	8	11.5
Floyd County	15,755	0	0	*	*	0	0	0	0	*	*
Fluvanna County	26,452	*	*	0	0	*	*	*	*	*	*
Franklin County	56,445	*	*	8	14.2	9	15.9	5	8.9	7	12.4
Frederick County[‡]	114,416	*	*	0	0	*	*	6	11.4	8	10.5
Giles County	16,837	0	0	*	*	*	*	0	0	*	*
Gloucester County	37,292	*	*	0	0	*	*	0	0	*	*
Goochland County	22,685	*	*	*	*	*	*	0	0	*	*

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Locality	2017 Population Estimate	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Grayson County‡	22,290	*	*	*	*	*	*	*	*	0	0
Greene County	19,612	*	*	6	30.6	*	*	*	*	0	0
Greensville County‡	16,961	*	*	*	*	*	*	*	*	5	29.5
Halifax County	34,563	*	*	*	*	*	*	5	14.5	*	*
Hanover County	105,923	8	7.6	7	6.6	12	11.3	13	12.3	11	10.4
Henrico County	327,898	45	13.7	36	11.0	64	19.5	44	13.4	52	15.9
Henry County‡	64,369	16	24.9	15	23.3	22	34.2	18	29.5	17	26.4
Highland County	2,212	0	0	0	0	0	0	0	0	0	0
Isle of Wight County	36,552	0	0	0	0	*	*	*	*	*	*
James City County	75,524	*	*	6	7.9	*	*	*	*	*	*
King and Queen County	7,003	0	0	0	0	0	0	*	*	0	0
King George County	26,337	0	0	*	*	*	*	*	*	7	26.6
King William County	16,708	0	0	*	*	*	*	*	*	0	0
Lancaster County	10,788	0	0	0	0	*	*	*	*	0	0
Lee County	23,758	*	*	*	*	*	*	*	*	*	*
Loudoun County	398,080	14	3.5	16	4.0	20	5.0	16	4.0	22	5.5
Louisa County	35,860	5	13.9	*	*	*	*	8	22.3	6	16.7
Lunenburg County	12,235	*	*	0	0	0	0	0	0	0	0
Madison County	13,277	*	*	*	*	*	*	0	0	*	*
Mathews County	8,779	0	0	0	0	0	0	0	0	0	0
Mecklenburg County	30,686	5	16.3	*	*	6	19.6	*	*	*	*
Middlesex County	10,679	*	*	0	0	*	*	0	0	0	0
Montgomery County‡	116,217	*	*	*	*	5	6.9	*	*	7	8.6
Nelson County	14,943	*	*	0	0	*	*	*	*	*	*
New Kent County	21,682	*	*	*	*	*	*	*	*	*	*
Northampton County	11,846	0	0	0	0	0	0	0	0	0	0
Northumberland County	12,275	*	*	*	*	*	*	*	*	0	0
Nottoway County	15,434	*	*	*	*	5	32.4	0	0	*	*
Orange County	36,073	*	*	7	19.4	8	22.2	6	16.6	*	*
Page County	23,731	5	21.1	0	0	*	*	0	0	*	*
Patrick County	17,665	*	*	0	0	*	*	0	0	*	*
Pittsylvania County‡	102,388	*	*	7	16.6	6	14.7	*	*	*	*
Powhatan County	28,601	5	17.5	*	*	*	*	*	*	*	*
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	14	3.3	21	5.0	22	4.6	20	4.2	13	2.7
Pulaski County	34,184	6	17.6	*	*	*	*	5	14.6	*	*
Rappahannock County	7,321	*	*	0	0	*	*	0	0	0	0
Richmond County	8,939	0	0	0	0	0	0	0	0	*	*
Roanoke County‡	219,429	10	14.1	12	16.4	11	27.3	*	*	11	28.7

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Locality	2017 Population Estimate	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Rockbridge County‡	36,092	*	*	*	*	0	0	*	*	*	*
Rockingham County‡	134,442	*	*	6	5.2	*	*	7	7.4	10	8.9
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	*	*	*	*	*	*	*	*	*	*
Smyth County	30,656	*	*	*	*	*	*	*	*	*	*
Southampton County‡	25,926	*	*	*	*	*	*	0	0	*	*
Spotsylvania County	133,033	9	6.8	8	6.0	14	10.5	12	9.0	18	13.5
Stafford County	146,649	*	*	6	4.1	9	6.1	13	8.9	15	10.2
Surry County	6,540	*	*	0	0	0	0	*	*	0	0
Sussex County	11,373	*	*	*	*	*	*	*	*	0	0
Tazewell County	41,095	5	12.2	6	14.6	*	*	6	14.6	6	14.6
Warren County	39,563	*	*	*	*	*	*	*	*	*	*
Washington County‡	71,177	6	9.8	5	7.0	*	*	*	*	*	*
Westmoreland County	17,780	0	0	0	0	0	0	*	*	0	0
Wise County‡	42,522	*	*	5	14.1	5	11.8	*	*	*	*
Wythe County	28,882	*	*	5	17.3	*	*	*	*	*	*
York County	67,739	*	*	*	*	*	*	*	*	*	*
Alexandria City	160,035	*	*	7	4.4	8	5.0	7	4.4	7	4.4
Bristol City‡	71,177	*	*	0	0	0	0	*	*	0	0
Buena Vista City‡	36,092	*	*	*	*	0	0	0	0	0	0
Charlottesville City‡	155,721	*	*	*	*	6	10.3	10	10.3	9	9.0
Chesapeake City	240,397	19	7.9	19	7.9	15	6.2	20	8.3	16	6.7
Colonial Heights City‡	361,429	*	*	*	*	5	13.8	*	*	*	*
Covington City‡	20,653	0	0	0	0	0	0	0	0	0	0
Danville City‡	102,388	14	15.6	10	16.6	9	14.7	8	8.8	11	14.7
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	0	0	*	*	*	*	6	21.2	5	17.6
Galax City‡	22,290	*	*	*	*	*	*	*	*	0	0
Hampton City	134,669	9	6.7	5	3.7	5	3.7	12	8.9	*	*
Harrisonburg City‡	134,442	*	*	*	*	*	*	*	*	*	*
Hopewell City‡	92,180	6	8.7	*	*	5	10.8	11	25.0	*	*
Lexington City‡	36,092	0	0	0	0	0	0	0	0	0	0
Lynchburg City	80,995	10	12.3	9	11.1	7	8.6	14	17.3	12	14.8
Manassas City‡	521,115	*	*	5	5.0	*	*	*	*	*	*
Manassas Park City‡	521,115	0	0	0	0	0	0	0	0	0	0
Martinsville City‡	64,369	0	0	0	0	0	0	*	*	0	0

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Locality	2017 Population Estimate	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Newport News City	179,388	6	3.3	7	3.9	5	2.8	*	*	*	*
Norfolk City	244,703	28	11.4	18	7.4	19	7.8	20	8.2	11	4.5
Norton City‡	42,522	*	*	*	*	0	0	0	0	*	*
Petersburg City‡	92,180	*	*	*	*	*	*	12	25.0	5	9.8
Poquoson City	12,053	0	0	0	0	0	0	*	*	0	0
Portsmouth City	94,572	12	12.7	17	18.0	21	22.2	11	11.6	10	10.6
Radford City‡	116,217	*	*	*	*	*	*	*	*	*	*
Richmond City	227,032	34	15.0	34	15.0	47	20.7	49	21.6	31	13.7
Roanoke City‡	219,429	11	14.1	19	16.4	41	27.3	25	15.0	43	28.7
Salem City‡	219,429	10	14.1	5	16.4	8	27.3	*	*	9	28.7
Staunton City‡	121,999	*	*	6	12.3	*	*	7	13.9	5	9.8
Suffolk City	90,237	7	7.8	*	*	*	*	7	7.8	6	6.6
Virginia Beach City	450,435	13	2.9	21	4.7	16	3.6	25	5.6	16	3.6
Waynesboro City‡	121,999	*	*	8	12.3	7	13.9	5	13.9	*	*
Williamsburg City	15,031	0	0	0	0	0	0	0	0	0	0
Winchester City‡	114,416	8	9.6	*	*	9	10.5	7	11.4	*	*
VIRGINIA TOTAL	8,470,020	613	7.2	646	7.6	745	8.8	719	8.5	649	7.7

† 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.

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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	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,428,275	160	11.2	154	10.8	209	14.6	202	14.1	158	11.1
Division 2	855,345	53	6.2	60	7.0	73	8.5	77	9.0	86	10.1
Division 3	661,189	50	7.6	55	8.3	74	11.2	69	10.4	56	8.5
Division 4	432,668	49	11.3	49	11.3	45	10.4	43	9.9	30	6.9
Division 5	1,819,485	112	6.2	108	5.9	100	5.5	118	6.5	81	4.5
Division 6	771,750	85	11.0	98	12.7	132	17.1	91	11.8	137	17.8
Division 7	2,501,308	104	4.2	122	4.9	112	4.5	119	4.8	101	4.0
VIRGINIA TOTAL	8,470,020	613	7.2	646	7.6	745	8.8	719	8.5	649	7.7

† 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.

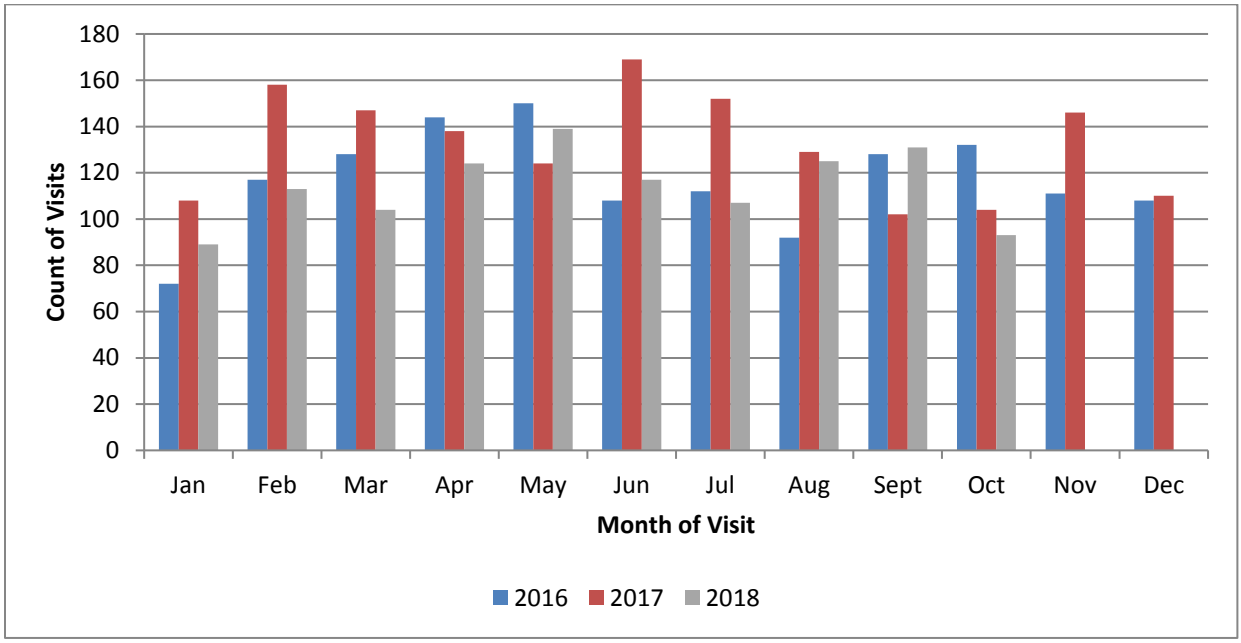

Figure 2B. Year-to-Date Count (January-October) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year.

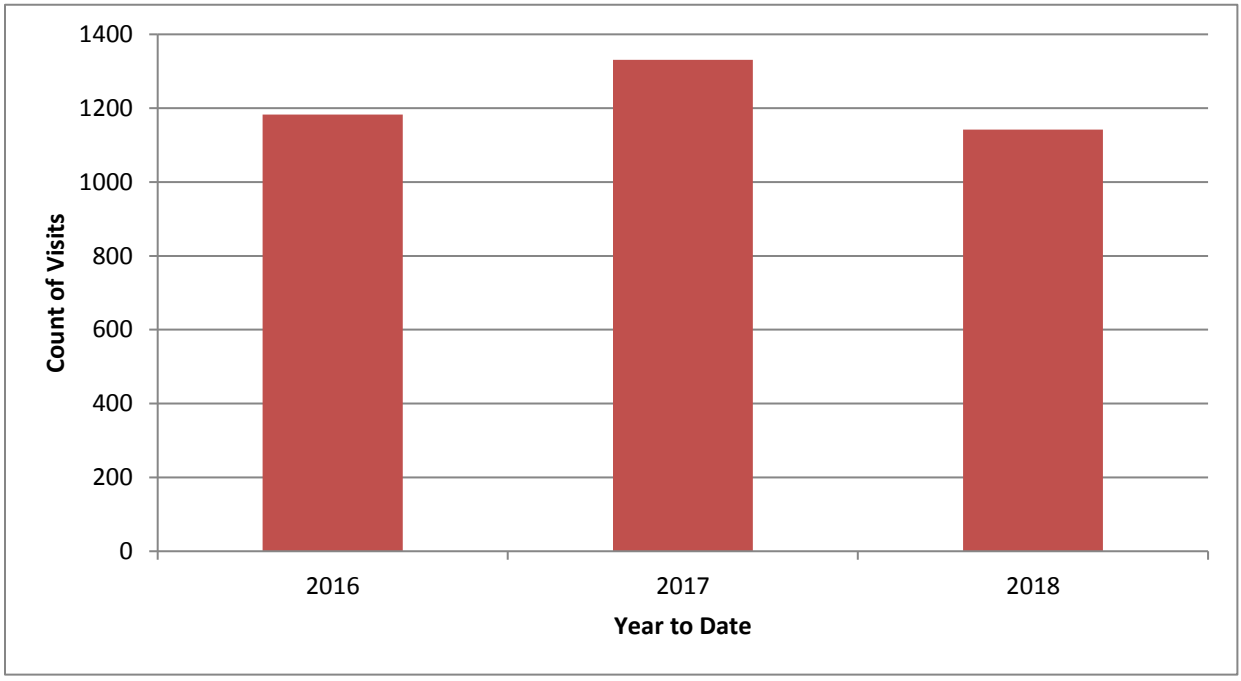

Figure 2C. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health Region, Most Recent 12 Months.

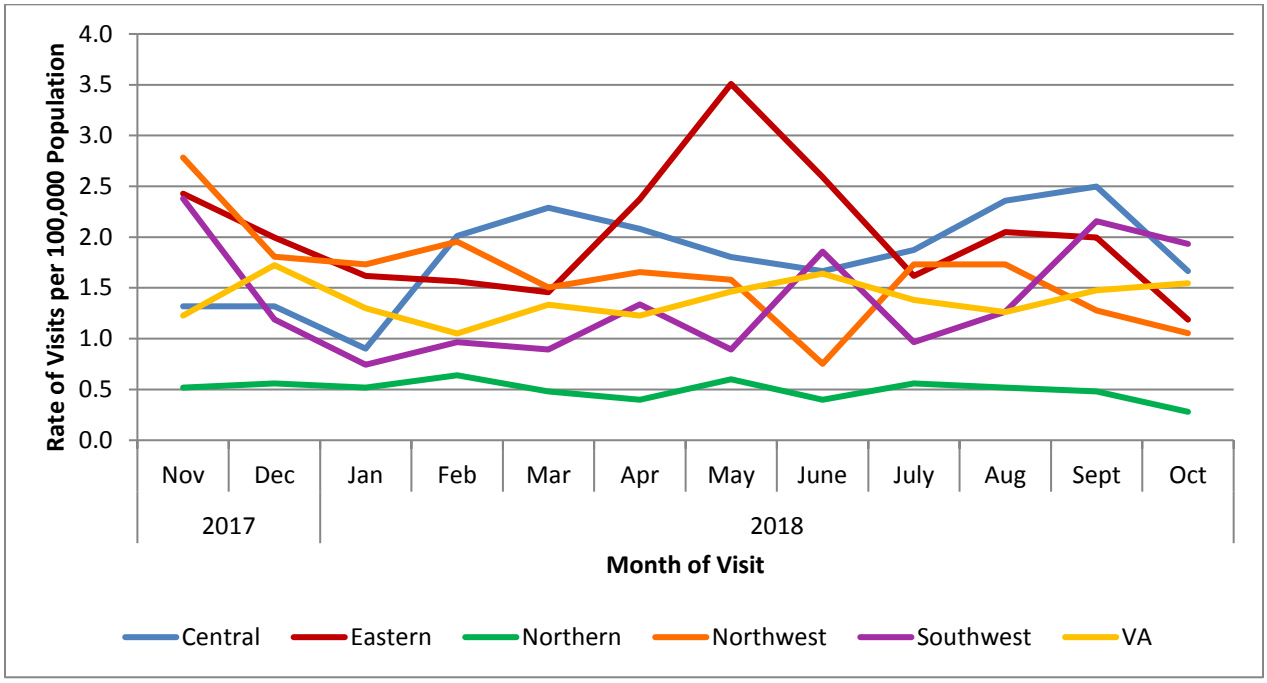

Figure 2D. Year-to-Date Count (January-October) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year and Region.

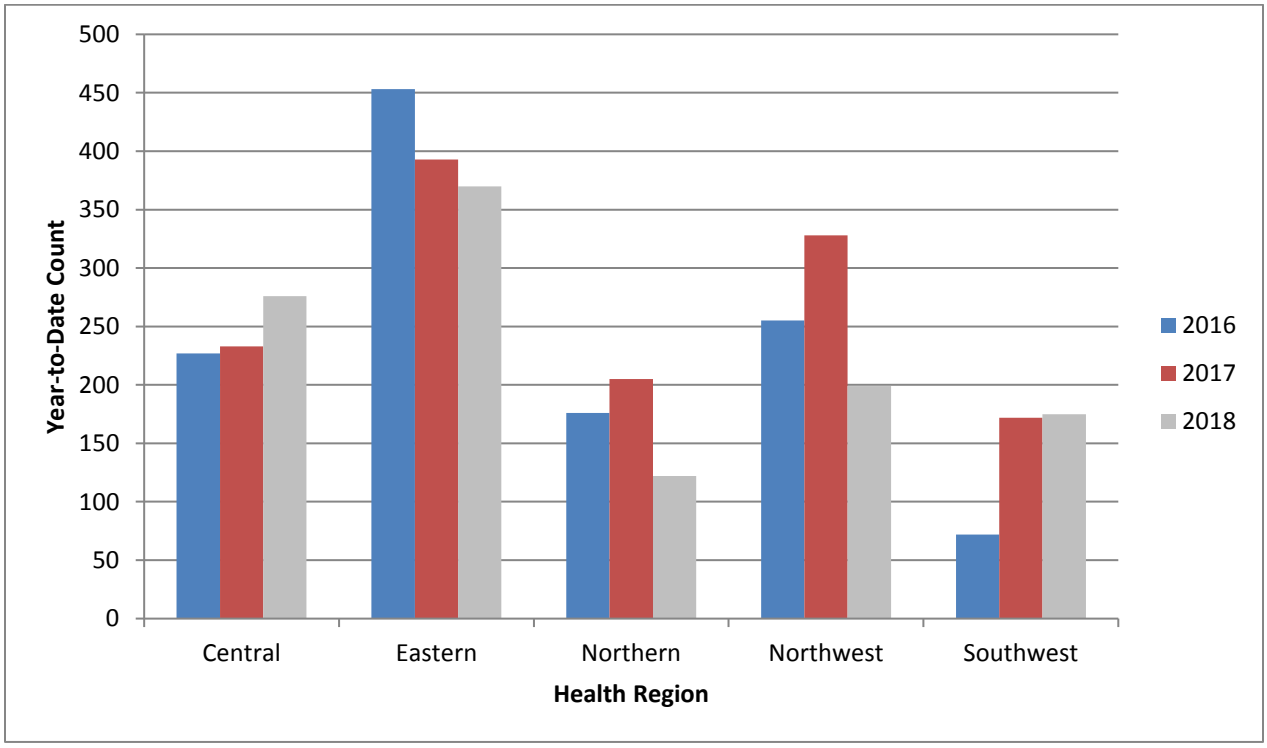

Figure 2E. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Sex, Most Recent 12 Months.

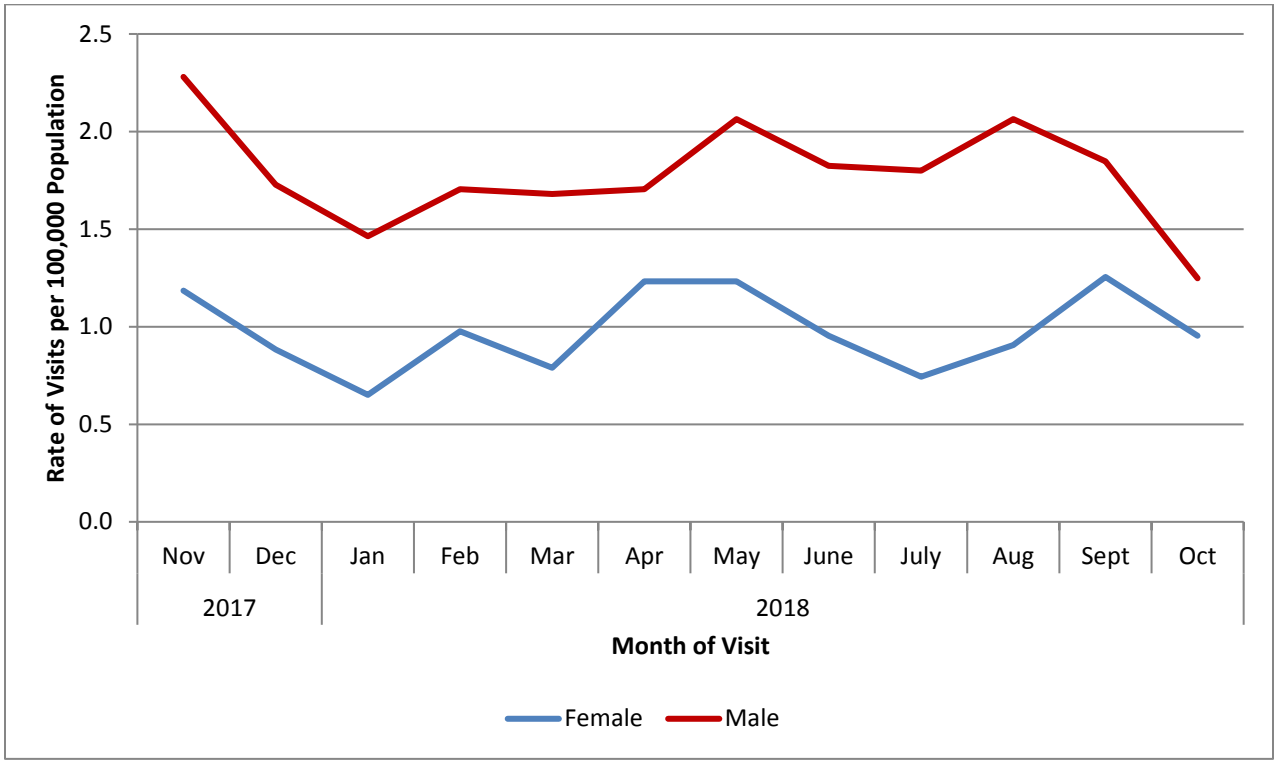

Figure 2F. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

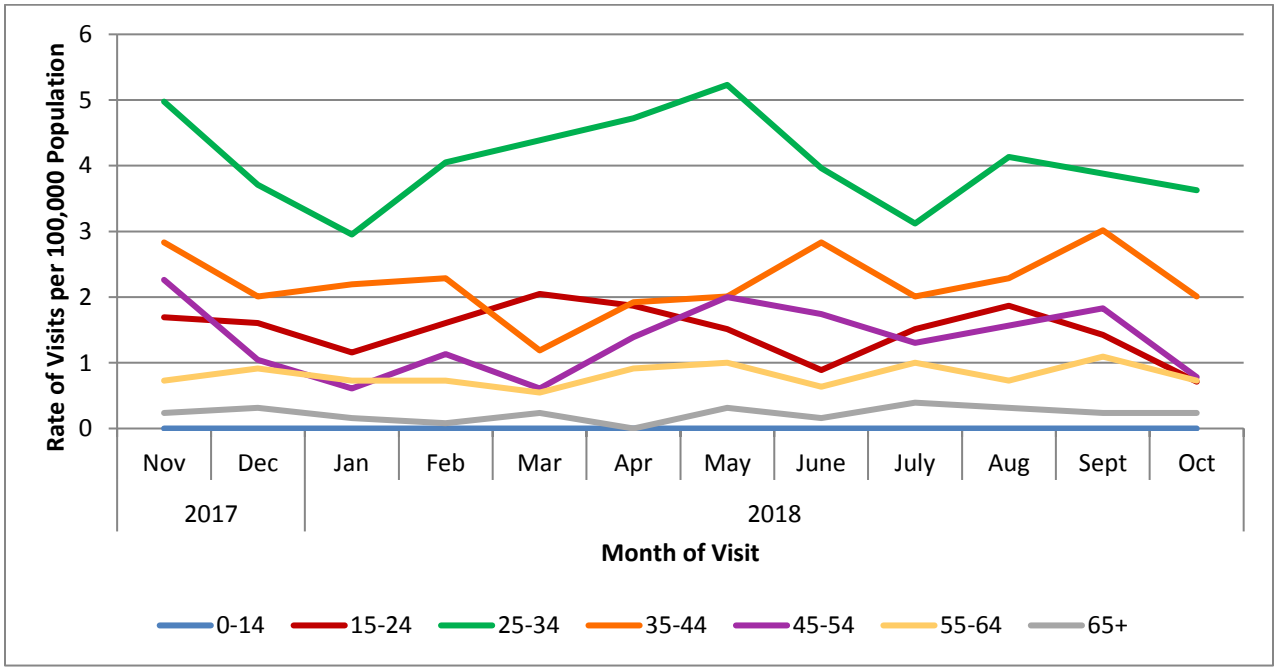

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Table 2A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health District, Most Recent 5 Months[†*]

Health District	2017 Population Estimate	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count[^]	Rate
Alexandria	160,035	0	0	*	*	*	*	*	*	*	*	1	0.9
Alleghany	178,499	9	5.0	*	*	*	*	14	7.8	6	3.4	7	3.9
Arlington	234,965	*	*	0	0	0	0	0	0	0	0	0	0.1
Central Shenandoah	299,042	*	*	5	1.7	*	*	*	*	*	*	3	1.1
Central Virginia	261,254	*	*	0	0	*	*	*	*	*	*	1	0.4
Chesapeake	240,397	6	2.5	5	2.1	*	*	5	2.1	6	2.5	5	2.0
Chesterfield	390,030	7	1.8	*	*	10	2.6	5	1.3	8	2.1	7	1.7
Chickahominy	157,294	*	*	*	*	*	*	*	*	*	*	3	1.7
Crater	155,262	6	3.9	*	*	5	3.2	5	3.2	*	*	4	2.8
Cumberland Plateau	104,439	0	0	*	*	0	0	0	0	0	0	0	0.2
Eastern Shore	44,391	0	0	0	0	0	0	0	0	0	0	0	0.0
Fairfax	1,187,113	5	0.4	9	0.8	5	0.4	7	0.6	0	0	5	0.4
Hampton	134,669	*	*	*	*	5	3.7	5	3.7	*	*	3	2.5
Henrico	327,898	8	2.4	10	3.0	*	*	12	3.7	*	*	7	2.3
Lenowisco	88,145	0	0	0	0	0	0	0	0	0	0	0	0.0
Lord Fairfax	235,443	5	2.1	*	*	5	2.1	0	0	*	*	3	1.4
Loudoun	398,080	0	0	0	0	0	0	0	0	0	0	0	0.0
Mount Rogers	189,063	0	0	0	0	0	0	0	0	*	*	0	0.1
New River	182,993	*	*	0	0	*	*	*	*	*	*	2	1.3
Norfolk	244,703	13	5.3	9	3.7	13	5.3	7	2.9	6	2.5	10	3.9
Peninsula	349,735	*	*	*	*	*	*	6	1.7	*	*	3	0.7
Piedmont	102,387	*	*	*	*	0	0	0	0	0	0	1	0.6
Pittsylvania-Danville	102,388	0	0	*	*	0	0	*	*	0	0	0	0.4
Portsmouth	94,572	10	10.6	*	*	7	7.4	*	*	*	*	5	5.7
Prince William	521,115	*	*	*	*	7	1.3	*	*	*	*	4	0.8
Rappahannock	364,840	*	*	7	1.9	9	2.5	*	*	*	*	5	1.3
Rappahannock-Rapidan	177,418	*	*	5	2.8	*	*	*	*	*	*	4	2.0
Richmond City	227,032	*	*	5	2.2	10	4.4	12	5.3	5	2.2	7	2.9
Roanoke	99,837	9	9.0	7	7.0	8	8.0	9	9.0	15	15.0	10	9.6
Southside	81,493	0	0	*	*	*	*	*	*	0	0	1	0.7
Thomas Jefferson	252,588	0	0	*	*	*	*	7	2.8	*	*	2	1.0
Three Rivers	141,271	*	*	*	*	0	0	*	*	0	0	1	0.7
Virginia Beach	450,435	7	1.6	7	1.6	5	1.1	9	2.0	*	*	6	1.3
West Piedmont	138,479	*	*	*	*	*	*	0	0	*	*	1	0.9
Western Tidewater	152,715	*	*	*	*	5	3.3	*	*	*	*	2	1.4
VIRGINIA TOTAL	8,470,020	117	1.4	107	1.3	125	1.5	131	1.5	93	1.1	115	1.4

† 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.

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

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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	June 2018		July 2018		Aug 2018		Sept 2018		Oct 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,428,275	21	1.5	28	2.0	33	2.3	38	2.7	26	1.8
Division 2	855,345	9	1.1	14	1.6	19	2.2	8	0.9	9	1.1
Division 3	661,189	*	*	9	1.4	*	*	8	1.2	0	0
Division 4	432,668	*	*	*	*	*	*	0	0	*	*
Division 5	1,819,485	50	2.7	29	1.6	40	2.2	36	2.0	22	1.2
Division 6	771,750	24	3.1	12	1.6	16	2.1	29	3.8	27	3.5
Division 7	2,501,308	10	0.4	14	0.6	13	0.5	12	0.5	7	0.3
VIRGINIA TOTAL	8,470,020	117	1.4	107	1.3	125	1.5	131	1.5	93	1.1

† 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*
  - 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
- Greensville 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

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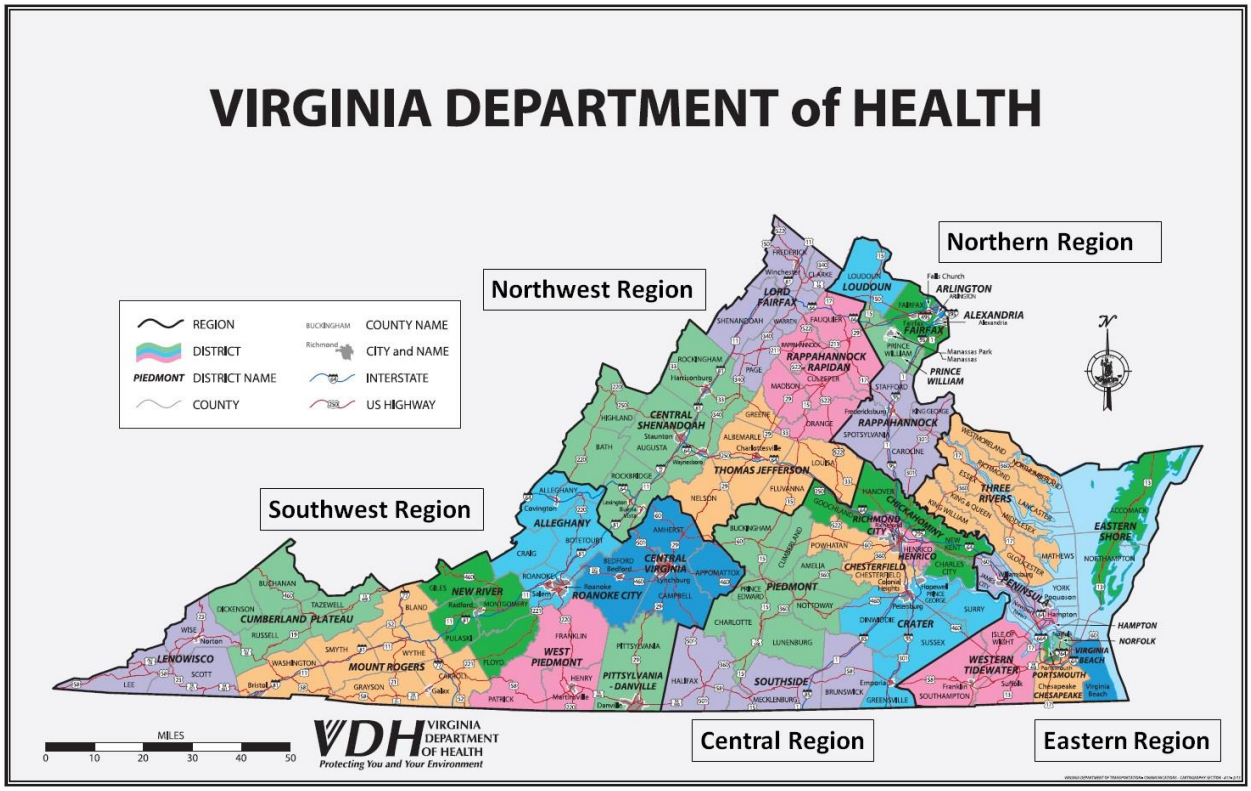
Appendix 3

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, Southwest, Northern, Northwest	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.

Appendix 4

VDH Health Planning Regions and Health Districts Map