

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

August 2017

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Background

The Virginia Department of Health (VDH) currently receives data on visits to 77[§] 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 acute 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 that uses standardized values outlined by the International Classification of Diseases (ICD) 9th and 10th Revision code sets.

Methodology

ED visits that are identified as **unintentional overdose by opioid or unspecified substance** include those with medical and non-medical use of a prescription opioid or where the substance is not specified, given evidence that the majority of fatal overdoses are opioid-related.¹ These visits must meet the following inclusion and exclusion criteria:

- Inclusion terms from Chief Complaint or Discharge Diagnosis: *overdose, OD, sobredosis, opioid, opiate, opium, narcotic, Narcan, naloxone, E850.1, E850.2, 965.00, 965.02, 965.09, 977.9, T40.0X1, T40.0X4, T40.2X1, T40.2X4, T40.3X1, T40.3X4, T40.4X1, T40.4X4, T40.601, T40.604, T40.691, T40.694, T50.901, T50.904*
- Exclusions terms from Chief Complaint or Discharge Diagnosis: *heroin, herion, heron, 965.01, T40.1X, suicide, alcohol overdose alone, withdrawal, detoxification, rehab, addiction, dependency, mental health or psychological evaluation, allergies, constipation, chronic pain, refill requests, and any specified non-opioid drug or medication*

ED visits that are identified as **unintentional overdose by heroin** must meet the following inclusion and exclusion criteria:

- Inclusion terms from Chief Complaint or Discharge Diagnosis: *heroin, herion, 965.01, E850.0, T40.1X1A, T40.1X4A*
- Exclusions terms from Chief Complaint or Discharge Diagnosis: *suicide, withdrawal, detoxification, rehab, and addiction*

These criteria were revised in September 2016 and again in August 2017 in order to improve specificity in the identification of ED visits for unintentional drug overdose. Readers are strongly encouraged to review [syndromic surveillance data limitations](#) when interpreting this report.

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 2016 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. Places where the Virginia city and county populations have been combined to calculate a rate per 100,000 population due to zip codes spanning multiple localities can be found in [Appendix 1](#).

§ Between May and June 2017, fluctuations in reporting to VDH were observed. Before June, 82 acute care hospital EDs and 13 free-standing EDs submitted data. In June, one healthcare system in the Eastern Health Planning Region became unable to provide data. As a result, 77 out of an expected 82 acute care hospital EDs and 13 free-standing EDs reported data since June; any observed decreases in the count or rate of overdoses in the Eastern Region might be artificially low because of this change in reporting. Additionally, one acute care hospital ED in the Northwest Health Planning Region improved its data quality during June so that visits can be attributed to overdoses more accurately, thereby increasing the counts for that area. Please consider these changes in reporting when interpreting the contents of this report.

Highlights for August 2017

Statewide ED visits for overdose by opioid or unspecified substance among Virginia residents decreased by 0.3% from July (717 visits) to August 2017 (715 visits). The total Year-to-Date count of ED visits is 3% higher in 2017 as compared to 2016 (Figure 1B).

- Among the 5 [VDH health planning regions](#), rates for visits for overdose by opioid or unspecified substance have remained the highest in the Southwest (12.7 per 100,000 population) and Central (11.1 per 100,000) regions. The rate was observed to be the lowest for the Northern region for the past 12 months (Figure 1C). The Central, Southwest and Northwest regions' total Year-to-Date counts are higher in 2017 as compared to 2015 and 2016 (Figure 1D).
- By sex, there has been no significant difference in the proportion of visits for overdose by opioid or unspecified substance between females and males in the past 12 months (Figure 1E).
- By age group, the rate for visits for overdose by opioid or unspecified substance was the highest in the 25-34 year age group (14.1 per 100,000), and has been the highest in this age group since March 2017 (Figure 1F).

Statewide ED visits for overdose by heroin among Virginia residents decreased by 17% from July (153 visits) to August (127 visits). The total Year-to-Date count of ED visits is 21% higher in 2017 as compared to 2016 (Figure 2B).

- Among the 5 [VDH health planning regions](#), rates for visits for overdose by heroin were relatively similar between the Central, Eastern, Northwest and Southwest regions (1.7-1.9 per 100,000) in August 2017 and were slightly above the state average (1.5 per 100,000). The rate for the Northern region has been below the state average for the past 12 months (Figure 2C). The Central, Northern, Northwest and Southwest regions' total Year-to-Date counts are higher in 2017 as compared to 2015 and 2016 (Figure 2D).
- By sex, males contributed significantly (p -value $<.05$) more visits for overdose by heroin as compared to females in August 2017 (Figure 2E).
- By age group, the rate for visits for overdose by heroin was the highest in the 25-34 year age group (4.4 per 100,000) in August 2017. The rate in the 25-34 year age group was twice that of any other age groups, and has been higher than any other age groups for the past 12 months (Figure 2F).

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, 2015 - 2017.

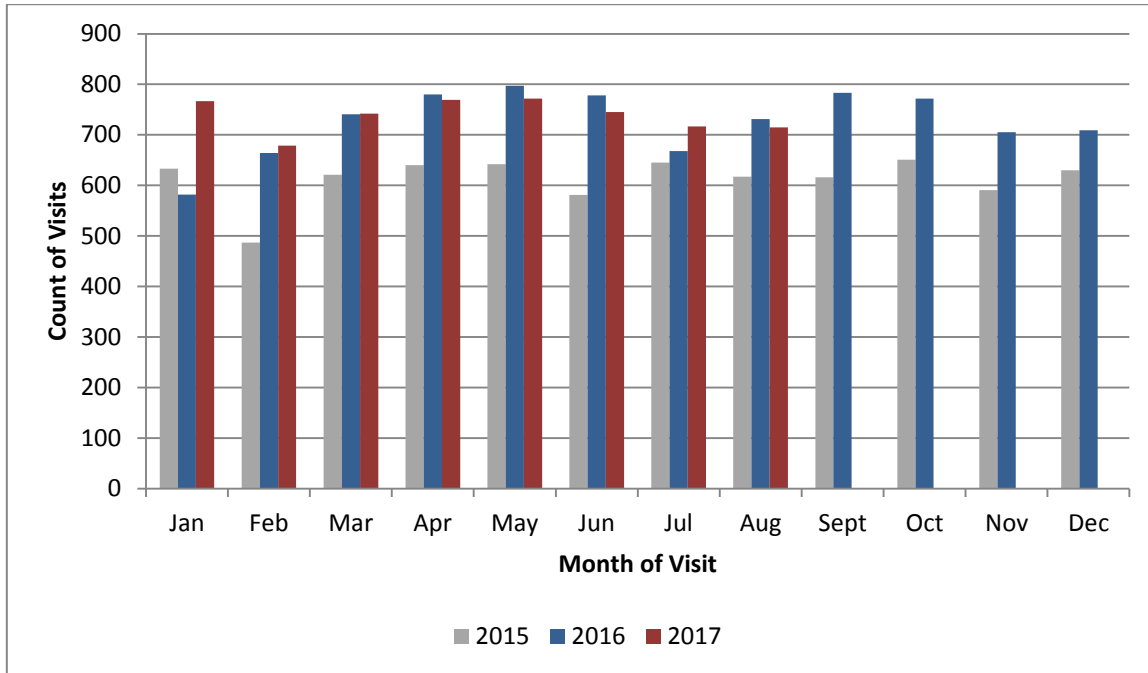


Figure 1B. Year-to-Date Count (January – August) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year.

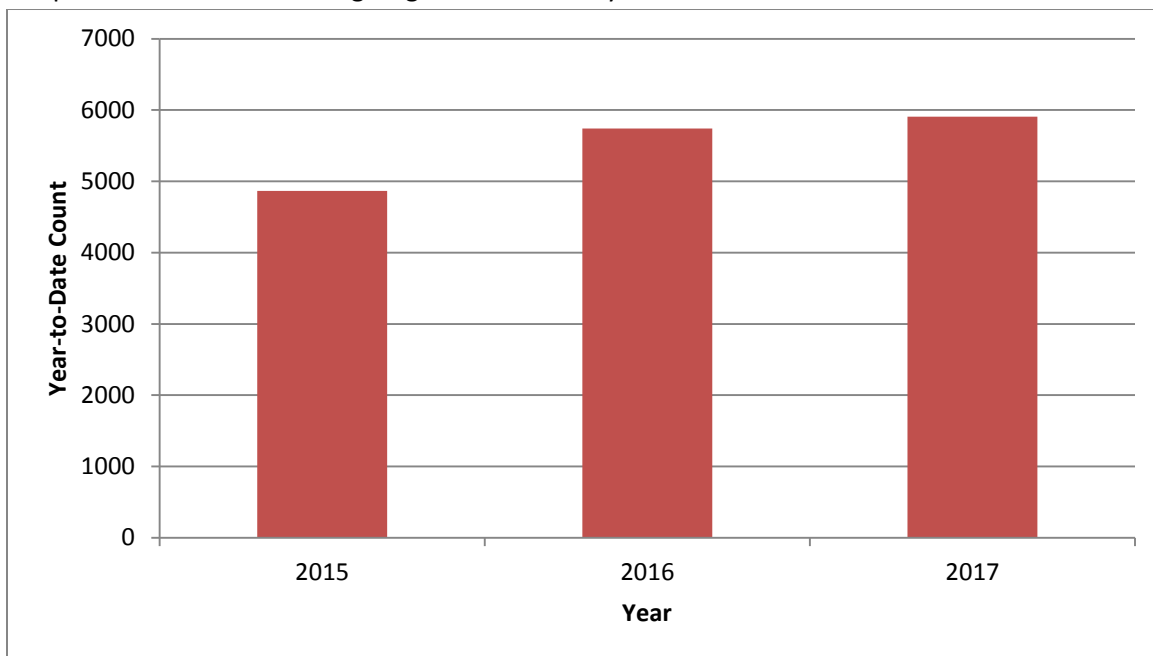


Figure 1C. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health Region, Most Recent 12 Months.

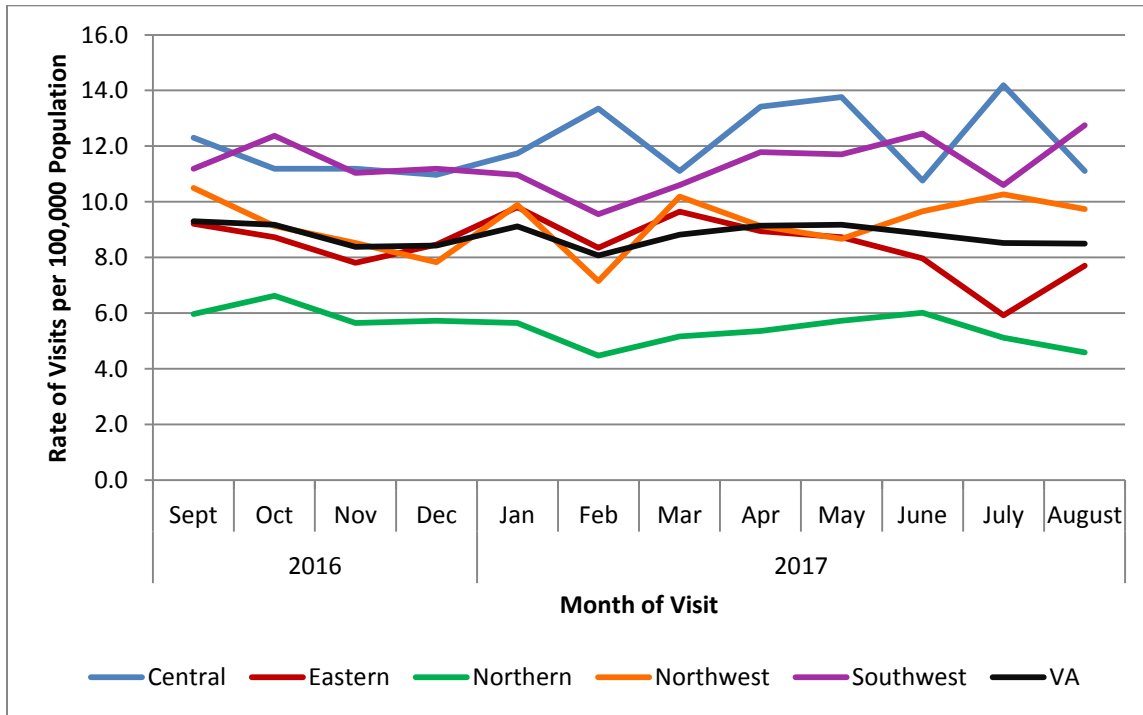


Figure 1D. Year-to-date (January to August) count of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Region.

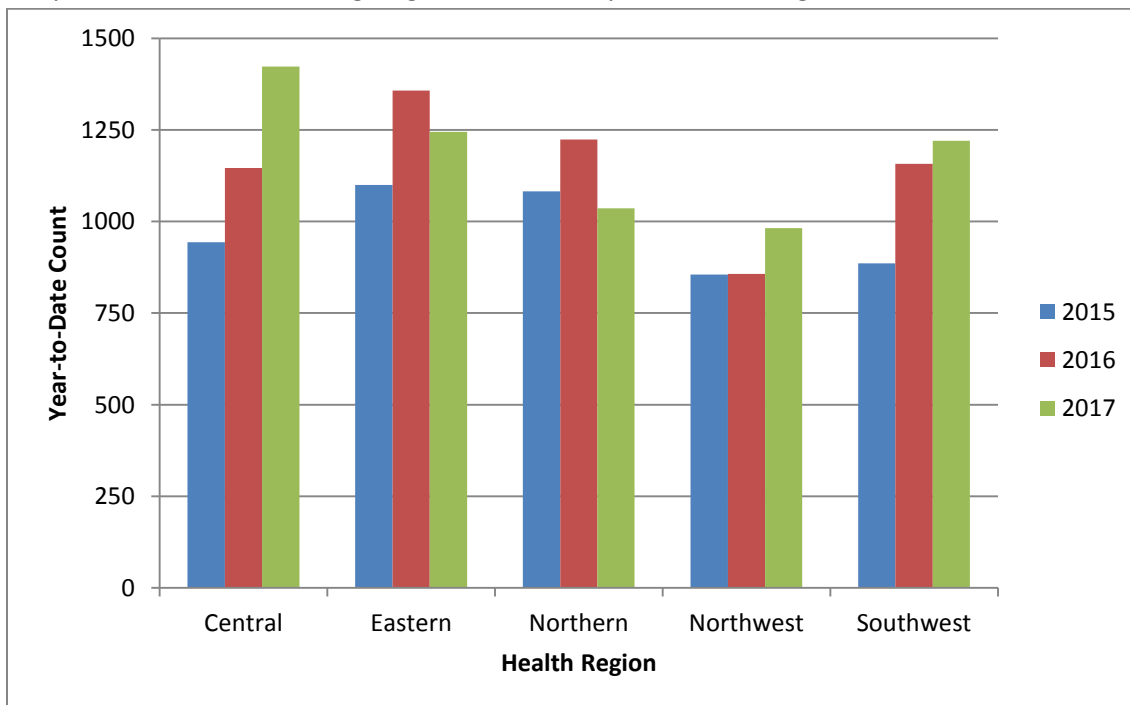


Figure 1E. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Sex, Most Recent 12 Months.

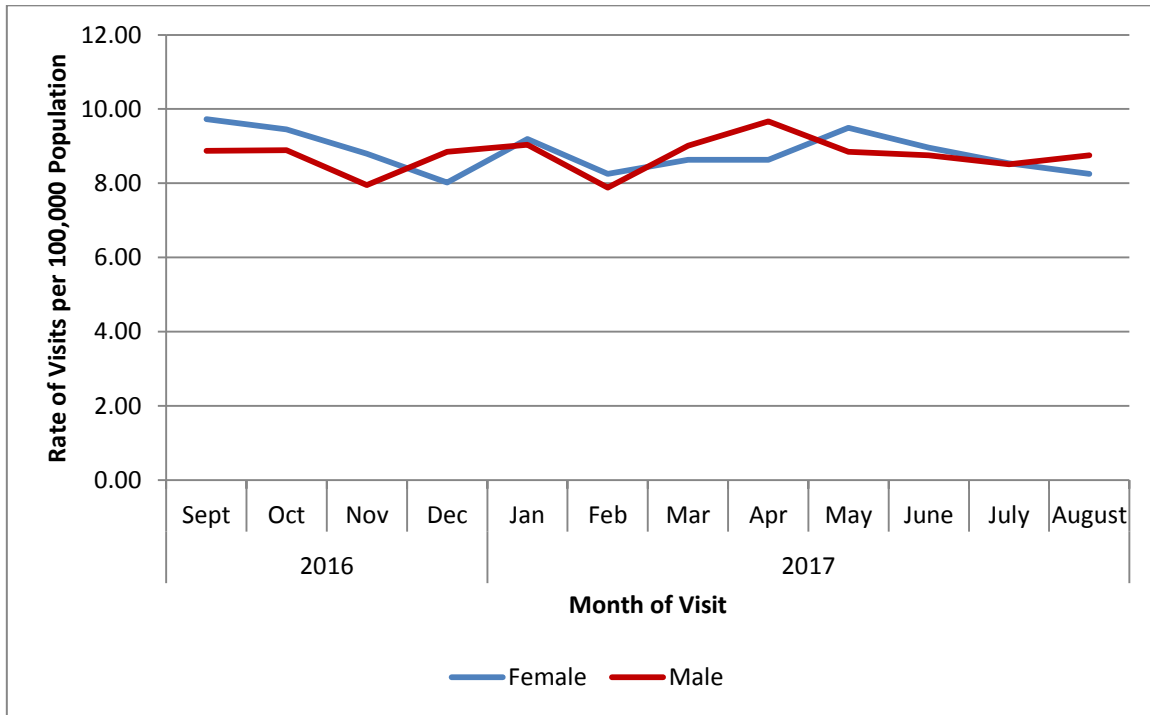


Figure 1F. Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

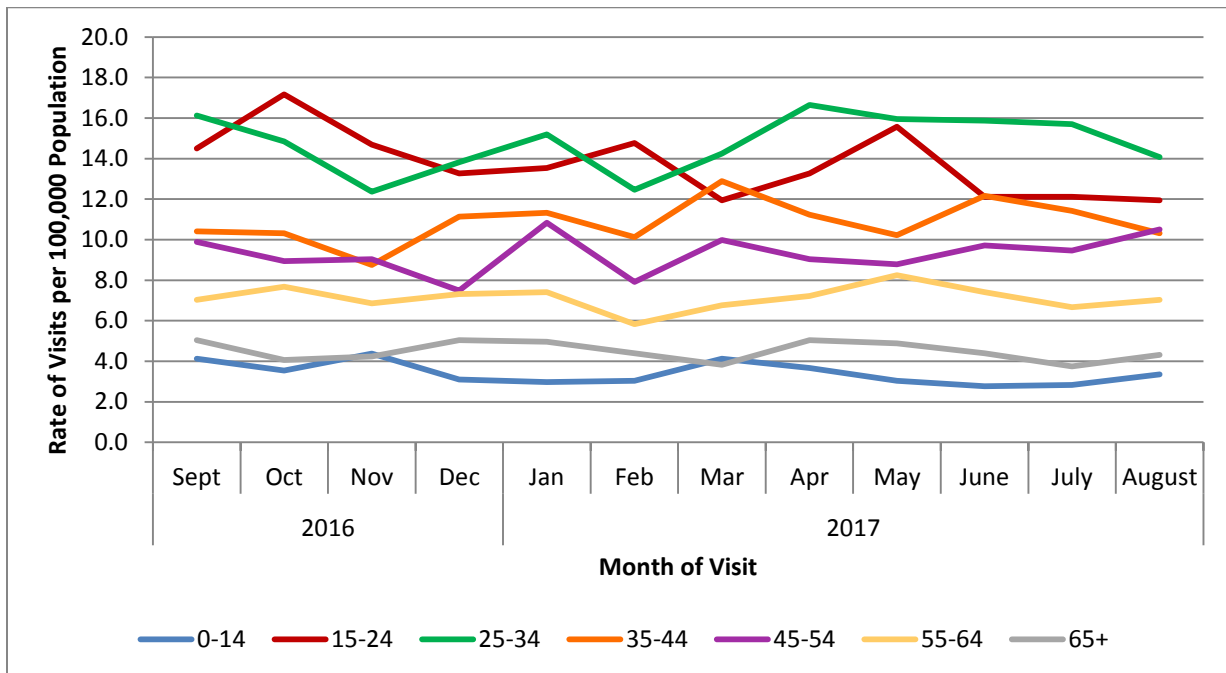


Table 1A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health District, Most Recent 5 Months^{†*}

Health District	2016 Population Estimate	April 2017		May 2017		June 2017		July 2017		Aug 2017		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count [^]	Rate
Alexandria	155,810	12	7.7	14	9.0	9	5.8	6	3.9	6	3.9	9	6.0
Alleghany	179,082	22	12.3	28	15.6	18	10.1	14	7.8	34	19.0	23	13.0
Arlington	230,050	6	2.6	9	3.9	8	3.5	8	3.5	8	3.5	8	3.4
Central Shenandoah	296,650	10	3.4	11	3.7	25	8.4	26	8.8	20	6.7	18	6.2
Central Virginia	260,232	25	9.6	22	8.5	25	9.6	16	6.1	14	5.4	20	7.8
Chesapeake	237,940	25	10.5	21	8.8	38	16.0	17	7.1	29	12.2	26	10.9
Chesterfield	385,224	39	10.1	37	9.6	33	8.6	37	9.6	43	11.2	38	9.8
Chickahominy	155,278	18	11.6	22	14.2	16	10.3	26	16.7	13	8.4	19	12.2
Crater	155,665	10	6.4	21	13.5	14	9.0	14	9.0	6	3.9	13	8.4
Cumberland Plateau	106,666	7	6.6	12	11.3	14	13.1	9	8.4	7	6.6	10	9.2
Eastern Shore	45,086	8	17.7	6	13.3	0	0	0	0	0	0	3	6.2
Fairfax	1,176,830	63	5.4	70	5.9	74	6.3	68	5.8	58	4.9	67	5.7
Hampton	135,410	9	6.6	11	8.1	7	5.2	*	*	15	11.1	9	6.8
Henrico	326,501	61	18.7	51	15.6	39	11.9	58	17.8	39	11.9	50	15.2
Lenowisco	89,201	14	15.7	9	10.1	6	6.7	14	15.7	11	12.3	11	12.1
Lord Fairfax	232,295	16	6.9	18	7.7	21	9.0	18	7.7	26	11.2	20	8.5
Loudoun	385,945	27	7.0	20	5.2	27	7.0	17	4.4	18	4.7	22	5.6
Mount Rogers	189,178	16	8.5	20	10.6	22	11.6	22	11.6	20	10.6	20	10.6
New River	182,876	15	8.2	26	14.2	18	9.8	10	5.5	12	6.6	16	8.9
Norfolk	245,115	21	8.6	17	6.9	31	12.6	27	11.0	20	8.2	23	9.5
Peninsula	351,436	37	10.5	36	10.2	8	2.3	17	4.8	25	7.1	25	7.0
Piedmont	102,752	8	7.8	10	9.7	9	8.8	7	6.8	12	11.7	9	9.0
Pittsylvania-Danville	103,585	17	16.4	8	7.7	9	8.7	10	9.7	18	17.4	12	12.0
Portsmouth	95,252	12	12.6	16	16.8	19	19.9	10	10.5	14	14.7	14	14.9
Prince William	512,608	24	4.7	28	5.5	30	5.9	27	5.3	23	4.5	26	5.2
Rappahannock	360,830	38	10.5	35	9.7	31	8.6	40	11.1	38	10.5	36	10.1
Rappahannock-Rapidan	175,151	32	18.3	22	12.6	25	14.3	26	14.8	22	12.6	25	14.5
Richmond City	223,170	50	22.4	48	21.5	39	17.5	46	20.6	34	15.2	43	19.4
Roanoke	99,660	22	22.1	21	21.1	36	36.1	27	27.1	37	37.1	29	28.7
Southside	82,127	6	7.3	8	9.7	*	*	15	18.3	12	14.6	9	11.0
Thomas Jefferson	249,537	24	9.6	28	11.2	25	10.0	25	10.0	22	8.8	25	9.9
Three Rivers	140,950	13	9.2	23	16.3	11	7.8	8	5.7	7	5.0	12	8.8
Virginia Beach	452,602	32	7.1	17	3.8	22	4.9	20	4.4	22	4.9	23	5.0
West Piedmont	138,882	21	15.1	12	8.6	20	14.4	21	15.1	19	13.7	19	13.4
Western Tidewater	152,232	9	5.9	15	9.9	12	7.9	7	4.6	11	7.2	11	7.1
VIRGINIA TOTAL	8,411,808	769	9.1	772	9.2	745	8.9	717	8.5	715	8.5	744	8.8

[†] Population based on 2016 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	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Accomack County	32,947	5	15.2	*	*	0	0	0	0	0	0
Albemarle County [†]	153,790	14	9.1	16	10.4	17	11.1	14	9.1	15	9.8
Alleghany County [‡]	21,113	*	*	*	*	*	*	*	*	*	*
Amelia County	12,913	*	*	*	*	*	*	*	*	*	*
Amherst County	31,633	*	*	6	19.0	*	*	*	*	*	*
Appomattox County	15,475	*	*	0	0	*	*	*	*	0	0
Arlington County	230,050	6	2.6	9	3.9	8	3.5	8	3.5	8	3.5
Augusta County [†]	121,247	*	*	*	*	9	7.4	13	10.7	9	7.4
Bath County	4,476	0	0	0	0	*	*	*	*	0	0
Bedford County	77,960	5	6.4	9	11.5	10	12.8	*	*	*	*
Bland County	6,513	0	0	0	0	*	*	0	0	0	0
Botetourt County	33,231	0	0	*	*	0	0	*	*	*	*
Brunswick County	16,243	*	*	*	*	*	*	*	*	5	30.8
Buchanan County	22,178	*	*	*	*	*	*	*	*	*	*
Buckingham County	17,048	*	*	*	*	0	0	0	0	*	*
Campbell County	54,952	6	10.9	*	*	*	*	*	*	*	*
Caroline County	30,178	*	*	6	19.9	*	*	*	*	*	*
Carroll County	29,531	*	*	*	*	*	*	*	*	*	*
Charles City County	7,071	0	0	0	0	*	*	0	0	*	*
Charlotte County	12,129	*	*	*	*	*	*	*	*	*	*
Chesterfield County [‡]	356,781	39	10.9	35	9.8	33	9.2	34	9.5	41	11.5
Clarke County	14,374	*	*	*	*	0	0	0	0	*	*
Craig County	5,158	*	*	*	*	0	0	0	0	*	*
Culpeper County	50,083	9	18.0	8	16.0	*	*	10	20.0	*	*
Cumberland County	9,652	0	0	0	0	*	*	0	0	0	0
Dickenson County	14,968	*	*	*	*	*	*	*	*	*	*
Dinwiddie County	28,144	0	0	0	0	0	0	*	*	*	*
Essex County	11,123	0	0	*	*	0	0	0	0	0	0
Fairfax County [‡]	1,176,830	63	5.4	70	5.9	74	6.3	68	5.8	58	4.9
Fauquier County	69,069	12	17.4	7	10.1	13	18.8	5	7.2	13	18.8
Floyd County	15,731	*	*	0	0	*	*	0	0	0	0
Fluvanna County	26,271	*	*	*	*	0	0	0	0	*	*
Franklin County	56,069	7	12.5	6	10.7	6	10.7	9	16.1	6	10.7
Frederick County [‡]	111,937	5	4.5	8	7.1	11	9.8	10	8.9	12	10.7
Giles County	16,857	*	*	*	*	*	*	*	*	*	*
Gloucester County	37,214	5	13.4	*	*	*	*	0	0	0	0
Goochland County	22,668	*	*	*	*	0	0	*	*	0	0

Locality	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Grayson County [‡]	21,882	7	32.0	*	*	*	*	5	22.8	6	27.4
Greene County	19,371	*	*	*	*	*	*	*	*	*	*
Greensville County [‡]	17,011	*	*	*	*	5	29.4	*	*	0	0
Halifax County	34,992	*	*	*	*	0	0	9	25.7	*	*
Hanover County	104,392	15	14.4	16	15.3	13	12.5	21	20.1	11	10.5
Henrico County	326,501	61	18.7	51	15.6	39	11.9	58	17.8	39	11.9
Henry County [‡]	64,890	13	20.0	6	9.2	13	20.0	11	17.0	12	18.5
Highland County	2,216	0	0	0	0	0	0	0	0	0	0
Isle of Wight County	36,596	*	*	0	0	*	*	*	*	0	0
James City County	74,404	6	8.1	10	13.4	*	*	*	*	*	*
King and Queen County	7,159	0	0	*	*	*	*	0	0	0	0
King George County	25,984	*	*	*	*	*	*	*	*	*	*
King William County	16,334	*	*	*	*	*	*	*	*	*	*
Lancaster County	10,972	0	0	*	*	*	*	0	0	*	*
Lee County	24,179	*	*	*	*	*	*	*	*	0	0
Loudoun County	385,945	27	7.0	20	5.2	27	7.0	17	4.4	18	4.7
Louisa County	35,236	6	17.0	6	17.0	6	17.0	7	19.9	*	*
Lunenburg County	12,273	0	0	0	0	0	0	*	*	*	*
Madison County	13,078	*	*	*	*	*	*	*	*	0	0
Mathews County	8,782	*	*	*	*	0	0	0	0	0	0
Mecklenburg County	30,892	*	*	*	*	*	*	*	*	*	*
Middlesex County	10,778	*	*	*	*	0	0	*	*	0	0
Montgomery County [‡]	116,085	9	7.8	18	15.5	10	8.6	*	*	6	5.2
Nelson County	14,869	*	*	0	0	0	0	*	*	*	*
New Kent County	21,147	*	*	5	23.6	*	*	*	*	*	*
Northampton County	12,139	*	*	*	*	0	0	0	0	0	0
Northumberland County	12,222	*	*	*	*	0	0	*	*	*	*
Nottoway County	15,595	*	*	*	*	0	0	*	*	0	0
Orange County	35,533	8	22.5	*	*	7	19.7	9	25.3	5	14.1
Page County	23,654	*	*	0	0	*	*	*	*	*	*
Patrick County	17,923	*	*	0	0	*	*	*	*	*	*
Pittsylvania County [‡]	103,585	17	16.4	8	7.7	9	8.7	10	9.7	18	17.4
Powhatan County	28,443	0	0	*	*	0	0	*	*	*	*
Prince Edward County	23,142	*	*	*	*	0	0	*	*	*	*
Prince George County	92,462	6	6.5	18	19.5	8	8.7	11	11.9	5	5.4
Prince William County [‡]	512,608	24	4.7	28	5.5	30	5.9	27	5.3	23	4.5
Pulaski County	34,203	*	*	7	20.5	*	*	5	14.6	*	*
Rappahannock County	7,388	0	0	0	0	0	0	0	0	*	*
Richmond County	8,774	*	*	0	0	0	0	0	0	0	0
Roanoke County [‡]	219,240	41	18.7	43	19.6	51	23.3	36	16.4	65	29.6

Locality	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Rockbridge County [‡]	35,889	*	*	5	13.9	*	*	*	*	*	*
Rockingham County [‡]	132,822	5	3.8	5	3.8	13	9.8	10	7.5	7	5.3
Russell County	27,370	*	*	*	*	6	21.9	*	*	*	*
Scott County	21,930	*	*	0	0	0	0	*	*	*	*
Shenandoah County	43,175	*	*	*	*	*	*	*	*	*	*
Smyth County	31,062	*	*	*	*	11	35.4	6	19.3	*	*
Southampton County [‡]	26,363	0	0	*	*	*	*	*	*	*	*
Spotsylvania County	132,010	11	8.3	14	10.6	14	10.6	12	9.1	11	8.3
Stafford County	144,361	19	13.2	12	8.3	10	6.9	15	10.4	14	9.7
Surry County	6,544	0	0	0	0	*	*	0	0	0	0
Sussex County	11,504	0	0	0	0	0	0	*	*	0	0
Tazewell County	42,150	*	*	*	*	*	*	6	14.2	0	0
Warren County	39,155	*	*	6	15.3	6	15.3	5	12.8	7	17.9
Washington County [‡]	71,174	*	*	6	8.4	*	*	5	7.0	6	8.4
Westmoreland County	17,592	*	*	5	28.4	*	*	*	*	*	*
Wise County [‡]	43,092	11	25.5	5	11.6	*	*	9	20.9	10	23.2
Wythe County	29,016	0	0	*	*	0	0	*	*	*	*
York County	67,976	*	*	7	10.3	*	*	*	*	6	8.8
Alexandria City	155,810	12	7.7	14	9.0	9	5.8	6	3.9	6	3.9
Bristol City [‡]	71,174	*	*	6	8.4	*	*	5	7.0	6	8.4
Buena Vista City [‡]	35,889	*	*	5	13.9	*	*	*	*	*	*
Charlottesville City [‡]	153,790	14	9.1	16	10.4	17	11.1	14	9.1	15	9.8
Chesapeake City	237,940	25	10.5	21	8.8	38	16.0	17	7.1	29	12.2
Colonial Heights City [‡]	356,781	39	10.9	35	9.8	33	9.2	34	9.5	41	11.5
Covington City [‡]	21,113	*	*	*	*	*	*	*	*	*	*
Danville City [‡]	103,585	17	16.4	8	7.7	9	8.7	10	9.7	18	17.4
Emporia City [‡]	17,011	*	*	*	*	5	29.4	*	*	0	0
Fairfax City [‡]	1,176,830	63	5.4	70	5.9	74	6.3	68	5.8	58	4.9
Falls Church City [‡]	1,176,830	63	5.4	70	5.9	74	6.3	68	5.8	58	4.9
Franklin City [‡]	26,363	0	0	*	*	*	*	*	*	*	*
Fredericksburg City	28,297	*	*	*	*	*	*	6	21.2	9	31.8
Galax City [‡]	21,882	7	32.0	*	*	*	*	5	22.8	6	27.4
Hampton City	135,410	9	6.6	11	8.1	7	5.2	*	*	15	11.1
Harrisonburg City [‡]	132,822	5	3.8	5	3.8	13	9.8	10	7.5	7	5.3
Hopewell City [‡]	92,462	6	6.5	18	19.5	8	8.7	11	11.9	5	5.4
Lexington City [‡]	35,889	*	*	5	13.9	*	*	*	*	*	*
Lynchburg City	80,212	8	10.0	5	6.2	11	13.7	6	7.5	8	10.0
Manassas City [‡]	512,608	24	4.7	28	5.5	30	5.9	27	5.3	23	4.5
Manassas Park City [‡]	512,608	24	4.7	28	5.5	30	5.9	27	5.3	23	4.5
Martinsville City [‡]	64,890	13	20.0	6	9.2	13	20.0	11	17.0	12	18.5

Locality	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Newport News City	181,825	26	14.3	19	10.4	6	3.3	11	6.0	15	8.2
Norfolk City	245,115	21	8.6	17	6.9	31	12.6	27	11.0	20	8.2
Norton City [†]	43,092	11	25.5	5	11.6	*	*	9	20.9	10	23.2
Petersburg City [‡]	92,462	6	6.5	18	19.5	8	8.7	11	11.9	5	5.4
Poquoson City	12,017	*	*	0	0	0	0	0	0	*	*
Portsmouth City	95,252	12	12.6	16	16.8	19	19.9	10	10.5	14	14.7
Radford City [‡]	116,085	9	7.8	18	15.5	10	8.6	*	*	6	5.2
Richmond City	223,170	50	22.4	48	21.5	39	17.5	46	20.6	34	15.2
Roanoke City [†]	219,240	41	18.7	43	19.6	51	23.3	36	16.4	65	29.6
Salem City [†]	219,240	41	18.7	43	19.6	51	23.3	36	16.4	65	29.6
Staunton City [‡]	121,247	*	*	*	*	9	7.4	13	10.7	9	7.4
Suffolk City	89,273	7	7.8	12	13.4	8	9.0	*	*	7	7.8
Virginia Beach City	452,602	32	7.1	17	3.8	22	4.9	20	4.4	22	4.9
Waynesboro City [‡]	121,247	*	*	*	*	9	7.4	13	10.7	9	7.4
Williamsburg City	15,214	0	0	0	0	0	0	0	0	0	0
Winchester City [‡]	111,937	5	4.5	8	7.1	11	9.8	10	8.9	12	10.7
VIRGINIA TOTAL	8,411,808	769	9.1	772	9.2	745	8.9	717	8.5	715	8.5

[†] Population based on 2016 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 1](#) 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.

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	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,414,861	192	13.6	209	14.8	158	11.2	201	14.2	152	10.7
Division 2	844,936	86	10.2	72	8.5	85	10.1	87	10.3	89	10.5
Division 3	657,948	53	8.1	46	7.0	51	7.8	59	9.0	55	8.4
Division 4	436,105	41	9.4	49	11.2	49	11.2	51	11.7	44	10.1
Division 5	1,823,149	166	9.1	154	8.4	147	8.1	110	6.0	141	7.7
Division 6	773,566	99	12.8	101	13.1	107	13.8	83	10.7	121	15.6
Division 7	2,461,243	132	5.4	141	5.7	148	6.0	126	5.1	113	4.6
VIRGINIA TOTAL	8,411,808	769	9.1	772	9.2	745	8.9	717	8.5	715	8.5

† Population based on 2016 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

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, 2015 – 2017.

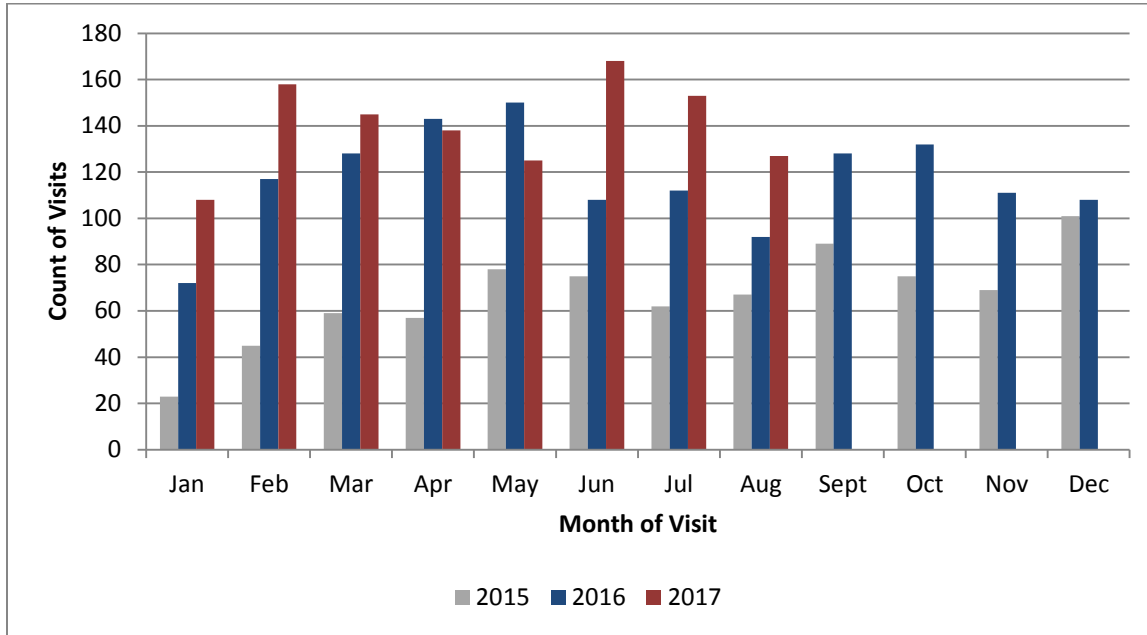


Figure 2B. Year-to-Date Count (January – August) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year.

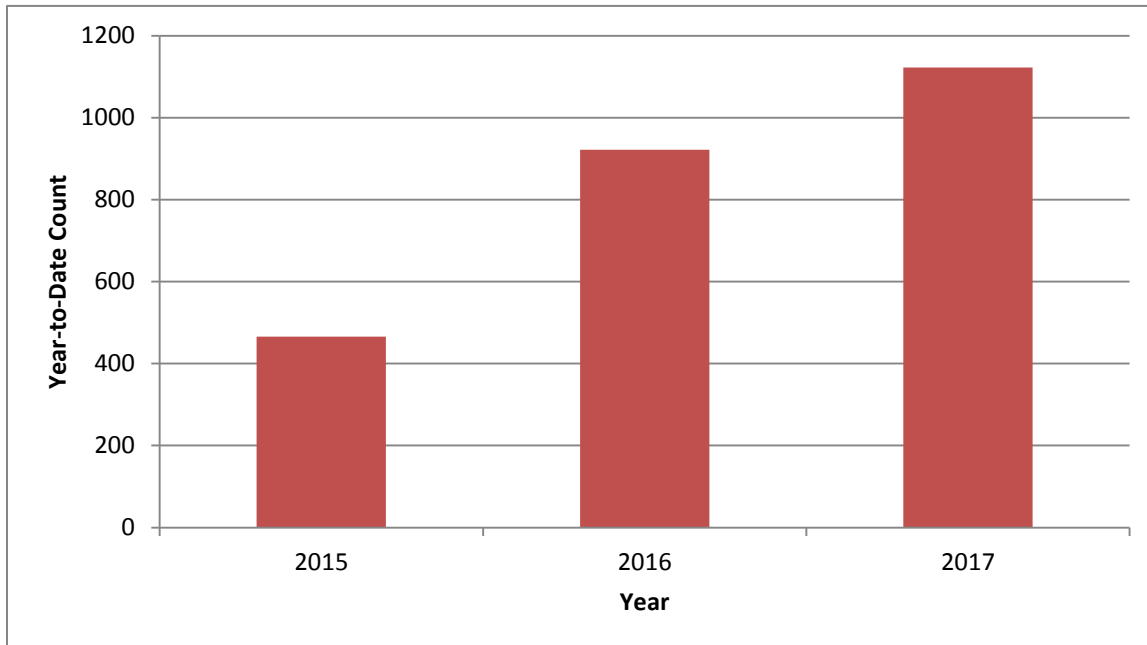


Figure 2C. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health Region, Most Recent 12 Months.

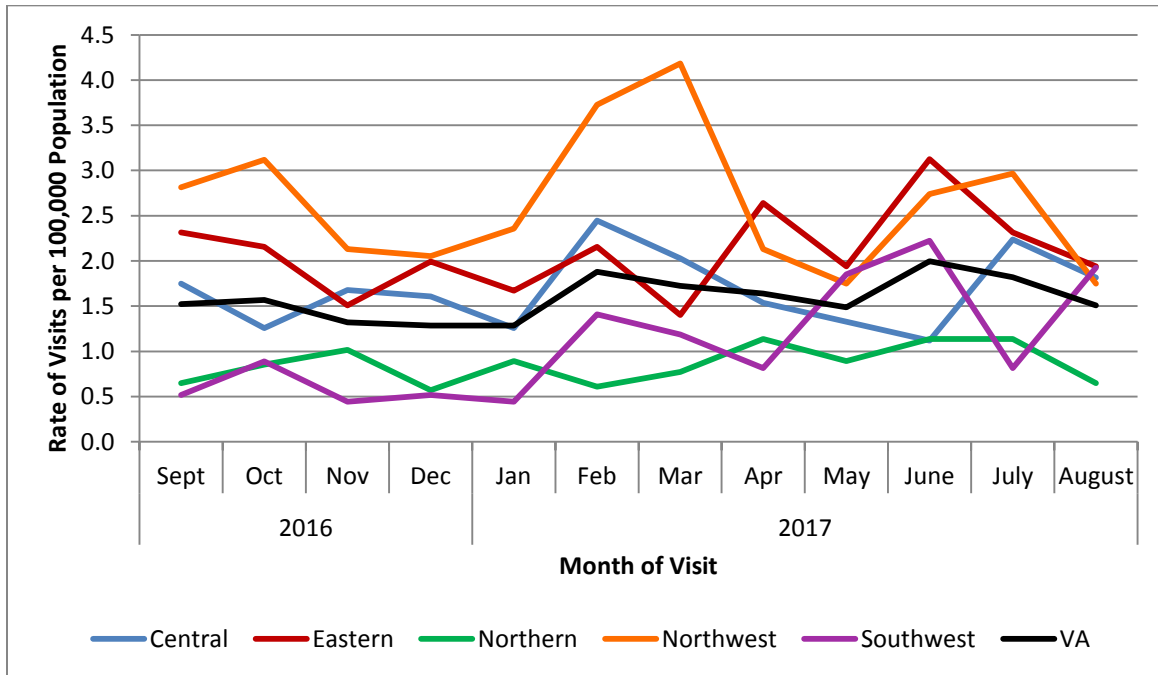


Figure 2D. Year-to-date (January to August) count of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Region.

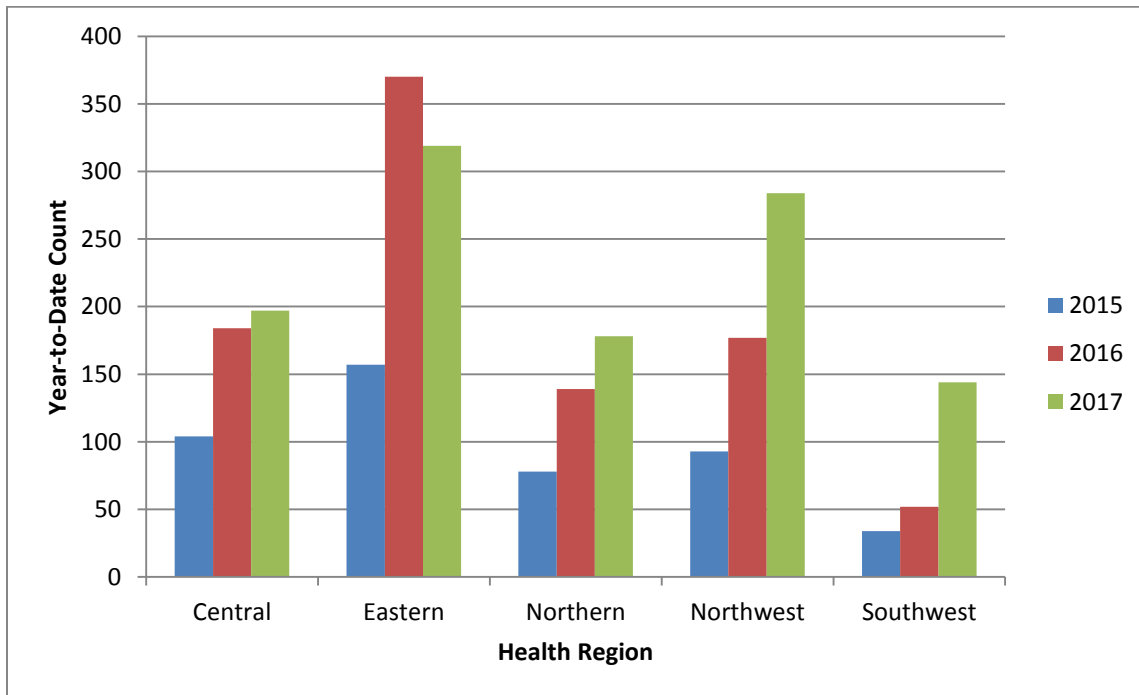


Figure 2E. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Sex, Most Recent 12 Months.

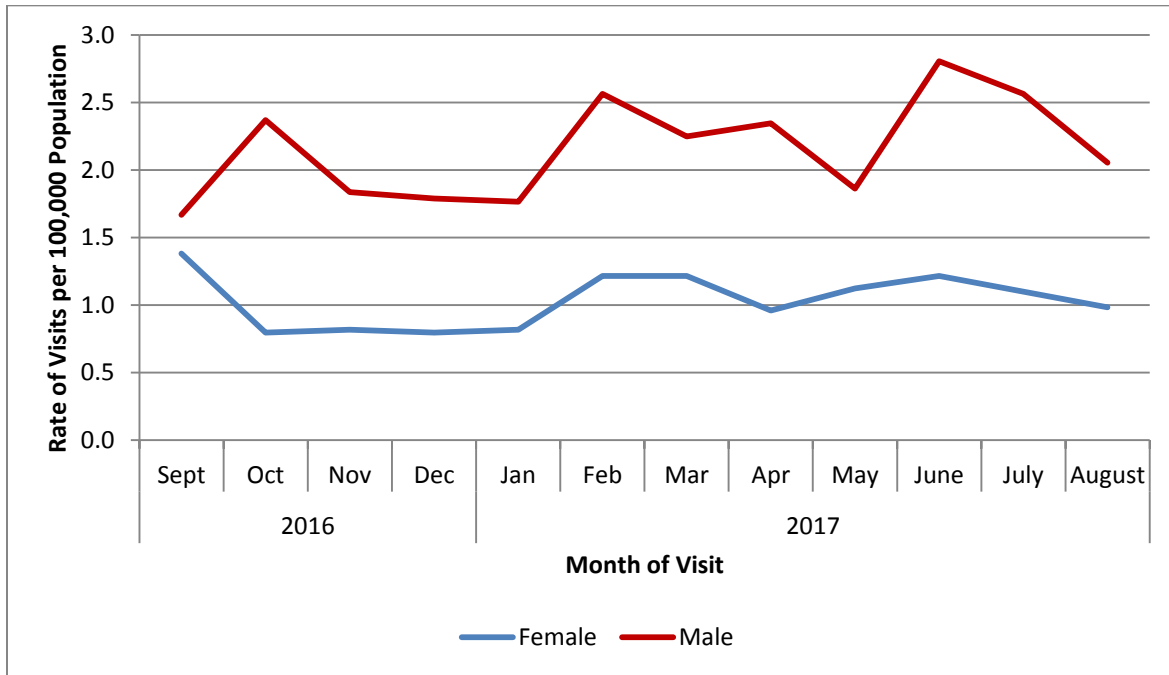


Figure 2F. Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.

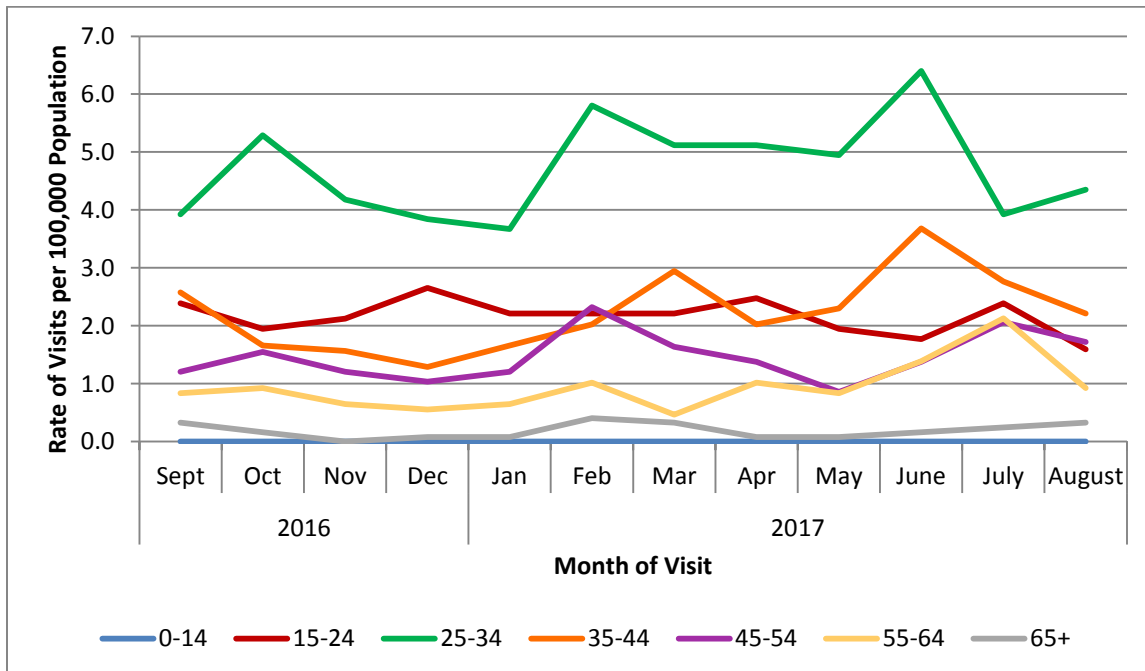


Table 2A. Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health District, Most Recent 5 Months^{†*}

Health District	2016 Population Estimate	April 2017		May 2017		June 2017		July 2017		Aug 2017		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count [^]	Rate
Alexandria	155,810	*	*	*	*	5	3.2	*	*	*	*	2	1.3
Alleghany	179,082	*	*	11	6.1	12	6.7	*	*	10	5.6	8	4.6
Arlington	230,050	*	*	*	*	*	*	6	2.6	0	0	2	0.9
Central Shenandoah	296,650	0	0	*	*	*	*	*	*	*	*	2	0.7
Central Virginia	260,232	*	*	0	0	*	*	*	*	0	0	1	0.4
Chesapeake	237,940	8	3.4	7	2.9	7	2.9	5	2.1	7	2.9	7	2.9
Chesterfield	385,224	7	1.8	5	1.3	*	*	7	1.8	13	3.4	7	1.8
Chickahominy	155,278	*	*	*	*	*	*	*	*	*	*	2	1.2
Crater	155,665	*	*	*	*	*	*	*	*	*	*	2	1.0
Cumberland Plateau	106,666	0	0	0	0	0	0	0	0	0	0	0	0.0
Eastern Shore	45,086	0	0	0	0	0	0	0	0	0	0	0	0.0
Fairfax	1,176,830	13	1.1	*	*	13	1.1	6	0.5	7	0.6	8	0.7
Hampton	135,410	*	*	*	*	*	*	6	4.4	*	*	3	2.2
Henrico	326,501	7	2.1	7	2.1	*	*	12	3.7	6	1.8	7	2.2
Lenowisco	89,201	0	0	0	0	0	0	0	0	0	0	0	0.0
Lord Fairfax	232,295	8	3.4	6	2.6	8	3.4	10	4.3	*	*	7	2.9
Loudoun	385,945	*	*	5	1.3	*	*	*	*	*	*	2	0.6
Mount Rogers	189,178	0	0	0	0	0	0	0	0	*	*	0	0.1
New River	182,876	0	0	*	*	*	*	0	0	*	*	2	0.9
Norfolk	245,115	15	6.1	7	2.9	7	2.9	12	4.9	11	4.5	10	4.2
Peninsula	351,436	*	*	*	*	5	1.4	*	*	*	*	3	1.0
Piedmont	102,752	0	0	0	0	0	0	0	0	0	0	0	0.0
Pittsylvania-Danville	103,585	0	0	0	0	0	0	0	0	0	0	0	0.0
Portsmouth	95,252	*	*	*	*	11	11.5	8	8.4	6	6.3	7	6.9
Prince William	512,608	12	2.3	11	2.1	6	1.2	12	2.3	7	1.4	10	1.9
Rappahannock	360,830	9	2.5	5	1.4	16	4.4	14	3.9	7	1.9	10	2.8
Rappahannock-Rapidan	175,151	9	5.1	7	4.0	6	3.4	7	4.0	8	4.6	7	4.2
Richmond City	223,170	5	2.2	*	*	6	2.7	9	4.0	*	*	5	2.4
Roanoke	99,660	6	6.0	9	9.0	12	12.0	5	5.0	10	10.0	8	8.4
Southside	82,127	0	0	0	0	0	0	0	0	*	*	0	0.2
Thomas Jefferson	249,537	*	*	*	*	*	*	7	2.8	*	*	3	1.4
Three Rivers	140,950	*	*	*	*	*	*	*	*	*	*	2	1.7
Virginia Beach	452,602	11	2.4	7	1.5	18	4.0	8	1.8	*	*	9	2.1
West Piedmont	138,882	0	0	*	*	*	*	*	*	*	*	1	0.9
Western Tidewater	152,232	*	*	*	*	*	*	*	*	*	*	2	1.6
VIRGINIA TOTAL	8,411,808	138	1.6	125	1.5	168	2.0	153	1.8	127	1.5	142	1.7

† Population based on 2016 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	2016 Population Estimate	Apr 2017		May 2017		June 2017		July 2017		Aug 2017	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,414,861	25	1.8	21	1.5	23	1.6	35	2.5	30	2.1
Division 2	844,936	24	2.8	21	2.5	28	3.3	30	3.6	18	2.1
Division 3	657,948	*	*	*	*	*	*	7	1.1	*	*
Division 4	436,105	0	0	*	*	0	0	0	0	*	*
Division 5	1,823,149	48	2.6	35	1.9	55	3.0	42	2.3	34	1.9
Division 6	773,566	11	1.4	24	3.1	30	3.9	11	1.4	25	3.2
Division 7	2,461,243	28	1.1	22	0.9	28	1.1	28	1.1	16	0.7
VIRGINIA TOTAL	8,411,808	138	1.6	125	1.5	168	2.0	153	1.8	127	1.5

† Population based on 2016 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

Appendix 1

Virginia Localities that were Combined for the Purposes of Calculating Rate 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