

# Drug-Related Fatalities Among Vermonters

## Key Points from the Drug-Related Fatalities Brief, 2017 Annual Data Publication

- 2017 drug-related fatality data show a six percent decrease in the number of all drug-related deaths among Vermont residents (from 132 deaths in 2016 to 124 deaths in 2017). (Note: the data for opioid-specific fatalities appears to show we are beginning to bend the curve on the upward spiral of opioid-related fatalities. Please see [link](#) for details on opioid-specific fatalities.
- Among all drug-related fatalities, those involving fentanyl have increased by more than a third – 49 deaths in 2016 to 67 deaths in 2017. Fentanyl is involved in more than half of all drug-related fatalities (54%). The number of fatalities involving fentanyl has more than doubled since 2015.
- At the same time, the proportion of drug-related deaths involving a prescription opioid has remained the same (31%); while fatalities involving heroin decreased slightly, but still account for about a third of drug-related deaths (31%).
- Drug-related fatalities involving cocaine nearly doubled in the past year (22 in 2016 to 37 in 2017). Cocaine is now present in nearly one-third of drug-related deaths (30%).
- The proportion of drug-related deaths involving benzodiazepines has decreased by fifty percent – from 16 deaths in 2016 to 8 deaths in 2017. Benzodiazepines are involved in six percent of all drug-related fatalities.

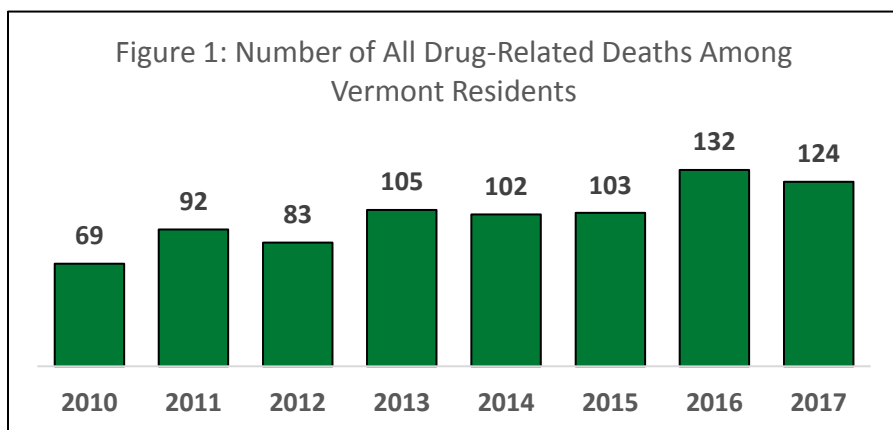
Please Note: The latest Drug- and Opioid- Related Fatality Briefs are presenting data in a different perspective than in the past. With this report, VDH will report on the total numbers of Vermont residents who died, regardless of where that death occurs (i.e. in Vermont or in another state). Previously, the Brief reported on the total number of deaths that occurred in Vermont, regardless of the decedent's state of residence. For a more comprehensive explanation of the changes, see the methodology notes at the end of the Brief.

# Drug-Related Fatalities Among Vermonters

## Drug-Related Fatality Overview

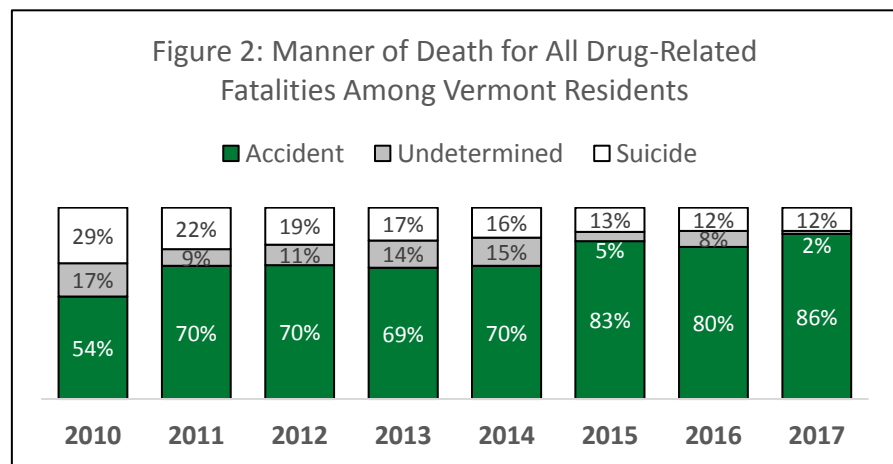
In 2017, there were 124 drug-related fatalities among Vermont residents (see definition to the right). This is 6% lower than the 132 deaths that were recorded in 2016. This equates to a rate of 19.9 per 100,000 Vermont residents. Drug-related fatalities have almost doubled since 2010, when the rate was 11.0 per 100,000 residents. The largest increase in one year was from 2015 to 2016. Deaths related specifically to opioids are addressed in a separate brief [here](#).

Of the 124 drug-related fatalities, 123 were Vermont residents who died in Vermont while one died out of state. Seven non-Vermont residents died in Vermont but are excluded from the descriptions below, except where explicitly stated. At date of data analysis, the Vermont Office of the Chief Medical Examiner (OCME) has one pending death investigation.



## Manner of Death in Drug-Related Fatalities Among Vermonters

Most drug-related fatalities are accidental or of undetermined cause. Since 2010, the number of deaths determined accidental has increased, while undetermined manner and suicide has decreased. (Note: there have been three that were ruled homicides, one each in 2010, 2011 and 2014. That data is not shown.)



## DRUG-RELATED FATALITY DATA

Vermont drug-related fatalities data come from the Vermont Department of Health Vital Statistics System and are based on deaths that occur among Vermont residents. Data for out-of-state residents who died in Vermont is included only where explicitly stated.

The drug-related fatalities reported here include accidents, suicides, homicides and fatalities with undetermined intent unless otherwise stated. All deaths involved at least one legal or illicit drug including: alcohol, prescription drugs, etc.

This report does *not* include deaths due to chronic substance use (such as HIV, liver disease, or infection); death due to injury related to substance use (i.e., car accident or falls) or deaths due to medical professional error. In addition, anticoagulant- and antibiotic-related deaths were not included in these analyses.

It is important to note that most drug-related fatalities are due to combinations of substances (e.g., a prescription opioid and cocaine), not a single drug. Additionally, the circumstances under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.

Data from 2016 and 2017 are preliminary.

Males comprise slightly more than two-thirds of drug-related deaths among Vermont residents (69%). Women comprise slightly fewer than one-third of drug-related deaths (31%). The average age of those who die from a drug-related cause is 42. Half of these drug-related fatalities occur to those between 30 and 50 (49%). Nearly all drug-related fatalities are among white, non-Hispanics (95%).

### Substances Involved in All Drug-Related Deaths Among Vermonters

Drug-related fatalities may involve many different types of drugs – opioid and non-opioid – and most drug-related fatalities involve multiple substances. Compared to 2016, fewer drug-related fatalities in 2017 involved alcohol (from 17% to 15%), buprenorphine (from 1% to 0%), and methadone (from 11% to 10%). Benzodiazepines were involved in half as many fatalities in 2017 (8%) as they were in 2016 (16%).

Cocaine involvement nearly doubled from 17% to 30% of all drug-related fatalities between 2016 and 2017. Over half (54%) involved fentanyl in 2017, up from about one-third (37%) in 2016. Slightly fewer fatalities involved heroin in 2017 (31%) than in 2016 (33%), while prescription opioid involvement did not change (31%).

Substance*	2016		2017	
	Number	Percent	Number	Percent
Alcohol	23	17%	18	15%
Benzodiazepines	16	12%	8	6%
Buprenorphine	1	1%	0	0%
Cocaine	22	17%	37	30%
Fentanyl	49	37%	67	54%
Heroin	43	33%	39	31%
Methadone	14	11%	13	10%
RX opioid (no fentanyl)	41	31%	39	31%

\*Categories are not mutually exclusive as one death may involve multiple substances.

### Opioid-Related Fatality Overview and Manner of Death

Overall, there were 107 opioid-related fatalities among Vermont residents in 2017. Six of those deaths were determined to be suicides (6% of all opioid-related deaths). Public attention has been primarily focused on opioid misuse and abuse. In 2017, there were 101 accidental and undetermined opioid-related fatalities among Vermont residents – a 5% increase from the 96 reported in 2016. This equates to a rate of 16.2 fatalities per 100,000 Vermonters.

To find more information on accidental and undetermined cause fatalities that involved an opioid, please see the [Opioid-Related Fatalities in Vermont](#) summary.

### Sources

All data are from the Vermont Vital Statistics System and only include deaths that occurred among Vermont residents unless otherwise stated. Data from 2016 and 2017 are preliminary. This brief is a product of the Vermont Department of Health, Division of Health Surveillance Analysts Lela Kretzer ([Lela.Kretzer@vermont.gov](mailto:Lela.Kretzer@vermont.gov)), Amanda Jones ([Amanda.Jones@vermont.gov](mailto:Amanda.Jones@vermont.gov)), and Jeffrey Trites ([Jeffrey.Trites@vermont.gov](mailto:Jeffrey.Trites@vermont.gov)).

Table 2: Drug-Related Fatalities		2012			2013			2014			2015			2016			2017		
		Number	Percent	Rate Per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers
Total Occurring Among Vermont Residents in Vermont		80	--	12.8	101	--	16.1	94	--	15.0	98	--	15.7	129	--	20.7	123	--	19.7
Total Occurring Among Vermont Residents Outside of Vermont		3	--	0.5	4	--	0.6	8	--	1.3	5	--	0.8	3	--	0.5	1	--	0.2
Total Occurring Among Non-Vermont Residents in Vermont		1	--	0.2	8	--	1.3	3	--	0.5	10	--	1.6	19	--	3.0	7	--	1.1
		<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>			<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>			<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>			<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>			<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>			<u>% of Drug-Related Fatalities Occurring Among Vermont Residents</u>		
Total VERMONT Residents All Drug-Related Fatalities		83	--	13.3	105	--	16.8	102	--	16.3	103	--	16.5	132	--	21.1	124	--	19.9
By Manner	Accidental	58	70%	9.3	72	69%	11.5	71	70%	11.3	85	83%	13.6	105	80%	16.8	107	86%	17.1
	Undetermined	9	11%	1.4	15	14%	2.4	15	15%	2.4	5	5%	0.8	11	8%	1.8	2	2%	0.3
	Suicide	16	19%	2.6	18	17%	2.9	16	16%	2.6	13	13%	2.1	16	12%	2.6	15	12%	2.4
	Homicide (not included in total)	0	0%	0.0	0	0%	0.0	1	1%	0.2	0	0%	0.0	0	0%	0.0	0	0%	0.0
Other Substances Involved																			
	Alcohol	18	22%	2.9	26	25%	4.1	17	17%	2.7	14	14%	2.2	23	17%	3.7	18	15%	2.9
	Benzodiazepines	14	17%	2.2	20	19%	3.2	8	8%	1.3	8	8%	1.3	16	12%	2.6	8	6%	1.3
	Buprenorphine	1	1%	0.2	5	5%	0.8	3	3%	0.5	2	2%	0.3	1	1%	0.2	0	0%	0.0
	Cocaine	5	6%	0.8	11	10%	1.8	15	15%	2.4	14	14%	2.2	22	17%	3.5	37	30%	5.9
	Fentanyl	7	8%	1.1	12	11%	1.9	17	17%	2.7	28	27%	4.5	49	37%	7.8	67	54%	10.7
	Heroin	10	12%	1.6	21	20%	3.4	34	33%	5.4	33	32%	5.3	43	33%	6.9	39	31%	6.2
	Methadone	20	24%	3.2	14	13%	2.2	5	5%	0.8	8	8%	1.3	14	11%	2.2	13	10%	2.1
	RX Opioid (excludes fentanyl)	45	54%	7.2	49	47%	7.8	33	32%	5.3	36	35%	5.8	41	31%	6.6	39	31%	6.2
				<u>Rate Per 100K of Sub Group</u>			<u>Rate Per 100K of Sub Group</u>			<u>Rate Per 100K of Sub Group</u>			<u>Rate Per 100K of Sub Group</u>			<u>Rate Per 100K of Sub Group</u>			<u>Rate Per 100K of Sub Group</u>
By Gender	Male	53	64%	17.2	64	61%	20.7	66	65%	21.4	68	66%	22.0	84	64%	27.2	86	69%	27.9
	Female	30	36%	9.5	41	39%	12.9	36	35%	11.3	35	34%	11.0	48	36%	15.2	38	31%	12.0
By Age	< 30	13	16%	5.8	15	14%	6.7	17	17%	7.6	16	16%	7.2	22	17%	9.9	26	21%	11.7
	30 - 39	15	18%	21.6	22	21%	31.4	31	30%	44.1	31	30%	43.8	41	31%	57.4	39	31%	54.6
	40 - 49	24	29%	27.9	29	28%	35.1	18	18%	22.7	20	19%	26.0	32	24%	42.8	22	18%	29.5
	50 +	31	37%	12.7	39	37%	15.7	36	35%	14.3	36	35%	14.1	37	28%	14.5	37	30%	14.5
Average Age		45			44			45			43			43			42		
By Race/ Ethnicity	White, Non-Hispanic	81	98%	13.8	101	96%	17.2	100	98%	17.1	99	96%	17.0	130	98%	22.4	118	95%	20.3
	Racial or Ethnic Minority	2	2%	5.4	4	4%	10.4	2	2%	4.9	4	4%	9.5	2	2%	4.6	6	5%	13.8

Table 3: Drug-Related Fatalities by County of Residence and County of Death (Vermont and Non-Vermont Residents)		2012		2013		2014		2015		2016*		2017*						
		# and % of All Drug-Related Fatalities	Rate per 100k in County	# and % of All Drug-Related Fatalities	Rate per 100k in County	# and % of All Drug-Related Fatalities	Rate per 100k in County	# and % of All Drug-Related Fatalities	Rate per 100k in County	# and % of All Drug-Related Fatalities	Rate per 100k in County	# and % of All Drug-Related Fatalities	Rate per 100k in County					
<b>By County of Residence*</b>																		
Addison	4	5%	10.9	7	6%	19.0	3	3%	8.1	2	2%	5.4	6	4%	16.2	1	1%	2.7
Bennington	3	4%	8.2	5	4%	13.6	8	8%	22.0	4	4%	11.0	13	9%	35.9	4	3%	11.1
Caledonia	3	4%	9.6	4	4%	12.8	6	6%	19.4	3	3%	9.7	6	4%	19.8	8	6%	26.4
Chittenden	23	27%	14.5	23	20%	14.4	22	21%	13.7	26	23%	16.1	28	19%	17.3	34	26%	21.0
Essex	2	2%	32.1	1	1%	16.1	2	2%	32.7	3	3%	48.7	0	0%	0.0	0	0%	0.0
Franklin	5	6%	10.4	12	11%	24.8	11	10%	22.6	13	12%	26.6	9	6%	18.4	12	9%	24.5
Grand Isle	1	1%	14.3	0	0%	0.0	1	1%	14.3	2	2%	29.2	2	1%	28.9	1	1%	14.5
Lamoille	3	4%	12.0	6	5%	23.9	5	5%	19.9	1	1%	4.0	3	2%	11.8	3	2%	11.8
Orange	4	5%	13.8	6	5%	20.8	4	4%	13.9	3	3%	10.4	6	4%	20.7	7	5%	24.2
Orleans	5	6%	18.4	5	4%	18.4	4	4%	14.8	7	6%	25.8	7	5%	26.1	2	2%	7.4
Rutland	5	6%	8.2	15	13%	24.7	10	10%	16.6	12	11%	20.1	15	10%	25.3	11	8%	18.5
Washington	9	11%	15.1	10	9%	16.9	3	3%	5.1	8	7%	13.6	11	7%	18.8	12	9%	20.5
Windham	9	11%	20.5	4	4%	9.1	11	10%	25.2	6	5%	13.8	9	6%	20.9	17	13%	39.4
Windsor	7	8%	12.5	7	6%	12.5	12	11%	21.4	13	12%	23.3	16	11%	28.8	10	8%	18.0
Non-VT Residents who Died in VT (Rate Per 100K Vermonters)	1	1%	0.2	8	7%	1.3	3	3%	0.5	10	9%	1.6	19	13%	3.0	7	5%	1.1
<b>By County of Death</b>																		
Addison	2	2%	5.4	7	6%	19.0	2	2%	5.4	1	1%	2.7	7	5%	18.9	1	1%	2.7
Bennington	4	5%	10.9	6	5%	16.4	6	6%	16.5	3	3%	8.3	13	9%	35.9	4	3%	11.1
Caledonia	3	4%	9.6	3	3%	9.6	6	6%	19.4	3	3%	9.7	8	5%	26.4	7	5%	23.1
Chittenden	27	32%	17.0	27	24%	16.9	25	24%	15.6	31	27%	19.2	36	24%	22.3	41	31%	25.4
Essex	2	2%	32.1	1	1%	16.1	0	0%	0.0	1	1%	16.2	1	1%	16.2	0	0%	0.0
Franklin	5	6%	10.4	11	10%	22.8	11	10%	22.6	10	9%	20.5	9	6%	18.4	9	7%	18.4
Grand Isle	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	1%	14.6	1	1%	14.5	1	1%	14.5
Lamoille	2	2%	8.0	6	5%	23.9	4	4%	15.9	2	2%	7.9	3	2%	11.8	3	2%	11.8
Orange	2	2%	6.9	4	4%	13.8	4	4%	13.9	3	3%	10.4	6	4%	20.7	5	4%	17.3
Orleans	4	5%	14.8	5	4%	18.4	4	4%	14.8	8	7%	29.5	7	5%	26.1	3	2%	11.2
Rutland	5	6%	8.2	15	13%	24.7	10	10%	16.6	16	14%	26.8	14	9%	23.6	13	10%	21.9
Washington	9	11%	15.1	10	9%	16.9	4	4%	6.8	8	7%	13.6	11	7%	18.8	11	8%	18.8
Windham	8	10%	18.2	5	4%	11.4	10	10%	22.9	6	5%	13.8	12	8%	27.8	19	15%	44.0
Windsor	8	10%	14.2	9	8%	16.1	11	10%	19.6	15	13%	26.9	20	13%	36.0	13	10%	23.4
VT Residents who Died Out of State (Rate Per 100k Vermonters)	3	4%	0.5	4	4%	0.6	8	8%	1.3	5	4%	0.8	3	2%	0.5	1	1%	0.2

\*Three deaths are indicated as Vermont residents; however, no county of residence is listed (1 in 2016 and 2 in 2017).

## 2018 PRELIMINARY DATA Updates

The following data will be updated monthly with a 10- to 12-week time lag. Historic data may change if there are delays in reporting and all data in the following tables should be considered preliminary until final data is published. The following data includes fatalities of Vermont residents, regardless of place of death (i.e. in Vermont vs. out-of-state).

**Table 4: 2018 Drug- and Opioid-Related Fatalities by Month**

2018 Month of Death	All Drug-Related Fatalities by Manner				Number of Opioid-Related Accidental and Undetermined Manner Fatalities and Substances Involved			
	Total	Accident	Suicide	Undetermined	Total*	Rx opioid (no fentanyl)	Heroin	Fentanyl
January	13	13	0	0	12	5	3	9
February	12	9	2	1	9	2	4	7
March	11	10	1	0	9	0	7	9
April	7	7	0	0	6	1	4	5
May								
June								
July								
August								
September								
October								
November								
December								
<b>Total Vermont Residents</b>	<b>43</b>	<b>39</b>	<b>3</b>	<b>1</b>	<b>36</b>	<b>8</b>	<b>18</b>	<b>30</b>
<b>Vermonters in Vermont</b>	<b>42</b>	<b>38</b>	<b>3</b>	<b>1</b>	<b>35</b>	<b>8</b>	<b>18</b>	<b>29</b>
<b>Vermonters Out of State</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>Non-Vermont Residents</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>

\*NOTE: Prescription opioid, fentanyl and heroin deaths are not mutually exclusive.

Table 5: Total Number of Drug-Related Fatalities, Preliminary 2018 Data by County of Residence*													
County of Residence	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total*
Addison County	1	0	0	0									1
Bennington County	1	1	1	0									3
Caledonia County	1	1	0	1									3
Chittenden County	2	1	1	0									4
Essex County	0	0	0	0									0
Franklin County	2	0	0	2									4
Grand Isle County	0	0	0	0									0
Lamoille County	0	0	0	0									0
Orange County	0	2	0	0									2
Orleans County	0	0	0	0									0
Rutland County	1	1	1	2									5
Washington County	2	1	1	1									5
Windham County	3	2	4	0									9
Windsor County	0	3	3	1									7
<b>VERMONT Total</b>	<b>13</b>	<b>12</b>	<b>11</b>	<b>7</b>									<b>43</b>
<b>Non-Vermont Residents</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>									<b>4</b>

*The drug-related fatalities here include accidents, suicide, and undetermined drug-related fatalities. This report does not include deaths due to the consequences of chronic substance use such as HIV, liver disease or infection; or deaths due to errors by medical professionals. This report also does not include deaths due to injury related to substance abuse. Anticoagulant- and antibiotic-related deaths were not included. Most drug-related fatalities are due to combinations of substances and cannot be attributed to a single drug. It is also important to note that the conditions under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.*

## Methodology Notes

### A) Changes to Population Focus for Drug- and Opiate-Related Fatalities Data Briefs

Prior to March 2018, drug- and opioid-related fatalities were reported as the total number of deaths in Vermont, regardless of the residency of the individual who died. Therefore, previous briefs presented the total number of drug- and opiate-related fatalities that occurred in Vermont.

In order to be consistent with the Center for Disease Control (CDC) reporting and reporting of opioid death rates of most other states, VDH determined that it would be best to report these fatalities as the total number of Vermont residents who died, regardless of the location of the death. Thus, moving forward, the briefs will assess data for all Vermont residents who died of a drug- or opiate-related fatality – regardless of whether that death occurred in Vermont or in another state.

Due to significant interest in looking at both the total number of Vermont residents who died and the total number of people who died in Vermont (regardless of residency), we continue to present the numbers of all deaths in Vermont in specific tables (see Table 3 and Table 4). However, the main analysis within the brief has been shifted to provide comparability to CDC reporting and other states.

Therefore, what has traditionally been viewed as the “total” number of accidental and undetermined opioid-related fatalities has shifted. In 2016, we published the total number of accidental and undetermined opioid-related fatalities that occurred in Vermont (106). Using the same methodology, there have been 107 deaths in Vermont in 2017. Changing the focus to assess how many Vermont residents have died of an accidental/undetermined opioid-related fatality shows that there were 96 deaths in 2016 and a total of 101 deaths in 2017. See table below to assess the differences in these specific ways to view the data.

<b>All Drug-Related Fatalities</b>								
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>VT Residents who died in VT</b>	66	89	80	101	94	98	129	123
<b>VT Residents who died out of State</b>	3	3	3	4	8	5	3	1
<b>Out of State Residents who died in VT</b>	8	7	1	8	3	10	19	7
<b>Total Number of Deaths in Vermont*</b>	74~	96~	81	109	97~	108	148	130
<b>Total Number of Vermonters Who Died**</b>	69	92	83	105	102	103	132	124

<b>Accidental and Undetermined Opioid-related Fatalities</b>								
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>VT Residents who died in VT</b>	36	58	49	67	59	69	93	101
<b>VT Residents who died out of State</b>	3	0	2	3	4	5	3	0
<b>Out of State Residents who died in VT</b>	5	3	1	2	2	6	13	6
<b>Total Number of Deaths in Vermont*</b>	41	61	50	69	61	75	106	107
<b>Total Number of Vermonters Who Died**</b>	39	58	51	70	63	74	96	101

\*Includes out of state residents who died in Vermont; excludes Vermont residents who died in another state.

\*\*Includes Vermonters who died in Vermont and in other states; excludes non-residents who died in Vermont.

~Drug-Related fatalities that were determined to be homicides are not included in the totals where indicated. There was one in each of the years indicated.



## B) Vermont Methodology for Calculating Drug-related Fatalities

The Vermont Department of Health utilizes a unique methodology for calculating a drug-related fatality. The VDH method differs from the CDC methodology, as described in *MMWR: Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015*:

“The National Vital Statistics System multiple cause-of-death mortality files were used to record drug overdose deaths. Drug overdose deaths were identified using the *International Classification of Disease, Tenth Revision* (ICD-10), based on the ICD-10 underlying cause-of-death codes X40–44 (unintentional), X60–64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent). Among deaths with drug overdose as the underlying cause, the type of opioid is indicated by the following ICD-10 multiple cause-of-death codes: opioids (T40.0, T40.1, T40.2, T40.3, T40.4, or T40.6); natural/semisynthetic opioids (T40.2); methadone (T40.3); synthetic opioids other than methadone (T40.4); and heroin (T40.1). Some deaths involved more than one type of opioid; these deaths were included in the rates for each subcategory. Therefore, categories of deaths presented are not mutually exclusive.”

<https://www.cdc.gov/mmwr/volumes/65/wr/mm655051e1.htm>

Determining a drug-related fatality is a multi-step process. Any death certificate with a pending investigation or natural death classification is removed before analyses. All causes of death, including any contributing conditions, are scanned to recognize any ICD code that represents a drug poisoning (including alcohol). Next, all literal text fields, including the injury description text are also examined to identify any listed alcohol or drugs. Fatalities related to chronic alcohol use, medical complications of medication administration, end of life care, intrauterine or gestational exposure, helium, or exposure/injury in the context of intoxication are excluded as they do not represent a likely “overdose”.

There are two main differences between the methodologies used by VDH and the CDC. First, VDH considers all causes of death, contributing conditions, and injury descriptions as opposed to underlying cause of death only. Second, VDH examines a broader list of ICD-10 codes than those used by the CDC. Beyond the list of ICD-10 codes used by the CDC, VDH examines the following additional ICD-10 codes to identify its initial list of drug-related fatalities:

<b>ICD Codes Used in Drug-Related Fatalities Analysis (beyond those used by CDC)</b>			
X45	F10.0	F14.0	F17.0
X65	F10.1	F14.1	F17.1
Y15	F11.0	F15.0	F18.0
T36-T50	F11.1	F15.1	F18.1
T51.0	F13.0	F16.0	F19.0
	F13.1	F16.1	F19.1

While the CDC does examine multiple cause-of-death codes for those described in the MMWR excerpt above (T40.0, T40.1, T40.2, T40.3, T40.4, or T40.6), they do so only for individuals who have an underlying cause-of-death code equal to X40-44, X60-64, X85, or Y10-Y14.

In an example of how the VDH and CDC methodologies differ based on use of ICD codes and literal text analysis, an underlying cause of death may be listed as cardiovascular disease and identified in the death record with the ICD-10 code I25.0. This individual would not be included as a drug-related fatality using the CDC methodology. However, upon closer inspection of literal text and additional cause of death fields, the

injury description lists “substance abuse” with a contributing condition of “acute cocaine intoxication” and ICD codes indicating poisoning by narcotics (T45.0). Based on this additional information, VDH would classify this as a drug-related fatality.

As a result of its broader inclusion criteria, the Vermont Department of Health’s method of fatality identification reveals 10-15% *more* fatalities on average compared to the CDC’s findings for Vermont.

	<b>Number of Drug-Related Fatalities</b>	
	<b>CDC Methodology</b>	<b>Vermont Methodology</b>
2013	93	105
2014	83	102
2015	99	103
2016	125	132
2017	Pending	124