

VIRGINIA DEPARTMENT OF HEALTH

OFFICE OF THE CHIEF MEDICAL EXAMINER

"To promote and protect the health of all Virginians"

Fatal Drug Overdose Quarterly Report

1ST QUARTER 2016

Edition 2016.1

Publication Date:
July 2016

METHODS, CONSIDERATIONS, AND LIMITATIONS

This quarterly report contains the most recent number of drug related deaths in Virginia for the previous quarter. **The numbers represented in this report are preliminary, subject to change, and are most likely slightly under reported at the time of publication** due to operational practices and limitations (specifically case turnaround time for reports) within the agency; therefore updates and/or changes to numbers previously published in past reports should be expected. It is highly recommended that when citing these data and reports, the edition number is included.

Data analyzed in the report is obtained from the Virginia Medical Examiner Database System (VMEDS). VMEDS is an internal agency database which contains detailed information on all deaths reported to the OCME, regardless of whether the OCME accepted the case or not. Data presented in this report is based upon accepted cases of either full autopsy or external exams. All manners of fatal drug overdoses (accident, homicide, suicide, and undermined) are included in this report.

Due to the nature of law enforcement and OCME death investigation, all deaths presented in this report are based upon locality of occurrence and not residential status of the decedent. The numbers and rates of these death by locality of injury and drug name/drug category are available in separate documents (<http://www.vdh.virginia.gov/medExam/ForensicEpidemiology.htm>).

This report compiles data on drugs causing or contributing to death in fatal drug overdose cases. This report does not include data on drugs detected, but not contributing or causing death.

Often, drug-related deaths have more than one drug causing or contributing to death. Therefore, deaths in which multiple categories of drugs caused or contributed to death will be represented once within each drug category, but multiple times within the entire report. Example: a fatal cocaine, heroin, and Alprazolam overdose death will be counted in the cocaine summary, the heroin summary, and the benzodiazepine summary.

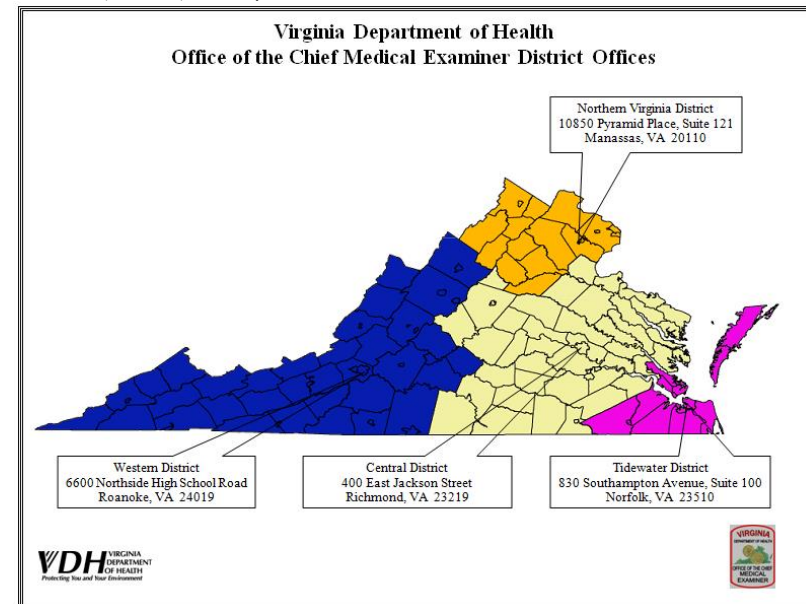
Prescription Opioids analyzed in this report include Codeine, Fentanyl, Hydrocodone, Hydromorphone, Methadone, Morphine, Oxycodone, Oxymorphone, and Tramadol and are included in the category of 'Prescription Opioids'. Benzodiazepines analyzed in this report include Alprazolam, Clonazepam, Diazepam, Flurazepam, Lorazepam, Midazolam, Nordiazepam, Oxazepam, Temazepam, and Triazolam and are included in the category of 'Benzodiazepines'.

Projected estimates for 2015 (entire year) are calculated based upon initial counts by quarter, average toxicology turnaround time at the time of the report, the date of data analysis, and previous quarter fatality trend review.

Rate calculations are based upon Virginia population projections. These population estimates came from the Virginia Department of Health, Division of Health Statistics (<http://www.vdh.virginia.gov/HealthStats/stats.htm>).

Quarters are based upon the calendar year and are defined as follows:

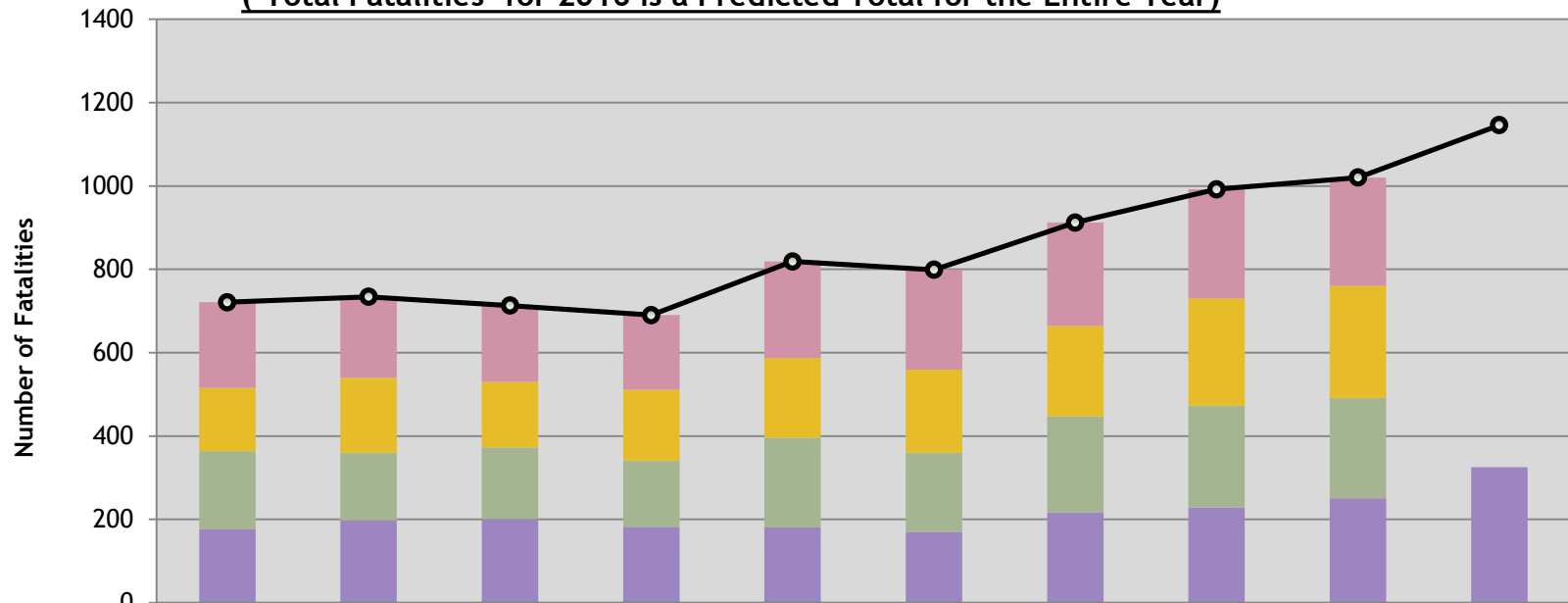
- Quarter 1 (Q1)- January 1st - March 31st
- Quarter 2 (Q2)- April 1st - June 30th
- Quarter 3 (Q3)- July 1st - September 31st
- Quarter 4 (Q4)- October 1st - December 31st



ALL DRUGS

The total number of fatal drug overdoses statewide have been increasing each year. In 2013, fatal drug overdose became the number one method of unnatural death in the Commonwealth, surpassing both motor vehicle-related fatalities and gun-related fatalities. In 2014, fatal drug overdose became the leading cause of accidental death in Virginia. The first quarter of 2016 had a 29.5% increase in the number of fatal drug overdoses compared to the same time frame (first quarter) of 2015.

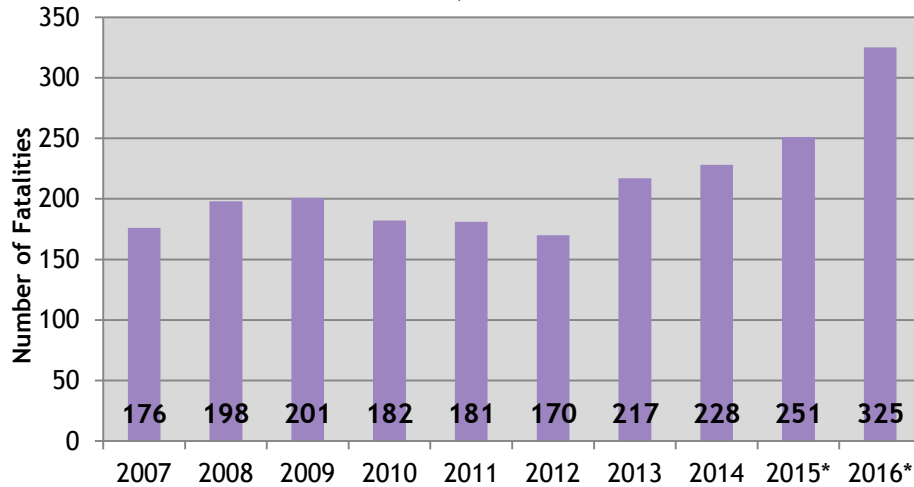
Total Number of Fatal Drug Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



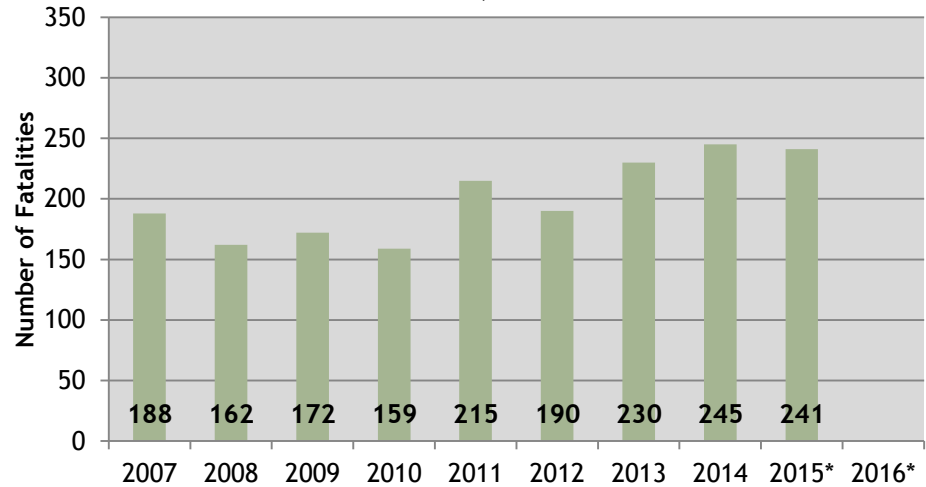
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	205	194	183	179	232	240	248	262	260	
Q3	152	180	157	170	191	199	217	257	268	
Q2	188	162	172	159	215	190	230	245	241	
Q1	176	198	201	182	181	170	217	228	251	325
Total Fatalities	721	734	713	690	819	799	912	992	1020	1146

ALL DRUGS

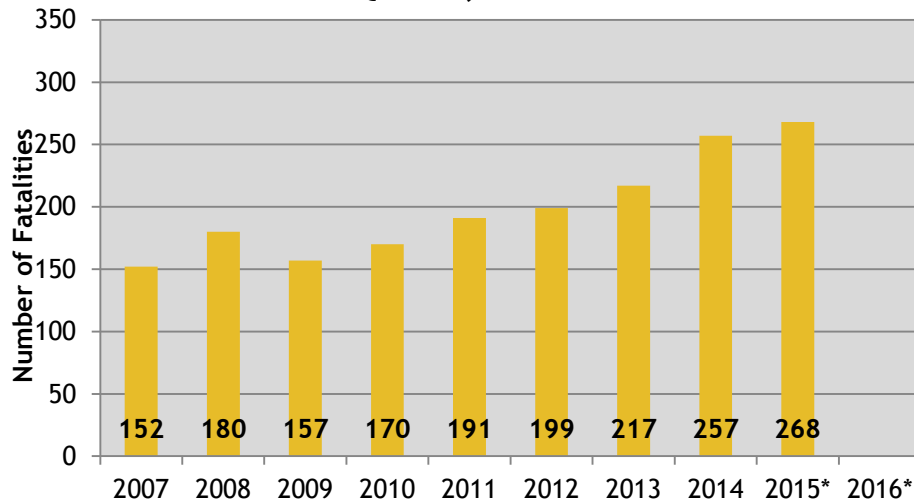
First Quarter, 2007-2016



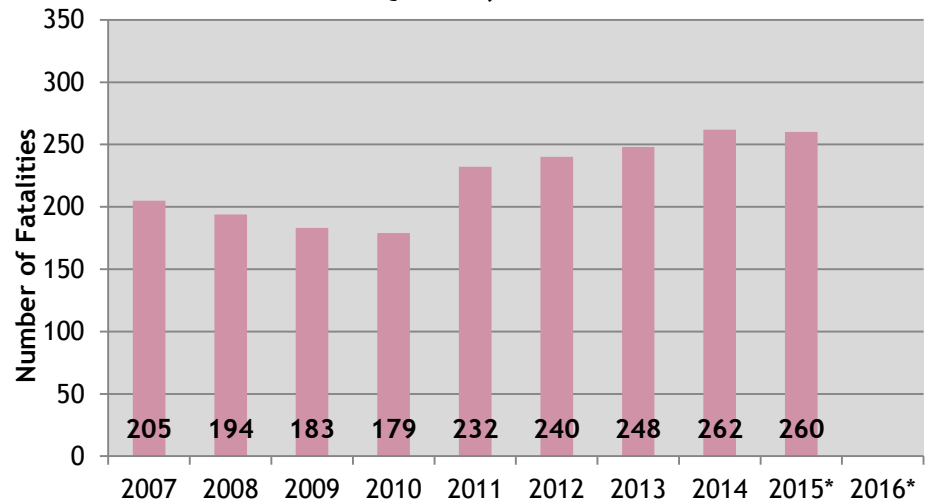
Second Quarter, 2007-2016



Third Quarter, 2007-2016



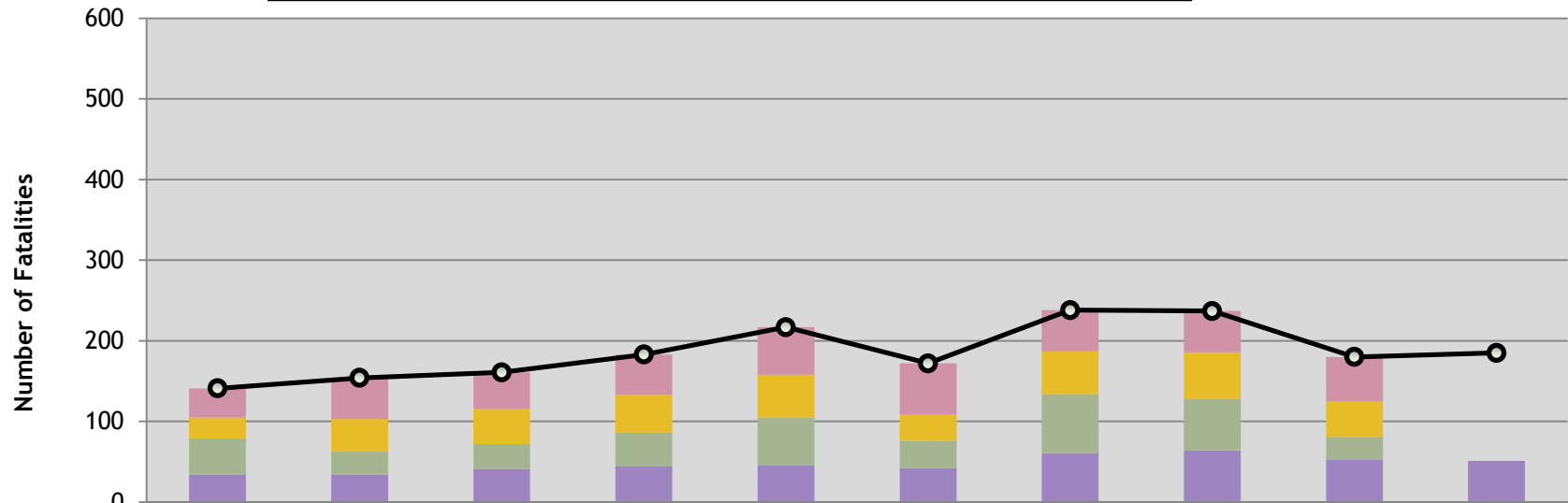
Fourth Quarter, 2007-2016



BENZODIAZEPINES

The number of fatal benzodiazepine-related overdoses have fluctuated each year. It is very uncommon for a decedent to fatally overdose on one or more benzodiazepines alone. However, when a person ingests other substances (e.g. alcohol, opiates, methamphetamine) in addition to larger, nontherapeutic amounts of benzodiazepines, the user is potentially creating a lethal cocktail of mixed substances. Over 80% of all fatal benzodiazepine overdoses over the 9 year time span (2007-2015) had one or more prescription opioids causing or contributing to death.

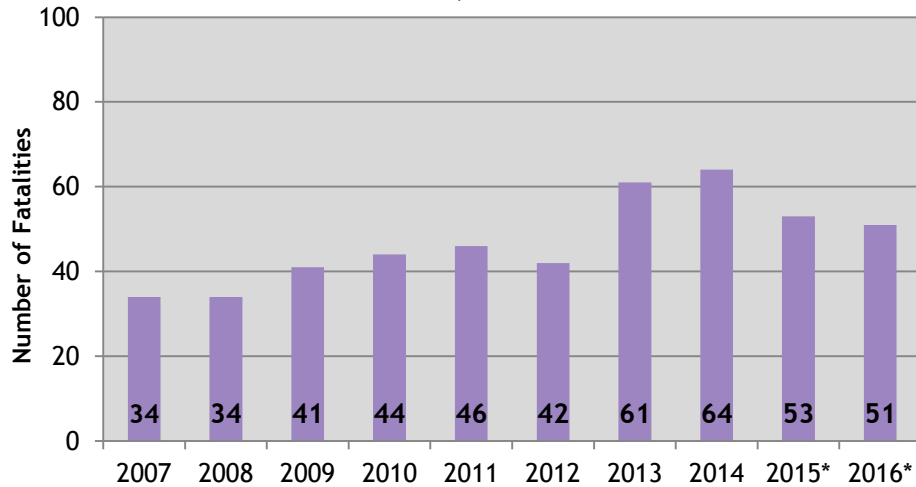
Total Number of Fatal Benzodiazepine Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



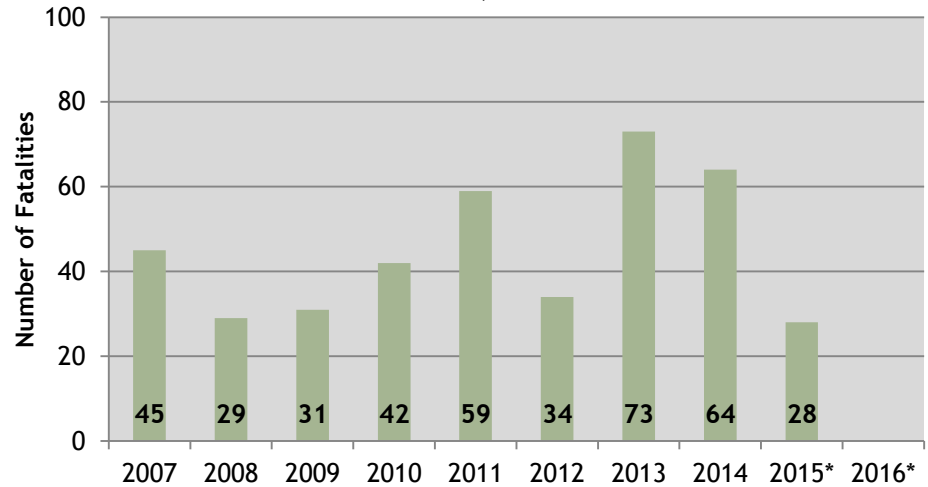
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	36	51	45	50	59	63	51	51	55	
Q3	26	40	44	47	53	33	53	58	44	
Q2	45	29	31	42	59	34	73	64	28	
Q1	34	34	41	44	46	42	61	64	53	51
○ Total Fatalities	141	154	161	183	217	172	238	237	180	185

BENZODIAZEPINES

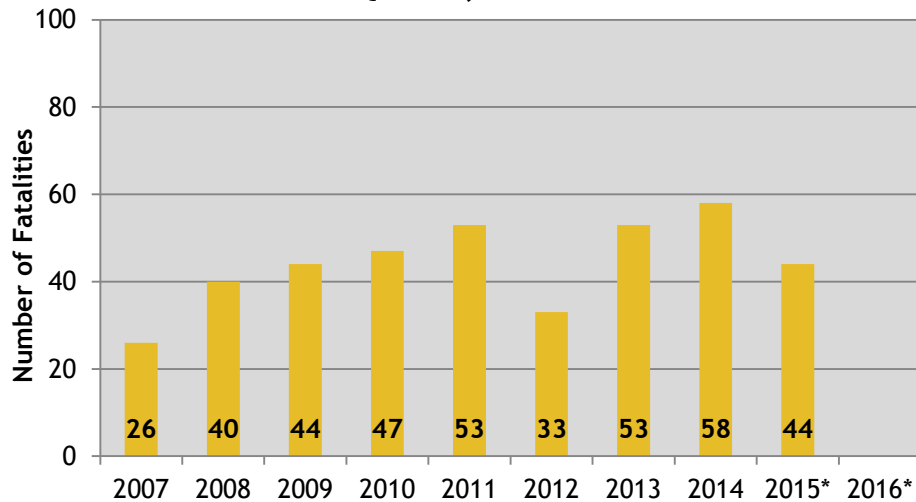
First Quarter, 2007-2016



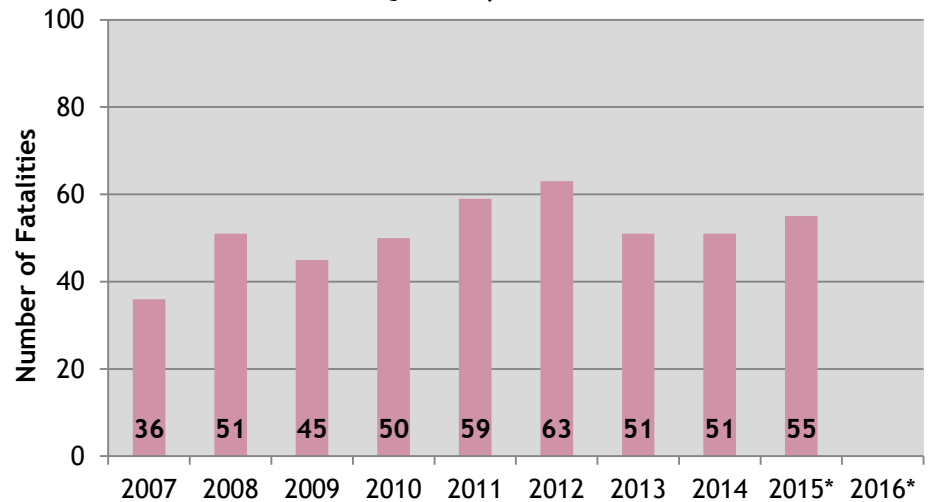
Second Quarter, 2007-2016



Third Quarter, 2007-2016

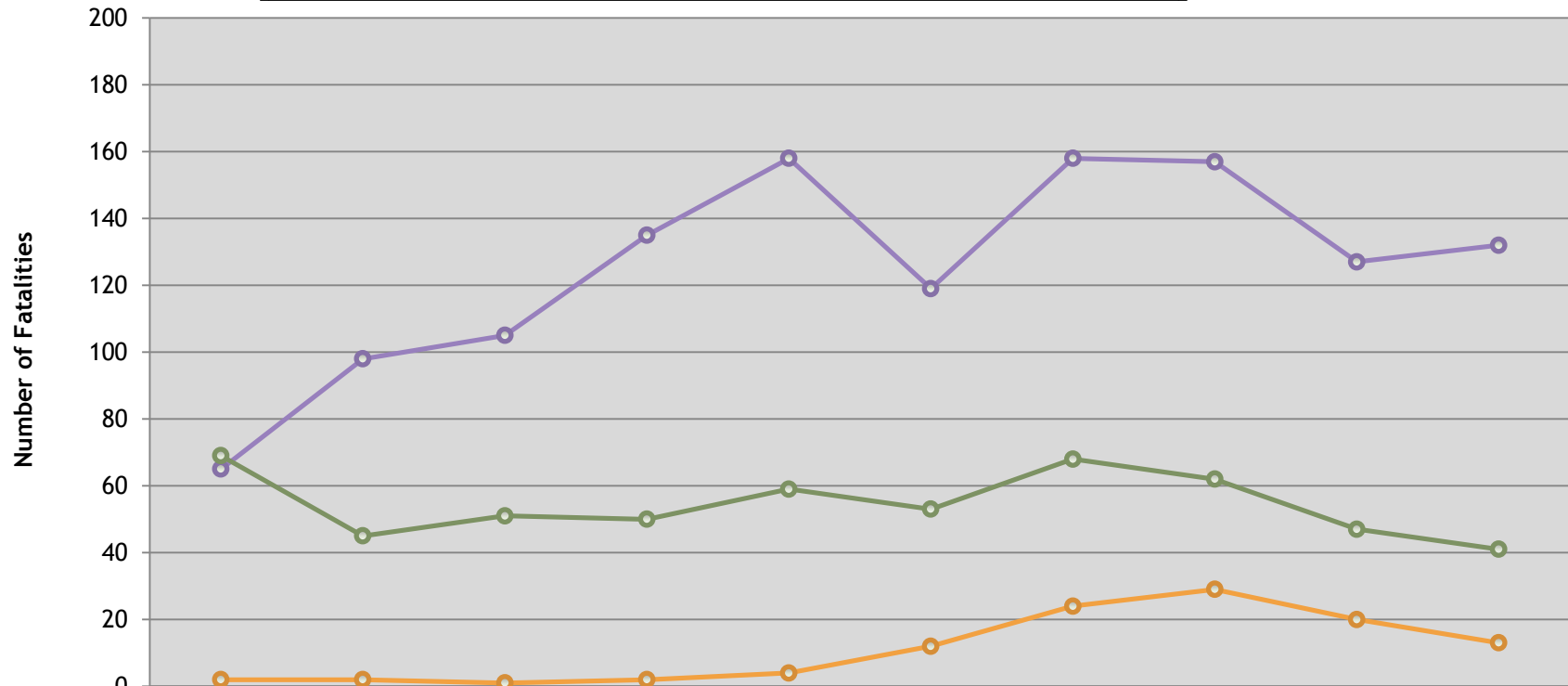


Fourth Quarter, 2007-2016



BENZODIAZEPINES

Total Number of Fatal Benzodiazepine Overdoses by Drug Name and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Alprazolam	65	98	105	135	158	119	158	157	127	132
Clonazepam	2	2	1	2	4	12	24	29	20	13
Diazepam	69	45	51	50	59	53	68	62	47	41

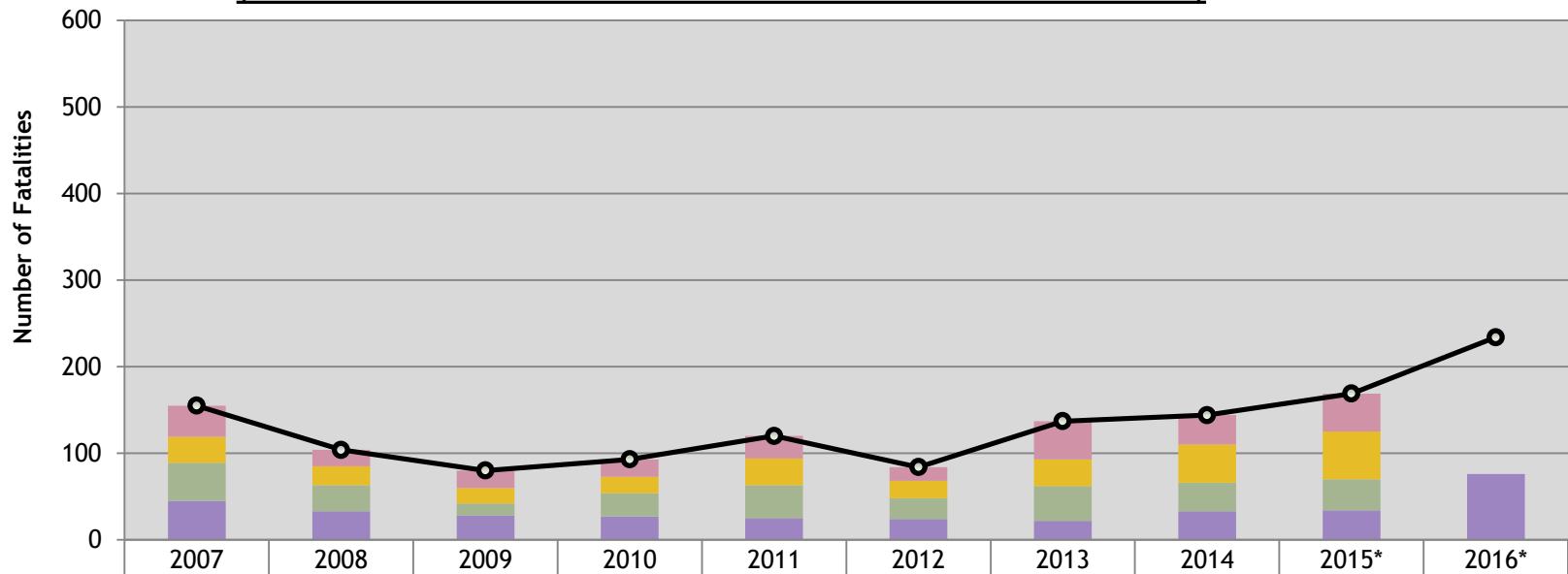
¹ Flurazepam, Lorazepam, Midazolam, Nordiazepam, Oxazepam, Temazepam and Triazolam were excluded from this analysis because of low annual case counts (<20 per year)

² Each benzodiazepine is tallied by each time it caused or contributed to death (analyzed from either toxicology or the cause of death statement) and therefore the total number of benzodiazepines will far exceed the actual number of fatalities

COCAINE

The total number of fatal cocaine-related overdoses statewide have slowly been increasing since 2013. Fatal cocaine overdoses from 2007-2015 typically occurred as the only substance causing or contributing to death, or in addition to lethal combinations of one or more opioid prescription drugs (42.1%), heroin (24.8%), and/or alcohol at or above the legal limit of 0.08% BAC (16.3%).

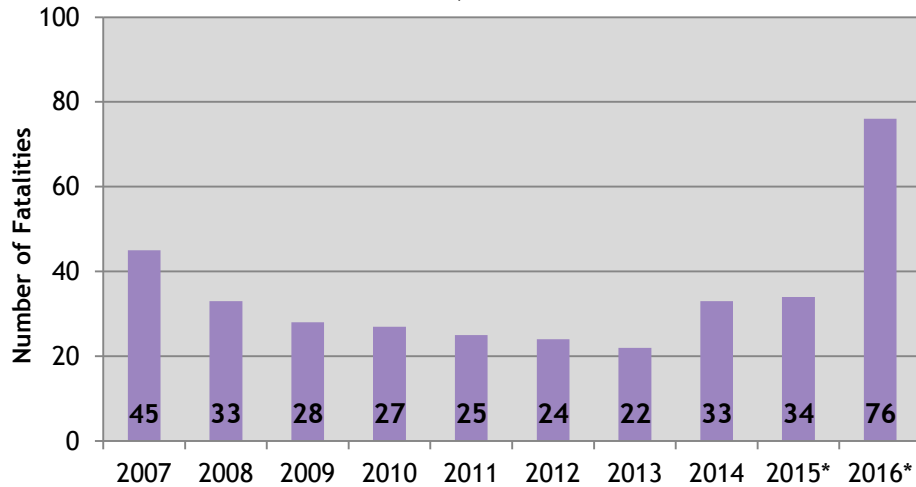
Total Number of Fatal Cocaine Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



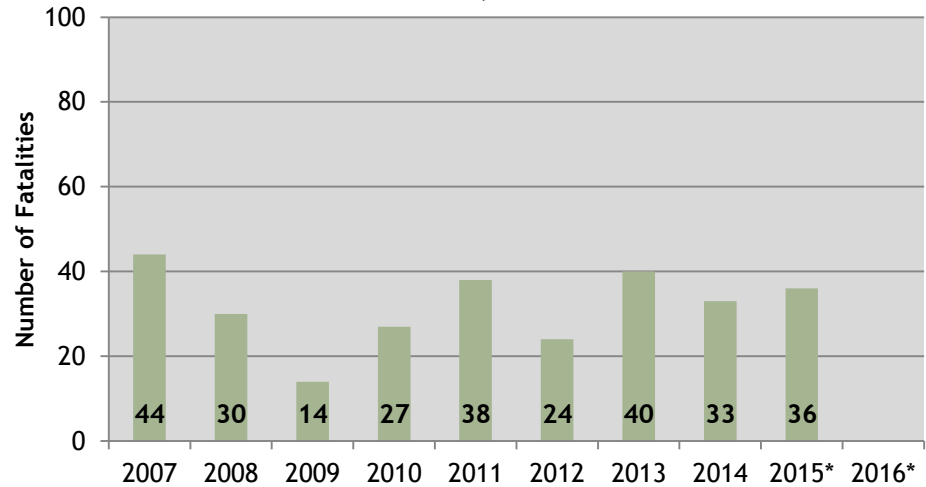
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	36	19	20	20	26	16	44	34	44	
Q3	30	22	18	19	31	20	31	44	55	
Q2	44	30	14	27	38	24	40	33	36	
Q1	45	33	28	27	25	24	22	33	34	76
Total Fatalities	155	104	80	93	120	84	137	144	169	234

COCAINE

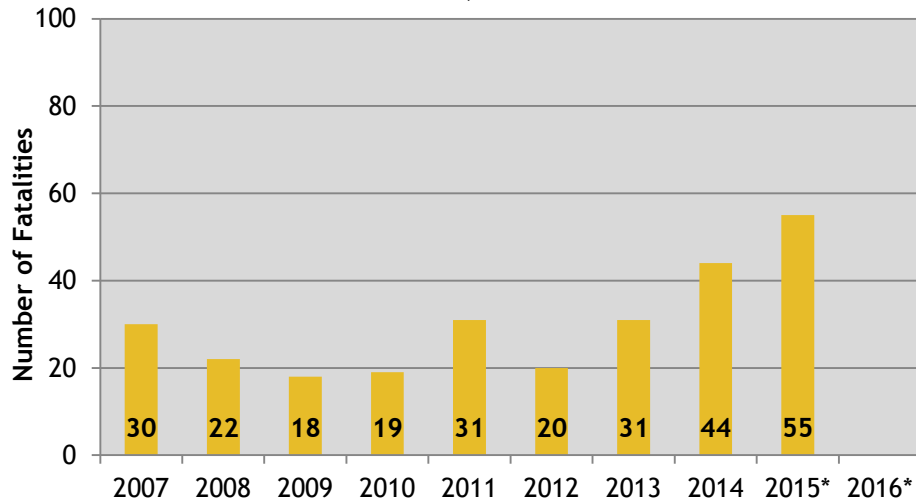
First Quarter, 2007-2016



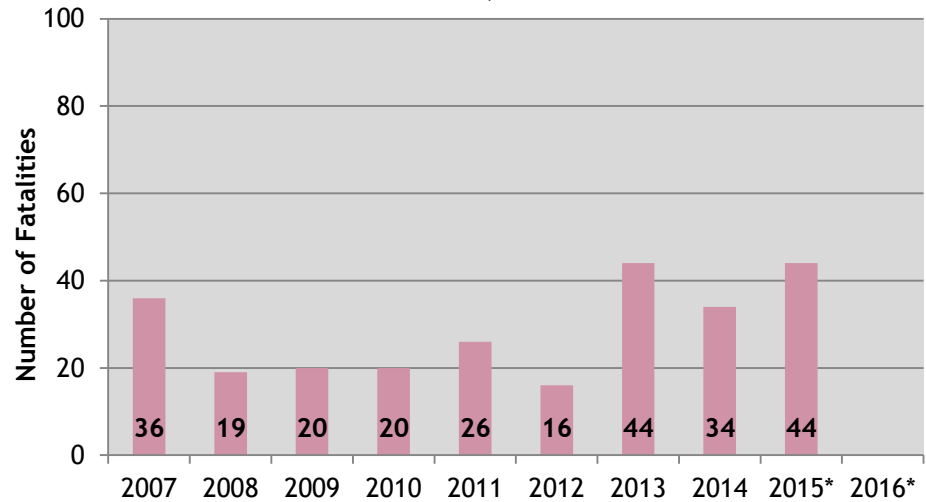
Second Quarter, 2007-2016



Third Quarter, 2007-2016



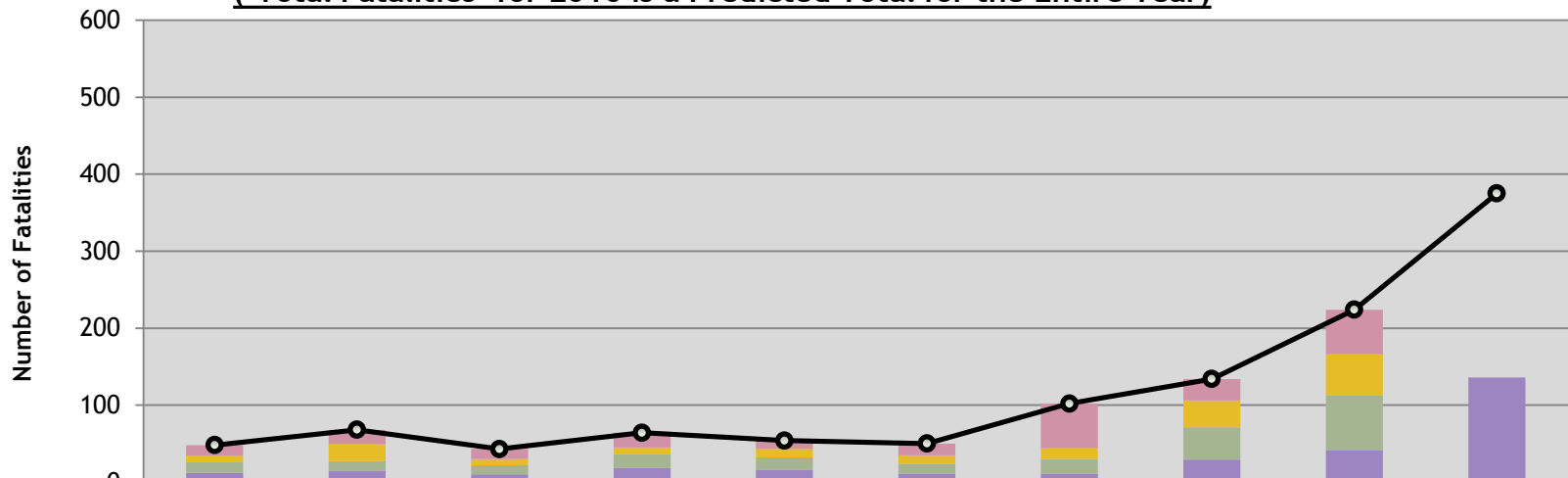
Fourth Quarter, 2007-2016



FENTANYL

The total number of fatal fentanyl-related drug overdoses have sharply increased since 2012; which coincides with the dramatic increase in fatal heroin overdoses. Prior to 2013, most fentanyl-related deaths were due to illicit use of pharmaceutically produced fentanyl. However, in late 2013, early 2014, law enforcement investigations and toxicology testing demonstrated an increase in illicitly produced fentanyl. By 2016, most fatal fentanyl-related overdoses were due to illicitly produced fentanyl and not pharmaceutically produced fentanyl.

Total Number of Fatal Fentanyl Overdoses by Quarter and Year of Death, 2007-2016
(‘Total Fatalities’ for 2016 is a Predicted Total for the Entire Year)



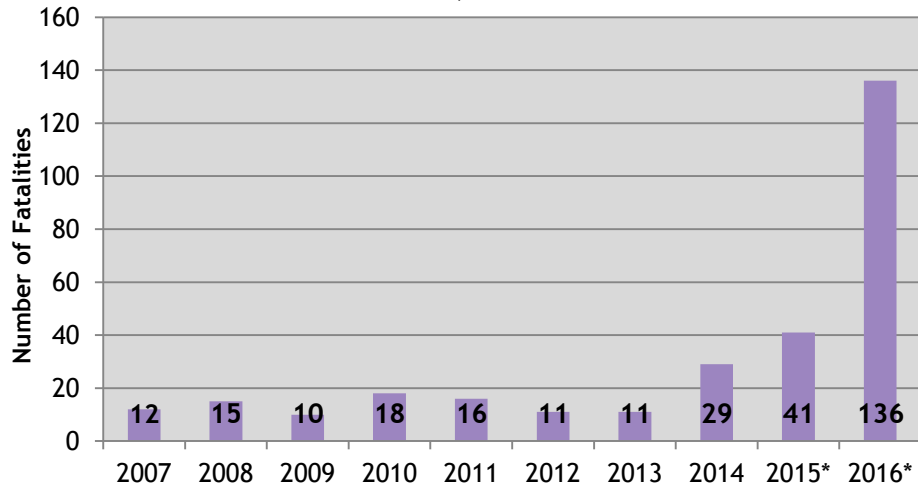
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	14	19	13	19	11	15	58	28	58	
Q3	8	22	8	9	11	11	14	35	53	
Q2	14	12	12	18	16	13	19	42	72	
Q1	12	15	10	18	16	11	11	29	41	136
—●— Total Fatalities	48	68	43	64	54	50	102	134	224	375

¹ Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, recent law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have not been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl, especially fentanyl mixed with heroin, has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

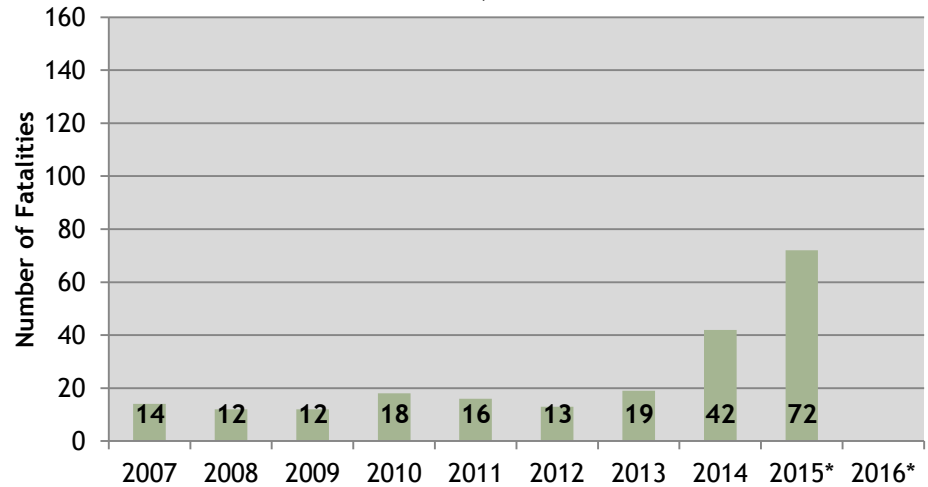
² Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

FENTANYL

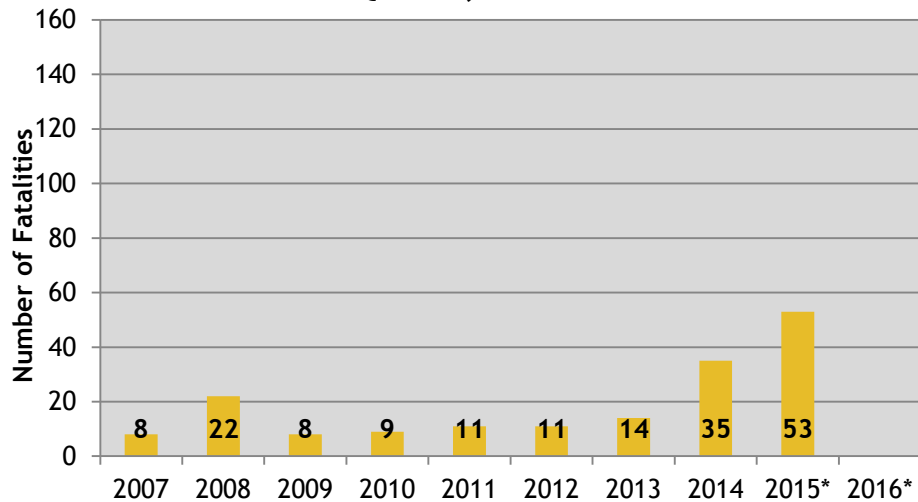
First Quarter, 2007-2016



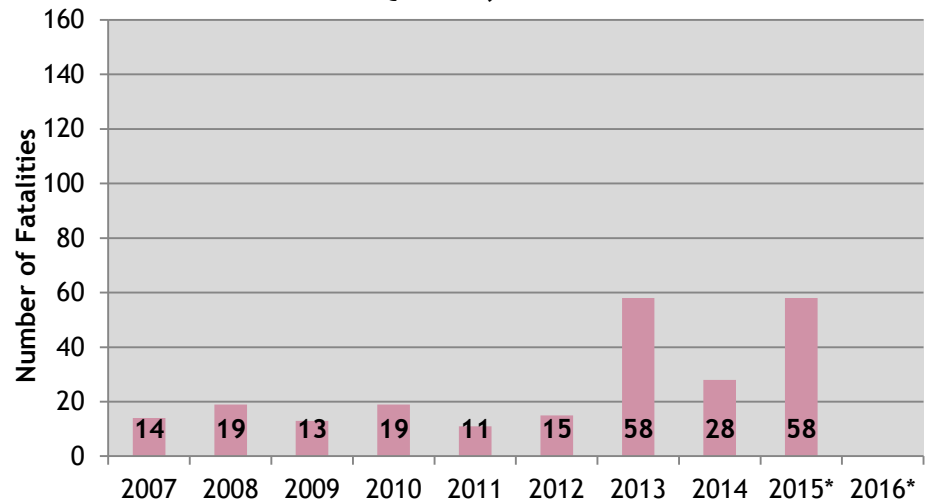
Second Quarter, 2007-2016



Third Quarter, 2007-2016



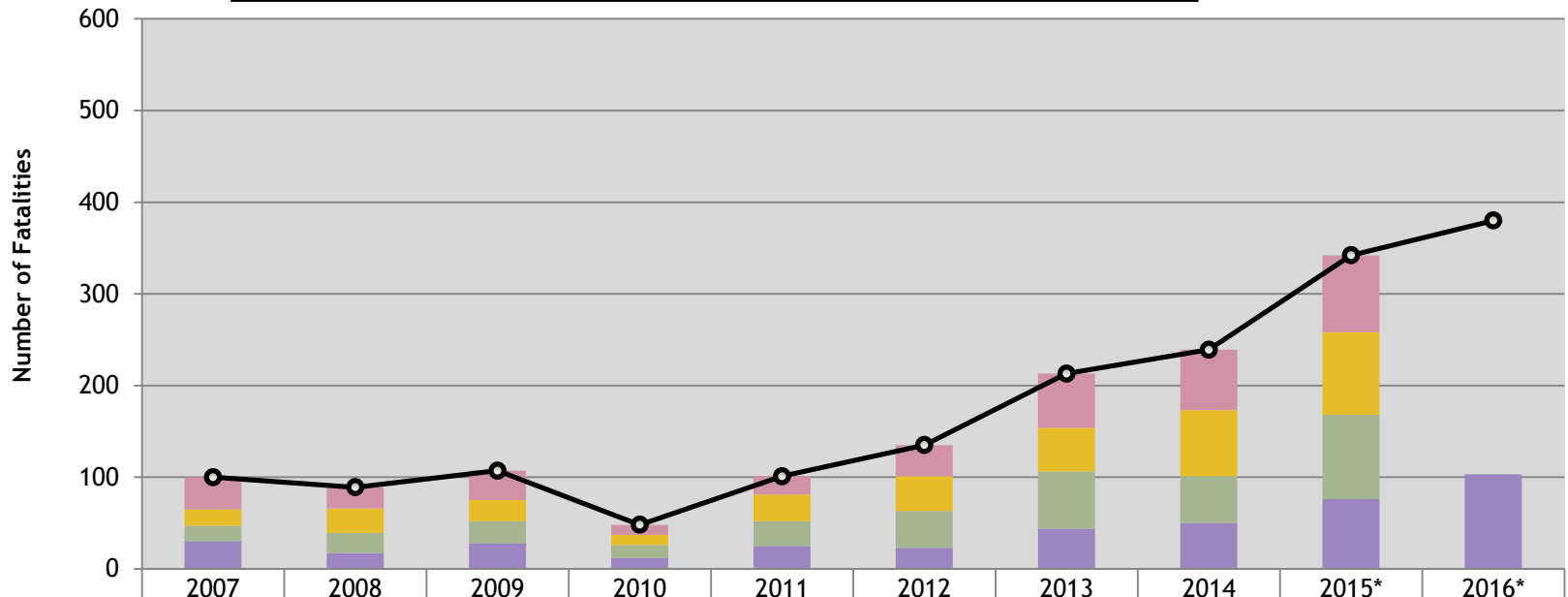
Fourth Quarter, 2007-2016



HEROIN

The total number of fatal heroin-related overdoses have been on an incline since 2010. Fatal heroin overdoses often occur as the primary drug causing death, without additional drugs playing any role in the fatal overdose. However, in fatal heroin overdoses where additional drugs did cause or contribute to death, one or more opioid prescription drugs (28.5%), alcohol at or above the legal limit of 0.08% BAC (23.6%), and/or cocaine (21.2%), were the primary substances.

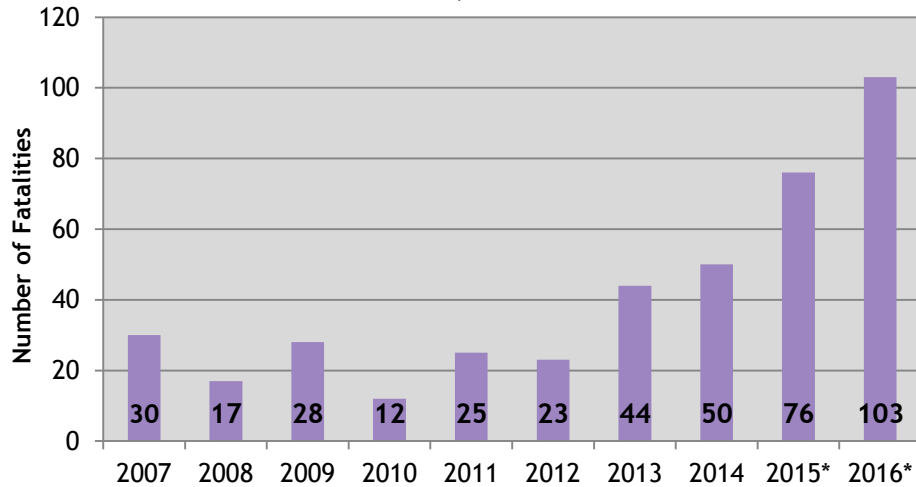
Total Number of Fatal Heroin Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



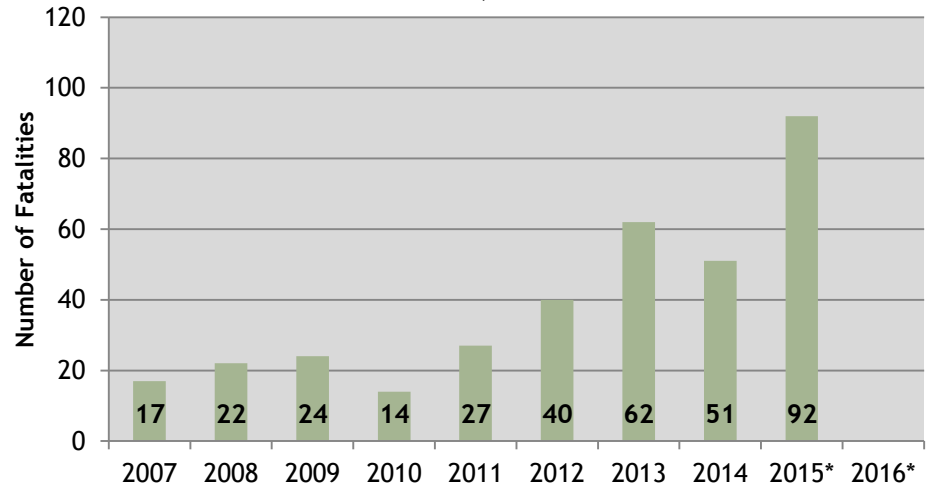
Q4	35	23	32	11	20	34	59	66	84	
Q3	18	27	23	11	29	38	48	72	90	
Q2	17	22	24	14	27	40	62	51	92	
Q1	30	17	28	12	25	23	44	50	76	103
Total Fatalities	100	89	107	48	101	135	213	239	342	380

HEROIN

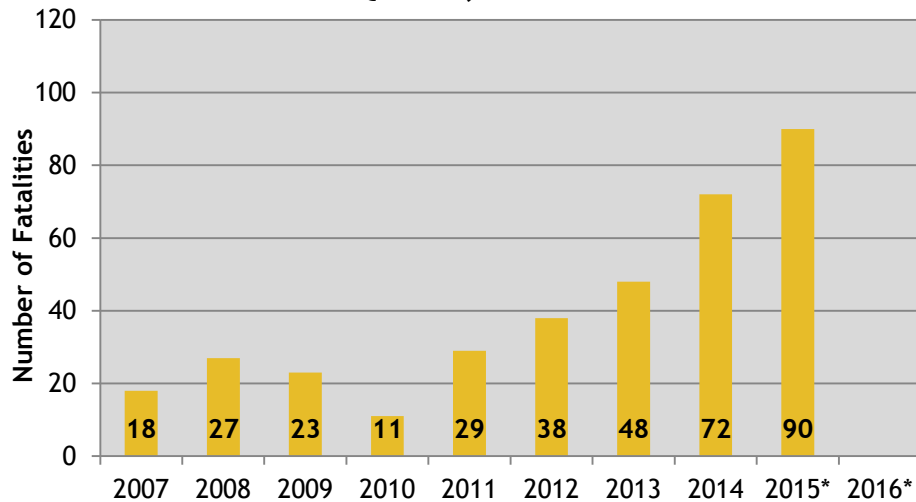
First Quarter, 2007-2016



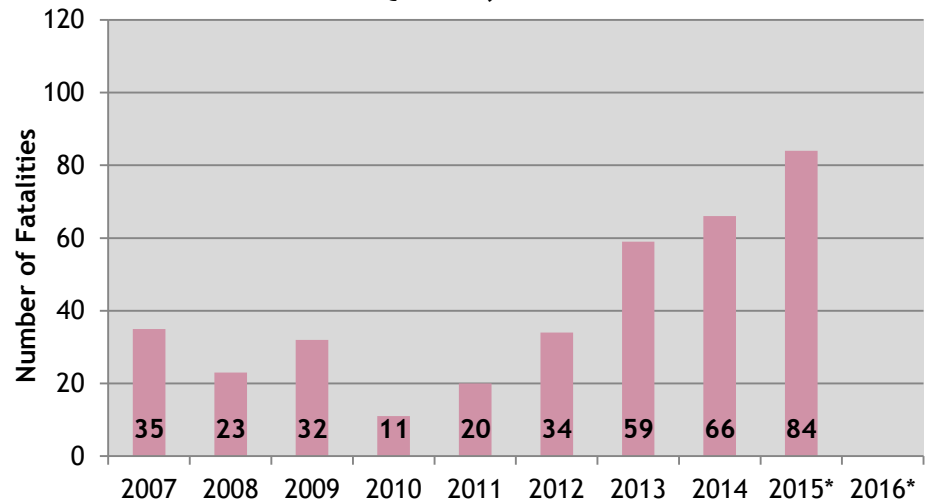
Second Quarter, 2007-2016



Third Quarter, 2007-2016



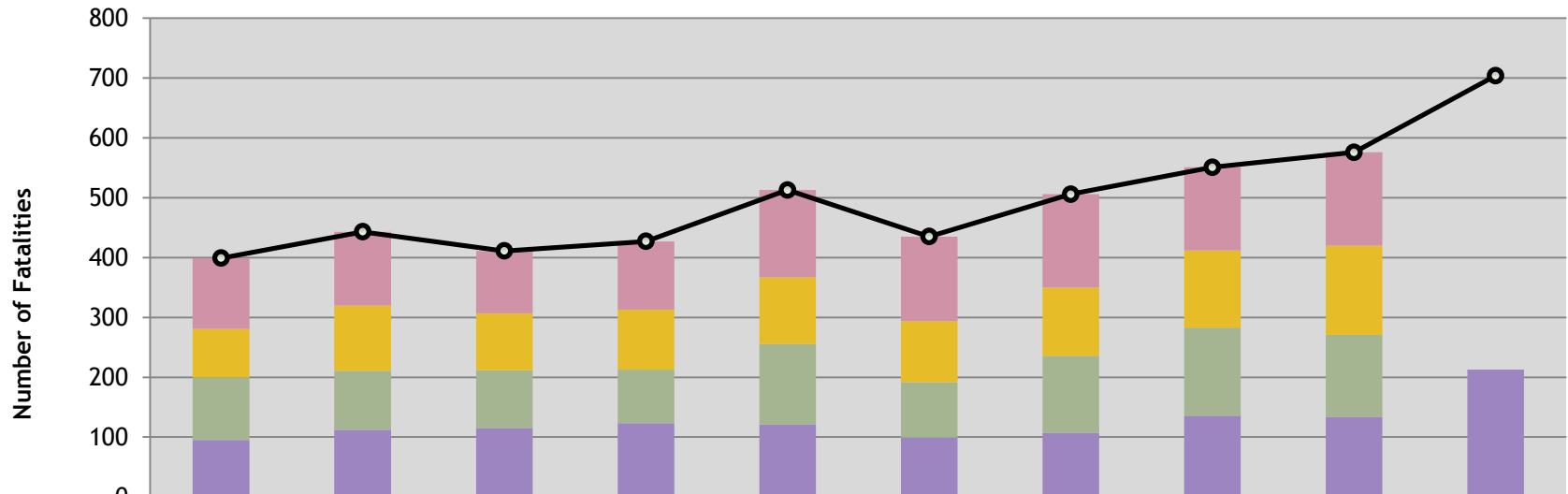
Fourth Quarter, 2007-2016



PRESCRIPTION OPIOIDS

Since 2007, fatal prescription opioid overdoses have been the leading category of drugs causing or contributing to death in the Commonwealth, with historically, Oxycodone being the most common drug. But in recent years, fentanyl has surpassed Oxycodone. This increase is due mostly to fentanyl that is illicitly produced and not pharmaceutically produced. From 2007-2015, nearly 32% of fatal prescription opioid overdoses had one or benzodiazepines causing or contributing to death.

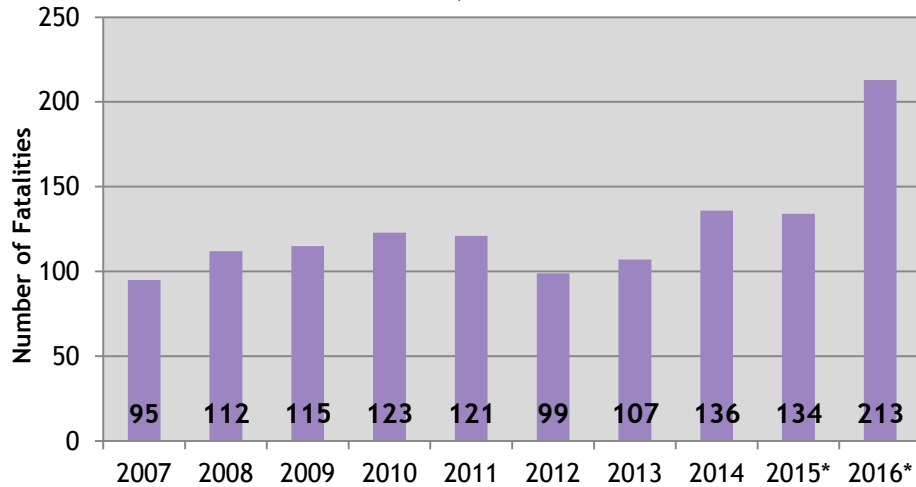
Total Number of Fatal Prescription Opioid Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



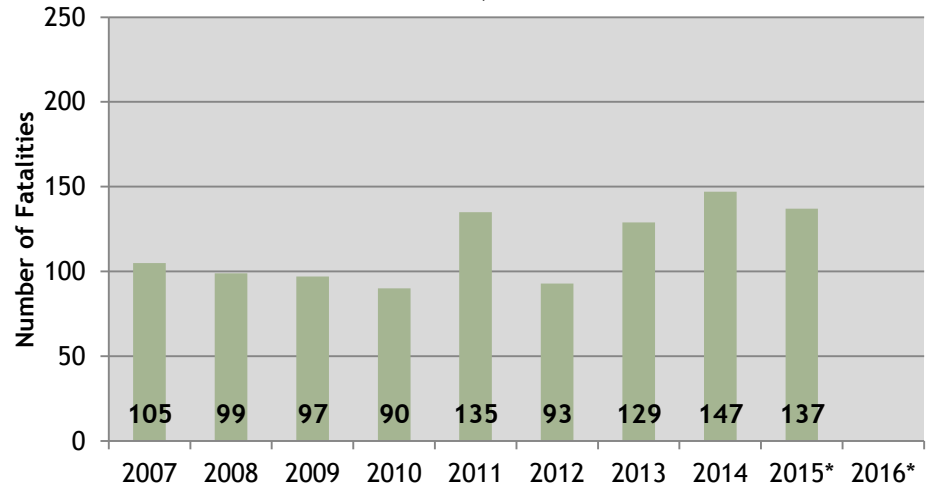
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	118	123	104	114	146	141	156	139	156	
Q3	81	109	95	100	111	102	114	129	149	
Q2	105	99	97	90	135	93	129	147	137	
Q1	95	112	115	123	121	99	107	136	134	213
—●— Total Fatalities	399	443	411	427	513	435	506	551	576	704

PRESCRIPTION OPIOIDS

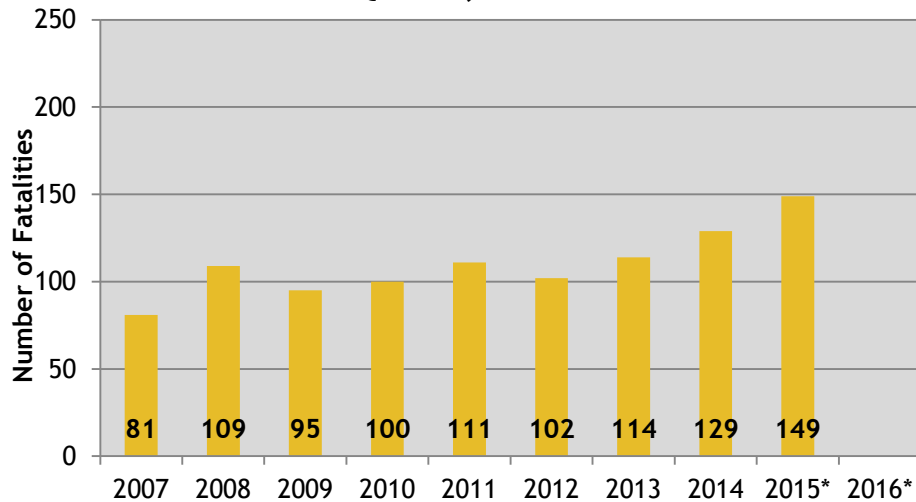
First Quarter, 2007-2016



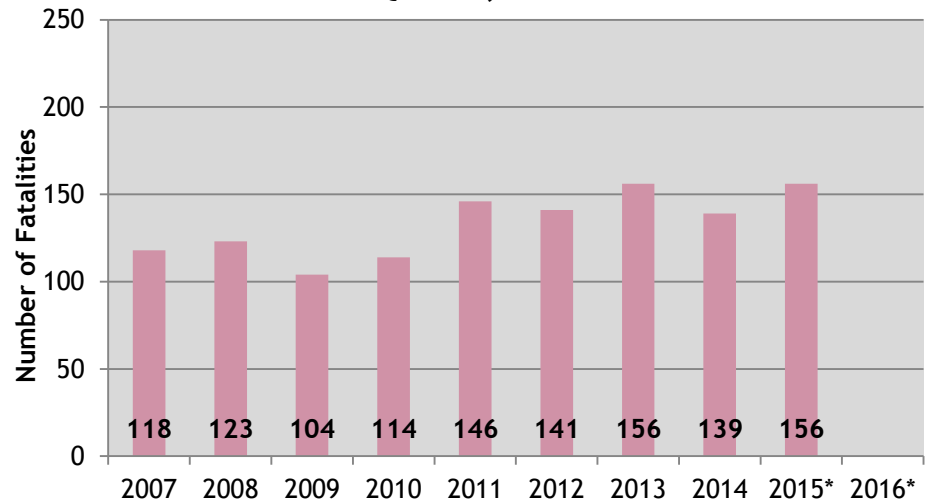
Second Quarter, 2007-2016



Third Quarter, 2007-2016



Fourth Quarter, 2007-2016



FATAL DRUG OVERDOSES OF SPECIAL INTEREST

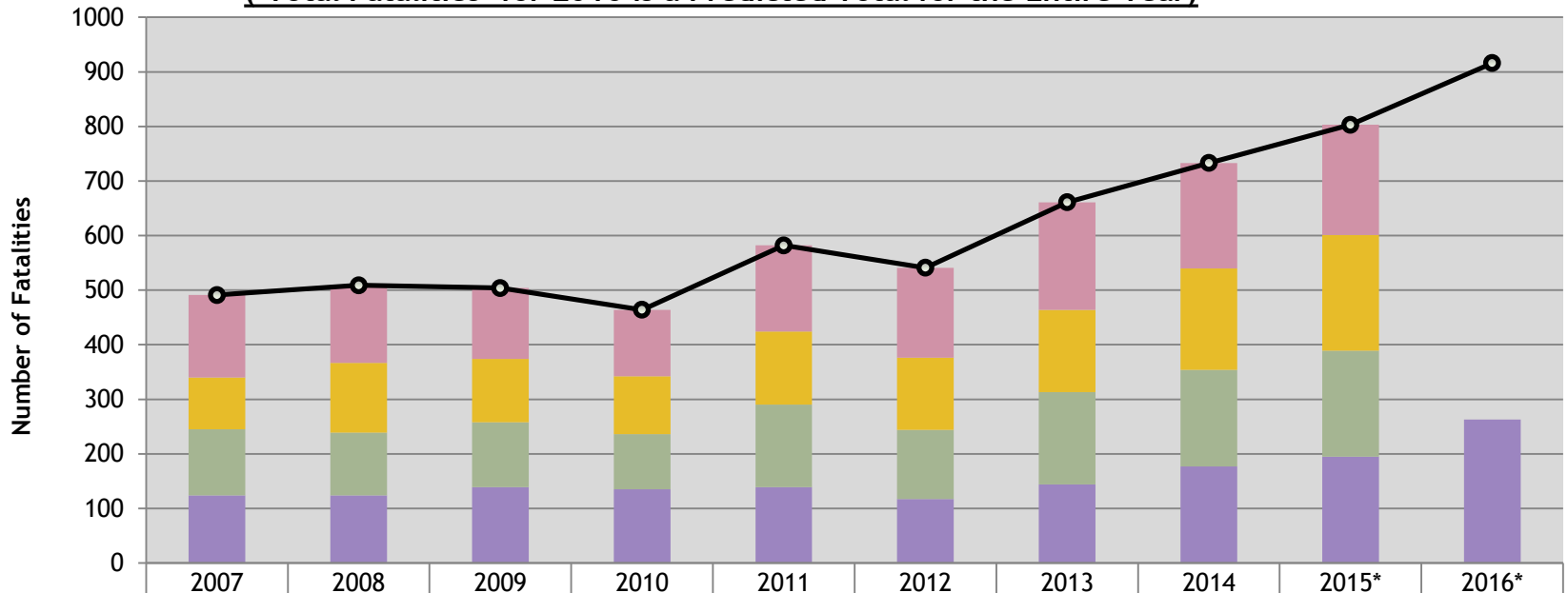


- All Opioids (Heroin and/or Prescription Opioids)
- Heroin and/or Fentanyl

ALL OPIOIDS

From 2007-2015, opioids (heroin and/or one or more prescription opioids) made up 70-75% of all fatal drug overdoses annually in Virginia. However, this percentage is increasing each year due to the significant increase in fatal fentanyl and/or heroin overdoses beginning in late 2013 and early 2014. Of the fatal opioid overdoses from 2007-2015, 26.9% had one or more benzodiazepines contributing to death.

Total Number of Fatal Opioid Overdoses by Quarter and Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



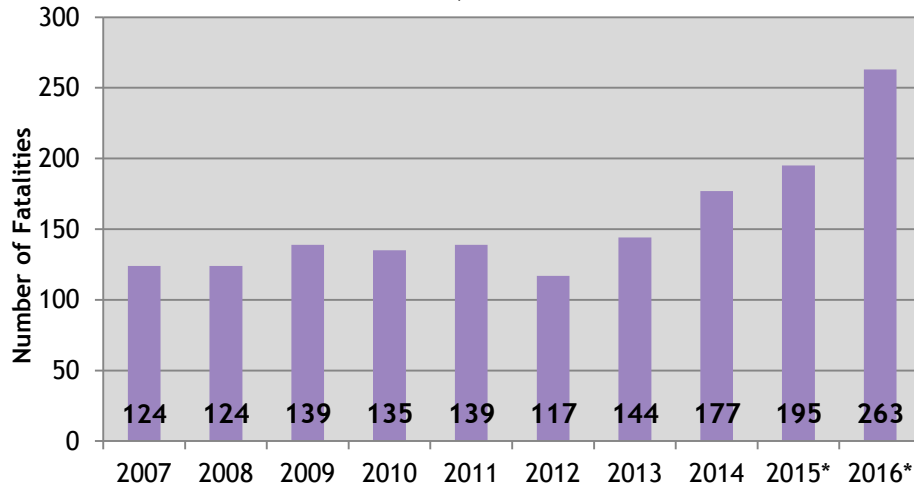
	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
Q4	151	142	130	122	158	165	197	193	202	
Q3	95	128	116	106	134	132	151	186	212	
Q2	121	115	119	101	151	127	169	177	194	
Q1	124	124	139	135	139	117	144	177	195	263
—●— Total Fatalities	491	509	504	464	582	541	661	733	803	916

¹ 'All Opioids' include heroin, prescription opioids, and opioids unspecified

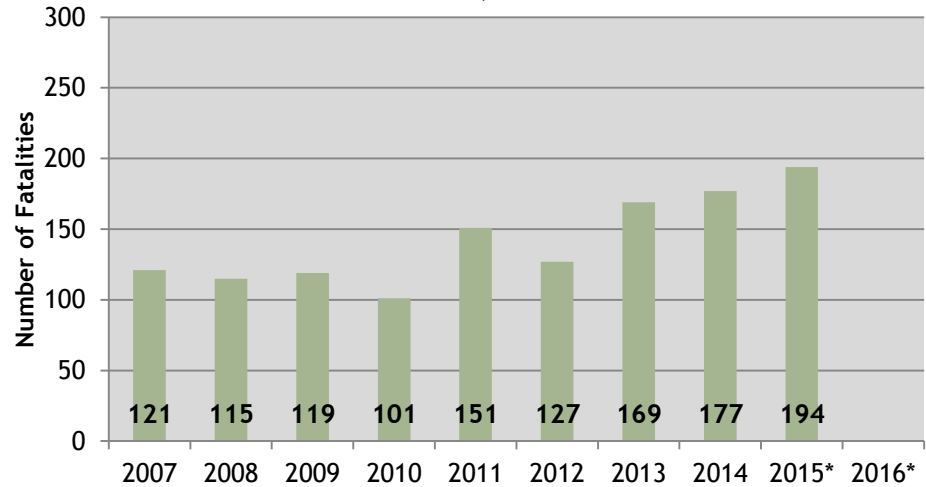
² 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

ALL OPIOIDS

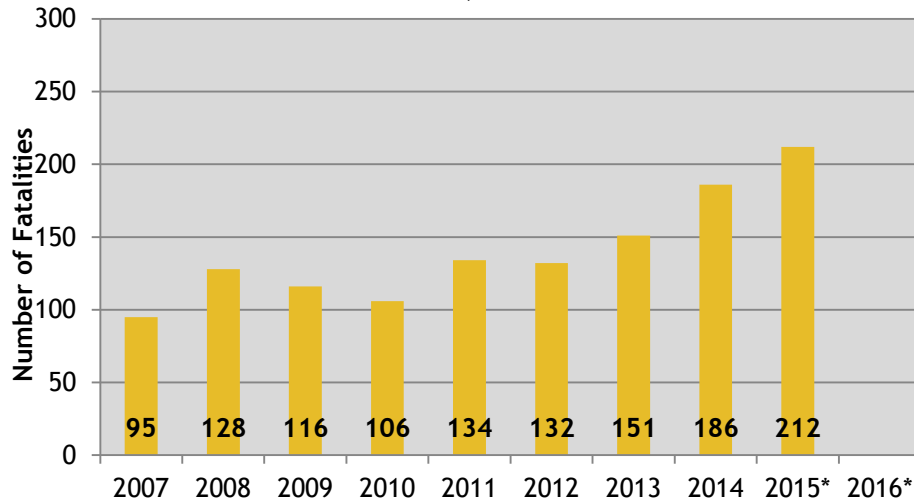
First Quarter, 2007-2016



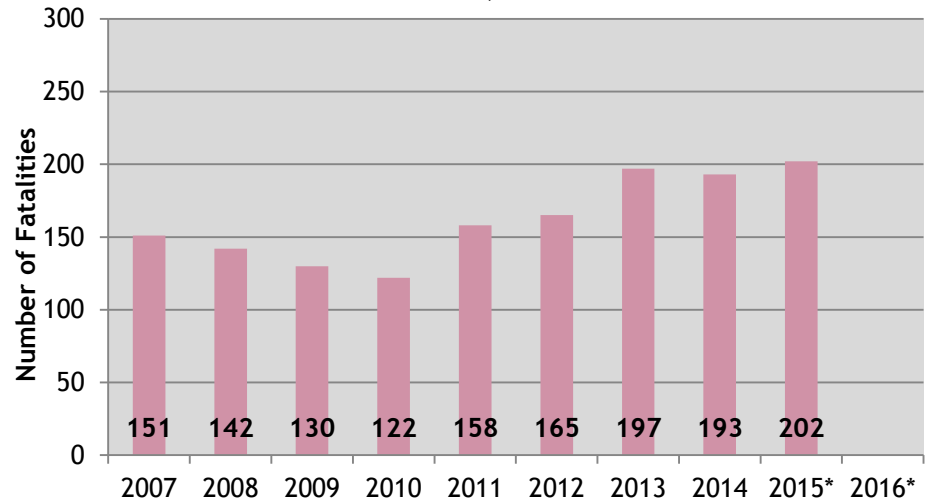
Second Quarter, 2007-2016



Third Quarter, 2007-2016



Fourth Quarter, 2007-2016

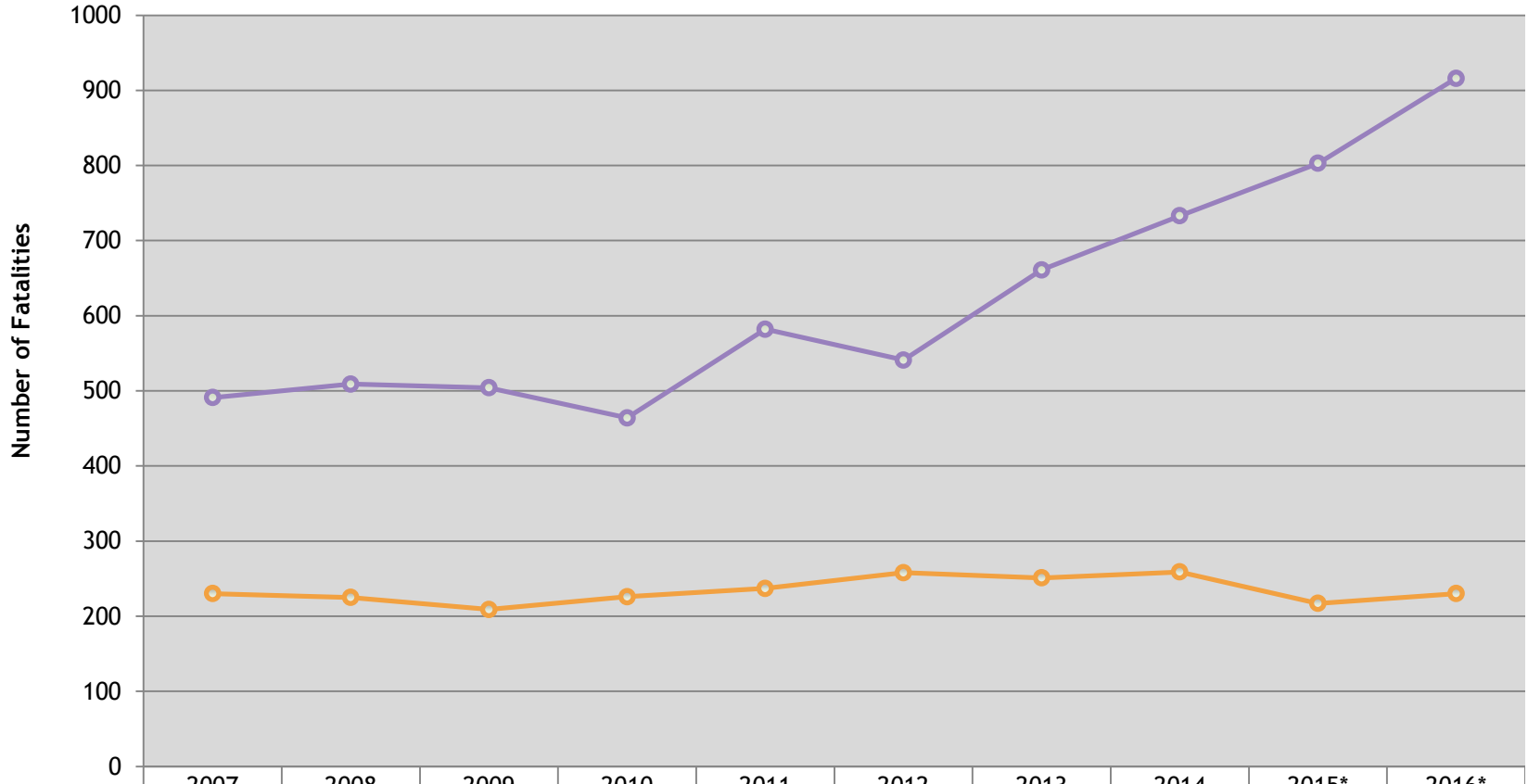


¹ 'All Opioids' include heroin, prescription opioids, and opioids unspecified

² 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

OPIOIDS VS. NON-OPIOIDS

Total Number of Fatal Opioid Overdoses vs. Non-Opioid Overdoses by Year of Death, 2007-2016
 (Data for 2016 is a Predicted Total for the Entire Year)



Opioids	491	509	504	464	582	541	661	733	803	916
Non-Opioids	230	225	209	226	237	258	251	259	217	230

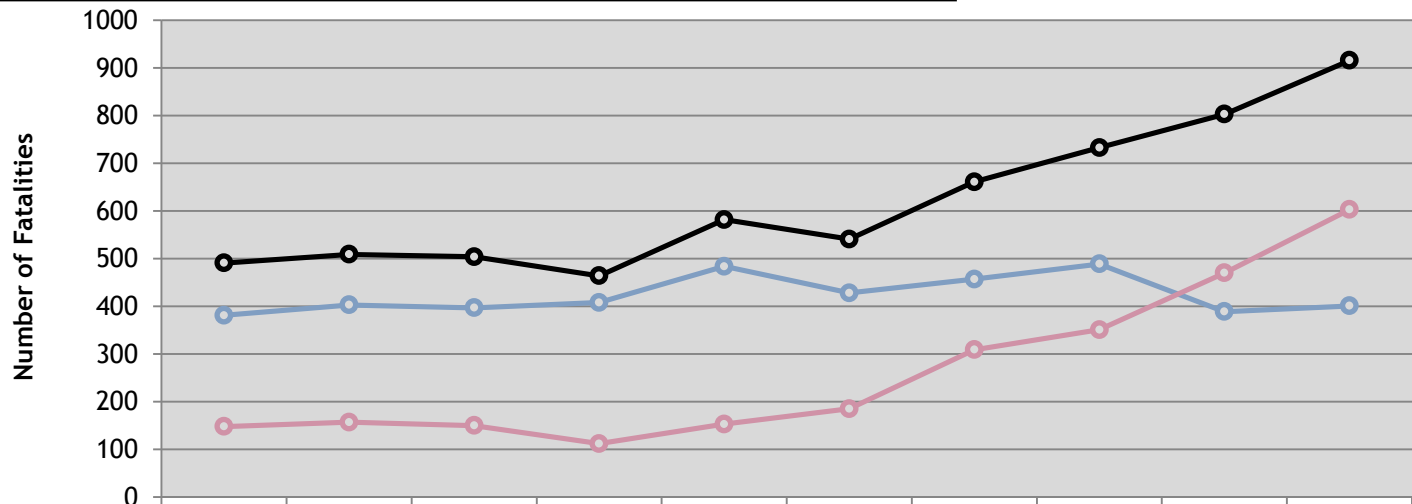
¹ 'All Opioids' include heroin, prescription opioids, and opioids unspecified

² 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

OPIOIDS- THE BREAKDOWN

Prescription opioids are drugs that are commercially made by pharmaceutical companies in certified laboratories that act upon the opioid receptors in the brain. Historically, fentanyl has been one of these drugs. However, in late 2013, early 2014, illicitly made fentanyl began showing up in Virginia and by 2016, most fatal fentanyl overdoses were of illicit production of the drug. Separating fentanyl from the grouping of prescription opioids for this reason demonstrates a decrease in fatal prescription opioid overdoses in 2015 and a dramatic increase in the number of fatal fentanyl and/or heroin overdoses. This has caused the momentous rise in all fatal opioid overdoses in the Commonwealth since 2012.

Total Number of Prescription Opioid (excluding Fentanyl), Fentanyl and/or Heroin, and All Opioid Overdoses by Year of Death, 2007-2016
 ('Total Fatalities' for 2016 is a Predicted Total for the Entire Year)



—●— All Opioids	491	509	504	464	582	541	661	733	803	916
—●— Prescription Opioids (excluding fentanyl)	381	403	397	408	484	428	457	489	389	401
—●— Fentanyl and/or Heroin	148	157	150	112	153	185	309	351	470	603

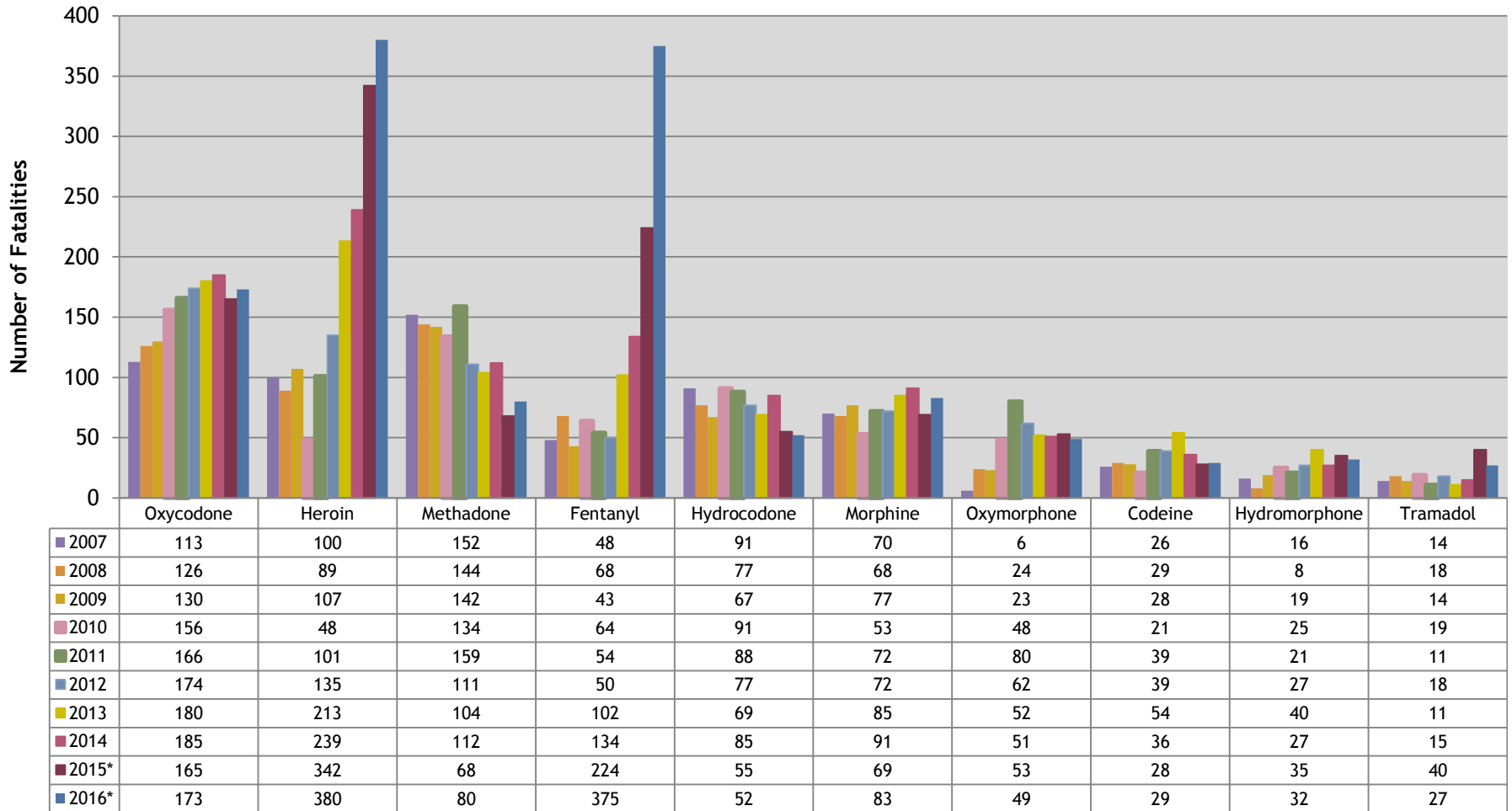
¹ 'All Opioids' include heroin, prescription opioids, and opioids unspecified

² Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

³ 'Prescription Opioids (excluding fentanyl)' calculates all deaths in which one or more prescription opioids caused or contributed to death, but excludes fentanyl from the **required list** of prescription opioid drugs used to calculate the numbers. However, given that some of these deaths have multiple drugs on board, some deaths may have fentanyl in addition to other prescriptions opioids, and are therefore counted in the total number. Analysis must be done this way because by excluding all deaths in which fentanyl caused or contributed to death, the calculation would also exclude other prescription opioid deaths (oxycodone, methadone, etc.) from the analysis and would thereby undercount the actual number of fatalities due to these prescription opioids.

ALL OPIOIDS

Total Number of Fatal Opioid Overdoses by Drug Name and Year of Death, 2007-2016
(Data for 2016 is a Predicted Total for the Entire Year)



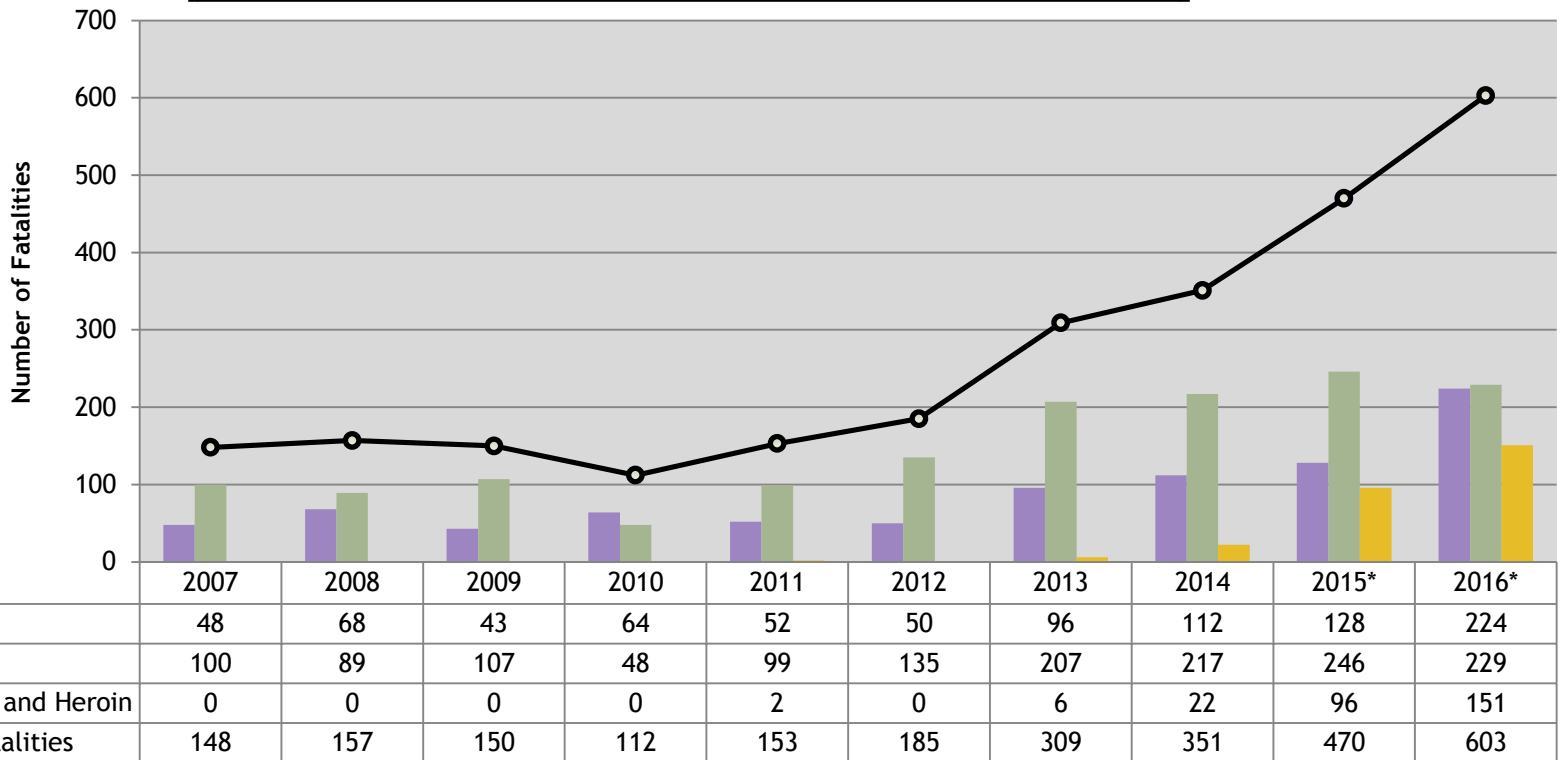
¹ Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, recent law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have not been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl, especially fentanyl mixed with heroin, has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

² Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

FENTANYL AND/OR HEROIN

The total number of fatal fentanyl and/or heroin overdoses have significantly increased since late 2012. It is important to look at these two drugs together because as heroin became more popular in 2010, fentanyl occasionally began showing up as an additive to the heroin. By late 2013 and early 2014, some heroin being sold on the street was actually completely fentanyl, unbeknownst to the user. It is essential to look at these fentanyl (no heroin), heroin (no fentanyl), and fentanyl and heroin combination deaths together because users never know exactly what is in the illegal drugs they buy off the streets.

Total Number of Fatal Fentanyl and/or Heroin Overdoses by Year of Death, 2007-2016
(‘Total Fatalities’ for 2016 is a Predicted Total for the Entire Year)

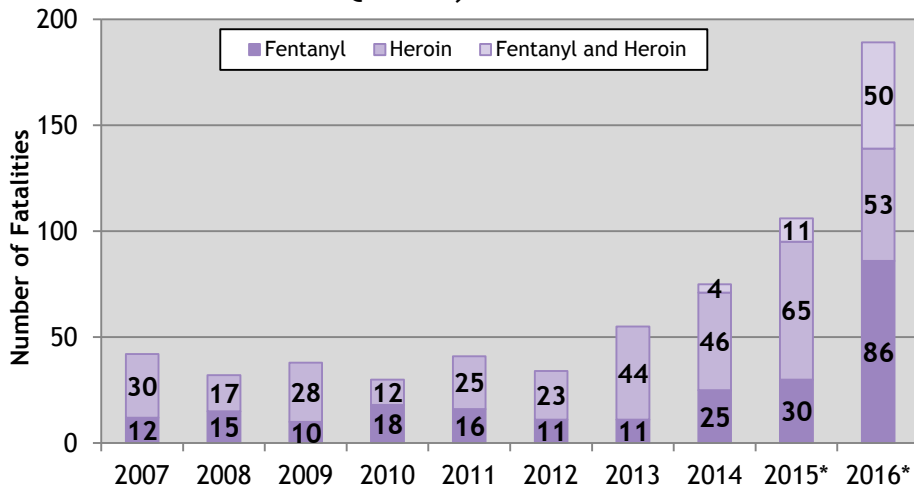


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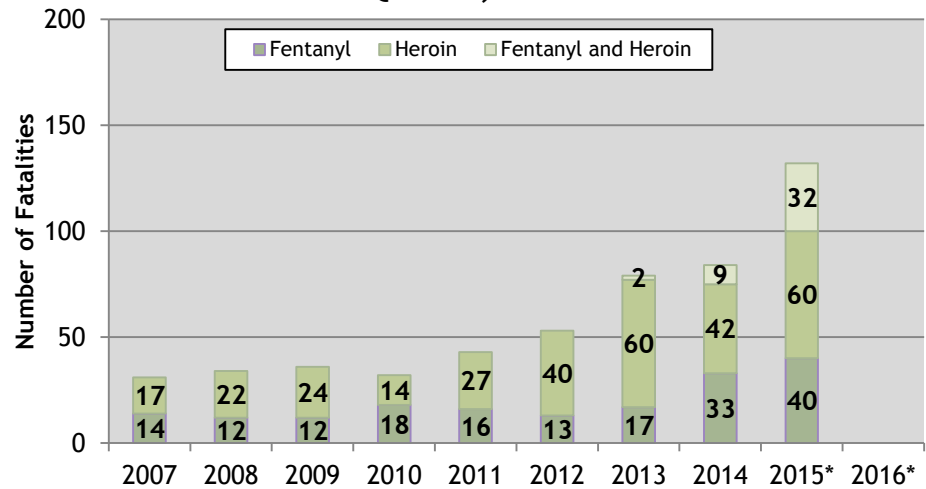
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FENTANYL AND/OR HEROIN

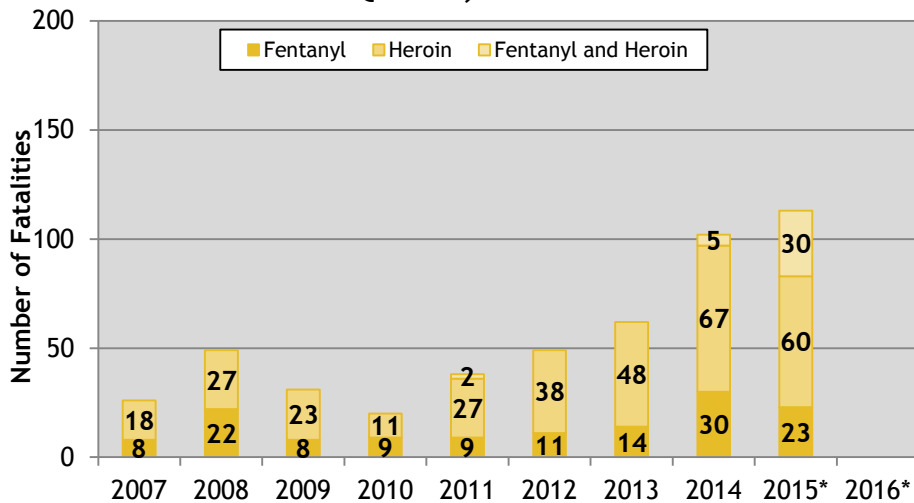
First Quarter, 2007-2016



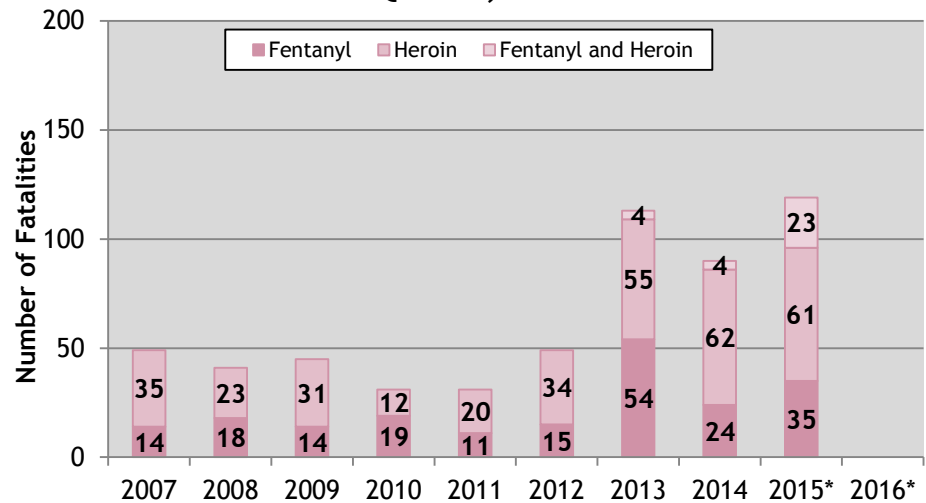
Second Quarter, 2007-2016



Third Quarter, 2007-2016

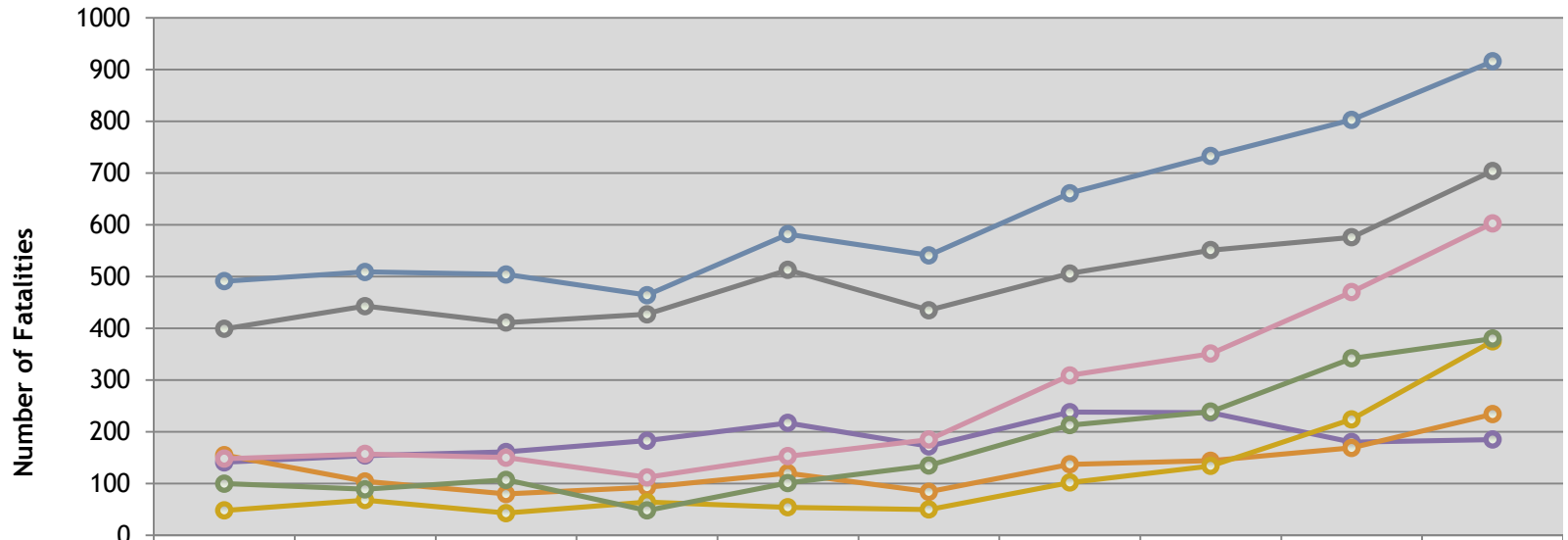


Fourth Quarter, 2007-2016



ALL DRUGS

Total Number of Fatal Drug Overdoses Drug Name/Category and Year of Death, 2007-2016
(Data for 2016 is a Predicted Total for the Entire Year)



	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
— Benzodiazepines	141	154	161	183	217	172	238	237	180	185
— Cocaine	155	104	80	93	120	84	137	144	169	234
— Fentanyl	48	68	43	64	54	50	102	134	224	375
— Heroin	100	89	107	48	101	135	213	239	342	380
— Prescription Opioids	399	443	411	427	513	435	506	551	576	704
— All Opioids	491	509	504	464	582	541	661	733	803	916
— Heroin and/or Fentanyl	148	157	150	112	153	185	309	351	470	603

¹ Deaths may be represented in more than one category due to groupings of drug categories (e.g. heroin)

² 'All Opioids' include heroin, prescription opioids, and opioids unspecified

³ 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

⁴ Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, recent law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have **not** been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl, especially fentanyl mixed with heroin, has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

⁵ Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

CONTACT INFORMATION

This report is compiled by the Virginia Department of Health, Office of the Chief Medical Examiner. For additional information regarding these or other statistics, please contact:

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