VIRGINIA DEPARTMENT OF HEALTH

OFFICE OF THE CHIEF MEDICAL EXAMINER

"To promote and protect the health of all Virginians"

Fatal Drug Overdose Quarterly Report

2ND QUARTER 2021

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Publication Date:
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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. 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/medical-examiner/forensic-epidemiology/).**

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.

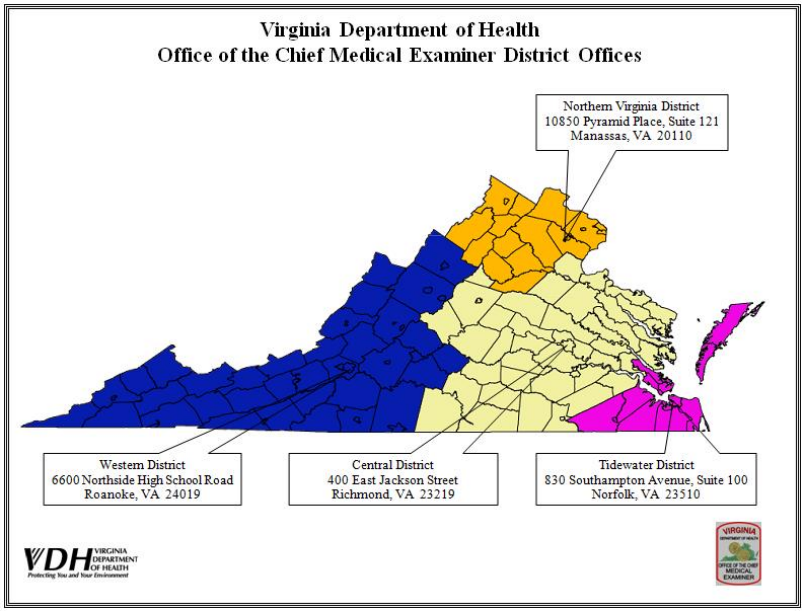
Prescription Opioids analyzed in this report include buprenorphine, codeine, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, oxycodone, oxymorphone, pentazocine, propoxyphene, tapentadol, and tramadol and are included in the category of 'Prescription Opioids'. Benzodiazepines analyzed in this report include alprazolam, clonazepam, diazepam, flualprazolam, flurazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam, and triazolam and are included in the category of 'Benzodiazepines'.

Projected estimates for 2021 (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 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



MAIN TAKEAWAYS

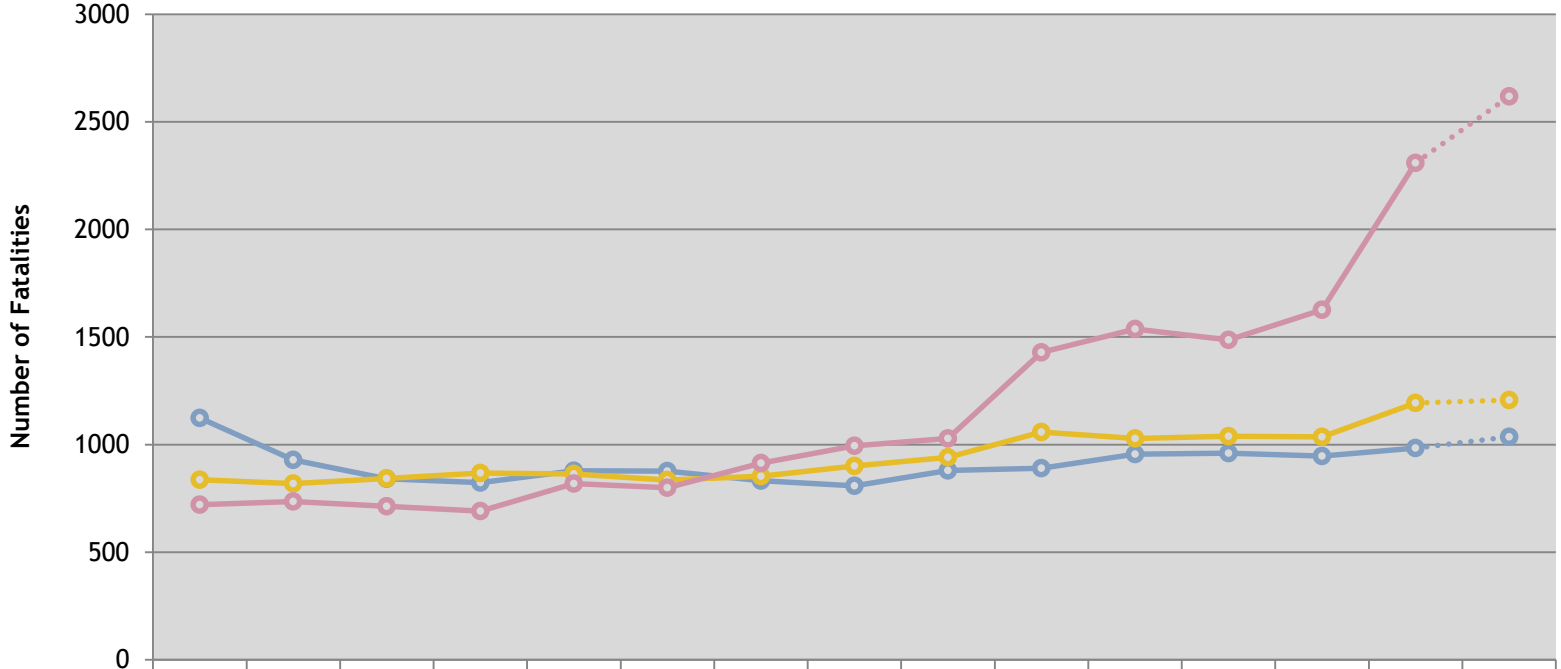
- Fatal drug overdose has been the leading method of unnatural death in Virginia since 2013
- Opioids, specifically illicit fentanyl, have been the driving force behind the large increases in fatal overdoses since 2013
- In 2015 statewide, the number of illicit opioids deaths surpassed prescription (Rx) opioid deaths. This trend continued at a greater magnitude in 2016 to present
- There has not been a significant increase or decrease in fatal prescription (Rx) opioid overdoses over the 14 year time span (2007-2020)
- Fentanyl (prescription, illicit, and/or analogs) caused or contributed to death in 71.8% of all fatal overdoses in 2020
- Fatal non-opioid illicit drug overdoses are on the rise. In 2020 compared to 2019, fatal cocaine overdoses increased 33.2% and fatal methamphetamine overdoses increased 95.5%
- Preliminary numbers from Q1 2021 identified the largest number of fatal drug overdoses, all substances, ever seen in Virginia (n=687). Since the beginning of the COVID-19 pandemic in March 2020, fatal overdoses increased significantly and continue to remain record breaking through 2021. Fatal overdoses, all substances, increased 41.9% in 2020 compared to 2019

TOP 3 METHODS OF UNNATURAL DEATH

The leading methods of unnatural death in Virginia since 2007 have been motor vehicle collisions, gun-related deaths, and fatal drug overdoses (these methods of death include all manners of death: accident, homicide, suicide, and undetermined). In 2013, fatal drug overdose became the leading method of unnatural death in the Commonwealth. This trend has continued to worsen at a greater magnitude due mainly to illicit opioids (heroin, illicit fentanyl, and fentanyl analogs).

Total Number of Motor Vehicle, Gun, and Drug Related Fatalities by Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Motor Vehicle Related	1124	928	841	823	878	877	832	808	879	890	955	960	947	984	1036
Gun Related	836	818	843	868	863	835	852	901	940	1058	1028	1038	1036	1194	1207
Fatal Drug Overdose	721	735	713	690	819	799	914	994	1028	1428	1537	1486	1627	2309	2619

[1] Top 3 methods of death (motor vehicles, guns, and drugs) include all manners of death (accident, homicide, suicide, and undetermined)

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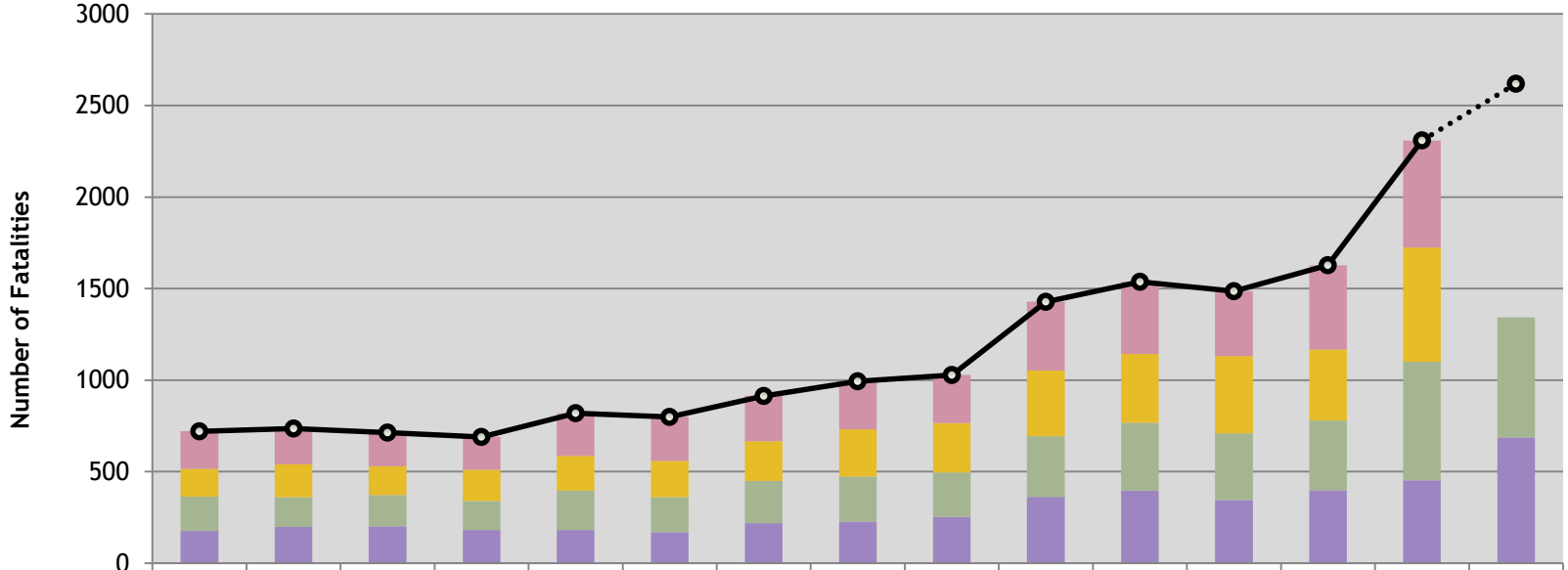
ALL DRUGS

The total number of fatal drug overdoses statewide has increased 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 preliminary total of all fatal overdoses, all substance, in 2020 compared to 2019 increased by 41.9%---a record setting statistic.

Total Number of Fatal Drug Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	205	195	183	179	232	240	248	263	262	375	393	354	459	585	
Q3	152	180	157	170	191	199	217	257	270	359	376	423	389	624	
Q2	188	162	172	159	215	190	230	246	243	332	371	363	380	647	656
Q1	176	198	201	182	181	170	219	228	253	362	397	346	399	453	687
Total Fatalities	721	735	713	690	819	799	914	994	1028	1428	1537	1486	1627	2309	2619

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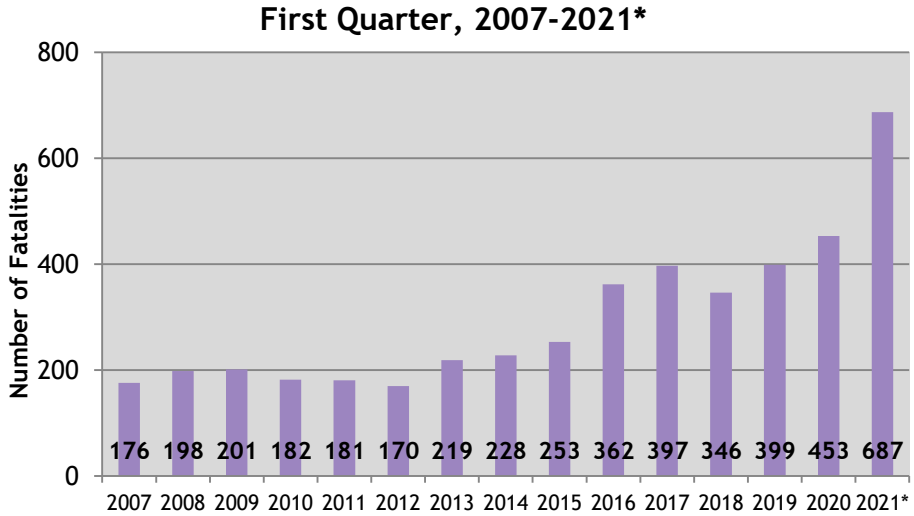
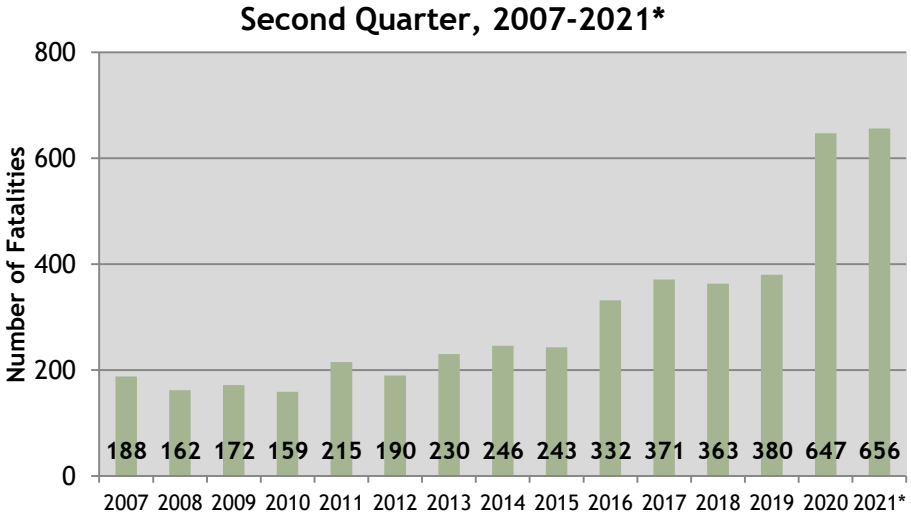
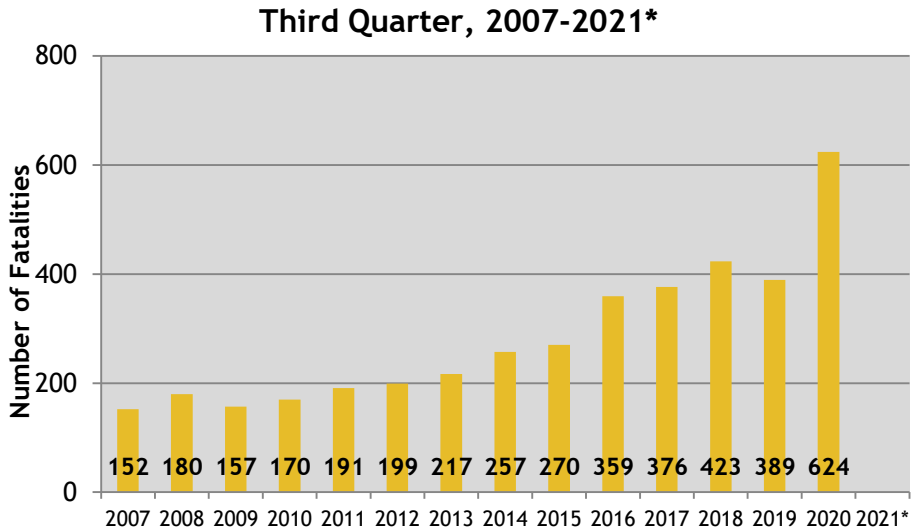
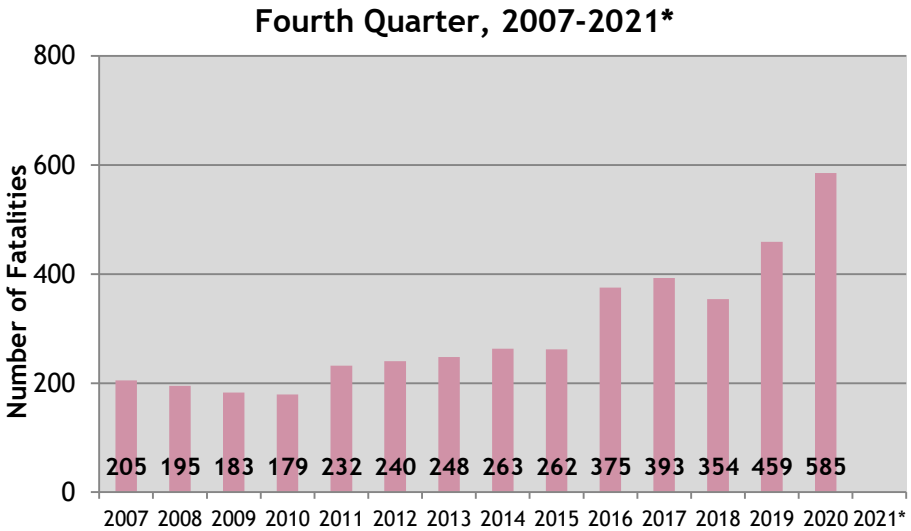
ALL DRUGS









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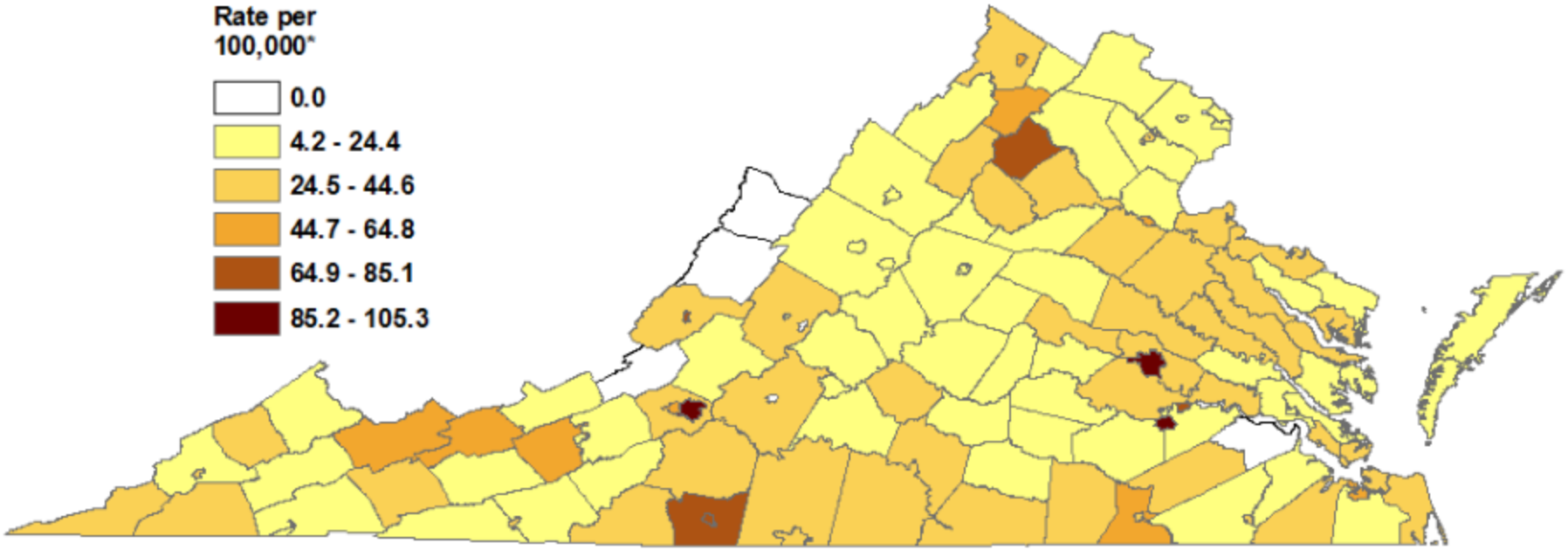
Rate of All Fatal Drug Overdoses, All Substances, by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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FATAL DRUG OVERDOSES BY NAME/CATEGORY

- Benzodiazepines
- Cocaine
- Fentanyl
- Heroin
- Prescription Opioids (excluding Fentanyl)

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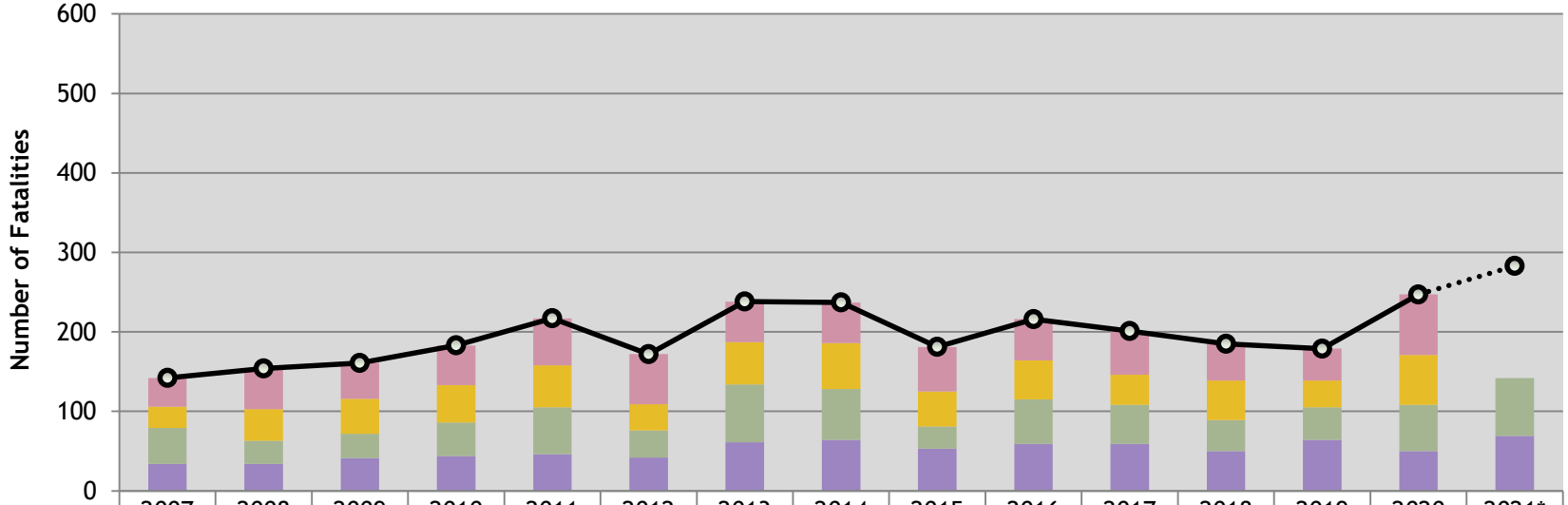
BENZODIAZEPINES

The number of fatal benzodiazepine-related overdoses has 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. Fatal benzodiazepine overdoses often had one or more prescription opioids (excluding fentanyl) causing or contributing to death; however, this proportion has slowly decreased in recent years from nearly 90% in 2007 to 40.8% in 2020. Over 65% of the benzodiazepine overdoses in 2020 also had fentanyl causing death.

Total Number of Fatal Benzodiazepine Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	36	51	45	50	59	63	51	51	56	52	55	46	40	76	
Q3	27	40	44	47	53	33	53	58	44	49	38	50	34	63	
Q2	45	29	31	42	59	34	73	64	28	56	49	39	41	58	73
Q1	34	34	41	44	46	42	61	64	53	59	59	50	64	50	69
Total Fatalities	142	154	161	183	217	172	238	237	181	216	201	185	179	247	283

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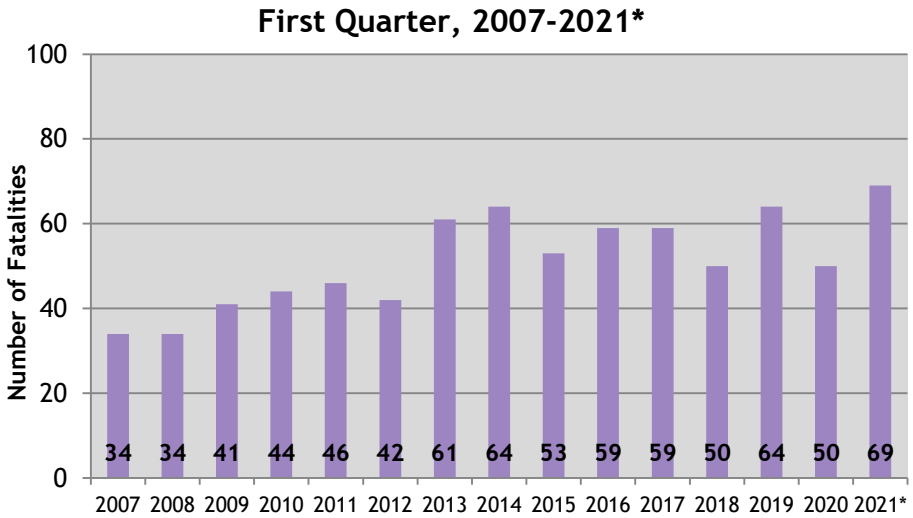
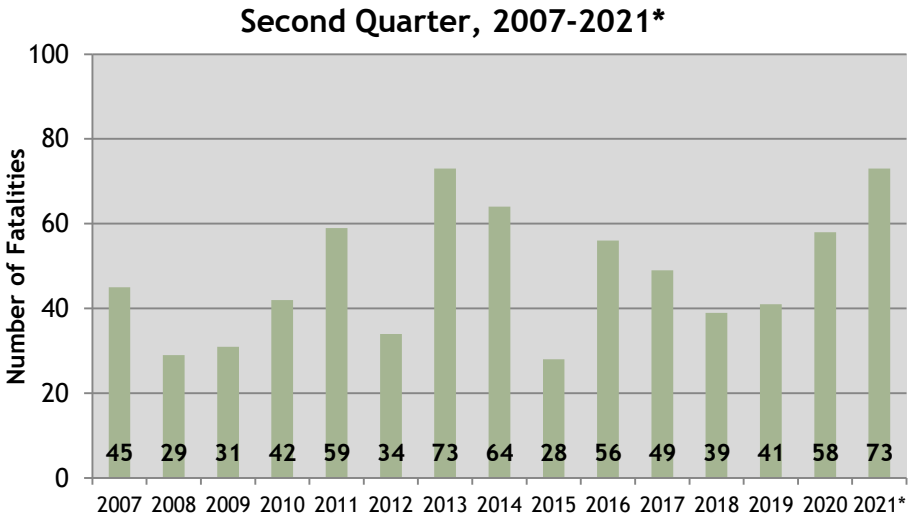
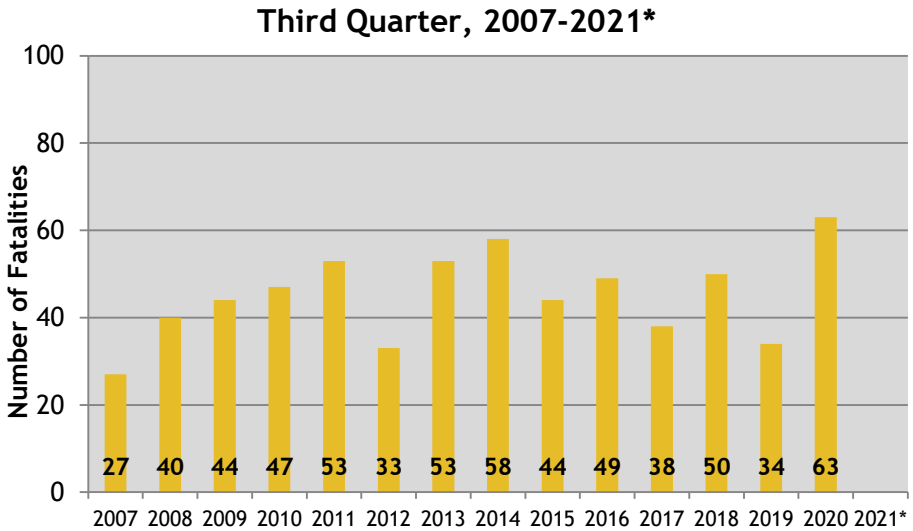
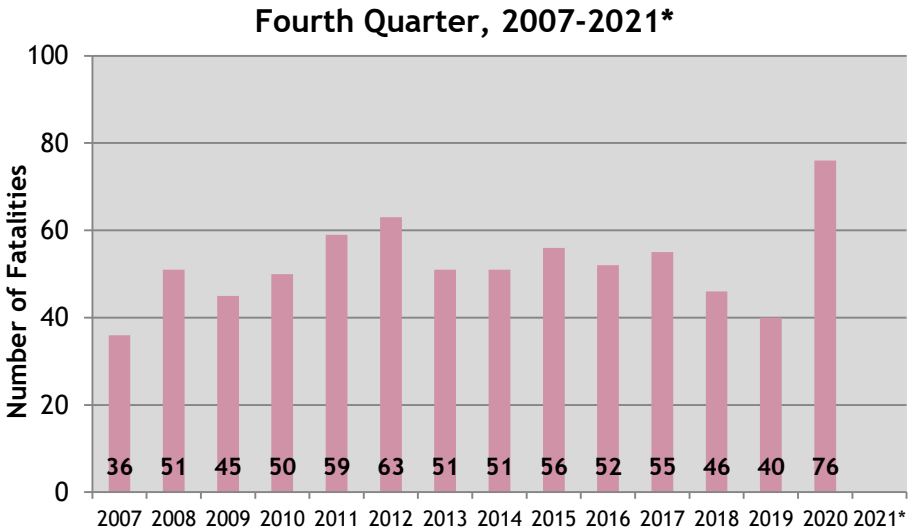
BENZODIAZEPINES









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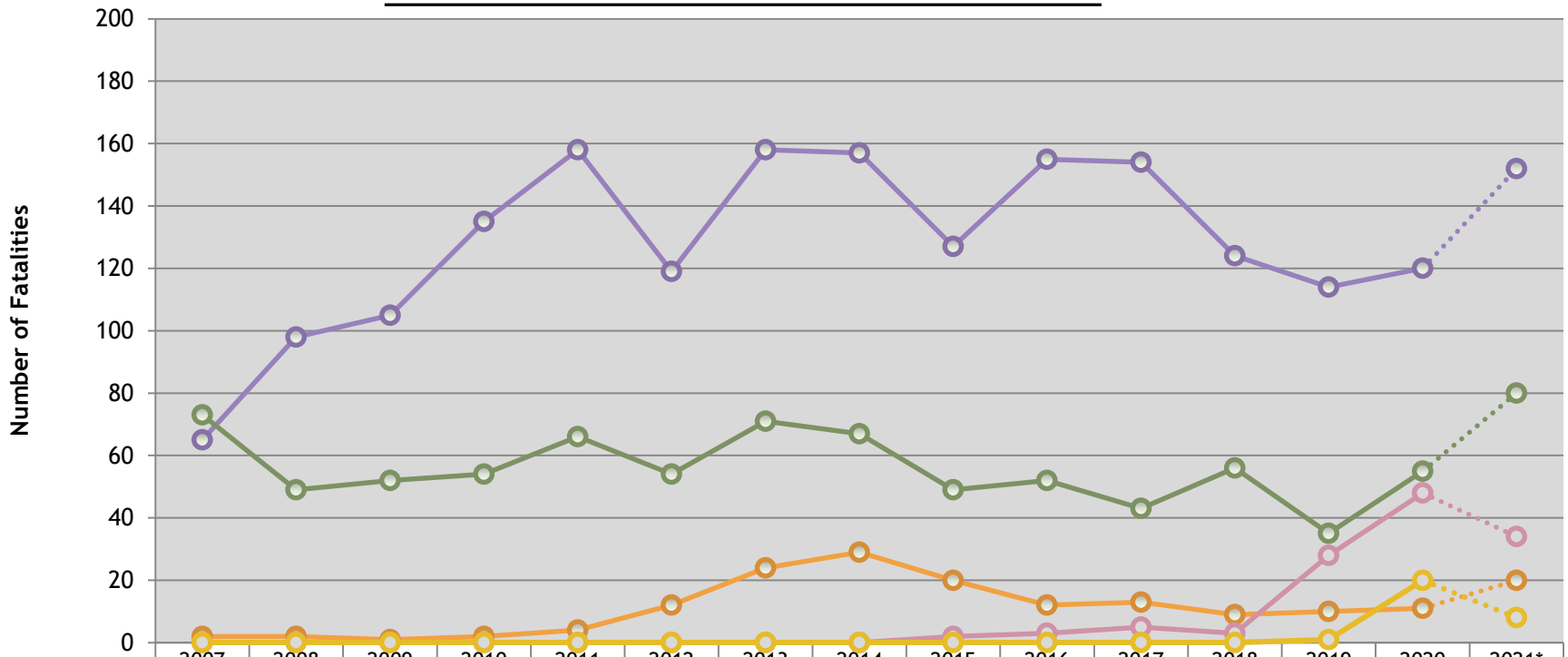
BENZODIAZEPINES

Total Number of Fatal Benzodiazepine Overdoses by Drug Name and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Alprazolam	65	98	105	135	158	119	158	157	127	155	154	124	114	120	152
Clonzepam	2	2	1	2	4	12	24	29	20	12	13	9	10	11	20
Diazepam	73	49	52	54	66	54	71	67	49	52	43	56	35	55	80
Etizolam	0	0	0	0	0	0	0	0	2	3	5	3	28	48	34
Flualprazolam	0	0	0	0	0	0	0	0	0	0	0	0	1	20	8

[1] Flurazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam and triazolam were excluded from this analysis because of low annual case counts (<20 deaths 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

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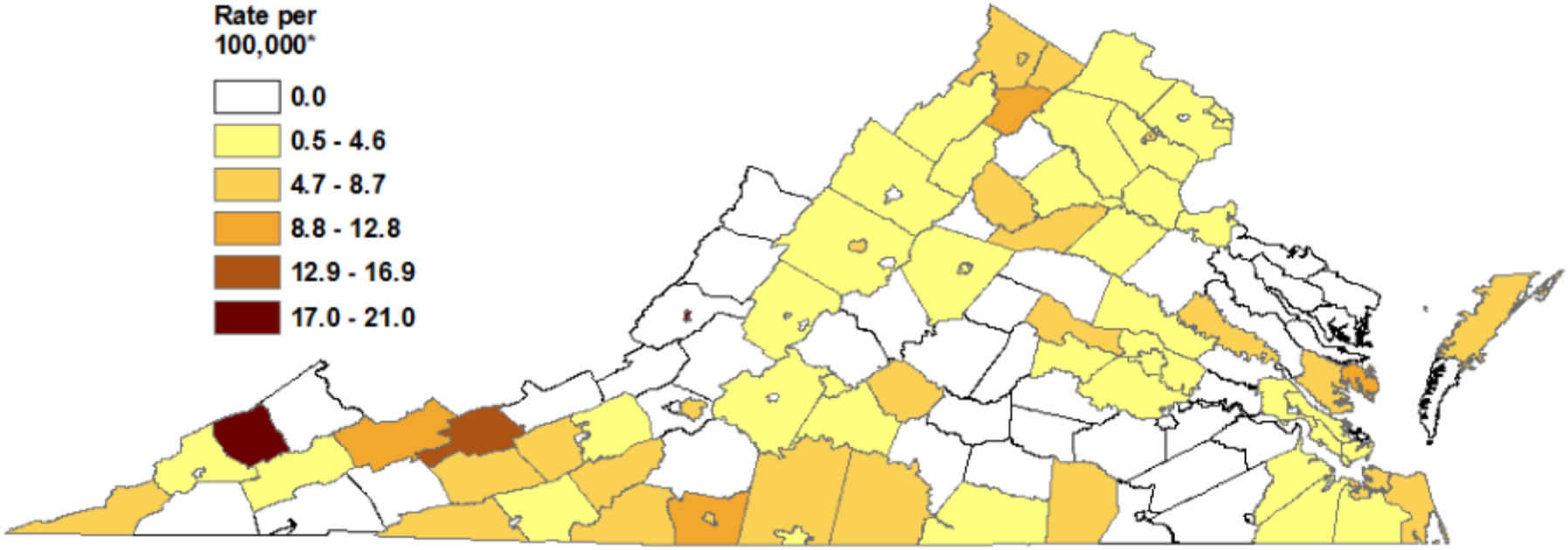
Rate of Fatal Benzodiazepine Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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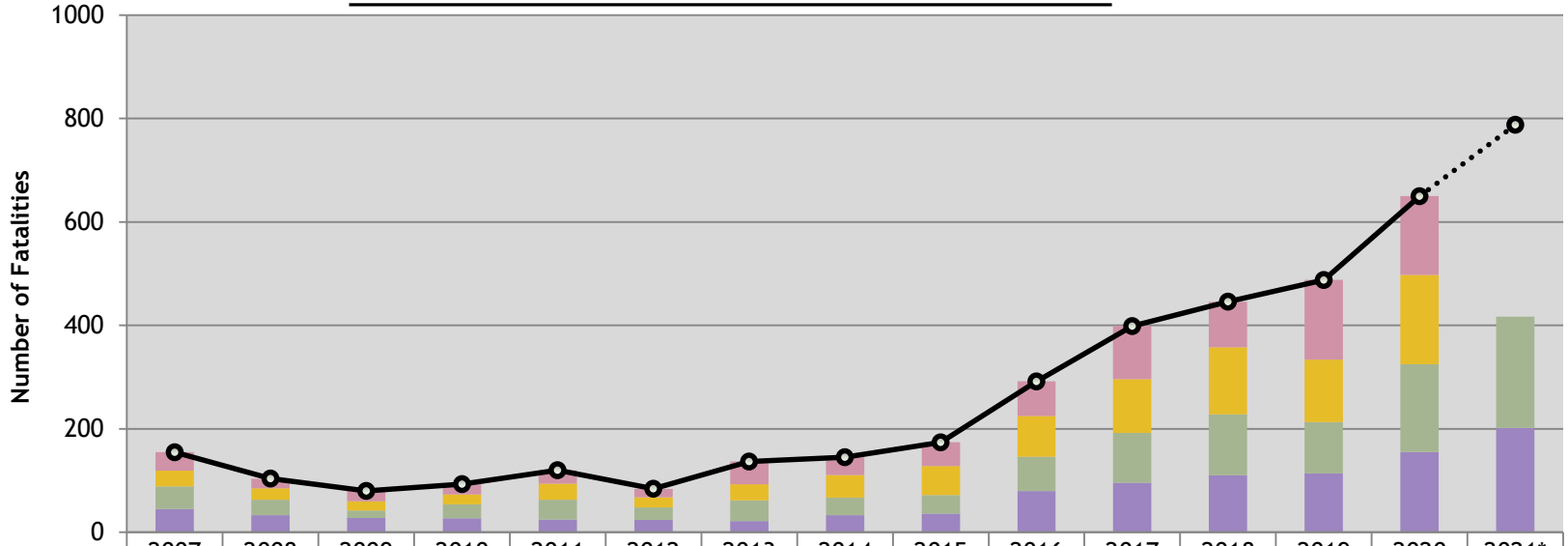
COCAINE

The total number of fatal cocaine-related overdoses statewide has been slowly 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 (excluding fentanyl) (36.6%), heroin (24.6%), and/or alcohol at or above the legal limit of 0.08% BAC (16.0%). In 2020, nearly 82% of cocaine deaths also included fentanyl (prescription, illicit, or analogs). The number of fatal cocaine overdoses in 2020 compared to 2019 increased by 33.2%.

Total Number of Fatal Cocaine Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	36	19	20	20	26	16	44	34	46	67	103	88	154	152	
Q3	30	22	18	19	31	20	31	44	56	79	104	130	121	173	
Q2	44	30	14	27	38	24	40	34	36	66	96	118	99	170	215
Q1	45	33	28	27	25	24	22	33	36	80	96	110	114	155	202
Total Fatalities	155	104	80	93	120	84	137	145	174	292	399	446	488	650	788

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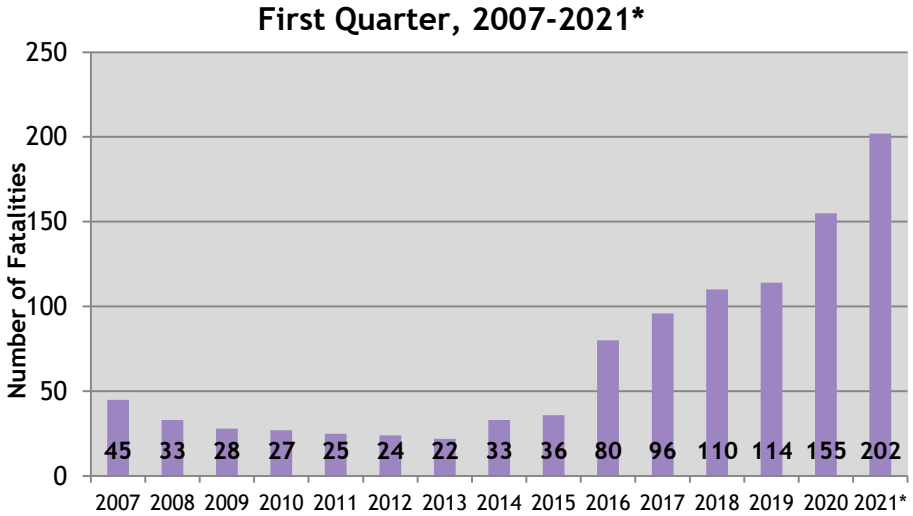
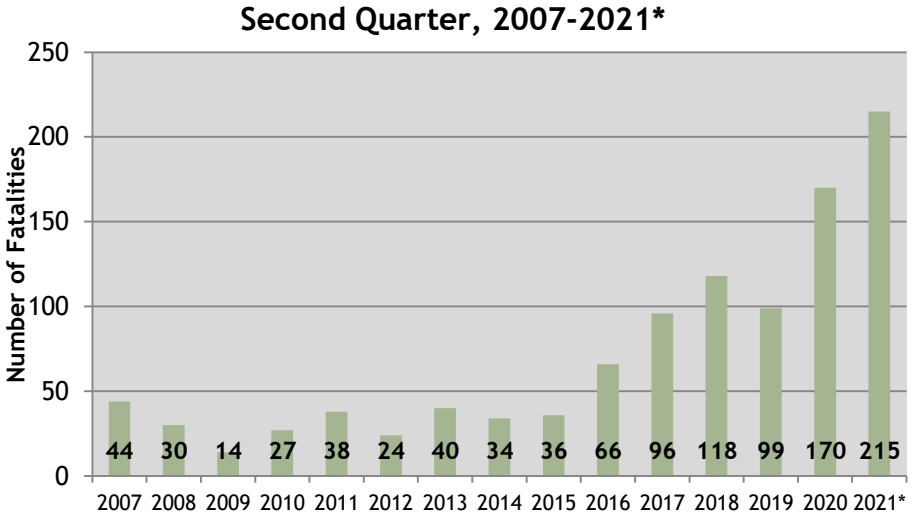
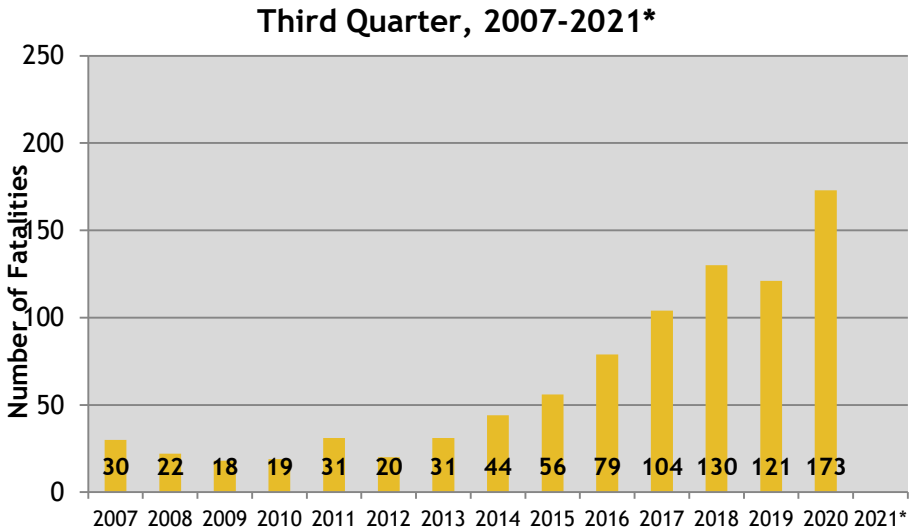
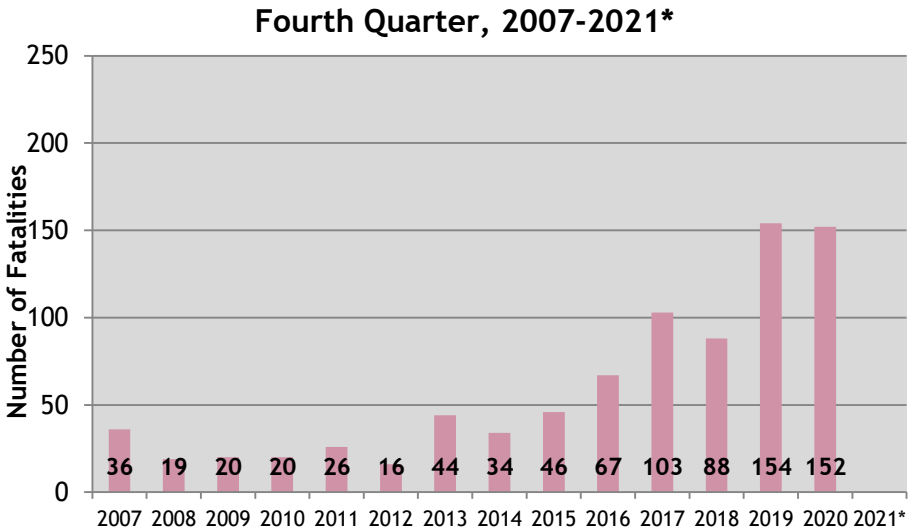
COCAINE









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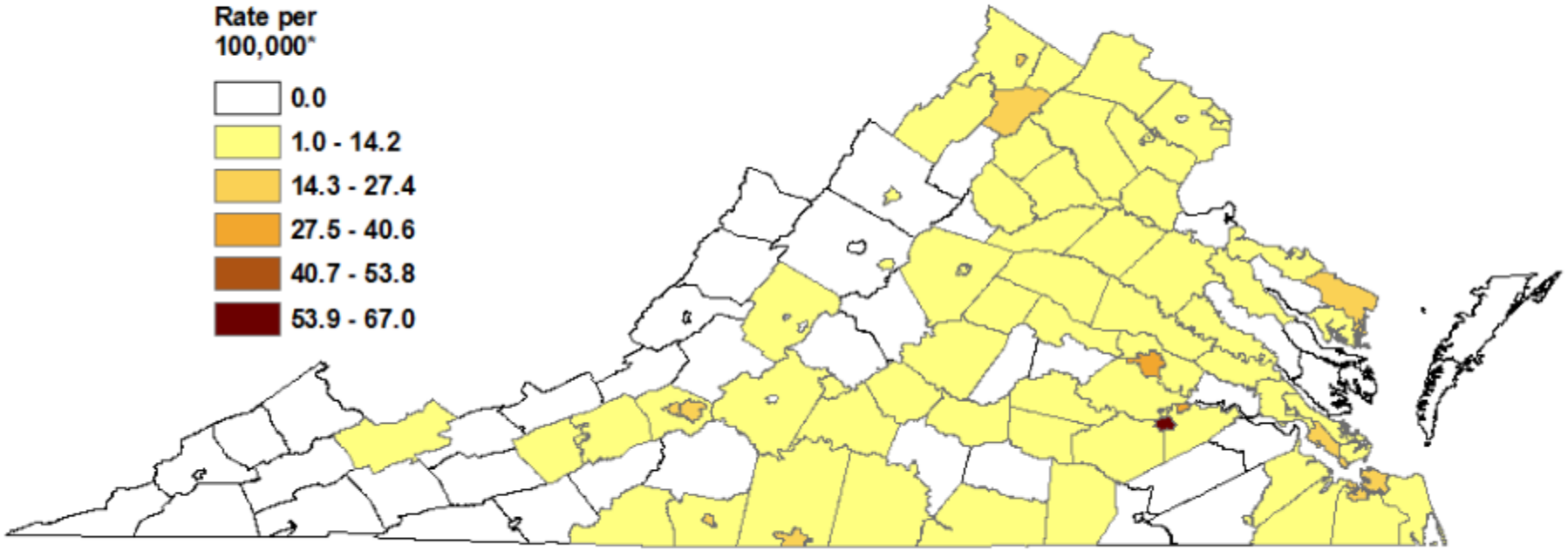
Rate of Fatal Cocaine Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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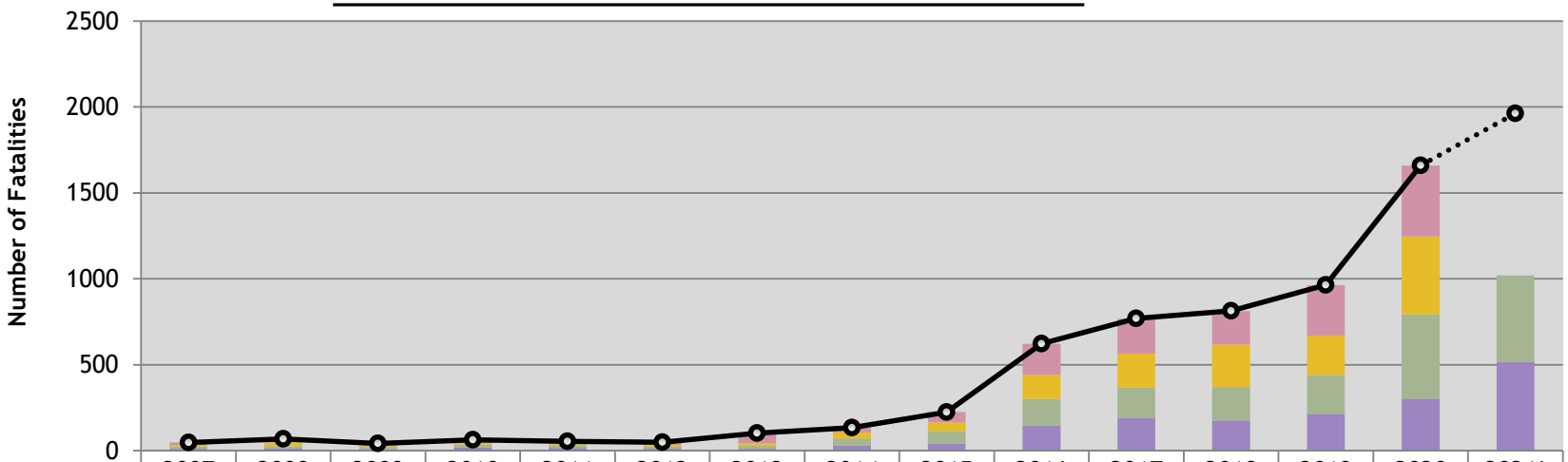
FENTANYL

The number of fatal fentanyl-related drug overdoses has 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 fentanyl analogs, and not pharmaceutically produced fentanyl. For statistical purposes, 'fentanyl' includes all pharmaceutically produced fentanyl, illicitly produced fentanyl, and fentanyl analogs. The number of fatal fentanyl overdoses in 2020 compared to 2019 increased by 72.1%. In 2020, fentanyl was involved in 71.8% of all drug overdose deaths.

Total Number of Fatal Fentanyl Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	14	19	13	19	11	15	58	28	59	180	203	194	294	413	
Q3	8	22	8	9	11	11	14	35	53	140	199	248	228	453	
Q2	14	12	12	18	16	13	19	42	72	157	175	195	227	489	505
Q1	12	15	10	18	16	11	11	29	41	145	192	176	215	304	515
Total Fatalities	48	68	43	64	54	50	102	134	225	622	769	813	964	1659	1963

[1] Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, 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 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.)

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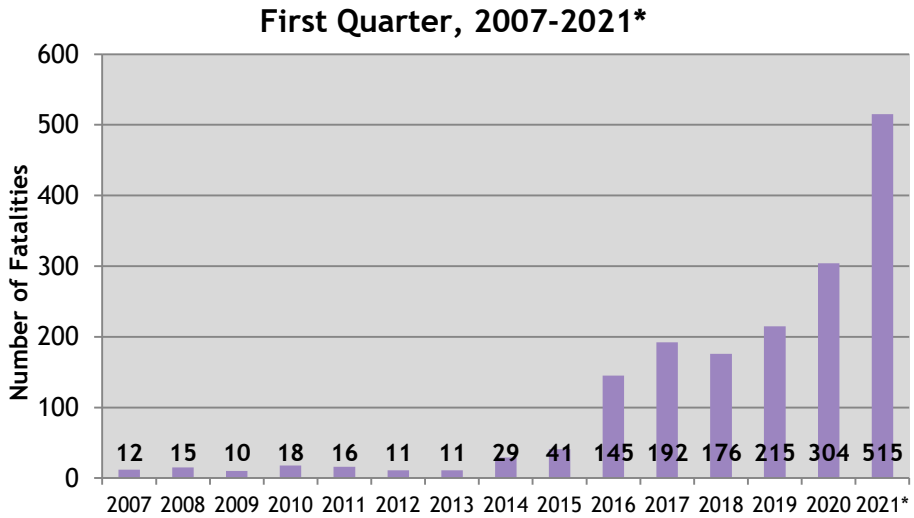
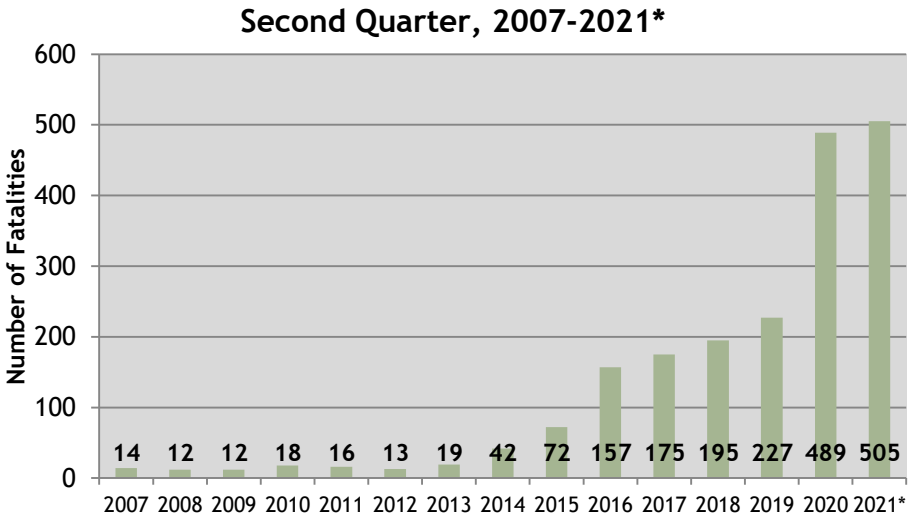
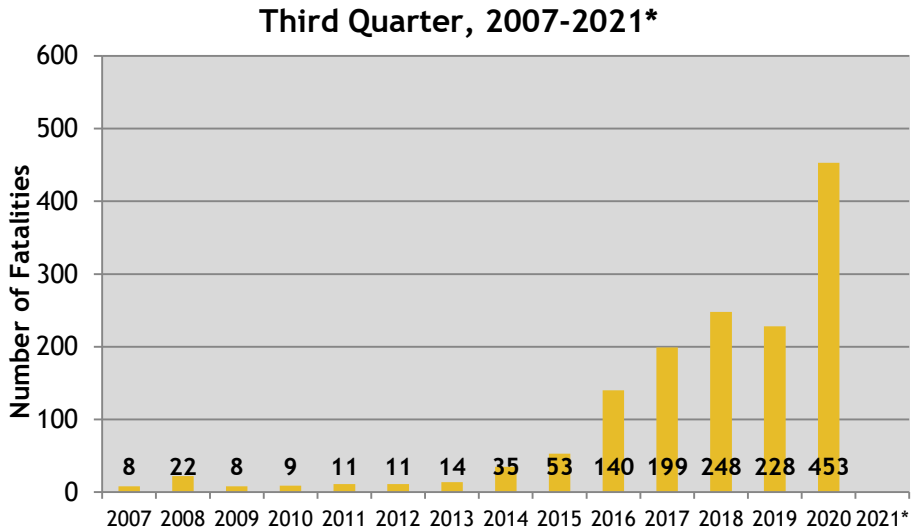
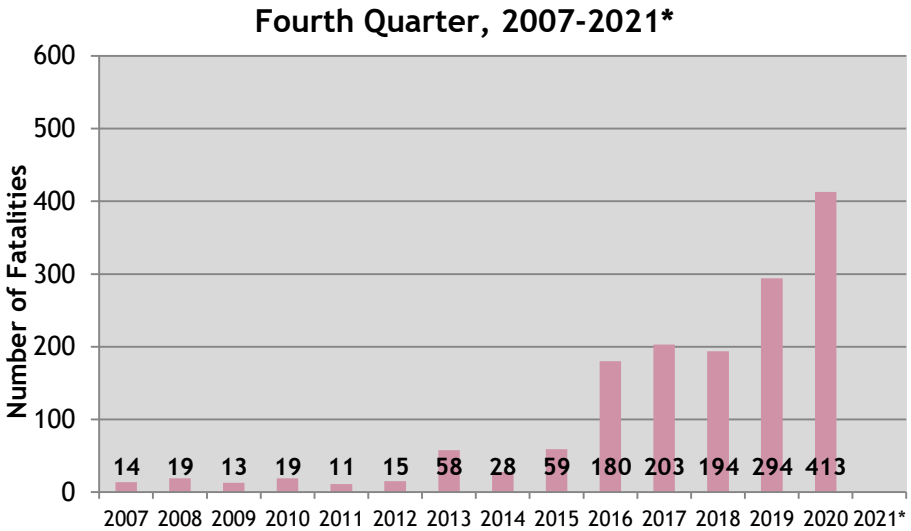
FENTANYL









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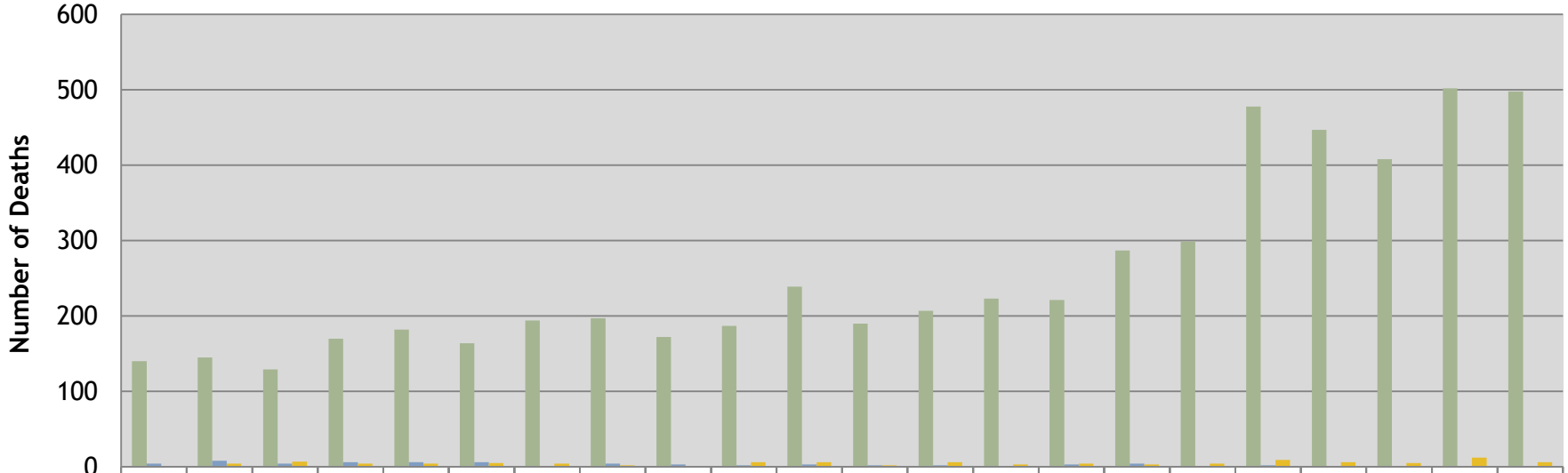
FENTANYL

In 2016, the OCME began collecting information on the suspected origin of fentanyl (pharmaceutical production, illicit production, or unknown) on all fatal overdoses involving fentanyl. The determination is made by reviewing the examination report, toxicology report, police report, and several other sources of information collected during the death investigation process. This classification is more subjective than objective, but still provides detailed insight to the current proportion of illicitly produced fentanyl in Virginia that is contributing to fatal overdoses. In 2020, it was estimated that over 98% of fatal fentanyl overdoses were due to the illicitly produced versions of the drug.

Total Number of Fatal Fentanyl Overdoses by Fentanyl Origin and Month of of Death, 2016-2021*



	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021* Q1	2021* Q2
Illicit	140	145	129	170	182	164	194	197	172	187	239	190	207	223	221	287	299	478	447	408	502	498
Prescription	4	8	4	6	6	6	1	4	3	2	3	2	2	1	3	4	1	2	0	0	1	1
Unknown	1	4	7	4	4	5	4	2	1	6	6	2	6	3	4	3	4	9	6	5	12	6

[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 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.)

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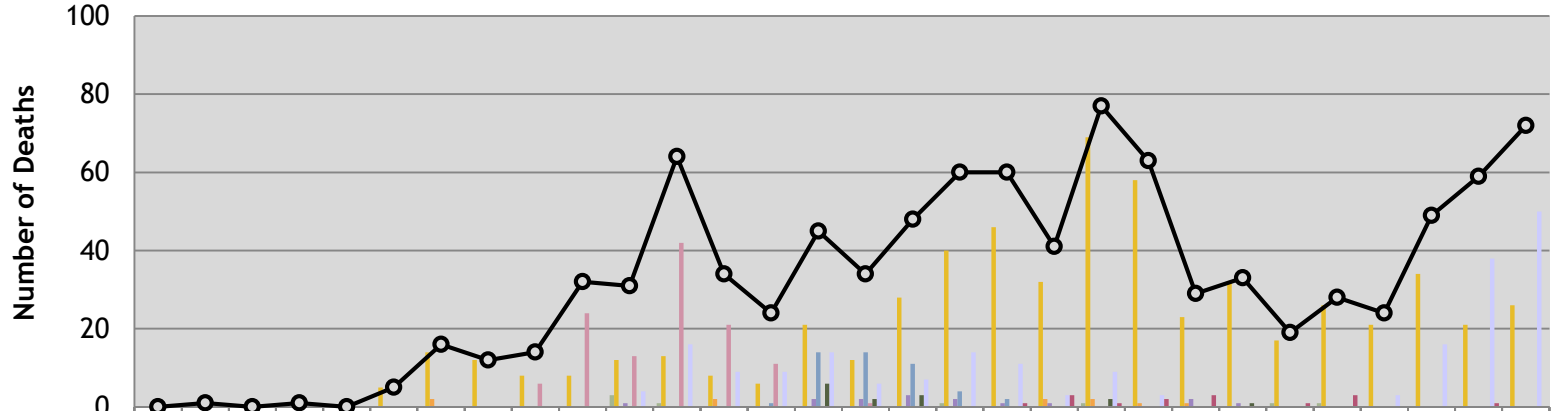
FENTANYL ANALOGS

Fentanyl analogs are a category of illicitly produced opioids very similar to fentanyl, but slightly different in their chemical structure. Fentanyl analogs began appearing in Virginia in 2014 and have risen dramatically since the beginning of 2016. In fatal overdoses, fentanyl analogs are often found with fentanyl and/or two different fentanyl analogs together, and/or heroin or cocaine, or due to the analog itself, without other drugs detected. Fentanyl analogs are illicitly produced and vary in their potency, and can be blamed in part for the significant rise in fatal overdoses due to opioids. For statistical purposes, 'fentanyl' includes all pharmaceutically produced fentanyl, illicitly produced fentanyl, and fentanyl analogs.

Total Number of Fatal Fentanyl Analog Overdoses by Quarter and Year of Death, 2014-2021*



	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021* Q1	2021* Q2
3-Methyl Fentanyl	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0
Acetyl Fentanyl	0	1	0	1	0	5	14	12	8	8	12	13	8	6	21	12	28	40	46	32	69	58	23	32	17	26	21	34	21	26
Butyryl Fentanyl	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0
Carfentanil	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	3	2	1	1	0	0	2	1	0	0	0	0	0	0
Cyclopropyl Fentanyl	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	14	11	4	2	0	0	0	0	0	0	0	0	0	0	0
Furanyl Fentanyl	0	0	0	0	0	0	0	0	6	24	13	42	21	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Methoxyacetyl Fentanyl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	3	0	0	0	2	0	0	1	0	0	0	0	0	0
Para-Fluoroisobutyryl Fentanyl***	0	0	0	0	0	0	0	0	0	0	4	16	9	9	14	6	7	14	11	3	9	3	0	0	0	0	3	16	38	50
Valerylfentanyl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	2	3	0	1	3	0	0	1	0
Total Fentanyl Analog Fatalities	0	1	0	1	0	5	16	12	14	32	31	64	34	24	45	34	48	60	60	41	77	63	29	33	19	28	24	49	59	72

[1] Each fentanyl analog 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 analogs will exceed the actual number of fatalities

[2]*****NEW***** [2] New guidance in 2019 reevaluated despropionyl fentanyl as an active fentanyl analog and reclassified the drug as a known precursor chemical in the illicit synthesis of fentanyl and fentanyl analogs, as well as a potential metabolite of one or more fentanyl analogs. Therefore, despropionyl fentanyl has been removed from the list of fentanyl analogs and has been removed from the grouping of 'Total Fentanyl Analog Fatalities' analyzed in this report . With this revision, it should be expected that numbers in past reports are outdated and should be updated to include the most current laboratory guidance.

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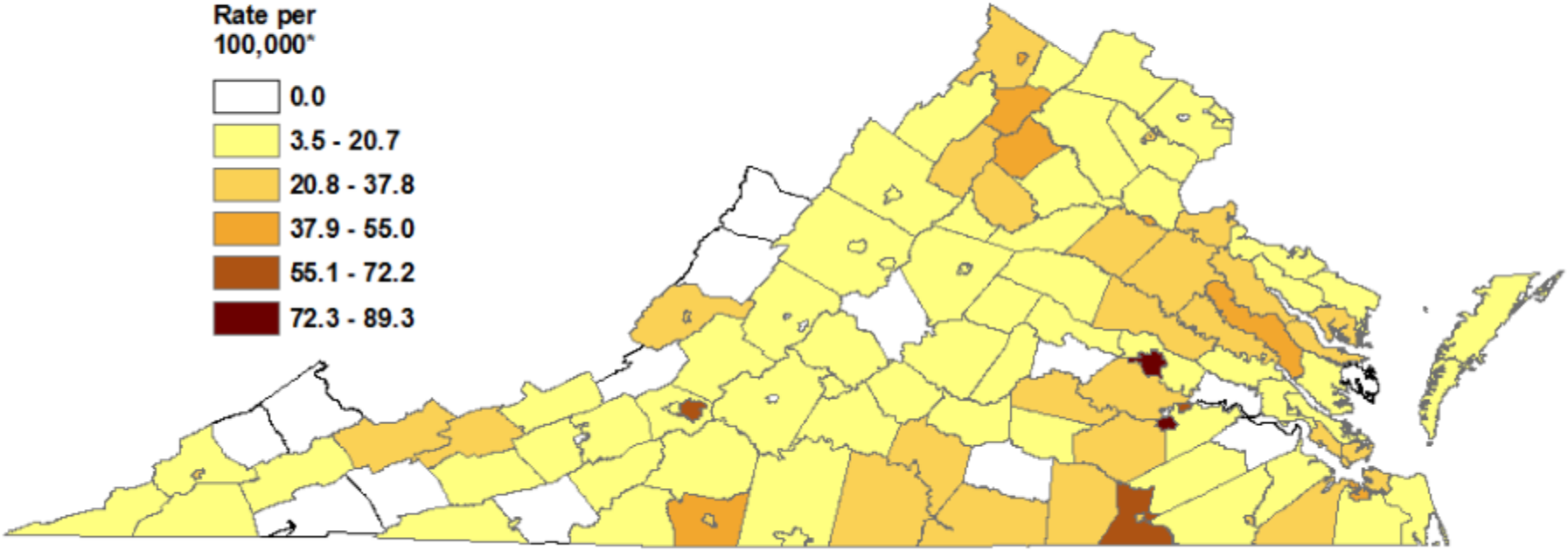
Rate of Fatal Fentanyl (Rx, Illicit, and Analog) Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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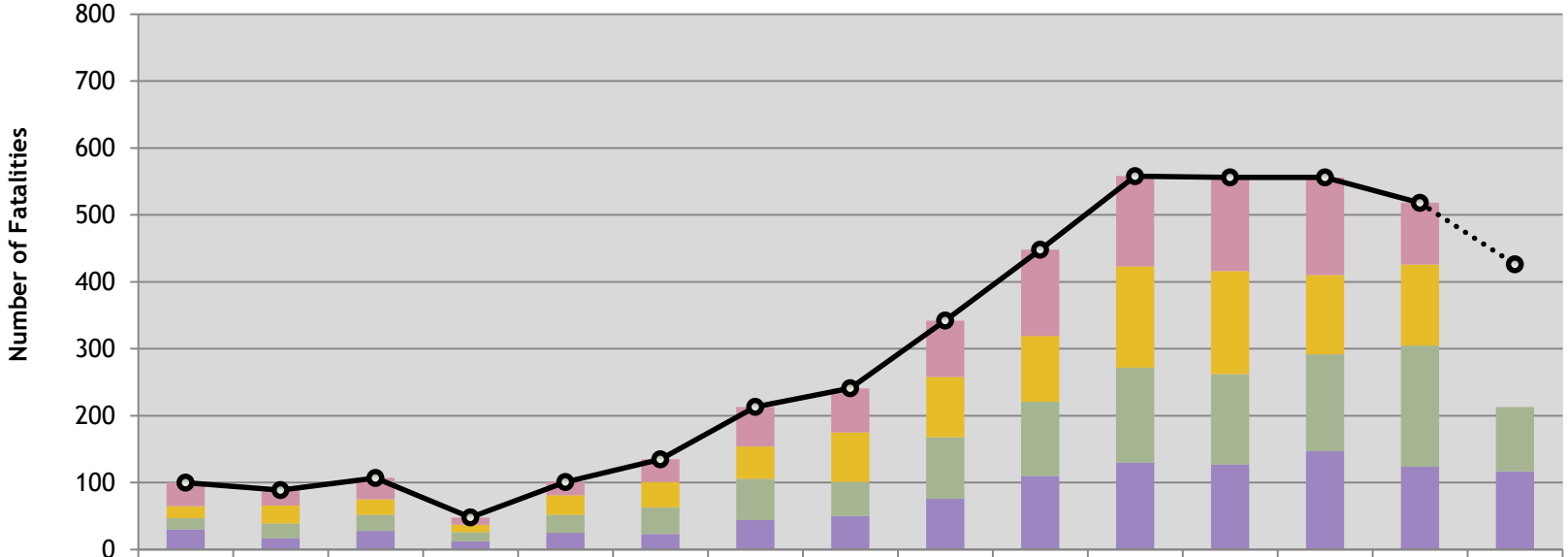
HEROIN

The total number of fatal heroin-related overdoses began increasing in 2010. Fatal heroin overdoses often occurred as the primary drug causing death, but more recently, heroin and fentanyl and/or fentanyl analog combinations caused a large portion of fatal drug overdoses. The annual number of fatal heroin overdoses in 2017-2019 was nearly identical, but in 2020, decreased by 6.8% compared to 2019.

Total Number of Fatal Heroin Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	35	23	32	11	20	34	59	66	84	129	135	140	146	92	
Q3	18	27	23	11	29	38	48	74	90	98	151	154	118	121	
Q2	17	22	24	14	27	40	62	51	92	111	142	135	145	181	96
Q1	30	17	28	12	25	23	44	50	76	110	130	127	147	124	117
Total Fatalities	100	89	107	48	101	135	213	241	342	448	558	556	556	518	426

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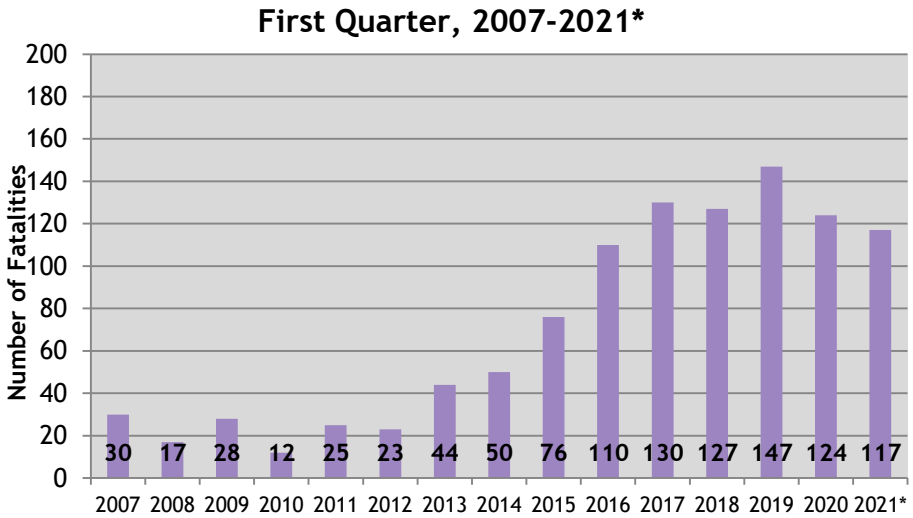
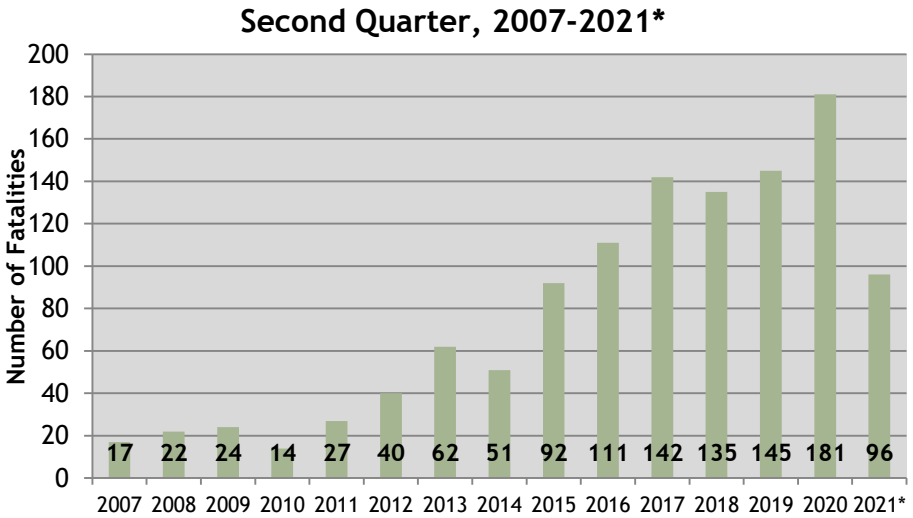
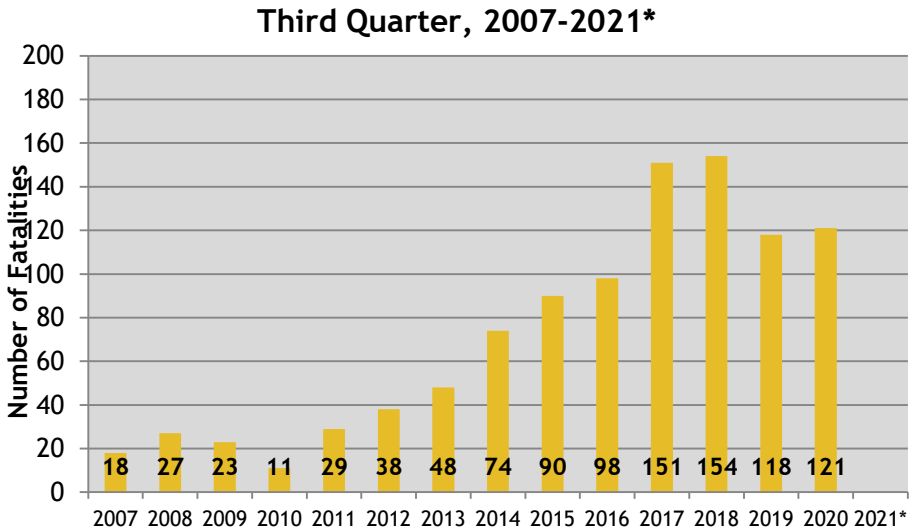
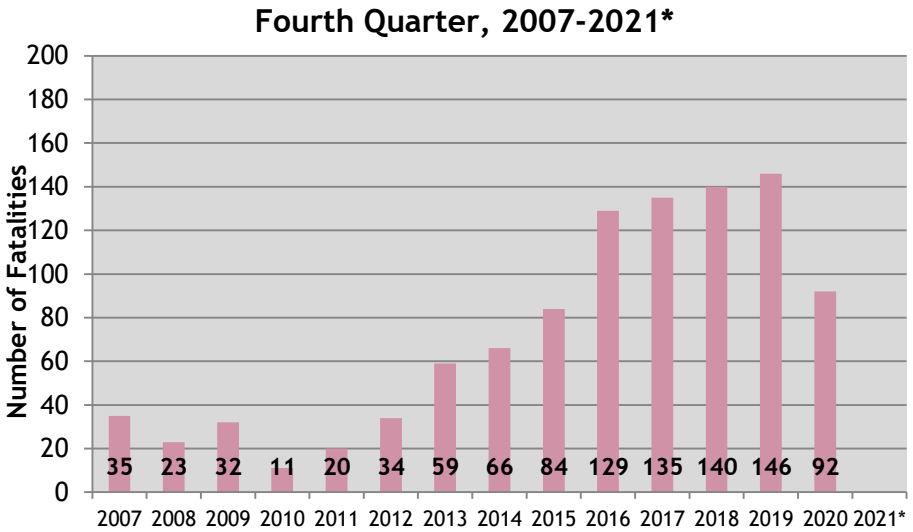
HEROIN









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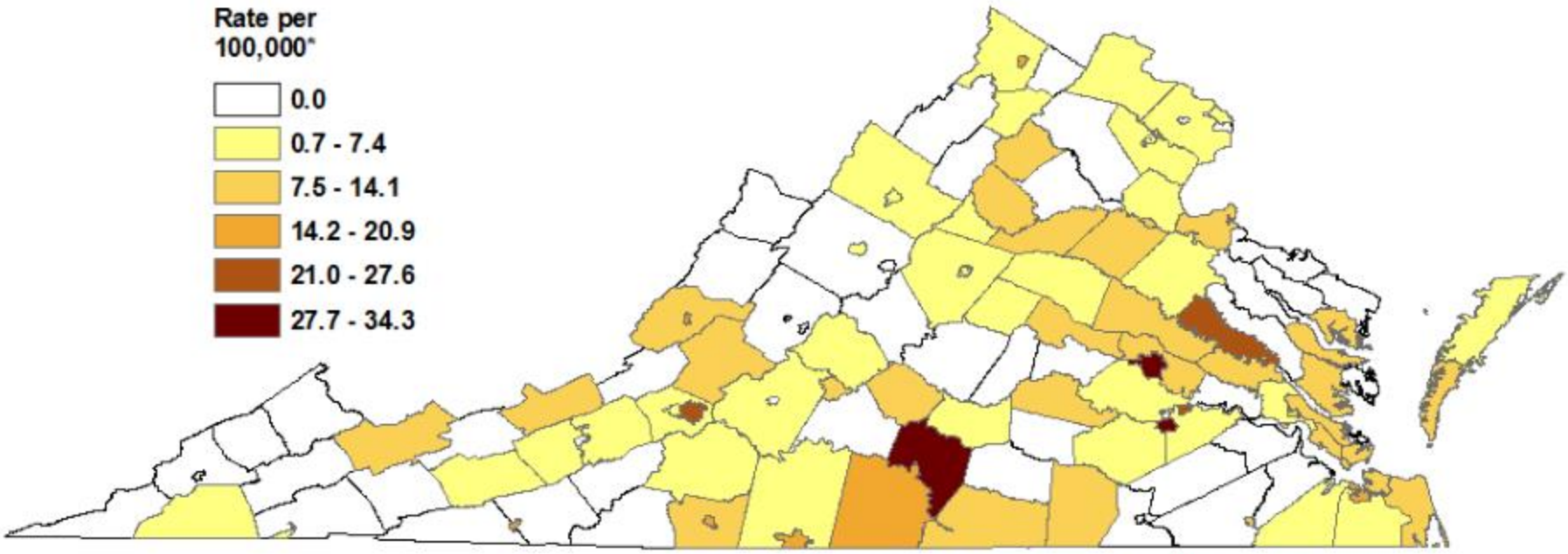
Rate of Fatal Heroin Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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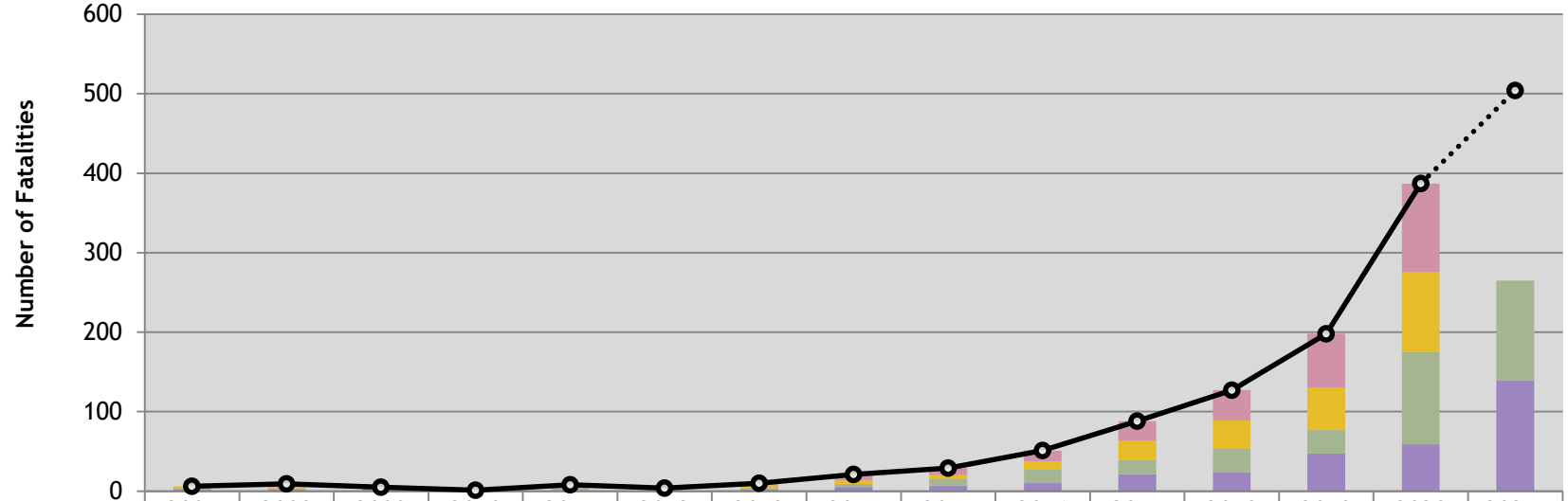
METHAMPHETAMINE

From 2007 to 2014, fatal methamphetamine overdoses were relatively uncommon compared to other drugs/drug categories, but in 2014, the number of fatal methamphetamine overdoses began to increase. In 2020, fatal methamphetamine overdoses most frequently had fentanyl (prescription, illicit, and/or analogs) (64.7%), heroin (19.2%), and/or one or more prescription opioids (excluding fentanyl) causing or contributing to death (18.7%). Fatal methamphetamine overdoses increased by 95.5% in 2020 when compared to 2019.

Total Number of Fatal Methamphetamine Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	0	4	0	0	2	3	3	7	9	14	25	38	68	111	
Q3	2	2	0	1	0	0	3	5	4	10	24	35	53	101	
Q2	2	1	1	0	6	1	2	4	9	17	18	30	30	116	126
Q1	2	2	4	0	0	0	2	5	7	10	21	24	47	59	139
Total Fatalities	6	9	5	1	8	4	10	21	29	51	88	127	198	387	504

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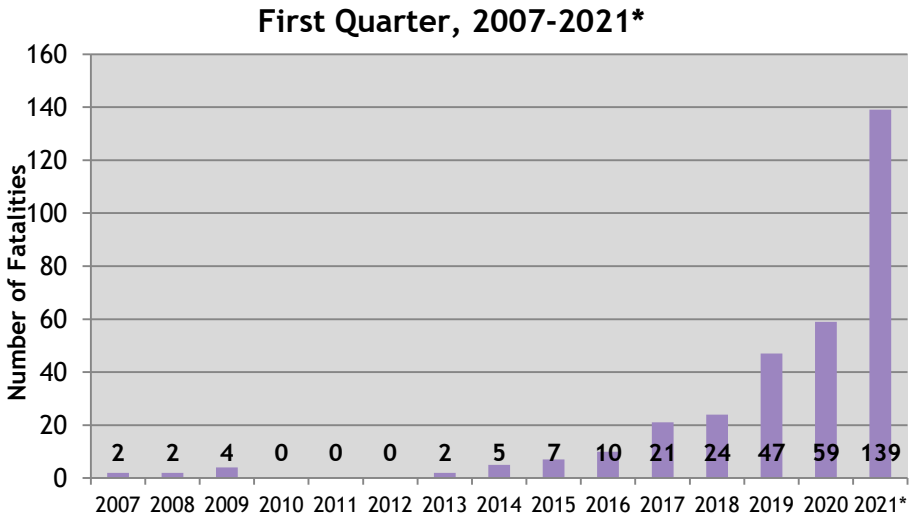
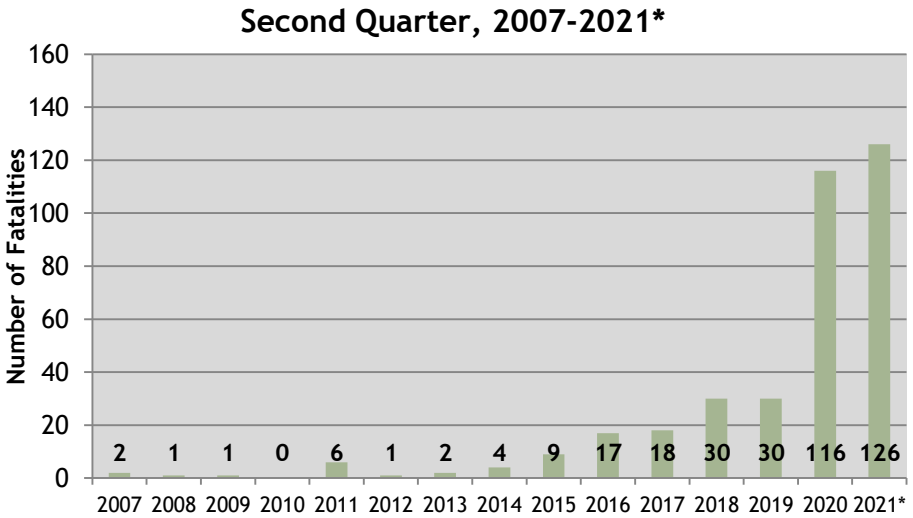
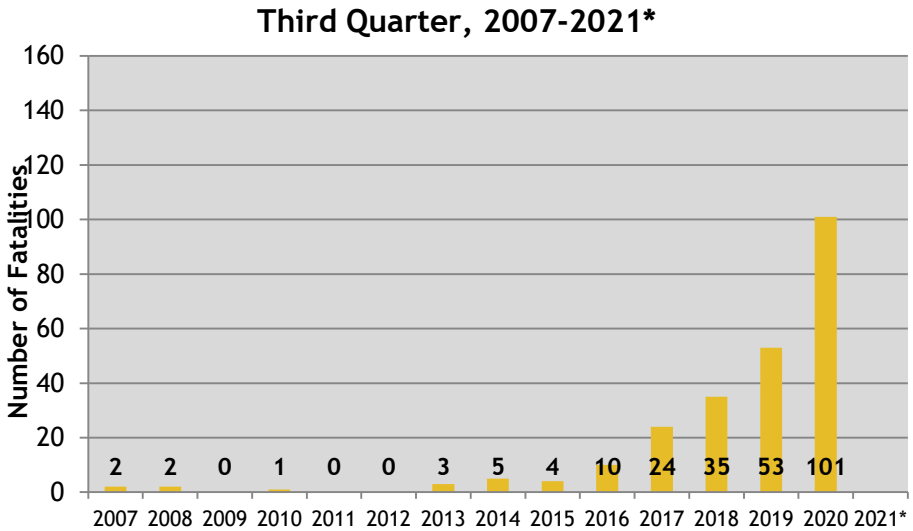
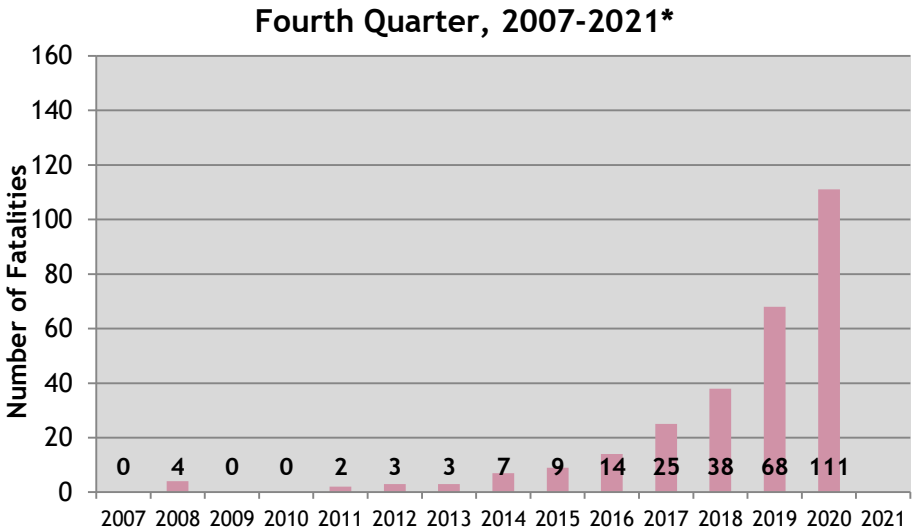
METHAMPHETAMINE









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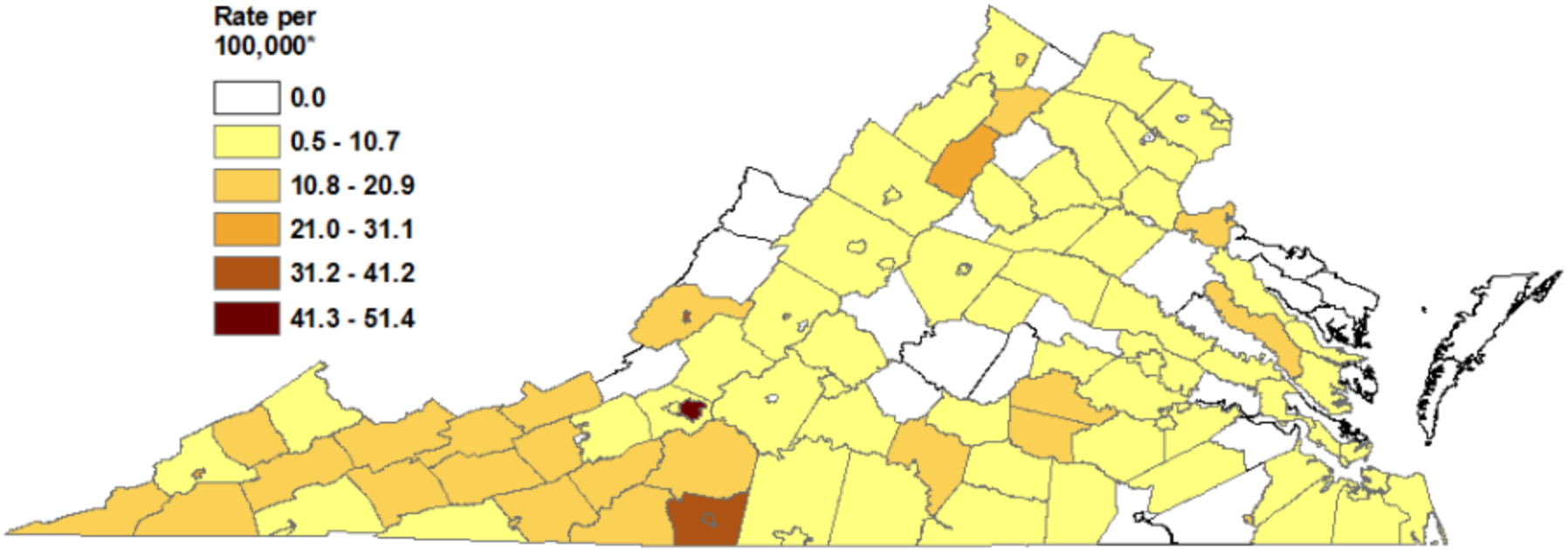
Rate of Fatal Methamphetamine Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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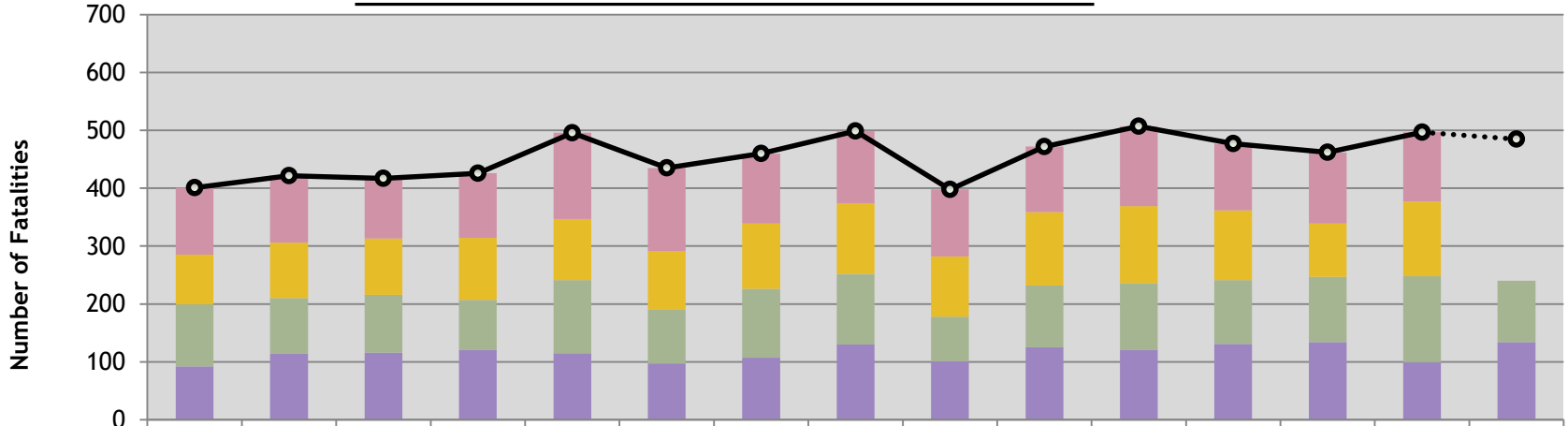
PRESCRIPTION OPIOIDS (EXCLUDING FENTANYL)

Since 2007, fatal prescription (Rx) 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. Given the transition in fatal fentanyl overdoses from pharmaceutically produced fentanyl (2007-2014) to nearly all illicitly produced fentanyl (2015-present), fentanyl needs to be removed from the Rx opioid category and analyzed separately. This allows one to see the significant impact the drug is having on fatal overdose numbers in Virginia. By removing fentanyl from this Rx category, it is to be expected that Rx opioid fatalities from 2007-2013 to be slightly undercounted because true Rx fentanyl overdoses are excluded and combined with all 'fentanyl' to capture recent trends of illicit fentanyl in Virginia.

Total Number of Fatal Prescription Opioid Overdoses (Excluding Fentanyl) by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	116	116	104	112	149	144	121	125	116	113	138	115	123	120	
Q3	86	96	97	107	106	101	113	122	104	127	133	121	92	129	
Q2	107	96	100	86	126	93	119	122	77	107	115	110	113	149	106
Q1	92	114	116	121	115	97	107	130	101	125	121	131	134	99	134
Total Fatalities	401	422	417	426	496	435	460	499	398	472	507	477	462	497	485

[1] '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 true prescription opioids.

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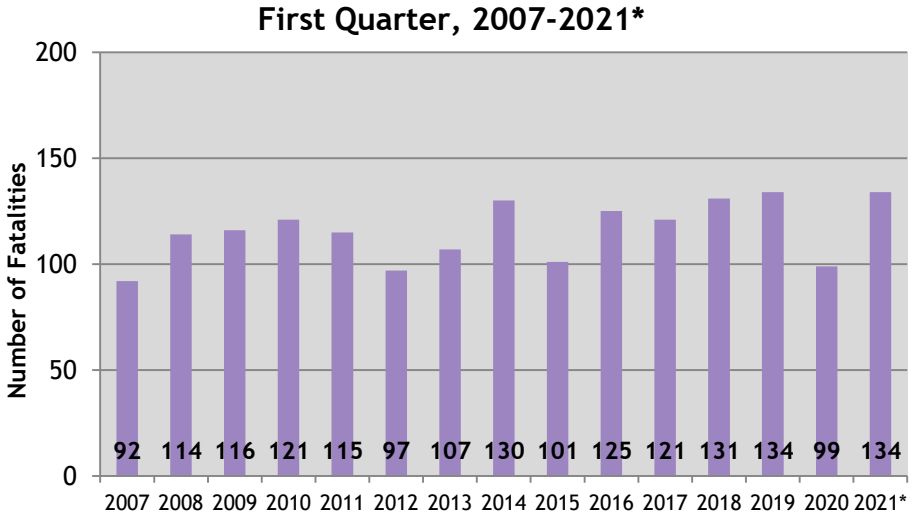
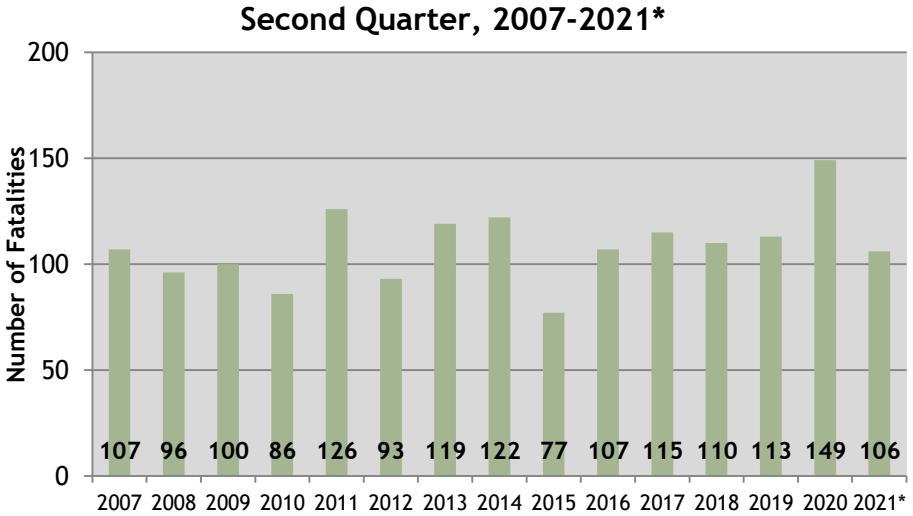
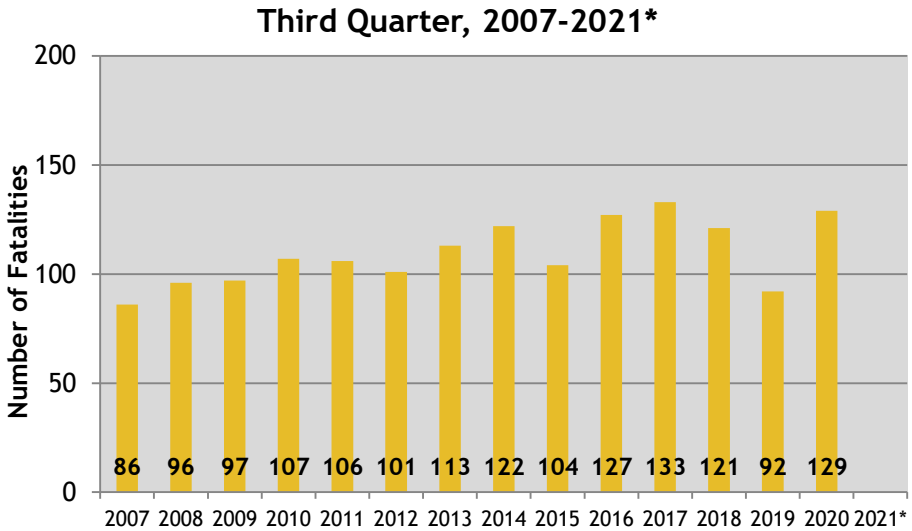
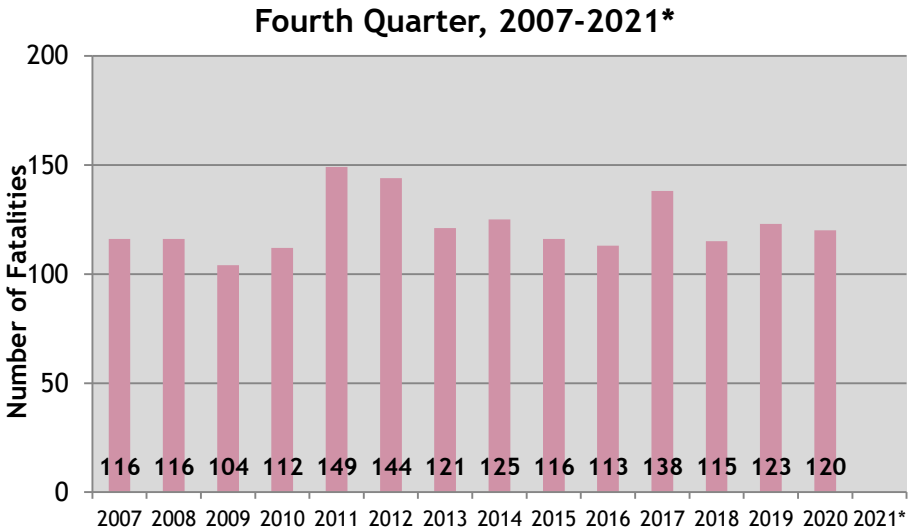
PRESCRIPTION OPIOIDS (EXCLUDING FENTANYL)









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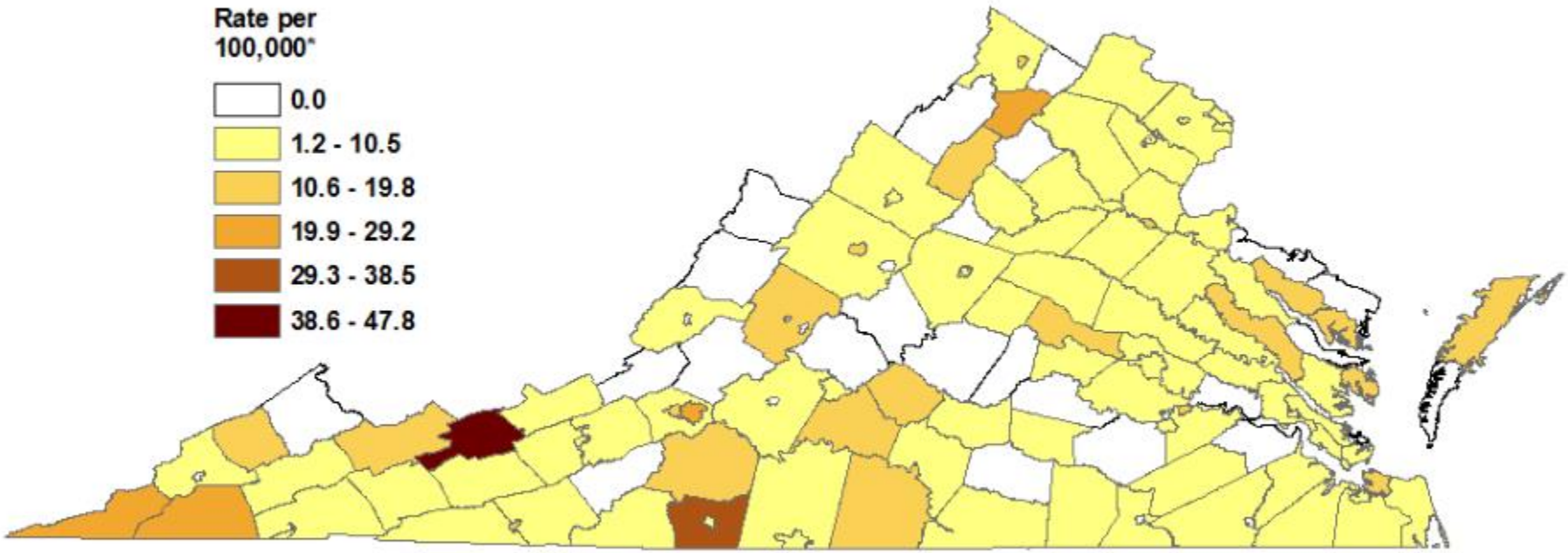
Rate of Fatal Rx Opioid (Excluding Fentanyl) Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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FATAL DRUG OVERDOSES OF SPECIAL INTEREST

- Synthetic Opioids and Fentanyl Analogs
- All Opioids (Fentanyl, Heroin, and/or Prescription Opioids)
- Heroin and/or Fentanyl

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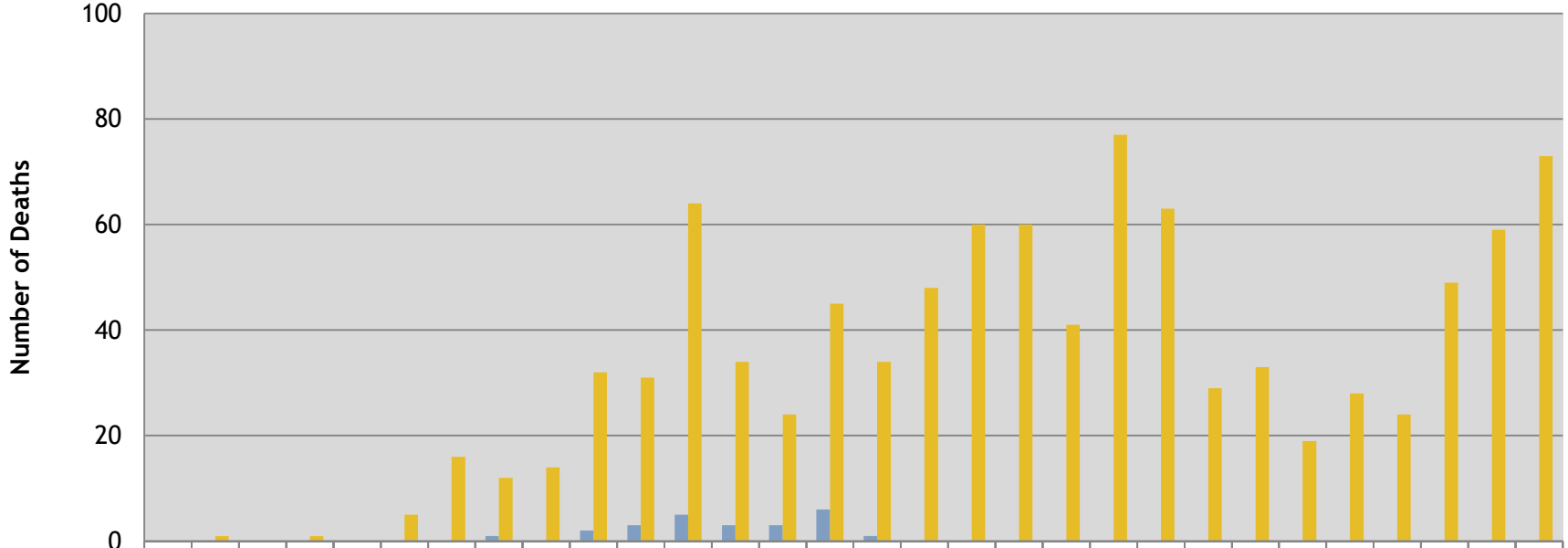
SYNTHETIC OPIOIDS AND FENTANYL ANALOGS

Synthetic opioids are a large group of chemically manufactured drugs typically used as narcotic analgesics (fentanyl, oxycodone, and methadone are examples of synthetic opioids), whereas opiates like heroin and morphine are made from opium poppy plants. Fentanyl analogs and U-47700, while different, are synthetic opioids that are made illegally. Novel synthetic opioids like fentanyl analogs and U-47700 need to be monitored because as state and federal efforts are continually being made to schedule novel drugs, drug traffickers are persistently trying to stay one step ahead of the law by synthesizing and introducing novel synthetic opioids into the drug market.

Total Number of Fatal Fentanyl Analog Overdoses by Quarter and Year of Death, 2014-2021*



	2014				2015				2016				2017				2018				2019				2020				2021*	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
U-47700	0	0	0	0	0	0	0	1	0	2	3	5	3	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Fentanyl Analog Fatalities	0	1	0	1	0	5	16	12	14	32	31	64	34	24	45	34	48	60	60	41	77	63	29	33	19	28	24	49	59	73

[1] Each fentanyl analog 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 analogs will far exceed the actual number of fatalities

*****NEW***** [2] New guidance in 2019 reevaluated despropionyl fentanyl as an active fentanyl analog and reclassified the drug as a known precursor chemical and/or residual byproduct in the illicit synthesis of fentanyl and fentanyl analogs, as well as a potential metabolite of one or more fentanyl analogs. Therefore, despropionyl fentanyl has been removed from the list of fentanyl analogs and has been removed from the grouping of 'Total Fentanyl Analog Fatalities' analyzed in this report . With this revision, it should be expected that numbers in past reports are outdated and should be updated to include the most current laboratory guidance.

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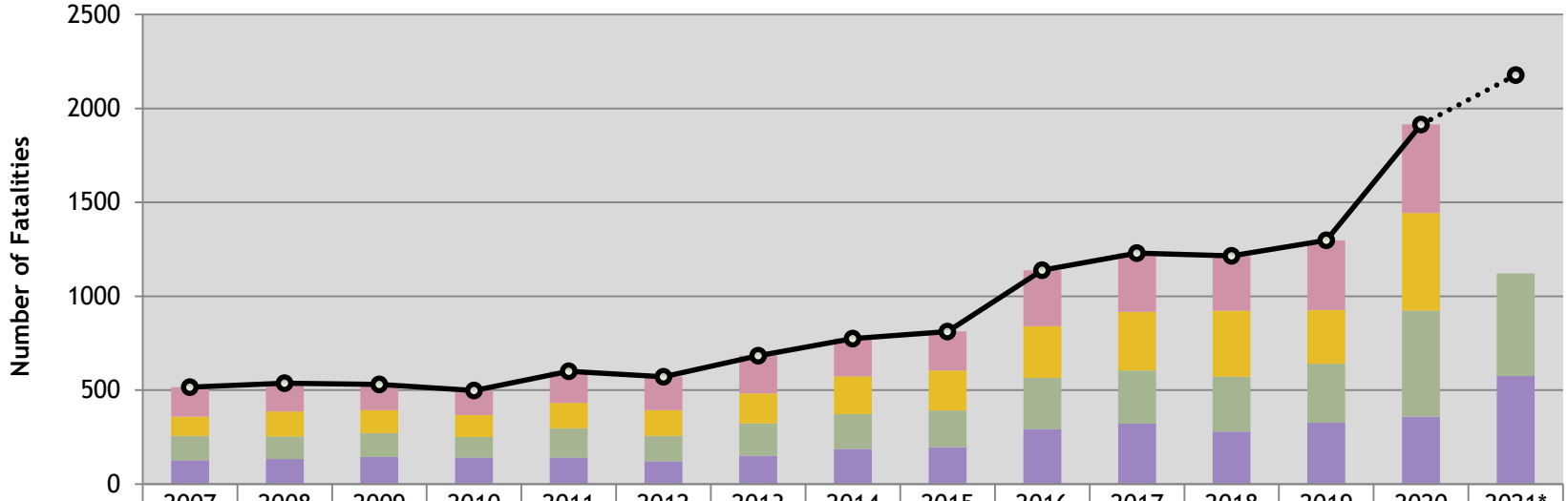
ALL OPIOIDS

From 2007-2015, opioids (fentanyl, heroin, U-47700, and/or one or more prescription opioids) made up approximately 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 which began in late 2013 and early 2014. In 2020, 83.0% of all fatal overdoses of any substance, were due to one or more opioids. In 2020, all fatal opioid overdoses increased 47.5% from the previous year.

Total Number of Fatal Opioid Overdoses by Quarter and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Q4	156	151	136	131	168	179	202	201	208	298	312	292	371	472	
Q3	104	134	122	116	136	137	158	202	213	275	312	351	286	519	
Q2	130	120	128	109	156	134	173	185	195	272	284	292	314	564	546
Q1	126	133	144	142	141	122	151	187	196	293	321	280	327	360	575
Total Fatalities	516	538	530	498	601	572	684	775	812	1138	1229	1215	1298	1915	2177

[1] 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, 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.

[3] Fatal opioid numbers have changed slightly from past reports due to the removal of fentanyl from the category of prescription opioids, as well as the addition of buprenorphine, levorphanol, meperidine, pentazocine, propoxyphene, and tapentadol added to the list of prescription opioids.

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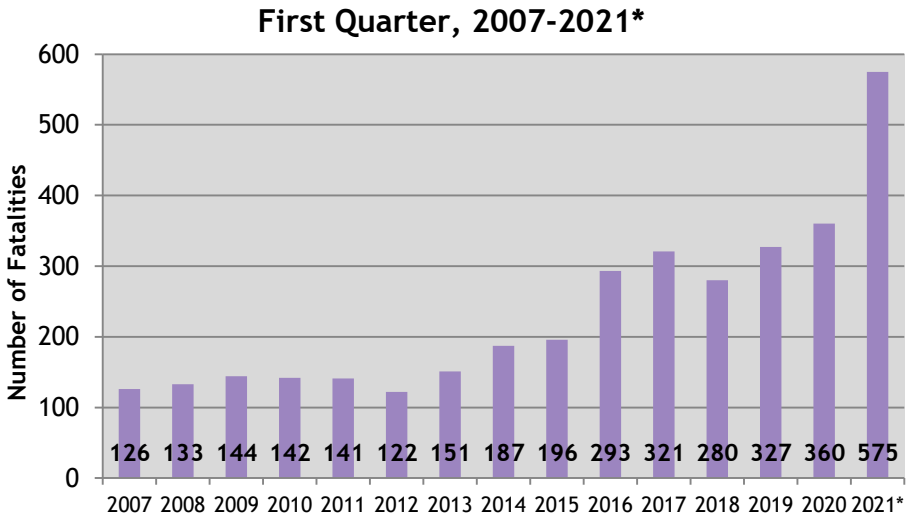
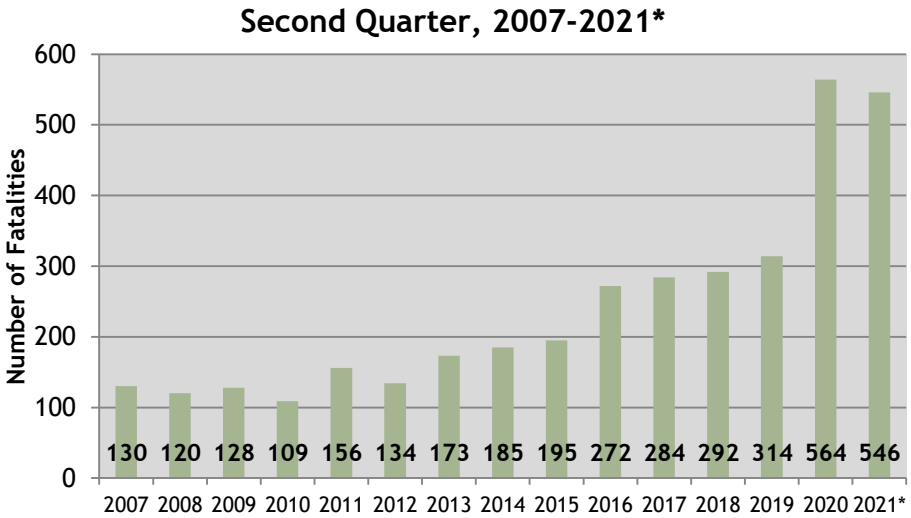
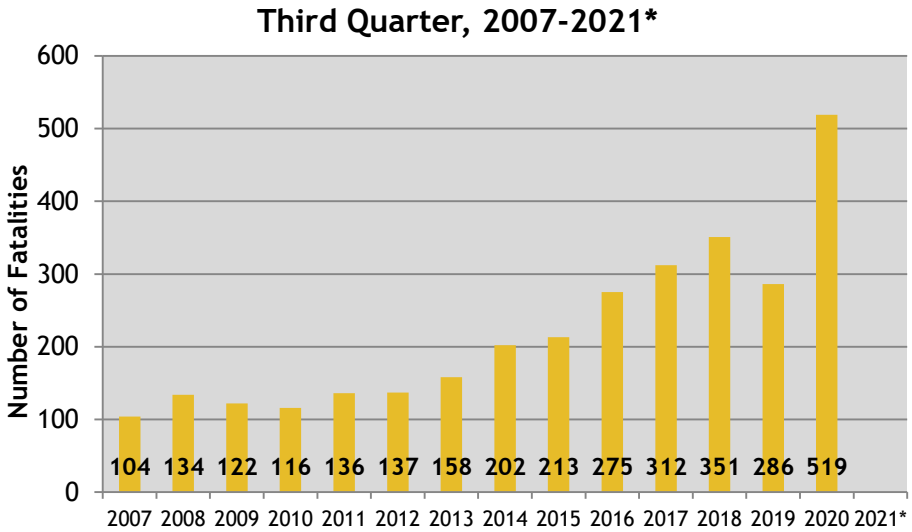
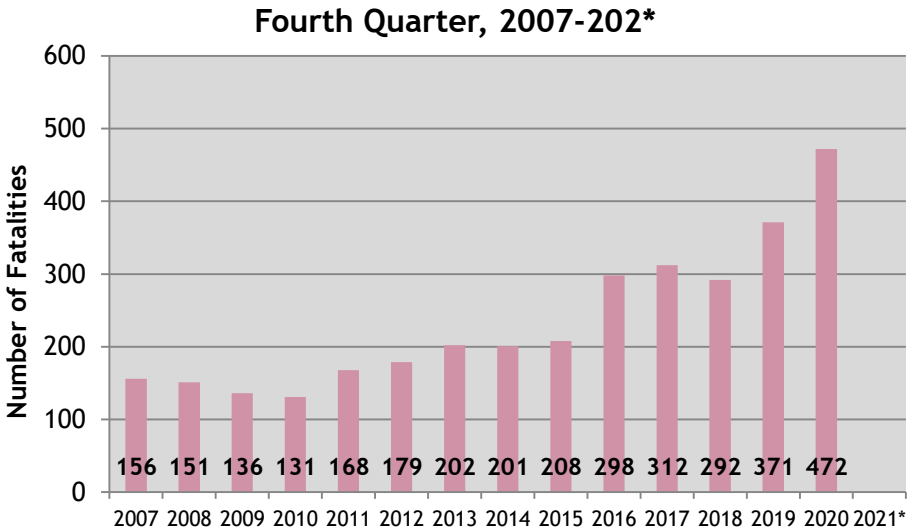
ALL OPIOIDS









[1] 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, 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.

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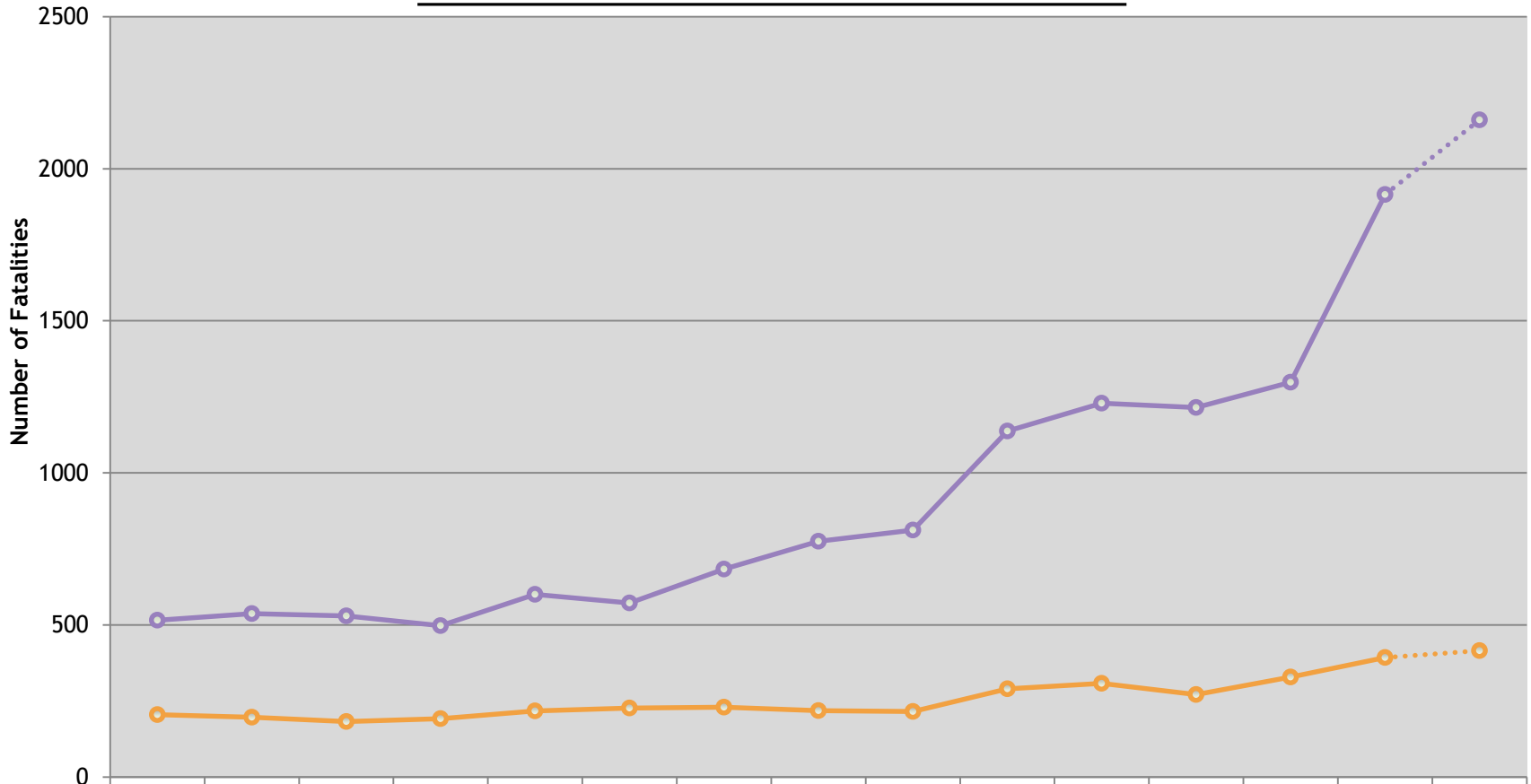
OPIOIDS VS. NON-OPIOIDS

Total Number of Fatal Opioid Overdoses vs. Non-Opioid Overdoses by Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Opioids	516	538	530	498	601	572	684	775	812	1138	1229	1215	1298	1915	2160
Non-Opioids	205	197	183	192	218	227	230	219	216	290	308	271	329	393	416

[1] 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, 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.

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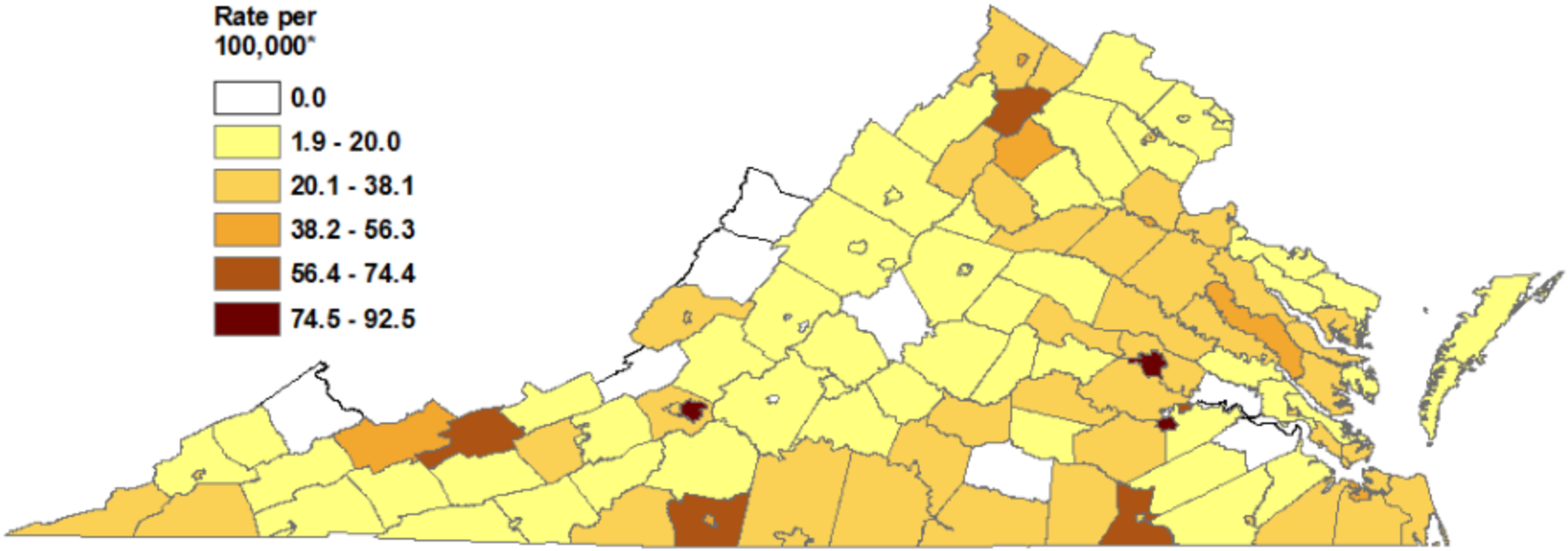
Rate of All Fatal Opioid Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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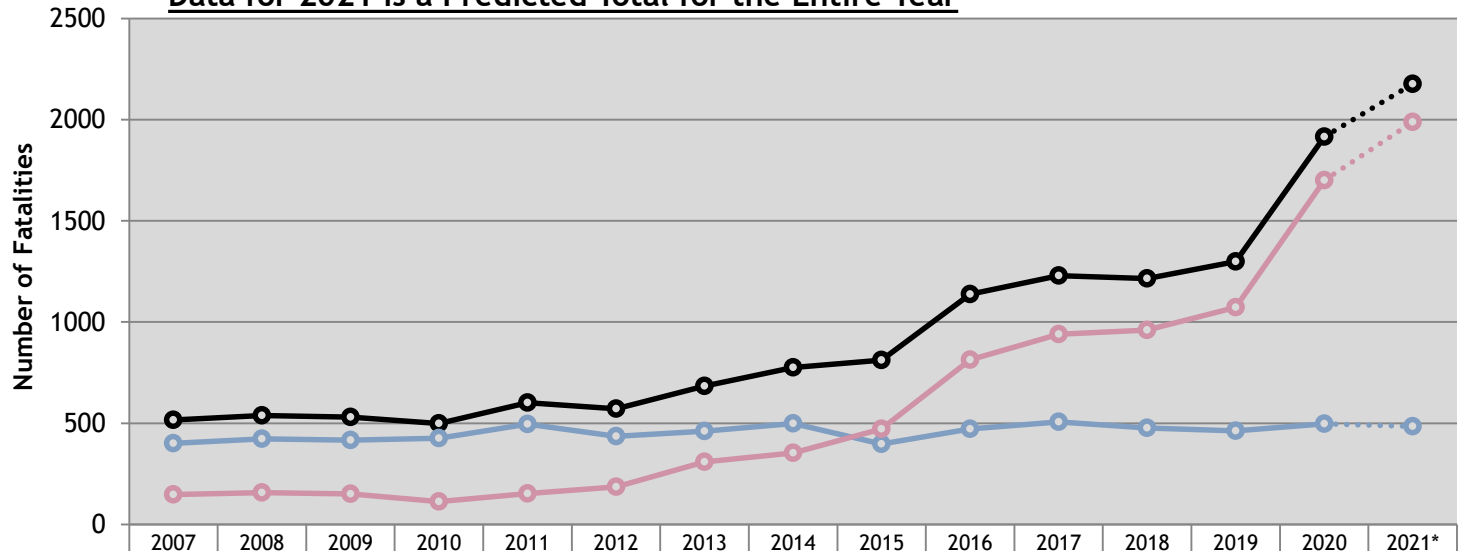
OPIOIDS- A DIFFERENT PERSPECTIVE

Prescription opioids are a group of 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 slight 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 significant 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, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
All Opioids	516	538	530	498	601	572	684	775	812	1138	1229	1215	1298	1915	2177
Prescription Opioids (excluding fentanyl)	401	422	417	426	496	435	460	499	398	472	507	477	462	497	485
Fentanyl and/or Heroin	148	157	150	112	153	185	309	353	471	813	939	961	1073	1701	1988

[1] 'All Opioids' include all versions of fentanyl, 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 true prescription opioids.

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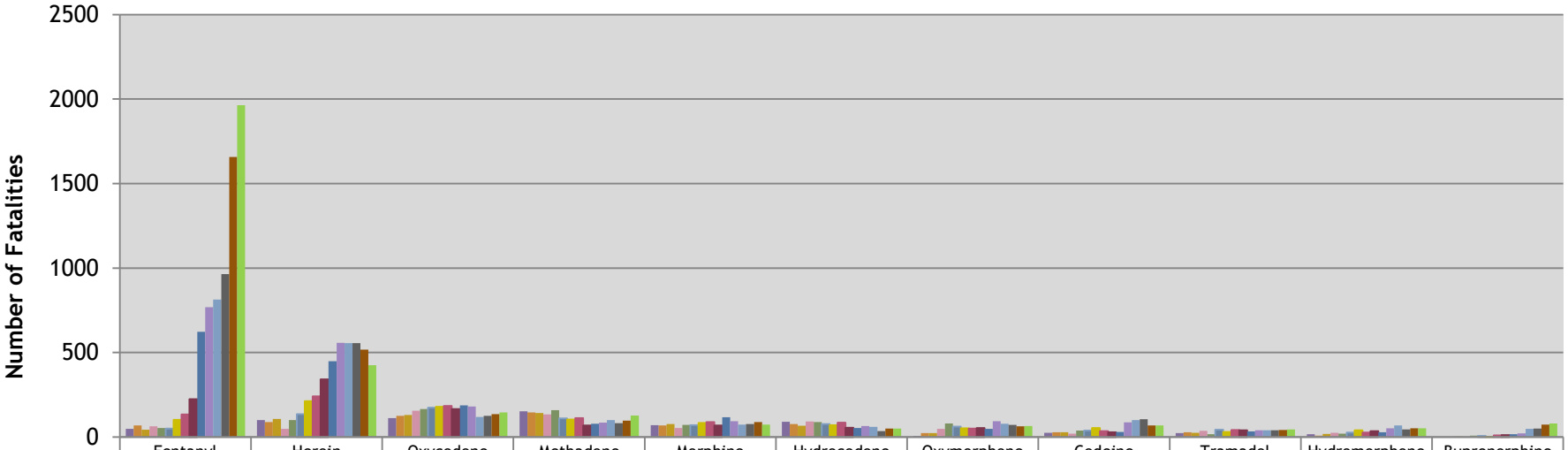
ALL OPIOIDS

Total Number of Fatal Opioid Overdoses by Drug Name and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	Fentanyl	Heroin	Oxycodone	Methadone	Morphine	Hydrocodone	Oxymorphone	Codeine	Tramadol	Hydromorphone	Buprenorphine
2007	48	100	113	152	70	91	6	26	23	16	1
2008	68	89	126	145	68	77	24	29	28	8	1
2009	43	107	130	142	77	67	23	28	25	19	3
2010	64	48	156	134	53	92	48	21	37	25	2
2011	54	101	166	159	72	88	80	39	17	21	8
2012	50	135	174	111	71	77	62	39	43	27	6
2013	102	213	180	104	84	70	52	54	31	40	1
2014	134	241	185	113	89	85	51	36	42	27	10
2015	225	342	166	68	69	55	53	28	40	35	11
2016	622	448	187	79	117	53	48	31	33	28	16
2017	769	558	181	85	94	65	93	87	41	52	22
2018	813	556	119	101	74	60	79	100	40	68	48
2019	964	556	126	82	77	36	72	106	40	46	51
2020	1658	518	135	98	88	51	64	68	42	52	73
2021*	1963	426	146	127	74	51	65	68	45	52	81

[1] 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.)

[2] Levorphanol, meperidine, pentazocine, propoxyphene, and tapentadol were excluded from this analysis due low annual case counts (<20 deaths)

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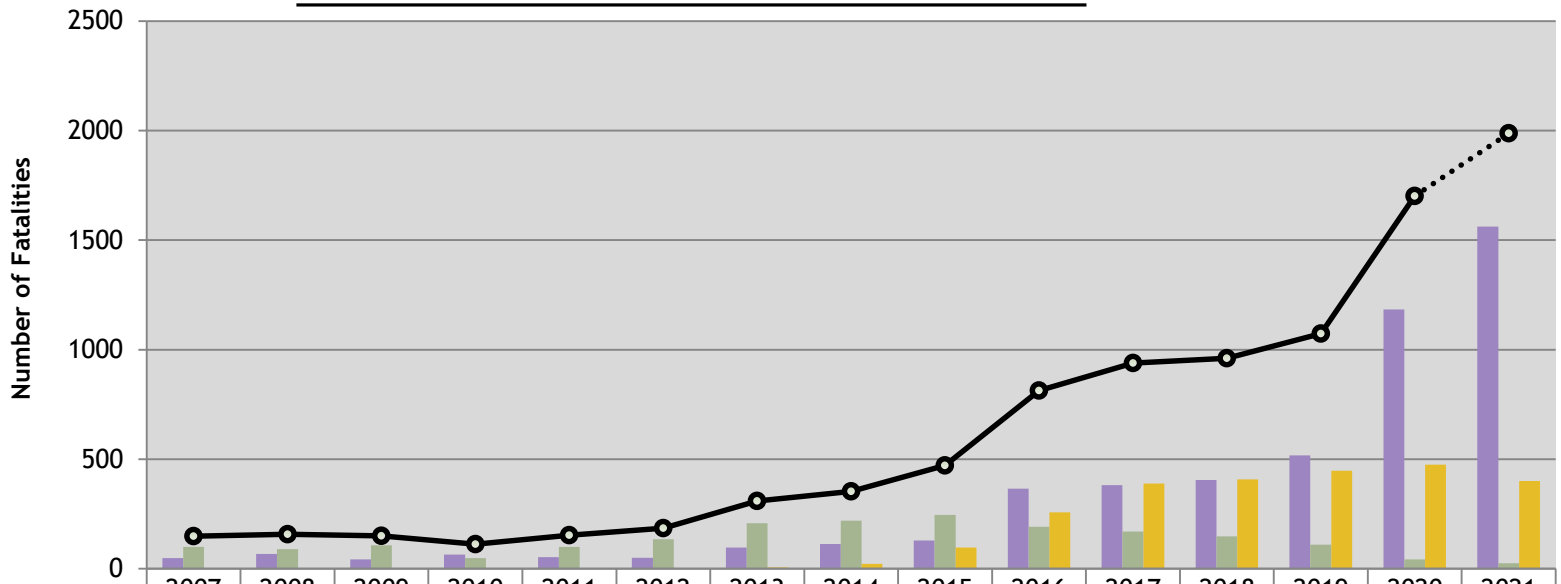
FENTANYL AND/OR HEROIN

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 purchased off the streets. Fatal fentanyl and/or heroin overdoses increased 58.5% in 2020 compared to 2019.

Total Number of Fatal Fentanyl and/or Heroin Overdoses by Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fentanyl (No Heroin)	48	68	43	64	52	50	96	112	129	365	381	405	517	1183	1562
Heroin (No Fentanyl)	100	89	107	48	99	135	207	219	246	191	170	148	109	43	25
Fentanyl and Heroin	0	0	0	0	2	0	6	22	96	257	388	408	447	475	401
Total Fatalities	148	157	150	112	153	185	309	353	471	813	939	961	1073	1701	1988

[1] 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.)

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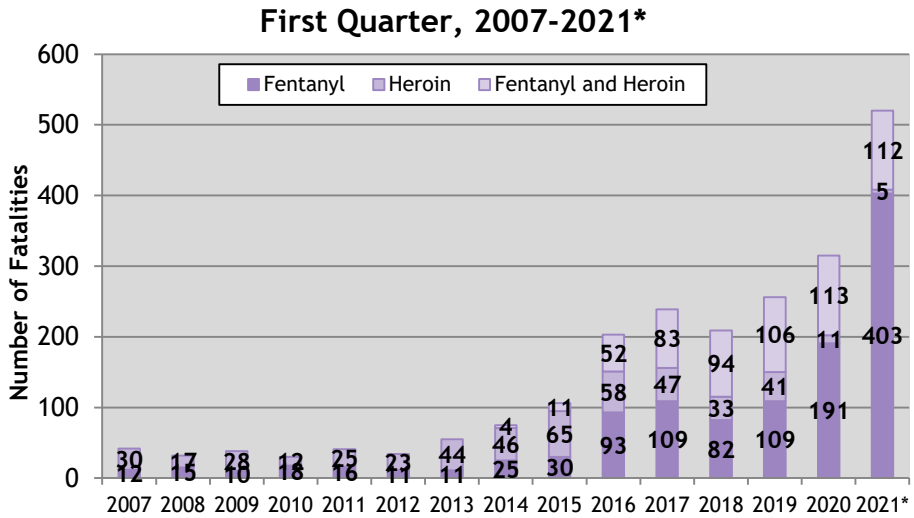
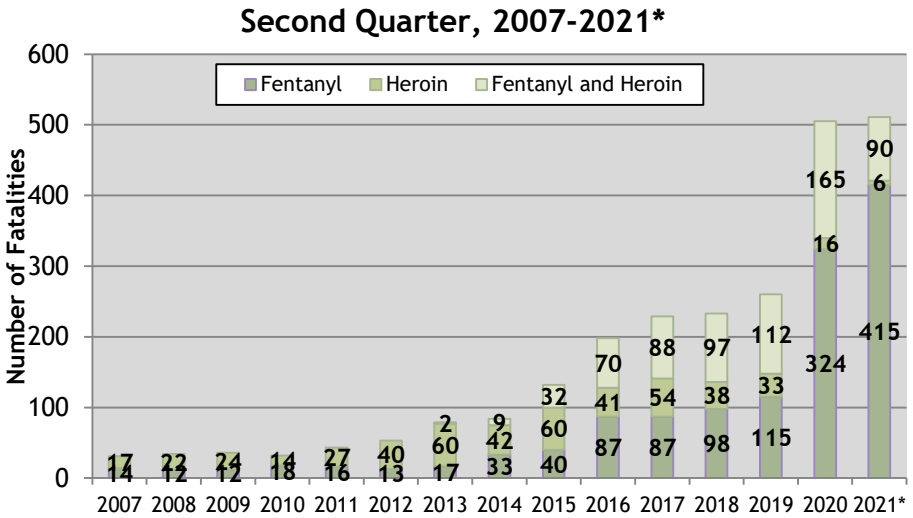
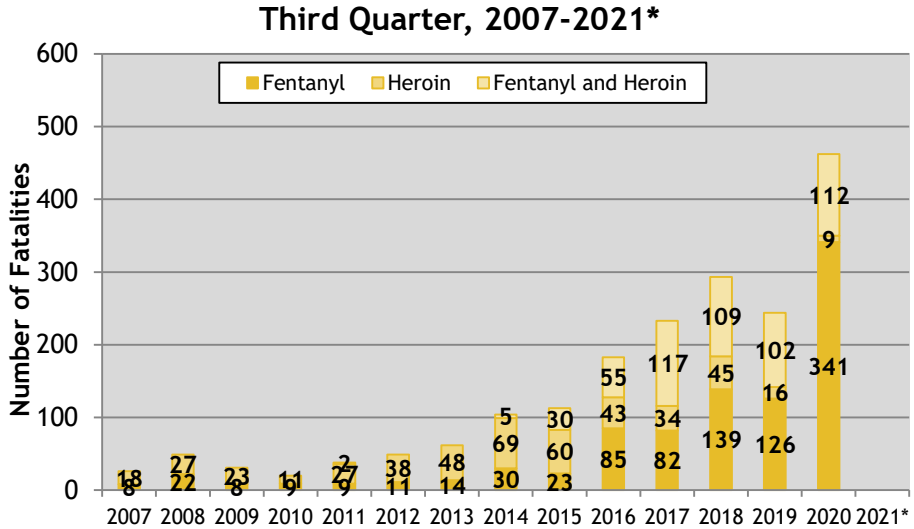
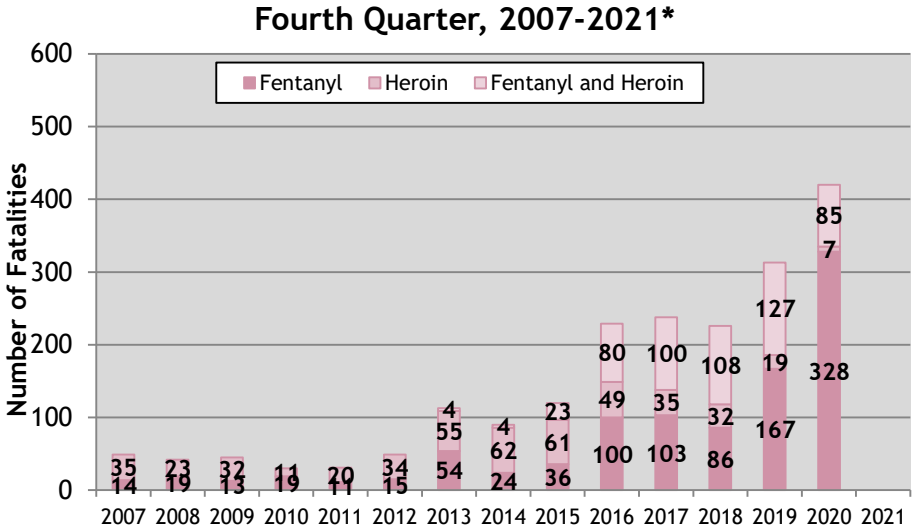
FENTANYL AND/OR HEROIN









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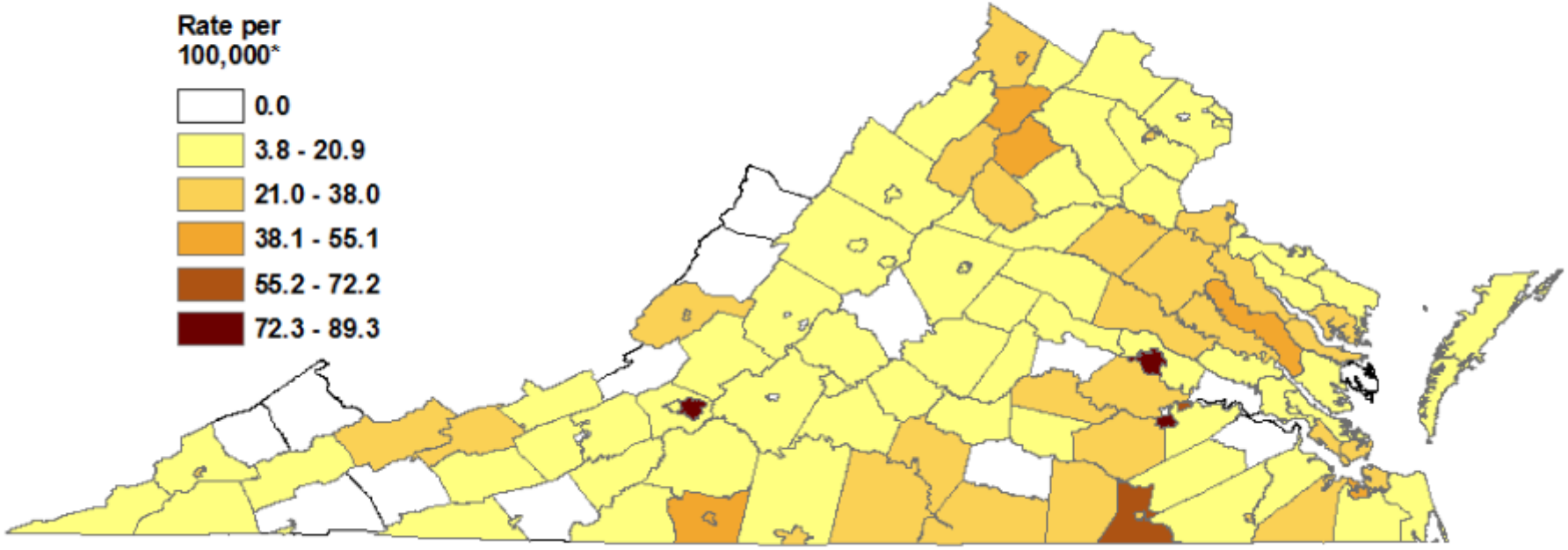
Rate of Fatal Fentanyl (Rx, Illicit, and Analogs) and/or Heroin Overdoses by Locality of Overdose, 2020



Source: Virginia Department of Health, Office of the Chief Medical Examiner

* Rate groupings are based upon equal numerical range categories

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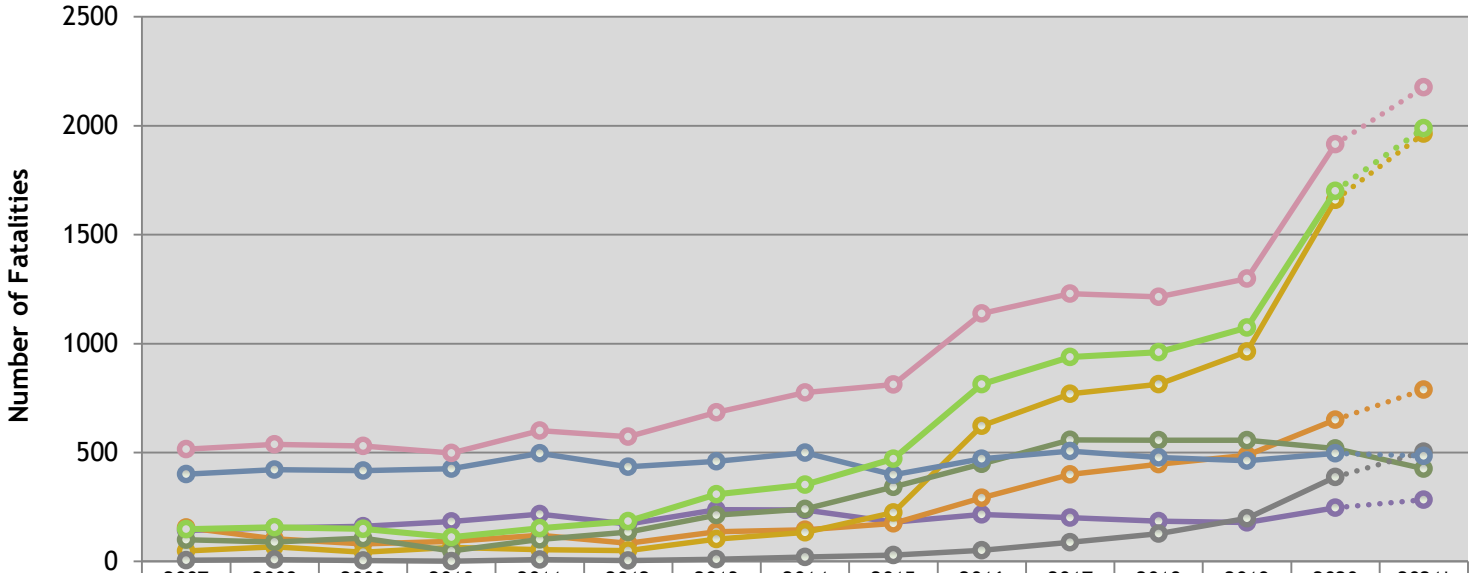
ALL DRUGS

Total Number of Fatal Drug Overdoses Drug Name/Category and Year of Death, 2007-2021*

Data for 2021 is a Predicted Total for the Entire Year



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Benzodiazepines	142	154	161	183	217	172	238	237	181	216	201	185	179	247	283
Cocaine	155	104	80	93	120	84	137	145	174	292	399	446	488	650	788
Fentanyl	48	68	43	64	54	50	102	134	225	622	769	813	964	1659	1963
Heroin	100	89	107	48	101	135	213	241	342	448	558	556	556	518	426
Methamphetamine	6	9	5	1	8	4	10	21	29	51	88	127	198	387	504
Prescription Opioids (excluding Fentanyl)	401	422	417	426	496	435	460	499	398	472	507	477	462	497	485
All Opioids	516	538	530	498	601	572	684	775	812	1138	1229	1215	1298	1915	2177
Heroin and/or Fentanyl	148	157	150	112	153	185	309	353	471	813	939	961	1073	1701	1988

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

[2] 'All Opioids' includes all versions of fentanyl, heroin, prescription opioids, U-47700, 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 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.)

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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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This report and associated spreadsheets of various types of drug deaths by locality and year are available on the OCME website: https://www.vdh.virginia.gov/medical-examiner/forensic-epidemiology/