



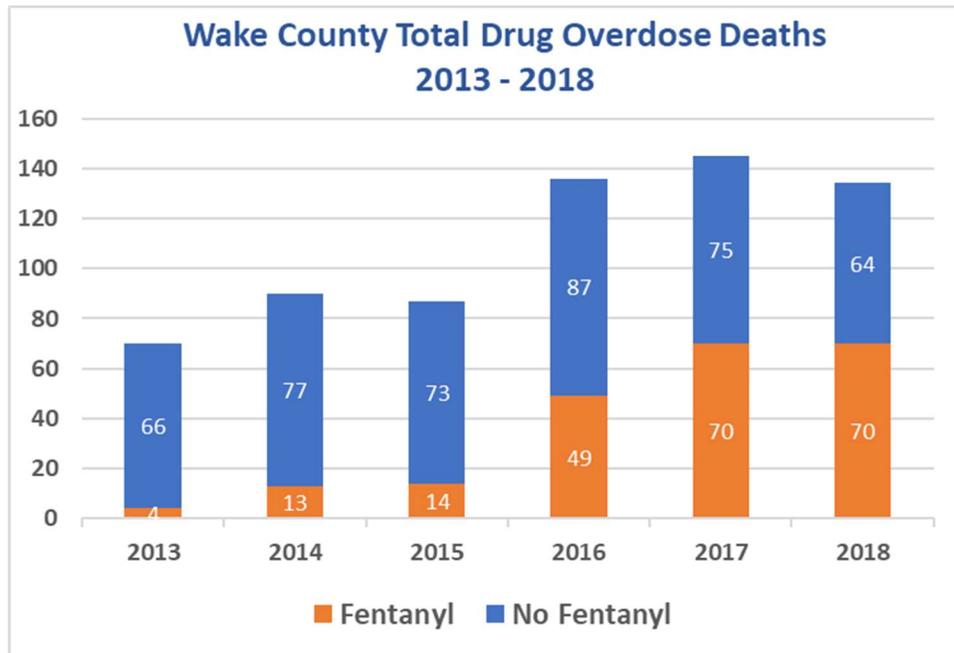
Register of Deeds Report and Database on Wake County Drug Overdose Death

Fentanyl drives significant changes in overdose deaths

Raleigh, NC – Over the last six years 662 people died from drug overdoses in Wake County, according to the official death records maintained by the Register of Deeds.

Emergence of fentanyl as the main killer drug

The following chart shows the number of drug overdose cases where fentanyl was at least one of the drugs that resulted in death (orange) and the number where fentanyl was not listed on the death certificate as causing death (blue).



During the three years prior to 2016 fentanyl was at least one of the drugs causing death in 13% of drug overdose cases. Between 2015 and 2016 there was a 350% increase in deaths involving fentanyl which drove a 56% increase in total drug deaths. The number of fentanyl deaths over the most recent three years has largely leveled out as has the total number of deaths. For the three-year period 2016 through 2018 fentanyl was at least one of the drugs involved in 46% of deaths. These figures include all deaths, including suicide. Fentanyl deaths include all analogues of fentanyl. ¹

¹ Statistical information in this report is taken from the official death certificates recorded with the Wake County Register of Deeds. Elements of content in death certificates are supplied from various authorized sources including hospitals, funeral homes and

Fentanyl enhances the effects of drugs and its recreational use is typically in combination with other drugs. In 77% of the overdoses where fentanyl was ruled a cause of death it was used with at least one other drug.

Accidental deaths

In the six-year study period 15% (or 103) of overdose deaths were ruled suicide. The data in this section does not include these suicides.

The following table shows the eight drugs most commonly found to be the cause resulting in death of the 559 non-suicide overdoses.

	Percentage of time a drug is at least one of the drugs causing accidental (non-suicide) overdose death					
Drug	2013	2014	2015	2016	2017	2018
Fentanyl	6%	18%	17%	40%	54%	59%
Cocaine	19%	22%	27%	37%	30%	42%
Heroin	27%	38%	41%	30%	24%	35%
Alprazolam	2%	10%	13%	21%	23%	10%
Gabapentin	6%	8%	13%	7%	9%	9%
Oxycodone	4%	13%	12%	14%	12%	8%
Clonazepam	6%	11%	5%	11%	11%	3%
Methadone	13%	8%	3%	7%	6%	3%

In overdose cases 62% of death certificates list more than one drug as the cause of death, and 30% list three or more drugs. Because more than one drug usually is a cause of death, the percentages in the above table can add to more than one hundred percent. For example, in 2018 cocaine was a cause of death in 42% of accidental overdoses. In 63% of those cocaine deaths fentanyl was also a cause, and in 39% heroin was a cause. In some of those cases all three of cocaine, fentanyl and heroin were a cause resulting in death. Across the entire database of 662 overdose deaths the mean number of drugs per death certificate is 2.1.

The eight most common drugs account for about three-fourths of the drug count of all drugs causing death. The death certificates list about one hundred drugs involved in overdose deaths. A complete list of all drugs and the number of times each was listed on a death certificate for 559 non-suicide deaths is **Appendix A**.

Victim demographics

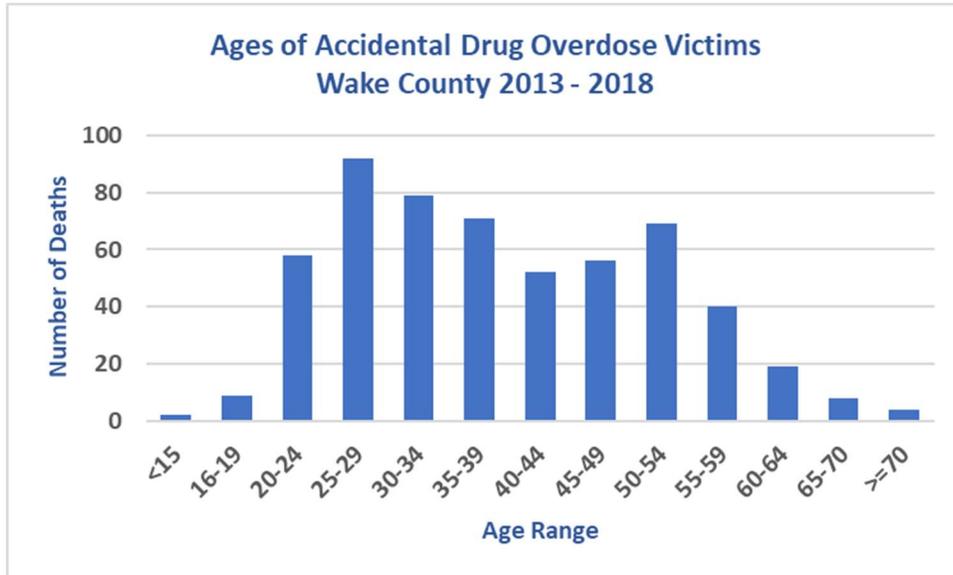
During the six-year study period accidental drug overdoses claimed the lives of people across all age ranges. The youngest was a nine-month old baby. The facts show that people generally do not succumb to accidental overdose death drugs until after they are college age, but it is important to recognize that

attending physicians. Information concerning the drugs causing death is usually supplied by the Medical Examiner's office. The Register of Deeds is the custodian of all Wake County death certificates. All death certificates are public information.

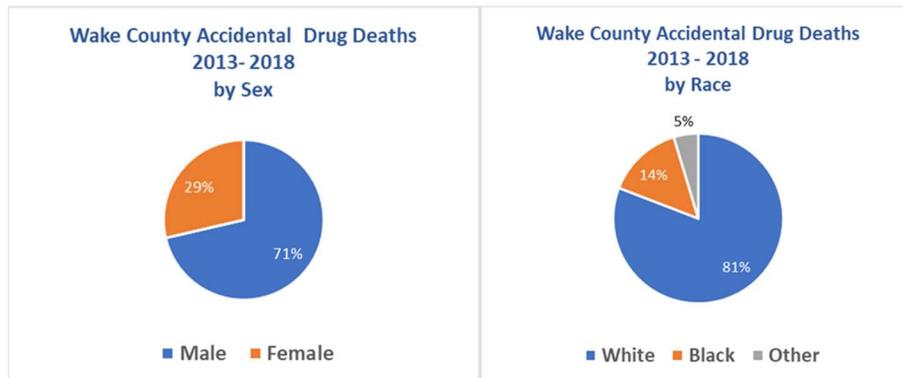
drugs can cause harm short of death and that non-lethal usage at a young age can lead to a lethal outcome later in life.

Deaths were most prevalent among people in their upper twenties, and there was also an increase in deaths of people around 50 years of age.

The following chart shows the age of victims of accidental drug overdose.



Overdose victims were disproportionately white and male compared to the Wake County population. White victims accounted for 81%, and males for 71%, of the accidental deaths over the six-year period.

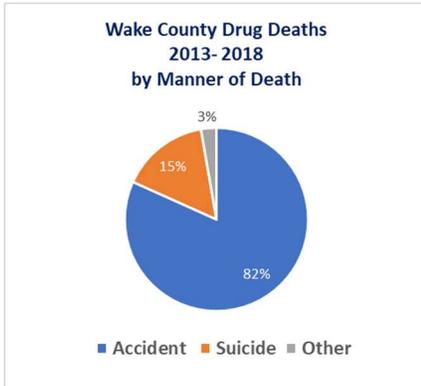


Regional distribution of deaths

Death certificates contain the last known regular address, including zip code, of the deceased person. Overdose deaths were disbursed throughout the county. Based on the zip codes, approximately 17% of the people who died in Wake County resided outside the county.

Appendix C is a map that shows the number of deaths by zip code for the six-year period 2013 – 2018. A larger digital version of this map is available at <http://www.wakegov.com/rod/Documents/drugmap.pdf>

Suicides by drug overdose



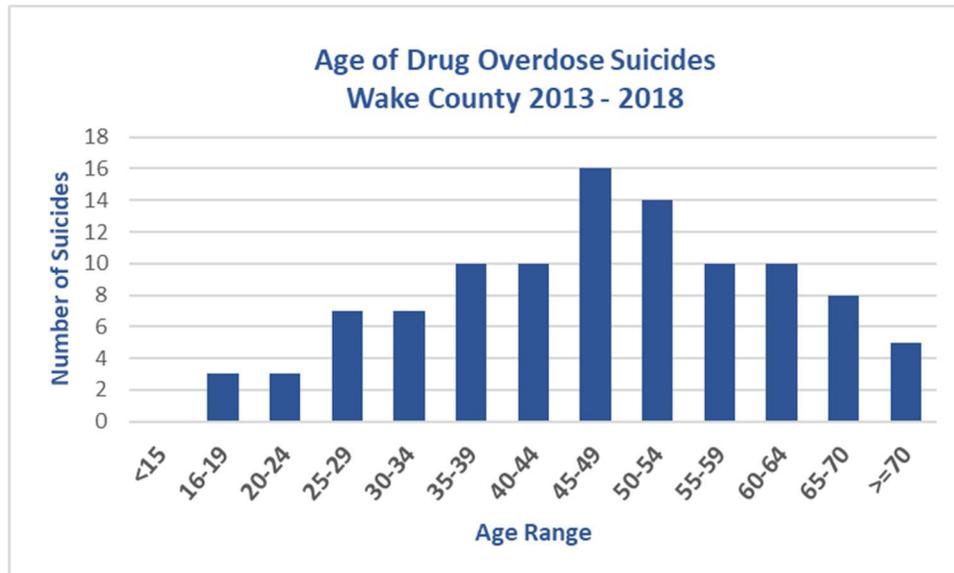
During the six-year study period 15% of drug overdose deaths were ruled suicide by the medical examiner.

Most suicides are implemented by means other than intentionally introducing drugs into the body. This report is not directed at suicides. For completeness, overdose deaths ruled suicide are included in the Register of Deeds database. A list of all drugs used in suicides is **Appendix B**.

There are significant differences in the drugs used in suicides as compared to accidental deaths. Fentanyl was almost never used to assist a suicide.

There is a significant difference in the ages of people who use drugs to commit suicide as compared to accidental overdoses. People taking their own lives were older than those whose death was not suicide.

The following chart shows the age distribution of suicide deaths by drugs.



There was also a significant difference in the sex makeup of overdose deaths by suicide. Females accounted for 51% of suicide deaths contrasted to only 29% of accidental deaths. There was not a racial difference in overdose deaths based on accident as compared to suicide.

Methodology and additional information

All of the statistics in this report are derived from death certificates recorded in the office of the Wake County Register of Deeds. For death certificates which state death resulted from a drug overdose, Register of Deeds staff created a database by extracting from the death certificate the book and page number of the certificate, date of death, age, race, gender, manner of death, military status, zip code of decedent's residence and the names of drugs determined to have caused death. This data base comprises 662 line items and covers deaths occurring 1/1/2013 through 12/31/2018. The Register of Deeds is informed that as of October 2019 there are an estimated seven 2018 Wake County cases pending with the medical examiner which might be overdose deaths. These pending cases are not included in the data base.

Death from alcohol and alcoholism were not part of this study. If the overdose death certificates indicated alcohol was a factor, Register of Deeds staff made a note of that in the database. In about 20% of the overdose deaths alcohol was noted as a factor.

An online version of this report is available at <http://www.wakegov.com/rod/Documents/drugreport.pdf>.

The Register of Deeds created database is available in Excel format at <http://www.wakegov.com/rod/Documents/drugdata.zip>. Interested persons may use this database for further study.

Appendix A

All drugs shown on death certificates for 559 overdose deaths during the six-year period 2013 through 2018 and the number of occurrences of the drug. This table does not include suicide. The total count of the occurrences of all the drugs is greater than the number of death certificates because most death certificates list more than one drug.

Fentanyl and analogues	#
Fentanyl	176
Furanylfentanyl	29
Fluoroisbutyrylfentanyl	22
Methoxyacetylfentanyl	10
Cyclopropylfentanyl	5
Acetyl Fentanyl	4
Furanyl Fentanyl	2
Butyrylfentanyl	1
O-Methyl-Acetylfentanyl	1
4-Fluorofentanyl	1
4-Florofentanyl	1
Fentanyl Toxicity	1
Fentanyl/Heroin	1
Other drugs	
Heroin	179
Cocaine	176
Alprazolam	84
Oxycodone	61
Gabapentin	48
Clonazepam	46
Methadone	32
Morphine	29
Hydrocodone	25
Oxymorphone	23
Diazepam	17
Methamphetamine	16
Tramadol	10
Diphenhydramine	10
Lorazepam	9
Buprenorphine	8
Multiple Drugs	7
Pregabalin	7
Amitriptyline	7
Hydromorphone	7

Difluoroethane	6
Benzodiazepine	6
U-47700	6
Trazadone	5
Amphetamine	5
Loperamide	5
Fluoxetine	5
Mitragynine	4
Dextromethorphan	4
Bupropion	4
Sertraline	3
Multidrug	3
Carfentanil	3
Zolpidem	3
Citalopram	3
Acetaminophen	3
Trazodone	3
Etizolam	2
Promethazine	2
Duloxetine	2
Opiate	2
1,1-Difluoroethane	2
Phentermine	2
Carisoprodol	2
Codeine	2
Chlordiazepoxide	2
Venlafaxine	2
Propofol	1
Acute Mixed Drug Toxicity	1
Opiate Intoxication	1
Bromadiolone	1
Presumed Opiate Toxicity	1
Hydroxyzine	1
Acute Mixed Drug Intoxication	1
Inhaled Pressurized Dusting Gas	1

Other Contributing Factors	1
Lamotrigine	1
4-Methylenedioxymethamphetamine	1
Levetiracetam	1
Probable Opiate Toxicity	1
Lithium	1
Temazepam	1
Additional Opioids	1
Acute Multidrug Toxicity Including Opioids	1
1-Difluoroethane	1
Opiates	1
U-49900	1
Pentobarbital	1
Flubromazepam	1
Coagulopathy	1
Probable Mixed Drug Toxicity	1
Delorazepam	1
Ghb	1
Doxepin	1
Benzoylcegonine	1
Doxylamine	1
Topiramate	1
Chloroethane	1
Brodifacoum	1
Complications of Opioid Withdrawal	1
Wellbutrin	1
Acute Multidrug Toxicity	1
Complications of Probable Opiate Toxicity	1
Meprobamate	1
Fluvoxamine	1

Appendix B

All drugs shown on death certificates for 103 overdose deaths during the six-year period 2013 through 2018 where the death was ruled suicide. The total count of the occurrences of all the drugs is greater than the number of death certificates because most death certificates list more than one drug.

Drug	#
Oxycodone	23
Diphenhydramine	17
Clonazepam	14
Gabapentin	13
Hydrocodone	10
Alprazolam	8
Bupropion	7
Amitriptyline	6
Tramadol	6
Zolpidem	5
Mirtazapine	5
Citalopram	4
Methadone	4
Cyclobenzaprine	4
Fentanyl	4
Propranolol	3
Sertraline	3
Quetiapine	3
Diltiazem	3
Cocaine	3
Multiple Drugs	3
Acetaminophen	3
Heroin	2
Lacosamide	2
Doxylamine	2
Metoprolol	2
Oxymorphone	2
Fluoxetine	2
Verapamil	2
Morphine	2
Topiramate	2
Multidrug Toxicity	2
Benzodiazepine	2
Doxepin	2
Amphetamine	2
Tianeptine	1

Primidone	1
Amlodipine	1
Cyanide	1
Salicylate	1
Hydromorphone	1
Trazodone	1
Buspirone	1
Phenobarbital	1
Dextromethorphan	1
Ethylene glycol	1
Lamotrigine	1
Sodium Nitrite	1
Lorazepam	1
Guaifenesin	1
Meperidine	1
Hydrazine	1
Metformin	1
Eszopiclone	1
Diazepam	1
Pregabalin	1
Carisoprodol	1
Propoxyphene	1
Cetirizine	1
Clobazam	1
Mitragynine	1
Acute Mixed Drug Intoxication	1
Chlorpromazine	1
Temazepam	1
Benzonatate	1
Clonidine	1
Duloxetine	1
Trazadone	1
Nortriptyline	1
Atenolol	1
Olanzapine	1
Other Contributing Factors	1
Insulin	1

