Overdose Data in Monroe County, NY
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Introduction

This paper presents the analysis of opioid overdose data in Monroe County in 2018. The analysis includes how many unique individuals overdosed during the year, demographics (age, gender, race/ethnicity), location, temporal trends (e.g, days and months), fatalities, and Narcan use. We also compare overdoses in Monroe County to Rochester, to see if there are any unique patterns that emerge in either location.

The data presented include only opioid overdoses that were made known to law enforcement. We know, based on interviews and review of the relevant literature, that many more opioid overdoses go undetected by law enforcement. For this reason, we understand these numbers to be a conservative underestimate of the total number of opioid overdoses that occurred throughout Monroe County in 2018.

To note, in 2017 the Monroe Crime Analysis Center (MCAC) reported 766 opioid overdoses across Monroe County, 139 of them were fatal. The Monroe County Medical Examiner updated the fatality count to 220, after finishing their investigations for 2017. MCAC did not start reliably collecting data on overdoses until September 2017. While MCAC analysts made an effort to go back through reports to identify overdoses prior to September 2017, it is likely that the 766 is lower than the actual number of overdoses.
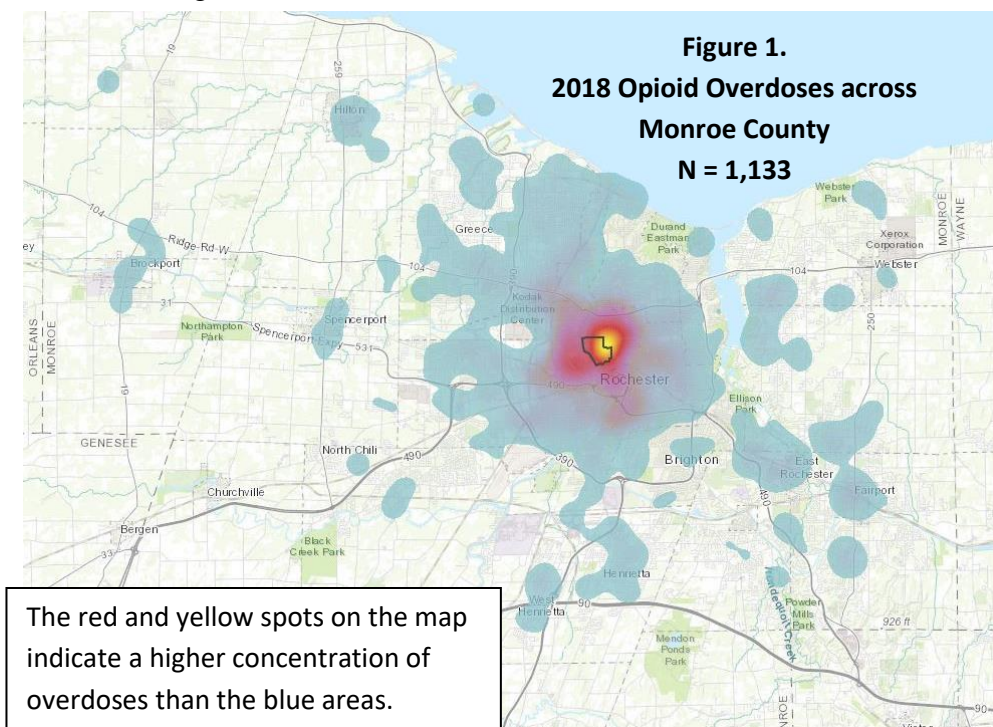
Methodology

The data were provided from the MCAC Opioid Overdose database, compiled by a crime analyst. The first step in this analysis was assigning a unique identifier to each individual. Each individual was given a five digit identifier starting with 00001. Individuals with the same name and date of birth were considered the same person and given the same unique identifier. If there

were any slight differences between the names of two overdose victims, but the date of birth and demographic information were the same, they were identified as the same individual.

After the unique identifiers were added, overdose data including age, day of the week, and month were analyzed to identify possible trends in Monroe County. Narcan administration and fatality rates are also presented. Rochester-specific data was then analyzed separate from Monroe County data. These cases were determined by extracting the overdoses that Rochester Police Department responded to.

Monroe County Findings

The data set used in analysis included all opioid overdoses (known to law enforcement) that occurred within Monroe County in the year 2018. During this period there were a total of 1,133 overdoses. There were 910 unique individuals that overdosed in Monroe County during 2018. Of these overdose victims, 28% were female and 72% were male. The race of the overdose victims was overwhelming white (77%) followed by Latino (13%) and black (9%), with very few listed as "other." Figure 1 below shows the concentration of overdoses across the county.

Figure 1.
2018 Opioid Overdoses across
Monroe County
N = 1,133

The red and yellow spots on the map indicate a higher concentration of overdoses than the blue areas.

The age[1] breakdown of overdose victims is concentrated around the ages 24 to 38 (see Figure 1). The age range with the highest number of overdoses was 24-28 with 247 overdoses (22%). The average age of overdose victims was 36. The median (mid-point) age for overdose victims was 34, while the mode (most frequently occurring) was 28 years of age (n = 58 overdose victims).

Figure 2. Monroe County Overdoses by Age Range, January 1st – December 31st, 2018
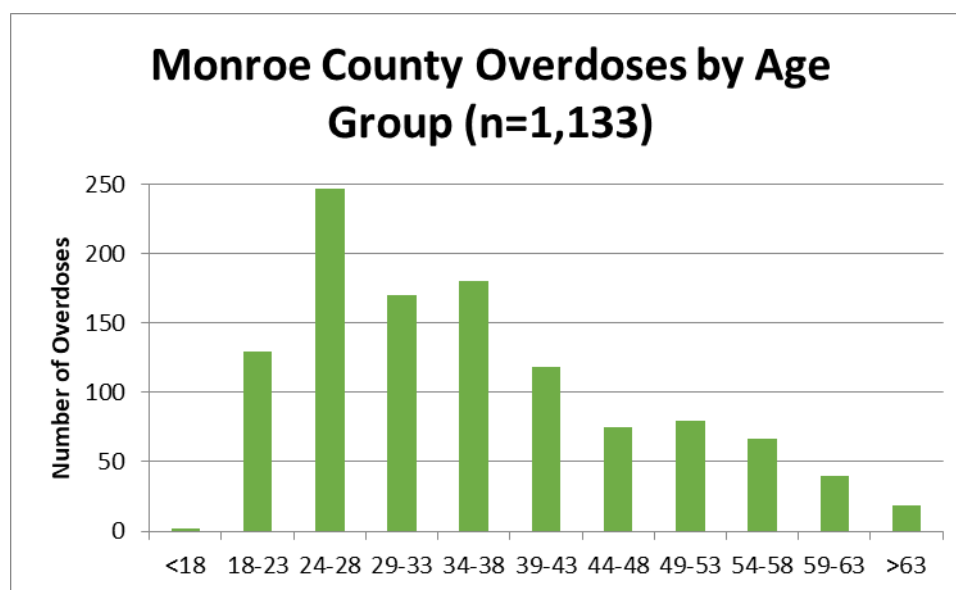
Overall, 15% of the overdoses in the county were fatal (n = 166 overdoses). Of the fatal overdoses, 32% of individuals reported overdosing at least once in the past, according to the MCAC database. Of the 910 unique individuals, 769 people (84%) overdosed once, 99 people (11%) overdosed twice, 27 people (3%) overdosed three times, 9 people (1%) overdosed four times, and 4 people overdosed five times. There was one individual that overdosed seven times.

A monthly analysis revealed that there was slight variation in overdoses between months. Over the year, there is an increase in overdoses in the spring/summer months (May – July)

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[1] Age variables were calculated with n = 1,133, because individuals' birthdays may have occurred, and changed their age between multiple overdoses

coupled with lower amounts of overdoses in November and December (see Figure 3). There is, however, a spike in overdoses in October that goes against this general trend. An analysis of overdoses by weekday indicates a fairly consistent distribution over each day, however Monday is as an exception to this trend with over 200 overdoses (see Figure 4).

*Figure 3. Monroe County Overdoses by Month, January 1ˢᵗ – December 31ˢᵗ, 2018*
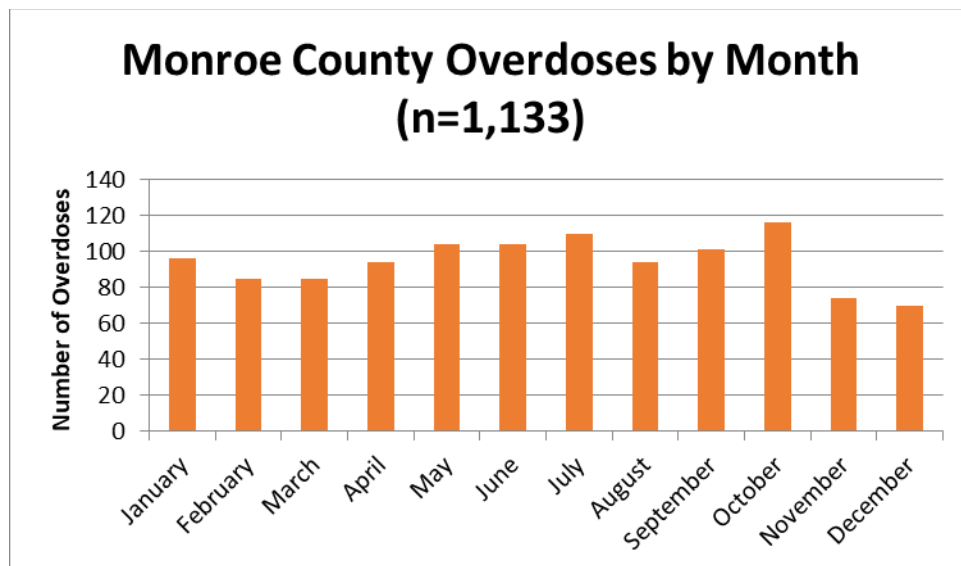
Figure 4. Monroe County Overdoses by Weekday, January 1ˢᵗ – December 31ˢᵗ, 2018
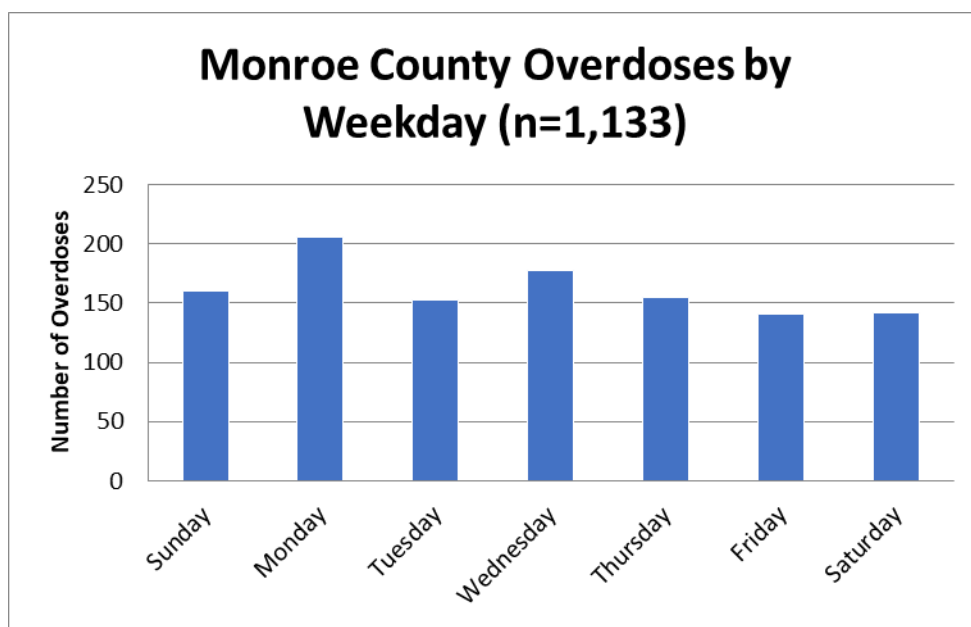
Of the 1,133 overdoses, Narcan was administered in 75% of overdoses. Narcan is an opioid antagonist; it safely reverses the effects of an opioid overdose. This life-saving medication is available in pharmacies, and also at one of the many free trainings that provide free Narcan throughout the county[2]. Narcan was used in approximately 84% of non-fatal incidents and was used in 27% of fatal overdoses (see Figure 5). The lower proportion of Narcan used in fatal overdoses is likely because the individual is already deemed deceased when first responders arrive on scene. There were seven non-fatal incidents and one fatal incident where the usage of Narcan was unknown. These eight incidents were not included in the chart below.
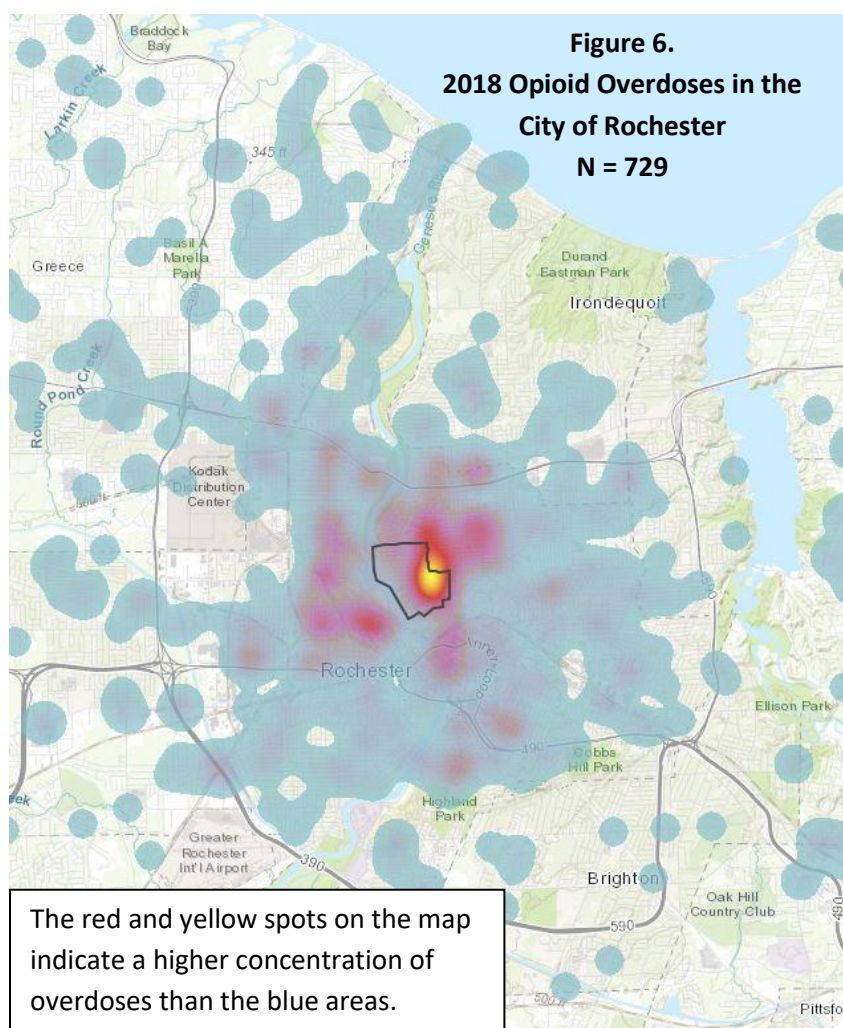
Figure 5. Usage of Narcan in Overdoses, January 1st – December 31st, 2018
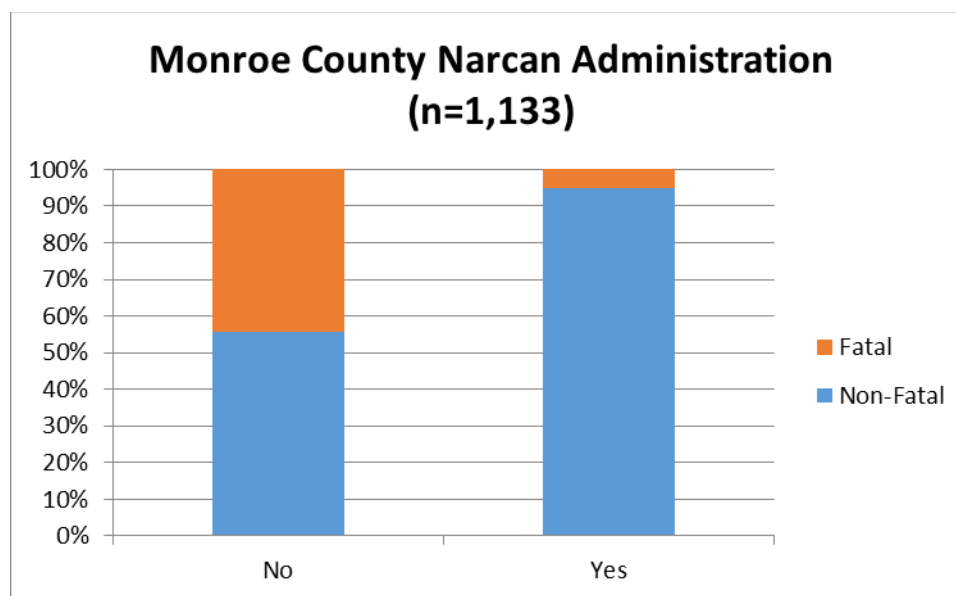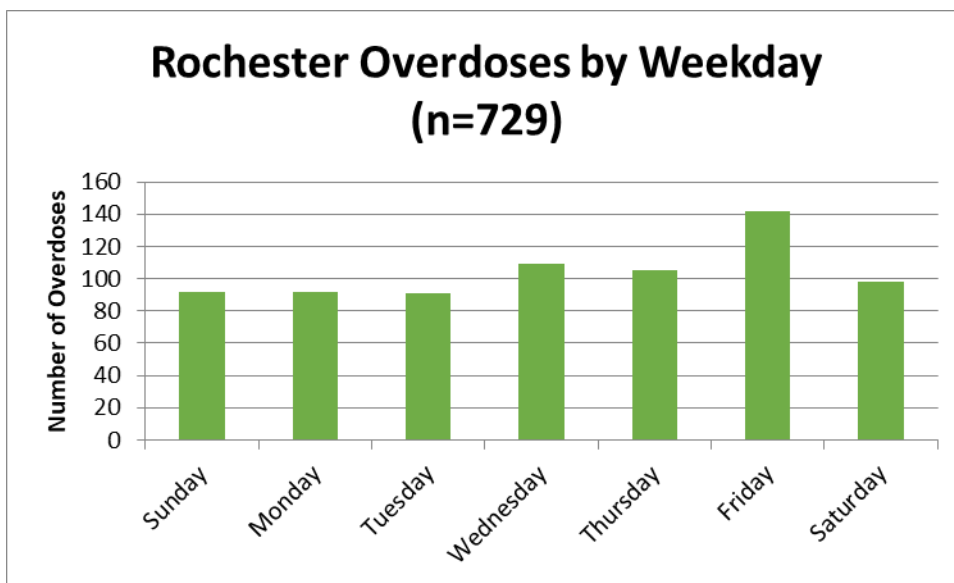

Rochester Findings

Of the 1,133 overdoses in Monroe County, 729 (64%) occurred in Rochester (see Figure 6 below). Of these 729 overdoses, there were 595 unique overdose victims. Of the 595 victims, 420 were Rochester City residents. Overall there was not much difference between the county data and Rochester data; nearly two-thirds of the 2018 opioid overdoses occurred in Rochester, which drove the trends for the entire county. Monroe County and Rochester had the same gender breakdown: majority male. The fatality rate in Rochester was 12%, slightly lower than that of Monroe County (approximately 15%). The use of Narcan in Rochester occurred in 77% of overdoses, which is similar to Narcan administration in the entire county.

Figure 6.
2018 Opioid Overdoses in the City of Rochester
N = 729

The red and yellow spots on the map indicate a higher concentration of overdoses than the blue areas.

The number of overdoses by weekday in Rochester was fairly consistent, however there were a higher number of overdoses on Friday (see Figure 7). Overdoses were higher during the summer months (May – July), with a peak in September (see Figure 8).

Figure 7. Rochester Overdoses by Weekday, January 1st – December 31st, 2018

Figure 8. Rochester Overdoses by Month, January 1st – December 31st, 2018
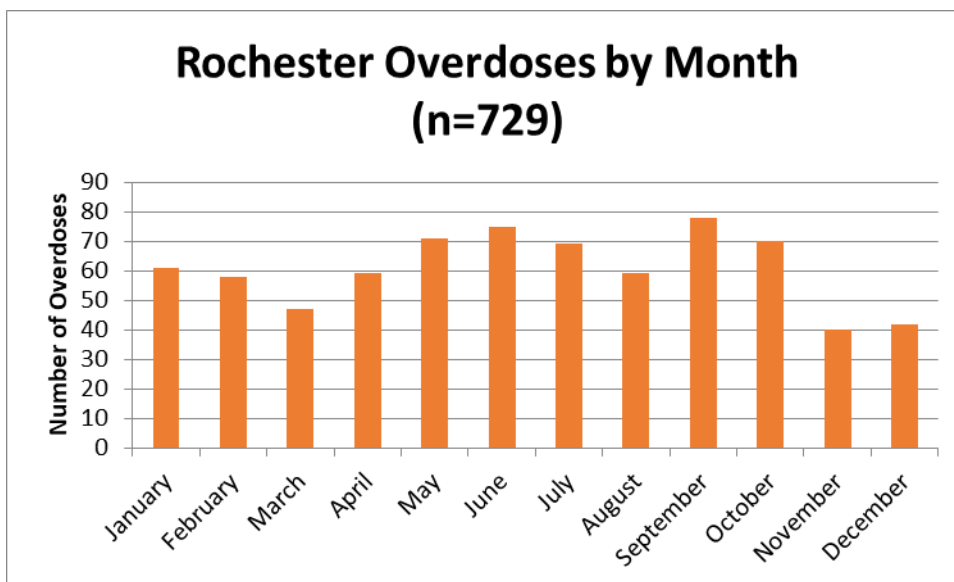
Another interesting find in the data was that of the 729 overdoses in Rochester, 198 were not residents of Rochester. There were 560 Rochester residents that overdosed in this time period, and 531 of them overdosed in Rochester.

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**Monroe County Findings, Excluding Rochester**

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Given the available data it was also possible to compare the data from Monroe County, excluding the data collected from Rochester. Of the 1,133 overdoses in the county, 729 occurred in Rochester. The following charts look at the 404 overdoses that occurred outside this sample.

The number of overdoses in Monroe County (without Rochester) doesn't seem to follow similar trends to Monroe County overall (including Rochester). There does appear to be a large drop in September and more variation overall, however this could be a result of the smaller data set (see Figure 9). Looking at the weekday trends, there is some variation and an increase in overdoses during the middle of the week (see Figure 10). Overall, there were 573 county residents that overdoses and 560 Rochester residents that overdosed.

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Figure 9. Monroe County Overdoses (without Rochester Data) by Month,

January 1st – December 31st, 2018

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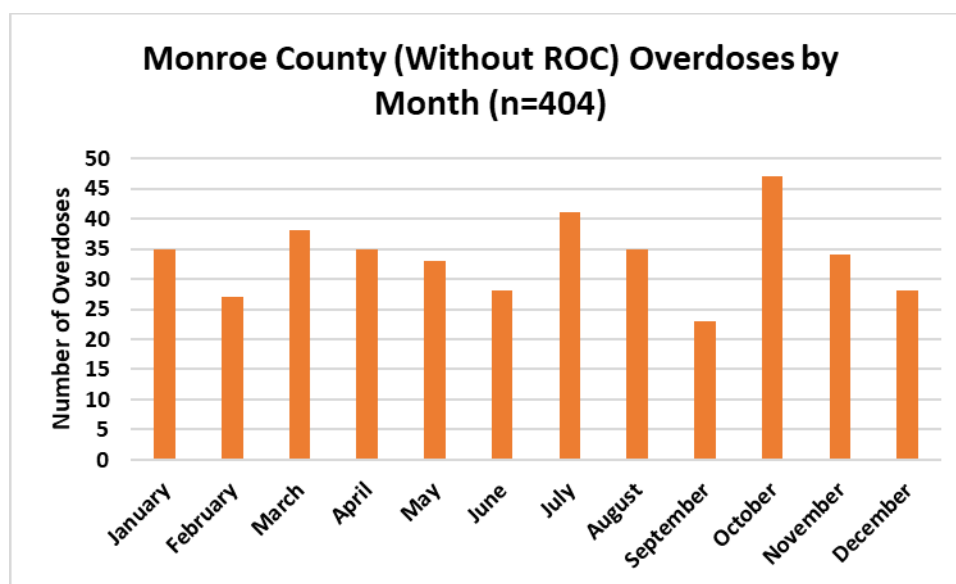
Figure 10. Monroe County Overdoses (without Rochester Data) by Weekday,
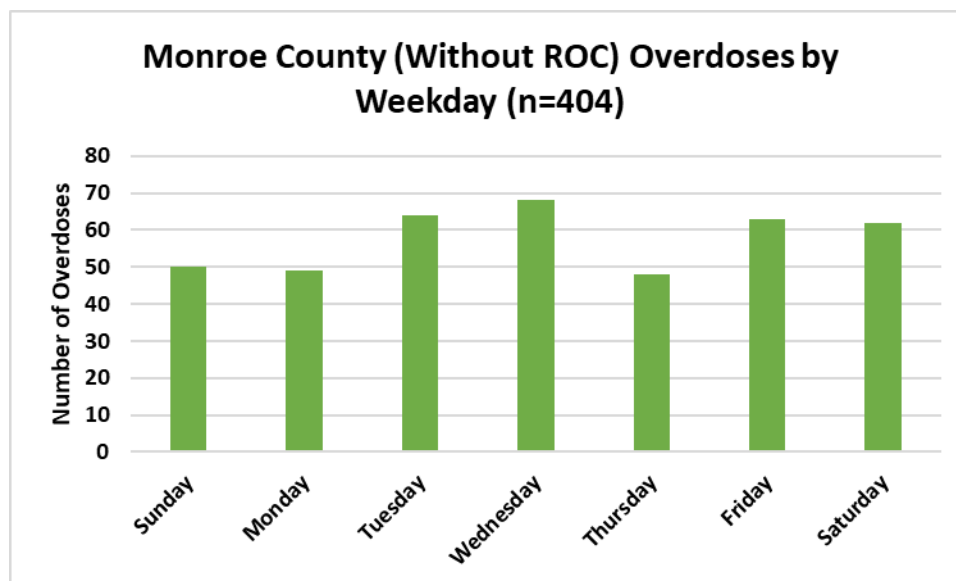
Conclusion

One of the most important findings from this analysis was that there are 910 unique

individuals that overdosed in Monroe County in 2018. This is noteworthy because it shows how

many new people are overdosing compared to the same people repeatedly overdosing, which can

impact the type of interventions implemented. The results also indicated that there is not much

variability in number of overdoses by month or day of the week, which speaks to the nature of

opioid addiction; opioids are highly addictive, and are not typically used as 'party drugs'. This

means that individuals are using consistently, and a daily basis. There was a spike in overdoses

during the month of September within the city of Rochester that was matched with a low in

overdoses in the surrounding areas (Monroe County excluding the city of Rochester); however

outside of Rochester, October spiked for overdoses. Possible reasons for this divergence may

include increased activity by law enforcement that could have occurred outside the city limits. It

is also possible that within the city of Rochester there existed, at the time, stronger and more

desirable strains of heroin that were eventually distributed to the surrounding area. An additional

finding was a large difference in the usage of Narcan for fatal and non-fatal incidents. This may be the result of fatal overdose victims being pronounced dead before Narcan could be administered.

Appendix 1 is a one-page information sheet on the 2018 opioid overdoses. This sheet provides information-at-a-glance to get a quick understanding of the overdoses in 2018.

Future Research

This analysis went over the general trends in overdoses in both Monroe County and Rochester. After a review of the findings, there is an opportunity for future analysis. Such future analysis could look at people who overdosed more than once and see if there are any trends unique to this group. This data can also be compared to similar cities or counties around the US to see if there are any similarities in overdoses. An additional paper could examine more overdose data from Monroe County from years prior and compare year by year to determine if there are any trends in overdoses and how these trends may have shifted over time. Further, rates of overdoses by age, gender, and race/ethnicity could be examined.

Appendix 1
Monroe Crime Analysis Center Opioid Overdose Data
January 1 – December 31, 2018
Analyzed by the Center for Public Safety Initiatives at Rochester Institute of Technology
Kayla Macano, MS; kmmgcj@rit.edu
Janelle Duda-Banwar, MSW
Irshad Altheimer, PhD

All Overdoses

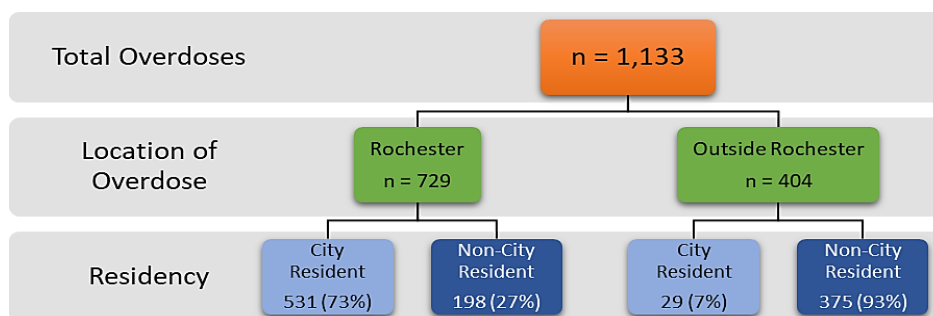|	**City of Rochester Only**	**Monroe County (Outside of the City)**	**TOTAL**
Non-Fatal	638	329	967
Fatal	91 (*12% of City overdoses*)	75 (*19% of overdoses outside the City*)	166 (*15% of all overdoses*)
TOTAL	729	404	**1,133**

One-third of all *fatal* overdose victims overdosed at least one time before*
*data generated thru self-report and/or case review

Residency of Overdose Victims

Narcan
▪ Narcan was administered in 84% of all non-fatal overdoses.

Unique Individuals
▪ Total Unique Individuals who overdosed across Monroe County in 2018: 910 out of 1,133 overdoses.

Monthly Trends
▪ September had the *highest* number of overdoses for City only, followed by a sharp drop in November and December.
▪ September was the *lowest* month for the rest of Monroe County, while October was the highest.

Demographics (Race/Ethnicity was calculated in several different ways)
▪ The average age was 36.
▪ 72% of the 910 individuals are male.
▪ Race / Ethnicity breakdown
  □ 77% White
  □ 13% Latino
  □ 9% Black / African American
  □ 1% 'Other'

n = 1,133 overdoses

The Clifford and N. Clinton Ave intersection was the most concentrated place for overdoses in Monroe County in 2018; this was the same in 2017.