Knox County Naloxone Deployment by First Responders

October 1, 2016 – September 30, 2017

A report of the

Naloxone Community Collaborative

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Knox County
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Every Person, A Healthy Person

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Purpose of the Naloxone Community Collaborative

To create a collaborative effort among first responders in Knoxville/Knox County to rescue individuals experiencing drug overdose symptoms by deploying naloxone and linking victims to the appropriate follow-up care with the goal of reducing the number of overdoses and overdose-related deaths.

Summary

To aid in understanding the scope and depth of the opioid crisis, the Knox County Health Department compiled information on naloxone deployments from first responders in Knox County between Oct. 1, 2016, and Sept. 30, 2017.

Notable findings for Knox County during this time period include:

- More than 1,200 individuals received naloxone in Knox County.
- On average, three or more individuals receive naloxone every day in Knox County.
- White males ages 25-39 were administered the most naloxone.
- Some ZIP code areas in Knox County had higher rates of naloxone deployment than others.

What is Naloxone?

Naloxone, also known commercially as Narcan, is administered by first responders when a person is suspected of overdosing on opioids. The medication provides partial or complete reversal of an opioid overdose. A person who has overdosed on opioids may exhibit the following symptoms: loss of consciousness, slow or shallow breathing, vomiting, pale or clammy face, lips and skin may turn blue, and pulse is slow and erratic or not there at all. Naloxone typically works within five minutes depending on the amount and type of opioid the individual has taken. Sometimes an additional dose is needed. Naloxone lasts only 30-90 minutes, and symptoms of overdose may return after the naloxone wears off.

Background

In response to the increased use of opioids, more first responders in Knox County are both carrying and administering naloxone to suspected overdose victims. The first meeting of the Naloxone Community Collaborative was convened by Metro Drug Coalition (MDC) in September 2016. Agencies participating in monthly meetings include American Medical Response (AMR) Rural/Metro EMS and Fire, Cherokee Health Systems, the Knox County Health Department, Knox County Schools, the Knox County Sheriff's Office, the Knoxville Police Department (KPD), the Knoxville Fire Department (KFD), Cornerstone of Recovery, Appalachia HIDTA, the Knox County District Attorney's Office and MDC.

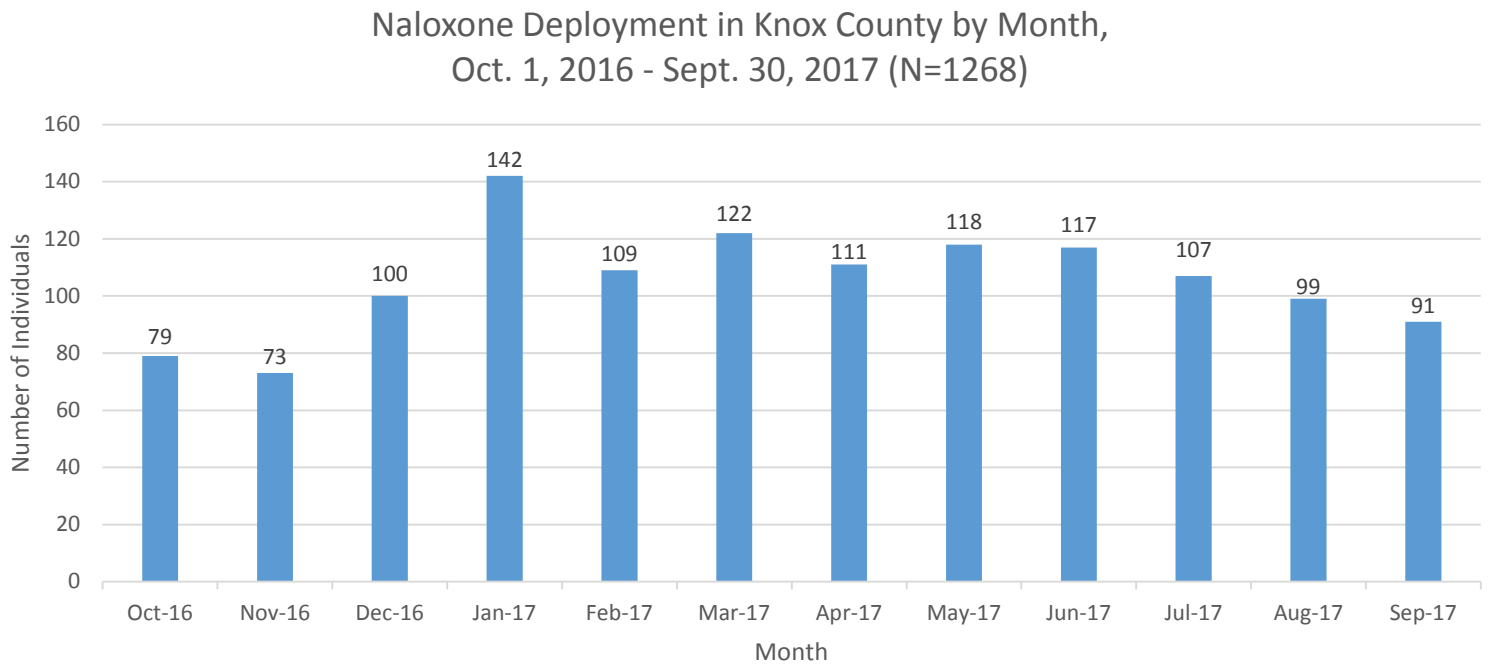
Although emergency medical responders in Knox County have carried naloxone for nearly 30 years, other agencies such as KPD began carrying naloxone more recently to provide life-saving medication when they are first on the scene of a potential overdose. Data from first responders administering naloxone included in this report are AMR Rural/Metro EMS and Fire, KFD and KPD.* The Knox County Health Department compiled this data, spanning back to September 2016 when collection was initiated, to further understand naloxone deployment in Knox County. Knox County Health Department epidemiologists routinely gather, analyze and report data on current and emerging health issues that affect our community.

*For the purpose of this report, data collected from AMR Rural/Metro EMS and Fire are combined and reported as AMR Rural/Metro.

Naloxone Deployment

More than 1,200 individuals received naloxone between Oct. 1, 2016 and Sept. 30, 2017. An average of 107 individuals received naloxone each month. The number of individuals receiving naloxone nearly doubled between October, 2016, and January, 2017. A sharp increase occurred in January. The rate of naloxone deployments has increased over time.

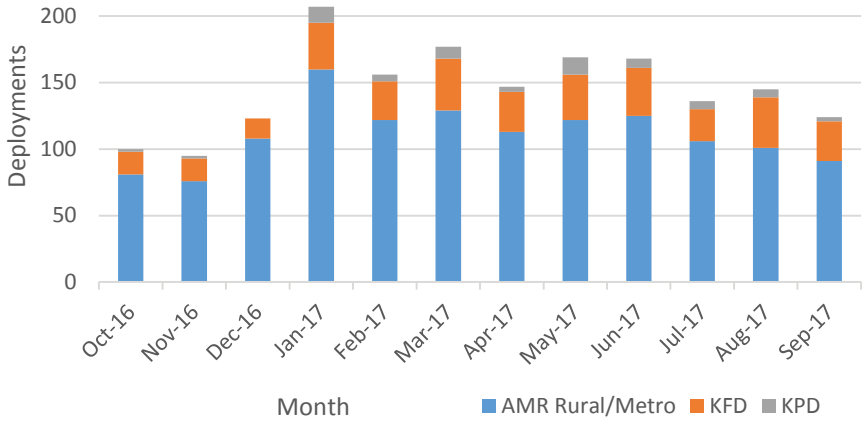
Of the 1,268 individuals requiring naloxone, 93 received the medication on at least two separate occasions during the 12-month time frame (an average of 2.19 times with a range of 2-5 times).



The majority (76 percent) of naloxone deployments were conducted by AMR Rural/Metro. AMR Rural/Metro, KPD and KFD are often on the scene at the same time and work together to ensure the patient receives timely care. Depending on the context of the 911 call that comes into the Knox County Emergency District, one or more responders may be sent to the scene. The responder first arriving on the scene administers naloxone to prevent further delay in treatment of the patient.

Some patients require more than one dose of naloxone depending on severity of overdose. The dose of naloxone provided to the patient may also differ by agency administering the drug depending on protocol of that specific agency.

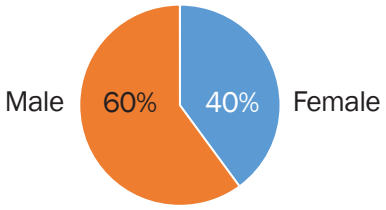
Naloxone Deployment in Knox County by Month and Organization, Oct. 1, 2016 - Sept. 30, 2017 (N=1747)



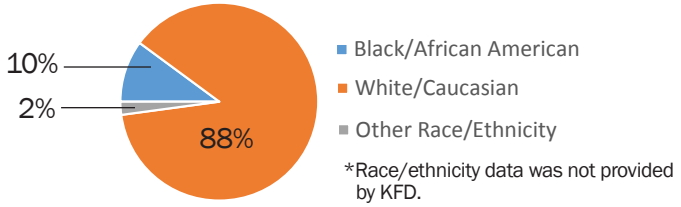
Demographics

Individuals receiving naloxone by first responders are predominantly male (60 percent) and white (88 percent). Only 10 percent of individuals receiving naloxone are black, while 2 percent are of other races.

Naloxone Deployment by Sex, Knox County, Oct. 1, 2016 - Sept. 30, 2017 (N=1268)

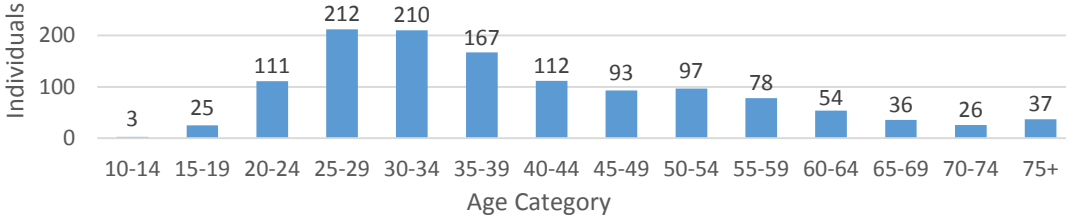


Naloxone Deployments by Race/Ethnicity, Knox County, Oct. 1, 2016 - Sept. 30, 2017 (N=1217)*



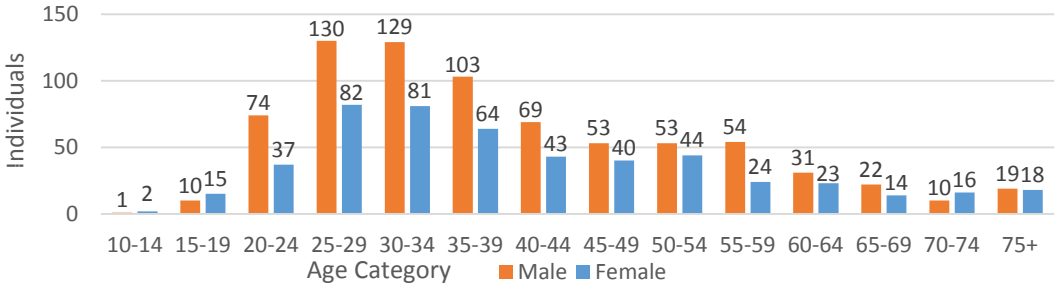
*Race/ethnicity data was not provided by KFD.

Naloxone Deployment in Knox County by Age Group, Oct. 1, 2016 - Sept. 30, 2017 (N=1261)



Individuals between the ages of 25 and 39 are the most likely to have received naloxone by first responders. These age groups represent nearly half (46.5 percent) of all individuals receiving naloxone in this timeframe.

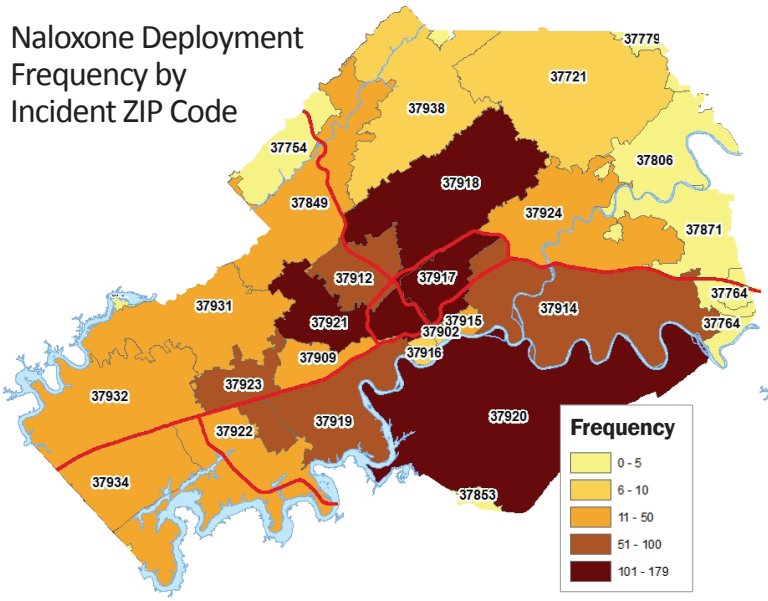
Naloxone Deployment in Knox County by Sex and Age Category, Oct. 1, 2016 - Sept. 30, 2017 (N=1261)

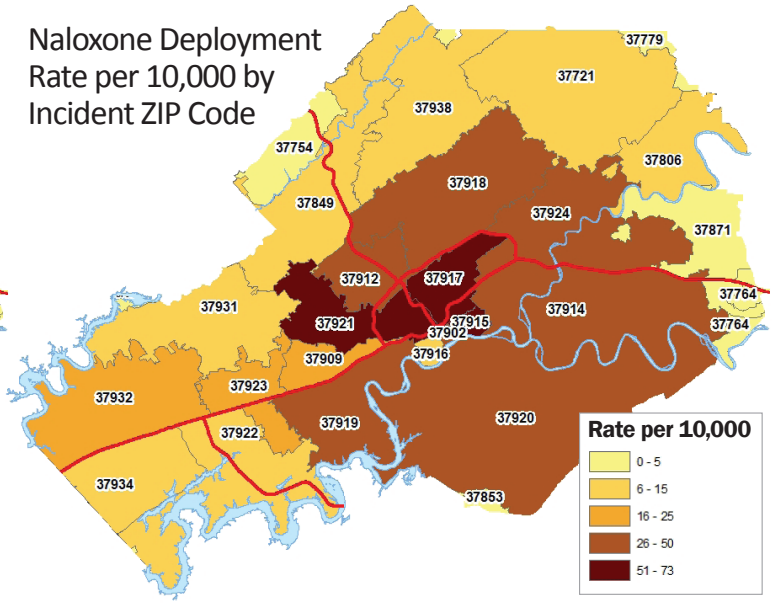


The majority of males (47.7 percent) receiving naloxone were between the ages of 25 and 39. This was a similar trend among females (45.0 percent of all females).

Naloxone is most frequently deployed in the 37920, 37917, 37921 and 37918 ZIP codes. When considering the proportion of population affected, a greater burden of suspected overdose occurs in the 37921, 37917 and 37916 ZIP code areas.

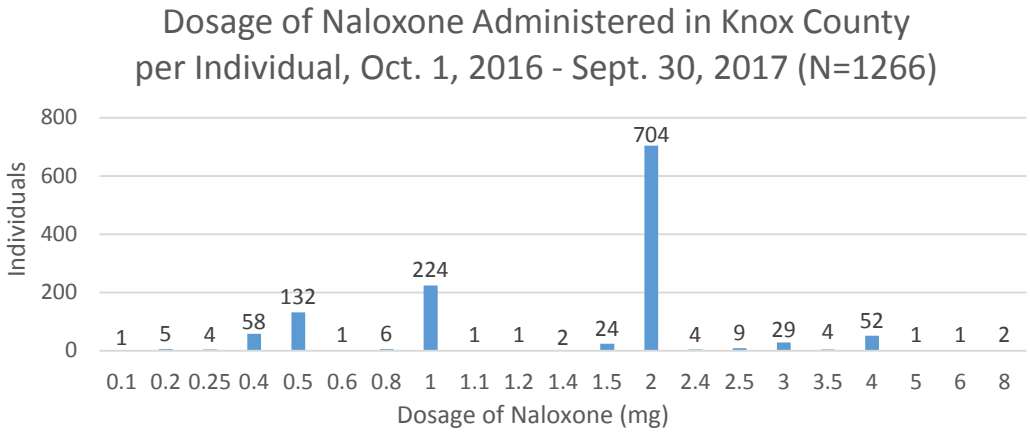
When looking at the address where naloxone was deployed, the majority involved a single individual. On 11 occasions, more than one person required naloxone at the same location. Addresses where naloxone was deployed more than once (151 addresses) ranged from 2-10 visits.





Dosage

KPD carries and administers a standard 2.0 mg dose of naloxone (nasal spray formulation) to those suspected of overdosing. KFD and AMR Rural/Metro are able to adjust the medication from 0.4 mg up to 2.0 mg as needed by the individual. More than 100 individuals required a dose greater than 2.0 mg, which may indicate severity of overdose.



Note: Dosage information for all individuals treated by KFD was not available at the time of this report.

Methodology and Report Limitations

Data received included case number, date, address of both case residence and incident address, organization, gender, and age. Other variables included in this report include race/ethnicity and dose. Patient-level data was provided, but caution was taken to prevent the identification of any individuals who may have received naloxone. Identifiable information was used to determine duplications within data. Duplicates were removed.

From the data collected, it was not possible to determine the outcome of the patients or the suspected drug taken by the individuals. Address ZIP codes were used to create frequency and rate maps. Beyond ZIP code, street-level addresses were not used to report out location of naloxone deployment on a smaller scale such as street or neighborhood. Of note, not all individuals who received naloxone suffered from an opioid overdose. Individuals received naloxone because they met first responder criteria for naloxone deployment (such as being found unconscious, not breathing or having dilated pupils). Only individuals receiving naloxone from AMR Rural/Metro, KPD and KFD are considered for this report. Data representing individuals receiving naloxone at area hospitals or who have obtained prescriptions for naloxone was not included in this analysis.

Recommendations and Next Steps

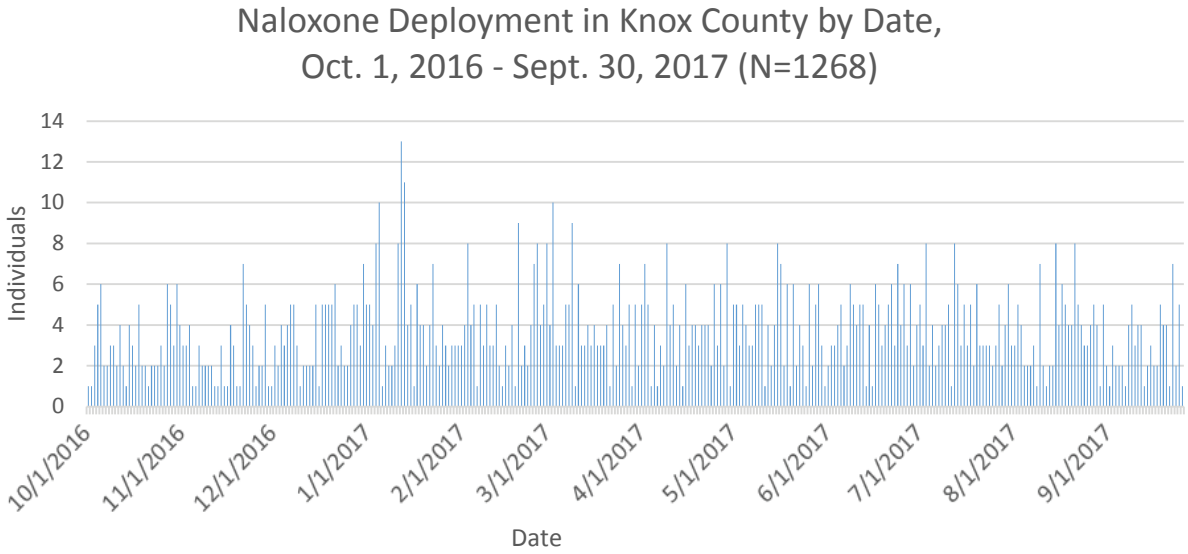
Knox County Naloxone Community Collaborative

- Connect individuals receiving naloxone to care.
- Direct prevention resources and efforts to areas of the community where higher percentages of deployments occur.
- Work with area hospitals and the Knox County Regional Forensic Center to determine the outcomes of patients receiving naloxone by first responders.
- Track the number of naloxone prescriptions filled by area pharmacies.
- Continue to track naloxone deployments and report statistics annually, including calculated rates of deployment.
- Provide first responders with density maps of naloxone deployment to better prepare officers and responders serving those areas.
- Encourage more first responders and community partners to carry and administer naloxone.

Prescribers and Pharmacists

- Co-prescribe naloxone when writing narcotic prescriptions.
- Offer counseling and naloxone to patients picking up prescriptions for opioids.
- Increase education for prescribers on safe prescribing and care of addicted patients.

Summary



Not every individual receiving naloxone struggles with substance abuse. Individuals who may be opiate naïve and take a prescribed medication for the first time could experience respiratory distress. Children accidentally taking adult medication or elderly individuals who may unintentionally take more than the prescribed dose are also at risk. The Naloxone Community Collaborative is reaching out to local pharmacists to encourage them to enter into the collaborative practice agreement with the Tennessee Department of Health to make sure naloxone is available to family members of someone who might suffer from an overdose.

The collaborative will continue to collect naloxone deployment data from first responders to provide a clearer picture of measures being taken to combat the ongoing opioid crisis.

Conclusion

The use of naloxone by first responders in Knox County is a daily occurrence. Between Oct. 1, 2016 and Sept. 30, 2017, more than 1,200 individuals in Knox County received naloxone for suspected overdose, an average of almost four deployments per day with a trend that continues to increase. While each ZIP code of the county is affected, certain areas are more burdened with naloxone deployment than others.