

Naloxone Recipients in Rhode Island, January 2019–March 2022

KRISTEN ST. JOHN, MPH; CHRISTINA HOM, MPH; HEIDI WEIDELE, MPH

BACKGROUND

In Rhode Island, 435 individuals lost their lives due to an accidental drug overdose in 2021, which is the highest ever recorded in state history.¹ Overall, 375 of these deaths involved an opioid, including fentanyl.¹ One strategy utilized by the Rhode Island Department of Health (RIDOH) to reduce opioid-involved fatalities is to distribute harm-reduction materials, such as naloxone, to individuals who use drugs.²

RIDOH monitors statewide naloxone distribution by capturing de-identified information on naloxone distribution conducted by community-based agencies, Rhode Island emergency departments, and pharmacies. Community-based agencies provide low- to no-barrier access to naloxone through community-based programs, including harm-reduction programs. Distributing naloxone to people who use drugs is a tool that can enhance client engagement and increase linkage to addiction treatment and other services. Hospital emergency departments are required to report information to our 48-Hour Reporting System on individuals receiving medical care for a suspected opioid overdose, which includes information on take-home naloxone kits dispensed upon discharge.

Pharmacies with a Controlled Substances Registration can also dispense naloxone. Pharmacies can dispense naloxone using standing orders, for which customers request naloxone directly from the pharmacy without a prescription, or by filling prescriptions written by providers. Rhode Island regulation requires that providers co-prescribe naloxone for patients with a history of opioid use disorder, those receiving an opioid (individually or in aggregate with other medications) greater than or equal to 50 morphine milligram equivalents per day, or those receiving an opioid and benzodiazepine prescription within 30 days of each other.³ Naloxone co-prescriptions are not required to be automatically renewed with each prescription renewal, as it is left to the providers' clinical judgement, since they may be aware of a previous valid naloxone prescription or that a previously dispensed naloxone kit has not been used.

This study aims to describe recipients who received naloxone to better understand individuals who are accessing harm-reduction tools in the community.

METHODS

We analyzed records for naloxone distributed by hospitals, pharmacies, and community agencies from January 1, 2019 to March 31, 2022. As all data are de-identified, individuals who received multiple prescriptions or obtained naloxone from agencies multiple times may be counted more than once.

Prior to April 2021, naloxone distributed by community agencies was reported by agencies using Wufoo (a web application that allows users to create data-collection forms). In April 2021, data collection was transferred to REDCap (REDCap, Vanderbilt). Recipient type (business, NaloxBox, or individual) collection began in January 2022. To limit the analysis to individual encounters, records from businesses, training events, and NaloxBox units, which provide access to naloxone in buildings, as well as recipients of 24 or more naloxone doses (likely distributed for further distribution rather than individual use), were excluded. Of the 29,362 community distribution encounters that occurred during the study timeframe, 28,897 encounters remained in the final sample.

Rhode Island's Prescription Drug Monitoring Program (PDMP) dataset contains information on pharmacy-dispensed naloxone. Records were obtained for 37,118 naloxone prescriptions dispensed during the study period.

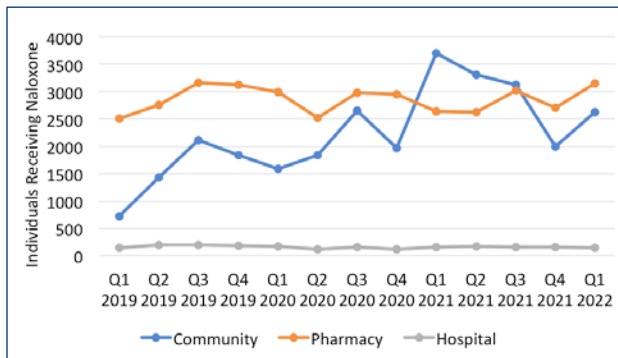
Hospital staff are required to report individuals receiving emergency department care for a suspected opioid overdose within 48 hours of the visit via an online reporting system, which gathers information on take-home naloxone kits given to individuals. Records were obtained for 2,058 individuals who received naloxone kits distributed by hospitals.

In all datasets, frequencies were calculated for demographic variables, including gender, age group, and recipient's municipality of residence. Municipalities of residence with less than 4% of the distribution for any source were aggregated into an 'All Other Rhode Island Municipalities' category. The community agency naloxone distribution and hospital datasets contain recipient race and ethnicity information, along with additional gender categories not collected by the PDMP. Since naloxone distributed by participating community agencies and hospitals is free to recipients, insurance type was only available for the PDMP. All datasets include out-of-state residents, who account for approximately 4.0% of the community, pharmacy datasets, and 9.9% of the hospital dataset. SAS Version 9.4 software was used for analyses (SAS Institute, Cary, NC).

RESULTS

From January 1, 2019 to March 31, 2022, hospital and pharmacy-based distribution to individuals remained relatively stable, while community-based agencies increased distribution by approximately 260% (Figure 1). For the entire timeframe, pharmacies reached 28% more individuals than community-based agencies (Table 1).

Figure 1. Individuals Receiving Naloxone by Source and Timeframe, Rhode Island, January 1, 2019–March 31, 2022.



Naloxone-distribution events more frequently resulted in distribution to females in both community (50.5%) and pharmacy (56.9%) settings and males in the hospital setting (70.6%, Table 1). The largest proportion of individuals receiving pharmacy-dispensed naloxone were aged 55 to 64 (20.1%), while those receiving naloxone from community agencies and hospitals were aged 25 to 34 (24.6% and 35.0% respectively). Individuals receiving pharmacy-dispensed naloxone used mainly public insurance for payment, with more individuals using Medicaid (31.4%) than Medicare (17.7%). Individuals receiving naloxone from a community-based agency or hospital were mainly Non-Hispanic White (60.1% and 57.3% respectively). For all naloxone sources, individuals most frequently resided in Providence.

DISCUSSION

Over time, Rhode Island's naloxone distribution has shifted from being driven by pharmacies to a mix of pharmacy and community agency involvement. Individuals most often receiving naloxone from these sources do not always align with individuals at highest risk for experiencing a fatal opioid overdose. For opioid overdose deaths occurring in Rhode Island from 2019 to 2021, decedents were most often male (72%), aged 25–34 (26%), non-Hispanic White (76%), and Providence residents (24%).¹ Though overlap exists between age, race, and residence for those most impacted by fatal overdose and those targeted by naloxone distribution by pharmacies or community agencies, there is a noticeable

Table 1. Characteristics of Individuals Receiving Naloxone at Each Naloxone Distribution by Source, Rhode Island, January 1, 2019–March 31, 2022

| Characteristic | Pharmacy-dispensed (%) | Community-based agency (%) | Hospital-dispensed (%) |
|--------------------------------------|------------------------|----------------------------|------------------------|
| Total Individuals Receiving Naloxone | 37,118 | 28,897 | 2,058 |
| Recipient Gender | | | |
| Female | 21,113 (56.9%) | 14,603 (50.5%) | 605 (29.4%) |
| Male | 16,000 (43.1%) | 13,072 (45.2%) | 1,452 (70.6%) |
| Transgender | n/a | 104 (0.4%) | <5 |
| Non-Binary | n/a | 152 (0.5%) | n/a |
| Not Listed | n/a | 121 (0.4%) | n/a |
| Multiple Selections | n/a | 98 (0.3%) | n/a |
| Unknown | 5 (0%) | 747 (2.6%) | n/a |
| Recipient Age Group | | | |
| <18 | 503 (1.4%) | 132 (0.5%) | <5 |
| 18–24 | 1,571 (4.2%) | 3,377 (11.7%) | 300 (14.6%) |
| 25–34 | 5,695 (15.3%) | 7,117 (24.6%) | 721 (35.0%) |
| 35–44 | 5,941 (16.0%) | 6,921 (24.0%) | 594 (28.9%) |
| 45–54 | 6,561 (17.7%) | 5,515 (19.1%) | 245 (11.9%) |
| 55–64 | 7,476 (20.1%) | 3,432 (11.9%) | 159 (7.7%) |
| 65+ | 5,325 (14.4%) | 1,464 (5.1%) | 38 (1.9%) |
| Unknown/Missing | 4,046 (10.9%) | 939 (3.3%) | 0 (0%) |
| Insurance | | | |
| Medicare | 6,585 (17.7%) | n/a | n/a |
| Medicaid | 11,658 (31.4%) | n/a | n/a |
| Private Insurance | 17,689 (47.7%) | n/a | n/a |
| Worker's Compensation | 189 (0.5%) | n/a | n/a |
| Unknown | 997 (2.7%) | n/a | n/a |
| Race/Ethnicity | | | |
| Hispanic | n/a | 2,929 (10.1%) | 220 (10.7%) |
| Non-Hispanic White | n/a | 17,378 (60.1%) | 1,180 (57.3%) |
| Non-Hispanic Black | n/a | 1,815 (6.3%) | 153 (7.4%) |
| Non-Hispanic Other | n/a | 1,100 (3.8%) | 50 (2.4%) |
| Unknown | n/a | 5,675 (19.6%) | 455 (22.1%) |
| Resident Municipality | | | |
| Providence | 6,276 (16.9%) | 7,511 (26.0%) | 590 (28.7%) |
| Pawtucket | 2,687 (7.2%) | 2,422 (8.4%) | 190 (9.2%) |
| Woonsocket | 1,907 (5.1%) | 2,142 (7.4%) | 158 (7.7%) |
| Cranston | 3,747 (10.1%) | 980 (3.4%) | 117 (5.7%) |
| Warwick | 3,090 (8.3%) | 1,455 (5.0%) | 83 (4.0%) |
| Out of state | 1,429 (3.9%) | 1,236 (4.3%) | 204 (9.9%) |
| East Providence | 1,578 (4.3%) | 586 (2.0%) | 86 (4.2%) |
| All Other RI municipalities | 16,396 (44.2%) | 9,685 (33.5%) | 585 (28.4%) |
| Unknown | 8 (0.0%) | 2,880 (10.0%) | 45 (2.2%) |

disparity in the proportion of males experiencing a fatal opioid overdose and males receiving naloxone for overdose reversal. Hospital-dispensed naloxone demographics most closely overlap with those of opioid overdose deaths.

Age-group distributions among naloxone recipients varied. Individuals receiving pharmacy-dispensed naloxone were more often aged 55 to 64 (20.1%), while those receiving community and hospital-dispensed naloxone were more often aged 25 to 44 (24.6% and 35.0% respectively). This disparity may be due to differences in the populations utilizing each resource. Pharmacy-dispensed naloxone is more accessible to individuals who have established connections to the healthcare system. These individuals generally have active health insurance, may be taking provider-prescribed opioids, or may be in treatment for opioid use disorder. Older individuals are more likely to have an opioid prescription, which would include mandated naloxone co-prescriptions provided to that age group.⁵ This may contribute to age-group distribution differences between the naloxone sources. Those who are underinsured or disconnected from the healthcare system may have multiple situational and financial barriers against obtaining naloxone from a pharmacy. These individuals may alternatively seek services and resources from agencies in their community, including no-cost naloxone, or when seen at a hospital for a non-fatal overdose.

In more recent years, community distribution efforts also shifted from community trainings to targeting high-risk individuals and received a significant increase in funding and resources. Although the increase in community distribution began prior to the start of this campaign, starting in January 2021, the 10,000 Chances initiative⁴ aimed to distribute 10,000 naloxone kits and highlighted the demand for harm-reduction materials distributed in community settings. Most distribution from this initiative occurred from January to June 2021. Despite having a one-time funding source, this initiative's success led to the allocation of additional resources to meet naloxone demand, and therefore a sustained increase in community naloxone distribution. As a result of planning and implementing the 10,000 Chances initiative, there is increased capacity to coordinate the naloxone procurement, request, and distribution process, which has allowed RIDOH to conduct analyses on naloxone distribution which were not possible prior to project implementation. This increased coordination and streamlining of processes, including setting up standard operating procedures, will allow for the anticipated 50,000 kits from the recent opioid settlements⁶ to be more easily distributed. Changes in pharmacy distribution were not apparent in the timeframe examined, likely due to the naloxone co-prescription regulation that went into effect in 2018.³

Limitations include the inability to compare race and ethnicity groups, along with insurance type and more specific gender categories, among all recipients. Despite being

a requirement for community agencies receiving state-sponsored naloxone to enter distribution information, the dataset may not capture every kit distributed, which may underestimate distribution. We also may not capture individuals that receive naloxone from non-RIDOH sources. Since the PDMP only captures prescriptions that are filled (rather than all that are prescribed), we were unable to determine which individuals received naloxone as a result of co-prescribing regulations.

Although demographic information allows us to describe individuals accessing naloxone via different sources, further analyses should be conducted to provide more context for distribution. If funding becomes available, qualitative information on why individuals used a specific source to obtain naloxone should be gathered to further describe individuals using each source and guide future distribution decisions. The population receiving pharmacy-dispensed naloxone could be further examined to determine whether disparities exist among individuals who fill standing order prescriptions rather than obtaining a naloxone prescription from a provider. Additionally, information on naloxone utilization for previous overdoses contained in the community naloxone dataset could provide insight as to whether the observed difference in females receiving more naloxone is due to females administering naloxone as bystanders during an overdose. The information on gender contained in this dataset may also help further describe how community-based agencies are reaching high-risk populations.

As the number of fatal overdoses in Rhode Island continues to rise, it is important to understand who is accessing naloxone and what resources they are utilizing to better understand the distribution approaches needed to reach different populations. With the recent opioid settlement bringing approximately 50,000 naloxone kits a year into the state over the next 10 years,⁶ there will be a need to use naloxone distribution data, along with overdose morbidity and mortality data, to guide distribution decisions to ensure naloxone is reaching the appropriate individuals. This information can be used to guide future overdose prevention efforts and resource allocation, particularly with the recent implementation of new state regulations surrounding harm reduction,⁷ and plans to develop Rhode Island's first harm reduction center.

References

1. Rhode Island Department of Health. Drug Overdose Surveillance Data Hub [Online]. <https://ridoh-drug-overdose-surveillance-fatalties-rihealth.hub.arcgis.com/>
2. National Harm Reduction Coalition. Principles of Harm Reduction. [Online]. <https://harmreduction.org/about-us/principles-of-harm-reduction/>.
3. Rhode Island General Assembly. Pain Management, Opioid Use and the Registration of Distributors of Controlled Substances in Rhode Island. [Online] 2018. https://risos-apa-production-public.s3.amazonaws.com/DOH/REG_9702_20180806190700.pdf

4. Statewide Project Launches in Response to Rise in Overdose Deaths During COVID-19. Rhode Island Department of Behavioral Healthcare, Developmental Disabilities & Hospitals, January 7, 2021. Available at: <https://bhddh.ri.gov/sites/g/files/xkgbur411/files/documents/Press-Release-10000-Chances.pdf>
5. Schieber LZ, Guy GP Jr, Seth P, Losby JL. Variation in Adult Outpatient Opioid Prescription Dispensing by Age and Sex – United States, 2008–2018. *MMWR Morb Mortal Wkly Rep.* 2020;69:298–302. DOI: <http://dx.doi.org/10.15585/mmwr.mm6911a5>.
6. Attorney General announces additional opioid settlements valued at more than \$100 million against manufacturers Teva and Allergan. Rhode Island Office of the Attorney General, March 21, 2022. Available at: <https://riag.ri.gov/press-releases/attorney-general-announces-additional-opioid-settlements-valued-more-100-million#:~:text=Today%2C%20the%20Attorney%20General%20announced,to%20end%20the%20opioid%20crisis>.
7. Rhode Island General Assembly. Harm Reduction Centers. [Online]2022. <https://rules.sos.ri.gov/regulations/part/216-40-10-25>.

Acknowledgments

Thanks to Benjamin Hallowell, PhD, and Jennifer Koziol for their assistance and feedback.

Authors

Kristen St. John, MPH, is a Senior Public Health Epidemiologist for the Substance Use Epidemiology Program, Rhode Island Department of Health (RIDOH).

Christina Hom, MPH, is a Program Evaluator for the Drug Overdose Prevention Program, RIDOH.

Heidi Weidele, MPH, is a Public Health Epidemiologist for the Substance Use Epidemiology Program, RIDOH.