Death Rates from Unintentional and Undetermined Prescription Opioid Overdoses and Dispensing Rates of Controlled Prescription Opioid Analgesics – 2011-2015

Scott K. Proescholdbell, Mary E. Cox, Alex Asbun

Background

North Carolina, and the rest of the nation, is in the midst of an epidemic of opioid addiction, resulting in increased morbidity and mortality. Since 1999, deaths from unintentional poisonings have increased by more than 300%. The vast majority of unintentional poisoning deaths are street drug or medication-related, occurring when people misuse or abuse these drugs. Many of these drugs include historically prescribed opioid analgesics such as hydrocodone, methadone, oxycodone, and fentanyl [1].

The North Carolina Controlled Substance Reporting System (CSRS) was signed into law in 2005 and became operational in 2007. CSRS requires all outpatient controlled prescriptions to be reported within 72 hours of being dispensed. The CSRS is designed to allow prescribers and dispensers to check the system to ensure patients are not receiving multiple prescriptions from multiple resources, and to prevent dispensing of dangerous combinations. Over 19 million controlled substance prescriptions are recorded annually. An estimated 30,000 prescribers are registered to use the system. More than 3,000 queries are made in CSRS daily by practitioners.

Methods

Unintentional and undetermined prescription opioid deaths in North Carolina are generated from death certificate ICD10 codes (X40-X44 & Y10-Y14) and multiple cause codes for poisonings (T-codes). We excluded cases in which heroin or cocaine were involved and listed as part of the death certificate. Opioid dispensing data was provided by the CSRS for outpatient dispensing based on county of residence. Rates were generated from both data points using US census population data for each county. Rates per 100,000 persons were calculated for deaths for the years 2011-2015, and rates per 100 persons were calculated for dispensing for the years 2014-2015.

Results

The crude rate for deaths was 6.4 per 100,000 persons. Several counties had rates double the state average. The average dispensing rate was 89.4 prescriptions filled per 100 persons (see Figure 1). Several counties had crude dispensing rates nearly double the state average. Counties with high prescription opioid mortality tended to also have high dispensing of opioids. The spearman correlation between the county mortality and dispensing rates was 0.72.

Conclusion

Based on data from the CSRS and Vital Records (death certificates), the state has enhanced its surveillance efforts, and multiple agencies and organizations have started to respond to these deaths. A series of legislative actions have increased CSRS ability to respond to the epidemic. The CSRS plays a lead role in monitoring the dispensation of controlled substances and its connection to these deaths, as well as providing prescribers actionable patient data to better inform clinical decisions. The incredibly high correlation (0.72) indicates a positive relationship between overdose deaths and opioid dispensing. Even though this is an ecological association with numerous potential confounders, it should give those working on this issue pause, as high levels of opioid dispensing may lead to increased overdose deaths. In the last two years the increase in illicitly manufactured fentanyl has created some challenges around the historical case definition for prescribed opioids. Moving forward, these definitions will need to be adjusted. It is expected that evidence-based community prevention interventions and policies, along with sustained media, will decrease overdose deaths and reduce North Carolina's injury-related morbidity and mortality. NCMJ

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Address correspondence to Mr. Scott Proescholdbell, Injury and Violence Prevention Branch, NC Department of Health and Human Services, 1915 Mail Service Ctr, Raleigh, NC (scott.proescholdbell@dhhs.nc.gov).

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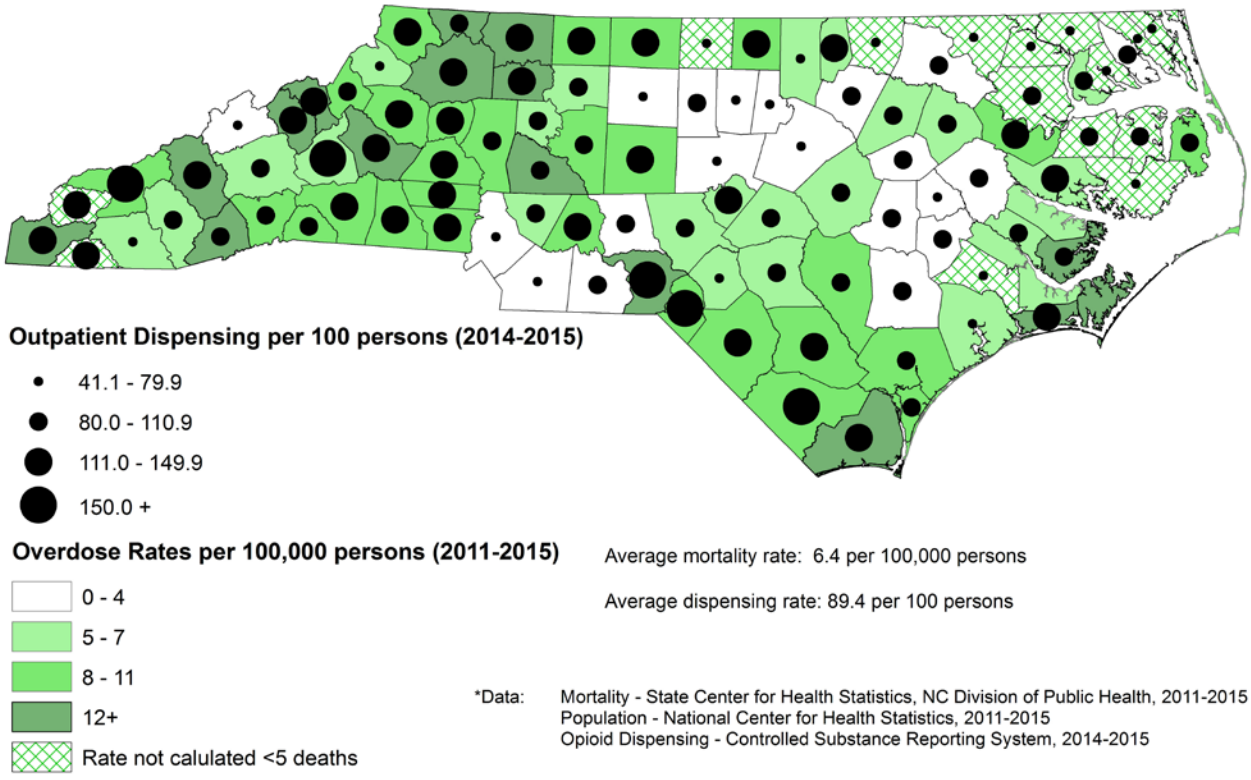
FIGURE 1.
Mortality Rates of Prescription Opioid Overdoses and Outpatient Dispensing Rates of Controlled Prescription Opioid Analgesics, North Carolina , 2011-2015



Note. Overdoses were unintentional and undetermined. No cocaine or heroin was involved in these deaths.

Scott K. Proescholdbell, MPH epidemiologist Injury and Violence Prevention Branch, North Carolina Division of Public Health, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Mary E. Cox, MPH epidemiologist, Injury and Violence Prevention Branch, North Carolina Division of Public Health, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Alex Asbun, MBA manager, Drug Control Unit, Controlled Substance Reporting System, Division of Mental Health, Developmental Disabilities and Substance Abuse Services, North Carolina Department of Health and Human Services, Raleigh, North Carolina.

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