



E43 A Ten-Year Review of Opioid-Related Deaths at West Tennessee Regional Forensic Center: 2007–2017

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Learning Overview: The goal of this presentation is to analyze autopsy data from the West Tennessee Regional Forensic Center (WTRFC) from 2007 to 2017 to gain a better understanding of the effects of the opioid epidemic on West Tennessee and the surrounding areas.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by identifying trends in race, age, gender, location, types of opioids, and drug combinations involved in opioid-related deaths in West Tennessee. Understanding the changing trends of opioid abuse is critical in order to predict the trajectory of the epidemic moving forward.

Prescription opioid deaths have tripled since 1999. Opioid overdoses kill 115 Americans per day on average.¹ Prior to 2014, prescription opioids were the primary driver of opioid-related mortality. In recent years, the United States has seen a steady decline in the rate of opioid prescriptions. At the same time, there has been a significant increase in the number of deaths attributed to non-prescription opioids, such as heroin, illicitly manufactured fentanyl, and fentanyl analogs. In 2017, among 70,237 drug overdose deaths nationally, 47,600 (67.8%) involved opioids, with increases across age groups, racial/ethnic groups, and county urbanization levels in multiple states.² The opioid epidemic is especially profound in Tennessee, which had the third-highest opioid prescription rate in the country in 2017 and an opioid-related death rate of 19.3 deaths per 100,000 persons, compared to the national average of 14.6.³

The WTRFC Death Investigation and Decedent Information database was searched for all deaths that listed opioid toxicity in the cause of death during the ten-year period from 2007 to 2017. Data gathered included age, sex, race, day, month, and year of the incident, location of death, manner of death, and cause of death.

Prescription opioids, such as methadone and oxycodone, were most common in the earlier half of the study period, but were quickly overshadowed by the rise in heroin beginning in 2012. The number of overdose cases involving fentanyl, most likely illicitly manufactured, rose precipitously beginning in 2015, spiking from 8 cases in 2014 to 51 in 2015, and peaking at 120 cases in 2017. Fentanyl analogs, such as acetyl, furanyl, and despropionyl fentanyl, began to appear as a cause of death in 2015 and 2016. Benzodiazepines were the most common class of drugs combined with opioids (46.3% of opioid-related deaths in 2016), followed by cocaine, ethanol, and amphetamines. Out of 1,344 cases of opioid-related deaths in 2007–2017, a total of 838 were male (62.4%) and 506 were female (37.6%); 1,108 were White (82.4%) and 231 were Black (17.2%). The most prevalent group across all ten years was White men, which comprised 50.8% of cases. Although Shelby County has a majority Black population, the White population was the most prevalent racial group involved in opioid-related deaths. In 2007–2010, the most prevalent age group involved in opioid-related deaths was ages 45–54. In the second half of the decade, people aged 25–34 were the most prevalent group.

In conclusion, illicitly manufactured opioids have become the new face of the opioid epidemic as opioid prescription rates have steadily declined across the country. Understanding the changing trends of opioid abuse is critical in order to predict the trajectory of the epidemic moving forward.

Reference(s):

1. Hagemeyer N. Introduction to the opioid epidemic: The economic burden on the healthcare system and impact on quality of life. *Am J Managed Care*. 2018, May.
2. Scholl L., Seth, Kariisa M.; Wilson N., Baldwin G. Drug and opioid-involved overdose deaths—United States, 2013–2017. *CDC Morbidity and Mortality Weekly Report*. 2019, Jan.
3. National Institute on Drug Abuse. *Tennessee opioid summary*. 2019, Mar. <https://www.drugabuse.gov/opioid-summaries-by-state/tennessee-opioid-summary>.

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