



DEPARTMENT OF POPULATION AND QUANTITATIVE HEALTH SCIENCES

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Background

- Death by opioid overdose is an increasing source of preventable mortality globally and in the United States (Louisa et al., 2014).
- Opioid overdose accounted for more than half a million Years of Life Lost in Ohio over a seven-year period. This averaged out to a loss of 1 year of life amongst each Ohio resident (Hall et al., 2020).
- Preliminary data suggested that Cuyahoga County's mortality rate of drug overdose stands at 54.09 per 100,000 population during 2021, almost doubling the rate reported in 2020 (Cuyahoga County Board of Health, 2022).
- Fentanyl increased in its presence as a significant contributor to overdose in the United States, with Ohio being one of the most impacted states (Danilaityte et al., 2017; Peterson et al., 2016). Commonly found in Cuyahoga County's overdose death cases are combinations of fentanyl and fentanyl analogues (Cuyahoga County Board of Health, 2022).
- The Cuyahoga County Medical Examiner's Office determines cause of deaths through internal autopsies and toxicology collaboration, analyzes data cases on decedents, and publishes monthly reports on overdose death trends for future developments (Cuyahoga County Medical Examiner's Office, 2022)
- Due to the evident increase in overdose deaths, the value of the Medical Examiner's Office data is vital to understanding the public health issue and to provide context for informed community collaboration.

Population

Decedents who died in Cuyahoga County, in 2021, of a drug overdose

Learning Objectives

- Analysis of population data by breaking down communication of quantitative data into relative ideas and expressing the relations between ideas
- Application of intersectional and multidisciplinary studies (medical anthropology) in population data interpretation and future developments
- Synthesis of epidemiological trends and data extraction into a larger approach in addition to evaluation of given materials and methods for population data interpretation

Activities

- Digitalized the 2021 data from respective overdose death case files that includes information from toxicology reports, death certificates, hospital records, investigation reports, and police/EMS reports
- Conducted comprehensive data coding and categorizations with emphasis on qualitative data extraction in REDCap

SCHOOL OF MEDICINE CASE WESTERN RESERVE 2021 Overdose Death Trends in Cuyahoga County **Tina Fong, MPH Candidate**

Preceptors: Manreet K. Bhullar, MPH; Thomas P. Gilson, MD

Deliverables

- Digitalized dataset of 250+ cause of death substance variables, including opioids, stimulants, depressants, cannabinoids, and substance metabolites
- Contributed to the Medical Examiner's Office database with data extraction of paper files to incorporate expanded details including injury variables (autopsy details, place of death, paraphernalia, history of drug use, naloxone administration, etc.) and demographics (sex, education status, veteran status, etc.)

Education Level	H from Death Certificate
Was the deceased a veteran?	H from Death Certificate
Location of Overdose Incident * must provide value	 Decedent's residence Friend's/Acquaintance's residence Relative's Residence Hospital Hospice Facility Hotel/Motel/Rental Jail, Prison or Detention Facility Licensed foster care home Motor vehicle or Public Transportation Mursing Home/Long-term care facility Park, Playground or Public Use area (not on street, road, sidewalk or alley) Street, Road, Sidewalk, Alley Residential Living Facility (Shelter, Half-way house, Sober living facility, Recovery housing, etc.) Substance Use Disorder/Mental Health Inpatient Treatment Facility Other
If the deceased was a female, was she pregnant	H from Autopsy Report
Was this a hospital case? (Did the deceased die in the hopsital)	H hospital case if there is not a scene investigation
There was NO death scene	H presence of a scene investigation
Was the decedent tested for COVID-19? * must provide value	
History of Medical treatments in last two years?	H From CCMEO file, investigation report or medical records in file
Mental Health History - does the deceased person have a history of mental health treatment or a mental health diagnosis	 From scene investigation, police report, EMS report or Cleveland Treatment Center or The Centers reports
Using drugs with others at time of death?	From multiple sources: scene investigation, police report or EMS

Figure 1: Examples of expanded variables created from case files in REDCap

Lessons Learned

Medical Examiner's Office have data on paper files, which is proven to be a challenge to access during COVID-19 pandemic lockdowns. The lack of accessibility to the data remotely can cause potential delays in data uploads and report publishing. Therefore, the importance of having the cases being digitalized is essential for the office's future development to ensure better and up-to-date information relays within the community.

Cuyahoga County Medical Examiner's Office, 11001 Cedar Ave, Cleveland, OH 44106

Additionally, the current works allowed me to reflect on the importance of data management and extraction in population health. I gained insight into how categorizing sets of information, quantitively and qualitatively, can assist in understanding the disease and its epidemiological context.

The importance of extracting data from various angles and sources allows efficient analysis. The use of medicolegal death data allows for public health programming and planning, intervention. Strong jurisdictional, near real-time data with this coding can help inform interventions relevant to Cuyahoga County. In addition, it is important to augment medical examiners offices to public health surveillance of overdose and could be expanded to other medicolegal deaths ex. homicides, suicides, child deaths etc.

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Public Health Implications

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