INFLUENCE OF POLYPHARMACY ON FENTANYL OVERDOSE DEATHS IN THE US: AN OBSERVATIONAL CROSS-SECTIONAL STUDY

ABSTRACT

Matthew Calumpit[1], Kevin Chan[1], Manogna Rachapudi[1], Heidi Kwan[1], Jasmin Choi[1], MSW, MPH, Timothy Sumerlin[1], MPH, Lucy Shang[1], BS, Alan Zhang[1], MS, Lester Andrew Uy[1], BS, Armaan Jamal[1], BS, Malathi Srinivasan[1], MD, Nitya Rajeshuni[1], MD, MS, Gloria Kim[1], MD, Robert Huang[1], MD, Latha Palaniappan[1], MD, MS, Eric Gross[1], MD, Ph.D

[1]Stanford University School of Medicine, Center for Asian Health Research and Education, Stanford, CA, USA

Stanford MEDICINE
School of Medicine
Center for Asian Health Research and Education

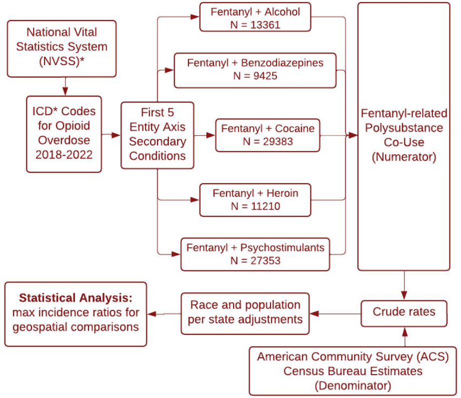
Introduction

Background: A third of U.S. adults know someone who has died of **Opioid overdose**. It is a **major problem** in the United States fueled by **fentanyl and co-use of other drugs**

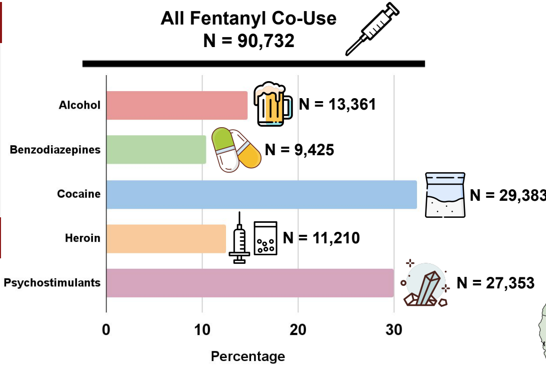
Objectives: To understand the **geographic and racial patterns** of fentanyl co-use with **other drugs**

Methods

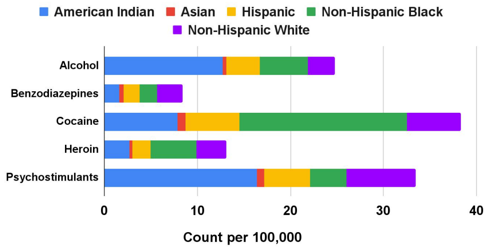
- Data engineering flowchart to collect race, geography, and overdose mortality information



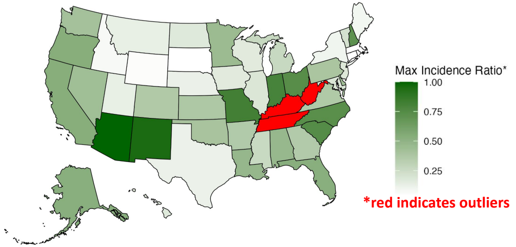
**The National Vital Statistics System (NVSS) collects death certificate data and provides International Classification of Diseases (ICD) codes*



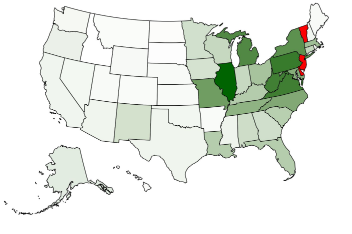
[Fig. 1] Polypharmacy Overdose Mortalities Drug Breakdown



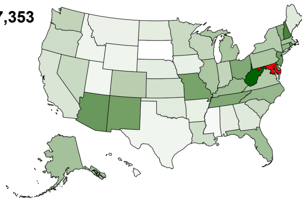
[Fig. 2] Polypharmacy Overdose Mortalities Race Breakdown



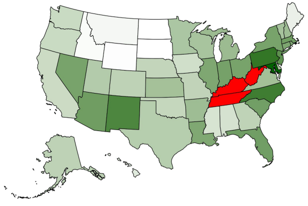
[Fig. 3A] Fentanyl and Psychostimulants



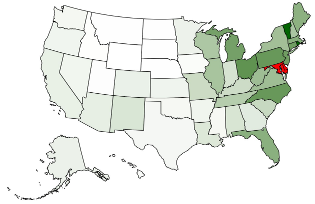
[Fig. 3B] Fentanyl and Heroin



[Fig. 3C] Fentanyl and Alcohol



[Fig. 3D] Fentanyl and Benzodiazepines



[Fig. 3E] Fentanyl and Cocaine

Results and Discussions

- **Cocaine** and **psychostimulant** co-use lead mortalities at **32.4%** and **30%** respectively of all fentanyl co-use
- **Asian** shows the lowest overall mortality per 100,000 across all co-use drugs while **American Indian** show increased mortality from **psychostimulant** and **alcohol** co-use (**16.4** and **12.7**)
- **Psychostimulant** co-use max incidence ratio **does not follow** the **east-coast** dominant pattern compared to other co-use drugs
- **Regional ethnic makeup**, **access to drug supply chains**, and **culture** possibly affect fentanyl co-use max incidence ratios
- These variables seem to affect different U.S. regions in **varying levels**

Future Directions

- **Disaggregating** all co-use drugs as illicit and prescription drugs to better direct public health policy
- **Further regional breakdown** of all co-use drugs are necessary to drive effective state-level policies

calumpit@stanford.edu

asianhealth.stanford.edu