



Cook County
Medical Examiner's Office

Cook County Gunshot and Opioid Death Historical Analysis

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ABSTRACT

The United States is an outlier in rates of gun violence among high-income countries, accounting for an estimated over 90 deaths every day.¹ Further, while opioid-related deaths now constitute a majority of drug deaths globally, the US has experienced this increase intensely, with an increase in opioid overdose deaths of 120% between 2010 and 2018.^{2,3} The case records of the Cook County Medical Examiner's Office, which is the third-largest in the country, provide a unique opportunity to study both of these pressing public health challenges.

Using these case records in tandem with other public data sources, gunshot homicide and opioid deaths were correlated with sociodemographic trends, crime, budget appropriations, and geographic information. 2021 recorded the highest number of gunshot homicides and opioid deaths since the beginning of data availability, with over 1,000 gunshot homicides and over 1,914 opioid deaths. Trends across geographic community areas and socio-demographic characteristics were analyzed in depth, with a particular focus on identifying areas and groups with high or low gun homicide and opioid overdose deaths in hopes of identifying potential causes for their divergences in rates of death.

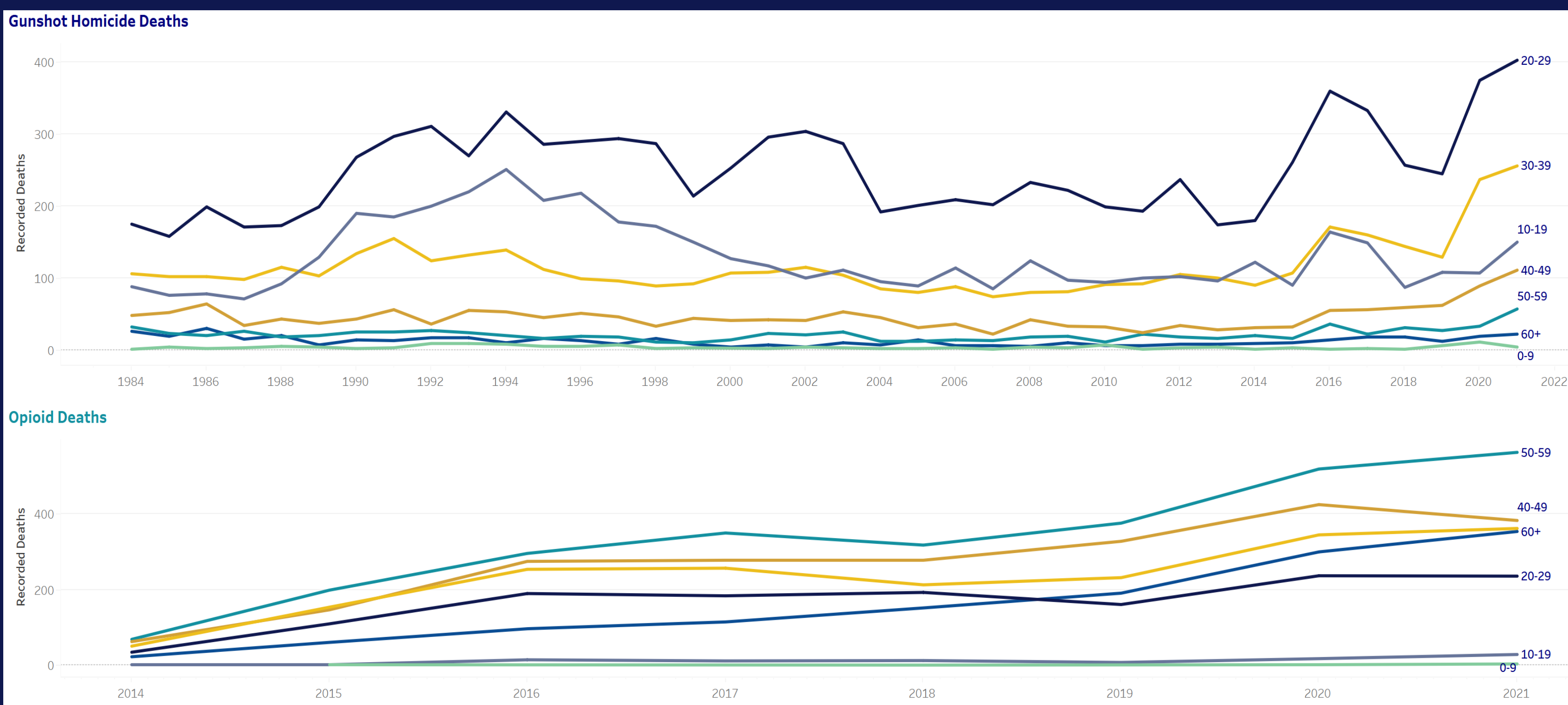
This study is designed to help government agencies, nonprofits, and other organizations as they design interventions that target some of the most pressing societal challenges.



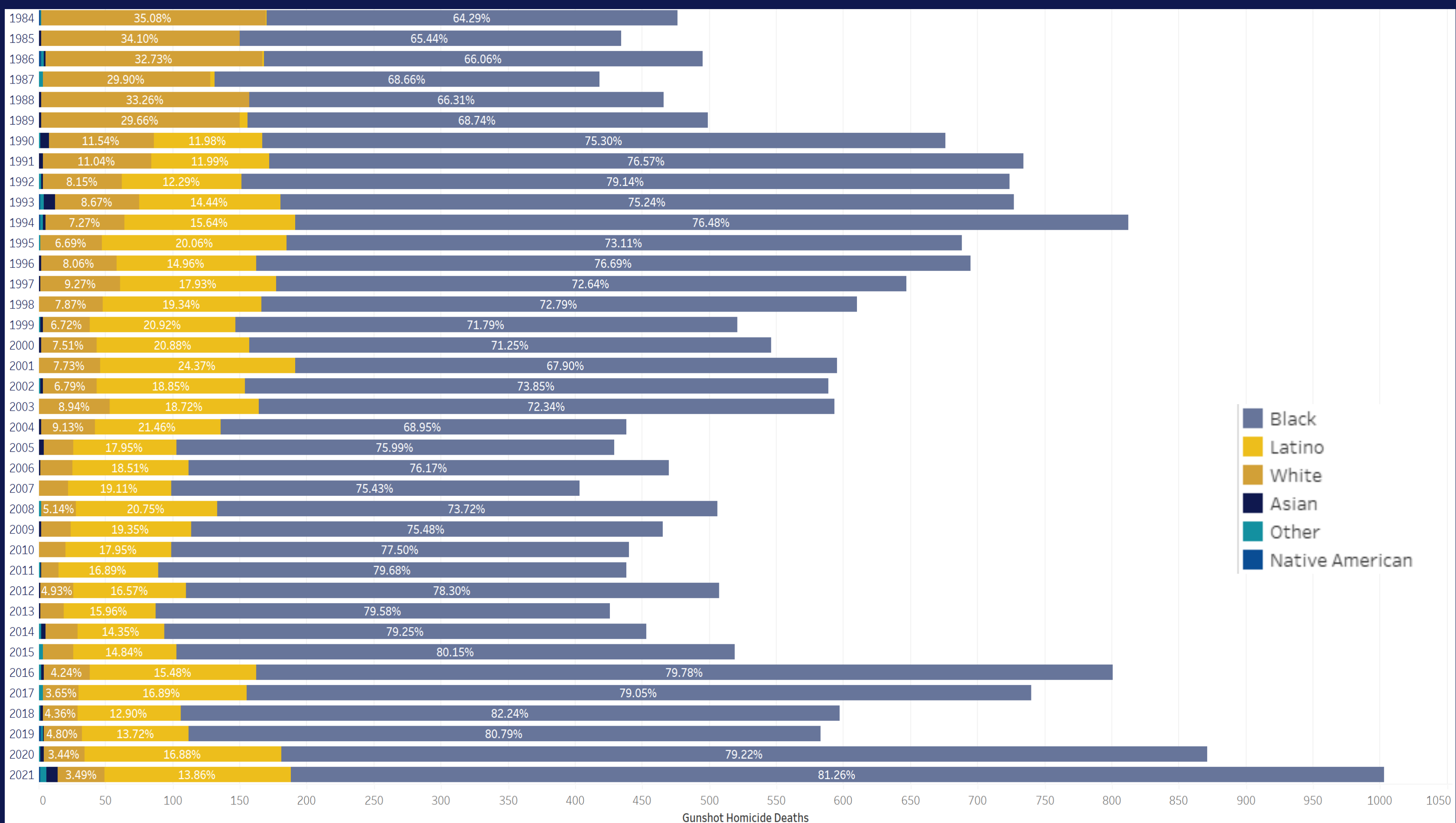
COOK COUNTY GUNSHOT HOMICIDE AND OPIOID DEATHS

MATERIALS AND METHODS

Data collected from the Cook County Medical Examiner case records were used to identify gunshot homicide deaths from 1984 - 2021 and opioid overdoses from 2014 - 2021 along with associated demographic information. Gunshot homicides were geolocated from addresses using the Open Cage and Nominatim APIs along with manual identification from Google Maps. The City of Chicago Data Portal provided neighborhood boundaries, crime records, and Chicago budget appropriations. Crime and budget records were consolidated into categories for clarity. Cook County budget records were sourced from the Cook County Open Data Portal and similarly categorized for clarity. The majority of the data analysis was completed in R, and visualizations were developed within a Tableau Public dashboard.

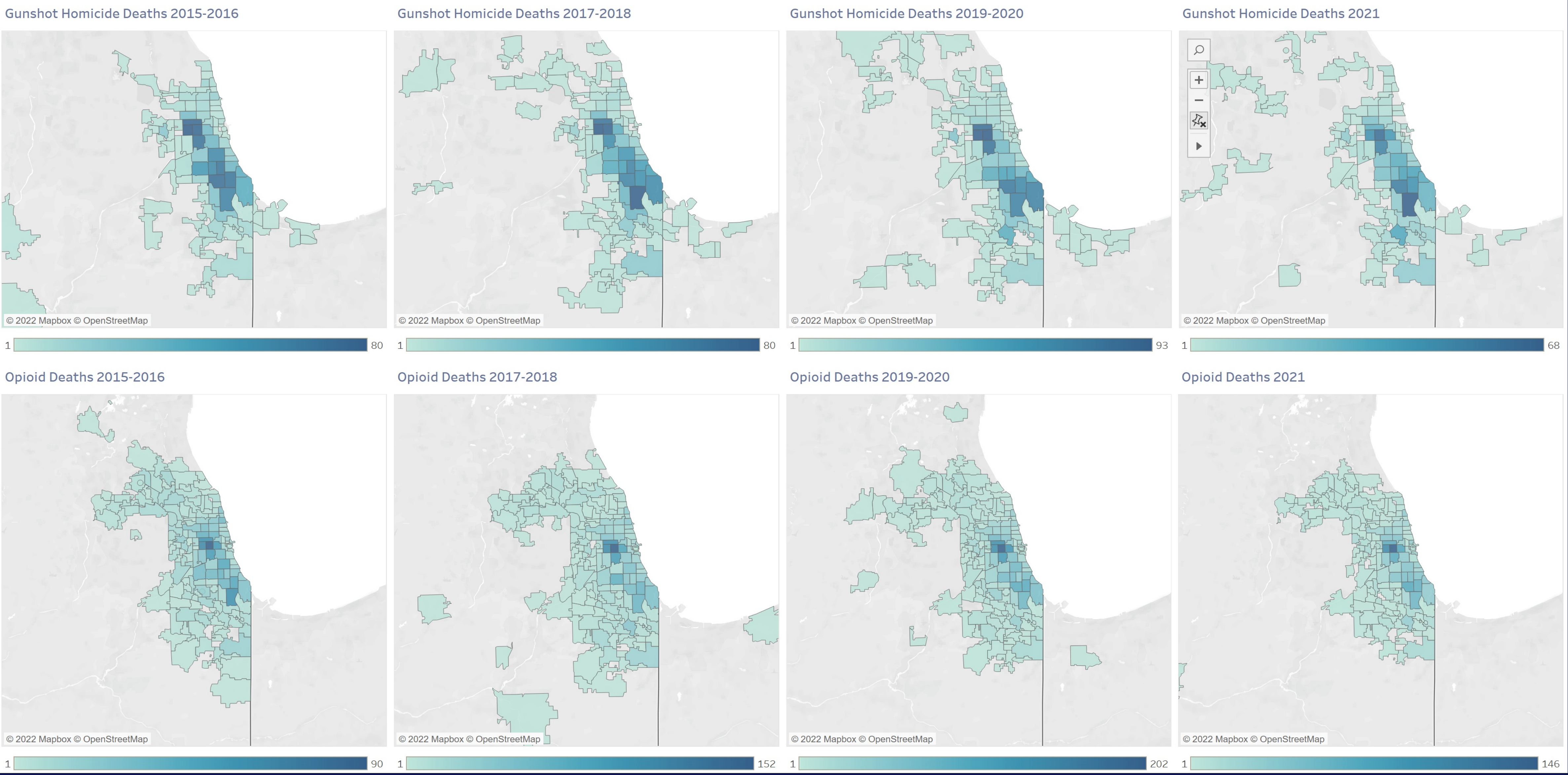


GUNSHOT HOMICIDE AND OPIOID DEATHS BY AGE RANGE

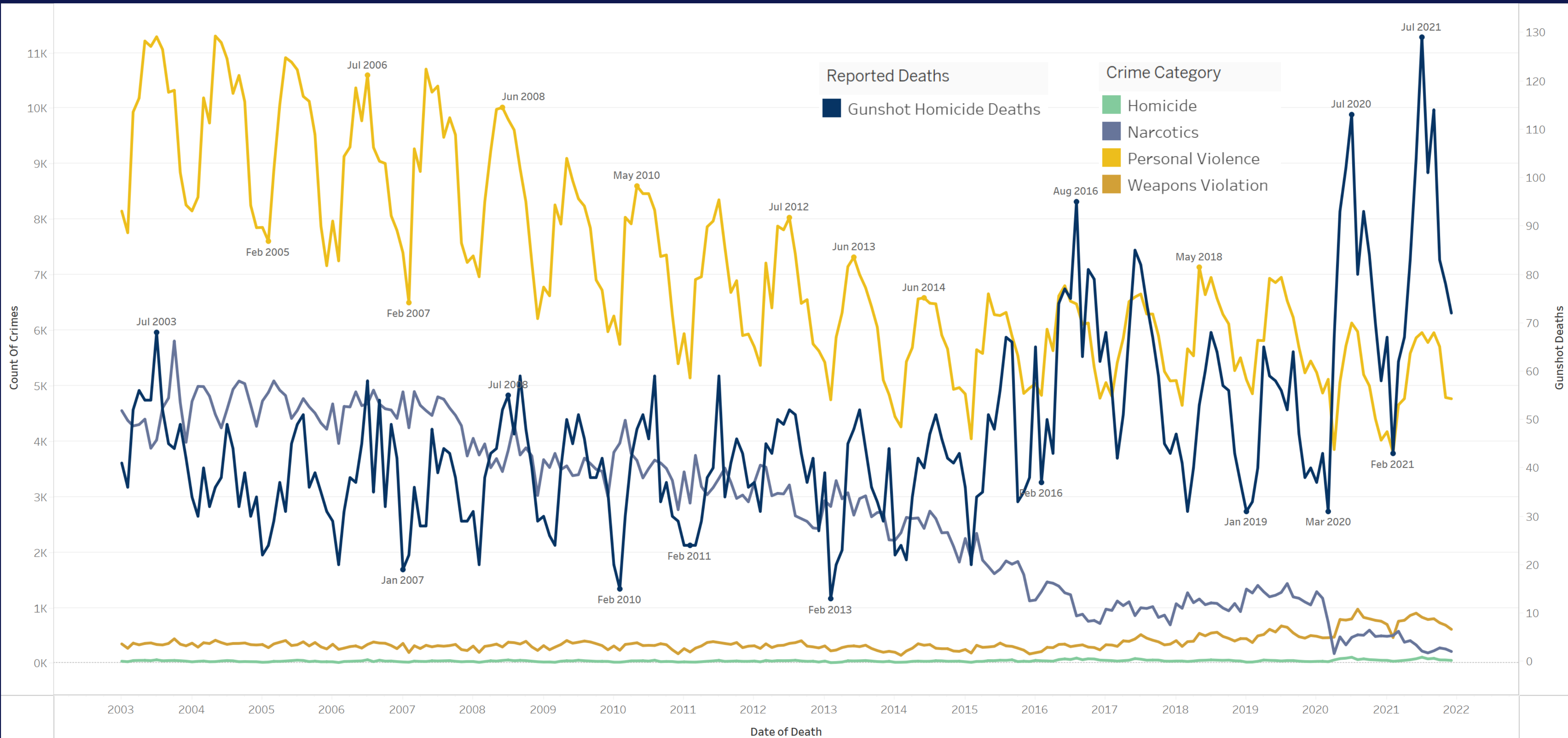


GUNSHOT HOMICIDES BY RACE/ETHNICITY

The size of each bar represents the count of gunshot deaths for the year. The colors within each bar represent the race/ethnicity of the victims, and the percentage represents the percent of total deaths which the given race comprises. For example, Black victims accounted for 76.48% of deaths in 1994.



GUNSHOT HOMICIDE AND OPIOID DEATHS BY ZIP CODE



GUNSHOT HOMICIDE DEATHS AND CHICAGO CRIME TRENDS

DISCUSSION

2021 continued the trend of increasing gunshot homicide deaths and sharply increasing opioid deaths. Both witnessed leveling out during the period prior to 2018-2019, however in the intervening years have seen a sharp resurgence to levels higher than any in our available records. The total death toll from both causes is stark: from 1984 through 2021, there have been 22,034 gunshot homicides in Cook County, and from 2014 through 2021 there have been 9,482 opioid-related deaths.

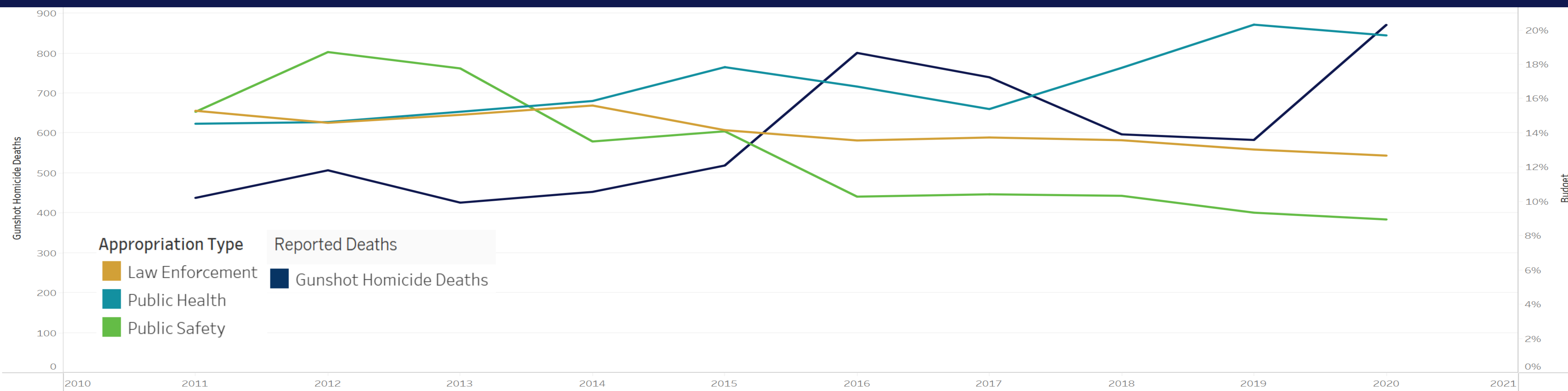
The victims of gunshot homicides have consistently been young, with most victims being in their 20s throughout our recorded history. However, in the past decade, there has been a shift from teenagers being the second-largest group of victims to those in their 30s representing the second-largest victim category. Opioid deaths display a starkly different trend, with those in their 40s and 50s representing the largest group of victims, and those in their 20s seeing a proportional decrease in representation in the last 3 years.

Race/ethnicity has also been a consistent source of divergence between victims. Gunshot homicide victims have overwhelmingly been Black since our records begin in 1984, and the proportion of Black victims has been increasing over that time: from making up approximately 65% of victims during the 1980s, Black individuals now represent more than 80% of total gunshot homicide victims.

Regarding the location of the events, gunshot homicide deaths have shifted in density away from the city's center since 2015, while opioid deaths have maintained a more consistent geographic presence concentrated in the same neighborhoods.

Violent crimes against others follow a cyclic pattern, peaking in the warmer months. Gunshot homicide deaths follow a similar trend, though while overall violent crime is decreasing, gunshot deaths have increased. Weapons violations rose alongside gunshot homicide deaths, with both especially increasing in 2020. Opioid deaths, on the other hand, don't exhibit the same seasonal cyclic pattern. Moreover, they trend oppositely from reported narcotics crimes, with reported narcotics crimes decreasing sharply since 2020.

By proportion of overall budget, Public Safety appropriations in Cook County and Chicago have decreased over the last decade. Law Enforcement's proportion of appropriations has also dropped. Public Health appropriations as a proportion of total have remained relatively constant, increasing primarily after 2019 - potentially due to Covid spending.



GUNSHOT HOMICIDE DEATHS AND PROPORTION OF CHICAGO AND COOK COUNTY BUDGET APPROPRIATIONS

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2. Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. MMWR Morb Mortal Wkly Rep 2016;65:1445–1452
3. Opioid overdose. World Health Organization. Published August 4, 2021. Accessed May 6, 2022. <https://www.who.int/news-room/fact-sheets/detail/opioid-overdose>