



DENVER
THE MILE HIGH CITY

Fentanyl Overdoses and Their Public Health Consequences

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City and County of Denver

Opioids

- **Prescription opioids**
 - Treat moderate to severe pain
 - Can have serious risks and side effects
 - Common types are oxycodone (OxyContin), hydrocodone (Vicodin), and methadone
- **Heroin**
 - Illicit opioid
 - Increased use across the U.S.
 - Men and women, most age groups, and all income levels
- **Fentanyl**
 - Synthetic opioid pain reliever
 - Many times more powerful than other opioids
 - Approved for treating severe pain, typically advanced cancer pain
 - Can be illicitly manufactured and distributed



Origins of the Opioid Crisis in the USA

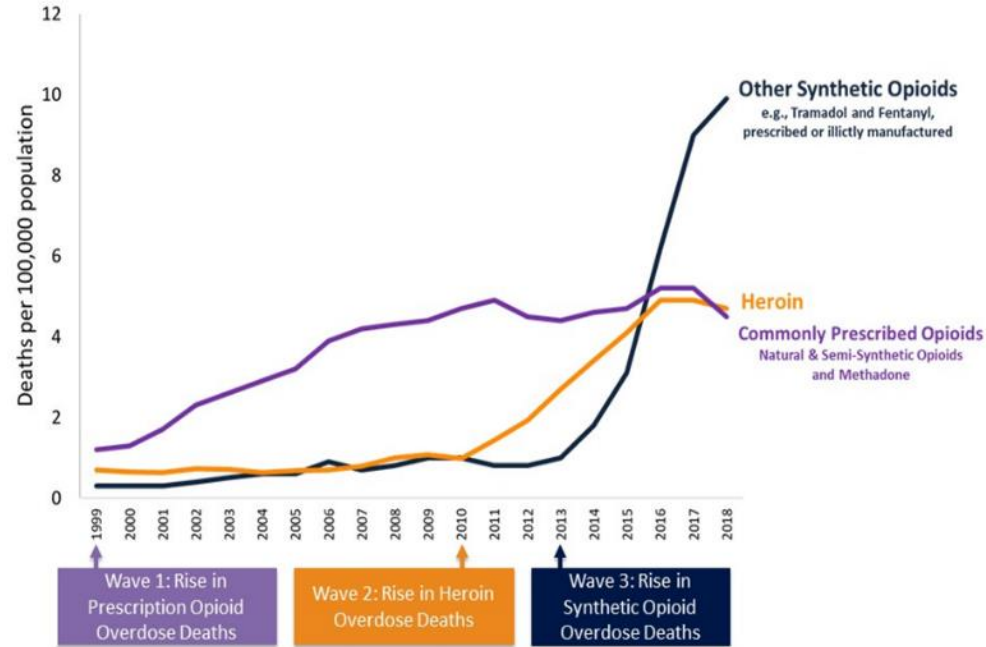
Three Waves

- **First Wave – 1990s and began with the release and marketing of oxycodone and increased prescribing of opioids by physician**
- **Second Wave – Began in 2010 with a resurgence of heroin use and increased associated deaths**
- **Third Wave – 2013 with a significant increase in deaths involving the use of synthetic opioids such as fentanyl and fentanyl analogs**

**** Waves 2 and 3 (particularly 3) made a delayed arrival in western states including Colorado ****

Opioid Epidemic

3 Waves of the Rise in Opioid Overdose Deaths



SOURCE: National Vital Statistics System Mortality File.

- 2017
 - Public health emergency declared in response to opioid-related deaths in the US
- 2018
 - Continued rise in deaths involving synthetic opioids (fentanyl and analogs)
- 2020
 - Fentanyl overdose deaths increased in Denver with a greater impact on younger age groups

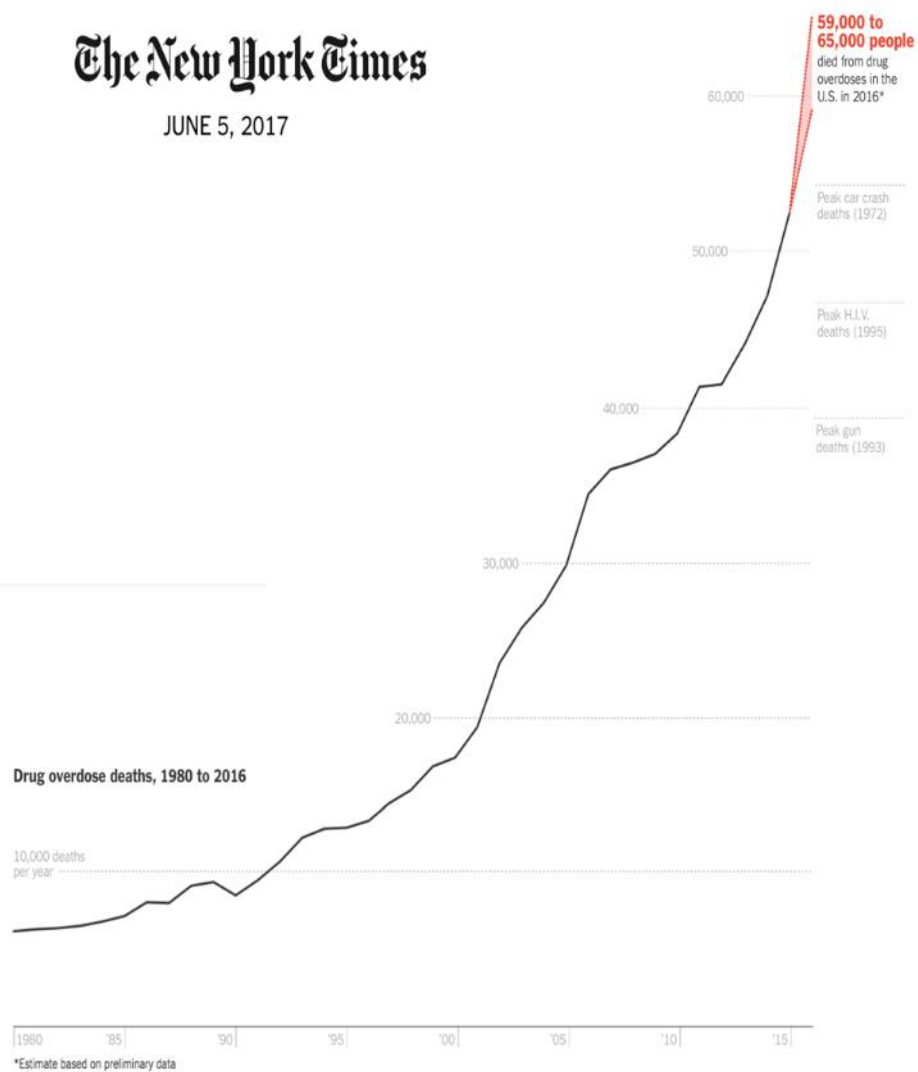
NCHS Data Brief ■ December 2017

Data from the National Vital Statistics System, Mortality

In 2016, there were more than 63,600 drug overdose deaths in the United States.

The New York Times

JUNE 5, 2017





Opioids now kill more people than breast cancer

By Nadia Kounang, CNN

Updated 12:14 AM ET, Thu December 21, 2017

Story highlights

There were more than 63,600 fatal drug overdoses in 2016, most of them from opioids

Opioid overdoses shortened US life expectancy for a second year in a row

(CNN) — More than 63,600 lives were lost to drug overdose in 2016, the most lethal year yet of the drug overdose epidemic, according to a [new report](#) from the National Center for Health Statistics, part of the US Centers for Disease Control and Prevention.

Most of those deaths involved opioids, a family of

painkillers including illicit heroin and fentanyl as well as legally prescribed medications such as oxycodone and hydrocodone. In 2016 alone, 42,249 US drug fatalities -- 66% of the total -- involved opioids, the report says. That's over a thousand more than the **41,070** Americans who die from breast cancer every year.

Life expectancy drops again as opioid deaths surge in U.S.

Rob Stein · NPR · Dec 20, 2017

Health

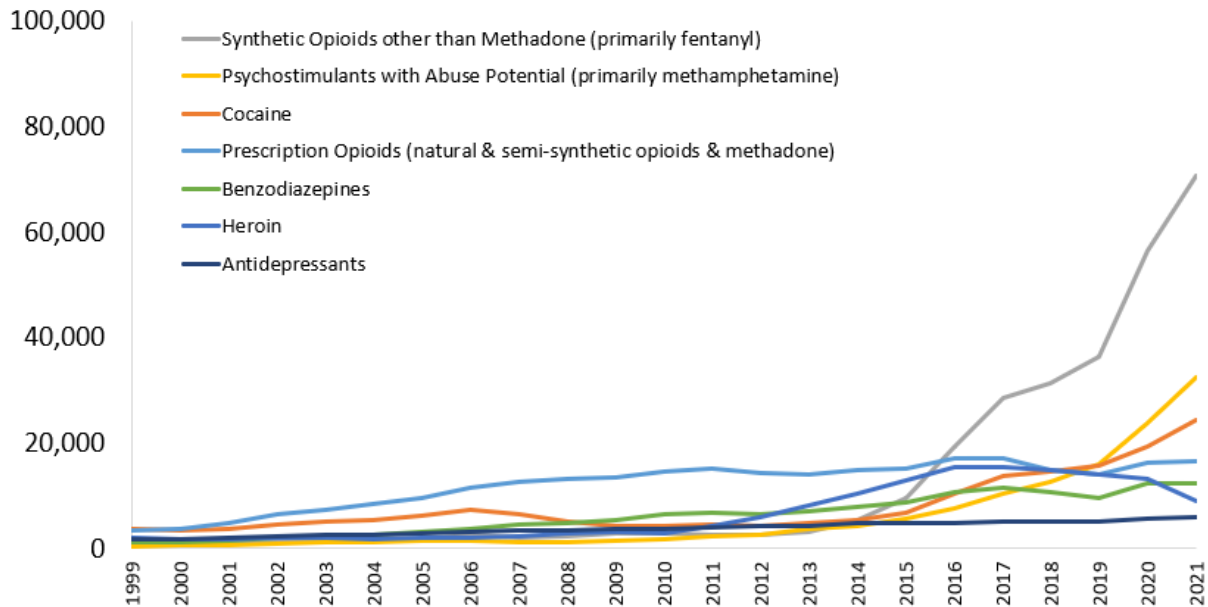


A report released Thursday found more than 42,200 people died of opioid overdoses in 2016. Getty Images

Life expectancy in the U.S. fell for the second year in a row in 2016, nudged down again by a surge in fatal opioid overdoses, federal officials report Thursday. According to the [latest analysis](#), U.S. life expectancy fell from 78.7 in 2015 to 78.6 in 2016. That follows a [drop](#) from 78.9 in 2014 that researchers hoped would be an aberration.

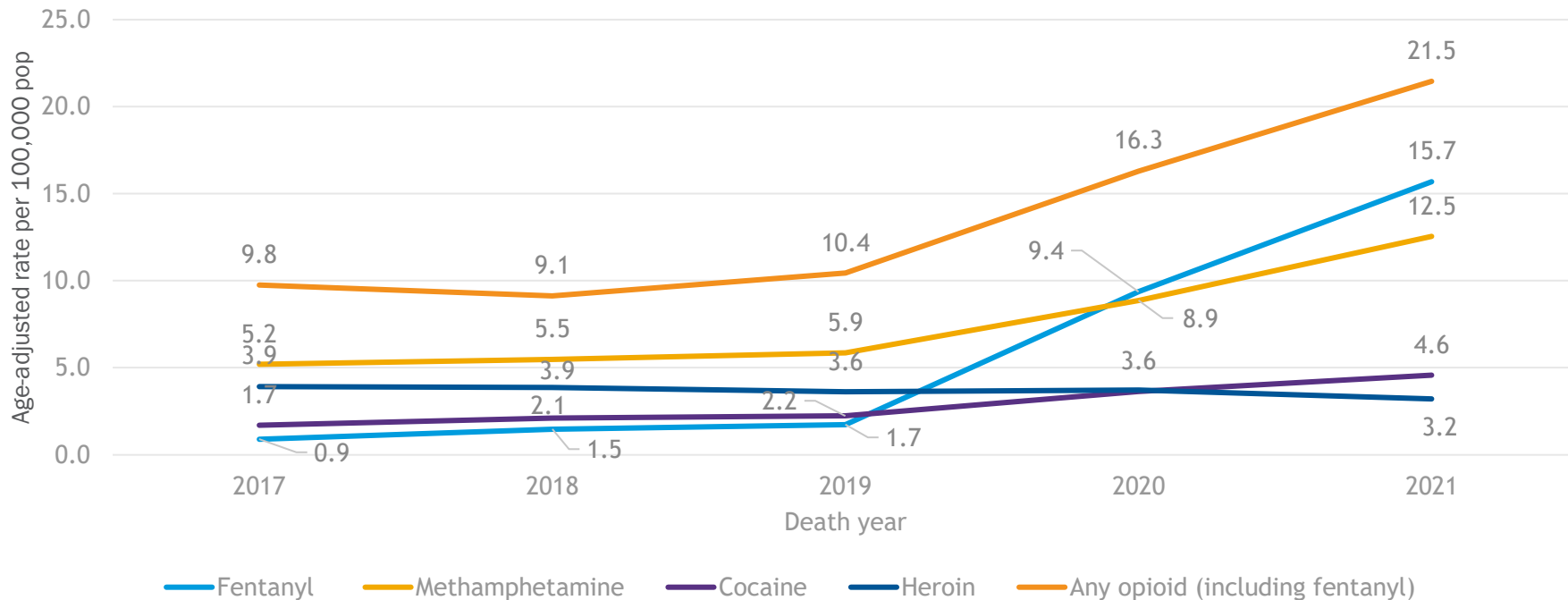
National and State Level Drug Overdose Death Trends

National Drug-Involved Overdose Deaths*, Number Among All Ages, 1999-2021

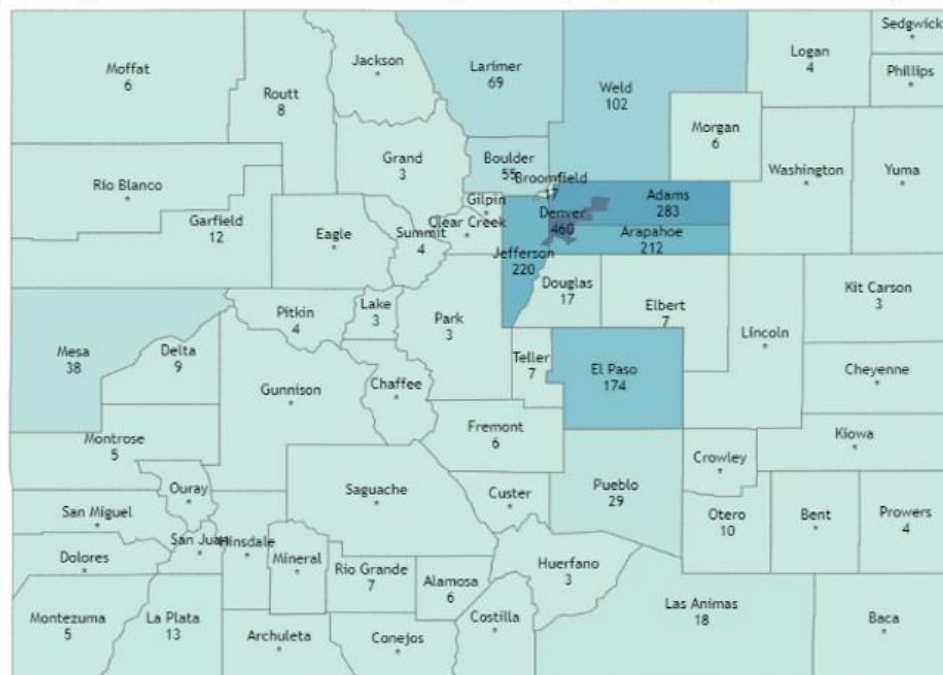


*Includes deaths with underlying causes of unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2021 on CDC WONDER Online Database, released 1/2023.

Age-Adjusted Overdose Death Rates Involving Select Substances: Colorado Residents 2017-2021



Counts of Drug Overdose Deaths involving Fentanyl by County of Residence, 2017-2021



Colorado Age Adjusted Rate of Drug Overdose Deaths involving Fentanyl (5 year): 6.46 deaths per 100,000 (95% CI: 6.16-6.76)

Denver Age Adjusted Rate of Drug Overdose Deaths involving Fentanyl (5 year): 11.77 deaths per 100,000 (95% CI:10.66-12.88)

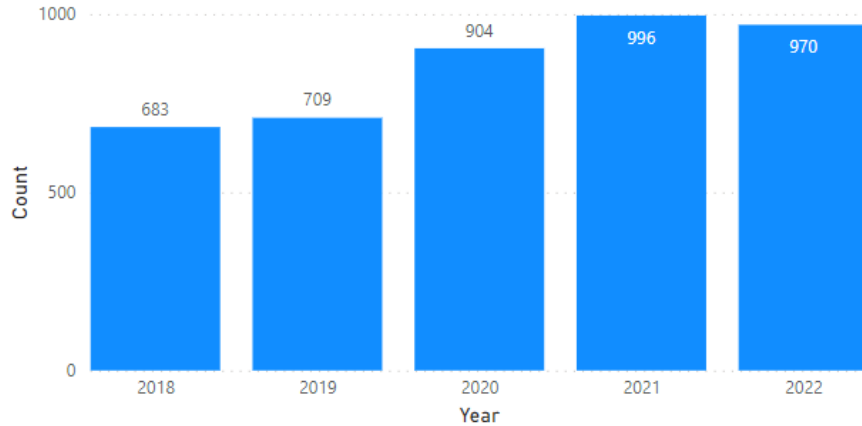
Source: Colorado Health Information Data Set (CoHID), Vital Statistics Program, Colorado Department of Public Health and Environment <https://cdphe.colorado.gov/cohid>

Denver ME Caseload 2022

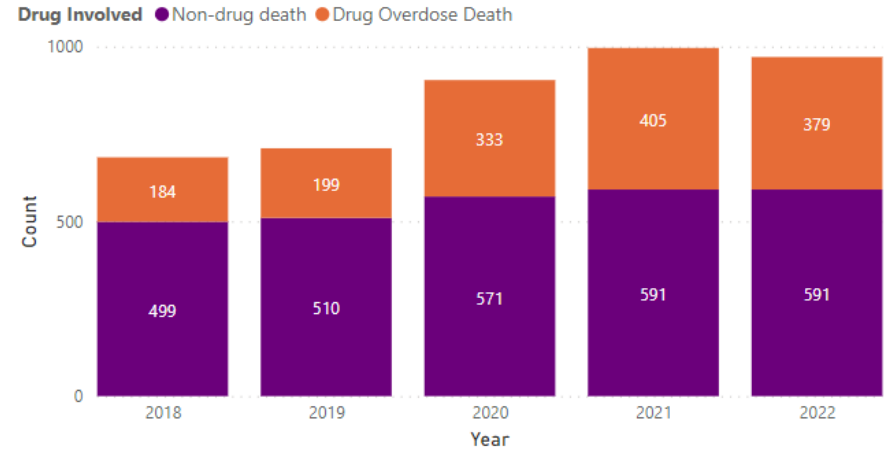
- 5247 deaths reported
- 1571 Medical Examiner Cases
(historically closer to 1300 prior to 2020)
- 970 Autopsies
- 365 External Examinations
- 231 Chart Reviews
- 1486 Scenes
- 327 Courtesy Holds
(storage of decedents whose death is certified by doctor)
- Noted increase in all categories from 2020 onward
- Led to staff increases

Denver OME Autopsy Trends

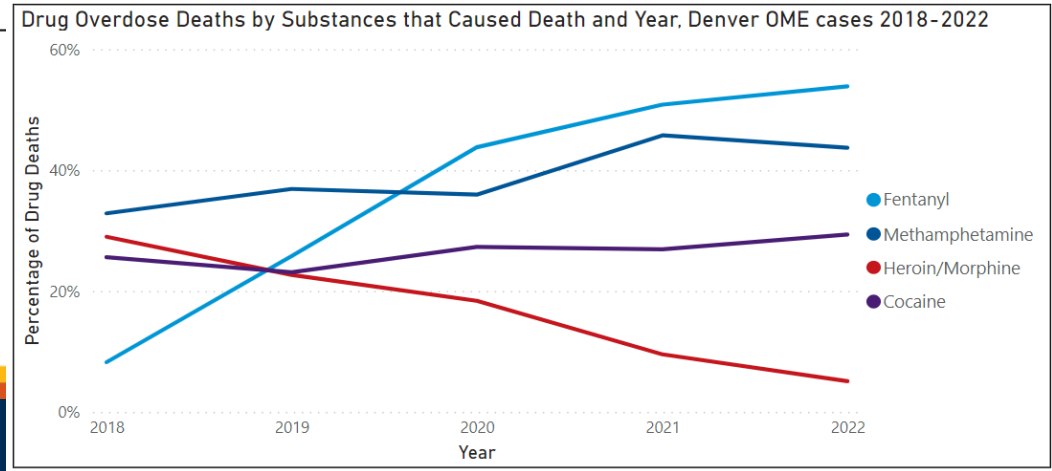
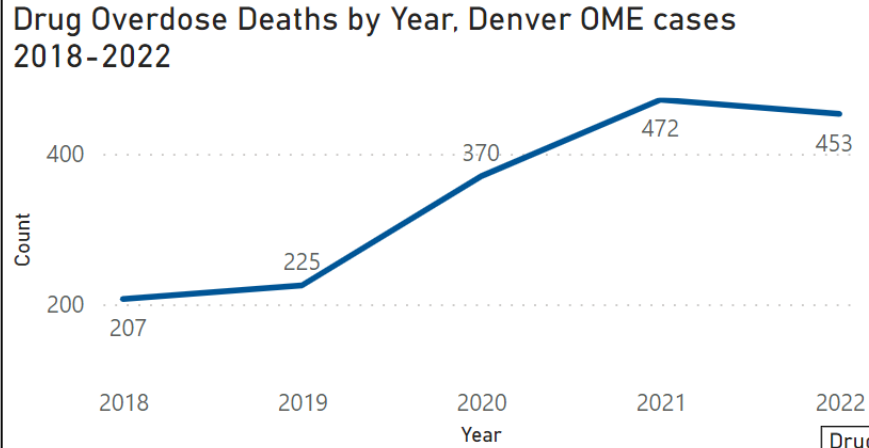
Denver OME Autopsies by Year, 2018-2022



Denver OME Autopsies by Drug Involvement and Year, 2018-2022

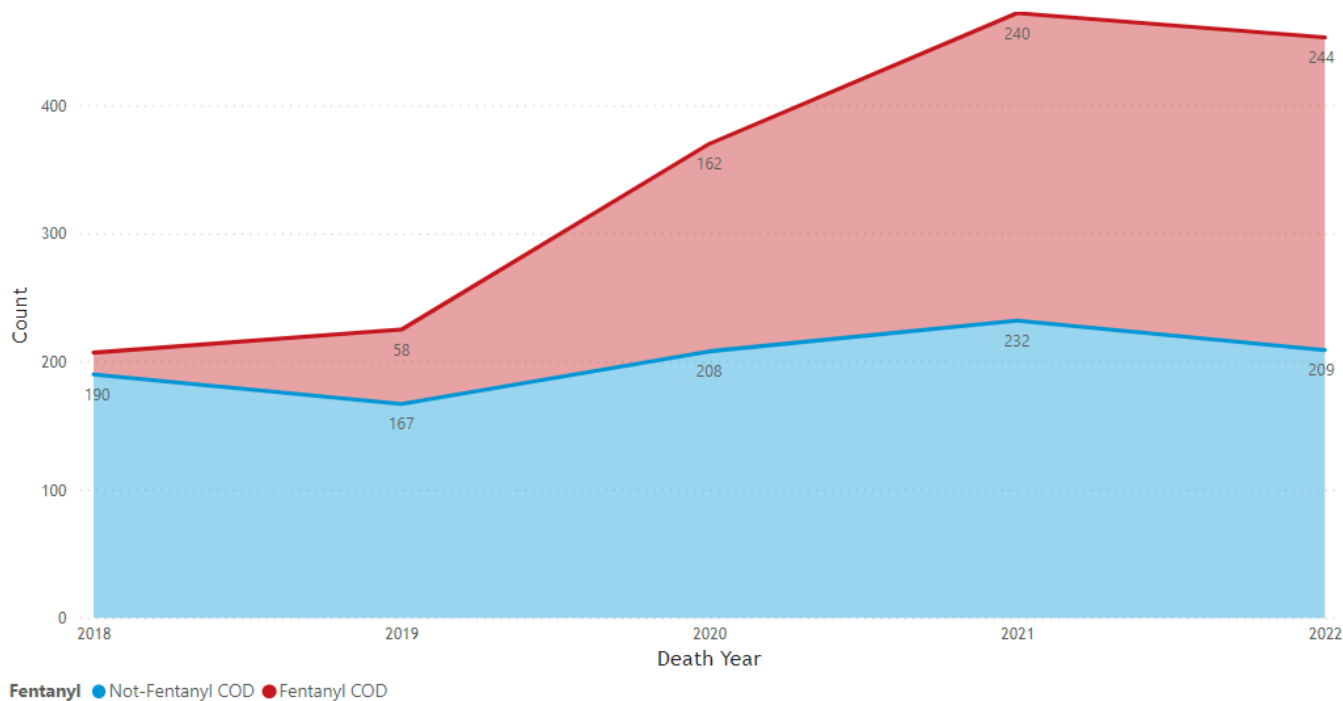


Denver OME Drug Overdose Death Trends

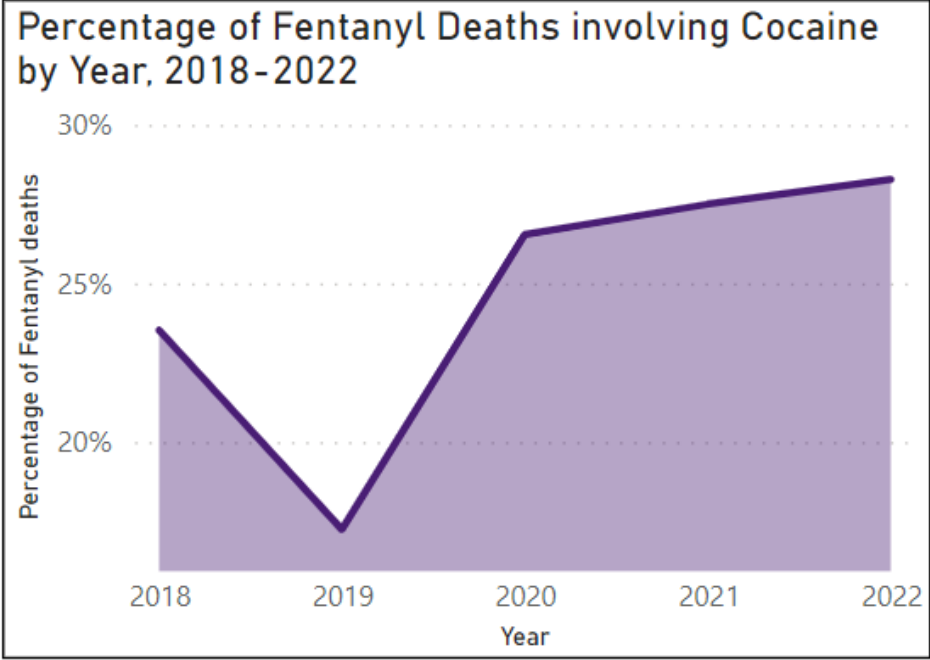
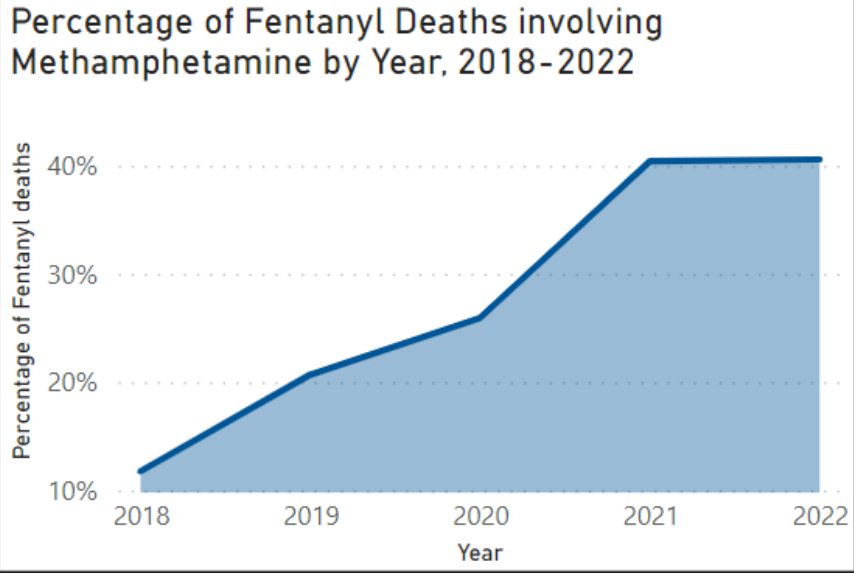


Denver OME Drug Overdose Deaths and Fentanyl

Drug Overdose Deaths by Fentanyl Cause of Death, Denver OME Cases 2018-2022



Denver OME Fentanyl Deaths by Other Substances that Caused Death



Drug Overdose Deaths

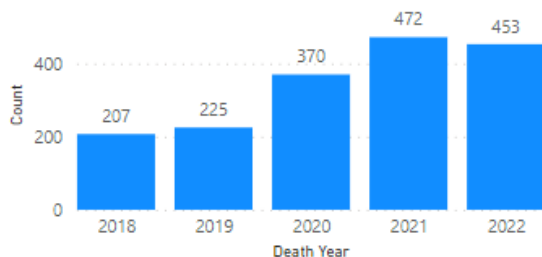
Annual Percentage Change

Annual

Annual Percentage Change:

64.4% 2020 from 2019	27.6% 2021 from 2020	-4.0% 2022 from 2021
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Annual deaths



Drug Overdose Deaths Related to Fentanyl

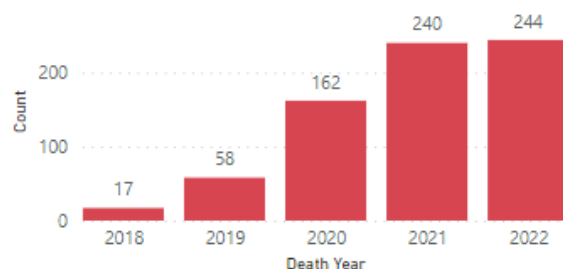
Annual Percentage Change

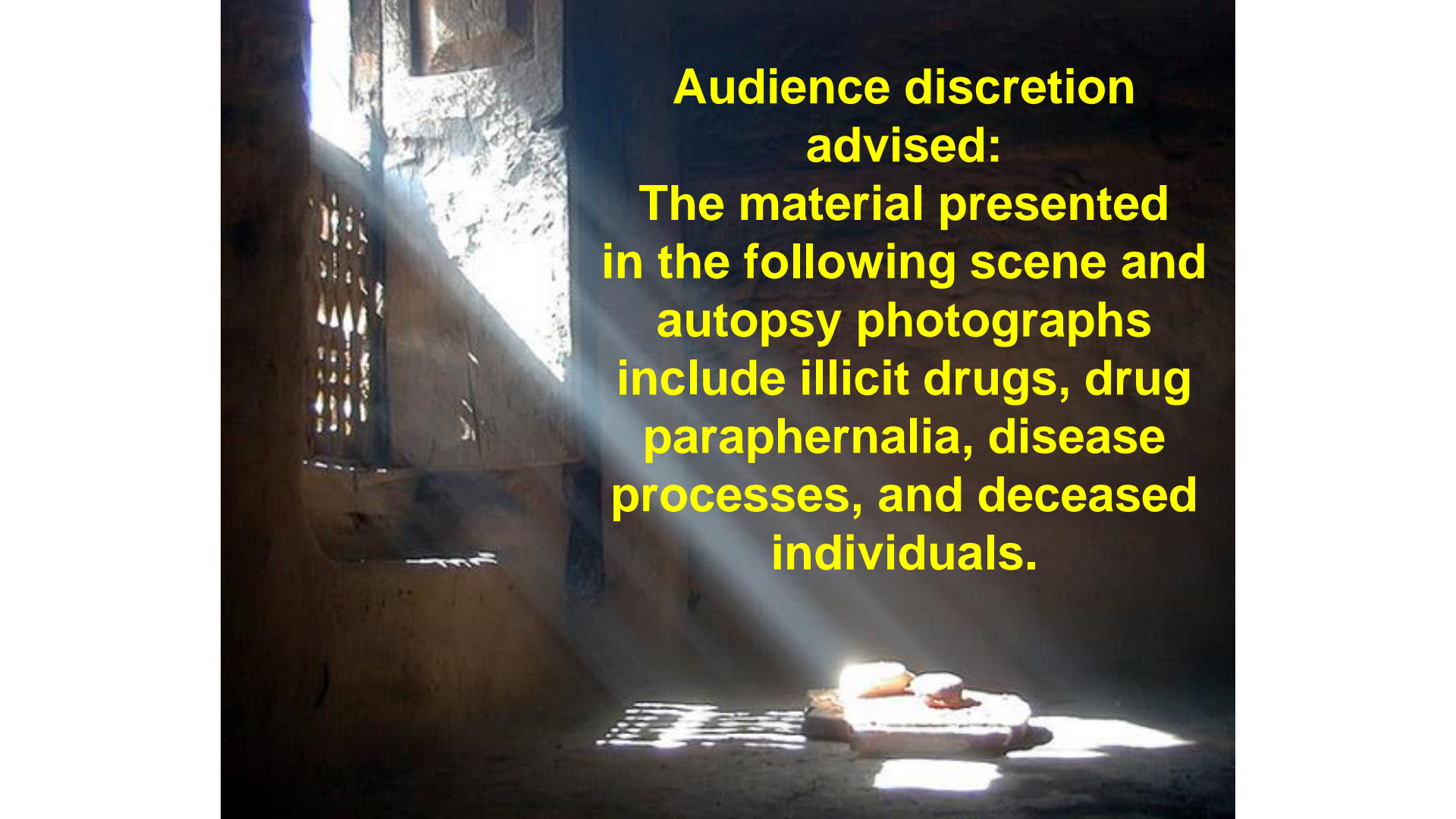
Annual

Annual Percentage Change:

179.3% 2020 from 2019	48.1% 2021 from 2020	1.7% 2022 from 2021
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Annual deaths





**Audience discretion
advised:**

**The material presented
in the following scene and
autopsy photographs
include illicit drugs, drug
paraphernalia, disease
processes, and deceased
individuals.**

- **OVERDOSE
INDICATORS**



Overdose Indicators

- **Body position**
- **Foam cone**
- **Track marks**
- **Acute punctures**
- **Certain types of prescription drugs**
- **Drugs and paraphernalia**
- **Discrepancy in prescription pill inventory**
- **Previous overdoses**

Body Position





Foam Cone



Track Marks



Injection Sites



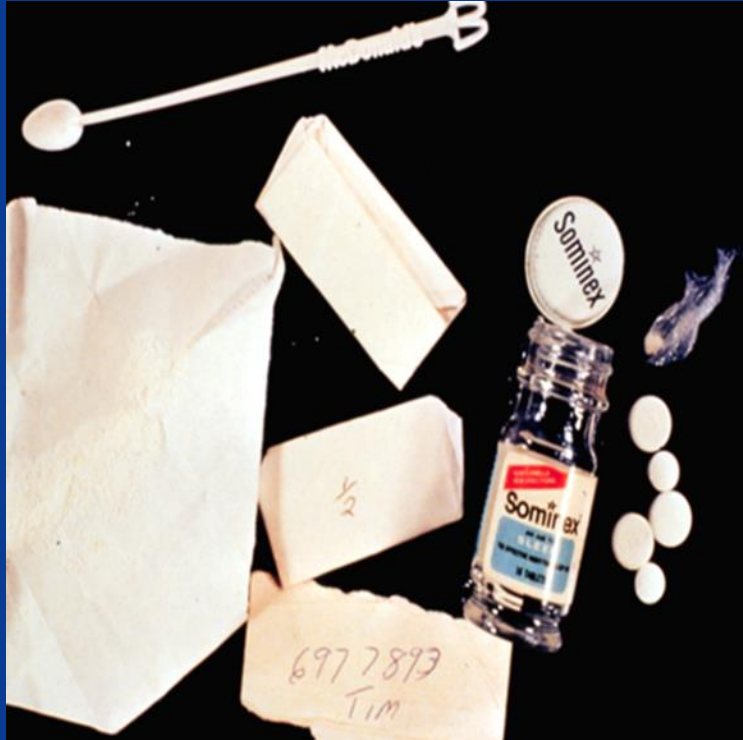
Illicit Drugs



Paraphernalia



Paraphernalia



Paraphernalia



Hiding Spots



Hiding Spots



The External Examination

- A detailed external examination is performed, with particular attention paid to findings such as:
 - Froth/fluid emanating from the mouth and nose
 - Scars
 - Track marks
 - Puncture sites (not EMS)
 - Powder, residue, any foreign substance on skin or mucous membranes
 - Erosion of the nasal mucosa
 - Condition of the teeth

So if goes.

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METRIC 1 2 3 4 5 6 7 8
INCHES 1 2 3





















The Internal Examination

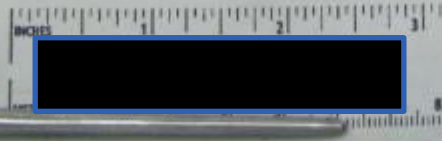
- A thorough internal examination is performed, noting the presence/absence of:
 - Froth/fluid in the airway (trachea and mainstem bronchi)
 - Abundant foamy bloody fluid upon sectioning of the lungs (lung weights)
 - Cardiomegaly with hypertrophy of the left ventricle of the heart (chronic stimulant use & hypertension)
 - Cardiac valve vegetations (chronic IV drug use)
 - Pills or pill fragments in the gastric contents
 - Hepatic cirrhosis (HCV from needle sharing)







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- BELT *Black*
- BELT BUCKLE *Dark grey*
- BLANKET
- BRA
- COAT
- DENTURES
- DRESS
- GLOVES
- HAIR TIE
- HAT
- HOUSECOAT
- HOSPITAL GOWN
- JACKET
- OVERALLS
- PANTIES
- PANTYHOSE
- ROBE
- SHEET
- SHIRT
- SHOES *216*
- SHORTS
- SKIRT
- SLIP
- SLIPPERS
- SOCKS *L*
- SWEATER
- SWEATPANTS
- SWEATSHIRT
- TROUSERS *C*
- T-SHIRT *C*
- UNDERPANTS
- UNDERSHIRT *C*
- VEST *C*
- OTHER
- OTHER
- OTHER
- OTHER
- BLACK BODY BAG
- DISPOSITION OF C





Naloxone (Narcan)

- An opioid antagonist that rapidly reverses the effects of opioids (Examples: Fentanyl, Heroin, Morphine, Codeine, Oxycodone, Hydrocodone, Methadone)
- Attaches to opioid receptors and reverses/blocks effects of opioids
- Can rapidly restore normal breathing and reverse unconsciousness
- Has no effect on cocaine, methamphetamine, or other non-opioid drugs overdoses
- Administered as nasal spray, injected into a muscle or vein, or put down an endotracheal tube

Naloxone (Narcan)-continued

- **May be insufficient to reverse high doses of fentanyl or strong fentanyl analogs such as Carfentanyl (give at least two doses if first dose ineffective)**
- **Will not cause any harm if administered to someone not using opioids**
- **Should be made available through a standing order prescription or without a prescription**

Take-Home Points

- Drug overdoses increasing in general; illicitly produced fentanyl is the primary cause
- Take notice of what is happening in neighboring areas (cities, states, countries) as a prediction of what might be coming to your area
- There are characteristic scene and autopsies findings for drug overdose deaths, especially opioid-related deaths
- Narcan is very effective in reversing opioid overdoses and safe to use; it should be made widely available, but it will not work every time

Final Questions ????

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