# Case Study 20: Accidental Drug Related Deaths in Connecticut (2012-2016)

**Overview**

A listing of each accidental death associated with drug overdose in Connecticut from 2012 to 2015. A "Y" value under the different substance columns indicates that particular substance was detected.

Data is derived from an investigation by the Office of the Chief Medical Examiner, which includes the toxicity report, death certificate, as well as a scene investigation.i *Publicly available.*

**Driving Challenges**

* What are the trends in drug combinations/lacing over time (example: Heroin & fentanyl)?
* Which forms of opioids lead to the most accidental deaths?
* Do we notice and increase or decrease in accidental deaths immediately after a policy, public health campaign, etc.? (Discontinuity analysis)
* Is there a difference in the number of accidental deaths from opioids based on locations?
* Apply NLP/TM/ML method to understand the unstructured free text information (e.g., *DescriptionofInjury*, *InjuryPlace*, *ImmediateCausesA*) and perhaps predict causes of death using the rest of the structured data.

**Meta-Data**

* **CaseNumber:** example [12-4443]
* **Date:** data to accidental death (mm/dd/yyyy)
* **Sex:** sex of victim recorded as Male or Female
* **Race:** race of victim, could multi-select from the following options: White, Hispanic, Black, Asian, Other, Unknown
* **Age:** number of years, example: 55
* **Residence City:** Name of city where victim resided
* **Residence State:** Two character post office abbreviation for State where victim resided
* **Residence County:** full name of Connecticut county name (example: HARTFORD) where victim resided
* **Death City:** Name of city where victim died
* **Death State:** Two character post office abbreviation for State where victim died
* **Death County:** full name of Connecticut county name (example: HARTFORD) where victim died
* **Location:** Place death occurred, categories: Hospital, Residence, Other
* **DescriptionofInjury:** open text description the injury, example: bathing in Hot Tub while intoxicated
* **InjuryPlace:** text description regarding the place where injury occurred, example: Warehouse
* **ImmediateCausesA:** text description of cause, example: complications of acute fentanyl and ethanol Intoxication
* **Heroin:** Y= detected
* **Cocaine:** Y= detected
* **Fentanyl:** Y= detected
* **Oxycodone:** Y= detected
* **Oxymorphone:** Y= detected
* **EtOH:** Y= detected
* **Hydro-codeine**: Y= detected
* **Benzodiazepine:** Y= detected
* **Methadone:** Y= detected
* **Amphet:** Y= detected
* **Tramad:** Y= detected
* **Morphine (not heroin):** Y= detected- The “Morphine (Not Heroin)” values are related to the differences between how Morphine and Heroin are metabolized and therefor detected in the toxicity results. Heroin metabolizes to 6-MAM which then metabolizes to morphine. 6-MAM is unique to heroin, and has a short half-life (as does heroin itself). Thus, in some heroin deaths, the toxicity results will not indicate whether the morphine is from heroin or prescription morphine. In these cases, the Medical Examiner may be able to determine the cause based on the scene investigation (such as finding heroin needles). If they find prescription morphine at the scene it is certified as “Morphine (not heroin).” Therefore, the Cause of Death may indicate Morphine, but the Heroin or Morphine (Not Heroin) may not be indicated.
* **Other:** text description, example: PCP
* **Any Opioid:** Y= detected, If the Medical Examiner cannot conclude whether it’s RX Morphine or heroin based morphine in the toxicity results, that column may be checked
* **MannerofDeath:** Accident, Pending, Natural
* **AmenededMannerofDeath:** text description regarding specific cause of death
* **DeathLoc:** City, State, Latitude, Longitude at location of death

**Provenance**

Data is available at the following link:

[https://data.ct.gov/Health-and-Human-Services/Accidental-Drug-Related-Deaths-2012-June](https://data.ct.gov/Health-and-Human-Services/Accidental-Drug-Related-Deaths-2012-June-2017/rybz-nyjw)-  [2017/rybz-nyjw](https://data.ct.gov/Health-and-Human-Services/Accidental-Drug-Related-Deaths-2012-June-2017/rybz-nyjw)

Connecticut Office of the Chief Medical Examiner

Dataset owner: Tyler Kleykampii Date Created: October 9, 2015 Last Updated: September 20,2017

i Accidental Drug Related Deaths 2012-2016. (2017, July 29). Retrieved September 22, 2017, from https://catalog.data.gov/dataset/accidental-drug-related-deaths-january-2012-sept-2015

ii Accidental Drug Related Deaths 2012-June 2017 | Open Data - State of Connecticut. (n.d.). Retrieved September 22, 2017, from https://data.ct.gov/Health-and-Human-Services/Accidental-Drug-Related-Deaths-2012-June-2017/rybz- nyjw