CDC Wonder

Unlocking Health Insights: Analyzing Indiana and Kentucky CDC PLACES Data for Informed Public Health Interventions

Project Introduction

This project aims to automate access to critical national datasets from the CDC WONDER online public health database. By developing a Python Selenium script, the goal is to simplify the data download process, eliminating the need for manual intervention. With its vast array of public health statistics, the CDC WONDER database is an essential source for health data. This project aims to improve the efficiency, quality, and usability of extracted data through automation, which will help both public health practitioners and researchers. The files that were accessed included information on vaccinations, environmental health statistics, cancer statistics, notifiable diseases, death rates, and birth and natality statistics. These datasets play a pivotal role in public health monitoring and decision-making processes.

Project Methodology:

Our methodology focuses on the automation of interactions with the CDC WONDER online database through a custom Python Selenium script. The script is designed to handle the dynamic elements of the database's interface, download the specified datasets, and process them into a clean CSV format. Continuous feedback from stakeholders ensures the script remains aligned with user needs, facilitating regular updates and enhancements.

Workflow
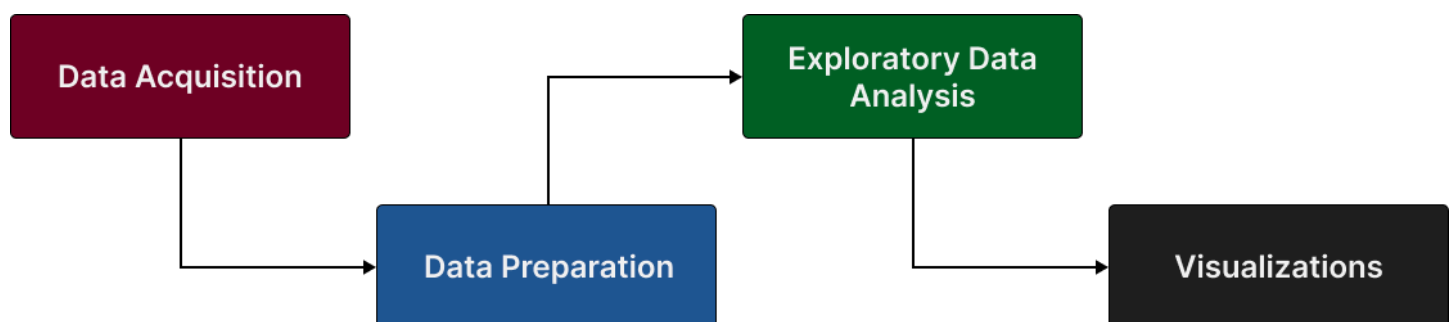
CDC WONDER API OBSERVABLE

cdcMerged = ▶Array(664) [Object, Object, Object, Object, Object, Object, Object, Object, Object

Plotly = ▶Object {version: "2.33.0", register: ƒ(_modules), newPlot: ƒ(gd, data, layout, config

Race = ▶Array(5) ["Black or African American", "Hispanic or Latino", "Not Hispanic or Latino",

region = ▶Array(2) ["Central Indiana", "Indiana"]
Agegrp = ▶Array(5) ["55-64", "65-74", "75-84", "85+", "55+"]
Deathcause = ▶Array(11) ["MORTALITY", "OPIOD OVERDOSE", "DRUGOVERDOSE", "ACCIDENTAL DEATHS", "A

year = ▶Array(4) [2018, 2019, 2020, 2021]

Select race or age

Black or African American	⌄

selectrace1 = "Black or African American"

Select age group

⦿ 55+   ○ 55-64   ○ 65-74   ○ 75-84   ○ 85+

radios1 = "55+"

Cause of death trends

Year

2018	

year7 = 2018

The comparison between accidental deaths and chronic diseases reveals a notable trend in mortality patterns over the years. In 2018, accidental deaths stood at 2,116, while chronic diseases, notably Alzheimer's, accounted for 2,406 deaths in 2019, rising to 2,868 deaths from cerebrovascular diseases in 2020, and a substantial increase to 12,918 deaths attributed to chronic lower respiratory diseases in 2021. This analysis underscores the significant burden of chronic illnesses, particularly evident in 2021, highlighting their impact on mortality rates, especially within aging populations.

Grouped Bar Graph for Cause of death in 2018
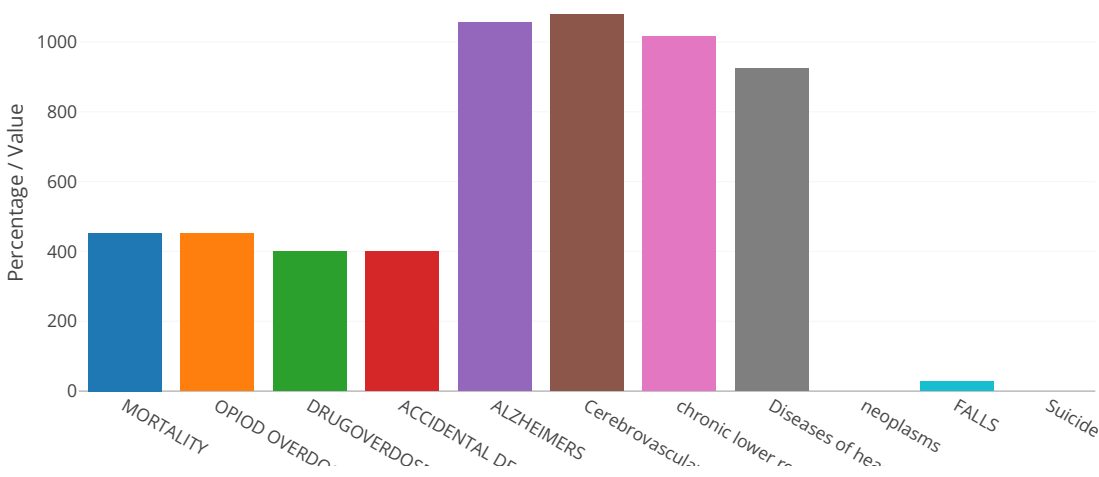
undefined

# Leading Cause of Death based on region

Select region

Indiana ⌄

selectreg = "Indiana"

In Indiana, chronic lower respiratory diseases account for approximately 38.8% of all deaths, Diseas of heart 1.6%, neoplasms's about 1.55%, and cerebrovascular diseases for around 0.79 % of total deaths.

In Central Indiana, chronic lower respiratory diseases constitute approximately 79.2% of all deaths, Diseas of heart 3.46%, neoplasm's about 3.16%, and cerebrovascular diseases for around 0.37 % of total deaths.
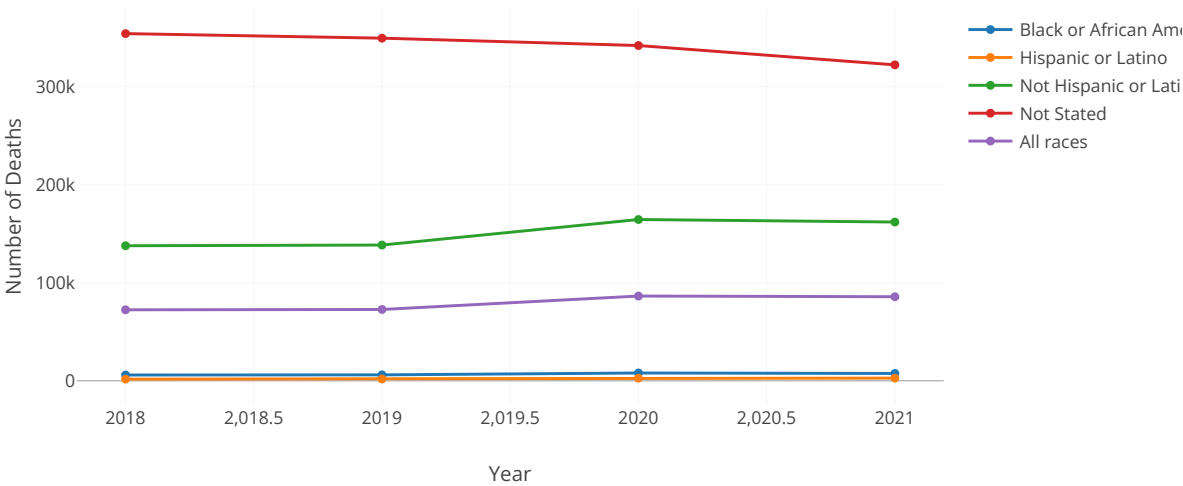
These percentages highlight the disproportionate impact of chronic respiratory diseases on mortality rates, particularly in Indiana as a whole, while also indicating variations in the prevalence of other causes across different regions.

Pie Chart of Cause of Death in Indiana
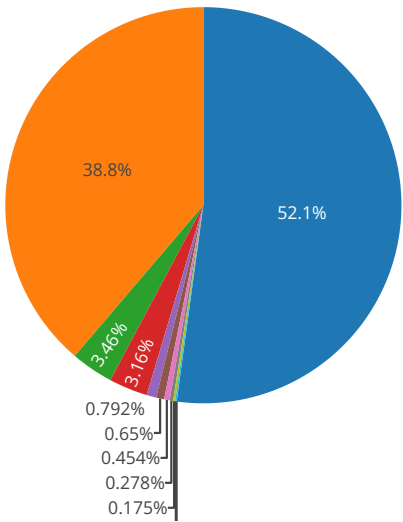
undefined

Deaths by Year for Each Race

undefined

Race vs Age group

Select age group

◉ 55+ ○ 55-64 ○ 65-74 ○ 75-84 ○ 85+

`radios3 = "55+"`

Year

2018

`year77 = 2018`

The comparative analysis reveals a consistent trend of higher mortality rates among Black or African American individuals compared to Hispanic or Latino populations across various age groups and years. For instance, in 2018, within the 55-64 age group, Black or African American individuals experienced 916 deaths, whereas Hispanic or Latino individuals had 195 deaths, illustrating a substantial discrepancy. This pattern persists across different age groups and years, consistently demonstrating elevated mortality rates among Black or African American individuals.

Grouped Bar Race comparison in (2018) for age group 55+
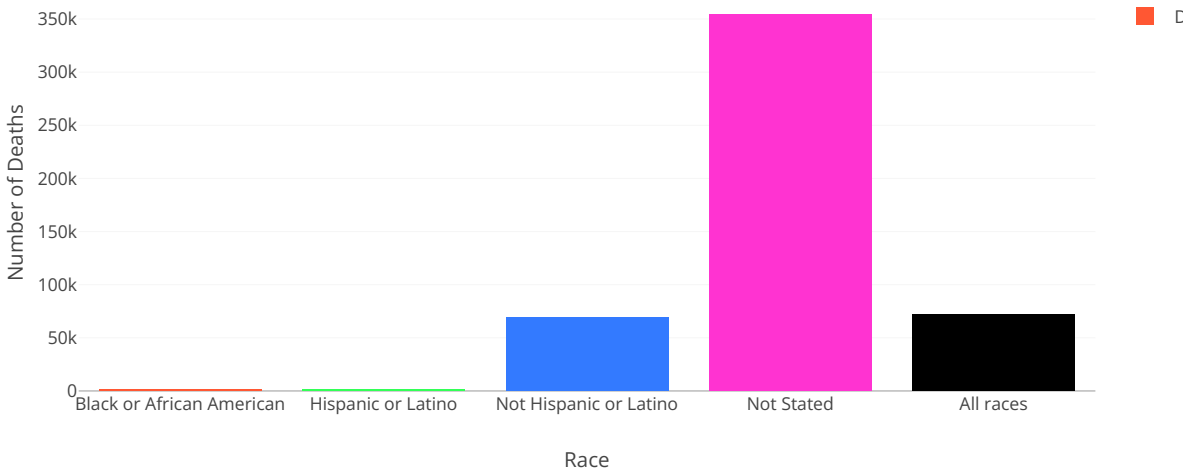
`undefined`

Credit: CDC WONDER API VIZ by Nasiruddin's Workspace

Summary

- Our comprehensive analysis of the CDC Wonder data reveals significant insights into mortality trends, the prevalence of chronic diseases, and the impact of race and age on health outcomes.
- Mortality rates have increased steadily from 2018 to 2021, with chronic lower respiratory diseases emerging as a predominant cause of death among older adults in both Indiana and Central Indiana.
- Racial disparities show higher mortality rates among Black or African American populations compared to Hispanic or Latino populations. Accidental deaths, though fewer, underscore the need for preventive measures.

- These visualizations offer clear insights into these complex patterns, facilitates us in informed decision-making and targeted interventions to address disparities and improve health outcomes.

MEET THE

Project Team

Name	Role	Email
Hasaranga Jayathilake Dilshan	Project Lead	hdjayath@iu.edu
Pericherla Supraja	Project Lead	sperich@iu.edu
Jay Colbert	Project Advisor	jtcolber@iu.edu
Vahini Matlakunta	Project Manager	vmatlaku@iu.edu
Deepak Shersingh Rajput	Team Member	drajput@iu.edu
Nasiruddin Khazi	Team Member	naskhazi@iu.edu
Bala Satya Venkat Tangudu	Team Member	btangudu@iu.edu
Saksham Rajput	Web Developer	sarajput@iu.edu

Technologies Used:

- Python Selenium
- Microsoft Excel
- Observable (for visualization)

Project Repository: GitHub - CDC Wonder API.