ANALYZING INDIANA POISON CONTROL CENTER CALLS IN CHILDREN UNDER THIRTEEN

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STATEMENT OF THE PROBLEM:

- The Indiana Poison control center receives **23,151 calls each year** involving children twelve or under
- Unintentional substances exposures can be **dangerous to early development and child wellbeing**
- Agents that fall under the grouping of "**One Pill Can Kill**" (OPCK) because of their potentially fatal effects

Research Question: What patterns exist in exposures to deadly single-dose agents among children in Indiana?

OBJECTIVES:

- Analyze a Poison Control Dataset that contained calls from **all Indiana Counties** ranging from 2015-2021
  - Find areas with higher rates of exposure by county
  - Analyze substance exposures in children 12 & under
- Observe **trends** in:
  - County exposure statistics
  - Exposure site
  - Call time, date, and year
  - Substances
- Create a dashboard summarizing the data and the knowledge gained from it:
  - Map
  - Summaries
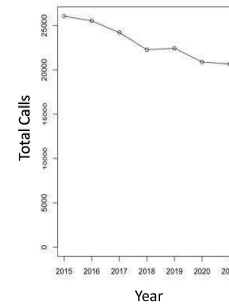 - Selection tools

METHODOLOGY:

- Receive data from **Indiana Poison Control Center**
- Clean/organize data
  - Substances categorized
  - Date transformed
  - Created categorical data
- Basic summary statistics
- Create Graphics
- Dashboard from resulting data

R PACKAGES:

- lubridate
- tidyverse
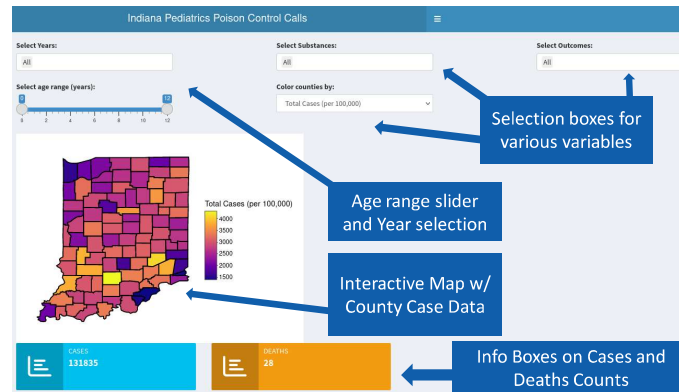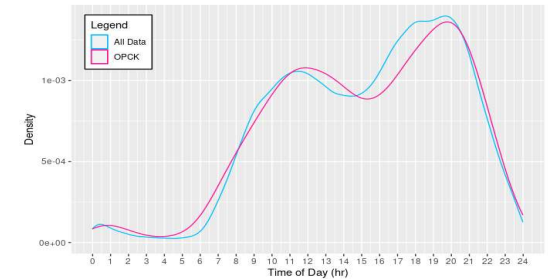- usmaps
- ggplot
- dplyr

FINDINGS:

- The numbers of calls tied to poisoning decreased per year
- Time trends: Peak around 11am and 8pm
- The group most impacted by poisoning is 1-5 year-olds
- Majority of exposures occurred at home

Selection boxes for various variables

Age range slider and Year selection

Interactive Map w/ County Case Data

Info Boxes on Cases and Deaths Counts

CASES 131835

DEATHS 28

IMPACTS:

- **Presentation at CDC PROTECT Annual Meeting** in December 2022
- Conversation with colleagues in the field provided insights into the issue
- Presentation **Engagement and Service-Learning Summit**
- Dashboard presenting the data based on different year, county, substances, age
- **Additional research, funding, analysis, and decrease in the incidents of overdose**

REFLECTION & CONCLUSION:

Challenges
a. Retrieving the data from the Indiana Poison Center
b. Cleaning the data and classifying cases by substance
c. Meaningful analysis of the data in the context of our research question

The project served as a learning experience for us in terms of the **technical skills** for data analysis, and in **soft skills** such as presenting at a professional conference. In the coming months, we will continue to work to achieve our overall goal of decreasing overdoses in children.

Age Group Summary

1-5 year olds : 72.24%   0-1 year olds : 8.64%   6-12 year olds : 19.12%

Density of Exposures Over the Day

Legend
All Data
OPCK

FUTURE GOALS:

- **Expand** the data to other states
- Adding machine learning for classification of substances
- Receiving data from other CDC centers
- **Statistical analysis** on potential causal/correlating variables

ACKNOWLEDGEMENTS

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