HENNEPIN COUNTY

MINNESOTA

Public Health

Utilizing near real-time data for dynamic death reporting

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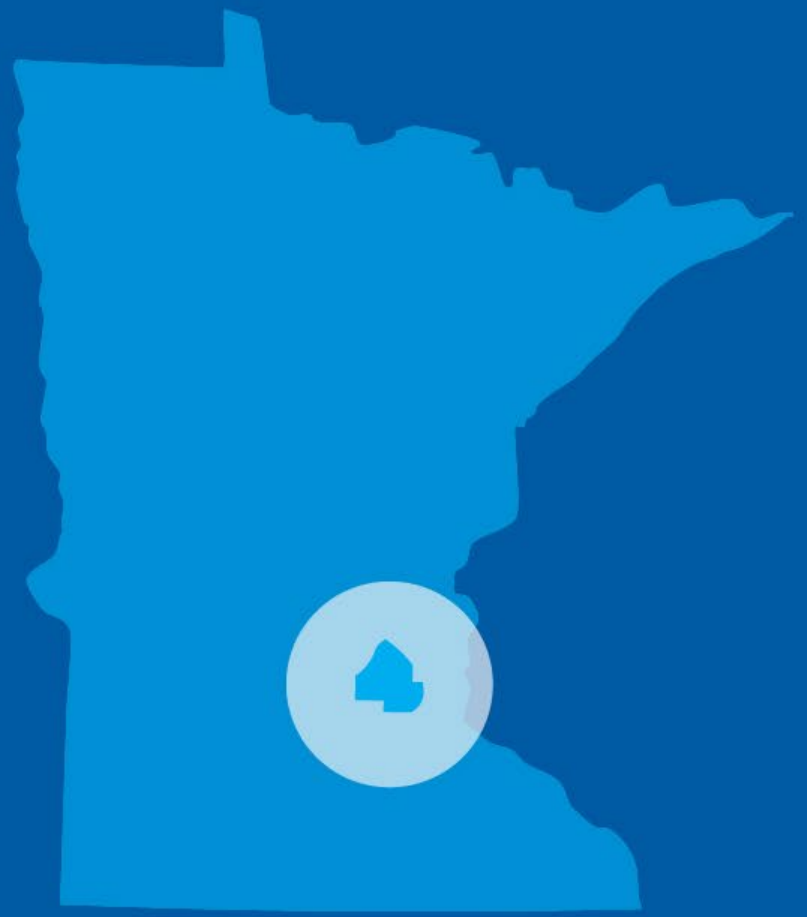
Overview

- Hennepin County Public Health (HCPH)
- HCPH data infrastructure
- Death data use case
  - Annual and provisional data reporting
  - Matching



Hennepin County

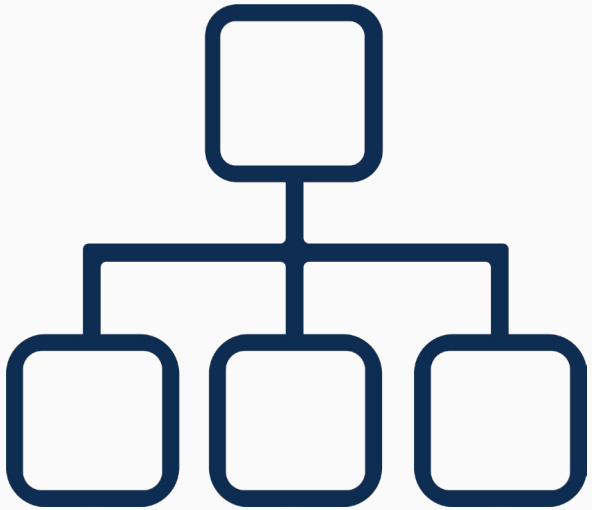
- Largest county in Minnesota
- 1.28 million residents
- 45 cities, including Minneapolis
- Public health department has 495 employees

HCPH data infrastructure

- History
- Transition to Azure cloud resources
- Informatics team
- Cross sector data framework

HCPH data infrastructure

- Azure Data Factory – import data
- Azure Data Lake – store data
- Databricks – work with and transform data
  - Coding primarily in R Tidyverse
- Power BI – data reporting and visualization



Discussion

- What does your data infrastructure look like? (5 min)





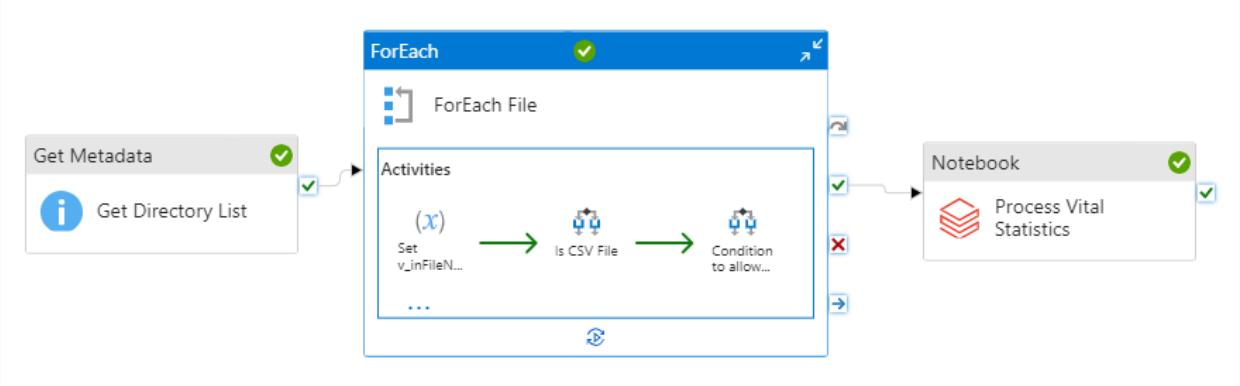


Death data

- Annual death files
  - From the MN Center for Health Statistics at the MN Department of Health (MDH)
- Provisional death files
  - From the office of Vital Records at MDH
- The department receives birth data as well

Data ETL (**extract**, transform, load)

- Import provisional data with Data Factory
- Scheduled weekly
- Flag missing files with a separate monitoring process



Data ETL (extract, **transform**, load)

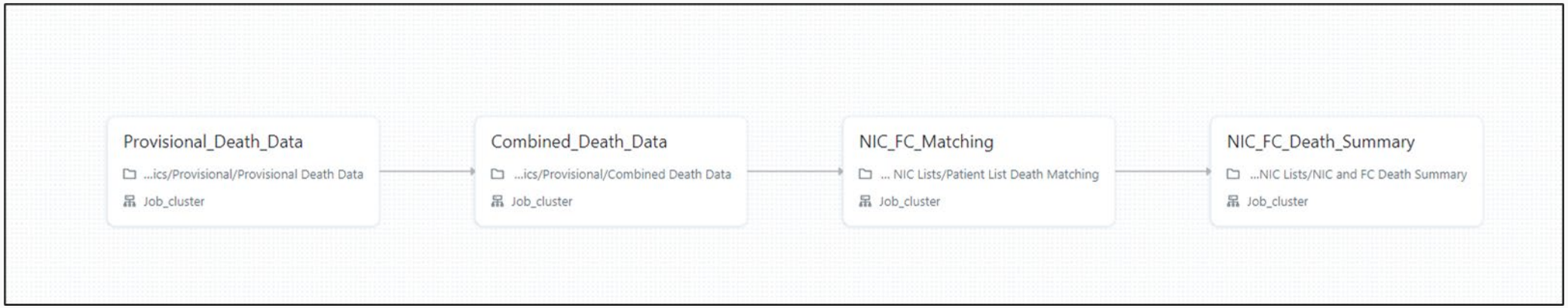
- Schedule after Data Factory pipeline
- Clean files in Databricks
  - Standardize fields between years
  - Flag missing fields and values
  - Use snake_case
  - Create new fields

Data ETL (extract, **transform**, load)

- Geocode all records
  - Batch geocoder from GIS department
  - Adjust residence information
- Maintain and update data dictionary

Data ETL (extract, transform, **load**)

- Save data to .csv and .parquet files
- Standardize file names
- Create summary files for reporting
- Match deaths against other data



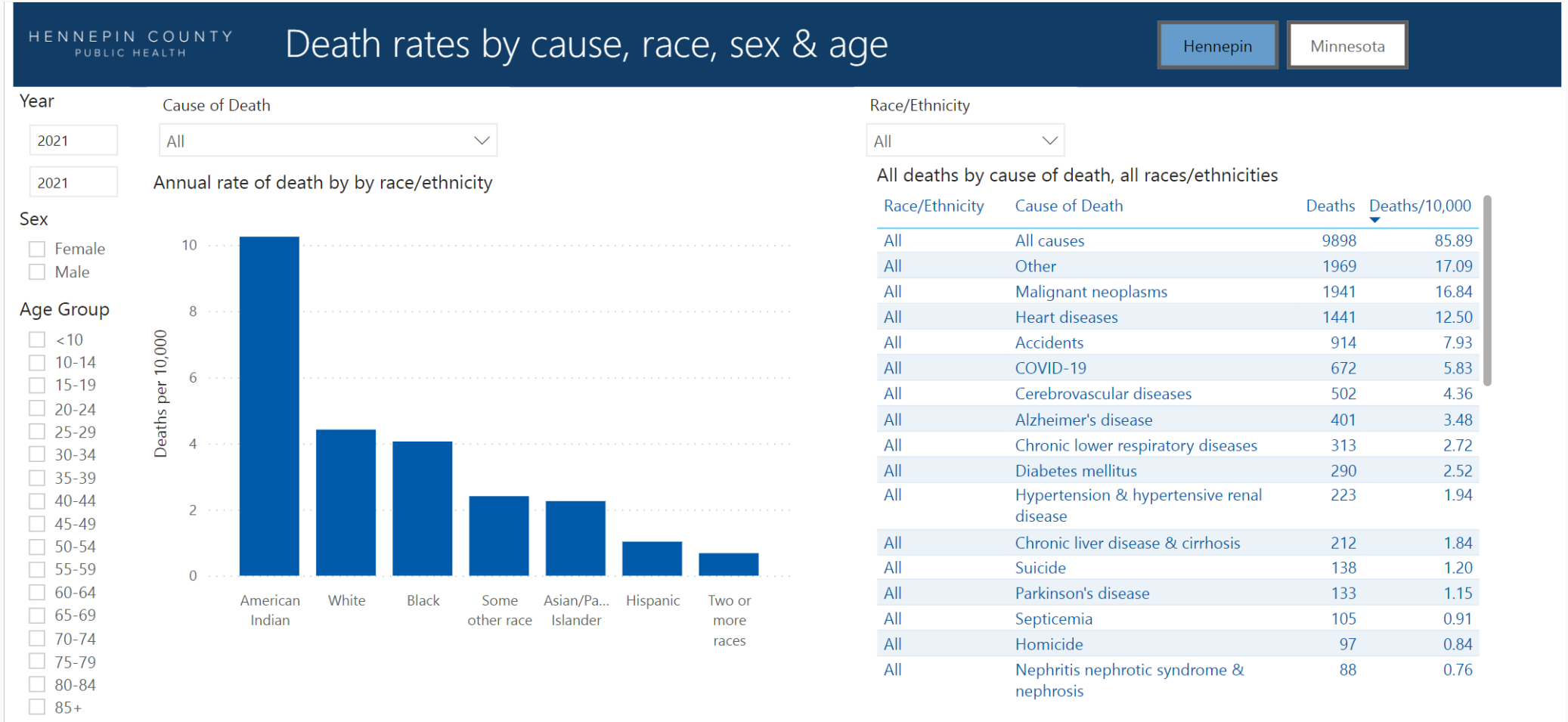
Discussion (5 min)

- What comparable processes do you use?
- What lessons have you learned?

Detailed annual death reporting dashboard

- Long-term trends
- Granular demographic breakdowns
- Includes pages about high-priority outcomes
- Very accessible for staff
- Public-facing (soon)

Detailed annual death reporting



Detailed annual death reporting

HENNEPIN COUNTY
PUBLIC HEALTH

Accidents (unintentional injuries)

Hennepin | Minnesota

Year

2013

2021

Sex

- Female
- Male

Race/Ethnicity

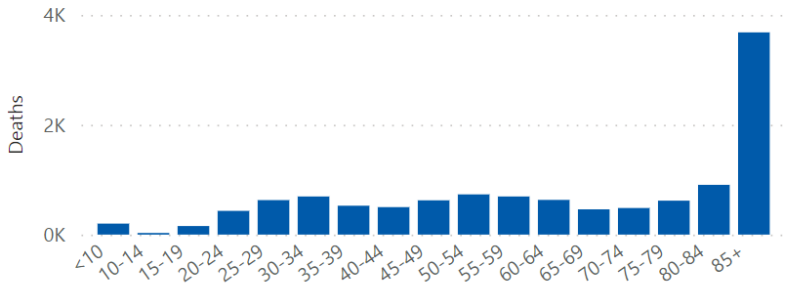
- All
- American Indian
- Asian/Pacific Islander
- Black
- Hispanic
- Some other race
- Two or more races
- White

All deaths by accident type, all races

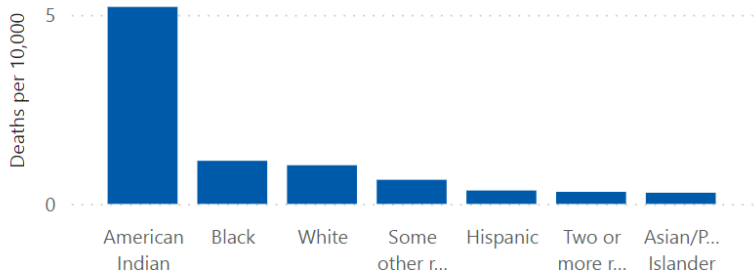
Accident	Deaths	Deaths/10,000	YPLL/1,000
Falls	2765	2.67	0.50
Drug overdose	1723	1.66	5.49
Motor vehicles	542	0.52	1.53
Non-drug poisoning	253	0.24	0.57
Suffocation	238	0.23	0.64
Other causes	166	0.16	0.27
Drowning	87	0.08	0.32
Exposure to unspecified factors	77	0.07	0.06
Burns	63	0.06	0.15
Exposure to forces of nature	46	0.04	0.09
Machinery & inanimate objects	37	0.04	0.08

Select a population group from the table to filter the figures, or leave one unselected to look at data for the entire population.

All accidental deaths by age group, all races



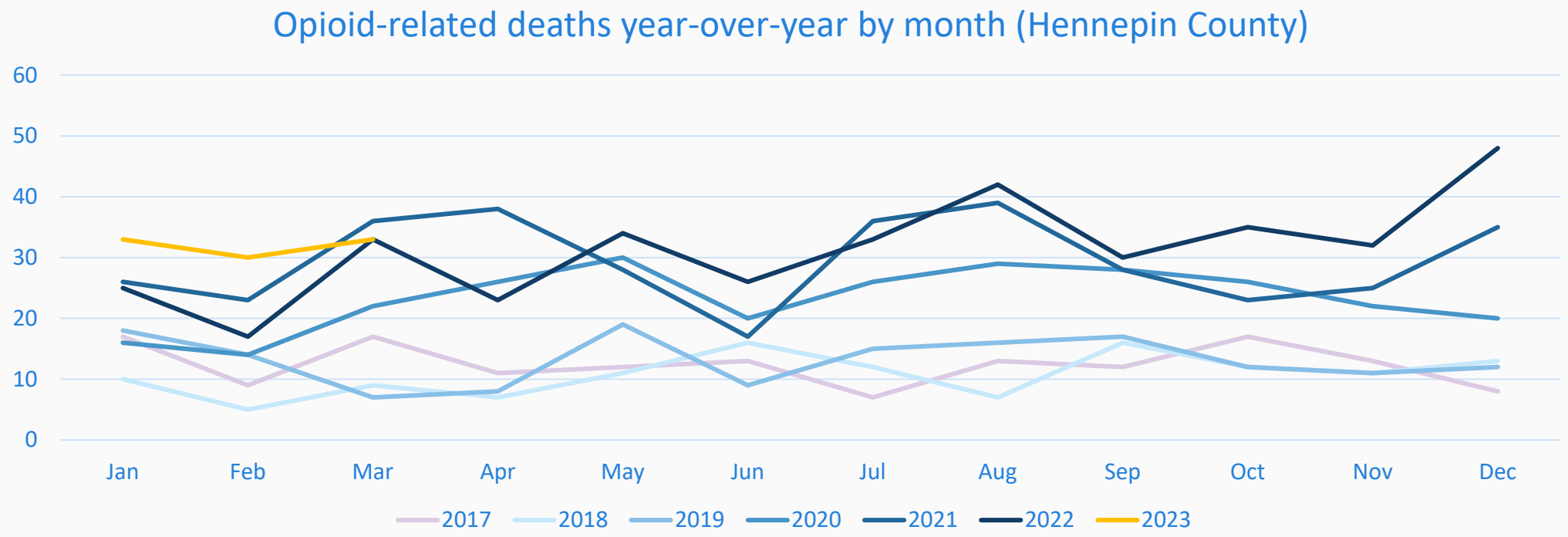
Annual rate of accidental death by race/ethnicity



Provisional death reporting

- Provides more immediate data
  - Opioid deaths and xylazine tracking
- Estimated data completeness
- Match to patient lists
  - Monitor deaths among vulnerable populations
  - Example: people with HIV who are not in care

Provisional death reporting



Summary

- Data infrastructure improvements have allowed better monitoring of county death data
- Provisional death data provides timely monitoring of public health concerns
- Death data is integrated into the HCPH cross sector framework through matching

Q&A/Discussion

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