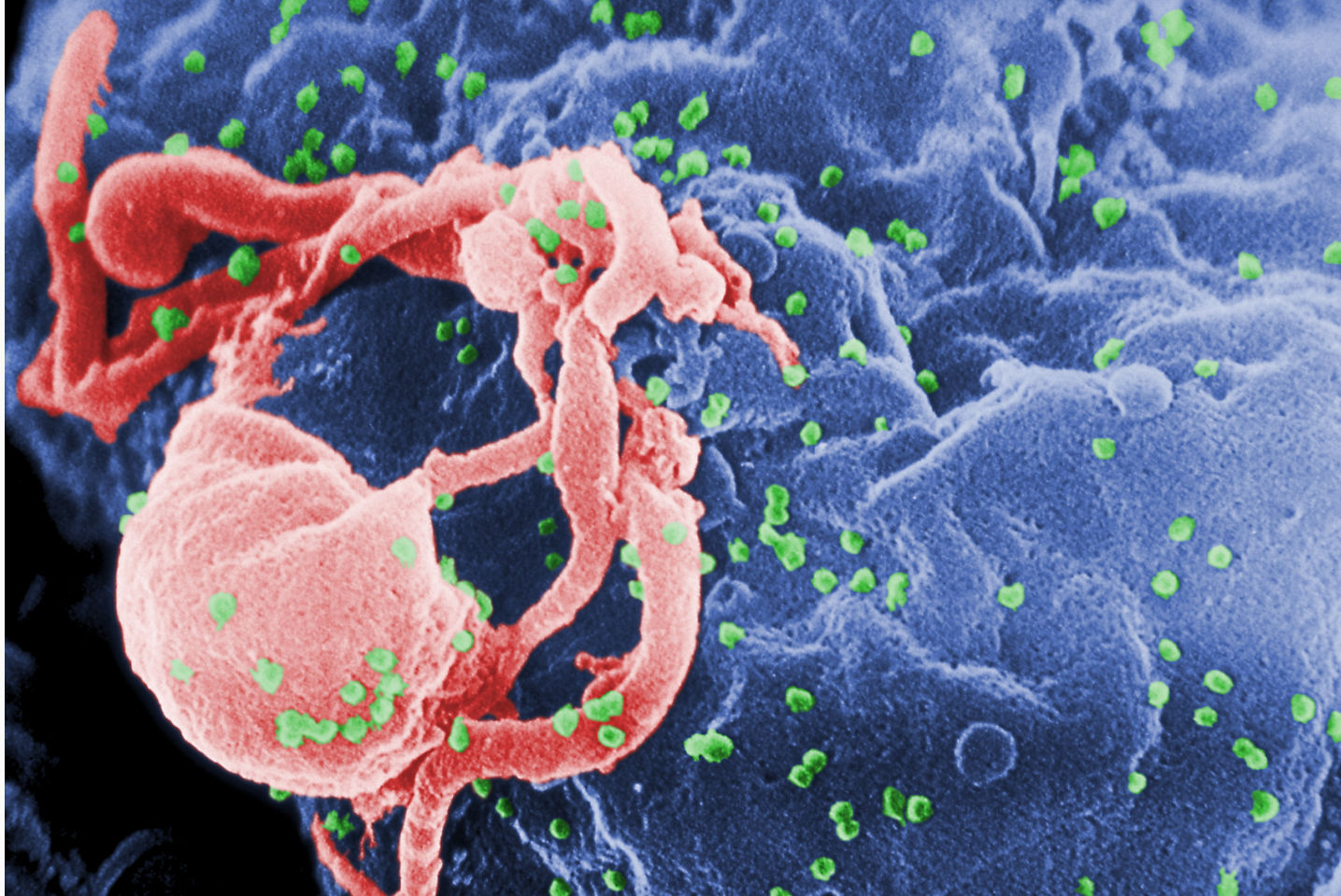




HENNEPIN COUNTY

MINNESOTA

Public Health



# Analysis of Ryan White Client Interactions With Medicaid, Social Services, and the Criminal Justice System; Session ID: 15842

Aaron D. Peterson | Hennepin County Public Health

# What is a cross sector analysis?



# HIV Cross Sector Analysis

- **Background**
- Sector selection
- Cohort selection
- Data techniques
- Analysis plan





**Roadblock**

Jan – Jul 2019

August 2019

Sep – Nov 2019

Dec 2019 – Feb 2020

**Roadblock**

**Could not secure approval to use cohort**

Evaluating other cohort options

Approval for new cohort

Data pulls

Making progress

**COVID-19 pandemic**

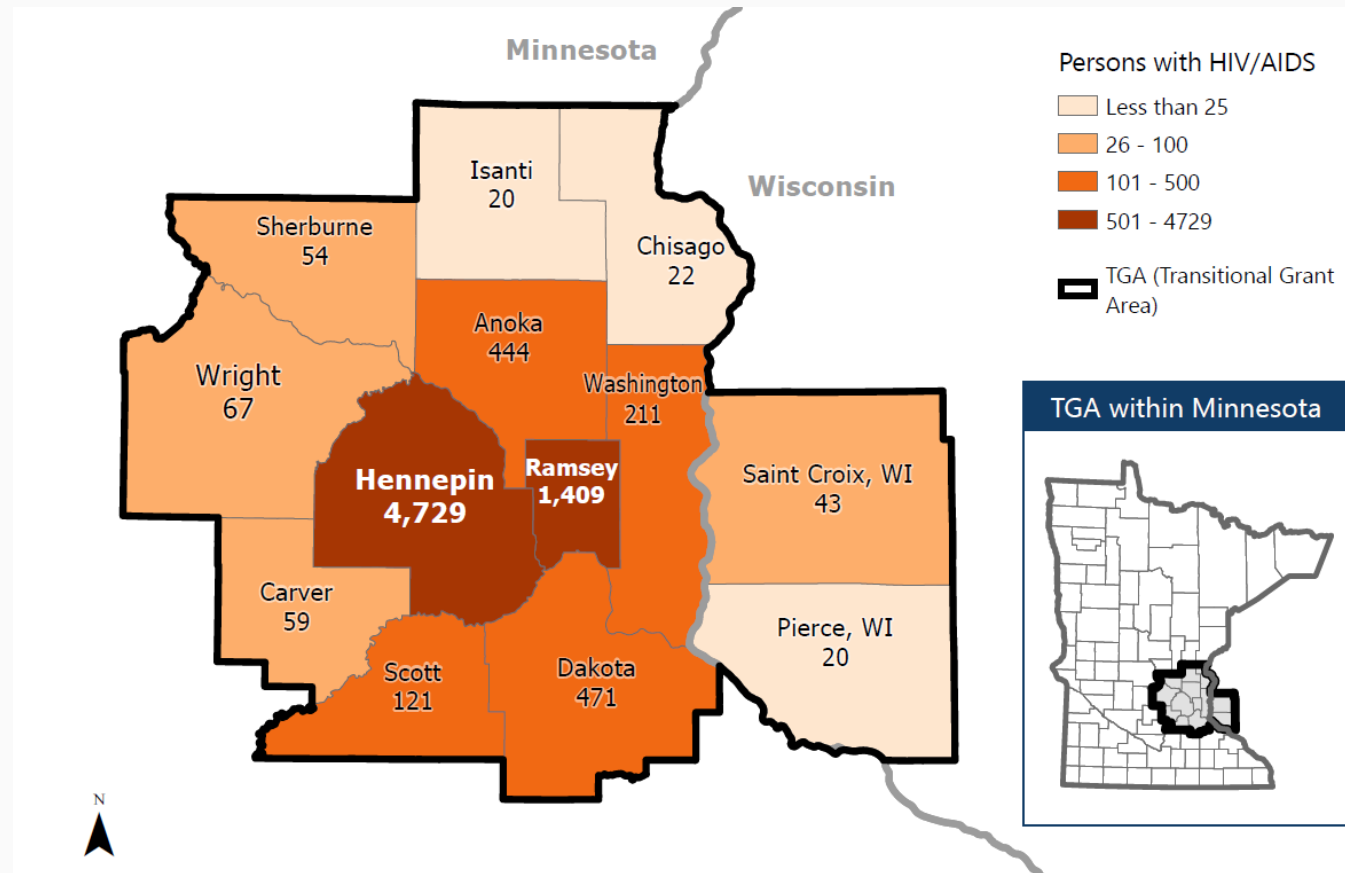


# Hennepin County

- Largest county in Minnesota
- 1.2 million residents
- 45 cities, including Minneapolis
- Ryan White HIV/AIDS Program is located within Hennepin County Public Health



# Urban, suburban, and rural counties



# Organizations

- Hennepin County Public Health
- Hennepin County Human Services and Public Health Department Internal Services
- Hennepin County Center of Innovation and Excellence
- Hennepin Healthcare





# Collaborative project

## **Jason Baker, MD**

- Infectious disease physician, Hennepin Healthcare

## **Katherine Vickery, MD**

- Family medicine physician, Hennepin Healthcare
- Hennepin County Health Care for the Homeless

## **David Johnson, MPH**

- Epidemiology manager, Hennepin County Public Health

# Cross sector analysis resulted in publications

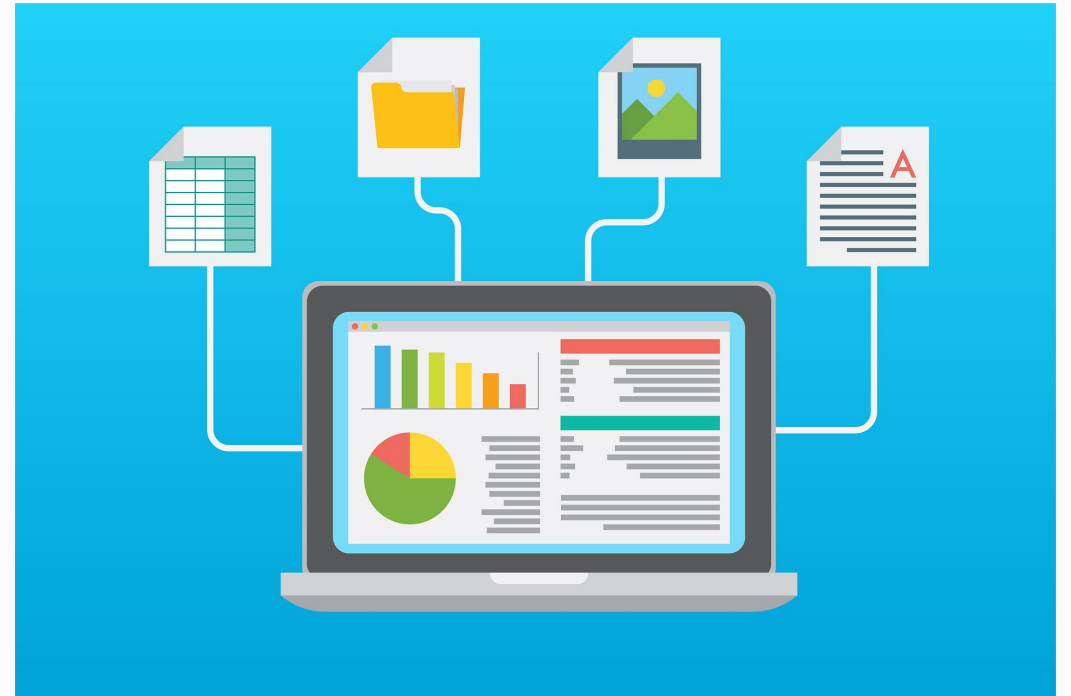
- Totally Accountable Care Organization (TACO) Project
- Vickery KD, Bodurtha P, Winkelman TNA, et al. Cross-Sector Service Use Among High Health Care Utilizers In Minnesota After Medicaid Expansion. Health Aff (Millwood). 2018;37(1):62-69.
- Bodurtha PJ, Winkelman T, Vickery KD, et al. Identification of Cross-sector Service Utilization Patterns Among Urban Medicaid Expansion Enrollees. Med Care. 2019;57(2):123-130.

# Evaluation plan

- How many people with HIV interact with county sectors?
- Jan 1, 2017 – Dec 31, 2018
- Improving social service delivery
- Opportunities for re-engagement in HIV medical care
- Reducing health disparities

# HIV Cross Sector Analysis

- Background
- **Sector selection**
- Cohort selection
- Data techniques
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# Sectors used for cross sector analysis

- Ryan White Part A services
- Public health insurance (ex: Medicaid)
- Food assistance
- Cash assistance
- Case management
- Housing services
- Criminal justice



# Public health insurance

## Sub-sectors

- Medical Assistance  
(Minnesota's Medicaid)
- MinnesotaCare
- Program HH







Food and cash assistance





Case management

# Housing

## Sub-sectors

- Supportive housing
- Shelter



# Criminal justice



## Sub-sectors (tentative)

- State prison
- County jails
- Workhouse
- Probation

# HIV Cross Sector Analysis

- Background
- Sector selection
- **Cohort selection**
- Data techniques
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# Identifying people with HIV

- HIV prevalent cases (surveillance)
  - All, out-of-care, other criteria?
- Medicaid/public health insurance
- Ryan White clients
- Geography
- Legal, ethical, operational considerations





# Work requires legal and privacy teamwork

- County attorney's office and department privacy officer
- Working with state owned data
- Data sharing agreements
- Institutional review board



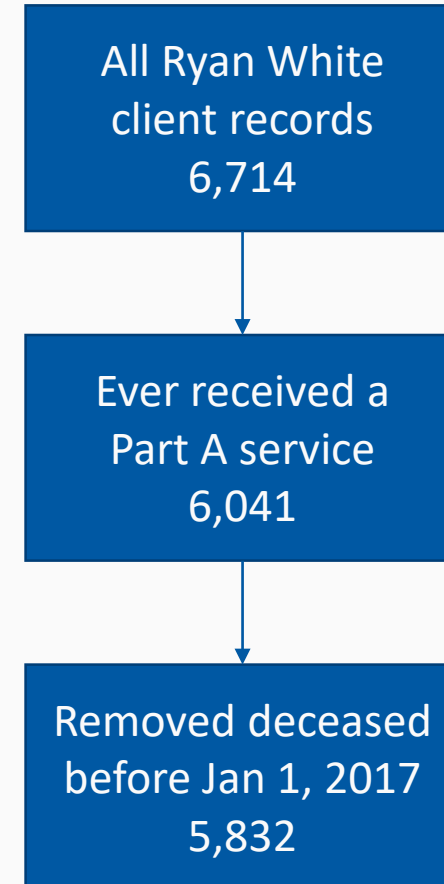
# Aggregate “case management”



- Ryan White HIV/AIDS Program is part of the welfare system
- Release of information
- Improve social service delivery

# Cohort refinement

- Minimum necessary principle
- Deceased
- HIV diagnosis date
  - During evaluation period
  - Missing or unknown
- Are there duplicates?



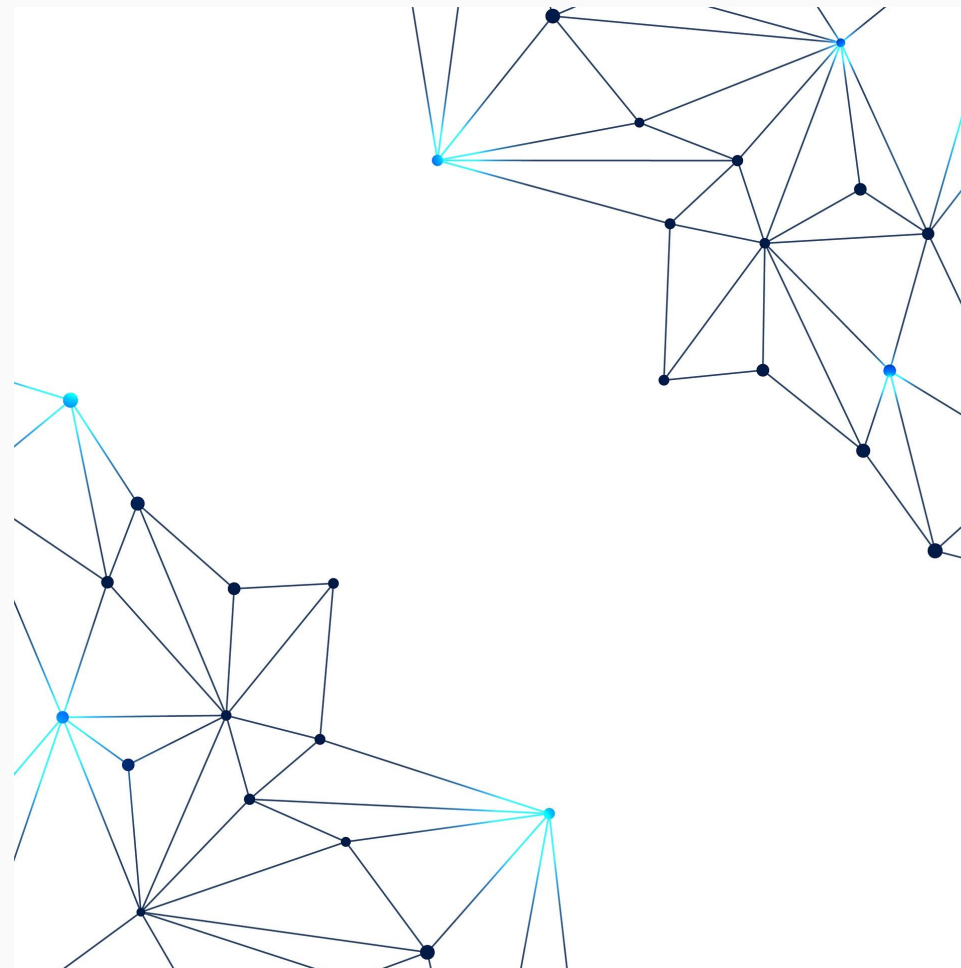
# HIV Cross Sector Analysis

- Background
- Sector selection
- Cohort selection
- **Data techniques**
- Analysis plan



# Methodology

- Fuzzy matching
- Combining data sources from across the county
- Siloed knowledge
- Data systems not built to communicate



# Fuzzy (probabilistic) matching

- Link Plus
  - Name
  - Date of birth
- Social security number was not available





# Fuzzy matching avoids duplicates (not real data)

Name	Date of Birth
Joe Smith	1/1/1976
Joe Smith, Jr.	1/1/1976

Name	Date of Birth
Chelsea Smith	11/18/1942
Chelsey Smith	11/1/1942

Name	Date of Birth
Joe Smith	10/8/1981
Joe Smith	10/18/1981

Name	Date of Birth
Sarah Smith	1/1/1976
Sara Smith	1/1/1976

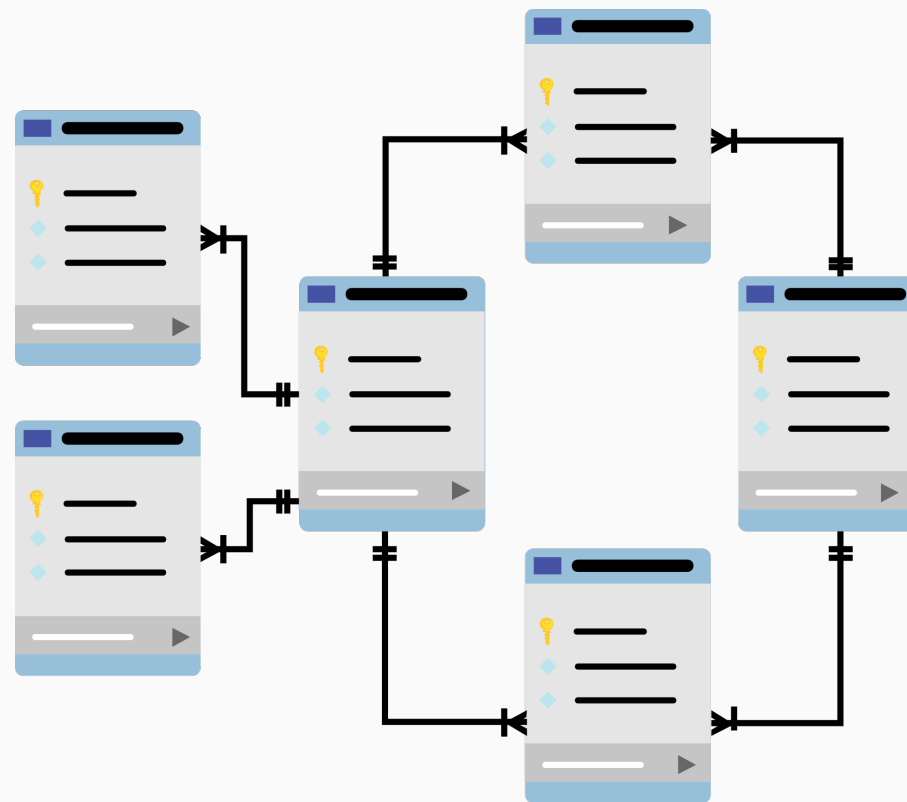
Name	Date of Birth
Jill Smith	7/2/1982
Jill Smith-Anderson	7/2/1982

Name	Date of Birth
Chelsea Smith	9/1/1976
Chelsey Smith	9/2/1967



# Siloed databases

- CAREWare
- MMIS: Medicaid Management Information System
- SSIS: Social Service Information System
- HMIS: Homeless Management Information System
- MAXIS
- Criminal justice



# Hennepin County data analysis team

## Center of Innovation and Excellence (CIE)

- Alexander Long
- Amy Nyren

## Human Services and Public Health Department (HSPHD) Internal Services

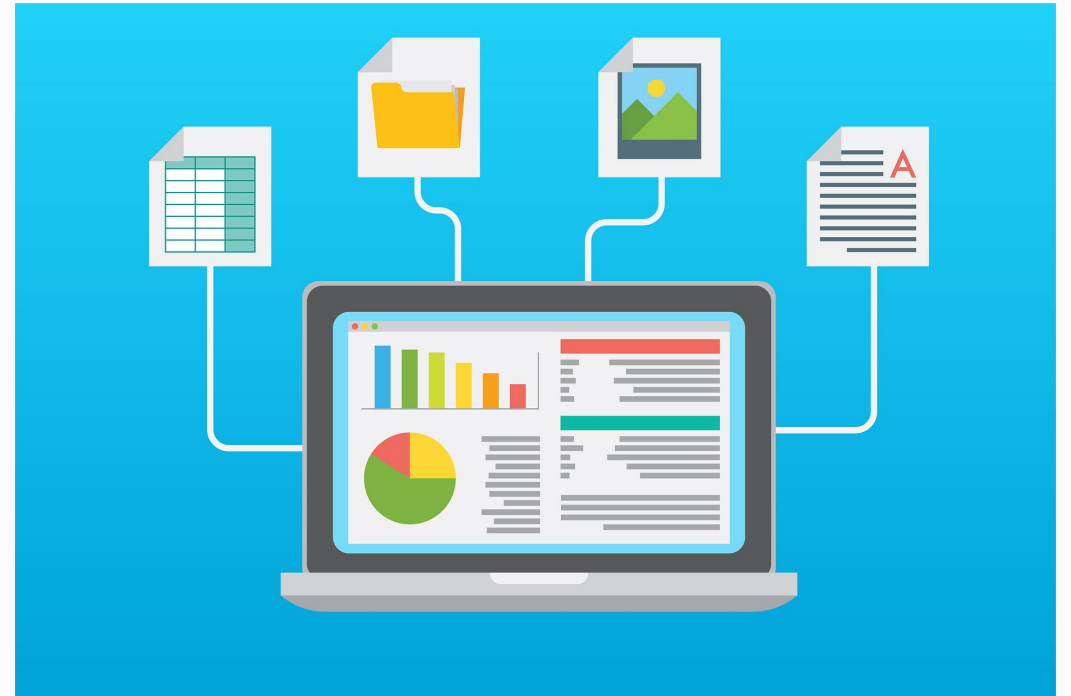
- Glenn Benson

## HSPHD Internal Services, cont.

- Richard Bamattre
- Todd Bennington
- Deb O'Meara

# HIV Cross Sector Analysis

- Background
- Sector selection
- Cohort selection
- Data techniques
- **Analysis plan**



# Evaluation questions must be clear

- Frequency tables
  - Mutually exclusive categories
- Define your terminology and conventions
- Be detailed; define all your jargon
- Appendices and internal links



# Checksum column avoids copy errors

Sector	2017 only	2018 only	2017 & 2018	Total	Neither Year	Checksum
Ryan White Part A services	500	1,200	500	2,700	2,300	5,000
Public health insurance	200	400	4,000	4,600	400	5,000
Food assistance	150	200	1,200	1,550	3,450	5,000
Cash assistance	300	200	150	650	4,350	5,000
Case management	200	250	50	500	4,500	5,000
Housing services	150	100	250	500	4,500	5,000
Criminal justice	50	50	50	150	4,850	5,000

2017 only + 2018 only + 2017 & 2018 = Total

Total + Neither Year = Checksum

Example data above



# Overlap between Ryan White services and similar county services

Received only county food services (not Ryan White)	1,000	1,100
Received both Ryan White and other county food services	400	500
Clients who received no food services	2,400	2,100
<b>Cohort Total</b>	<b>5,000</b>	<b>5,000</b>

Example data above.

# Insurance enrollment patterns

- Life events impact health insurance and access to medical care
  - Incarceration
  - Homelessness (shelter as a proxy)
- How long do they remain uninsured?
- Re-engagement opportunities for HIV medical care

# Summary

- Sector selection
  - Gears/domains
  - Social determinants of health
- Cohort selection
  - Legally and ethically permissible; operationally useful
  - Consult with privacy officer and attorney's office
- Combining data sources
  - Fuzzy (probabilistic) matching
  - Identify subject matter experts
- Analysis plan
  - Checksum column with mutually exclusive categories
  - Evaluation questions that lead to public health interventions

# Looking ahead

## Designing public health interventions

- County jail and HIV testing
- Supportive housing and Ryan White medical case management
- Identifying people with HIV in shelters

## Re-running with 2019-2020 data

- How did COVID-19 impact cross sector utilization?



# Acknowledgements

- Jason Baker, MD
- Katherine Vickery, MD
- David Johnson
- Glenn Benson
- Richard Bamattre
- Richard Bamattre
- Todd Bennington
- Deb O'Meara
- Jonathan Hanft
- Peter Bodurtha

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