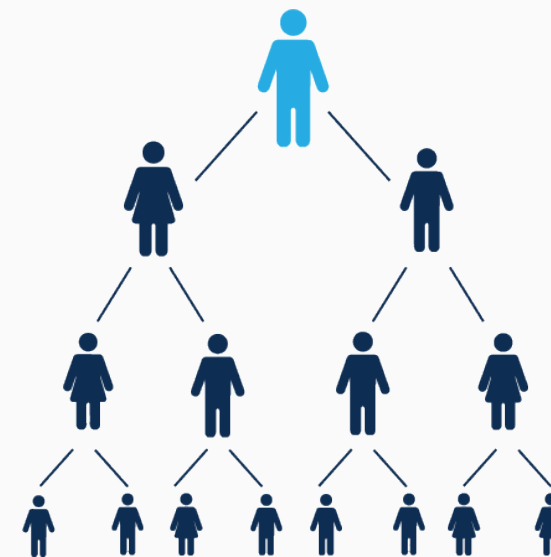




HENNEPIN COUNTY

MINNESOTA

Public Health



Leveraging data-to-care models to respond to an HIV outbreak among people who inject drugs and are experiencing homelessness; session ID 20921

Aaron D. Peterson | 2022 National Ryan White Conference on HIV Care & Treatment



Aaron D. Peterson

Hennepin County Public Health

- Mar 2022 – present: public health informatics
- Mar 2017 – Mar 2022: Data and outcomes coordinator, Ryan White HIV/AIDS Program

Education

- B.S. in mathematics, May 2015, South Dakota State University



Disclosure

- Aaron D. Peterson has no relevant financial interests to disclose.
- Disclosure will be made when a product is discussed for an unapproved use.
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- There was no commercial support for this activity.

Learning objectives

At the conclusion of this activity, participants will be able to:

- Discuss data-to-care in relation to ongoing HIV outbreaks
- Evaluate the effectiveness of data-to-care models during an HIV outbreak
- Discuss low barrier housing models for people who inject drugs

Background

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Data-to-care models for an HIV outbreak | 2022 National Ryan White Conference on HIV Care & Treatment

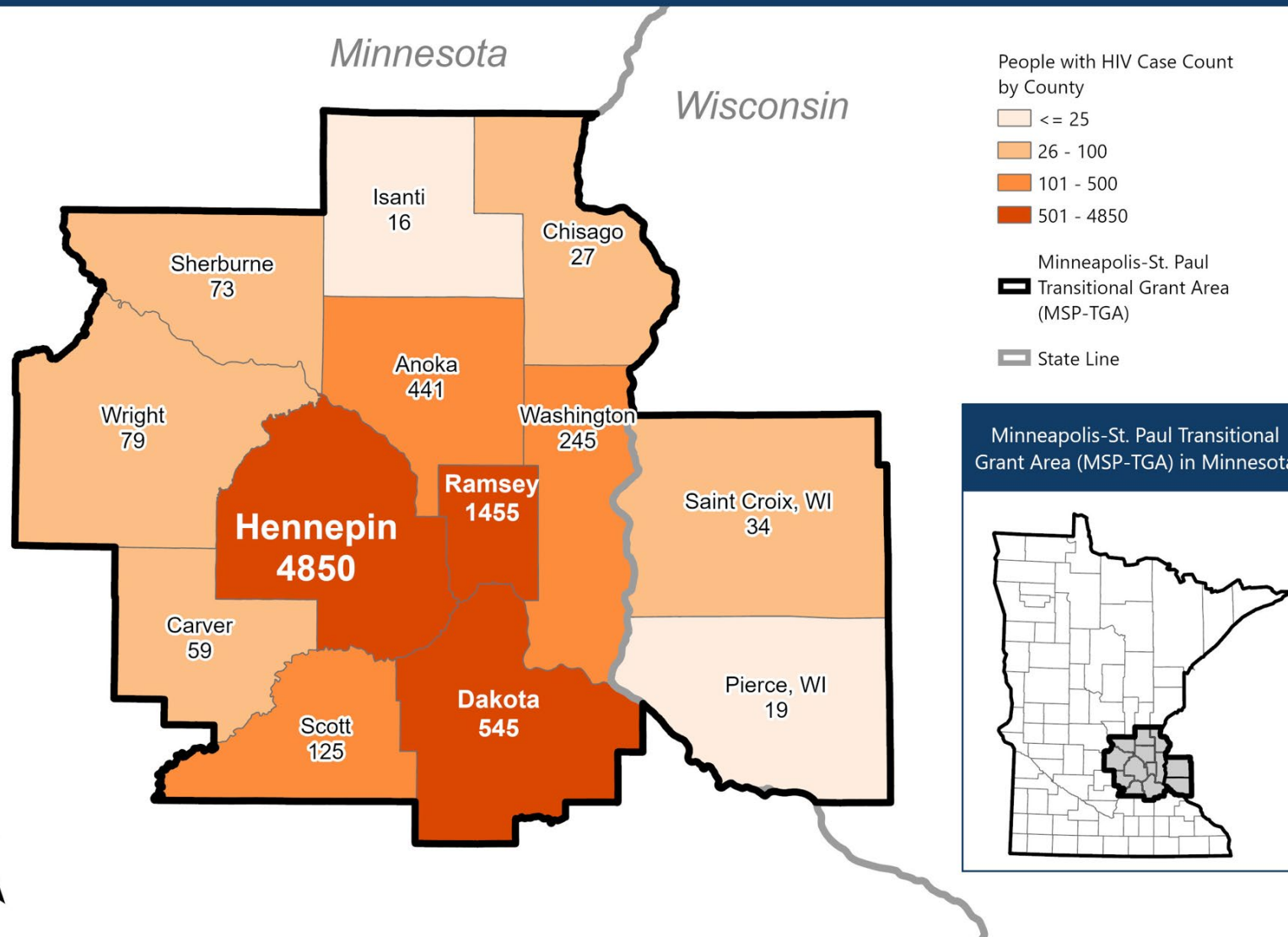


Hennepin County

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

People with HIV Case Count by County for the Minneapolis-St. Paul Transitional Grant Area (MSP-TGA) as of 12/31/2020

HENNEPIN COUNTY
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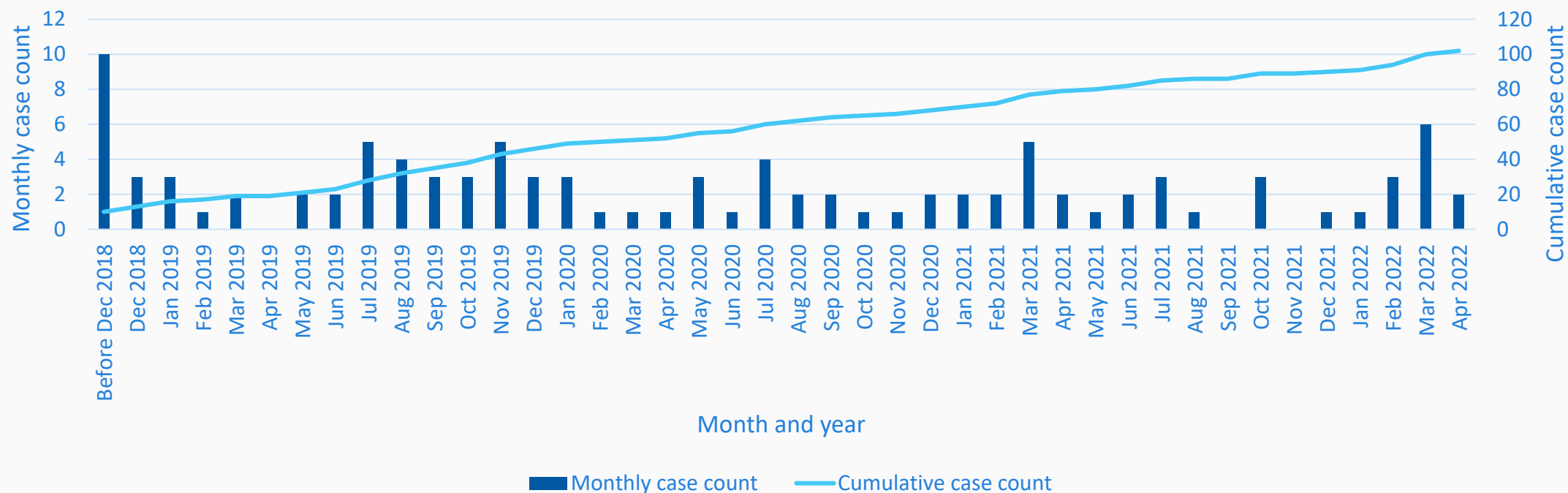


HIV outbreak is part of the drug related infectious disease (DRID) outbreaks in Minnesota

Time	Event
Dec 2018	Retroactively, the HIV outbreak was determined to begin in late 2018
Aug 2019	Hennepin County Public Health (HCPH) set up a hepatitis A incident command structure (ICS)
Sep 2019	CDC detected the HIV outbreak with their regular time-space analysis
Jan 2020	Minnesota Department of Health notified HCPH about the metro area HIV outbreak
Feb 6, 2020	Metro area HAN alert was issued: “HIV Outbreak in Persons Who Inject Drugs”
Mar 9, 2020	HCPH HIV and hepatitis A ICS merged into the DRID ICS
Mar 4, 2021	Duluth area HAN alert was issued: “HIV Outbreak and Syphilis Concern in Duluth Area”
Apr 14, 2021	Metro area HIV outbreak definition expansion notice was sent by HCPH
Jun 24, 2022	102 HIV outbreak cases ; syphilis objectives added to DRID ICS

HIV diagnoses continue in 2022

HIV outbreak cases and HIV diagnosis date in Hennepin and Ramsey Counties



Injection drug use is the primary mode of transmission in this HIV outbreak

Mode of transmission	# cases	% cases
Injection drug use (IDU) alone	48	47.1%
Men who have sex with men (MSM)/IDU	49	48.0%
Other †	5	4.9%
Total	102	100.0%

† Cases are included if they have lived in an encampment in Minneapolis or St. Paul or are named as a sex partner to a case meeting other outbreak-related criteria.



American Indian population is disproportionately impacted by the HIV outbreak

Race/ethnicity (sorted by rate)	# cases	% cases	Rate per 100,000 †
Not Hispanic (NH), American Indian	32	31.4%	292.8
NH, multiple races	5	4.9%	6.2
NH, Black/African American	14	13.7%	5.8
NH, White	43	42.2%	3.7
Hispanic, any race(s)	5	4.9%	3.5
NH, Asian/Pacific Islander	3	2.9%	1.6
Total	102	100.0%	4.4

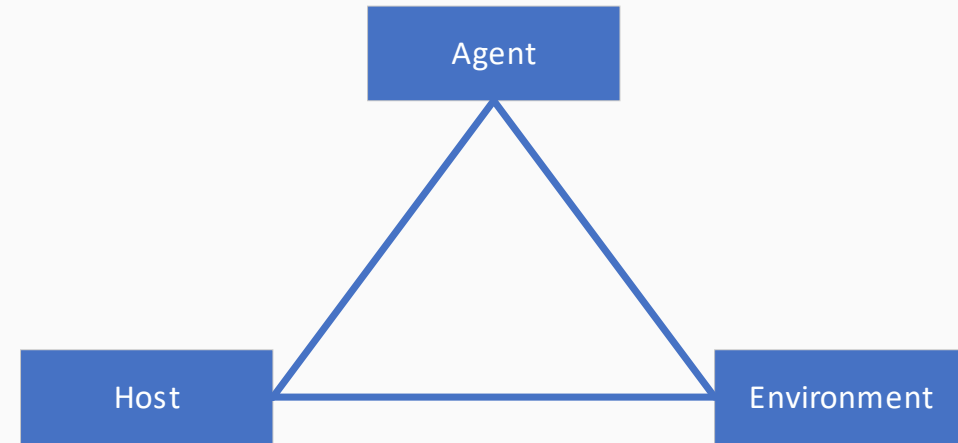
† 2020 Census; Hennepin and Ramsey Counties combined

Mode of transmission differs by race/ethnicity

Race/ethnicity (sorted by rate)	IDU alone	MSM/IDU	Other	Total
Not Hispanic (NH), American Indian	20	8	4	32
NH, multiple races	4	1	-	5
NH, Black/African American	7	6	1	14
NH, White	16	27	-	43
Hispanic, any race(s)	-	5	-	5
NH, Asian/Pacific Islander	1	2	-	3
Total	48	49	5	102

The environment has changed allowing an HIV outbreak to occur

- Lack of safe, affordable housing
- Encampments in Minneapolis and St. Paul
- Opioid crisis

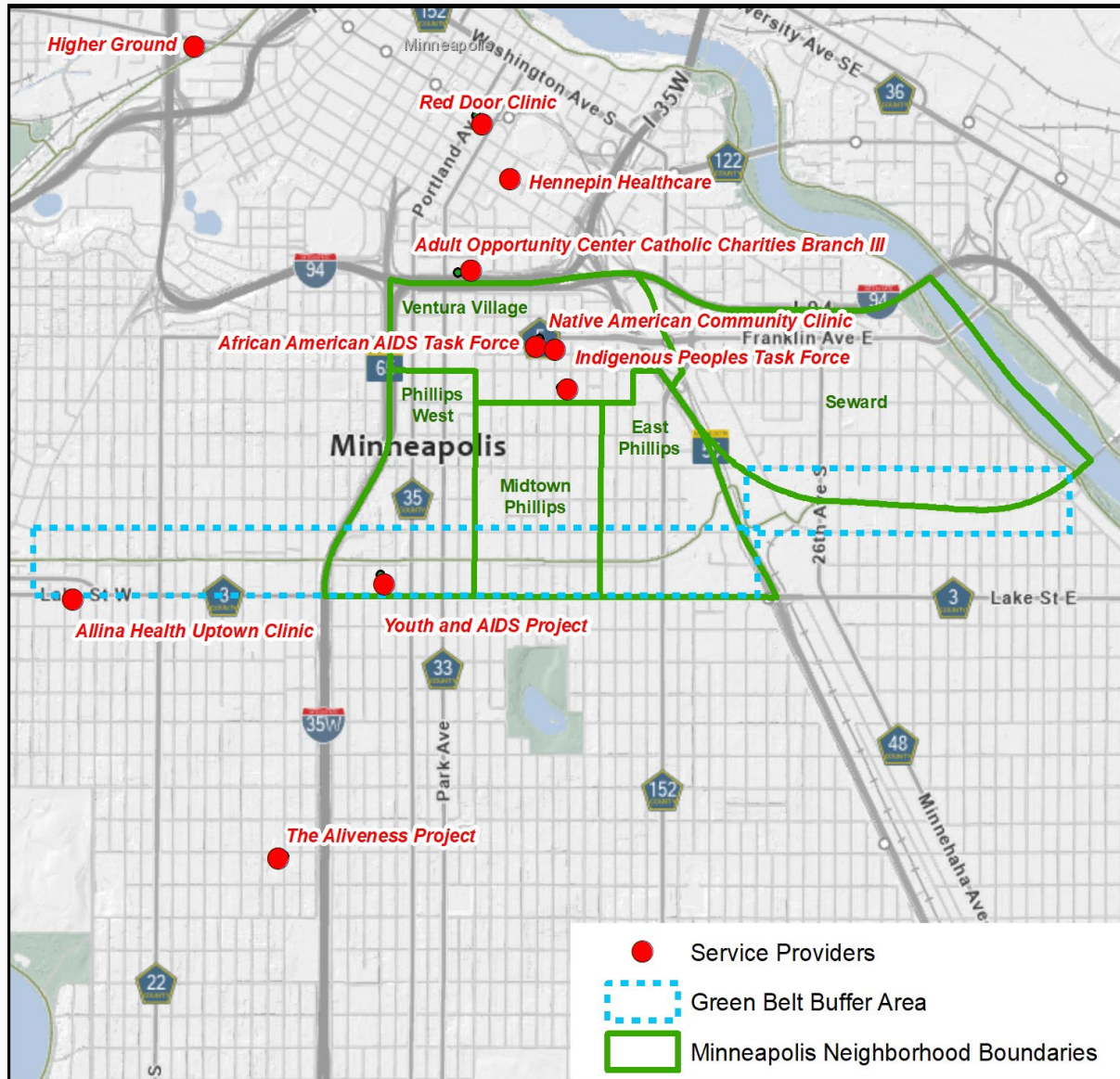


Epidemiologic triad, [Introduction to Epidemiology, Centers for Disease Control and Prevention](#)

Lack of housing is the driving factor for the HIV outbreak

- Many outbreak cases are encamped along the Midtown Greenway and in the Phillips neighborhood of Minneapolis
- Individuals experiencing unsheltered homelessness are often outside the formal shelter system



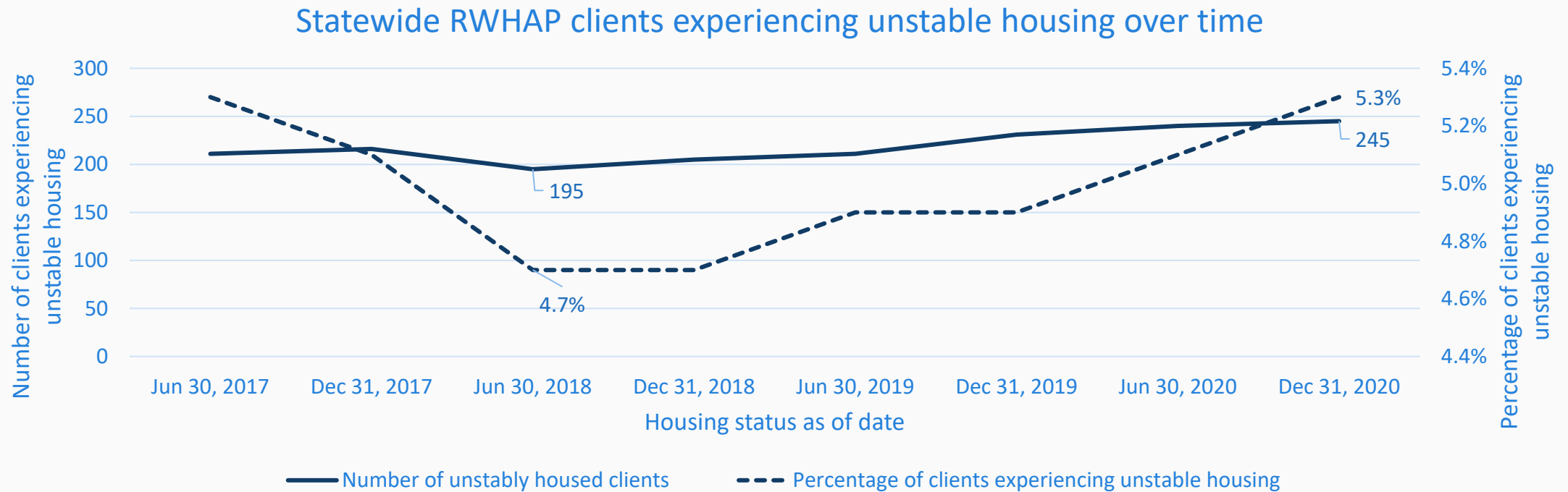


Spring 2018: First major encampment in Minneapolis was erected at Franklin/Hiawatha

- The Metropolitan Urban Indian Directors (MUID) provide an [American Indian-centered view of the housing crisis in Minneapolis](#)
- Encampments appeared in nearly all [Minneapolis parks](#) by [early summer 2020](#)



RWHAP clients experiencing unstable housing have been increasing since mid 2018



Source: [Housing and the Ryan White HIV/AIDS Program 2017-2020](#)

Interconnecting risk factors make public health interventions difficult

Risk factor †	# cases	% cases	# IDU alone	# MSM/IDU	# Other
Encampment connection (unsheltered homelessness)	49	48.0%	38	9	2
History of sex work	15	14.7%	10	4	1
History of incarceration	14	13.7%	8	3	3
Total	102	-	48	49	7

† Cases can have more than one risk factor.

There are 51 HIV outbreak adjacent cases in addition to 102 outbreak cases

- 102 HIV outbreak cases are on a list from the state health department
- HIV outbreak adjacent cases identified by Hennepin County Public Health
 - Have a history of homelessness
 - Have current or previous injection drug use and/or are socially connected to outbreak cases
 - May eventually be added to the outbreak list



A housing-first, cross-sector approach is needed to end the HIV outbreak



Data-to-care models

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A cross-sector approach recognizes that social determinants of health drive health outcomes

“Data to Care (D2C) is a public health strategy that uses HIV surveillance data, pharmacy fill data, clinic appointment data, and other treatment and care data sources to identify persons with HIV who are not in care, link those not in care to appropriate medical and **social services**, and ultimately support the HIV Care Continuum.” – Centers for Disease Control and Prevention

[Data to Care | Treat | Effective Interventions | HIV/AIDS | CDC](#); emphasis of social services added by presenter

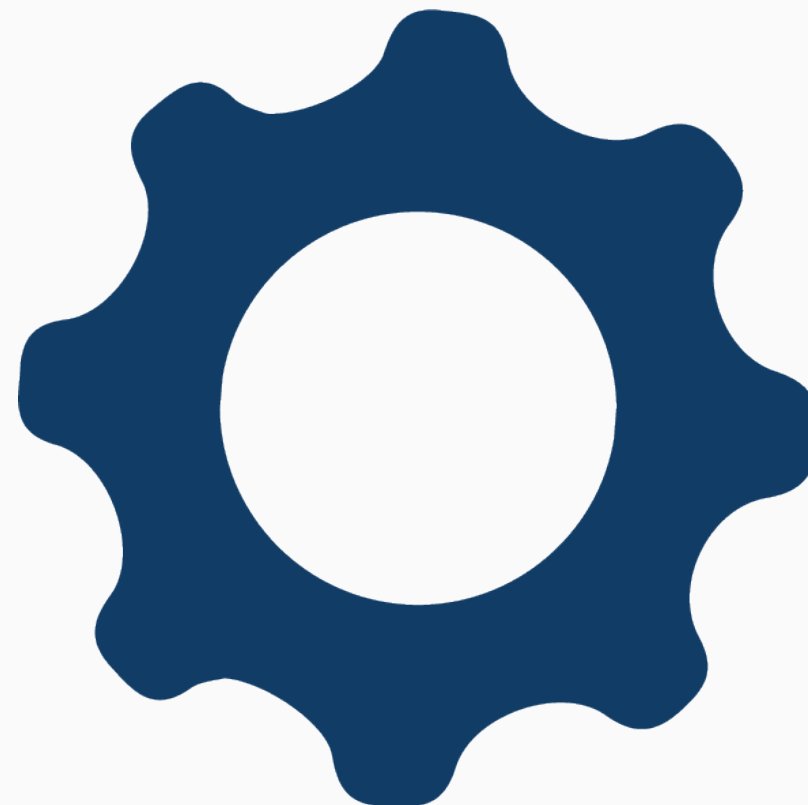
Siloed databases are matched against HIV outbreak and outbreak adjacent cases

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



Sectors used for data-to-care interventions

- Housing services
- Public health insurance (ex: Medicaid)
- Food assistance
- Cash assistance
- Ryan White HIV/AIDS Program
- Case management



Fuzzy (probabilistic) matching

- SQL Server Integration Services
 - Name
 - Date of birth
- Social security number was not available



At least 144 cases interacted with a publicly funded system between Jun 2021 – May 2022

Sector/sub-sector	Outbreak cases	Outbreak adjacent cases	Total
Housing	57	37	94
Public health insurance	90	47	137
- Medicaid	84	46	130
Food assistance	70	40	110
Cash assistance	64	39	103
- Short-term	58	34	92
- Supplemental income	12	10	22
Ryan White HIV/AIDS Program	58	36	94
Total cases with interaction	94	50	144

Public health professional selects a client, and a report of social services is generated

Date of service	Service Provider	Program	Data source
3/1/2021 – 3/31/2021	n/a	SNAP	MAXIS
3/1/2021 – 3/31/2021	n/a	Medicaid enrolled	MMIS
3/3/2021	Shelter A	Street outreach	HMIS
3/3/2021 – 3/4/2021	Shelter A	Shelter stay	HMIS
3/15/2021	RWHAP service provider A	Medical case management	CAREWare
3/16/2021	RWHAP service provider B	On-site Meals	CAREWare

Housing-first

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Before people experiencing homelessness can be housed, they need to be visible to the housing system



Identification

Enrollment

Maintenance

There are a variety of housing continuum models that capture changes in housing situations



Housing
transition

Housing
retention

Stable housing

Housing statuses of outbreak cases have revealed different systems gaps

Housing status	# cases	% cases	# IDU alone	# MSM/IDU	# Other
Stably housed	33	32.4%	6	25	2
Recently housed	21	20.6%	13	6	2
Shelter or low-barrier housing	2	2.0%	1	1	-
Institutional	13	12.7%	7	6	-
Unhoused	22	21.6%	15	6	1
Unknown	11	10.8%	6	5	-
Total	102	100.0%	48	49	5

Housing data helps identify public health intervention opportunities

Housing sub-sectors	Outbreak cases	Outbreak adjacent cases	Total
Emergency shelter	28	19	47
Drop-in center	27	11	38
Street outreach	22	14	36
Supportive housing	21	21	42
Permanent housing	18	12	30
Coordinated entry assessment	32	18	50
Total cases with housing sector interaction	57	37	94

A crosstab of recent homelessness services reveals different interaction trends

Housing sub-sectors	SO	DC	ES	Total
Street outreach (SO)	25	5	8	25
Drop-in center (DC)	5	20	9	20
Emergency shelter (ES)	8	9	19	19
Total cases with homelessness service interaction	25	20	19	45

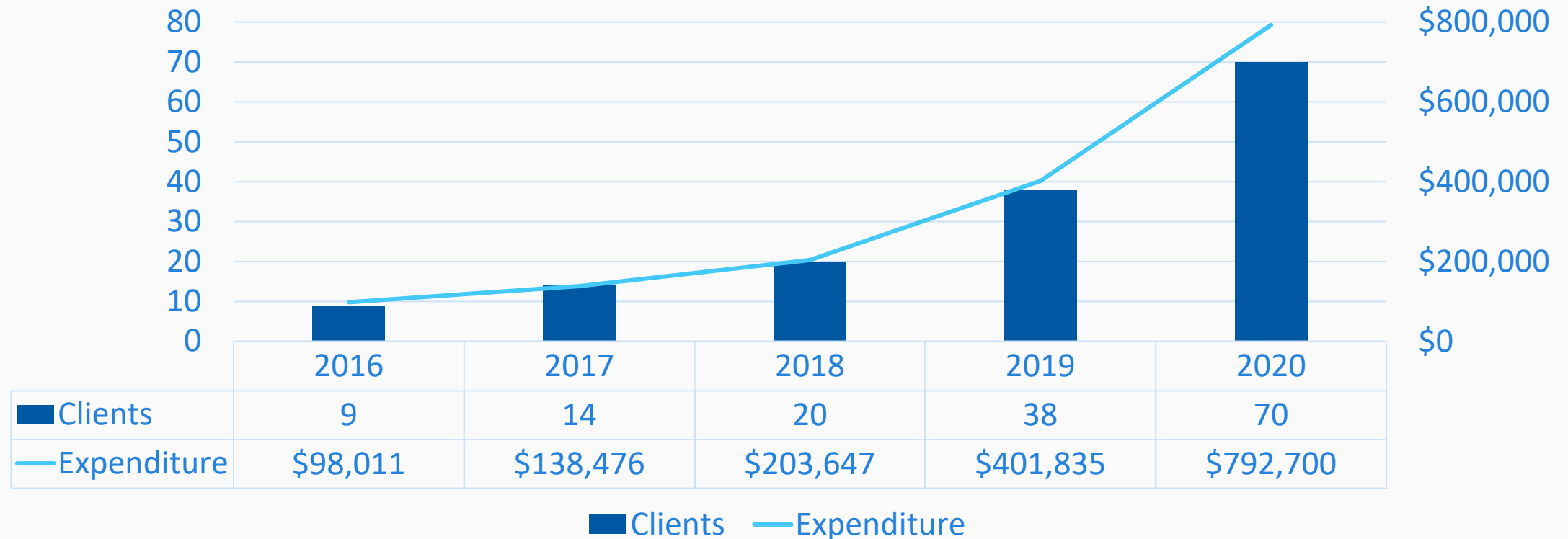
Mar 2022 – May 2022; outbreak and outbreak adjacent cases

72.2% (16/22) of unhoused cases have a coordinated entry assessment

Coordinated entry assessment completion for HIV outbreak cases who are unhoused



Ryan White HIV/AIDS Program continues to increase transitional housing resources



HOPWA CARES Act grant funding a low barrier housing pilot for HIV outbreak cases

- Contract with Avivo Village of “tiny houses” through May 2023
 - “[The] Housing First approach is culturally-responsive and trauma-informed.”
- Served six people with HIV so far
- Two have secured stable housing
- \$79,457 HOPWA grant received as part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act through the city of Minneapolis



Image source: [Avivo Village - Indoor tiny home shelter in Minneapolis \(avivomn.org\)](https://avivomn.org)

Government and community partners formed a low barrier housing technical working group

- Identify gaps and barriers
- Evaluate effectiveness of low-barrier housing models
- Structured interviews with people experiencing unsheltered homelessness or history of unsheltered homelessness



Cross-sector approach

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Healthcare and case management support people with HIV to achieve their best health

Public health and human services colleagues collaborate to ensure outbreak cases have access to:

- Basic needs, including food, transportation, financial assistance
- Available housing options
- Healthcare services



Individual and “aggregate” case management work in parallel in this cross-sector approach

- Provides a fuller picture of interactions with publicly funded systems for the public health professionals in the HIV outbreak response
- Cross-sector data evaluations ensure people with HIV are referred and linked to all services needed to achieve viral suppression
- Improves social service delivery for the individual and population



Social service data ensures people with HIV are connected to basic needs to achieve viral suppression



Work requires legal and privacy teamwork

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



Future work

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Addressing structural barriers to advancement along the HIV care and housing continuums

- Substance use disorder
- Mental illness
- Housing
- Involvement with criminal justice system



Combining claims and EHR data will provide a more complete picture of health outcomes

- Movement along the HIV care continuum towards viral suppression
- Medication adherence (ex: prescription claims for antiretroviral therapy and medication assisted therapy)
- Outpatient visits, inpatient stays, and emergency department interactions



Acknowledgements and additional information

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Many colleagues have contributed to the work and informed this presentation

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HIV cross-sector approach is a collaborative builds off previous work

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- **Katherine Vickery, MD**, family medicine physician, Hennepin Healthcare; medical director, Hennepin County Health Care for the Homeless
- **Riley Shearer**, MD/PhD candidate, University of Minnesota
- **David Johnson, MPH**, epidemiology, informatics, and immunizations manager, Hennepin County Public Health
- 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.
- Forthcoming HIV cross-sector methods paper; Riley Shearer as corresponding author

Additional information

- Hennepin County's response to the HIV outbreak among people who inject drugs: <https://www.hennepin.us/hiv-outbreak>
 - Most recent outbreak update: [HIV outbreak in Hennepin and Ramsey Counties – June 24, 2022, update](#)
- [Analysis of Ryan White Client Interactions With Medicaid, Social Services, and the Criminal Justice System | TargetHIV](#)

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