HENNEPIN COUNTY

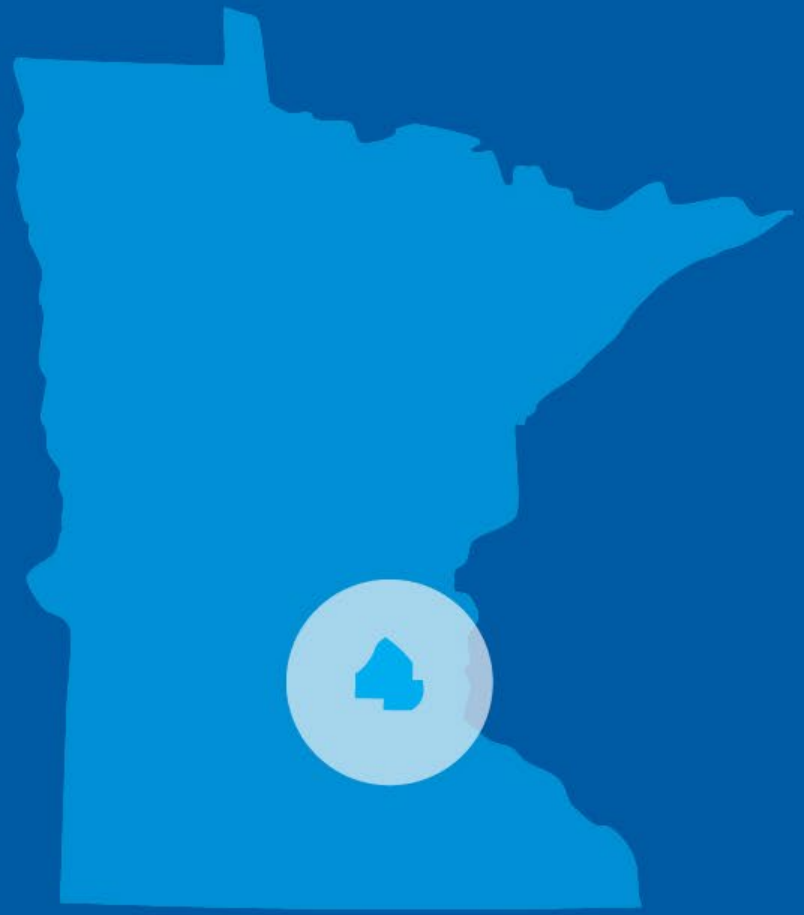
MINNESOTA

Public Health

Leveraging cross-sector data in the opioid crisis response

Hennepin County Public Health &
Hennepin Healthcare Research Institute

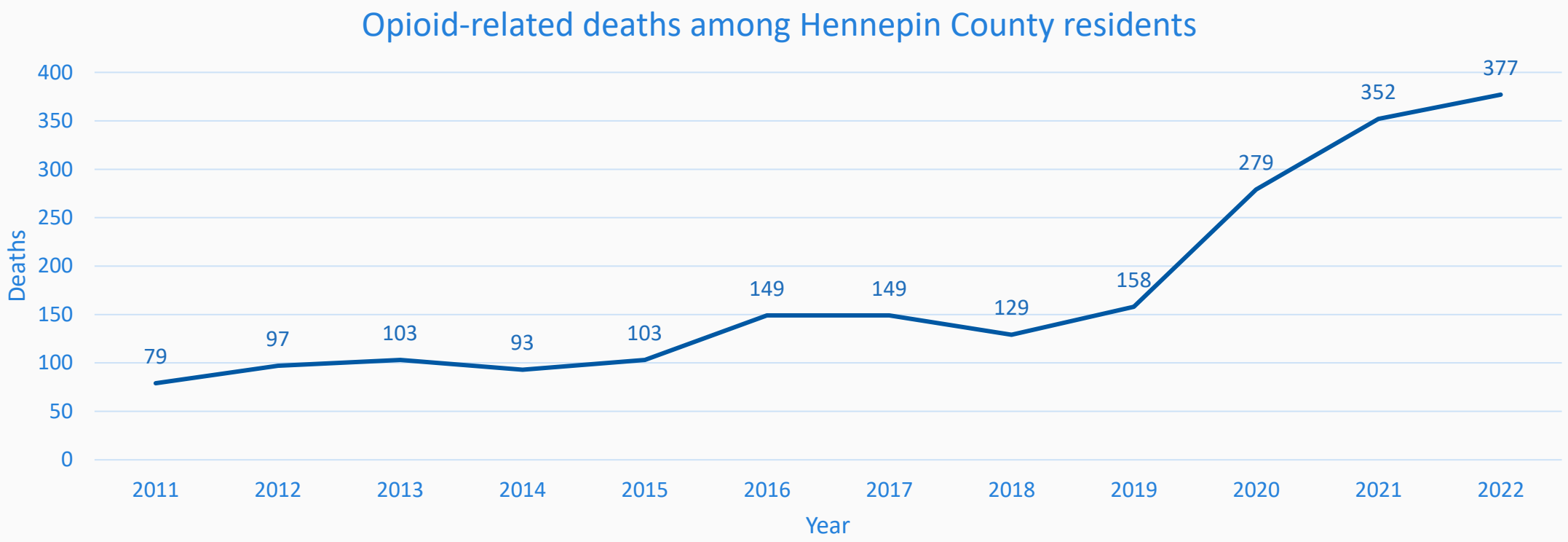
Background



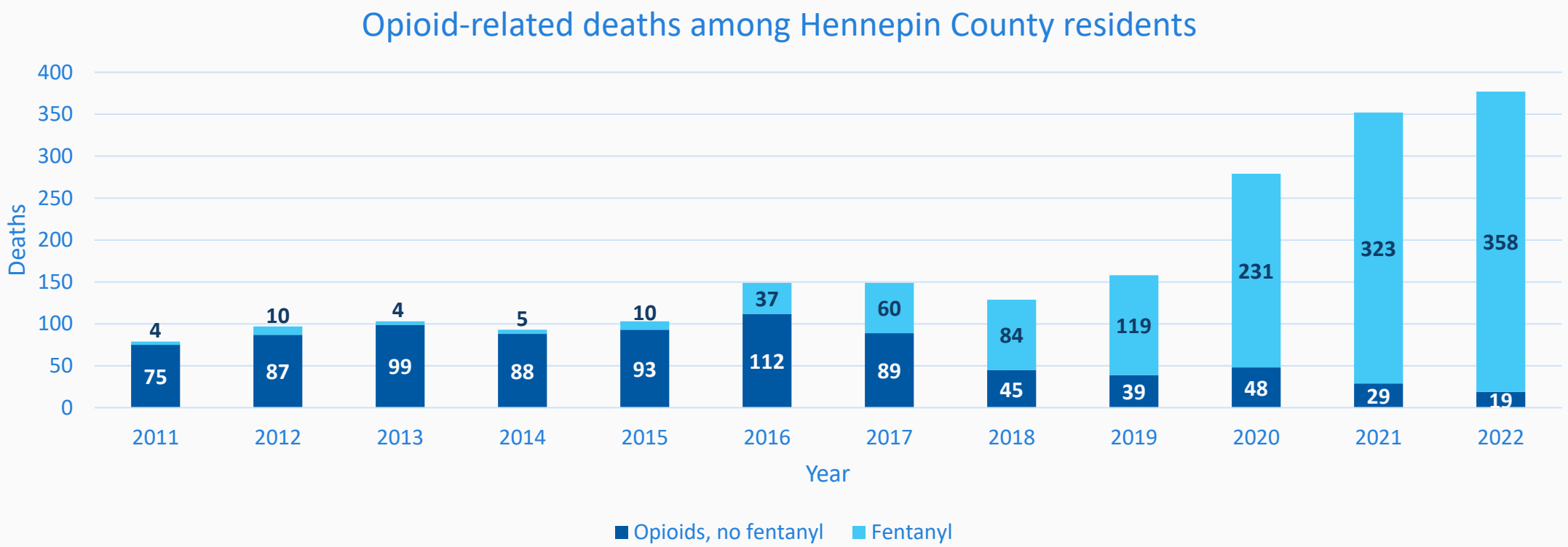
Hennepin County

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

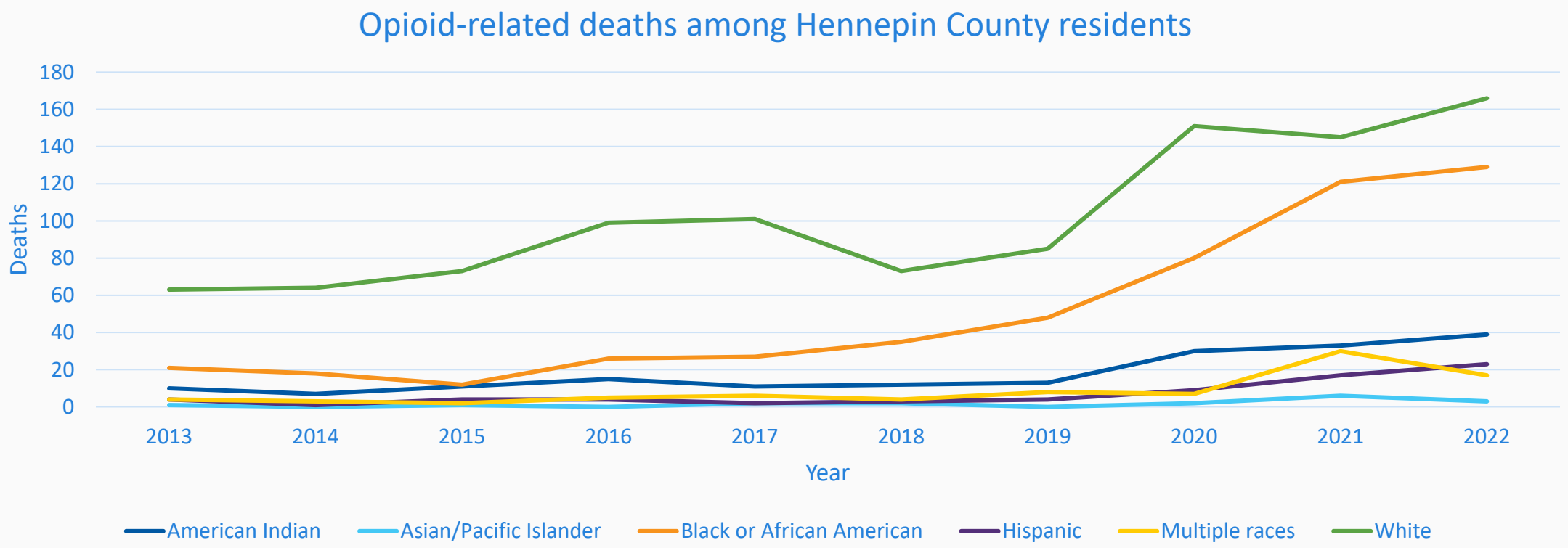
Opioid-related deaths have risen over the past decade



The rise in opioid-related deaths is driven by fentanyl



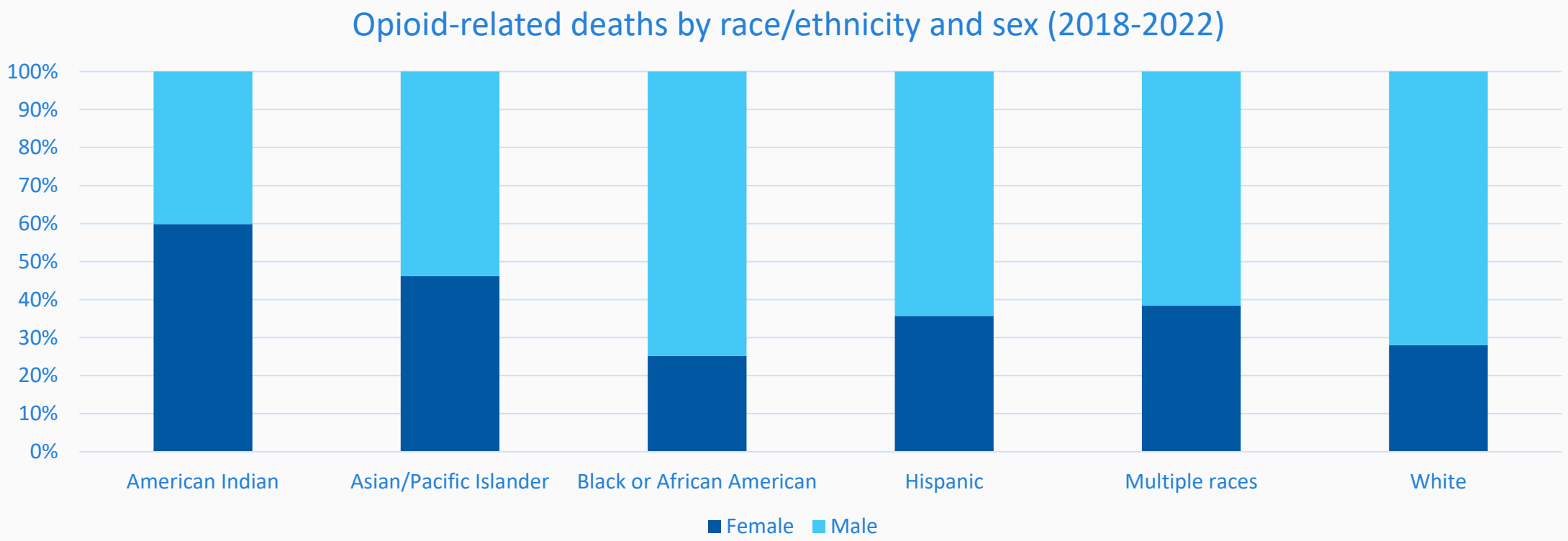
Since 2018, opioid-related deaths have risen fastest among Black residents



The American Indian community experienced the highest rate of opioid-related deaths in 2022

Race/ethnicity	Opioid-related Deaths	Deaths per 100,000	% Deaths	% County population
American Indian	39	487	10.3%	1.8%
Asian/Pacific Islander	3	3	0.8%	7.6%
Black or African American	129	76	34.2%	13.2%
Hispanic	23	23	6.1%	7.7%
Multiracial	17	28	4.5%	3.6%
White	166	20	44.0%	65.6%

In all race/ethnicities except American Indian, more males die of an opioid-related cause



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 several Minneapolis parks by early summer 2020

Public health crisis trifecta

- Opioid and substance use crisis
- HIV outbreak
- Lack of affordable, accessible housing

Opioid framework pillars

Prevention

Prevent further spread of opioid crisis

Response

Avert overdose deaths

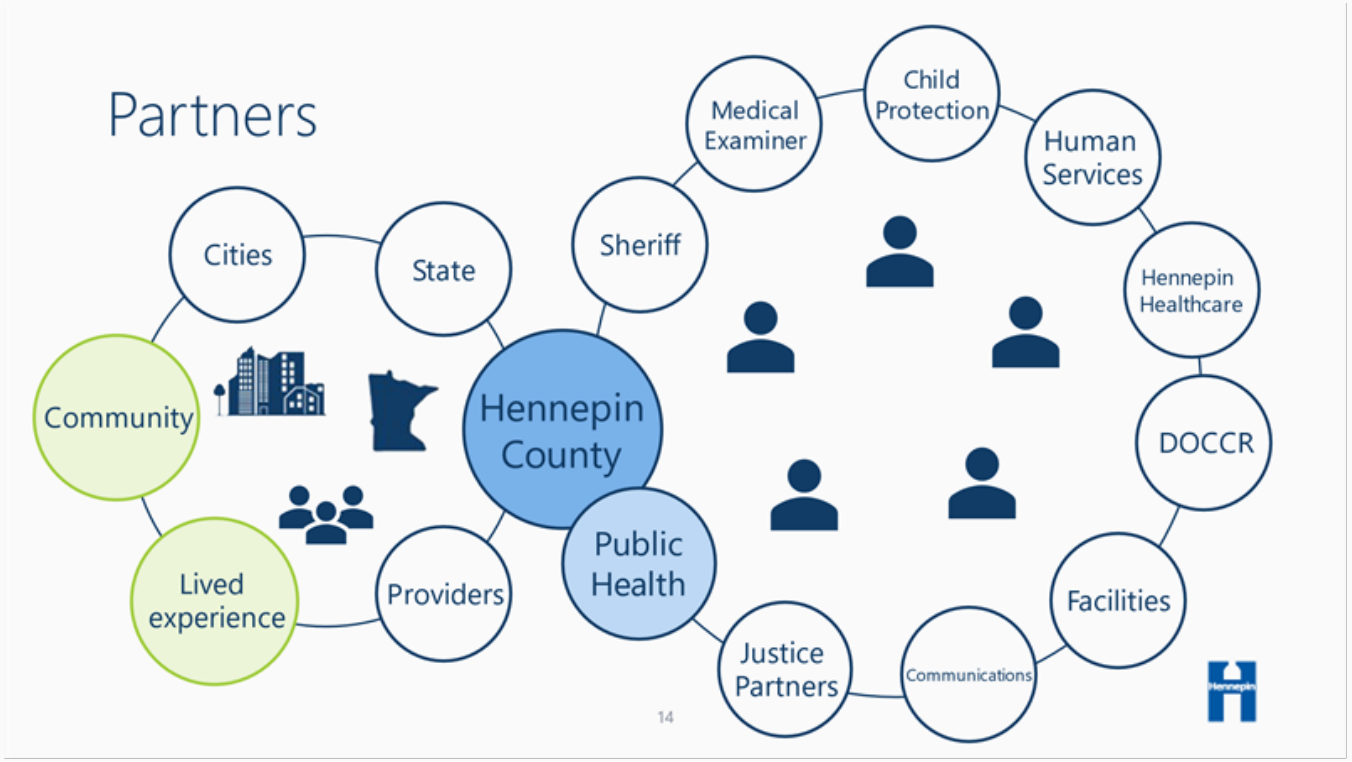
Treatment

Provide evidence-based treatment and recovery services

Prevention: Data infrastructure

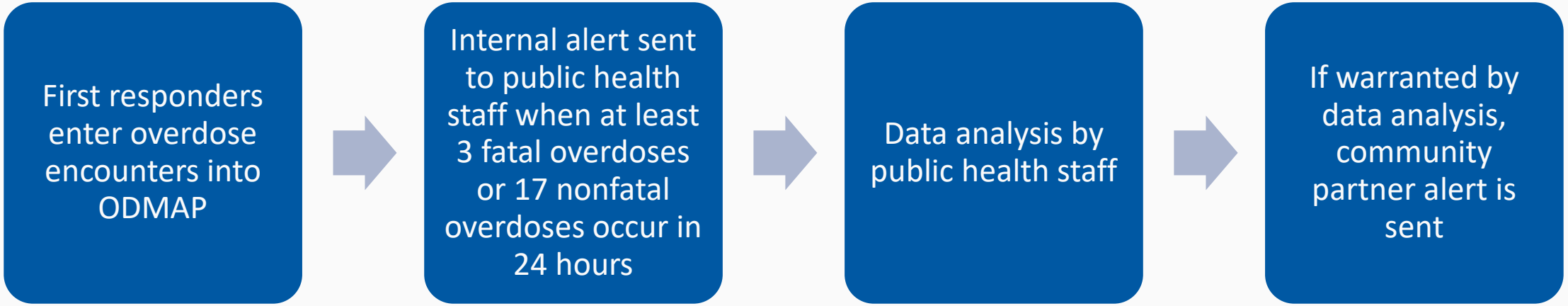
- Opioid-related death dashboard
- Cross-sector evaluations
- Substance involved emergency and hospital visit dashboard
- Overdose Detection Mapping Application (ODMAP)

Team and framework



[Julie Bauch](#) – Opioid Response Coordinator

Overdose Detection Mapping Application (ODMAP) spike alerts are a tool to identify unusually high levels of overdoses



In 2019, the Hennepin County jail started prescribing buprenorphine

- Nearly 30 percent of opioid deaths occurred within 1 year of release
  - 55% of those were within 90 days
- Hennepin County Public Health and Health, Homelessness, and Criminal Justice Lab used the 2018 jail study to advocate for this public health intervention
- In 2022, 4,175 buprenorphine and 620 methadone orders were prescribed

Matching opioid death records to housing services to improve public health interventions

Public health cross-sector data framework

- Siloed databases are matched against opioid-related deaths
  - HMIS: Homeless Management Information System
  - Electronic health records (Epic)

Fuzzy (probabilistic) matching

- Match based on common fields
  - First and last name
  - Date of birth
- RecordLinkage R library
- Challenges

26% of opioid-related deaths were matched to housing service recipients

- Death records
  - Jan 1, 2019 – Dec 31, 2022
- Homeless Management Information System
  - Jan 1, 2017 – Dec 31, 2022
  - Must have had at least one service in Hennepin County

Year of death	Matches
2019	20.3% (32/158)
2020	18.3% (51/279)
2021	29.9% (106/354)
2022	31.5% (119/378)
Total	26.3% (308/1,169)

Black and American Indian residents are overrepresented

Race/ethnicity	Opioid-related Deaths	% Deaths	% County population
Black/African American	141	46.8%	13.2%
White	79	25.6%	65.6%
American Indian	62	20.5%	1.8%
Multiracial	15	2.9%	3.6%
Hispanic	7	2.3%	7.7%
Unknown	<5	-	-
Asian/Pacific Islander	0	0.0%	7.6%

About of 40% matched deaths occurred within 30 days of a housing service

- 0 days represents receiving service day of or being enrolled in an ongoing housing service

Days	Count	Percent
0 days	93	32.0%
1-30 days	28	9.6%
31-100 days	24	8.2%
101-365 days	57	19.6%
Greater than 1 year	89	30.6%

Emergency shelter and drop-in center were the most utilized services

Service	Count	% Match	% HMIS
Emergency shelter	217	70.5%	63.1%
Drop-in center	145	47.1%	29.7%
Permanent housing	119	38.6%	23.3%
Street outreach	71	23.1%	13.4%
Rapid re-housing	30	9.7%	18.1%
Transitional housing	24	6.8%	5.0%

Emergency shelters are a key point of intervention

- 1 in every 139 unique people that used emergency shelter services over the period studied died of an opioid-related death
- 46 percent of those deaths occurred within a year of using an emergency shelter service, and 12 percent occurred within 30 days.

Few deaths were matched to Public Health Clinical Services

- Public Health Clinic
- Health Care for the Homeless
- Mental Health Clinic
- Emergency mental health services

Next steps

- Meeting with stakeholders, including opioid response and clinical leadership
- Integrate new data about criminal justice encounters
- Limitations
  - Data only captures those who have died
  - Data is delayed
  - Little data on interactions with healthcare

Using electronic health record data for public health data analysis

Cross-sector Data in a Distributed Data Environment

Peter Bodurtha, Hennepin Healthcare Research Institute

MN EHR CONSORTIUM

Data Challenges

Goal

- State or county-wide public health data + social determinants of health

Realities

- Minnesota data laws
- Health care systems responsible for protecting patient data, sharing limited
- Social services agencies responsible for protecting client data, sharing limited
- Data focused on operations, not public health
- Data not designed to talk to each other

Result

- Very difficult to create central databases for public health and research

Solution

- Distributed data model

MN EHR Consortium

Mission: To improve health by informing policy and practice through data-driven collaboration among members of Minnesota's health care community

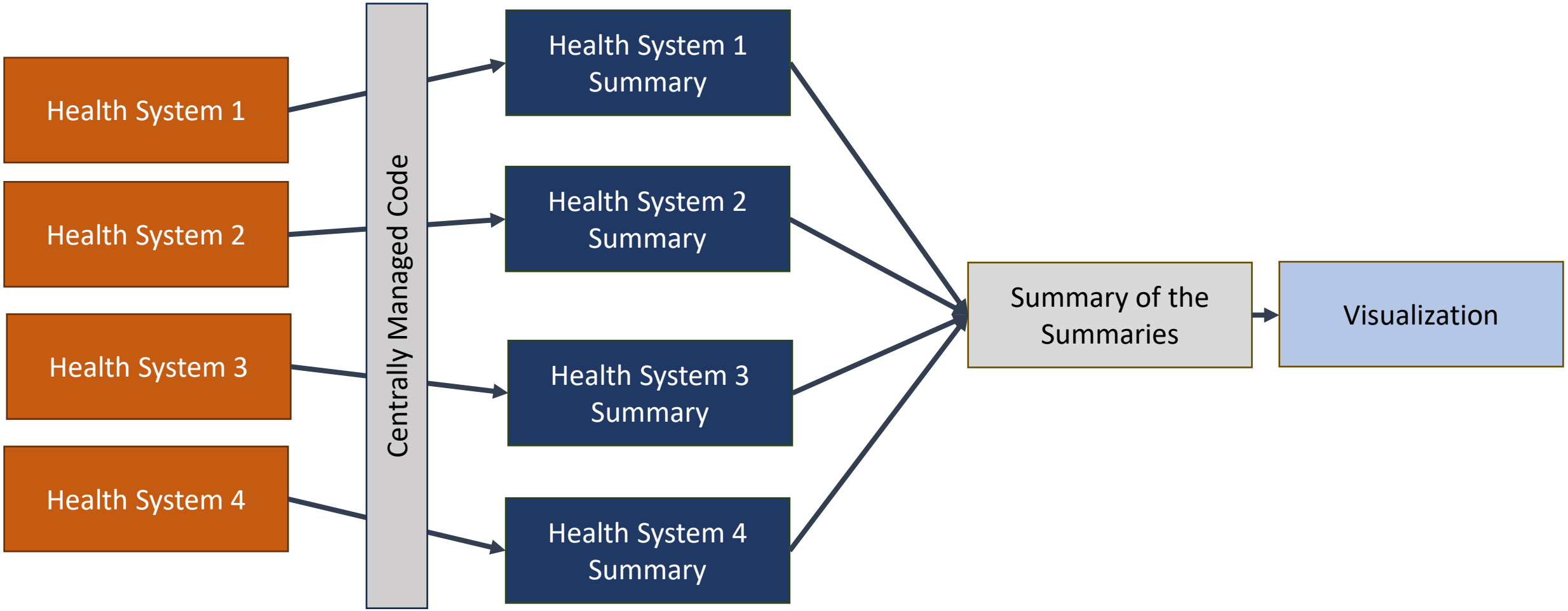
Key principles

1. Prioritize privacy through a distributed data model
2. Voluntary collaboration
3. Good governance through our Governance Board and Executive Committee
4. Adaptable and nimble

MN EHR Consortium

- 11 largest health systems in Minnesota
- All regions of the state
- >90% of patients in Minnesota
- Distributed data model facilitating collaborative research

How does the distributed data model work?



Distributed Data Model

Advantages

- Does not share identified health information
- Health systems retain control over their data
- Produces reliable results

Limitations

- Some analyses are not possible
- Requires common data model
- Requires more planning

Application: Tracking Substance Use-related Hospital Visits in Hennepin County

Things Hennepin County wants to know

- How is Hennepin County doing?
  - How is opioid use changing?
  - How high are current rates?
- Where should Hennepin County focus efforts?
  - Where are changes concentrated?
  - Among whom are rates highest? Lowest?

Context

- Opioid-related data relies on deaths
  - 5+ month old data
  - Lagging indicator
  - Small number of observations

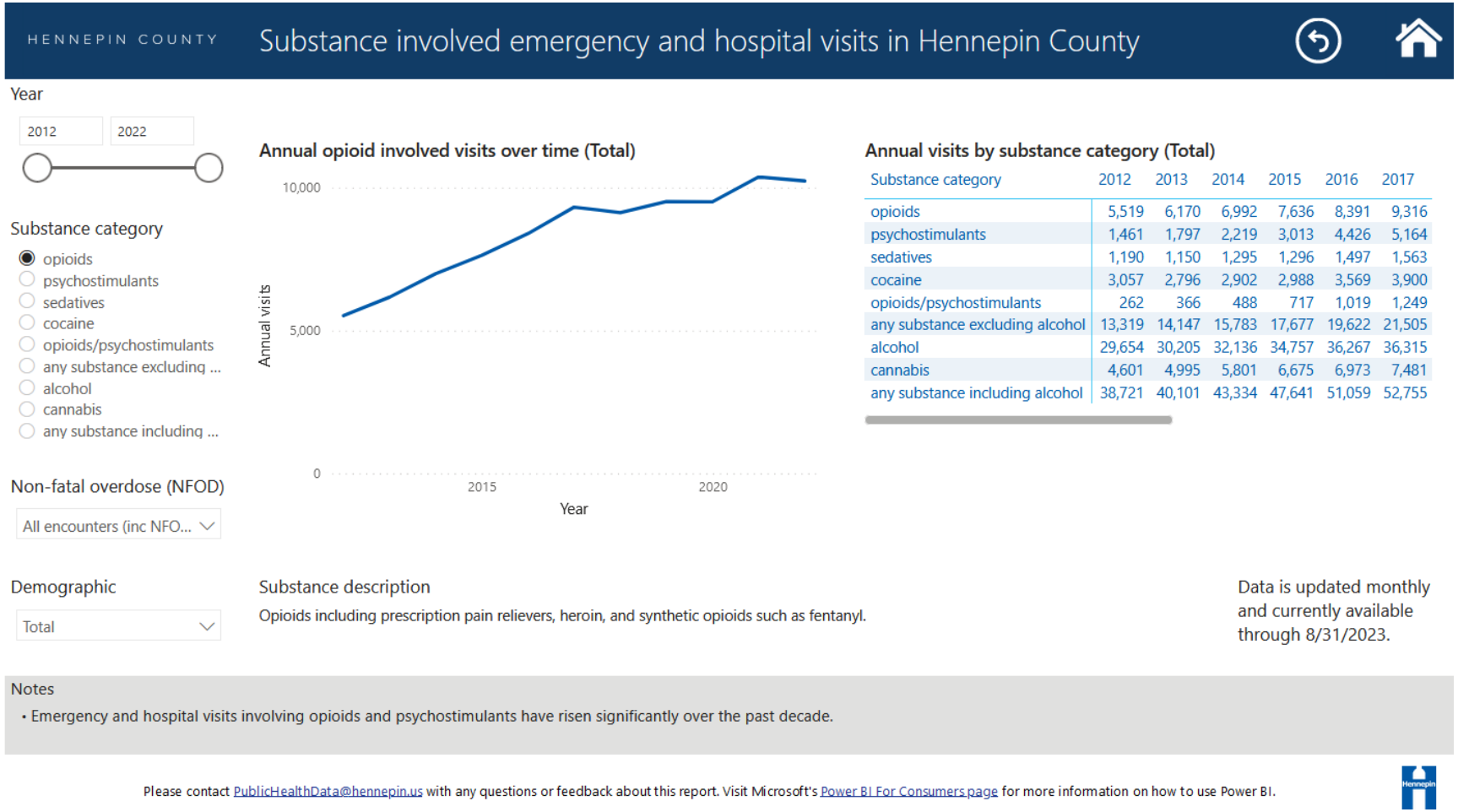
MN EHR Consortium solution

- Electronic health record data
- Hospital + emergency visits at hospitals in Hennepin County
- Data is ~1 month old
- Strata
  - Age
  - Sex
  - Race/ethnicity
  - Substance
- Cross-sector data
  - Incarceration
  - Geography

What is an opioid-related visit in an EHR?

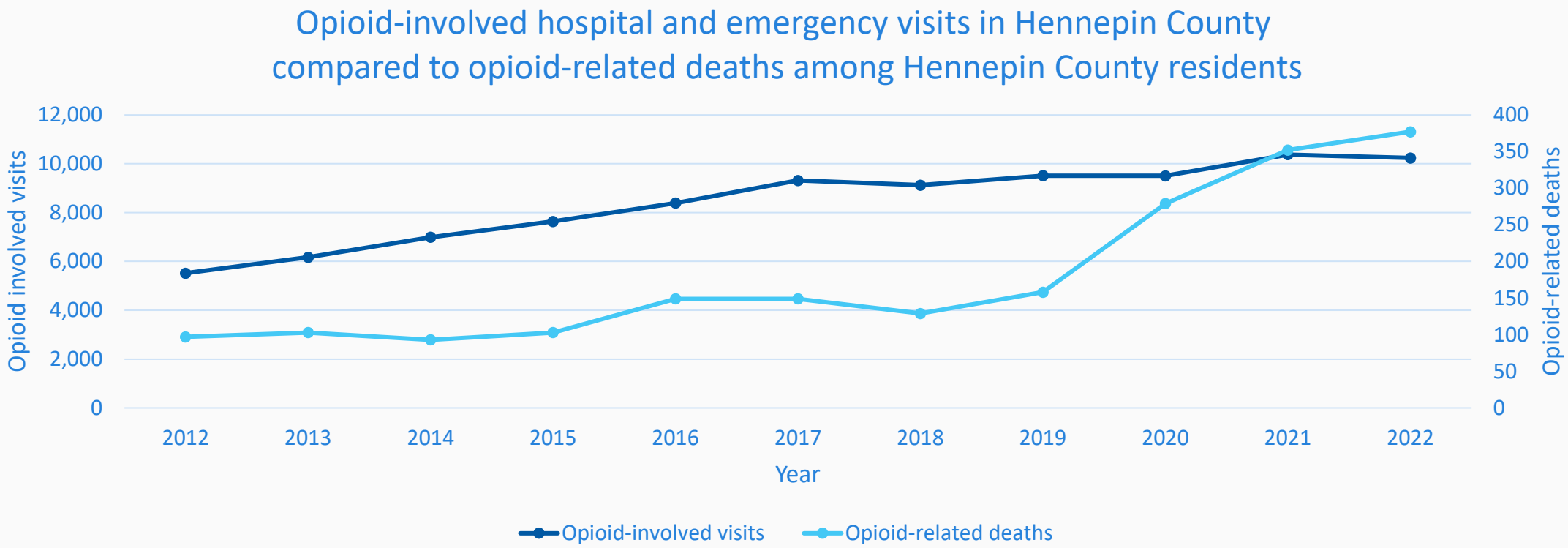
- Emergency or Inpatient visit (including observation)
- At a hospital located in Hennepin County
- Opioid-related ICD-10 diagnosis code attached to the visit
  - Two different definitions
    - Broad definition (all relevant diagnoses – opioid dependence, etc.)
    - Non-fatal overdose (overdose codes only)
- Demographics from electronic health record

Results: Hennepin County Dashboard

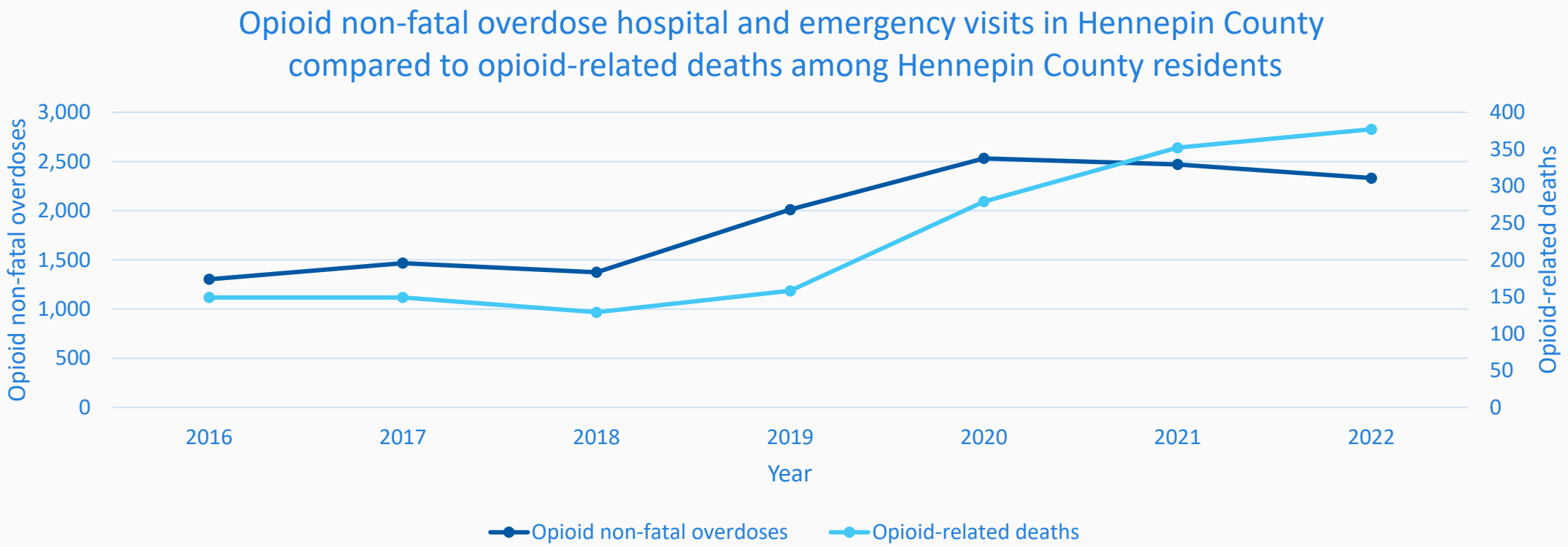


Leveraging multiple data sources to holistically understand the opioid crisis in a local jurisdiction

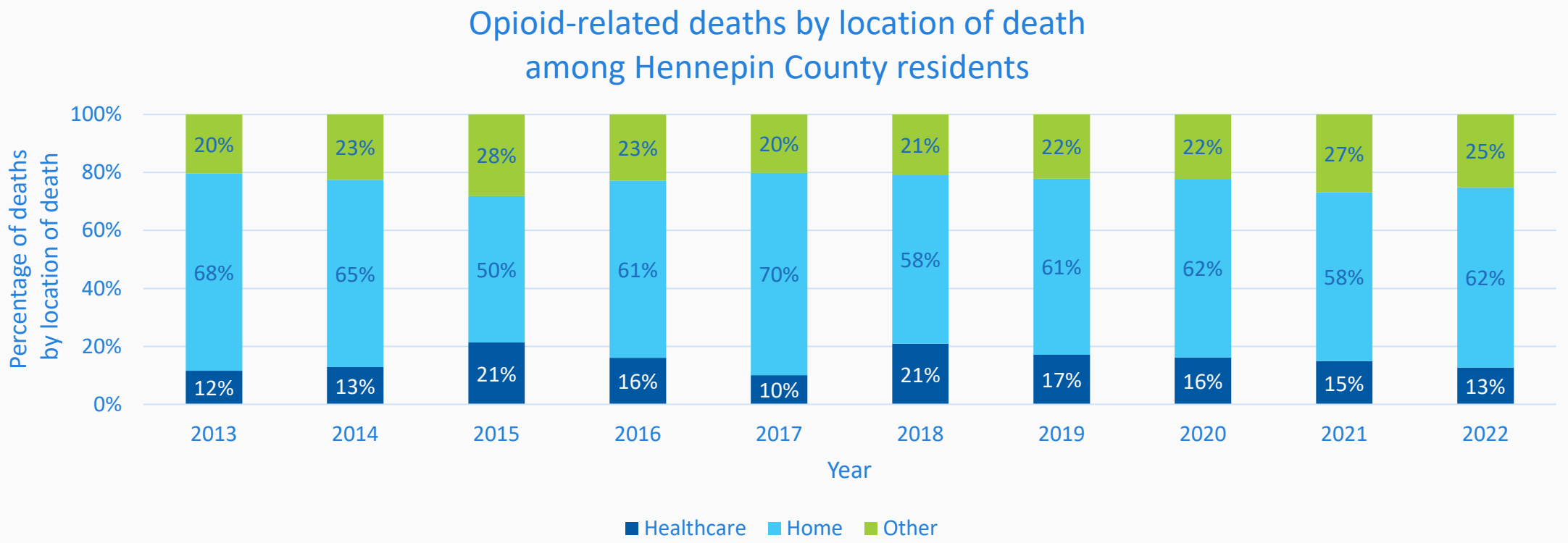
Opioid-related deaths have risen faster than opioid-involved visits in recent years



Opioid non-fatal overdoses track more closely with opioid-related deaths



Deaths in healthcare settings versus in a decedent's home are comparable over time



Opioid framework pillars

Prevention

Prevent further spread of opioid crisis

Response

Avert overdose deaths

Treatment

Provide evidence-based treatment and recovery services

Response: harm reduction

- Naloxone (Narcan)
- Syringe exchanges
- Fentanyl testing strips
- Infectious disease testing
- Education
- Connections to care

Treatment: clinical

- Health Care for the Homeless
- Mental Health Center
- Public Health Clinic
- Adult Detention Center
- Adult Corrections Facility
- Juvenile Detention Center
- Hennepin Healthcare / HCMC
- NorthPoint

Hennepin County Public Health takes a data-informed approach to the opioid crisis response

- Health and racial disparities
- Community engagement
- Community outreach
- Funding

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