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Hennepin County Public Health, Minneapolis, MN

Integrating infectious disease, homelessness, and criminal justice data to inform cross-sector public health practices

Background

Hennepin County has an ongoing HIV outbreak among people who inject drugs. Most cases are associated with unsheltered homelessness, complicating the delivery of public health interventions. While providing care to people experiencing homelessness (PEH), public health staff are identifying an increasing number of syphilis infections. Additionally, public health and jail healthcare staff report a substantial number of PEH coming through the Hennepin County jail. Housing status and criminal justice interactions have not been routinely collected in public health surveillance data, so quantifying their connection with these infectious diseases is difficult.

Methods

Probabilistic matching was used to link people from seven datasets related to infectious diseases, housing services, and criminal justice.

- Used the *RecordLinkage* R package to match on first and last name plus date of birth using Jaro–Winkler distance and custom extensions.
- Weekly updates capture new data and results flow into a Power BI report.
- HIV data does not represent prevalence but includes recent incident cases, the HIV outbreak, and prevalent cases identified as out of care as part of the department’s data to care program.

Evaluation questions

- How many county residents with HIV and/or syphilis have received housing services or been incarcerated in state or local facilities?
- How many county residents have been diagnosed with multiple infectious diseases?

Table 1. Infectious disease matching results

	HIV cases	% of HIV cases	Syphilis cases	% of syphilis cases
All Cases	5,086	-	1,872	-
Incarceration	509	10.0%	601	32.1%
Housing	757	14.9%	605	32.3%
Emergency shelter	423	8.3%	391	20.9%
Coordinated entry	417	8.2%	365	19.5%
Permanent housing	363	7.1%	270	14.4%
Day shelter/ drop-in center	254	5.0%	301	16.1%
Street outreach	148	2.9%	260	13.9%
Rapid rehousing	112	2.0%	75	4.0%

Table 2. Frequency of coinfections

Disease	Count	Housing %	Incarceration %
HIV only	4,751	13.8%	10.6%
Syphilis only	1,537	32.8%	35.5%
HIV and syphilis	335	30.1%	23.3%

Conclusions

- About 15% of people with HIV and 32% of people with syphilis have received at least one housing service since 2017.
- About 10% of people with HIV and 32% of people with syphilis had been jailed or incarcerated.
- There are significant coinfections of HIV and syphilis.

Next steps

- Advocate for access to full HIV prevalence list.
- Advocate for funding and policies that address the social and structural determinants of health.

Contact

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The public health informatics unit partnered with human services colleagues and the Institute for Community Alliances for housing data access from the Minnesota Homeless Management Information System (HMIS).