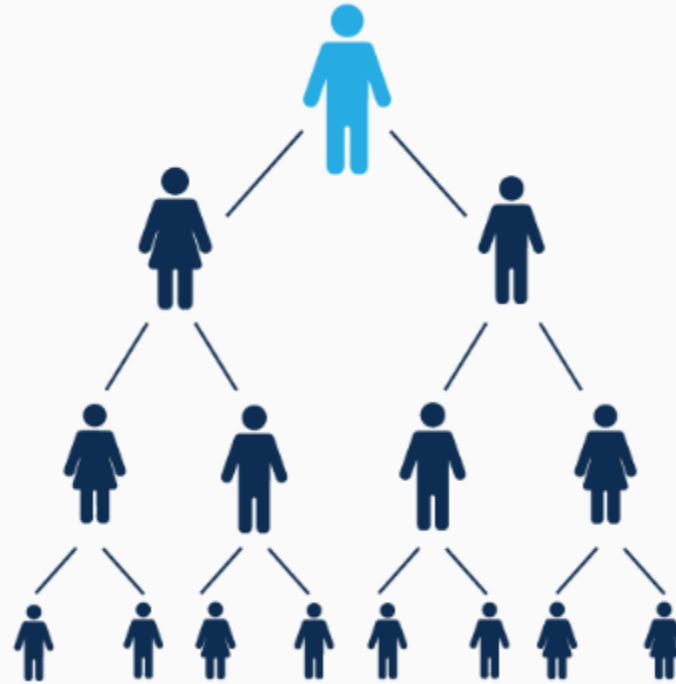




HENNEPIN COUNTY

MINNESOTA

Public Health



An epidemiological approach to infectious diseases within people experiencing homelessness

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Agenda

- Who we are
- Clinical review
- Epidemiological response
- Infectious diseases review
 - Tuberculosis
 - Hepatitis A
 - HIV
 - Syphilis
 - COVID-19
 - Monkeypox



Objectives

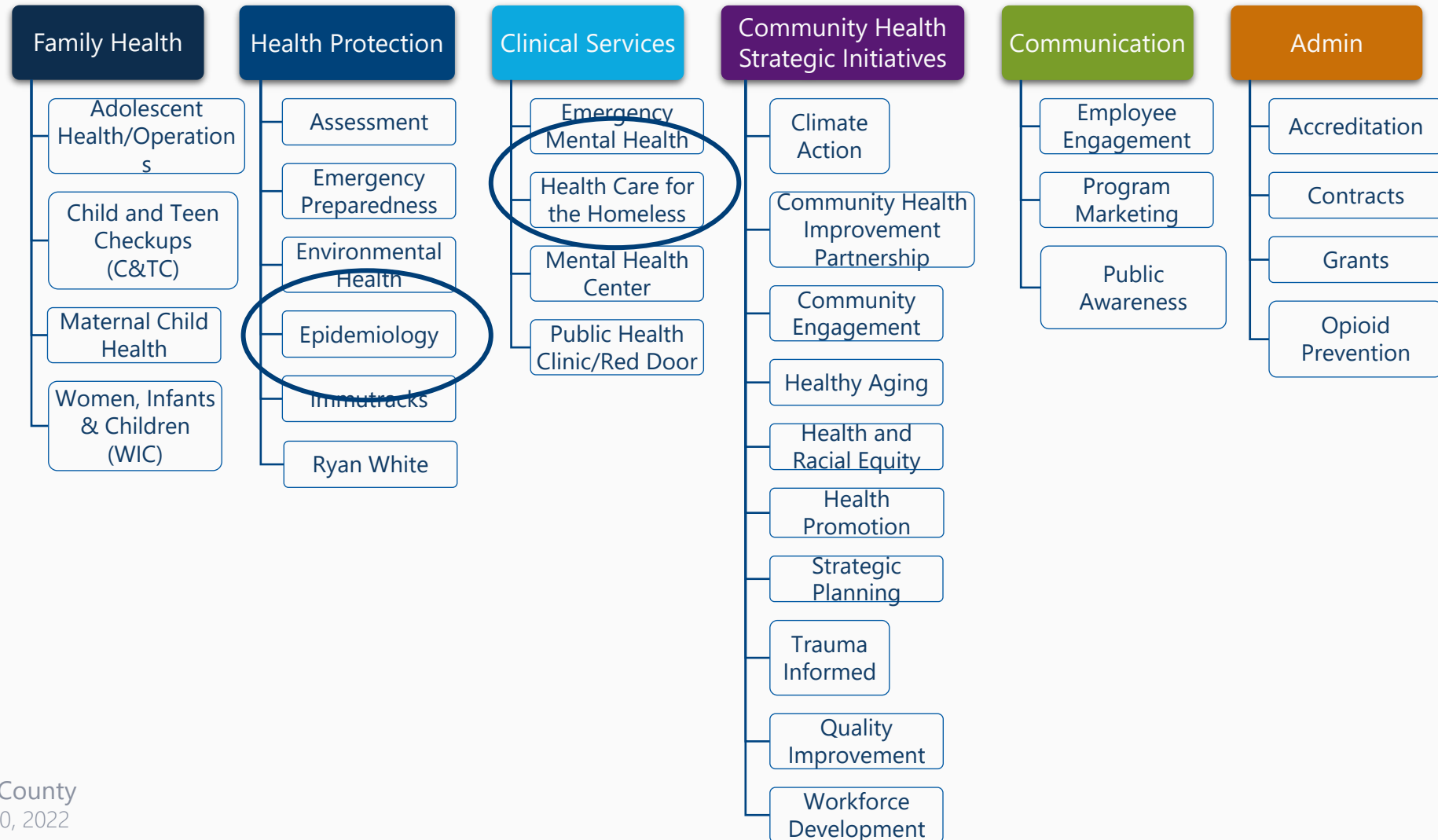
1. Describe the implications of key infectious diseases on people experiencing homelessness
2. List strategies for community-based infection prevention
3. Identify public health interventions to promote community health among vulnerable populations



Hennepin County

- Minnesota's largest county
 - ~1.3 million residents
- Home of Hennepin County Public Health
 - "Advance health and racial equity through science, and prevention-focused, inclusive, public health policies, practices, and services"

Hennepin County Public Health programs



Homelessness in Minnesota

An estimated
19,600 people
are **homeless on**
any given night
in Minnesota

4. Estimated number of people homeless on any given night in Minnesota, by age group

	Count of people in shelters	Count of people not in shelters	Estimate of additional uncounted people	Estimated total (count plus estimate)
Adults age 25 and older	3,661	1,775	900	6,336
Young adults age 18-24	856	436	1,925 ^a	3,217 ^a
Unaccompanied minors under age 18	122	70	1,467 ^a	1,659 ^a
Children with their parents	2,852	413	3,967 ^a	7,232 ^a
Total	7,491	2,694	8,259^b	18,450^a
Actual count of people on American Indian reservations who were homeless on the date of the study:				1,138
GRAND TOTAL				19,582

Wilder Research. (2018). *Minnesota statewide survey of persons without permanent shelter*. Retrieved from: wilder.org/wilder-research/research-library/minnesota-statewide-survey-persons-without-permanent-shelter



Who is homeless?

National Health Care for the Homeless Council (2021), *Types of Homelessness*. Retrieved from: [Types of Homelessness - National Health Care for the Homeless Council \(nhchc.org\)](https://www.nhchc.org/types-of-homelessness)



Shelter/Mission

Organized shelter for individuals experiencing homelessness



Street/Outside



Encampments

Typically including: residents sleeping outside in tents or other physical structures, storing belongings in the same location for a sustained period



Transitional Housing

Time-limited housing intended to support a transition to permanent housing

Vehicles



Abandoned Buildings

or other places generally not considered safe or fit for occupancy



Single Room Occupancy (SRO)/ Hotels/Motels

or other day-to-day paid housing





Housing instability

National Health Care for the Homeless Council (2021), *Types of Homelessness*. Retrieved from: [Types of Homelessness - National Health Care for the Homeless Council \(nhchc.org\)](https://www.nhchc.org/types-of-homelessness)

Considered homeless by the U.S. Department of [Health & Human Services \(HHS\)](#) but not "literally" homeless by [Housing & Urban Development \(HUD\)](#).



Exiting Incarceration

with no plans for permanent housing or shelter



Supportive Housing

Permanent or long-term option designed to provide housing assistance paired with supportive services



At-Risk of Homelessness

Such as facing eviction, among other [unstable situations](#)

Exiting Treatment

with no plans for permanent housing or shelter



Couch-Surfing (Doubled Up)

or living with others in an otherwise temporary arrangement



Great resource!

- Adapted Clinical Guidelines
- HCH Clinician's Network – it's free to become a member!





Tuberculosis overview

Latent TB (LTBI): screening test positive, asymptomatic, negative chest x-ray; NOT infectious

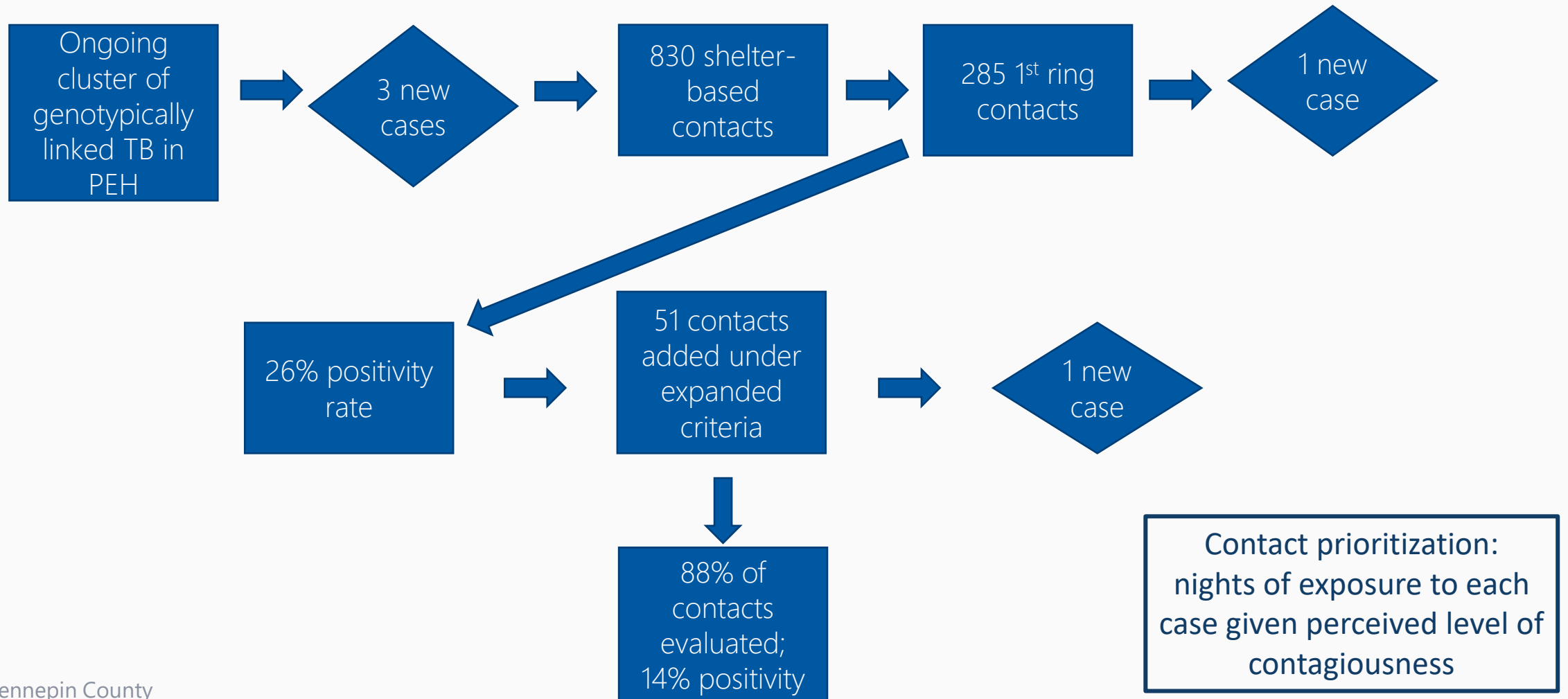
Active TB: 5-15% with LTBI will develop active disease if untreated, half of which are in the first 2 years after infection

- Transmission: airborne
- Pathology: bacilli inhaled, infect alveoli
- S/S: fatigue, weight loss, night sweats, productive cough
- Screening: TST (PPD) or IGRA blood test
- Dx: chest x-ray, sputum, NAAT, and/or rapid molecular testing
- PPE: n95 with fit testing in the last year

Tuberculosis implications for PEH

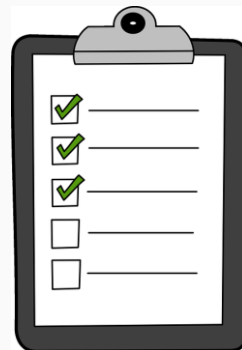
- Disproportionate burden is carried by those who are malnourished, homeless, or living in overcrowded conditions
- Annual testing is standard of care and difficult to obtain
- IGRA vs. TST preference
- Highly mobile population makes for a difficult contact investigation

Tuberculosis outbreak in Hennepin County shelters, 2017-18



Tuberculosis infection control and prevention in PEH

Challenges	Solutions
Lack of basic infection control measures in shelter	TB screening protocol; resp hygiene
Communicable disease knowledge among staff and clients	Educational sessions
Highly mobile populations	Homeless Management Information System (HMIS), Best Practice Alerts
Difficulty meeting recommendations	Shelter-based testing, incentives, medications pilot



Drug related infectious disease (DRID) response

Incident Command Structure (ICS) since August 2019

Responding to confirmed outbreaks and rising rates of:

- Hepatitis A
- HIV
- Syphilis





Hepatitis A overview

Incubation period: ~ 30 days

Acute Illness: ~ 2-3 weeks (HAV IgM)

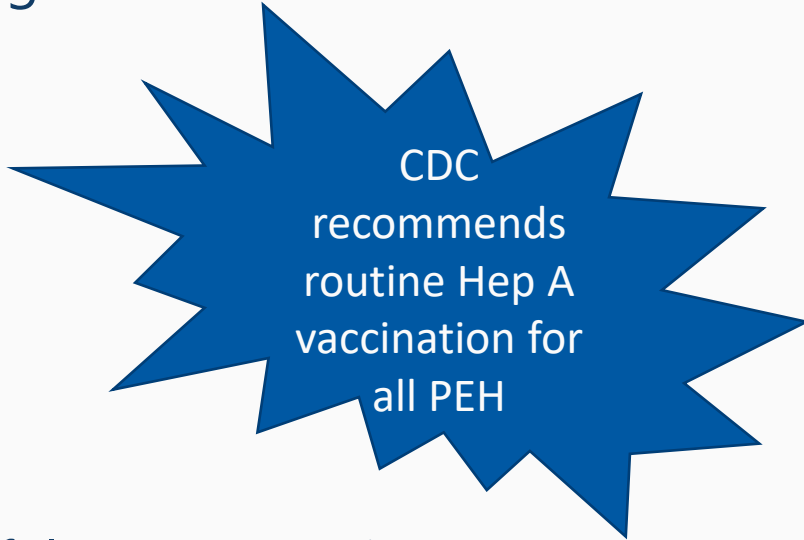
Recovery phase: ~ 9 weeks (HAV IgG)

- Transmission: fecal-oral (person to person or through contaminated water & food)
- Pathology: RNA virus that infects the liver
- S/S: nausea, vomiting, malaise, fever, enlarged tender liver, jaundice
- Dx: anti-HAV IgM, elevated AST/ALT
- PPE: universal precautions, frequent handwashing, vaccination

Friedman, L. (2022). Acute Hep A. In Current Dx and Txmt. McGraw Hill.

Hepatitis A implications for PEH

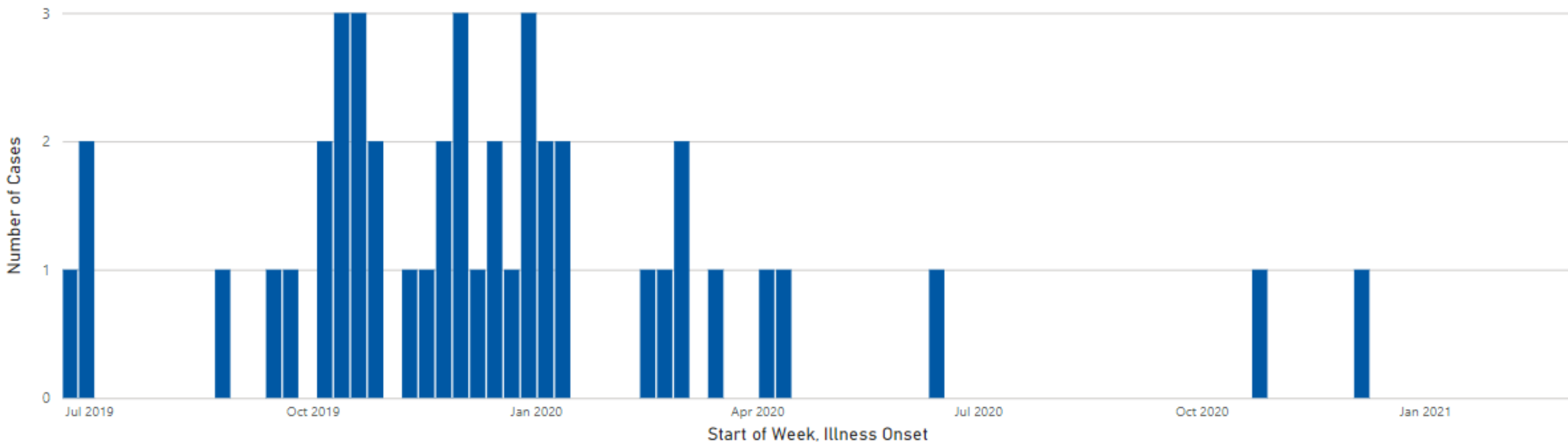
- Outbreaks most often occur in crowded areas with poor sanitation
- US outbreaks have occurred in populations who inject drugs and men who have sex with men
- No routine vaccination in the US until 2006
- 80% of 20-60yo in the US are susceptible to HAV
- Mortality increases with comorbid Hep C
- Vaccination: 2 doses 6 months apart – typically provides lifelong protection



CDC
recommends
routine Hep A
vaccination for
all PEH

Hepatitis A outbreak, 2019-21

Hep A cases diagnosed July 2019-January 2021



Interventions for at-risk populations



Populations at highest risk

- People who use drugs (88%)
- PEH (57%)
- People with current or recent incarceration (52%)

- Unique strategies for vaccination
 - HCH street outreach
 - Public Health Clinic
 - Jail
 - EDs
- Hygiene supplies



Total vaccines
administered
3258



HIV overview

HIV: patient tests positive for the HIV antibody and has a detectable viral load

AIDS: CD4 count <200 or presence of another AIDS defining infection or malignancy

- Transmission: blood, breastmilk, semen, vaginal fluids
- Pathology: RNA virus
- S/S acute infection: fever, rash, pharyngitis, lymphadenopathy
- S/S advanced AIDS: wasting, opportunistic infections, cancers, neuro manifestations
- Screening: HIV 1/2 antibody tests
- Dx: confirmatory lab with HIV RNA level (viral load)
- PPE: universal precautions

HIV implications for PEH

- System level barriers to engage in traditional health care systems
- Stigma of substance use disorders, mental health, risk behaviors
- Housing instability → barriers to medication adherence and viral suppression

Method of Transmission	Risk of HIV Acquisition
Receptive anal	138 per 10,000
Insertive anal	11 per 10,000
Receptive vaginal	8 per 10,000
Insertive vaginal	4 per 10,000
Needle sharing	63 per 10,000

HIV outbreak among PEH with injection drug use (IDU)

Encampment-related case definition:

HIV diagnosis since 12/1/18 and:

1. IDU and time spent in encampments prior to diagnosis
2. IDU partner or sex partner to case with (1)
3. Molecular linkage to a case with (1) or (2)



HIV outbreak response among PEH



Screening, prevention, harm reduction

- Rapid HIV screening
- Street-based pre-exposure prophylaxis (PrEP)
- PEH-specific disease intervention specialists
- Condoms, mobile syringe services, tools for safe drug use



Clinical treatment

- ART to achieve undetectable=untransmittable (U=U)
- Dedicated outreach staff
- Treating co-occurring infections
- Treatment for substance use disorder (SUD) including low barrier Suboxone



Housing

- HCH housing social worker
- Coordinated entry assessments
- Housing pilot

HIV outbreak in persons who inject drugs: Hennepin County supplement to MDH health advisory

- Initial MDH Health Alert 2/6/20: [HIV Outbreak in Persons Who Inject Drugs \(PWID\)](#)
- Hennepin County Health Advisory supplement 1/7/22

EDs and inpatient hospitals

- If HIV testing for all patients is not possible, the best practice is to **test the following populations at every encounter**, pending available resources:
 - Patients presenting for complications of IDU such as: abscess/cellulitis, endocarditis, bacteremia, osteomyelitis, sepsis
 - Patients presenting for overdose reversal
 - All patients experiencing unsheltered homelessness

Outpatient clinics

- Persons who are at high risk of HIV infection should be tested **when requested or willing, or at least every 3 months**. Persons likely to be at high risk include:
 - People who inject drugs
 - Sex partners of people who inject drugs



Syphilis overview

Primary: 2- 8 weeks after infection, painless chancre

Secondary: 4-8 weeks after primary chancre, typically rash & systemic symptoms

Latent: asymptomatic but still positive in blood (early < 1 year or late > 1 year)

Tertiary: 2 + years beyond initial infection

- Transmission: sexual contact & vertical transmission
- Pathology: spirochete bacteria *treponema pallidum*
- S/S: "the great imitator": early stages include chancre, rash, lymph adenopathy, fever, or malaise. Tertiary may show in neuro or psychiatric symptoms.
- Screening: RPR or TP-PA blood tests
- Dx: RPR positive, TPPA positive
- PPE: universal precautions

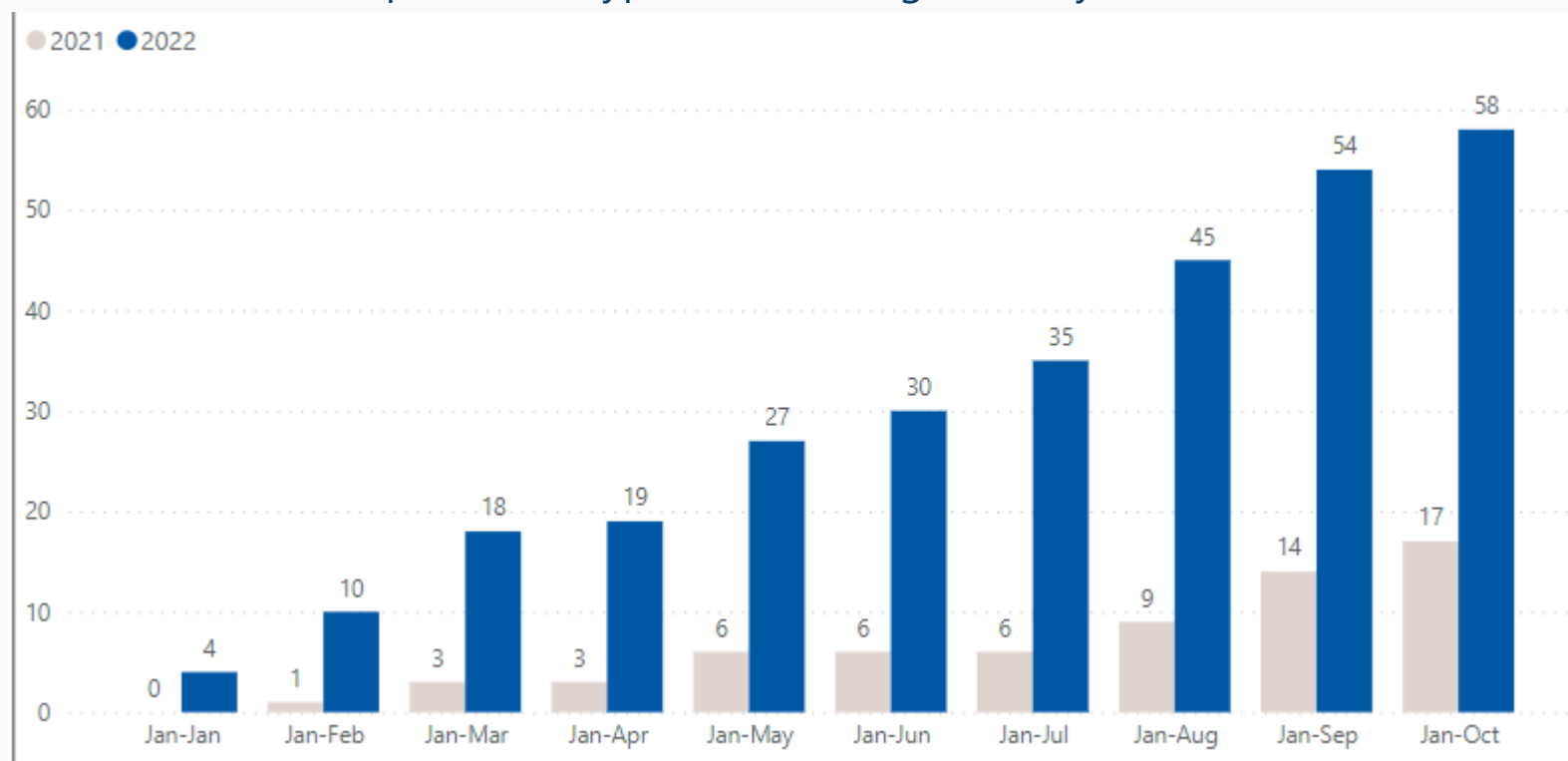
Syphilis implications for PEH

- CDC recommends syphilis screening for 1) pregnant women 2) MSM 3) people with HIV 4) those with additional risk factors
 - Include a history of incarceration, methamphetamine use, injection drug use (not a known mode of transmission), and exchanging sex for money or drugs
- Late latent syphilis requires Bicillin 2.4 million units weekly x 3 weeks, something very challenging for unhoused populations
- Successful treatment noted by 4-fold decrease in the titer after 12 months, making follow up tracking difficult
- If syphilis contact, offer presumptive treatment while awaiting screening results

Increases in syphilis among PEH

- Statewide increase of 33% 2020-21
- Increased screening
- Treating at point of care
- Provider collaboration with disease intervention specialists (DIS)

2021 vs 2022: comparison of syphilis cases diagnosed by HCH





COVID-19 Overview

Incubation (during Omicron): 3-4 days

Isolation Duration: 5- 10 days (general public), **10 days (if congregate setting)**

- Transmission: airborne, respiratory droplet
- Pathology: novel coronavirus SARS-CoV-2
- S/S: fever or chills, cough, SOB, fatigue, myalgia, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea
- Dx: PCR (gold standard), rapid antigen (more suggestive of contagiousness)
- PPE: n95 that has been fit tested in the past year, gown, gloves, eye protection

COVID-19 implications for PEH

- Higher risk of severe COVID-19 related illness due to preexisting health conditions and barriers to overall wellness
- Isolation in shelter is next to impossible, very limited resources
- Decompression of shelters by moving the most medically vulnerable to protective action hotels (March 2020)
- Hennepin County COVID-19 isolation hotels for individuals and families (March 2020-May 2022)
- Transitioned to endemic workflow (June 2022): onsite rapid PCR testing, onsite oral antivirals

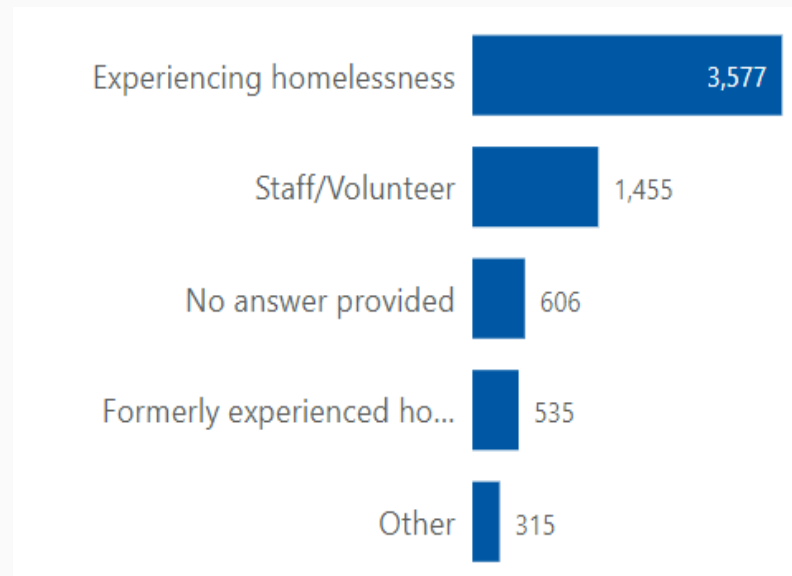
Strategies for social distancing and vaccination

Hotels

- High risk groups
- Isolation



Vaccination



6,488
Total Doses

Vaccination campaign

3 principles

- Relationship-based
- Trauma-informed
- Anti-racist

Outcome: vaccination uptake **MATCHED**
the racial & ethnic population distribution



Monkeypox overview

Incubation: 3-7 days

Isolation: until lesions have healed and a new layer of skin has formed

- Transmission: through close, personal, often skin-skin contact. Most commonly through contact with active sores or scabs, less common through saliva and respiratory secretions.
- Pathology: orthopox virus
- S/S: rash, fever, lymph adenopathy, malaise, headache
- Screening: swabs of active lesions
- Dx: Orthopox DNA PCR Test
- PPE: Universal precautions, respiratory protection

Monkeypox implications for PEH

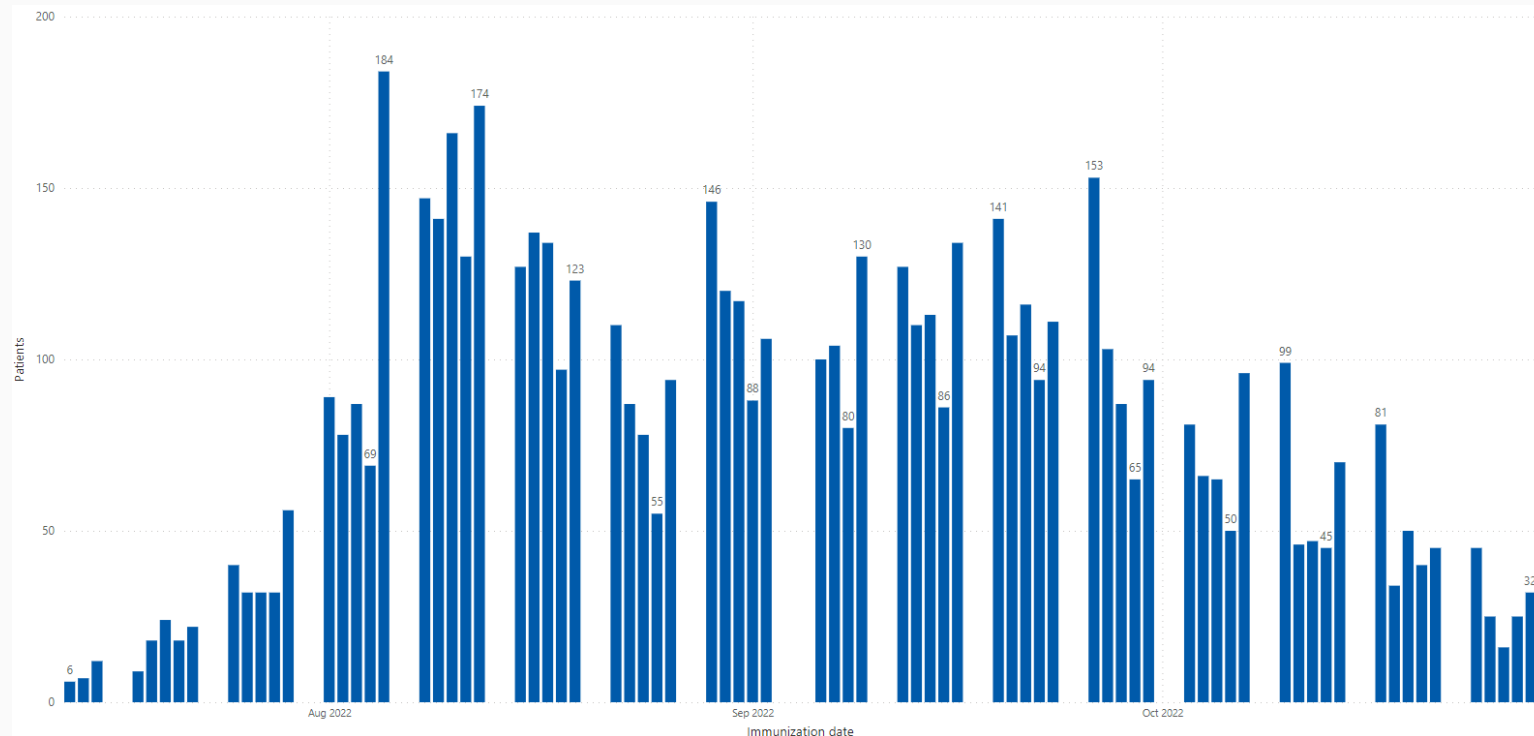
- Congregate settings could be at higher risk; to date, no outbreaks in homeless settings in Hennepin County
- Universal precautions for shelter providers
 - Access to hand washing stations with soap and water
 - Regularly disinfect commonly used surfaces
 - Launder linens with soap and warm water
 - Encourage anyone who is symptomatic to get tested & isolate
- Hennepin County Health Care for the Homeless
 - Testing through MDH started June 2022
 - MPX vaccine available in shelter-based clinics starting 11/2022

Monkeypox response

Priorities for vaccination

- Close contacts
- Men who have sex with men (MSM)
- People living with HIV
- Transgender people

MPX vaccines given by Red Door Clinic, July-October 2022





Takeaways

PATIENT CARE:

- Annual screening for TB for PEH
- Routine vaccination for hep A for PEH
- Screen at risk populations for HIV per updated recommendations
- If syphilis contact, treat presumptively

PUBLIC HEALTH CONSIDERATIONS:

- Infectious disease prevalence can vary by living condition
- IDU is a risk factor for syphilis
- Silver lining—MPX has not been a significant issue among PEH to date
- Isolation space in shelters is extremely rare/nonexistent due to limited resources



HOUSING IS HEALTH CARE

Questions?

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