

# **Pennsylvania Hepatitis A and B Epidemiology and Prevention**

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# ▶ Hepatitis A Transmission

- Transmission occurs through ingesting microscopic fecal matter:
  - ▣ Infected person does not properly wash their hands after using the bathroom and contaminates food
  - ▣ Caregiver does not properly wash their hands after changing a diaper
  - ▣ Infected person engages in risky sexual behavior with an uninfected person
  - ▣ Ingestion of contaminated food or water

# ▶ Hepatitis A Prevention

- Proper hand washing, especially after using the restroom
- Access to clean water and restroom facilities
- Hepatitis A vaccination
  - Given through 2 shot series, 6 months apart

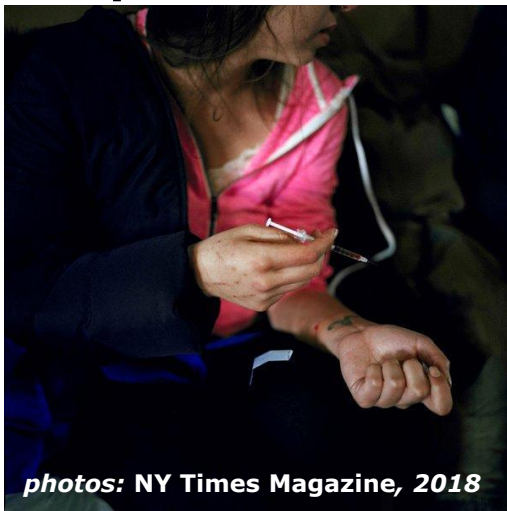
# Who Should Receive Hepatitis A Vaccine?

- Children
  - All children aged 12–23 months
  - All children and adolescents 2–18 years of age who have not previously received hepatitis A vaccine (known as “catch up” vaccination)
- People at increased risk for hepatitis A
  - International travelers
  - Men who have sex with men
  - People who use or inject drugs (all those who use illegal drugs)
  - People with occupational risk for exposure
  - People who anticipate close personal contact with an international adoptee
  - People experiencing homelessness
- People at increased risk for severe disease from hepatitis A infection
  - People with chronic liver disease, including hepatitis B and hepatitis C
  - People with HIV

## Person-to-person Hepatitis A Outbreak in the U.S.

“Most of the cases nationwide in this growing outbreak, unprecedented in a developed country, have occurred primarily in **marginalized populations, including the homeless and substance abusers**, many co-infected with other hepatitis viruses.

– ProMED, 21 April 2019

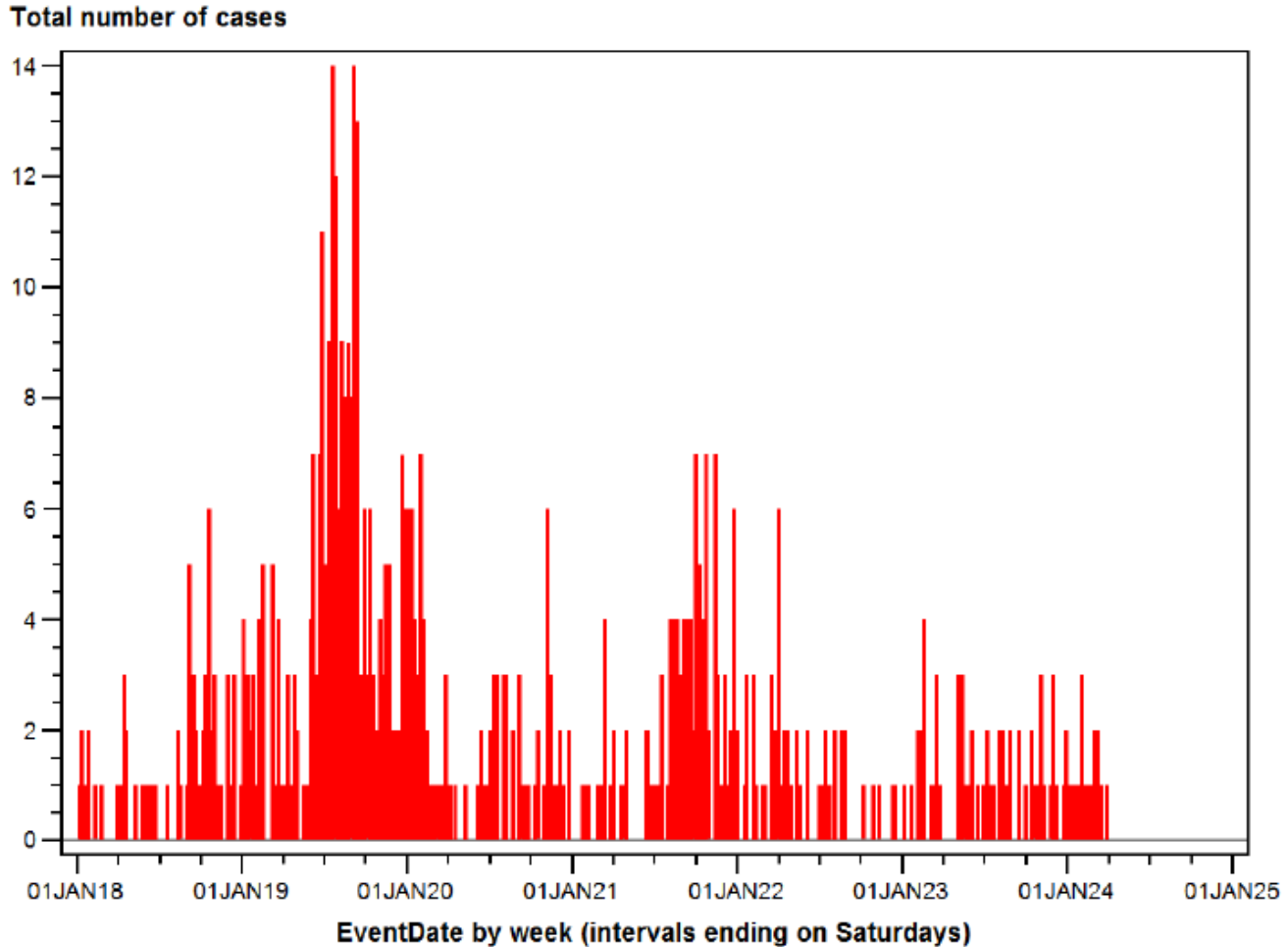


photos: NY Times Magazine, 2018



# Hep A Outbreak Epi Curve

Weekly Case Count of Outbreak-Related Hepatitis A Cases for 2018-Current, by Date of Onset



Source: PA-NEDSS and Philadelphia reportable disease data



# ▶ PA Hepatitis A Response

- Response initiated November 2018
  - Health Alert sent through PA-Health Alert Network
  - Strengthened partnerships with organizations that serve at-risk populations
  - Provided outreach and education to at-risk populations and providers
  - Took proactive measures to provide vaccinations to at-risk populations
- Incident Command Structure established Nov 2018 – Feb 2020

# ▶ 2019 Hep A Vaccine Distribution

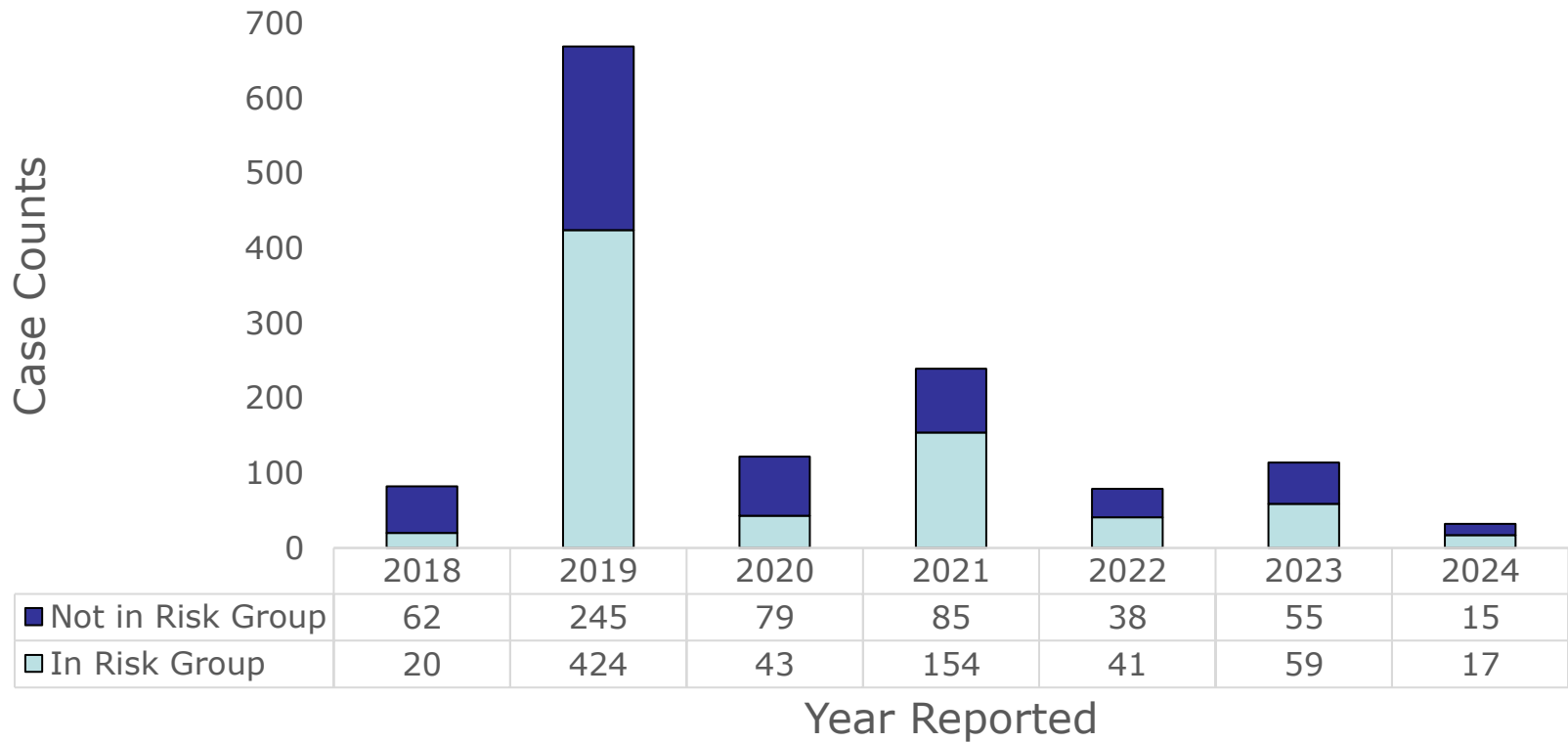
- PA Department of Health:
  - Partnered with **164** organizations in 61 counties
  - Distributed **>123,000** hep A vaccines
  - In tandem, distributed **400** naloxone kits
- Philadelphia Department of Public Health distributed **>5,000** vaccines
- Other local health departments provided **>2,900** vaccines

Source: PADOH Division of Immunizations, Bureau of Emergency Preparedness and Response



# Hepatitis A in Pennsylvania

Confirmed Hepatitis A Cases by Risk Group\* and Year Reported, 2018 – April 2024, Pennsylvania

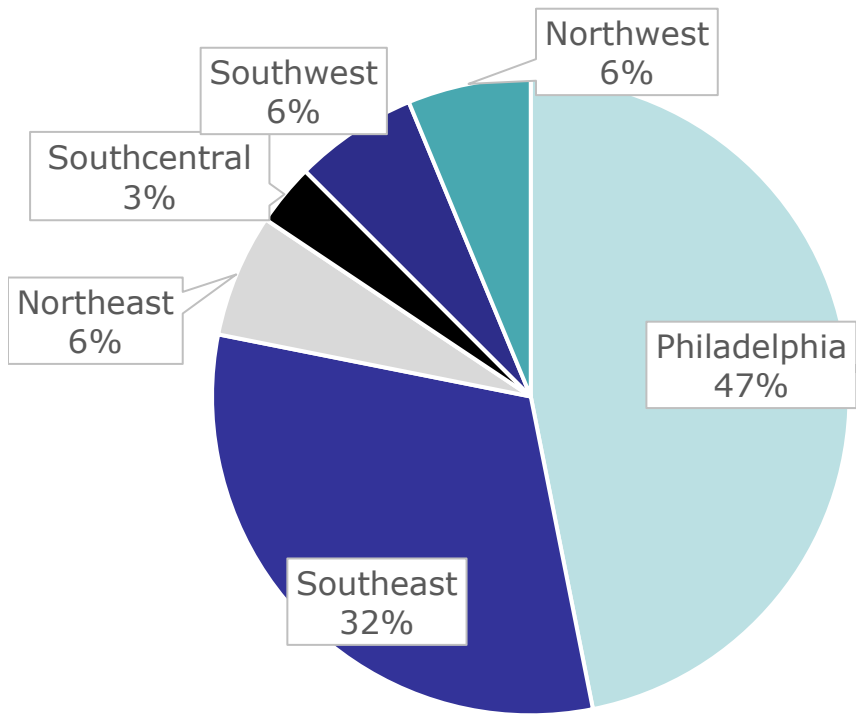


\***Risk Group** = During incubation period, any drug use, incarceration, homelessness, homosexual encounter if patient is male

Source: PA-NEDSS and Philadelphia reportable disease data



# Hepatitis A in Pennsylvania by Jurisdiction, 2024



■ Philadelphia ■ Southeast ■ Northeast  
■ Southcentral ■ Northcentral ■ Southwest  
■ Northwest

Region	2024 Case Count
<b>Philadelphia</b>	<b>15</b>
<b>Southeast</b>	<b>10</b>
Southwest	2
Northcentral	0
Southcentral	1
Northeast	2
Northwest	2
<b>Total</b>	<b>32</b>

\*The Southeast region case count excludes cases reported by Philadelphia Dept of Public Health

Source: PA-NEDSS and Philadelphia reportable disease data

# ▶ Hepatitis B

- Hepatitis B infection can lead to acute and/or chronic illness
  - ▣ Acute hepatitis B occurs within 6 months of infection
  - ▣ Chronic hepatitis B occurs in ~90% of infants infected
  - ▣ About 95% of adults recover from hepatitis B infections and do not become chronically infected

# ▶ Hepatitis B Transmission

- Transmission occurs through contact with infected blood or bodily fluids:
  - ▣ Sexual contact with an infected partner
  - ▣ Injection drug use involving sharing needles, syringes, or drug-preparation equipment
  - ▣ Birth to an infected mother
  - ▣ Contact with blood or open sores of infected person
  - ▣ Needle sticks

# Persons at Risk

- Infants born to a gestational parent living with hepatitis B
- Persons at risk for infection by sexual exposure
  - Sex partners of persons who test positive for hepatitis B surface antigen (HBsAg)
  - Sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one sex partner during the previous 6 months)
  - Persons seeking evaluation or treatment for a sexually transmitted infection
  - Men who have sex with men

# Persons at Risk

- Persons at risk for infection by percutaneous or mucosal exposure to blood
  - Persons with current or recent injection use
  - Household contacts of persons who test positive for HBsAg
  - Residents and staff of facilities for persons with developmental disabilities
  - Health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids
  - Persons on maintenance dialysis, including in-center or home hemodialysis and peritoneal dialysis, and persons who are predialysis
  - Persons with diabetes at the discretion of the treating clinician

# Persons at Risk

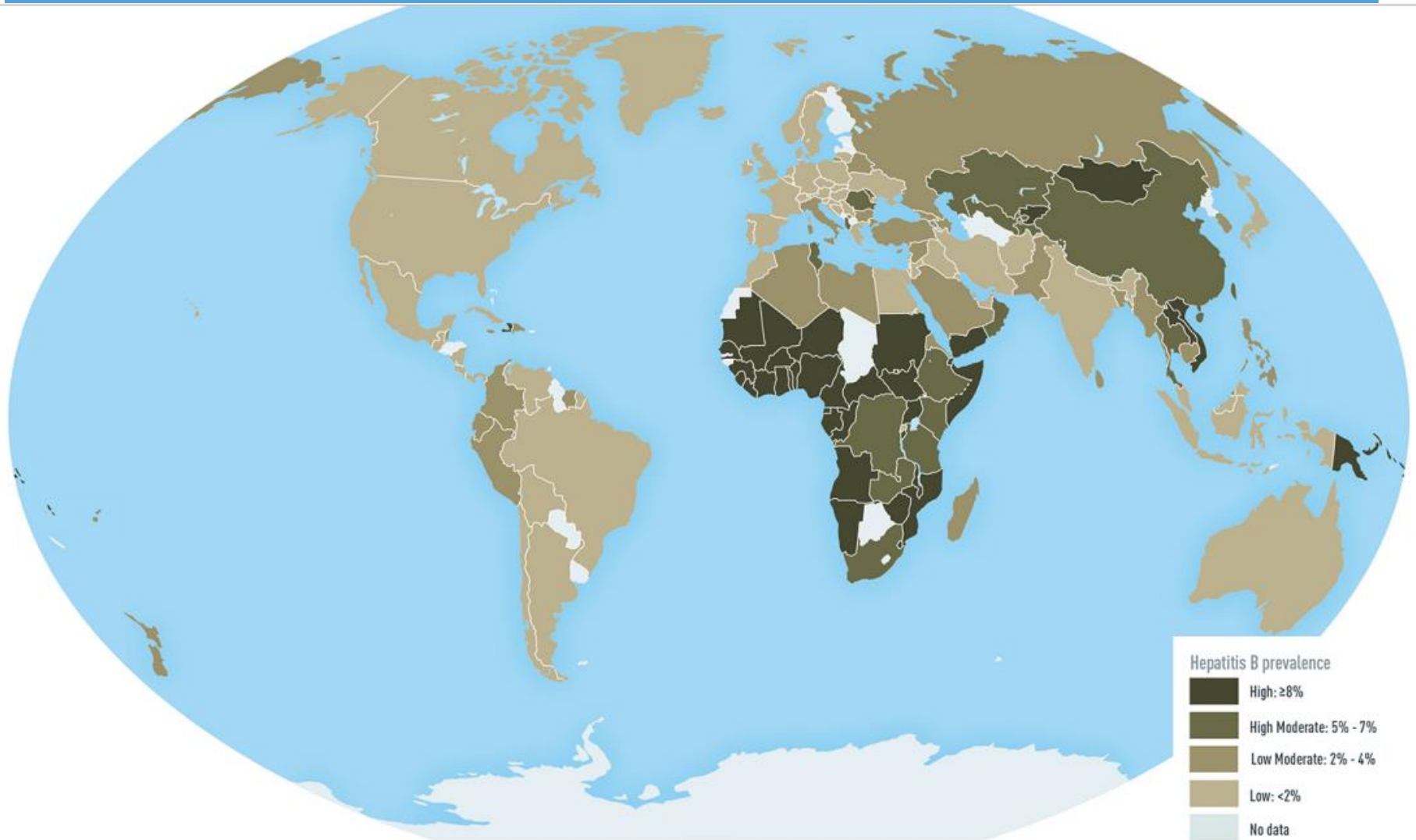
- Others
  - International travelers to countries with high or intermediate levels of endemic hepatitis B virus (HBV) infection (HBsAg prevalence of  $\geq 2\%$ )
  - Persons with hepatitis C virus infection
  - Persons with chronic liver disease (including, but not limited to, persons with cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, or an alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - Persons with HIV infection
  - Incarcerated persons

# ▶ Hepatitis B Prevention

- Who should receive hepatitis B vaccine?
  - All infants
  - Unvaccinated children aged <19 years
  - Adults aged 19 through 59 years
  - Adults aged 60 years and older with risk factors for hepatitis B
- The following groups may receive hepatitis B vaccination:
  - Adults aged 60 years and older without known risk factors for hepatitis B



# ▶ Hepatitis B Distribution



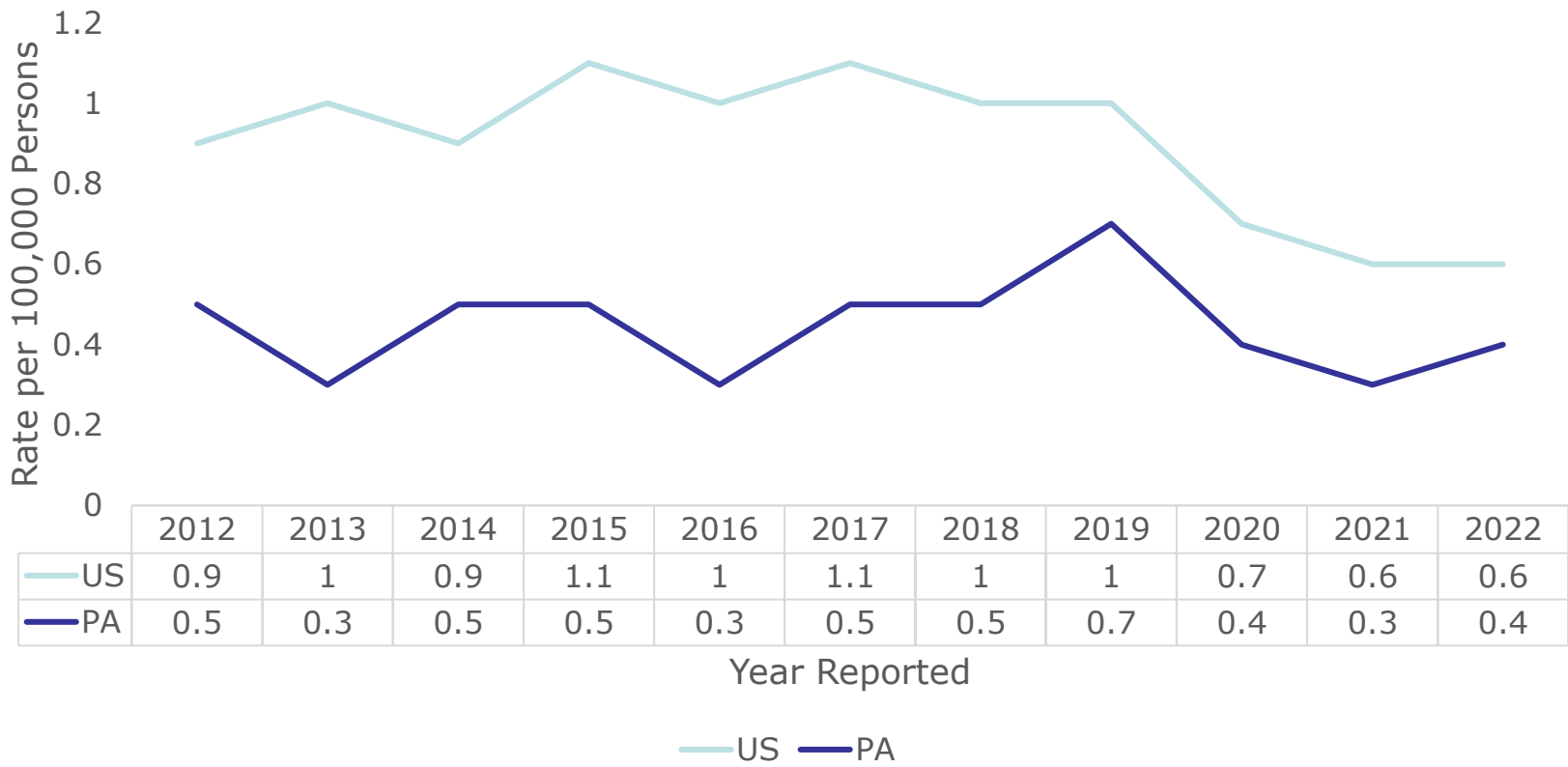
MAP 4-4. **Prevalence of hepatitis B virus infection<sup>1</sup>**

Boundary representation is not necessarily authoritative.

<sup>1</sup> Disease data source: Schweitzer A, Horn J, Mikolajczyk R, Krause G, Ott J. Estimations of worldwide prevalence of chronic hepatitis B virus infection: a systematic review of data published between 1965 and 2013. [www.thelancet.com](http://www.thelancet.com). 2015.Vol 386.

# Acute Hepatitis B Rates

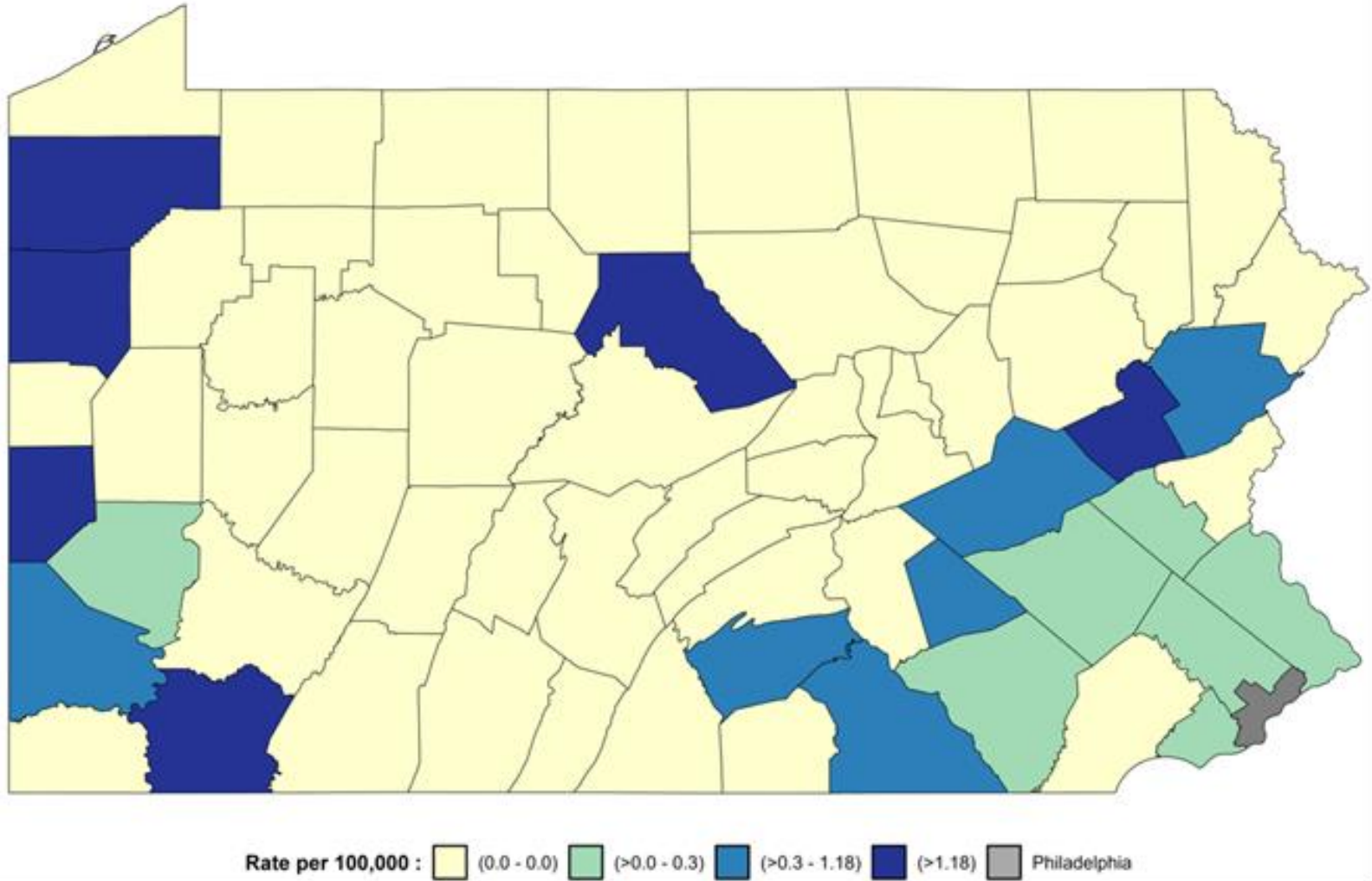
Confirmed Acute Hepatitis B Rate per 100,000 Persons by Year Reported, Pennsylvania vs. U.S., 2012 - 2022



Source: [Numbers & Rates of Acute Hepatitis B Cases | CDC](#)



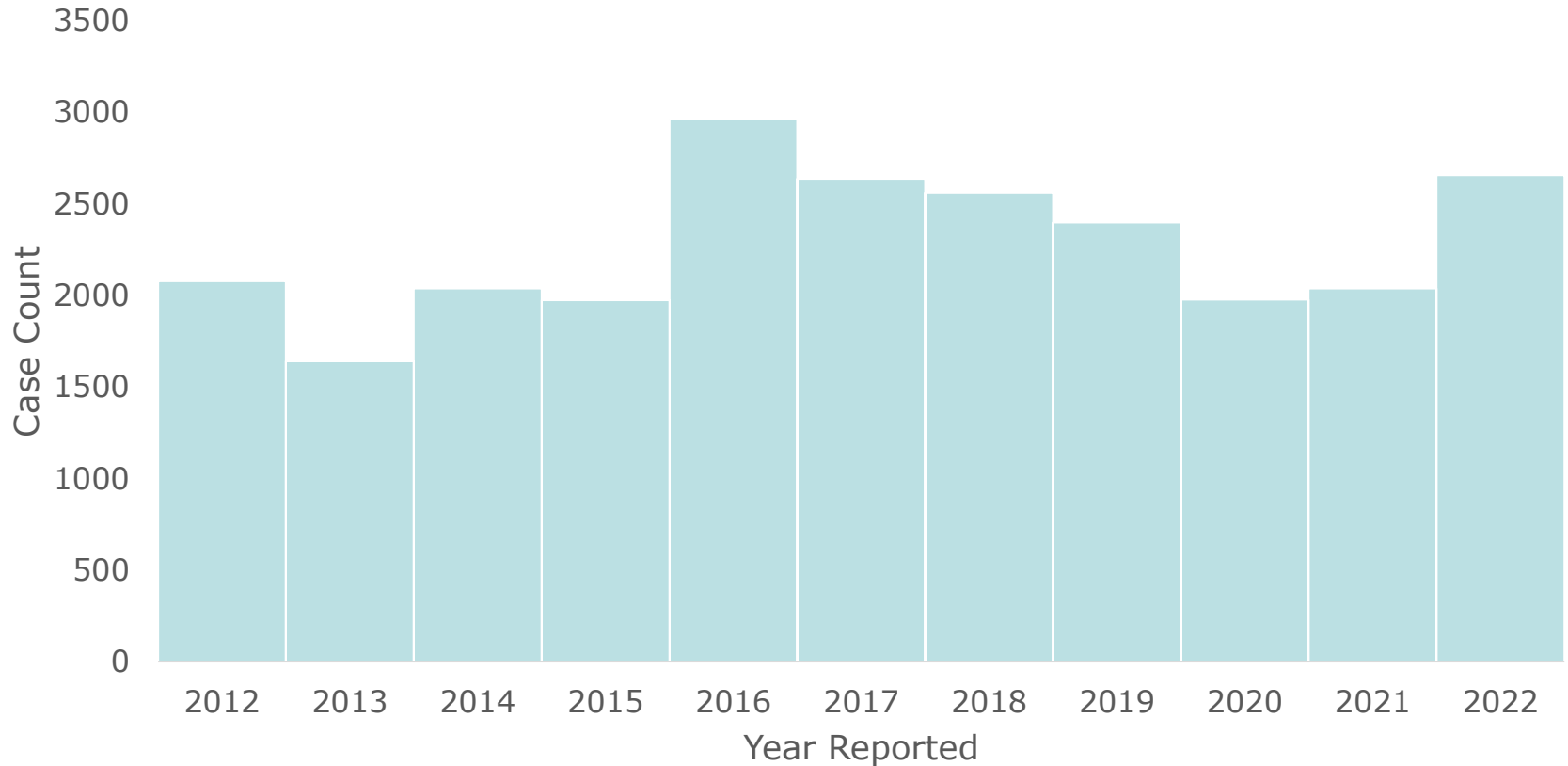
# ▶ Acute Hepatitis B Rates 2022



Source: PA-NEDSS

# Chronic Hepatitis B Rate

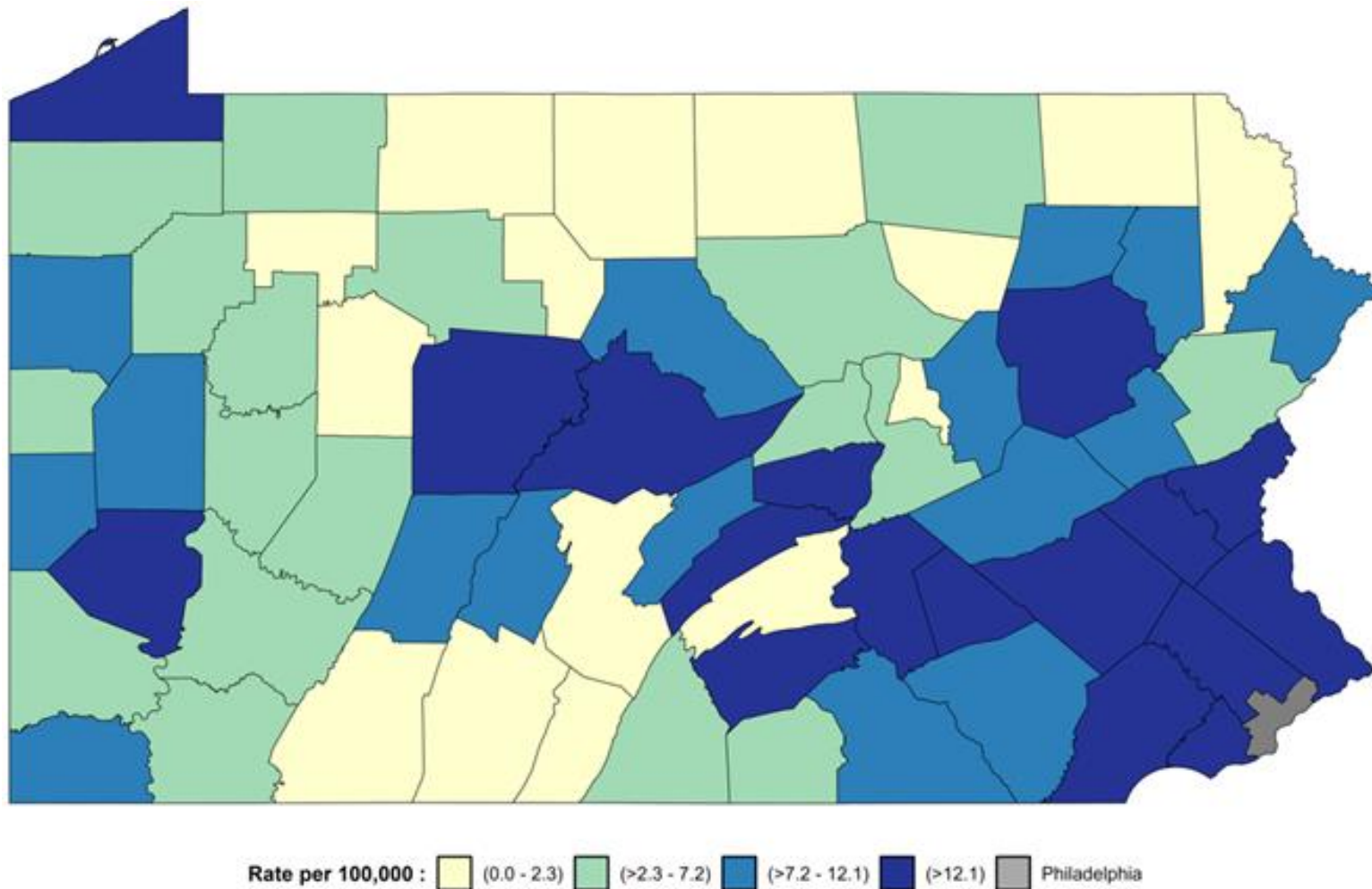
Chronic Hepatitis B Cases by Year Reported,  
Pennsylvania 2012 - 2022



Source: PA-NEDSS and Philadelphia reportable disease data;  
Confirmed and Probable Cases Included

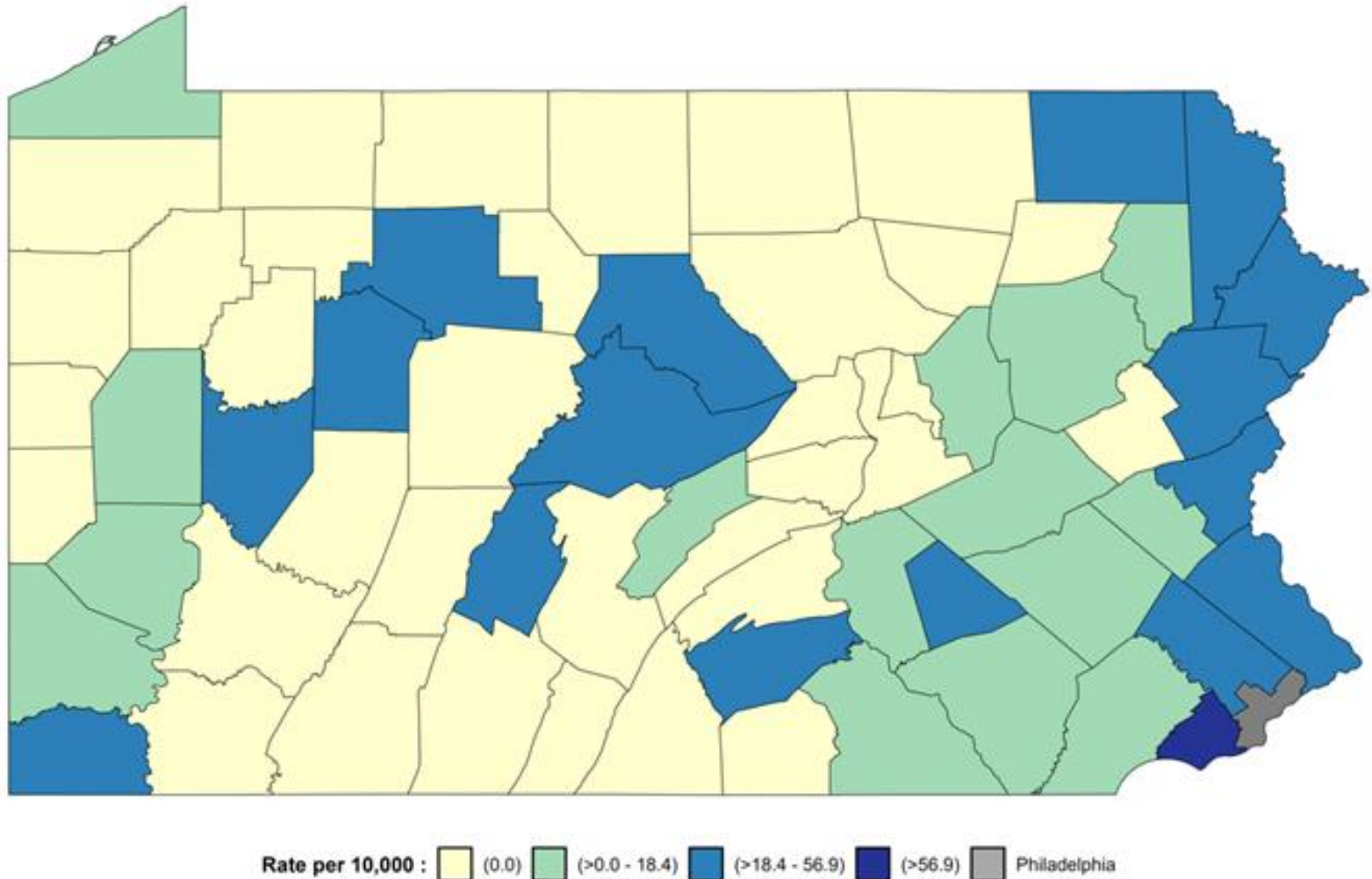


# ▶ Chronic Hepatitis B Rates 2022



Source: PA-NEDSS

# ▶ Perinatal Hepatitis B Exposures 2022



Source: PA-NEDSS probable and confirmed chronic hepatitis B reported between 2012-2022; 2022 births



# What is Elimination? Why go for it?

- Pennsylvania & Philadelphia Elimination Plans
  - ▣ Coordinated efforts needed to address systemic barriers
- Clinical tools exist to prevent & treat
  - ▣ Effective & tolerable cure exists for hepatitis C
  - ▣ Vaccination to prevent hepatitis B

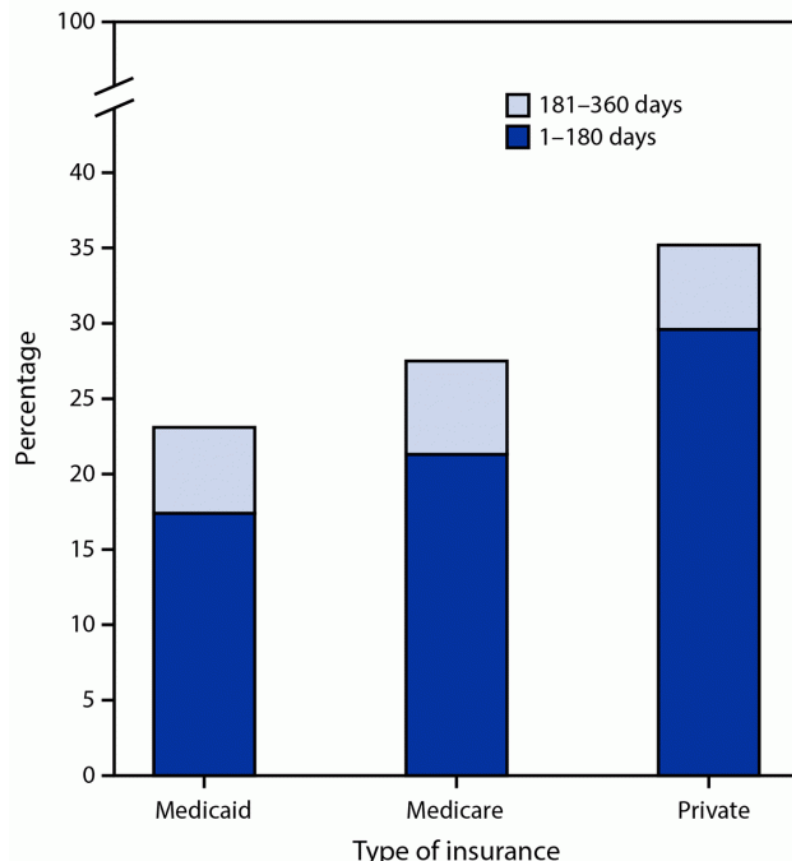
World Health Organization (WHO) Goals  
Elimination of Hepatitis B & Hepatitis C

Target Area	PDPH 2015 Baseline	2020 Target	2030 Target
Hep B & C Incidence		30% reduction	90% reduction
Mortality from Hep B & C		10% reduction	65% reduction
Childhood HBV vaccination coverage	82%	90%	90%
Prevention of perinatal HBV transmission (birth dose & PEP)	38%	50%	90%
Blood safety (screening blood donations)		95%	100%
Safe injection & harm reduction (needles/PWID/yr)	20	200	300
Hep B & C diagnoses	<5%	30%	90%
Hep B & C treatment	<1%		80% treated

# Considerations

- People are still not being screened, vaccinated, & treated → many disparities exist
- Being insured has not meant access to services, and disparities persist
- Noteworthy work has been done locally/nationally to address gaps
- There is limited national, state, & local funding for this work

Percentage of adults with hepatitis C initiating direct-acting antiviral treatment within 360 days of diagnosis, by number of days after diagnosis and insurance type — United States, 2019–2020.

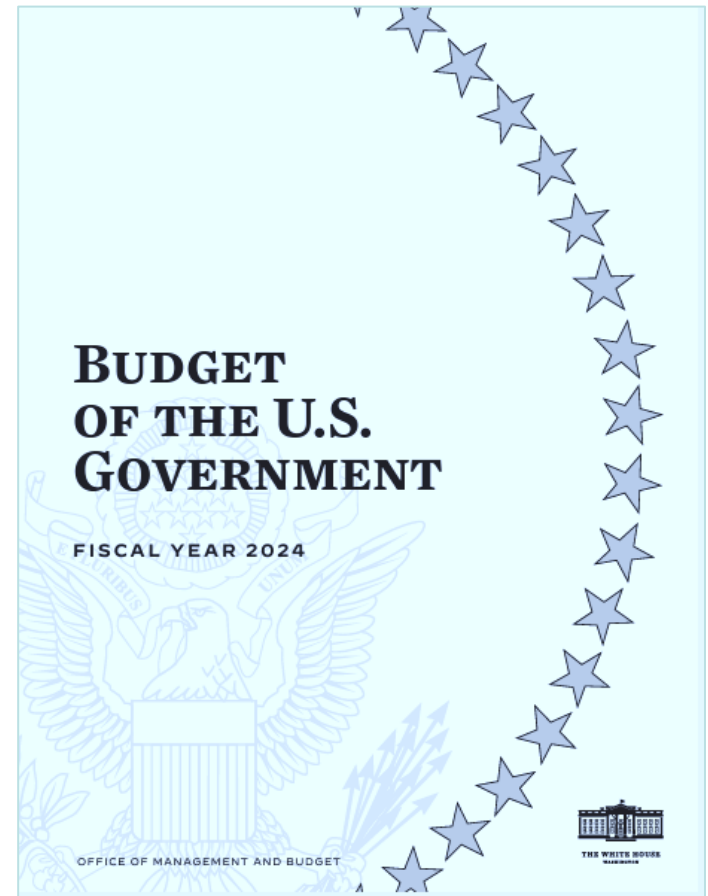


Thompson WW, Symum H, Sandul A, et al. *Vital Signs: Hepatitis C Treatment Among Insured Adults — United States, 2019–2020*. MMWR Morb Mortal Wkly Rep 2022;71:1011-1017.



# Hepatitis C Elimination-President's Budget

- 4 Points:
  - ▣ Test-and-treat
  - ▣ Improved DAA accessibility
  - ▣ Healthcare delivery
  - ▣ Reduce incidence/reinfection
- >\$11 Billion FY24 -- FY28



Fleurence RL, Collins FS. A National Hepatitis C Elimination Program in the United States: A Historic Opportunity. JAMA. Published online March 09, 2023. Abbasi J. Former NIH Director Francis S. Collins on the New White House Plan to Eliminate Hepatitis C. JAMA. Published online March 09, 2023.

# Hep B & C Testing/Vaccination Recommendations

- Hepatitis B
  - Universal screening recommendation for adults 18-69 years of age
  - Current & continued testing for those at risk
  - Screen people during each pregnancy
  - Universal vaccination for adults 18-64 years of age; risk-based 65+ years of age
- Hepatitis C
  - Universal one-time screening for adults 18 years & older
  - Continued testing for those at risk
  - Screen people during each pregnancy

<https://www.cdc.gov/hepatitis/policy/isireview/HepBScreeningAndTesting.htm>

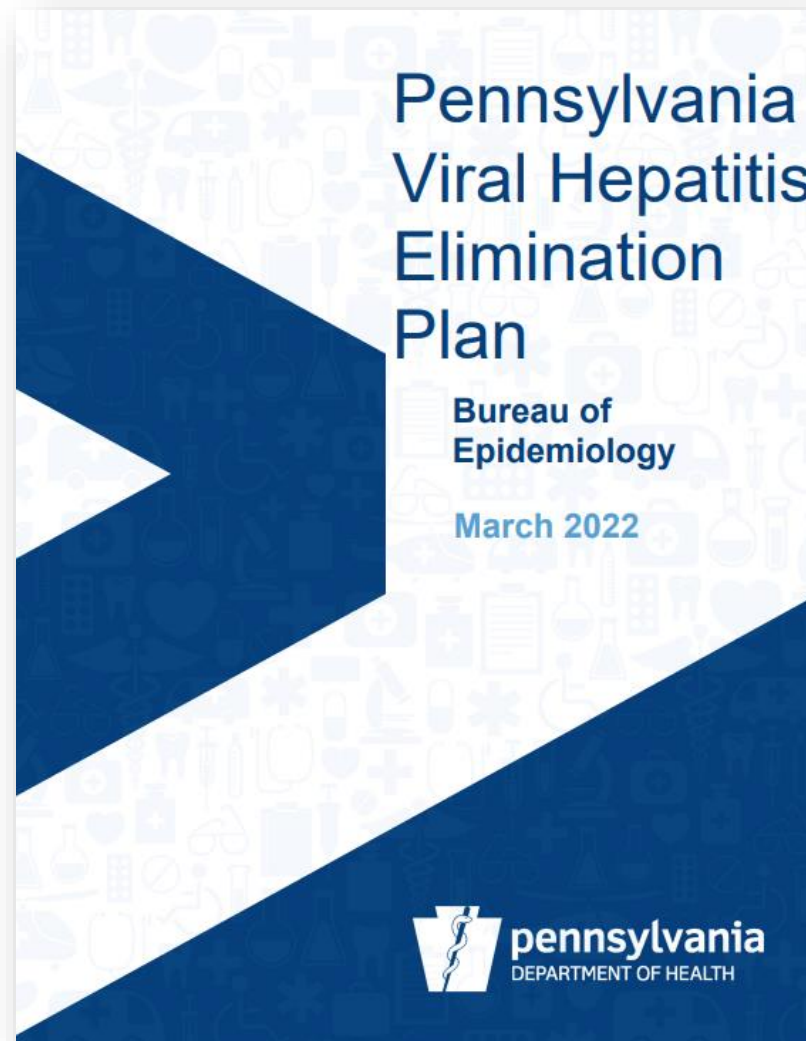
Connors EE, Panagiotakopoulos L, Hofmeister MG, et al. Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations — United States, 2023. *MMWR Recomm Rep* 2023;72(No. RR-1):1–25. Weng MK, Doshani M, Khan MA, et al. Universal Hepatitis B Vaccination in Adults Aged 19–59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022. *MMWR Morb Mortal Wkly Rep* 2022;71:477–483. Routine Hepatitis C Virus Screening in Pregnant Individuals. ACOG Practice Advisory. Reaffirmed October 2022. Accessed Feb 4 2023. Hepatitis B Prevention. ACOG Practice Advisory. January 2018. Accessed Feb 4 2023.

HCVguidelines.org

US Preventive Services Task Force. Screening for Hepatitis C Virus Infection in Adolescents and Adults: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2020;323(10):970–975.

# PA Viral Hep Elimination Plan

Published on  
DOH website  
March 2022!



<https://www.health.pa.gov/topics/Documents/Diseases%20and%20Conditions/PA%20Hep%20Elim%20Plan%20Mar%202022.pdf>



# Elimination Planning 2022

- Metrics Development Workgroup
  - ▣ Reviewed plan to ensure measurability
  - ▣ Developed a scoring system
- Lived Experience Workgroup
  - ▣ Hosted sessions with members to discuss purpose
  - ▣ Purchasing tokens of appreciation
- Public Awareness and Education Workgroup
  - ▣ Exchanged available materials and dissemination strategy

# Cost-Effectiveness – Hepatitis B

- HBV Vaccination: 2 dose series (Heplisav-B) more effective than 3 dose series<sup>1,4</sup>
- HBV Screening: one-time adult screen and risk factor-based cost-effective<sup>4, 5, 6</sup>
- HBV Treatment<sup>2, 3</sup> is also cost-effective

<sup>1</sup> Rosenthal EM, Hall EW, Rosenberg ES, Harris A, Nelson NP, Schillie S. Assessing the cost-utility of preferentially administering Heplisav-B vaccine to certain populations. *Vaccine*. 2020 Dec 3;38(51):8206-8215.

<sup>2</sup> Toy M, et al., The price tag of a potential cure for chronic hepatitis B infection: A cost threshold analysis for USA, China & Australia. *Liver International*. 2022; 42(1):16-25.

<sup>3</sup> Abara We et al; High Value Care Task Force of the American College of Physicians and the Centers for Disease Control and Prevention; Hepatitis B Vaccination, Screening, and Linkage to Care: Best Practice Advice From the American College of Physicians and the Centers for Disease Control and Prevention. *Ann Intern Med*. 2017 Dec 5;167(11):794-804.

<sup>4</sup> Hall EW, et al. Evaluating the cost-effectiveness of hepatitis B vaccination strategies in high-impact settings for adults. *J Viral Hepat*. 2022 Dec;29(12):1115-1126.

<sup>5</sup> Mehlika T et al; Cost-Effectiveness of 1-Time Universal Screening for Chronic Hepatitis B Infection in Adults in the United States; *Clinical Infectious Diseases*; 2021.

<sup>6</sup> Conners EE, Panagiotakopoulos L, Hofmeister MG, et al. Screening and Testing for Hepatitis B Virus Infection: CDC Recommendation for the United States, 2023. *MMWR Recomm Rep* 2023;72(No. RR-1):1–25.

# Services for People who Use Drugs

- Funded through State Opioid Response grant to build capacity for HIV/viral hepatitis services at drug and alcohol treatment facilities statewide
  - ▣ Staff training/education ([stophiv.com/sor](http://stophiv.com/sor))
  - ▣ Toolkit for implementation
  - ▣ Referral Directory
  - ▣ Technical assistance
  - ▣ Vaccines and test kits

# ▶ Syringe Service Legislation

- HB1245 passed the House Judiciary Committee with bipartisan support
- SSPs reduce HCV incidence by at least 50%, possibly even more than that (up to 75%).
  - A (Cochrane) review of relevant studies found that SSPs reduced new cases of HCV by 50% (Platt et al. 2017)
  - A review focusing on European studies found SSPs reduced incidence by 76%. Some argue that limiting to European studies is a better method for estimating the effect of the policy itself (due to comprehensive nation-level implementation) (Palmateer et al. 2022)

Thank you!  
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