

DISMANTLING BARRIERS TO HEPATITIS B AND DELTA SCREENING, PREVENTION, AND LINKAGE TO CARE AMONG PEOPLE WHO USE DRUGS IN PHILADELPHIA

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INTRODUCTION

Despite the serious effects of unmanaged **hepatitis B** and **delta virus** infections (HBV and HDV) [1, 2, 3], knowledge about their **prevalence** and efforts to ensure **diagnosis and connection to care** among people who use drugs remain **limited** [4, 5, 6].

OBJECTIVE

Assess HBV and HDV prevalence at a harm reduction organization in Philadelphia, PA and facilitate linkage to care or immunization as appropriate.

METHODS

- Demographic/risk factors survey** and **blood draw** to assess HBV immunity and infection
- Reflex testing** for HDV if HBV surface antigen (current infection) or isolated core antibody (previous exposure) were present
- Participants incentivized for testing and to review study results with staff
- Participants **linked to immunization and care** whenever possible
- Fisher's exact tests and regression** used to identify relationships between risk factors and HBV blood markers

RESULTS

Total: 498 participants

- 126 (25.3%)** were susceptible to HBV (no presence of HBsAb)
- 262 (52.6%)** had been fully vaccinated (HBsAb +)
- 89 (17.9%)** had past infection
- 11 (2.2%)** tested positive for isolated HBV core antibody
- 10 (2.0%)** tested positive for HBV surface antigen
- 1 tested positive for HDV antibody** (10% of total HBsAg+ group)
- History of incarceration was associated with current HBV infection.
- Transactional sex and experience of homelessness were associated with previous HBV exposure.

Table 1. Demographic characteristics of study participants in relation to active HBV infection

Category	HBsAg+		HBsAg-		Total	
	n	%	n	%	n	%
Sex						
Female	4	40%	187	38.3%	191	38.4%
Male	6	60%	300	61.5%	306	61.4%
Non-Binary	0	-	1	0.2%	1	0.2%
Race						
White	6	60%	268	54.9%	274	55.0%
Black	2	20%	117	24.0%	119	23.9%
Hispanic	0	-	55	11.3%	55	11.0%
Asian	0	-	3	0.6%	3	0.6%
Native American	1	10%	3	0.6%	4	0.8%
Multiracial	1	10%	29	5.9%	30	6.0%
Other	0	-	11	2.3%	11	2.2%
Unreported	0	-	2	0.4%	2	0.4%
Ethnicity						
Hispanic	2	20%	94	19.3%	96	19.3%
Non-Hispanic	8	80%	381	78.1%	389	78.1%
Unknown	0	-	6	1.2%	6	1.2%
Unreported	0	-	7	1.4%	7	1.4%
Age						
18-33	3	30%	108	22.1%	111	22.3%
34-48	6	60%	285	58.4%	291	58.4%
49-63	1	10%	87	17.8%	88	17.7%
64-78	0	-	8	1.6%	8	1.6%
Birthplace						
USA	10	100%	472	96.7%	482	96.8%
Other	0	-	16	3.3%	16	3.2%

*Multiracial indicates self-reporting more than one of the above races listed.

Table 2. Self-reported risk factor variables and odds ratios for the study sample, and association with active hepatitis B infection

Category	HBsAg+		HBsAg-		Total		p-value	OR
	n	%	n	%	n	%		
Tattoo							1	0.9
Yes	8	80%	397	81.4%	405	81.3%		
No	2	20%	90	18.4%	92	18.5%		
Incarcerated*							0.047	0.24
Unreported	0	-	1	0.2%	1	0.2%		
Yes	5	50%	408	83.6%	413	82.9%		
No	4	40%	80	16.4%	84	16.9%		
Unprotected Sex							0.46	0.65
Unreported	1	10%	0	-	1	0.2%		
Yes	7	70%	381	78.1%	388	77.9%		
No	3	30%	106	21.7%	109	21.9%		
Transactional Sex							1	1.00
Unreported	0	-	1	0.2%	1	0.2%		
Yes	3	30%	145	29.7%	148	29.7%		
No	7	70%	336	68.9%	343	68.9%		
Unreported								
Unreported	0	-	7	1.4%	7	1.4%		
Use Drugs							0.44	0.53
Yes	9	90%	459	94.1%	468	94%		
No	1	10%	27	5.5%	28	5.6%		
Unreported								
Unreported	0	-	2	0.4%	2	0.4%		
Receive HRO Services							1	-
Yes	10	100%	433	88.7%	443	89%		
No	0	-	37	7.6%	37	7.4%		
Unreported								
Unreported	0	-	18	3.7%	18	3.6%		
Case Manager							0.50	1.53
Yes	4	40%	147	30.1%	151	30.3%		
No	6	60%	337	69.1%	343	68.9%		
Unreported								
Unreported	0	-	4	0.8%	4	0.8%		

*Indicates significance

Hepatitis B, Delta, and You

Anyone can be at risk for hepatitis B and delta. These infections don't only affect certain people. Getting hepatitis B or D is not your fault, and is not a punishment for bad behavior.

Often, hepatitis B and delta will show no symptoms. Sometimes, symptoms won't appear for decades.

Chronic, untreated hepatitis B and delta can damage your liver, eventually leading to liver disease and cancer.

Getting tested is important. The only way that you can find out if you have delta, don't share household hygiene items (razors, toothbrushes, etc.), always wear protection during sex, never share needles, and never touch someone else's blood without gloves.

You can also protect yourself from hepatitis B and delta with the vaccine, which is available in two and three doses. It's safe and effective. Ask your doctor about getting vaccinated against hepatitis B and delta today.

Hepatitis B and Delta Vaccination, Prevention & Healthy Living Tips

Did you know that you can protect yourself from hepatitis B and delta? If you've already been diagnosed with hepatitis B and delta, there are lifestyle changes that you can make to keep yourself healthy.

Hepatitis B Vaccine

There is a 2 dose and 3 dose vaccine series for hepatitis B. That is safe and effective. It also protects you against hepatitis delta.

Hepatitis B Transmission

In addition to the vaccine, there are steps you can take to prevent getting hepatitis B and delta.

Living with Hepatitis B and Delta

If you have been diagnosed with hepatitis B and delta, there are steps you can take to keep yourself healthy.

(Above) An educational postcard and flyer designed as part of this project for education of hepatitis B and Delta.

CONCLUSIONS

- Rates of current HBV infection in this study were nearly three times greater than the general US population
- Despite availability of vaccine, 25% remained **vulnerable to infection**
- Linking participants to immunization and care was complicated by **provider restrictions** and logistical challenges
- Results demonstrate the need to improve:
 - Low-threshold screening
 - Vaccination
 - Linkage to care among people who use drugs
- Results also show how tools like **point-of-care diagnostics** and **increased support for HROs** can fill gaps in the HBV/HDV care cascade

REFERENCES

- Rizzetto M. Hepatitis D virus: introduction and epidemiology. Cold Spring Harb Perspect Med. 2015;5:a021576. doi: 10.1101/cshperspect.a021576
- Palom A, Rando-Segura A, Vico J, et al. Implementation of anti-HDV reflex testing among HBsAg-positive individuals increases testing for hepatitis D. JHEP Rep. 2022;4(10): 100547. doi: 10.1016/j.jhepr.2022.100547
- Lim JK, Nguyen MH, Kim WR, Gish R, Perumalswami P, Jacobson IM. Prevalence of chronic hepatitis B virus infection in the United States. American J Gastroenterol. 2020;115(9):1429-1438. doi:10.14309/ajg.0000000000000651
- Richardson D, Bell C. Public health interventions for reducing HIV, hepatitis B and hepatitis C infections in people who inject drugs. PHA. 2018;8(4):153. <https://doi.org/10.5588/pha.18.0093-ed>
- Gish R. Diagnosing and screening for hepatitis D viral infection. [White paper]. Hepatitis B Foundation. 2022. <https://www.hepb.org/assets/Uploads/Gish-HDV-Diagnostic-Analysis-Whitepaper-1.pdf>
- Montgomery MP, Zhong Y, Roberts E, et al. Vaccination barriers and opportunities at syringe services programs in the United States, June-August 2021 – a cross-sectional survey. Drug Alcohol Depend. 2022;237: 109540. <https://doi.org/10.1016/j.drugalcdep.2022.109540>

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