

# Viral Hepatitis B Screening and Vaccination Among Adults at Risk for Sexually Transmitted Infections

Rulin C. Hechter<sup>1</sup>, Sara Y. Tartof<sup>1</sup>, Steven J. Jacobsen<sup>1</sup>, Yi Luo<sup>1</sup>, Jim H. Nomura<sup>2</sup>, Hung Fu Tseng<sup>1</sup>

<sup>1</sup> Department of Research and Evaluation, Kaiser Permanente Southern California, Pasadena, California, United States, <sup>2</sup> Division of Infectious Disease, Southern California Permanente Medical Group, Los Angeles, California, United States

## BACKGROUND

- Ongoing hepatitis B transmission is prevalent in unvaccinated adults with risk behaviors in the US.
- The for Disease Control and Prevention recommend hepatitis B vaccination in individuals seeking evaluation or treatment for sexually transmitted infections (STIs).

## METHODS

### Study Design

A retrospective cohort study of insured adult health plan members in Kaiser Permanente Southern California .

### Study Population

- A total of 538,174 adults diagnosed or tested for chlamydia, gonorrhea, syphilis, genital herpes, genital warts or trichomoniasis from 2008-2011 were identified through electronic medical records.
- Those who had documented prior hepatitis B infection, immunity (HBsAb+) or vaccination were excluded.
- Women age <25 years screened for chlamydia and/or gonorrhea only were excluded (routine screening).

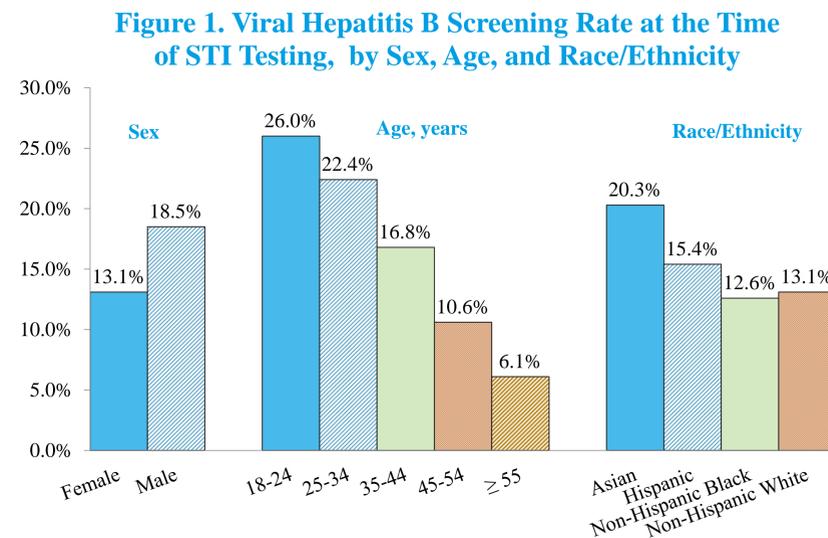
### Statistical Analysis

- Logistic regression models were used to determine correlates of hepatitis B screening at the time of STI testing or diagnosis, and vaccination among those tested susceptible.
- Multivariable analyses adjusted for calendar year, membership length, and number of clinic visits in the previous year.

## RESULTS

### Hepatitis B Screening

- There were 504,407 age and racial/ethnic diverse adults included in the analysis after exclusion (Table 1).
- Overall hepatitis B screening rate was 15.1% (n=76,254). Screening rate varied by age, gender, and race/ethnicity (Figure 1).
- Females (OR= 0.70 [0.67-0.73]) , Hispanics (OR=0.90 [0.85-0.95] and blacks (OR= 0.90 [0.83-0.97]) were less likely to be screened
- Asians (OR=1.66 [1.54-1.78]), those who lived in neighborhoods with higher education attainment levels were more likely to be screened (table 1).
- Adults with a history of diabetes, chronic liver or kidney diseases were more likely to be screened ( OR=1.22 [1.13-1.32]).



	Total N (%)	Screened n (screening rate, %)	Adj. Odds Ratio (95% CI)
<b>Age at baseline</b>			
18-24	28,044 (5.6)	7,286 (26.0)	0.90 (0.82-0.99)
25-34	135,153 (26.8)	30,213 (22.4)	Reference
35-44	126,545 (25.1)	21,230 (16.8)	0.91 (0.86-0.96)
45-54	97,780 (19.4)	10,350 (10.6)	0.88 (0.83-0.94)
≥ 55	116,885 (23.2)	7,175 (6.1)	0.59 (0.55-0.64)
<b>Sex</b>			
male	189,435 (37.6)	35,072 (18.5)	Reference
female	314,972 (62.4)	41,182 (13.1)	0.70 (0.67-0.73)
<b>Race/ethnicity</b>			
Non-Hisp. white	160,143 (31.7)	20,926 (13.1)	Reference
Asian	33,313 (6.6)	6,764 (20.3)	1.66 (1.54-1.78)
Hispanic	182,824 (36.2)	28,232 (15.4)	0.90 (0.85-0.95)
Non-Hisp. black	50,474 (10.0)	6,339 (12.6)	0.90 (0.83-0.97)
Unknown/others	77,653 (15.4)	13,993 (18.0)	0.81 (0.76-0.87)
<b>Proportion of adults with college degree</b>			
< 50%	209,518 (41.5)	31,986 (15.3)	Reference
50 – 74%	196,489 (39.0)	29,737 (15.1)	1.05 (0.99-1.11)
≥ 75%	98,304 (19.5)	14,518 (14.8)	1.12 (1.04-1.20)
<b>Average neighborhood household income</b>			
≤\$25,000	14,898 (3.0)	2,213 (14.9)	1.01 (0.89-1.15)
\$25,000-39,999	85,981 (17.0)	12,670 (14.7)	0.95 (0.89-1.01)
\$40,000-59,999	156,838 (31.1)	24,577 (15.7)	Reference
\$60,000-79,999	124,758 (24.7)	19,001 (15.2)	0.98 (0.93-1.04)
≥ \$80,000	121,836 (24.2)	17,780 (14.6)	1.03 (0.97-1.10)

### Hepatitis B Vaccination

- Among 2,930 tested hepatitis B susceptible adults, 690 (23.5%) received ≥ 1 dose of hepatitis B vaccine and 446 (15.2%) received the first dose within 90 days.
- Likelihood of vaccination did not differ significantly by age or sex.
- Asians (OR=1.66 [1.17-2.35]) and those with a history of diabetes, chronic liver or kidney diseases (OR=1.40 [1.06-1.84]) were more likely to be vaccinated.

## LIMITATIONS

- We may have included adults seen for routine STI screening who may not have risk factors for hepatitis B infection. This might have contributed to the observed low screening rate in this population.

## CONCLUSIONS

- Hepatitis B screening rates and timely hepatitis B vaccination rates are suboptimal in adults diagnosed with or tested for STIs in primary care settings.
- Targeted interventions towards primary healthcare providers are warranted to increase awareness of the increased risk for hepatitis B among patients with sexual risk factors and appropriate action.