

Supplemental Table 1. List of prescription HBV drugs available in NHANES

Drug name/ combination		
Adefovir	Lamivudine	Tenofovir
Entecavir	Abacavir; Lamivudine	Emtricitabine; Tenofovir
Interferon Alfa-2A	Lamivudine; Zidovudine	Emtricitabine; Rilpivirine; Tenofovir*
Interferon Alfa-2B	Abacavir; Lamivudine; Zidovudine*	Efavirenz; Emtricitabine; Tenofovir*
Peginterferon Alfa-2A		

*Although these combinations are mainly for HIV patients, some doctors may prescribe them to HBV or HBV/HIV dual-infected patients.

Supplemental Table 2. Prevalence of HBV exposure (positive anti-HBc), 1999-2016

	1999-2004		2005-2010		2011-2016		Trends analysis
Characteristics	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	P-value
Overall	14,876	5.89 (5.21-6.65)	16,601	4.81 (4.25-5.43)	16,148	4.67 (4.17-5.22)	0.007
Sex							
Male	7,121	7.04 (6.20-7.98)	8,094	5.34 (4.66-6.10)	7,835	5.35 (4.71-6.08)	0.004
Female	7,758	4.82 (4.04-5.75)	8,094	4.32 (3.67-5.07)	8,507	4.02 (3.52-4.60)	0.110
Age groups (Years)							
18-34	5,182	3.06 (2.42-3.87)	5,037	2.07 (1.58-2.71)	4,764	1.65 (1.32-2.06)	<0.001
35-49	3,346	6.04 (4.94-7.37)	4,031	5.02 (4.29-5.85)	3,927	3.67 (3.04-4.42)	0.001
50-64	2,804	8.48 (7.19-9.98)	3,731	7.14 (5.87-8.67)	3,981	7.67 (6.56-8.96)	0.443
65+	3,547	7.69 (6.50-9.09)	3,802	5.90 (4.85-7.15)	3,476	6.71 (5.79-7.76)	0.272
Birthplace							
U.S.	11,528	4.40 (3.84-5.03)	12,503	3.40 (2.99-3.86)	11,232	3.03 (2.63-3.49)	<0.001
Foreign	3,351	14.31 (12.18-16.74)	4,098	11.87 (10.11-13.90)	4,916	12.28 (10.78-13.94)	0.169
Race/Ethnicity							
NH-white	7,162	3.69 (3.21-4.23)	7,894	2.61 (2.25-3.03)	6,060	2.40 (1.94-2.96)	0.001
NH-black	2,917	14.68 (13.1-16.4)	3,327	11.28 (9.88-12.87)	3,571	10.97 (9.51-12.62)	0.002
Mexican American	3,596	2.70 (2.07-3.50)	3,204	2.33 (1.75-3.10)	2,298	1.86 (1.34-2.58)	0.078
Hispanic	665	7.09 (4.43-11.16)	1,404	6.71 (5.30-8.46)	1,729	6.28 (5.04-7.80)	0.639
NH-Asian	0	N/A	0	N/A	1,964	22.87 (20.27-25.68)	N/A
Other	539	23.16 (18.77-28.23)	772	20.42 (16.81-24.57)	526	4.27 (2.89-6.25)	<0.001
Education Level (Age 20+)							
<High school	4,304	9.96	4,526	6.96 (5.72-8.45)	3,480	8.02 (6.76-9.50)	0.037

		(8.69-11.38)					
High school	6,555	5.49 (4.66-6.45)	7,934	4.75 (4.13-5.45)	8,008	4.48 (3.89-5.16)	0.067
≥College	2,454	4.10 (3.23-5.18)	3,072	3.93 (3.08-5.01)	3,847	3.75	0.544
Birthplace and Race/Ethnicity							
U.S.	11,528	4.40 (3.84-5.03)	12,503	3.40 (2.99-3.86)	11,232	3.03 (2.63-3.49)	<0.001
NH white	6,785	3.30 (2.83-3.85)	7,478	2.40 (2.04-2.83)	5,799	2.28 (1.84-2.82)	0.006
NH black	2,638	12.96 (11.64-14.40)	3,018	9.19 (8.03-10.50)	3,153	8.35 (7.20-9.66)	<0.001
Mexican	1,611	2.75 (2.03-3.71)	1,279	2.53 (1.61-3.93)	1,032	1.67 (1.05-2.65)	0.062
Hispanic	227	1.39 (2.87-6.47)	415	5.31 (3.23-8.60)	530	2.88 (1.58-5.21)	0.390
NH Asian	0	N/A	0	N/A	291	2.64 (1.38-5.00)	N/A
Other	267	6.86 (3.99-11.54)	313	7.40 (4.36-12.30)	427	3.50 (2.23-5.45)	0.049
Foreign	3,351	14.31 (12.18-16.74)	4,098	11.87 (10.11-13.90)	4,916	12.28 (10.78-13.94)	0.169
NH white	377	11.15 (7.99-15.35)	416	6.53 (4.61-9.16)	261	5.17 (2.88-9.12)	0.016
NH black	279	30.80 (25.50-36.66)	309	30.16 (22.37-39.28)	418	31.02 (25.80-36.79)	0.938
Mexican	1,985	2.66 (1.82-3.87)	1,925	2.21 (1.55-3.14)	1,266	2.02 (1.36-2.99)	0.326
Hispanic	438	10.51 (7.29-14.91)	989	7.34 (5.46-9.78)	1,199	8.00 (6.48-9.84)	0.232
NH Asian	0	N/A	0	N/A	1,673	26.26 (23.27-29.48)	N/A
Other	272	37.37 (30.24-45.11)	459	28.61 (23.57-34.25)	99	9.01 (5.37-14.74)	0.001
Insured	11,596	5.25 (4.59-5.99)	12,542	4.57 (4.03-5.19)	12,737	4.59 (4.05-5.19)	0.153
Private	6,757	4.10 (3.48-4.83)	6,806	3.65 (3.08-4.33)	6,575	3.36 (2.86-3.95)	0.089
Government	4,741	7.88 (6.60-9.39)	5,678	6.48 (5.45-7.68)	6,042	6.57 (5.76-7.48)	0.123
Uninsured	3,100	8.36 (6.92-10.07)	4,041	5.78 (4.69-7.11)	3,386	5.08 (4.08-6.31)	0.001
Pregnant at time of survey	801	2.93 (1.29-6.52)	450	3.89 (2.09-7.13)	169	2.64 (1.23-5.57)	0.931
Poverty-income ratio							
<1	2,778	7.93 (6.32-9.92)	3,289	7.09 (5.78-8.68)	3,509	7.09 (6.03-8.33)	0.441

≥1	10,835	5.31 (4.73-5.96)	12,024	4.46 (3.92-5.07)	11,248	4.07 (3.58-4.62)	0.003
Military Veteran	2039	7.35 (6.20-8.69)	2070	5.49 (4.61-6.53)	1482	5.11 (4.00-6.52)	0.012
Heavy drinker*							
Male	1,946	7.62 (6.30-9.19)	2,443	4.71 (3.93-5.63)	2455	3.96 (3.23-4.85)	<0.001
Female	1,796	4.21 (3.16-5.58)	2,261	2.60 (1.99-3.41)	2332	2.43 (1.83-3.22)	0.009
FIB-4 score							
<1.45	11,932	5.16 (4.47-5.94)	12,675	4.26 (3.72-4.88)	11,845	3.70 (3.24-4.22)	0.001
1.45-3.25	2,643	9.65 (8.04-11.55)	3,413	6.81 (5.65-8.20)	3,788	7.34 (6.30-8.55)	0.048
>3.25	304	14.13 (10.28-19.12)	513	9.15 (5.75-14.25)	515	10.03 (6.66-14.82)	0.276
ALT or AST >2X ULN[#]	570	13.71 (10.36-17.93)	621	8.14 (6.23-10.55)	554	6.50 (4.54-9.22)	0.001
NAFLD^{##}	2,202	5.92 (4.52-7.71)	2,583	4.65 (3.78-5.71)	2,365	4.62 (3.49-6.10)	0.222

*Heavy drinker defined as: >2 drinks/day for men or >1 drink/day for women

[#]AST ULN: 40 U/L, ALT ULN: 35 U/L for males 25 U/L for females

^{##}NAFLD defined by USFLI, USFLI ≥30

Supplemental Table 3. Prevalence of serologic evidence of vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 1999-2016

	1999-2004		2005-2010		2011-2016		Trends analysis
Characteristics	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	P-value
Overall	14,871	13.05 (12.06-14.11)	16,601	19.78 (18.78-20.82)	16,146	23.11 (21.96-24.30)	<0.001
Sex							
Male	7,118	11.25 (10.28-12.31)	8,094	16.72 (15.57-17.94)	7,835	20.35 (18.98-21.79)	<0.001
Female	7,753	14.73 (13.34-16.24)	8,507	22.64 (21.17-24.18)	8,311	25.70 (24.31-27.14)	<0.001
Age groups (Years)							
18-34	5,178	21.77 (20.06-23.58)	5,037	39.80 (38.02-41.61)	4,764	46.84 (44.73-48.97)	<0.001
35-49	3,344	11.75 (10.28-13.40)	4,031	14.66 (13.06-16.42)	3,927	17.73 (15.92-19.70)	<0.001
50-64	2,805	8.82 (7.65-10.15)	3,731	12.23 (10.70-13.95)	3,981	12.33 (11.01-13.78)	0.001
65+	3,544	4.28 (3.40-5.37)	3,802	4.42 (3.54-5.51)	3,474	7.73 (6.41-9.30)	<0.001
Birthplace							
U.S.	11,522	13.39 (12.22-14.66)	12,503	20.40 (19.37-21.47)	11,230	23.42 (22.17-24.73)	<0.001
Foreign	3,349	11.15 (9.67-12.82)	4,098	16.68 (14.80-18.74)	4,916	21.64 (19.84-23.55)	<0.001
Race/Ethnicity							
NH-white	7,157	13.00 (11.83-14.28)	7,894	19.21 (18.07-20.40)	6,059	22.40 (20.91-23.97)	<0.001
NH-black	2,919	13.03 (11.59-14.62)	3,327	21.05 (19.06-23.19)	3,571	23.66 (22.16-25.24)	<0.001
Mexican American	3,591	11.78 (10.35-13.38)	3,204	15.69 (13.72-17.88)	2,298	19.97 (18.01-22.08)	<0.001
Hispanic	665	13.91 (10.36-18.43)	1,404	19.01 (15.83-22.65)	1,729	22.99 (20.02-26.25)	0.001
NH-Asian	0	N/A	0	N/A	1,964	33.39	N/A

						(30.98-35.89)	
Other	539	14.81 (11.51-18.85)	772	30.27 (25.81-35.14)	525	27.94 (23.97-32.30)	<0.001
Education Level (Age 20+)							
<High school	4,302	6.08 (5.04-7.31)	4,526	10.31 (9.06-11.72)	3,480	12.72 (11.45-14.12)	<0.001
High school	6,552	11.87 (10.71-13.13)	7,934	18.32 (17.24-19.45)	8,006	22.24 (20.86-23.68)	<0.001
≥College	2,453	17.07 (15.09-19.26)	3,072	23.21 (21.41-25.11)	3,847	28.52 (26.38-30.77)	<0.001
Birthplace and Race/Ethnicity							
U.S.	11,522	13.39 (12.22-14.66)	12,503	20.40 (19.37-21.47)	11,230	23.42 (22.17-24.73)	<0.001
NH white	6,780	12.93 (11.61-14.37)	7,478	19.30 (18.13-20.52)	5,798	22.20 (20.67-23.81)	<0.001
NH black	2,639	12.80 (11.42-14.33)	3,018	21.13 (18.95-23.50)	3,153	24.02 (22.55-25.55)	<0.001
Mexican	1,609	15.89 (13.24-18.96)	1,279	25.55 (22.18-29.24)	1,032	28.27 (24.78-32.05)	<0.001
Hispanic	227	24.01 918.59-30.43)	415	30.53 (25.14-36.52)	530	34.92 (28.92-41.45)	0.015
NH Asian	0	N/A	0	N/A	291	44.52 (38.28-50.93)	N/A
Other	267	16.20 (11.43-22.45)	313	35.16 (28.60-42.33)	426	28.02 (23.26-33.34)	0.017
Foreign	3,349	11.15 (9.67-12.82)	4,098	16.68 (14.80-18.74)	4,916	21.64 (19.84-23.55)	<0.001
NH white	377	14.43 (10.95-18.79)	416	17.57 (13.87-22.00)	261	27.29 (21.70-33.71)	0.001
NH black	280	15.13 (11.00-20.45)	309	20.34 (16.39-24.96)	418	20.92 (16.95-25.54)	0.098
Mexican	1,982	8.86 (7.14-10.95)	1,925	9.33 (7.32-11.82)	1,266	12.99 (11.08-15.17)	0.004
Hispanic	438	7.85 (5.43-11.24)	989	13.85 (10.72-17.71)	1,199	16.95 (14.41-19.84)	<0.001
NH Asian	0	N/A	0	N/A	1,673	31.52	N/A

						(28.81-34.36)	
Other	272	13.60 (9.32-19.42)	459	27.19 (21.71-33.47)	99	27.43 (19.28-37.43)	<0.001
Insured	11,589	13.84 (12.77-14.98)	12,542	19.67 (18.66-20.72)	12,735	23.49 (22.19-24.84)	<0.001
Private	3,099	16.82 (15.57-18.15)	4,041	23.26 (21.98-24.59)	3,386	27.50 (25.91-29.14)	<0.001
Government	6,753	6.63 (5.78-7.59)	6,806	12.01 (10.85-13.28)	6,575	16.94 (15.53-18.45)	<0.001
Uninsured	3,099	9.49 (8.12-11.05)	4,041	20.06 (18.22-22.05)	3,386	21.19 (18.93-23.65)	<0.001
Pregnant at time of survey	801	16.32 (12.78-20.62)	450	27.12 (22.16-32.71)	169	48.63 (41.98-55.34)	<0.001
Poverty-income ratio							
<1	2,776	13.17 (11.22-15.40)	3,289	22.46 (19.85-25.31)	3,509	23.14 (20.55-25.95)	<0.001
≥1	10,831	13.27 (12.13-14.51)	12,024	19.47 (18.48-20.50)	11,246	23.36 (22.14-24.63)	<0.001
Military Veteran	2,038	9.00 (7.49-10.79)	2,070	12.10 (10.43-14.00)	1,482	18.31 (15.60-21.37)	<0.001
Heavy drinker*							
Male	1,945	9.76 (8.40-11.31)	2,443	17.21 (15.23-19.38)	2,455	23.46 (20.95-26.18)	<0.001
Female	1,797	17.06 (14.64-19.78)	2,261	26.41 (23.93-29.05)	2,331	32.24 (29.45-35.16)	<0.001
FIB-4 score							
<1.45	11,928	14.26 (13.14-15.47)	12,675	22.59 (21.53-23.67)	11,844	27.40 (26.08-28.76)	<0.001
1.45-3.25	2,641	5.81 (4.51-7.45)	3,413	6.88 (5.58-8.46)	3,787	10.23 (8.68-12.03)	<0.001
>3.25	302	8.47 (4.82-14.47)	513	13.96 (10.17-18.86)	515	7.66 (5.24-11.07)	0.371
ALT or AST >2X ULN[#]	503	12.59 (9.07-17.22)	574	16.72 (13.33-20.76)	527	23.77 (19.60-28.50)	0.001
NAFLD^{##}	2,203	9.08 (7.50-10.95)	2,583	11.90 (10.35-13.64)	2,365	14.50 (12.81-16.38)	<0.001

*Heavy drinker defined as: >2 drinks/day for men or >1 drink/day for women

#AST ULN: 40 U/L, ALT ULN: 35 U/L for males 25 U/L for females

##NAFLD defined by USFLI, USFLI \geq 30

Supplemental Table 4: Prevalence of hepatitis B vaccination by participant reported history of completion of the 3-dose vaccine series, 1999-2016

	1999-2004		2005-2010		2011-2016		Trends analysis
Characteristics	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	Sample Size	Adjusted % (95% CI)	P-value
Overall	15,693	20.37 (19.27-21.52)	16,210	31.43 (30.04-32.86)	15,534	36.79 (35.56-38.04)	<0.001
Sex							
Male	7,405	18.37 (17.12-19.68)	7,858	28.44 (26.95-29.97)	7,502	33.04 (31.65-34.46)	<0.001
Female	8,288	22.17 (20.72-23.70)	8,352	34.17 (32.50-35.89)	8,032	40.24 (38.56-41.95)	<0.001
Age groups (Years)							
18-34	5,180	34.18 (32.36-36.05)	4,853	55.06 (52.87-57.22)	4,427	64.45 (62.05-66.77)	<0.001
35-49	3,443	19.89 (18.05-21.86)	3,822	29.59 (27.31-31.97)	3,663	36.21 (34.01-38.47)	<0.001
50-64	2,994	14.26 (12.85-15.79)	3,684	21.36 (19.25-23.63)	3,892	24.79 (23.00-26.68)	<0.001
65+	4,076	4.35 (3.41-5.54)	3,851	8.63 (7.41-10.04)	3,552	13.94 (12.44-15.59)	<0.001
Birthplace							
U.S.	12,318	20.77 (19.54-22.05)	12,404	31.55 (30.03-33.12)	11,068	36.97 (35.57-38.39)	<0.001
Foreign	3,375	18.00 (15.89-20.33)	3,806	30.78 (28.65-33.00)	4,466	35.87 (32.81-39.05)	<0.001
Race/Ethnicity							
NH-white	7,716	19.27 (18.00-20.60)	7,703	29.36 (27.79-31.00)	5,891	35.05 (33.55-36.59)	<0.001
NH-black	3,148	26.57 (24.03-29.29)	3,523	37.56 (34.44-40.79)	3,645	40.80 (37.86-43.81)	<0.001

Mexican American	3,571	17.53 (15.91-19.27)	2,935	31.36 (29.46-33.32)	2,015	34.39 (31.26-37.66)	<0.001
Hispanic	683	20.84 (16.37-26.16)	1,291	39.97 (35.30-44.83)	1,577	39.97 (35.59-44.51)	<0.001
NH-Asian	0	N/A	0	N/A	1,901	46.13 (43.11-49.18)	<0.001
Other	575	26.52 (22.68-30.75)	758	37.60 (33.46-41.92)	505	43.69 (37.45-50.14)	<0.001
Education Level (Age 20+)							
<High school	4,582	11.35 (9.62-13.33)	4,303	20.85 (18.93-22.91)	3,292	24.01 (21.64-26.54)	<0.001
High school	6,921	19.91 (18.53-21.36)	7,823	30.09 (28.57-31.66)	7,756	34.89 (33.50-36.31)	<0.001
≥College	2,619	23.82 (21.43-26.38)	3,005	34.90 (32.30-37.60)	3,706	41.98 (39.71-44.29)	<0.001
Birthplace and Race/Ethnicity							
U.S.	12,318	20.77 (19.54-22.05)	12,404	31.55 (30.03-33.12)	11,068	36.97 (35.57-38.39)	<0.001
NH white	7,314	19.35 (17.96-20.81)	7,304	29.40 (27.84-31.00)	5,637	34.86 (33.19-36.56)	<0.001
NH black	2,855	26.41 (23.94-29.03)	3,195	37.57 (34.17-41.10)	3,245	40.46 (37.31-43.69)	<0.001
Mexican	1,626	23.28 (20.59-26.20)	1,204	39.41 (36.16-42.75)	974	44.67 (40.88-48.52)	<0.001
Hispanic	243	28.84 (22.82-35.71)	399	51.20 (44.42-57.93)	508	52.73 (46.78-58.60)	<0.001
NH Asian	0	N/A	0	N/A	290	62.53 (56.23-68.44)	N/A
Other	280	27.70 (22.32-33.82)	302	43.88 (37.43-50.55)	414	43.86 (36.62-51.37)	0.002
Foreign	3,375	18.00 (15.89-20.33)	3,806	30.78 (28.65-33.00)	4,466	35.87 (32.81-39.05)	<0.001
NH white	402	17.67 (13.36-23.01)	399	28.74 (23.96-34.06)	254	39.98 (31.78-48.78)	<0.001
NH black	293	28.25 (22.28-35.11)	328	37.46 (31.79-43.50)	400	43.64 (37.92-49.54)	0.001

Mexican	1,945	13.27 (11.35-15.45)	1,731	26.00 (23.63-28.52)	1,041	24.64 (20.27-29.59)	<0.001
Hispanic	440	15.55 (10.01-23.37)	892	34.57 (29.70-39.79)	1,069	33.20 (27.71-39.19)	0.001
NH Asian	0	N/A	0	N/A	1,611	43.31 (39.69-46.99)	N/A
Other	295	25.46 (20.26-31.46)	456	33.64 (28.50-39.20)	91	42.59 (28.92-57.49)	0.009
Insured	12,338	20.50 (19.25-21.82)	12,427	31.20 (29.81-32.64)	12,392	36.87 (35.46-38.31)	<0.001
Private	7,036	24.39 (22.84-26.00)	6,693	36.02 (34.26-37.83)	6,269	43.01 (41.14-44.89)	<0.001
Government	5,203	11.34 (9.95-12.91)	5,681	21.24 (19.60-22.97)	6,012	27.41 (25.60-29.31)	<0.001
Uninsured	3,099	19.64 (17.90-21.51)	3,766	32.33 (29.81-34.97)	3,124	36.42 (33.98-38.93)	<0.001
Pregnant at time of survey	822	31.07 (25.22-37.60)	418	50.62 (43.39-57.82)	156	68.26 (59.48-75.91)	<0.001
Poverty-income ratio							
<1	2,827	22.37 (20.23-24.67)	3,136	37.89 (34.59-41.31)	3,432	41.22 (38.01-44.51)	<0.001
≥1	11,370	20.45 (19.21-21.74)	11,783	30.57 (29.13-32.05)	10,713	36.40 (35.04-37.78)	<0.001
Military Veteran	2,181	18.97 (16.66-21.51)	2,008	25.11 (22.52-27.88)	1,460	28.75 (25.67-32.04)	<0.001
Heavy drinker*							
Male	1,833	18.16 (15.73-20.86)	2,199	29.74 (27.15-32.47)	2,193	37.48 (34.75-40.29)	<0.001
Female	1,755	26.33 (23.64-29.22)	2,109	39.28 (36.24-42.41)	2,128	46.83 (43.58-50.11)	<0.001
FIB-4 score							
<1.45	10,954	22.66 (21.42-23.95)	11,180	35.29 (33.69-36.92)	10,195	43.03 (41.47-44.60)	<0.001
1.45-3.25	2,489	6.76 (5.26-8.65)	3,092	12.98 (11.40-14.74)	3,442	17.93 (16.35-19.64)	<0.001
>3.25	2,250	18.95	1,938	31.38	1,897	32.72	<0.001

		(16.08-22.20)		(27.80-35.20)		(29.12-36.53)	
ALT or AST >2X ULN[#]	465	19.47 (15.60-24.01)	511	38.06 (32.42-44.04)	451	40.70 (33.44-48.39)	<0.001
NAFLD^{##}	2,054	16.02 (13.69-18.68)	2,285	26.07 (23.43-28.88)	2,070	28.55 (26.01-31.23)	<0.001

*Heavy drinker defined as: >2 drinks/day for men or >1 drink/day for women

[#]AST ULN: 40 U/L, ALT ULN: 35 U/L for males 25 U/L for females

^{##}NAFLD defined by USFLI, USFLI \geq 30

Supplemental Table 5. Foreign-born persons: Race/ethnic-specific prevalence of hepatitis B infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 2011-2016

	white		black		Mexican		Hispanic		Asian		P-Value
Variable	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	
Infection											
Overall	21116	0.03 (0.02-0.07)	9815	0.29 (0.19-0.46)	9098	0.06 (0.02-0.18)	3798	0.06 (0.02-0.20)	1964	3.30 (2.56-4.23)	<0.001
Sex											
Male	10417	0.05 (0.02-0.13)	4723	0.36 (0.20-0.66)	4360	0.02 (0.00-0.08)	1677	0.06 (0.01-0.43)	973	4.28 (2.93-6.20)	<0.001
Female	10699	0.01 (0.00-0.04)	5092	0.23 (0.12-0.45)	4738	0.10 (0.03-0.37)	2121	0.05 (0.01-0.26)	991	2.43 (1.63-3.60)	<0.001
Age groups (years)											
18-34	5525	0.06 (0.02-0.19)	3364	0.46 (0.27-0.79)	3523	0 (0.01-0.66)	1208	0.07 (0.01-0.50)	635	2.11 (1.11-4.00)	<0.001
35-49	4737	0 (0.01-0.65)	2335	0.27 (0.11-0.65)	2247	0.09 (0.01-0.66)	926	0 (0.02-0.31)	575	3.88 (2.31-6.45)	<0.001
50-64	4482	0.04 (0.01-0.18)	2362	0.16 (0.06-0.45)	1881	0.07 (0.02-0.31)	966	0.12 (0.02-0.82)	461	4.22 (2.63-6.71)	<0.001
65+	6372	0.03 (0.01-0.09)	1754	0.06 (0.01-0.44)	1447	0.21 (0.05-0.81)	698	0.06 (0.01-0.44)	293	3.40 (1.87-6.12)	<0.001
Education level (age 20+)											
<High School	3343	0.02 (0.00-0.09)	2425	0.28 (0.09-0.82)	4571	0.02 (0.01-0.07)	1374	0.08 (0.01-0.60)	286	7.10 (4.31-11.46)	<0.001
High school	11399	0.03 (0.01-0.08)	5010	0.31 (0.18-0.54)	2941	0.08 (0.01-0.55)	1661	0.05 (0.01-0.33)	643	3.65 (2.38-5.56)	<0.001
≥College	5461	0.02 (0.00-0.15)	1384	0.32 (0.12-0.86)	542	0.21 (0.05-0.87)	526	0.04 (0.01-0.30)	947	2.15 (1.38-3.36)	0.006
Insured	18226	0.02 (0.01-0.06)	7687	0.18 (0.11-0.32)	5235	0.09 (0.02-0.34)	2650	0.08 (0.02-0.30)	1646	2.64 (2.03-3.42)	<0.001

Private	9946	0.03 (0.01-0.09)	4005	0.26 (0.13-0.52)	2860	0.02 (0.00-0.08)	1371	0.08 (0.02-0.43)	1132	2.49 (1.73-3.58)	<0.001
Government	8209	0.02 (0.01-0.07)	3593	0.08 (0.03-0.26)	2307	0.23 (0.05-1.06)	1257	0.09 (0.01-0.64)	505	3.07 (1.96-4.79)	<0.001
Uninsured	2821	0.09 (0.02-0.36)	2059	0.65 (0.35-1.23)	3804	0.02 (0.00-0.10)	1132	0	315	7.04 (3.77-12.77)	<0.001
Poverty-income ratio											
<1	2853	0	2408	0.37 (0.15-0.90)	2629	0.12 (0.02-0.70)	1004	0	281	5.33 (3.32-8.45)	<0.001
≥1	16975	0.03 (0.01-0.07)	6535	0.24 (0.13-0.43)	5496	0.03 (0.01-0.10)	2334	0.09 (0.03-0.31)	1485	2.78 (1.98-3.89)	<0.001
Heavy Drinker											
Male	2864	0	1201	0.41 (0.15-1.12)	1778	0	626	0	162	7.31 (3.96-13.12)	<0.001
Female	3233	0	1184	0	1073	0.22 (0.03-1.59)	547	0.19 (0.04-0.89)	121	0	0.779
Exposure											
Overall	21116	0.36 (0.27-0.48)	9815	3.20 (2.61-3.93)	9098	1.31 (1.05-1.63)	3798	5.66 (4.55-7.02)	1964	22.49 (19.91-25.29)	<0.001
Sex											
Male	10417	0.46 (0.33-0.63)	4723	3.92 (3.14-4.88)	4360	1.30 (0.95-1.78)	1677	6.46 (5.06-8.21)	973	25.36 (22.05-28.98)	<0.001
Female	10699	0.27 (0.18-0.39)	5092	2.63 (2.07-3.35)	4738	1.32 (0.97-1.79)	2121	4.97 (3.68-6.68)	991	19.96 (17.27-22.95)	<0.001
Age groups (years)											
18-34	5525	0.27 (0.15-0.49)	3364	2.16 (1.59-2.93)	3523	0.66 (0.36-1.21)	1208	1.25 (0.64-2.44)	635	6.41 (4.56-8.94)	<0.001
35-49	4737	0.31 (0.17-0.57)	2335	4.24 (3.32-5.41)	2247	1.19 (0.76-1.85)	926	5.57 (4.04-7.63)	575	20.14 (16.58-24.25)	<0.001

50-64	4482	0.39 (0.23-0.66)	2362	3.58 (2.66-4.80)	1881	2.35 (1.67-3.30)	966	11.45 (8.28-15.62)	461	37.00 (32.71-41.50)	<0.001
65+	6372	0.50 (0.35-0.72)	1754	3.00 (2.11-4.27)	1447	3.71 (2.68-5.11)	698	12.40 (9.28-16.38)	293	44.10 (37.97-50.42)	<0.001
Education level (age 20+)											
<High School	3343	0.60 (0.37-0.96)	2425	3.60 (2.55-5.05)	4571	1.83 (1.41-2.38)	1374	9.82 (7.61-12.60)	286	45.26 (39.22-51.44)	<0.001
High school	11399	0.27 (0.17-0.43)	5010	2.85 (2.23-3.63)	2941	0.83 (0.51-1.34)	1661	4.39 (3.29-5.84)	643	24.82 (20.45-29.78)	<0.001
≥College	5461	0.42 (0.27-0.66)	1384	4.61 (3.52-6.02)	542	1.16 (0.56-2.40)	526	2.10 (1.06-4.13)	947	15.88 (13.67-18.37)	<0.001
Insured	18226	0.30 (0.22-0.40)	7687	2.80 (2.26-3.46)	5235	1.12 (0.84-1.48)	2650	5.47 (4.36-6.84)	1646	21.98 (19.04-25.25)	<0.001
Private	9946	0.23 (0.15-0.37)	4005	3.22 (2.56-4.06)	2860	0.75 (0.47-1.19)	1371	4.20 (2.97-5.91)	1132	17.56 (14.87-20.61)	<0.001
Government	8209	0.42 (0.29-0.61)	3593	2.22 (1.65-2.98)	2307	1.88 (1.37-2.57)	1257	7.70 (6.04-9.79)	505	33.07 (28.74-37.71)	<0.001
Uninsured	2821	0.77 (0.46-1.27)	2059	4.61 (3.30-6.40)	3804	1.50 (1.09-2.08)	1132	6.02 (4.44-8.12)	315	25.52 (20.73-30.98)	<0.001
Poverty-income ratio											
<1	2853	0.75 (0.44-1.28)	2408	3.32 (2.25-4.85)	2629	1.89 (1.39-2.57)	1004	6.68 (4.97-8.93)	281	27.77 (21.11-35.57)	<0.001
≥1	16975	0.30 (0.21-0.41)	6535	3.06 (2.49-3.76)	5496	0.97 (0.69-1.34)	2334	5.32 (4.06-6.94)	1485	21.10 (18.63-23.80)	<0.001
Heavy Drinker											

Male	2864	0.33 (0.16-0.68)	1201	2.99 (2.12-4.20)	1778	1.17 (0.74-1.85)	626	5.99 (3.83-9.24)	162	20.98 (14.95-28.61)	<0.001
Female	3233	0.04 (0.01-0.23)	1184	0.55 (0.25-1.21)	1073	0.84 (0.41-1.70)	547	2.35 (1.39-3.94)	121	6.91 (3.03-15.01)	<0.001
Vaccine-mediated immunity											
Overall	21110	0.90 (0.75-1.08)	9817	2.00 (1.59-2.50)	9093	6.06 (5.32-6.90)	3798	8.70 (7.36-10.27)	1964	26.99 (24.62-29.51)	<0.001
Sex											
Male	10413	0.86 (0.68-1.08)	4724	1.97 (1.50-2.58)	4360	4.74 (3.97-5.65)	1677	7.70 (6.16-9.57)	973	23.79 (20.55-27.37)	<0.001
Female	10697	0.93 (0.73-1.19)	5093	2.02 (1.54-2.66)	4733	7.50 (6.45-8.70)	2121	9.58 (7.73-11.82)	991	29.81 (26.83-32.97)	<0.001
Age groups (years)											
18-34	5523	1.80 (1.39-2.33)	3364	2.68 (2.10-3.41)	3521	9.45 (8.20-10.87)	1208	12.24 (9.74-15.28)	635	36.18 (32.33-40.21)	<0.001
35-49	4736	0.91 (0.65-1.28)	2336	1.94 (1.25-2.99)	2245	3.77 (2.78-5.10)	926	7.86 (6.17-9.97)	575	25.52 (21.59-29.88)	<0.001
50-64	4481	0.47 (0.30-0.72)	2363	1.72 (1.16-2.53)	1882	3.17 (2.24-4.46)	966	4.88 (3.34-7.08)	461	22.34 (18.27-27.02)	<0.001
65+	6370	0.26 (0.14-0.48)	1754	0.63 (0.36-1.12)	1445	1.47 (0.89-2.41)	698	4.62 (2.85-7.41)	293	15.46 (12.03-19.65)	<0.001
Education level											
<High school	3341	0.39 (0.21-0.72)	2426	0.98 (0.52-1.82)	4570	5.72 (4.78-6.84)	1374	6.61 (5.12-8.48)	286	22.55 (17.78-28.16)	<0.001
High school	11397	0.55 (0.41-0.74)	5010	1.84 (1.37-2.46)	2939	5.38 (4.55-6.35)	1661	8.68	643	25.29	<0.001

≥College	5460	1.49 (1.17-1.88)	1384	3.86 (2.97-5.00)	542	5.78 (3.86-8.58)	526	(7.11-10.55) 11.13 (8.02-15.25)	947	(21.65-29.32) 29.17 (25.97-32.58)	<0.001
Insured	18221	0.89 (0.73-1.09)	7687	2.04 (1.63-2.55)	5232	4.86 (4.01-5.86)	2650	8.73 (7.31-10.40)	1646	27.25 (24.58-30.09)	<0.001
Private	9944	1.10 (0.89-1.36)	4004	2.75 (2.17-3.49)	2859	4.85 (3.89-6.02)	1371	9.40 (7.76-11.35)	1132	29.01 (25.86-32.36)	<0.001
Government	8206	0.46 (0.31-0.67)	3594	0.96 (0.60-1.51)	2305	4.88 (3.76-6.32)	1257	7.29 (5.47-9.65)	505	23.12 (19.29-27.47)	<0.001
Uninsured	2820	0.97 (0.60-1.55)	2061	1.90 (1.27-2.84)	3802	7.35 (6.34-8.51)	1132	8.77 (6.67-11.46)	315	25.42 (20.81-30.66)	<0.001
Poverty-income ratio											
<1	2851	1.42 (0.94-2.12)	2409	1.02 (0.63-1.66)	2628	7.44 (6.33-8.72)	1004	8.92 (6.42-12.27)	281	22.71 (17.58-28.80)	<0.001
≥1	16972	0.85 (0.70-1.04)	6536	2.38 (1.85-3.05)	5493	5.33 (4.41-6.42)	2334	8.80 (7.33-10.53)	1485	27.62 (24.92-30.49)	<0.001
Heavy drinker*											
Male	2862	0.59 (0.33-1.06)	1201	1.82 (1.12-2.95)	1779	5.14 (4.03-6.53)	626	9.00 (6.65-12.08)	162	30.75 (23.32-39.34)	<0.001
Female	3233	0.96 (0.64-1.45)	1185	1.28 (0.69-2.36)	1073	7.13 (5.56-9.11)	547	10.30 (7.52-14.0)	121	25.41 (18.69-33.55)	0.038

*Heavy drinker defined as: >2 drinks/day for men or >1 drink/day for women

Supplemental Table 6: U.S.-born persons: Race/ethnic specific prevalence of hepatitis B infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 2011-2016

	white		black		Mexican		Hispanic		Asian		P-Value
Variable	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	Sample Size	Adjusted% (95% CI)	
Infection											
Overall	21116	0.09 (0.06-0.14)	9815	0.54 (0.39-0.73)	9098	0.04 (0.01-0.73)	3798	0.03 (0.01-0.14)	1964	0.11 (0.03-0.51)	<0.001
Sex											
Male	10417	0.10 (0.06-0.17)	4723	0.66 (0.44-0.99)	4360	0.07 (0.02-0.23)	1677	0.05 (0.01-0.34)	973	0.08 (0.01-0.56)	<0.001
Female	10699	0.08 (0.04-0.17)	5092	0.44 (0.28-0.68)	4738	0	2121	0.01 (0.00-0.11)	991	0.14 (0.04-0.59)	<0.001
Age groups (years)											
18-34	5525	0.02 (0.00-0.12)	3364	0.12 (0.04-0.33)	3523	0	1208	0	635	0.34 (0.07-1.53)	0.008
35-49	4737	0.06 (0.02-0.17)	2335	0.70 (0.43-1.14)	2247	0	926	0.07 (0.01-0.51)	575	0	<0.001
50-64	4482	0.18 (0.11-0.31)	2362	0.95 (0.58-1.56)	1881	0.18 (0.04-0.76)	966	0.04 (0.01-0.31)	461	0	<0.001
65+	6372	0.11 (0.03-0.33)	1754	0.59 (0.32-1.06)	1447	0.11 (0.02-0.81)	698	0	293	0	0.201
Education level (age 20+)											
<High School	3343	0.07 (0.02-0.22)	2425	0.88 (0.52-1.51)	4571	0	1374	0	286	0.26 (0.04-1.93)	0.001
High school	11399	0.10 (0.06-0.16)	5010	0.47 (0.30-0.73)	2941	0.04 (0.01-0.29)	1661	0.05 (0.01-0.33)	643	0.13 (0.02-0.92)	<0.001
≥College	5461	0.09 (0.03-0.24)	1384	0.35 (0.16-0.77)	542	0.27 (0.06-1.11)	526	0.05 (0.01-0.39)	947	0	<0.001
Insured	18226	0.09	7687	0.51	5235	0.07	2650	0.01	1646	0.13	<0.001

		(0.06-0.15)		(0.36-0.72)		(0.02-0.23)		(0.00-0.09)		(0.03-0.60)	
Private	9946	0.07 (0.03-0.14)	4005	0.34 (0.20-0.58)	2860	0.04 (0.00-0.26)	1371	0.02 (0.00-0.14)	1132	0.13 (0.02-0.94)	<0.001
Government	8209	0.14 (0.07-0.31)	3593	0.74 (0.48-1.14)	2307	0.14 (0.03-0.60)	1257	0	505	0.15 (0.02-1.05)	0.001
Uninsured	2821	0.07 (0.02-0.25)	2059	0.63 (0.35-1.13)	3804	0	1132	0.07 (0.01-0.49)	315	0	0.002
Poverty-income ratio											
<1	2853	0.06 (0.02-0.22)	2408	0.55 (0.31-0.99)	2629	0	1004	0	281	0	0.309
≥1	16975	0.10 (0.06-0.16)	6535	0.53 (0.36-0.77)	5496	0.06 (0.02-0.19)	2334	0.05 (0.01-0.22)	1485	0	< 0.001
Heavy Drinker											
Male	2864	0.15 (0.06-0.41)	1201	0.73 (0.37-1.44)	1778	0.05 (0.01-0.33)	626	0	162	0	0.053
Female	3233	0.04 (0.01-0.16)	1184	0.47 (0.21-1.05)	1073	0	547	0	121	0.63 (0.08-4.58)	0.002
Exposure											
Overall	21116	2.53 (2.29-2.80)	9815	8.99 (8.32-9.71)	9098	0.95 (0.73-1.22)	3798	1.00 (0.66-1.53)	1964	0.38 (0.19-0.75)	< 0.001
Sex											
Male	10417	3.18 (2.81-3.60)	4723	9.83 (8.93-10.81)	4360	1.20 (0.90-1.61)	1677	1.09 (0.63-1.88)	973	0.50 (0.21-1.15)	< 0.001
Female	10699	1.91 (1.64-2.22)	5092	8.32 (7.44-9.30)	4738	0.67 (0.45-0.99)	2121	0.93 (0.49-1.73)	991	0.28 (0.10-0.74)	< 0.001
Age groups (years)											
18-34	5525	0.80 (0.60-1.08)	3364	2.70 (2.09-3.48)	3523	0.18 (0.09-0.34)	1208	0.34 (0.12-1.01)	635	0.82 (0.36-1.85)	< 0.001
35-49	4737	2.17 (1.78-2.63)	2335	9.48 (8.19-10.95)	2247	0.86 (0.51-1.46)	926	1.61 (0.84-3.07)	575	0	< 0.001
50-64	4482	4.05 (3.40-4.82)	2362	13.80 (12.14-15.66)	1881	2.52 (1.65-3.82)	966	1.68 (0.87-3.21)	461	0.18 (0.02-1.30)	< 0.001

65+	6372	3.33 (2.84-3.89)	1754	17.57 (15.68-19.62)	1447	2.81 (2.04-3.86)	698	0.46 (0.19-1.15)	293	0.49 (0.11-2.21)	<0.001
Education level (age 20+)											
<High School	3343	4.02 (3.29-4.90)	2425	14.50 (13.25-15.84)	4571	0.55 (0.37-0.82)	1374	0.85 (0.42-1.71)	286	0.26 (0.04-1.93)	<0.001
High school	11399	2.68 (2.35-3.05)	5010	8.73 (7.89-9.66)	2941	1.34 (0.96-1.86)	1661	1.23 (0.70-2.16)	643	0.71 (0.31-1.62)	<0.001
≥College	5461	1.89 (1.52-2.34)	1384	3.73 (2.91-4.77)	542	1.85 (0.98-3.49)	526	0.83 (0.25-2.79)	947	0.15 (0.04-0.61)	<0.001
Insured	18226	2.38 (2.13-2.66)	7687	9.28 (8.56-10.05)	5235	1.47 (1.11-1.94)	2650	1.12 (0.68-1.83)	1646	0.33 (0.14-0.79)	<0.001
Private	9946	1.84 (1.58-2.15)	4005	6.44 (5.62-7.37)	2860	1.07 (0.68-1.67)	1371	0.87 (0.37-2.00)	1132	0.25 (0.07-0.87)	<0.001
Government	8209	3.52 (3.04-4.07)	3593	13.27 (12.05-14.58)	2307	2.21 (1.63-2.99)	1257	1.58 (0.91-2.70)	505	0.54 (0.16-1.75)	<0.001
Uninsured	2821	3.41 (2.69-4.32)	2059	8.01 (6.74-9.48)	3804	0.38 (0.21-0.66)	1132	0.79 (0.36-1.71)	315	0.64 (0.20-2.05)	<0.001
Poverty-income ratio											
<1	2853	3.69 (3.00-4.54)	2408	10.66 (9.30-12.18)	2629	0.68 (0.40-1.16)	1004	0.71 (0.36-1.39)	281	0.54 (0.13-2.20)	<0.001
≥1	16975	2.38 (2.12-2.66)	6535	8.32 (7.63-9.06)	5496	1.12 (0.83-1.50)	2334	1.07 (0.62-1.85)	1485	0.25 (0.11-0.57)	<0.001
Heavy Drinker											
Male	2864	3.44 (2.77-4.27)	1201	10.81 (9.01-12.91)	1778	1.23 (0.80-1.90)	626	1.02 (0.40-2.57)	162	1.65 (0.51-5.20)	<0.001
Female	3233	2.01 (1.56-2.59)	1184	8.71 (7.21-10.49)	1073	0.68 (0.45-4.47)	547	1.43 (0.45-4.47)	121	1.70 (0.51-5.46)	<0.001
Vaccine-mediated immunity											
Overall	21110	17.38	9817	17.57	9093	10.16	3798	10.20	1964	6.40	<0.001

		(16.61-18.20)		(16.50-18.70)		(9.17-11.25)		(8.38-12.36)		(5.26-7.76)	
Sex											
Male	10413	15.05 (14.18-15.97)	4724	14.74 (13.44-16.15)	4360	9.06 (7.92-10.34)	1677	8.16 (6.35-10.43)	973	6.44 (5.17-7.99)	<0.001
Female	10697	19.59 (18.48-20.74)	5093	19.84 (18.56-21.19)	4733	11.36 (10.11-12.75)	2121	11.99 (9.73-14.68)	991	6.36 (5.03-8.02)	<0.001
Age groups (years)											
18-34	5523	36.64 (34.96-38.35)	3364	31.56 (29.35-33.85)	3521	17.73 (15.56-20.13)	1208	21.36 (17.86-25.32)	635	14.47 (11.41-18.17)	<0.001
35-49	4736	14.06 (12.85-15.37)	2336	12.46 (11.15-13.89)	2245	3.96 (3.25-4.81)	926	3.53 (2.11-5.83)	575	3.63 (2.20-5.92)	0.002
50-64	4481	10.96 (9.97-12.04)	2363	8.50 (7.38-9.76)	1882	4.92 (3.56-6.77)	966	2.93 (1.44-5.87)	461	1.58 (0.81-3.07)	0.087
65+	6370	5.15 (4.37-6.05)	1754		1445		698		293		0.520
Education level											
<High school	3341	7.99 (6.72-9.48)	2426	9.89 (8.69-11.25)	4570	3.41 (2.74-4.24)	1374	2.40 (1.53-3.76)	286	0.30 (0.04-2.14)	<0.001
High school	11397	15.79 (14.89-16.73)	5010	18.31 (16.94-19.78)	2939	14.32 (12.34-16.56)	1661	12.15 (9.48-15.45)	643	5.78 (3.67-8.99)	<0.001
≥College	5460	21.32 (19.99-22.71)	1384	18.87 (16.75-21.19)	542	17.52 (13.94-21.78)	526	13.21 (9.55-17.99)	947	8.15 (6.37-10.36)	<0.001
Insured	18221	17.57 (16.74-18.43)	7687	17.56 (16.38-18.80)	5232	13.81 (12.47-15.26)	2650	11.75 (9.73-14.12)	1646	6.11 (4.92-7.56)	<0.001
Private	9944	21.12	4004	18.75	2859	14.41	1371	12.94	1132	7.85 (6.23-9.86)	<0.001

Government	8206	(20.19-22.09) 10.06	3594	(17.18-20.43) 15.89	2305	(12.89-16.07) 12.43	1257	(10.18-16.31) 10.01	505	1.94 (1.01-3.71)	<0.001
Uninsured	2820	(9.04-11.18) 16.07	2061	(14.44-17.45) 17.73	3802	(10.07-15.26) 6.12	1132	(7.72-12.89) 6.91	315	7.74 (4.24-13.72)	<0.001
Poverty-income ratio											
<1	2851	19.04 (16.84-21.45)	2409	19.03 (16.81-21.46)	2628	8.42 (6.83-10.35)	1004	10.03 (7.37-13.49)	281	5.65 (3.10-10.09)	0.003
≥1	16972	17.45 (16.66-18.26)	6536	17.20 (15.99-18.47)	5493	11.23 (10.08-12.48)	2334	10.75 (8.70-13.22)	1485	6.55 (5.22-8.18)	<0.001
Heavy drinker*											
Male	2862	16.93 15.36-18.63)	1201	14.25 (12.29-16.46)	1779	8.83 (7.15-10.85)	626	8.63 (6.30-11.72)	162	9.70 (6.46-14.31)	<0.001
Female	3233	24.45 (22.50-26.52)	1185	23.36 (20.57-26.39)	1073	15.41 (12.89-18.33)	547	17.69 (13.49-22.85)	121	19.03 (12.85-27.26)	0.002

*Heavy drinker defined as: >2 drinks/day for men or >1 drink/day for women

Supplemental Table 7. Population estimates by birth place for HBV infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc) in the U.S., 2011-2016

Variable	Adjusted % (95% CI)	Estimated total population (95% CI)
Total Adult Population (n= 237,929,664)		
HBV infection	0.35 (0.28 – 0.45)	844,222 (667,916 – 1,066,853)
HBV exposure	4.67 (4.16 – 5.23)	11,103,202 (9,906,463 – 12,436,631)
Vaccine-mediated immunity	23.11 (21.94 – 24.32)	54,980,144 (52,191,728 – 57,871,133)
U.S. Born (n=195,344,799)		
HBV infection	0.15 (0.10 – 0.24)	302,257 (195,364 – 467,460)
HBV exposure	3.03 (2.62 – 3.50)	5,914,806 (5,115,240 – 6,834,861)
Vaccine-mediated immunity	23.42 (22.15 – 24.75)	45,758,796 (43,262,544 – 48,353,307)
Foreign born (n=42,584,865)		
HBV infection	1.28 (0.95 – 1.74)	546,649 (403,573 – 739,559)
HBV exposure	12.28 (10.76 – 13.97)	5,227,343 (4,581,659 – 5,949,774)
Vaccine-mediated immunity	21.64 (19.81 – 23.59)	9,213,883 (8,434,329 – 10,044,305)

Supplemental Table 8. Population estimates by race/ethnicity for HBV infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 2011-2016

Variable	Adjusted % (95% CI)	Total population (95% CI)
HBV infection (n=832,754)		
Non-Hispanic white	0.11 (0.05 – 0.24)	171,836 (78,107 – 374,914)
Non-Hispanic black	0.69 (0.45 – 1.05)	190,517 (124,250 – 289,918)
Mexican American	0.17 (0.06 – 0.51)	37,297 (13,164 – 111,892)
Other Hispanic	0.06 (0.01 – 0.38)	8,263 (1,377-52,336)
Non-Hispanic Asian	3.41 (2.64 – 4.39)	428,060 (331,401 – 551,080)
Other non-Hispanic	0.40 (0.12 – 1.32)	23,356 (7,007 – 77,074)
HBV exposure (N=11,111,315)		
Non-Hispanic white	2.40 (1.93 – 2.97)	3,749,141 (3,014,935 – 4,639,562)
Non-Hispanic black	10.97 (9.49 – 12.65)	3,028,948 (2,620,303 – 3,492,816)
Mexican American	1.86 (1.33 – 2.59)	408,078 (291,797 – 568,237)
Other Hispanic	6.28 (5.03 – 7.83)	864,916 (692,759 – 1,078,391)
Non-Hispanic Asian	22.87 (20.27 – 25.68)	2,870,889 (2,544,509 – 3,223,631)
Other non-Hispanic	4.27 (2.87 – 6.29)	249,323 (167,578 – 367,270)
Vaccine-mediated immunity (N=54,985,545)		

Non-Hispanic white	22.40 (20.89 – 23.99)	34,991,986 (32,633,151 – 37,475,792)
Non-Hispanic black	23.66 (22.13 – 25.27)	6,532,809 (6,110,358 – 6,977,349)
Mexican American	19.97 (17.98 – 22.12)	4,381,349 (3,944,750 – 4,853,051)
Other Hispanic	22.99 (19.97 – 26.31)	3,166,310 (2,750,379 – 3,623,559)
Non-Hispanic Asian	33.39 (30.98 – 35.89)	4,191,473 (3,888,944 – 4,505,300)
Other non-Hispanic	27.94 (23.90 – 32.37)	1,631,404 (1,395,510 – 1,890,070)

Supplemental Table 9. U.S.-born persons only: Population estimates by race/ethnicity for HBV infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 2011-2016

Variable	Adjusted % of U.S.-born persons (95% CI)	Total population (95% CI)
HBV infection (n=356,894)		
Non-Hispanic white	0.08 (0.03 – 0.22)	119,935 (44,976 – 329,821)
Non-Hispanic black	0.52 (0.32 – 0.86)	127,325 (78,354 – 210,576)
Mexican American	0.14 (0.03 – 0.62)	14,092 (3,020 – 62,409)
Other Hispanic	0	0
Non-Hispanic Asian	0.79 (0.17 – 3.58)	13,804 (2,971 – 62,557)
Other non-Hispanic	0.46 (0.14 – 1.57)	23,051 (7,015 – 78,673)
HBV exposure (n=7,209,269)		
Non-Hispanic white	2.28 (1.84 – 2.83)	3,418,148 (2,758,506 – 4,242,702)
Non-Hispanic black	8.35 (7.18 – 9.68)	2,044,548 (1,758,067 – 2,370,207)
Mexican American	1.67 (1.04 – 2.68)	168,101 (104,685 – 269,766)
Other Hispanic	2.88 (1.56 – 5.27)	134,583 (72,899 – 246,269)
Non-Hispanic Asian	2.64 (1.38 – 4.99)	46,131 (24,114 – 87,195)
Other non-Hispanic	3.50 (2.21 – 5.49)	175,385 (110,743 – 275,103)

Vaccine-mediated immunity (n=55,723,127)		
Non-Hispanic white	22.20 (20.65 – 23.83)	33,281,972 (30,958,230 – 35,725,648)
Non-Hispanic black	24.02 (22.53 – 25.58)	5,881,443 (5,516,608 – 6,263,419)
Mexican American	28.27 (24.73 – 32.11)	2,845,634 (2,489,300 – 3,232,165)
Other Hispanic	34.92 (28.82 – 41.56)	1,631,821 (1,346,767 – 1,942,110)
Non-Hispanic Asian	44.52 (38.30 – 50.92)	777,937 (669,250 – 889,770)
Other non-Hispanic	28.02 (23.18 – 33.44)	1,404,080 (1,161,548 – 1,675,676)

Supplemental Table 10. Foreign-born persons only: Population estimates by race/ethnicity for HBV infection (positive HBsAg), exposure (positive anti-HBc), and vaccine-mediated immunity (positive anti-HBs with negative anti-HBc), 2011-2016

Variable	Adjusted % of foreign-born persons (95% CI)	Total population (95% CI)
HBV infection		
Non-Hispanic white	0.64 (0.13 – 3.00)	40,291 (8,184 – 188,863)
Non-Hispanic black	1.94 (1.12 – 3.32)	60,636 (35,007 – 103,770)
Mexican American	0.19 (0.04 – 0.91)	22,560 (4,749 – 108,051)
Other Hispanic	0.09 (0.01 – 0.55)	8,190 (910 – 50,047)
Non-Hispanic Asian	3.85 (2.97 – 4.97)	416,019 (320,929 – 537,043)
Other non-Hispanic	0	0
HBV exposure		
Non-Hispanic white	5.17 (2.85 – 9.20)	325,474 (179,420 – 579,180)
Non-Hispanic black	31.02 (25.72 – 36.88)	969,557 (803,901 – 1,152,717)
Mexican American	2.02 (1.35 – 3.01)	239,850 (160,295 – 357,400)
Other Hispanic	8.00 (6.46 – 9.87)	727,962 (587,829 – 898,123)
Non-Hispanic Asian	26.26 (23.27 – 29.48)	2,837,575 (2,514,484 – 3,185,518)

Other non-Hispanic	9.01 (5.32 – 14.86)	74,600 (44,048 – 123,035)
Vaccine-mediated immunity		
Non-Hispanic white	27.29 (21.61 – 33.82)	1,718,024 (1,360,443 – 2,129,116)
Non-Hispanic black	20.92 (16.90 – 25.62)	653,873 (528,224 – 800,776)
Mexican American	12.99 (11.05 – 15.21)	1,542,399 (1,312,048 – 1,805,996)
Other Hispanic	16.95 (14.37 – 19.89)	1,542,370 (1,307,602 – 1,809,896)
Non-Hispanic Asian	31.52 (28.81 – 34.36)	3,405,954 (3,113,120 – 3,712,836)
Other non-Hispanic	27.43 (19.16 – 37.61)	227,111 (158,638 – 311,397)

Supplemental Table 11. Predictors of general healthcare utilization in participants with HBV infection (positive HBsAg)

Received healthcare 0 times (Base outcome)	Received healthcare 1-3 times in the past year		Received healthcare 4-9 times in the past year		Received healthcare 10+ times in the past year	
	ARR (95% CI)	P-value	ARR (95% CI)	P-value	ARR (95% CI)	P-value
Age groups (years)						
18-34	Referent		Referent		Referent	
35-49	1.81 (0.65-5.05)	0.251	4.05 (0.97-16.94)	0.055	2.24 (0.28-17.81)	0.442
50-64	3.81 (1.15-12.54)	0.028	6.44 (1.51-27.41)	0.012	13.36 (1.70-105.05)	0.014
65+	4.55 (0.89-23.40)	0.069	19.35 (2.75-136.00)	0.003	25.56 (2.12-308.28)	0.011
Female	1.98 (0.77-5.10)	0.157	5.33 (1.71-16.61)	0.004	3.40 (0.91-12.72)	0.068
Foreign Born	0.07 (0.02-0.22)	<0.001	0.07 (0.02-0.29)	<0.001	0.04 (0.01-0.16)	<0.001
Education Level						
<High school	Referent		Referent		Referent	
High School	4.13 (1.45-11.78)	0.009	4.13 (1.27-13.42)	0.019	4.11 (0.86-19.71)	0.077
≥College	6.71 (2.36-19.05)	<0.001	3.15 (0.70-14.14)	0.133	4.82 (1.03-22.55)	0.046
Insured	3.42 (1.35-8.66)	0.010	3.56 (1.02-12.49)	0.047	8.17 (1.67-40.11)	0.010

ARR; Adjusted risk ratio; *Controlled for age, sex, birthplace, education level, and insurance status

Supplemental Table 12. Predictors of liver disease awareness in participants with HBV infection (positive HBsAg)

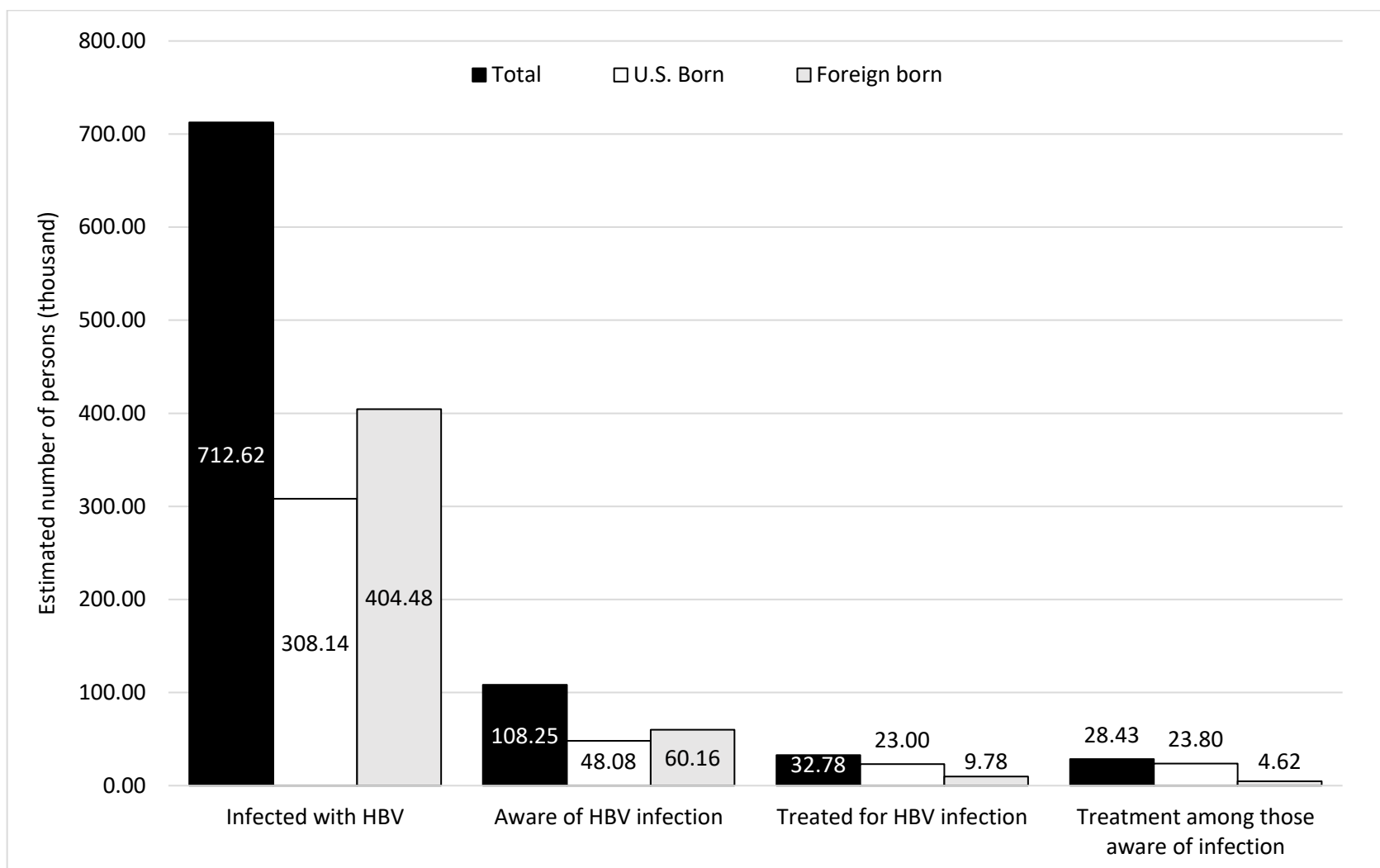
	Univariable		Multivariable	
Variable	Odds Ratio (95% CI)	<i>p</i>-value	Odds Ratio (95% CI)	<i>p</i>-value
Age groups (years)				
<50	Referent		Referent	
≥50	0.66 (0.22-2.04)	0.467	0.74 (0.14-3.92)	0.724
Female	0.39 (0.13-1.16)	0.089	0.33 (0.09-1.24)	0.100
Race/Ethnicity				
Non-Hispanic White	Referent		Referent	
Non-Hispanic Black	0.52 (0.11-2.51)	0.413	0.51 (0.07-3.98)	0.520
Mexican/Hispanic	0.87 (0.07-10.53)	0.914	0.85 (0.06-11.94)	0.903
Non-Hispanic Asian	1.84 (0.49-6.90)	0.361	1.89 (0.26-13.68)	0.523
Other	1.98 (0.43-9.06)	0.376	1.65 (0.17-15.89)	0.662
Foreign Born	1.12 (0.42-2.99)	0.814	0.98 (0.32-3.02)	0.967
Insured	1.02 (0.36-2.89)	0.972	0.75 (0.20-2.77)	0.664

Education level				
<High school	Referent		Referent	
High School	1.91 (0.58-6.31)	0.287	1.89 (0.38-9.48)	0.437
≥College	3.41 (0.87-13.36)	0.078	4.56 (0.77-27.03)	0.093
Income:poverty ratio	0.96 (0.67-1.37)	0.816	0.82 (0.53-1.28)	0.380
Number of times received healthcare in the past year				
0	Referent		Referent	
≥1 times	2.28 (0.55-9.38)	0.249	5.22 (1.06-25.63)	0.042

Supplemental Table 13. Age- and race-specific population estimates by birthplace, 2011-2016 estimates from the U.S. Census Bureau

Variable	2011	2012	2013	2014	2015	2016	2011-2016
Non-Hispanic white							
U.S. born	189,484,839	189,620,909	189,706,703	189,724,731	189,701,586	189,577,599	189,636,061
Age <18 years	38,794,465	38,376,139	38,013,052	37,677,332	37,416,137	37,087,628	37,894,126
Age ≥18 years	150,690,374	151,244,770	151,693,651	152,047,399	152,285,449	152,489,971	151,741,936
Foreign born	7,599,684	7,622,514	7,685,708	7,684,622	7,832,910	7,901,851	7,721,215
Age <18 years	388,097	385,016	383,371	375,907	371,507	403,054	384,492
Age ≥18 years	7,211,587	7,237,498	7,302,337	7,308,715	7,461,403	7,498,797	7,336,723
Non-Hispanic black							
U.S. born	35,799,674	36,145,796	36,359,608	36,702,668	36,843,600	36,953,067	36,467,402
Age <18 years	10,323,884	10,268,737	10,192,989	10,172,036	10,112,463	10,025,502	10,182,602
Age ≥18 years	25,475,790	25,877,059	26,166,619	26,530,632	26,731,137	26,927,565	26,284,800
Foreign born	3,389,854	3,477,342	3,559,763	3,676,398	3,851,677	3,940,302	3,649,223
Age <18 years	254,415	271,417	268,608	277,257	288,141	293,598	275,573
Age ≥18 years	3,135,439	3,205,925	3,291,155	3,399,141	3,563,536	3,646,704	3,373,650
Hispanic/Latino							
U.S. born	33,136,169	34,110,094	34,994,072	35,918,559	36,996,725	37,772,279	35,487,983
Age <18 years	16,140,741	16,392,715	16,600,751	16,815,176	17,067,816	17,269,031	16,714,372
Age ≥18 years	16,995,428	17,717,379	18,393,321	19,103,383	19,928,909	20,503,248	18,773,611
Foreign born	18,803,747	18,850,923	18,992,340	19,360,893	19,499,397	19,626,440	19,188,957
Age <18 years	1,266,262	1,181,310	1,120,825	1,095,931	1,045,379	1,051,019	1,126,788
Age ≥18 years	17,537,485	17,669,613	17,871,515	18,264,962	18,454,018	18,575,421	18,062,169
Non-Hispanic Asian							
U.S. born	5,016,672	5,242,509	5,437,612	5,586,376	5,757,159	5,927,042	5,494,562
Age <18 years	2,584,442	2,647,349	2,686,648	2,718,563	2,776,540	2,811,922	2,704,244
Age ≥18 years	2,432,230	2,595,160	2,750,964	2,867,813	2,980,619	3,115,120	2,790,318
Foreign born	10,003,747	10,313,021	10,574,508	11,100,584	11,516,618	11,629,893	10,856,395
Age <18 years	665,232	672,046	685,535	706,699	721,039	716,441	694,499
Age ≥18 years	9,338,515	9,640,975	9,888,973	10,393,885	10,795,579	10,913,452	10,161,897

Supplemental Figure 1. Population estimates of U.S.-born and foreign-born participants infected with HBV infection (positive HBsAg), aware of liver disease, and treated for HBV, 1999-2016



Supplemental Appendix 1

Introduction of NHANES

NHANES is a serial cross-sectional survey and examination from the National Center for Health Statistics (NHCS) of the CDC designed to assess the health and nutritional status of the U.S. civilian, noninstitutionalized population. The survey employs a complex multistage, stratified, probability clustered sample design with oversampling of certain subgroups during different time periods to allow the data to be representative of the general U.S. population.

Laboratory methods

Blood specimens were sent to the Division of Viral Hepatitis, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC (Atlanta, Georgia) for processing and storage. From 1999-2006, Enzyme-linked immunoassays were utilized to measure hepatitis B surface antibody (anti-HBs) (AU.S.ZYME, Abbott Laboratories, Chicago, Illinois), hepatitis B core antibody (anti-HBc) (Ortho HBC ELISA Tests System, Ortho Clinical Diagnostics, Rochester, New York), and hepatitis B surface antigen (HBsAg) (AU.S.ZYME, Abbott Laboratories, Chicago, Illinois). Starting in 2007, anti-HBs, anti-HBc, and HBsAg were tested using their respective VITROS Immunodiagnostic Products Calibrators and VITROS Reagent Packs (Ortho Clinical Diagnostics, Rochester, New York). All results were qualitatively expressed as positive or negative for anti-HBs, anti-HBc, and HBsAg.