

**File S1. Complete logistic regression results for subgroup analysis**

**Table S1.** Association between HBVIDV program and outcomes in original sample, stratified by age

**Table S2.** Association between HBVIDV program and outcomes in propensity score-matched sample, stratified by age

**Table S3.** Association between HBVIDV program and outcomes in inverse probability of treatment-weighted sample, stratified by age

**Table S4.** Association between HBVIDV program and outcomes in original sample, stratified by living area

**Table S5.** Association between HBVIDV program and outcomes in propensity score-matched sample, stratified by living area

**Table S6.** Association between HBVIDV program and outcomes in inverse probability of treatment-weighted sample, stratified by living area

**Table S1.** Association between HBVIDV program and outcomes in original sample, stratified by age

Outcomes	Age	Treatment group (n=6160)	Control group (n=200020)	Unadjusted OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>	<i>p</i> Value
Hepatitis B Vaccination (≥1 Dose)	18–34	156 (62.9)	867 (36.5)	2.953 (2.252,3.871)	2.384 (1.759,3.230)	<0.0001
	35–44	323 (53.5)	747 (31.3)	2.525 (2.105,3.028)	2.176 (1.782,2.657)	<0.0001
	45–54	399 (32.2)	843 (18.4)	2.103 (1.828,2.421)	1.976 (1.697,2.301)	<0.0001
	55–64	491 (20.5)	915 (12.7)	1.771 (1.569,1.999)	1.881 (1.649,2.145)	<0.0001
	≥65	339 (20.3)	407 (11.8)	1.911 (1.632,2.238)	1.746 (1.463,2.084)	<0.0001
				2.847	2.186	
Hepatitis B Vaccine Series Completion (≥3 Doses)	18–34	131 (52.8)	671 (28.2)	2.367 (2.184,3.710)	1.999 (1.627,2.937)	<0.0001
	35–44	267 (44.2)	599 (25.1)	2.239 (1.966,2.849)	2.108 (1.633,2.449)	<0.0001
	45–54	320 (25.8)	616 (13.4)	1.640 (1.921,2.609)	1.759 (1.787,2.487)	<0.0001
	55–64	344 (14.3)	668 (9.3)	1.852 (1.427,1.885)	1.683 (1.513,2.045)	<0.0001
	≥65	238 (14.3)	285 (8.3)	1.795 (1.512,2.224)	1.656 (1.371,2.065)	<0.0001
				1.755	1.812	
Vaccine-Mediated Immunity	18–34	160 (64.5)	1196 (50.3)	1.804 (1.367,2.357)	2.093 (1.238,2.216)	<0.0001
	35–44	307 (50.8)	885 (37.1)	1.456 (1.467,2.101)	1.580 (1.494,2.197)	<0.0001
	45–54	491 (39.6)	1221 (26.6)	1.230 (1.582,2.057)	1.379 (1.820,2.409)	<0.0001
	55–64	825 (34.4)	1909 (26.5)	1.230 (1.319,1.608)	1.379 (1.418,1.761)	<0.0001
	≥65	556 (33.4)	999 (28.9)	1.085 (1.085,1.394)	1.192 (1.192,1.595)	<0.0001

Outcome events (%) are reported.

<sup>a</sup>Model was adjusted for gender, educational level, employment condition, economic level, self-rated socioeconomic status, living area, multimorbidity, self-rated health condition.

**Table S2.** Association between HBVIDV program and outcomes in propensity score-matched sample, stratified by age

Outcomes	Age	Treatment group (n=5793)	Control group (n=5793)	OR (95% CI)	<i>p</i> Value
Hepatitis B	18–34	156 (62.9)	123 (43.5)	2.206 (1.556,3.126)	<.0001
Vaccination (≥1	35–44	323 (53.5)	213 (36.3)	2.018 (1.600,2.546)	<.0001
Dose)	45–54	399 (32.2)	252 (19.1)	2.014 (1.679,2.415)	<.0001
	55–64	481 (21.7)	288 (12.0)	2.023 (1.725,2.372)	<.0001
	≥65	322 (21.8)	157 (13.1)	1.856 (1.507,2.286)	<.0001
Hepatitis B Vaccine	18–34	131 (52.8)	89 (31.5)	2.440 (1.713,3.476)	<.0001
Series Completion	35–44	267 (44.2)	173 (29.5)	1.896 (1.492,2.408)	<.0001
(≥3 Doses)	45–54	320 (25.8)	186 (14.1)	2.124 (1.738,2.596)	<.0001
	55–64	337 (15.2)	209 (8.7)	1.872 (1.558,2.248)	<.0001
	≥65	223 (15.1)	104 (8.7)	1.878 (1.468,2.402)	<.0001
Vaccine-Mediated	18–34	160 (64.5)	154 (54.4)	1.523 (1.073,2.161)	0.0184
Immunity	35–44	307 (50.8)	216 (36.8)	1.775 (1.409,2.238)	<.0001
	45–54	491 (39.6)	319 (24.1)	2.060 (1.739,2.441)	<.0001
	55–64	760 (34.2)	600 (25.0)	1.557 (1.371,1.768)	<.0001
	≥65	493 (33.4)	307 (25.5)	1.461 (1.234,1.729)	<.0001

Outcome events (%) are reported.

**Table S3.** Association between HBVIDV program and outcomes in inverse probability of treatment-weighted sample, stratified by age

Outcomes	Age	Treatment group (n=6160)	Control group (n=20020)	OR (95% CI)	<i>p</i> Value
Hepatitis B Vaccination (≥1 Dose)	18–34	1030.0 (49.9)	993.9 (37.0)	1.696 (1.509,1.905)	<0.0001
	35–44	1850.4 (42.5)	912.1 (32.0)	1.568 (1.420,1.732)	<0.0001
	45–54	1659.3 (23.6)	1094.1 (18.8)	1.329 (1.219,1.448)	<0.0001
	55–64	1623.0 (19.1)	1222.4 (12.5)	1.660 (1.531,1.799)	<0.0001
	≥65	1064.9 (19.6)	559.1 (11.8)	1.826 (1.635,2.040)	<0.0001
Hepatitis B Vaccine Series Completion (≥3 Doses)	18–34	866.9 (42.0)	771.6 (28.8)	1.796 (1.592,2.027)	<0.0001
	35–44	1479.3 (34.0)	732.2 (25.7)	1.486 (1.338,1.651)	<0.0001
	45–54	1310.6 (18.6)	796.2 (13.7)	1.440 (1.308,1.585)	<0.0001
	55–64	1123.0 (13.2)	888.5 (9.1)	1.530 (1.394,1.679)	<0.0001
	≥65	735.4 (13.5)	391.9 (8.3)	1.740 (1.529,1.980)	<0.0001
Vaccine-Mediated Immunity	18–34	1225.7 (59.4)	1352.2 (50.4)	1.442 (1.284,1.619)	<0.0001
	35–44	2336.8 (53.7)	1053.5 (37.0)	1.972 (1.791,2.173)	<0.0001
	45–54	3050.3 (43.3)	1515.7 (26.1)	2.164 (2.008,2.333)	<0.0001
	55–64	2868.6 (33.8)	2544.2 (26.0)	1.457 (1.367,1.552)	< 0.0001
	≥65	1847.4 (34.0)	1335.9 (28.2)	1.316 (1.209,1.432)	<0.0001

Outcome events (%) are reported.

**Table S4.** Association between HBVIDV program and outcomes in original sample, stratified by living area

Outcomes	Living area	Treatment group (n=6160)	Control group (n=200020)	Unadjusted OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>	p Value
Hepatitis B Vaccination (≥1 Dose)	Urban	333 (20.1)	1949 (20.5)	0.971 (0.853,1.106)	1.160 (1.004,1.340)	0.0442
	Rural	1375 (30.6)	1830 (17.4)	2.092 (1.929,2.269)	2.516 (2.298,2.756)	<0.0001
Hepatitis B Vaccine Series Completion (≥3 Doses)	Urban	253 (15.2)	1456 (15.3)	0.992 (0.858,1.147)	1.210 (1.031,1.419)	0.0195
	Rural	1047 (23.3)	1383 (13.1)	2.006 (1.834,2.193)	2.330 (2.110,2.574)	<0.0001
Vaccine-Mediated Immunity	Urban	609 (36.7)	3149 (33.2)	1.167 (1.047,1.300)	1.440 (1.283,1.617)	<0.0001
	Rural	1730 (38.4)	3061 (29.1)	1.524 (1.416,1.640)	1.770 (1.632,1.919)	<0.0001

Outcome events (%) are reported.

<sup>a</sup>Model was adjusted for age, gender, educational level, employment condition, economic level, self-rated socioeconomic status, multimorbidity, self-rated health condition.

**Table S5.** Association between HBVIDV program and outcomes in propensity score-matched sample, stratified by living area

Outcomes	Living area	Treatment group (n=5793)	Control group (n=5793)	OR (95% CI)	<i>p</i> Value
Hepatitis B Vaccination (≥1 Dose)	Urban	333 (20.1)	323 (19.5)	1.034 (0.872,1.227)	0.7009
	Rural	1348 (32.6)	710 (17.2)	2.338 (2.107,2.593)	<0.0001
Hepatitis B Vaccine Series Completion (≥3 Doses)	Urban	253 (15.2)	232 (14.0)	1.102 (0.909,1.337)	0.3228
	Rural	1025 (24.8)	529 (12.8)	2.251 (2.005,2.526)	<0.0001
Vaccine-Mediated Immunity	Urban	609 (36.7)	502 (30.4)	1.330 (1.151,1.537)	0.0001
	Rural	1602 (38.8)	1094 (26.4)	1.762 (1.605,1.934)	<0.0001

Outcome events (%) are reported.

**Table S6.** Association between HBVIDV program and outcomes in inverse probability of treatment-weighted sample, stratified by living area

Outcomes	Living area	Treatment group (n=6160)	Control group (n=20020)	OR (95% CI)	<i>p</i> Value
Hepatitis B Vaccination (≥1 Dose)	Urban	2387.6 (19.9)	2273.8 (20.4)	0.964 (0.904,1.028)	0.2618
	Rural	4840.0 (31.5)	2507.8 (17.0)	2.251 (2.131,2.378)	<0.0001
Hepatitis B Vaccine Series Completion (≥3 Doses)	Urban	1820.7 (15.1)	1687.9 (15.2)	0.997 (0.928,1.071)	0.9362
	Rural	3694.5 (24.1)	1892.5 (12.8)	2.156 (2.029,2.291)	<0.0001
Vaccine-Mediated Immunity	Urban	5119.6 (42.6)	3632.6 (32.7)	1.528 (1.448,1.612)	<0.0001
	Rural	6209.1 (40.5)	4168.9 (28.2)	1.727 (1.645,1.812)	<0.0001

Outcome events (%) are reported.