

Table 86: Summary of Surveys Included in Meta-Analysis: Poland												Eastern Europe	
Country	Study, survey year(s)*	Region	Population and sampling method	Sex	Sample (n)	HBsAg positive (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Poland	Golebiowska, 2001	Lodz	Children admitted to hospital mainly for trauma; selection in Polish; males	males	462	2.2%	0.83%	3.49%	5.17%	0.76%	Golebiowska, M., M. Badyra-Kowalik, et al. (2003). "[Asymptomatic HBsAg antigenemia in children referred to hospital treatment for various reasons]." <i>Przegl Epidemiol</i> 57(4): 619-24.	15029837	1301
Poland	Michalska, 1991*	Gdansk	Pregnant women, no selection in abstract; in Polish	females	16,645	1.4%	1.18%	1.54%	17.37%	43.25%	Michalska, Z., D. Radowska, et al. (1991). "[Detection of asymptomatic HBV infection among pregnant women based on personal studies]." <i>Przegl Epidemiol</i> 45(4): 305-9.	1841407	1295
Poland	Golebiowska, 2001	Lodz	Children admitted to hospital mainly for trauma; selection in Polish; females	females	390	2.6%	0.99%	4.13%	4.03%	0.54%	Golebiowska, M., M. Badyra-Kowalik, et al. (2003). "[Asymptomatic HBsAg antigenemia in children referred to hospital treatment for various reasons]." <i>Przegl Epidemiol</i> 57(4): 619-24.	15029837	1301
Poland	CDC, 1979-1991	migrants to US	Refugees arriving in the United States, 1979-1991; programs that screened all incoming refugees and had data for HBsAg	both	903	4.1%	2.81%	5.39%	5.36%	0.80%	CDC (1991) Screening for hepatitis B virus infection among refugees arriving in the United States, 1979-1991. <i>MMWR</i> 40(45):784-6	1944126	288
Poland	Sobeslavsky, 1980*	Warsaw, urban	Apparently healthy non-institutionalized population of urban Warsaw; individuals of both sexes and different age groups	both	201	2.5%	0.34%	4.66%	2.37%	0.29%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	1306
Poland	Sobeslavsky, 1980*	Warsaw, rural	Apparently healthy non-institutionalized population of rural area; individuals of both sexes and different age groups	both	209	5.2%	2.19%	8.21%	1.30%	0.15%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Poland	Slusarczyk, 1986	Warsaw	Hospital patients excluding those with viral hepatitis at Warsaw County Infectious Disease Hospital; unpublished results reported in this review	both	160	2.0%	-0.17%	4.17%	2.35%	0.28%	Slusarczyk, J. (2001). "Vaccination against hepatitis viruses in Poland." <i>Vaccine</i> 19(17-19): 2384-8.	11257365	1299
Poland	Boron, 1987-1990	Bialystok	Rural population of Bialystok region; selection in Polish	both	11,086	1.0%	0.82%	1.20%	17.28%	38.65%	Boron, P., A. Borzuchowska, et al. (1991). "[Incidence of so-called hepatic failure syndrome in relation to infection with hepatitis B virus (HBV) in epidemiological and environmental studies of the rural population in the Suwalki and Bialystok regions 1978-1990]." <i>Przegl Epidemiol</i> 45(4): 287-9.	1841403	1294
Poland	Kozik, 1996	Debicy	Patients from internal disease ward in Debica; not in abstract; article in Polish	both	106	3.0%	-0.25%	6.25%	1.13%	0.13%	Kozik, T. and K. Bujak (1996). "[Prevalence of hepatitis B and C infection and HIV infection in blood donors and patients from the internal diseases ward]." <i>Przegl Lek</i> 53(3): 159-61.	8754372	1296
Poland	Czerwiński, 2001-2005		Organ donors; deceased potential donors referred to the Polish Transplant Coordinating center Poltransplant	both	2,878	1.1%	0.72%	1.48%	15.02%	9.22%	Czerwiński, J., P. Malanowski, et al. (2007). "Viral hepatitis B and C markers in the population of deceased donors in Poland." <i>Transplant Proc</i> 39(9): 2695-7.	18021960	1302
Poland	Halota, 2002*	Bydgoszcz	Patients with type I diabetes; previously unvaccinated; selection not reported	both	315	1.9%	0.39%	3.41%	4.28%	0.59%	Halota, W., M. Muszynska, et al. (2002). "Hepatitis B virus serologic markers and anti-hepatitis B vaccination in patients with diabetes." <i>Med Sci Monit</i> 8(7): CR516-9.	12118201	1300
Poland	Gańczak, 2006		Patients at orthopedic ward; consecutive patients at orthopedic ward of Szczecin University Hospital; in Polish	both	100	1.0%	-0.95%	2.95%	2.82%	0.35%	Ganczak, M., A. Bohatyrewicz, et al. (2008). "[Markers of hepatitis B, C and HIV among orthopedic patients and staff at a Polish university hospital]." <i>Chir Narzadow Ruchu Ortop Pol</i> 73(2): 83-8.	18846999	1304

Poland	Gańczak, 2007		Consecutive patients at neurosurgical department; anonymous serosurvey conducted at the neurosurgical department of Szczecin University Hospital; reponse rate 100%; pre-op screening	both	100	2.0%	-0.74%	4.74%	1.55%	0.18%	Ganczak, M. and Z. Szych (2008). "Infections with HBV, HCV and HIV in patients admitted to the neurosurgical department of a teaching hospital." <i>Neurol Neurochir Pol</i> 42(3): 231-7.	18651329	1303
Poland	Ganiczak, 2006-2007	Szczwcin	Consecutive surgical patients at orthopedic ward of Szczecin University Hospital; data collected sequentially from all patients admitted to each of 4 surgical wards; 100 per ward; 62% immunized for HBV; article in Polish; details in <u>English in ppt presentation</u>	both	400	0.8%	-0.10%	1.60%	8.98%	1.87%	Halota, W., M. Muszynska, et al. (2002). "Hepatitis B virus serologic markers and anti-hepatitis B vaccination in patients with diabetes." <i>Med Sci Monit</i> 8(7): CR516-9.	12118201	1300
Poland	Ganczak, 2008-2009	West Pomeranian region	Admitted adult surgical and gynecological patients; multistage stage random sampling of consecutively admitted pts; West Pomeranian region	both	1,652	2.0%	1.32%	2.68%	10.99%	2.94%	Ganczak, M. and Z. Szych (2009). "Rationale against preoperative screening for HIV in Polish hospitals: a prevalence study of anti-HIV in contrast to anti-hepatitis C virus and hepatitis B surface antigen." <i>Infect Control Hosp Epidemiol</i> 30(12): 1227-9.	19863442	1297
				total studies	15	35,607				100.00%	100.00%		
				males	1								
				females	2								
				both	12								

\* indicates publication year; survey year not reported

**Table 87: Summary of Surveys Included in Meta-Analysis: Russia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg		lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
					Sample positive (n)	(%)							
Russia	Sobeslavsky, 1980*	Moscow	Apparently healthy non-institutionalized population of Moscow; individuals of both sexes and different age groups; males	males	174	5.2%	1.90%	8.50%	2.81%	0.08%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Russia	Myl'nikov, 1994*	different regions	Military servicemen; article in Russian; males	males	13,677	1.7%	1.48%	1.92%	6.67%	18.70%	Myl'nikov, A., B. N. Lytsar, et al. (1994). "[The detectability of the hepatitis B surface antigen and antibodies to the hepatitis C virus in serviceman blood donors]." Voen Med Zh(3): 44-5, 79.	8191692	1333
Russia	Sobeslavsky, 1980*	Moscow	Apparently healthy non-institutionalized population of Moscow; individuals of both sexes and different age groups; females	females	304	3.6%	1.51%	5.69%	4.31%	0.20%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Russia	Gorbunov, 19881-1985	0	Pregnant women; selection in Russian; females	females	8,120	6.3%	5.79%	6.85%	6.48%	3.13%	Gorbunov, M. A., A. A. Sumarov, et al. (1988). "[Characteristics of the formation of the HBsAg carrier state among pregnant women and newborn infants and their role in the spread of hepatitis B]." Zh Mikrobiol Epidemiol Immunobiol(1): 28-34.	3364071	1328
Russia	Kuzin, 1984-1988*	Moscow	Pregnant women in Moscow; selection in Russian; females	females	18,652	1.1%	0.95%	1.25%	6.70%	39.17%	Kuzin, S. N., V. N. Ikoev, et al. (1990). "[Patterns in perinatal infection with the hepatitis B virus in areas contrasted by the level of HBsAg and HBeAg carriage]." Vopr Virusol 35(4): 304-6.	2147798	1326
Russia	Mikhailov, 1985*	Moscow	Pregnant women in Moscow; selection in Russian	females	200	2.0%	0.06%	3.94%	4.54%	0.23%	Mikhailov, M. I., A. A. Ivankin, et al. (1985). "[Frequency of detecting HBsAg among pregnant women living in different regions of the Soviet Union]." Zh Mikrobiol Epidemiol Immunobiol(5): 64-6.	4036411	1331
Russia	Mikhailov, 1985*	Irkutsk	Pregnant women in Irkutsk; selection in Russian	females	400	4.0%	2.08%	5.92%	4.57%	0.24%	Mikhailov, M. I., A. A. Ivankin, et al. (1985). "[Frequency of detecting HBsAg among pregnant women living in different regions of the Soviet Union]." Zh Mikrobiol Epidemiol Immunobiol(5): 64-6.	4036411	1331
Russia	Tusilov, 2001	Arkhangelsk region	Pregnant women in Arkhangelsk region	females	13,128	1.6%	1.37%	1.79%	6.68%	19.29%	Tusilov, A., R. Buzinov, et al. (2004). "Incidence of viral hepatitis B and vaccination in the Arkhangelsk region, Russian Federation." Int J Circumpolar Health 63 Suppl 2: 205-8.	6969134	1339
Russia	Saiman, 1997-1998	adoptees to US	Russian children adopted to US; retrospective medical record review of internationally adopted children examined at outpatient international adoption practice in Mineola; both sex	both	155	2.6%	0.09%	5.11%	3.73%	0.14%	Russian children adopted to US; retrospective medical record review of internationally adopted children examined at outpatient international adoption practice in Mineola, NY (155)	15736653	1337
Russia	Rein, 2006-2008	refugees to US	Refugees arriving in the US 2006-2008; information from states with an active refugee health coordinator	both	131	0.8%	-0.73%	2.33%	5.18%	0.38%	Rein DB, Lesesne SB, O'Fallon A, Weinbaum CM (2009) Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008. Hepatology. 2010 Feb;51(2):431-4	19902482	229
Russia	Viazov, 1981	Moscow	Healthy children age 3-7 yrs in MOSCOW, selection in Russian	both	256	1.2%	-0.13%	2.53%	5.47%	0.49%	Viazov, S. O., A. A. Kompaniets, et al. (1985). "[Detection of HBsAg and anti-HBs in the healthy population of different cities in the USSR]." Vopr Virusol 30(2): 231-3.	4002694	1330

Russia	Viazov ,1981	Moscow	Healthy population of MOSCOW, selection in Russian	both	100	3.0%	-0.34%	6.34%	2.77%	0.08%	Viazov, S. O., A. A. Kompaniets, et al. (1985). "[Detection of HBsAg and anti-HBs in the healthy population of different cities in the USSR]." <i>Vopr Virusol</i> 30(2): 231-3.	4002694	1330
Russia	Mukomolov, 1984*	Leningrad	General population adults and children LENINGRAD; selection in Russian	both	1,001	2.1%	1.21%	2.99%	6.10%	1.11%	Mukomolov, S. L., V. A. Anan'ev, et al. (1984). "[Epidemiological characteristics and the importance of carriers of the surface antigen of the hepatitis B virus (HBsAg)]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (12): 76-80.	6241402	1332
Russia	Mikhailov, 1983	Gorky	Residents of GORKY; selection in Russian	both	7,988	1.4%	1.14%	1.66%	6.66%	13.22%	Mikhailov, M. I., S. A. Arakelov, et al. (1985). "[HBe antigen and its antibodies in HBsAg carriers in various regions of the USSR]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (7): 71-4.	3901627	1329
Russia	Mikhailov, 1988	0	Members of a newly formed community; selection in Russian	both	370	4.0%	2.00%	6.00%	4.45%	0.22%	Mikhailov, M. I., T. A. Semenenko, et al. (1988). "[Detection of hepatitis B virus infection markers at a collective]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (10): 27-30.	3218411	1327
Russia	Iashina, 1991*	Moscow	Normal population Moscow; no selection in abstract; paper in Russian	both	1,040	2.0%	1.15%	2.85%	6.15%	1.21%	Iashina, T. L., M. O. Favorov, et al. (1992). "[The prevalence of the markers of viral hepatitis B and delta among the population in regions differing in the level of morbidity]." <i>Vopr Virusol</i> 37(4): 194-6.	1471341	1325
Russia	Reshetnikov, 1995-1999	Novosibirsk (largest city in Siberia)	School children in Novoibirsk; "random representative sample of school children"; no selection described	both	423	2.1%	0.73%	3.47%	5.42%	0.47%	Reshetnikov, O. V., A. A. Khryanin, et al. (2001). "Hepatitis B and C seroprevalence in Novosibirsk, western Siberia." <i>Sex Transm Infect</i> 77(6): 463.	11714957	1335
Russia	Reshetnikov, 1995-1999	Novosibirsk (largest city in Siberia)	Adults in Novoibirsk; "random representative sample of adult population"; no selection described	both	374	2.4%	0.85%	3.95%	5.14%	0.36%	Reshetnikov, O. V., A. A. Khryanin, et al. (2001). "Hepatitis B and C seroprevalence in Novosibirsk, western Siberia." <i>Sex Transm Infect</i> 77(6): 463.	11714957	1335
Russia	Kuzin, 1999-2002	Sakha (Yakitia) and Yakutsk	General population, different regions of the agricultural zone; no selection in abstract; paper in Russian	both	4,609	9.2%	8.35%	10.01%	6.17%	1.26%	Kuzin, S. N., N. N. Pavlov, et al. (2004). "[Viral hepatitis in different population groups of Republic of Sakha (Iakutia)]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (1): 18-22.	15024975	1336
				total studies	19	71,102				100.00%	100.00%		
				males	2								
				females	6								
				both	11								

\* indicates publication year; survey year not reported

**Table 88: Summary of Surveys Included in Meta-Analysis: Ukraine**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Ukraine	Rein, 2006-2008	migrants to U.S.	Refugees arriving in the US 2006-2008; information from states with an active refugee health coordinator	both	250	1.6%	0.04%	3.16%	23.16%	2.85%	Rein DB, Lesesne SB, O'Fallon A, Weinbaum CM (2009) Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008. Hepatology. 2010 Feb;51(2):431-4	19902482	229
Ukraine	Schastnyi, 1990-1992	northwest	Children in open schools; i.e., not living in boarding schools; article in Russian	both	487	1.6%	0.49%	2.71%	30.85%	5.55%	Schastnyi, E. I., I. S. Muliari, et al. (1996). "[The risk of becoming infected with hepatitis B and C viruses in the pupils of children's boarding schools]." Zh Mikrobiol Epidemiol Immunobiol(2): 29-32.	8701650	1341
Ukraine	Fedorchenko, 2008*		"One-time" blood donors; article in Russian	both	14,366	2.9%	2.63%	3.17%	45.99%	91.60%	Fedorchenko, S. V., L. I. Zanevskaia, et al. (2008). "[Latent HBV infection in single blood donors]." Vopr Virusol 53(3): 23-5.	18590131	1342
				total studies	3	15,103			100.00%	100.00%			
				males	0								
				females	0								
				both	3								

\* indicates publication year; survey year not reported

**Table 89: Summary of Surveys Included in Meta-Analysis: Romania**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg		lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
					Sample positive (n)	(%)							
Romania	Sobeslavsky, 1980*	Iasi	Apparently healthy non-institutionalized population of Iasi; individuals of both sexes and different age groups; males	males	356	13.2%	9.68%	16.72%	2.11%	0.12%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Romania	Sobeslavsky, 1980*	Iasi	Apparently healthy non-institutionalized population of Iasi; individuals of both sexes and different age groups; females	females	346	7.6%	4.81%	10.39%	2.79%	0.19%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Romania	Paquet, 1990	Bucharest	Pregnant women attending antenatal clinics Bucharest; no participation rate (204)	females	204	7.8%	4.12%	11.48%	1.98%	0.11%	Paquet, C., V. T. Babes, et al. (1993). "Viral hepatitis in Bucharest." Bull World Health Organ 71(6): 781-6.	8313496	1313
Romania	Shakhgil'dian, 1990*	Moldavia	Pregnant women Moldavia; selection in Russian	females	2,539	5.4%	4.52%	6.28%	5.55%	1.90%	Shakhgil'dian, I. V., N. A. Farber, et al. (1990). "[Perinatal infection with hepatitis B virus and the problem of its specific prevention]." Vestn Akad Med Nauk SSSR(7): 29-32.	2145708	1308
Romania	Woodruff, 1990	six districts of northerastern Romania	Pregnant women delivering in 16 of 34 maternity clinics in six districts of northeastern Romania	females	573	8.4%	6.13%	10.67%	3.43%	0.28%	Woodruff, B. A., F. Popovici, et al. (1993). "Hepatitis B virus infection among pregnant women in northeastern Romania." Int J Epidemiol 22(5): 923-6.	8282474	1312
Romania	Molnar, 1991	10 districts of northwestern	Pregnant women; 16/63 hospitals randomly selected by stratifying for geographical distribution of catchment population (urban vs rural), birth rate (> or < 100 births/yr), and levels of care provide; consecutive patients bled until sample reached	females	2,354	3.8%	3.03%	4.57%	5.69%	2.46%	Molnar GB, Leentvaar-Kuijpers, Hausman BA (1995) Prevalence of HBsAg among parturient pregnant women in northwestern Romania. Eur J Public Health 5(3):223-5	NPM	1324
Romania	Balan, 1998*	south of Romania	Pregnant women; cluster sampling method with a sample size coming from 19 clusters (obstetrics wards/hospitals) selected from those 108 obstetrics wards/hospitals in the south of Romania	females	1,298	12.2%	10.42%	13.98%	4.15%	0.46%	Balan, A., N. Beldescu, et al. (1998). "[The prevalence of viral hepatitis B in pregnant women in an area of southern Romania]." Bacteriol Virusol Parazitol Epidemiol 43(4): 254-60.	10422321	1317
Romania	CDC, 1979-1991	migrants to US	Refugees to US; programs that screened all incoming refugees and had data for HBsAg; special refugee health clinics, local health department clinics, or offices of private-practice physicians	both	754	4.1%	2.68%	5.52%	4.73%	0.73%	CDC (1991) Screening for hepatitis B virus infection among refugees arriving in the United States, 1979-1991. MMWR 40(45):784-6	1944126	288
Romania	Almog, 1992	migrants rom Moldavia to Israel	Russian immigrants to Israel military recruits; all M and F immigrants required to report for military service within one yr of arrival	both	80	3.8%	-0.39%	7.99%	1.65%	0.08%	Almog, R., M. Low, et al. (1999). "Prevalence of anti-hepatitis A antibodies, hepatitis B viral markers, and anti-hepatitis C antibodies among immigrants from the former USSR who arrived in Israel during 1990-1991." Infection 27(3): 212-7.	10378135	603
Romania	Johnson, 1990-1991	adoptees to US	Romanian adoptees to Minnesota; international adoption clinics at the University of Minnesota, and the New England Medical Center, Tufts	both	65	23.0%	12.77%	33.23%	0.36%	0.01%	Johnson, D. E., L. C. Miller, et al. (1992). "The health of children adopted from Romania." JAMA 268(24): 3446-51.	1281241	1307
Romania	Sabau, 1979*,		Healthy subjects; ; 36 unselected healthy subjects; 116 blood donors, 48 pregnant women	both	200	20.0%	14.46%	25.54%	1.06%	0.05%	Sabau, M., E. Kiss, et al. (1983). "Serologic markers of hepatitis B and A infections in the healthy population." Virologie 34(3): 197-201.	6636535	1309
Romania	Patrascu, 1989-1990	Bucharest ns different districts	HIV-negative children and adults	both	1,852	8.0%	6.72%	9.18%	5.02%	0.97%	Patrascu, I. V. and O. Dumitrescu (1993). "The epidemic of human immunodeficiency virus infection in Romanian children." AIDS Res Hum Retroviruses 9(1): 99-104.	8427718	1314

Romania	Paquet, 1990	Bucharest	Healthy children 0-16 yo admitted to hospital for first time in life for non-infectious diagnosis; all children who met criteria were recruited	both	201	19.9%	14.38%	25.42%	1.07%	0.05%	Paquet, C., V. T. Babes, et al. (1993). "Viral hepatitis in Bucharest." <i>Bull World Health Organ</i> 71(6): 781-6.	8313496	1313
Romania	Paquet, 1990	Bucharest	Healthy adults attending premarital or recruitment exams at specialty clinics; no participation rate; Bucharest	both	200	11.0%	6.66%	15.34%	1.57%	0.08%	Paquet, C., V. T. Babes, et al. (1993). "Viral hepatitis in Bucharest." <i>Bull World Health Organ</i> 71(6): 781-6.	8313496	1313
Romania	Molnar, 1991	5 districts of Transylvania	Non-hospitalized subjects; no selection info in this paper	both	943	6.3%	4.75%	7.85%	4.51%	0.61%	Molnar GB, Popa S, Jebeleanu L, and Damian C (1994) [A prevalence study of serum markers in hepatitis virus infection in the epidemiological anamnesis of the population]. <i>Bacteriologia, Virusologia, Parazitologia, Epidemiologia</i> 39(3-4):141-50	NPM	1322
Romania	Beldescu, 1995*	13 districts in south part of country	Representative sample of apparently healthy populations of 13 districts in south of country; selection in Romanian	both	798	22.7%	19.79%	25.61%	2.67%	0.17%	Beldescu, N., A. Balan, et al. (1995). "[The prevalence of viral hepatitis markers in the general population]." <i>Bacteriol Virusol Parazitol Epidemiol</i> 40(2): 101-8.	7549250	1310
Romania	Dimache, 1997*	Bucharest	Healthy persons before vaccination, Bucharest; voluntary healthy subjects belonging to different groups (schools, hostels, enterprises, state institutions); majority adult males Bucharest	both	441	3.0%	1.37%	4.53%	4.47%	0.59%	Dimache, G., M. Croitoru, et al. (1997). "A clinical, epidemiological and laboratory study on avoiding the risk of transmitting viral hepatitis during vaccinations with the Dermojet protected by an anticontaminant disposable device." <i>Vaccine</i> 15(9): 1010-3.	9261949	1316
Romania	Dimache, 1997*	Prahova	Healthy persons before vaccination Prahova; voluntary healthy subjects belonging to different groups (schools, hostels, enterprises, state institutions); majority adult males (878)	both	878	7.2%	5.46%	8.88%	4.26%	0.50%	Dimache, G., M. Croitoru, et al. (1997). "A clinical, epidemiological and laboratory study on avoiding the risk of transmitting viral hepatitis during vaccinations with the Dermojet protected by an anticontaminant disposable device." <i>Vaccine</i> 15(9): 1010-3.	9261949	1316
Romania	Dimache, 1997*	Ilfov	Healthy persons before vaccination Ilfov; voluntary healthy subjects belonging to different groups (schools, hostels, enterprises, state institutions); majority adult males	both	300	4.7%	2.28%	7.06%	3.28%	0.26%	Dimache, G., M. Croitoru, et al. (1997). "A clinical, epidemiological and laboratory study on avoiding the risk of transmitting viral hepatitis during vaccinations with the Dermojet protected by an anticontaminant disposable device." <i>Vaccine</i> 15(9): 1010-3.	9261949	1316
Romania	Brehar-Cioflec, 1998*		Brehar-Cioflec 1998*, apparently healthy persons, no selection in abstract (226)	both	226	19.9%	14.69%	25.11%	1.18%	0.05%	Brehar-Cioflec, D., C. Claiici, et al. (1998). "Hepatitis B virus (HBV) and dual HBV-hepatitis delta virus (HDV) infection in apparently healthy persons." <i>Rom J Virol</i> 49(1-4): 3-10.	10892421	1311
Romania	Duca, 2001	Iasi County	General population of Iasi County; as study material were used information from epidemiological and laboratory investigations conducted by Serviciul Surveillance and Control of Communicable Disease	both	22,042	5.9%	5.58%	6.20%	6.13%	15.21%	Duca, E., D. Scripcariu, et al. (2007). "[Prevalence of HBsAg carriers in Iasi County in 2001-2005 period. Epidemiological, clinical and laboratory study]." <i>Rev Med Chir Soc Med Nat Iasi</i> 111(1): 244-9.	17595875	1319
Romania	Duca, 2002	Iasi County	General population of Iasi County 2002; as study material were used information from epidemiological and laboratory investigations conducted by Serviciul Surveillance and Control of Communicable Disease	both	24,697	5.6%	5.31%	5.89%	6.14%	17.87%	Duca, E., D. Scripcariu, et al. (2007). "[Prevalence of HBsAg carriers in Iasi County in 2001-2005 period. Epidemiological, clinical and laboratory study]." <i>Rev Med Chir Soc Med Nat Iasi</i> 111(1): 244-9.	17595875	1319
Romania	Nardone, 2002		General population; sera collected to be geographically representative of country; from sera left from routine lab testing	both	1,259	5.6%	4.33%	6.87%	4.96%	0.91%	Nardone, A., C. G. Anastassopoulou, et al. (2008). "A comparison of hepatitis B seroepidemiology in ten European countries." <i>Epidemiol Infect</i> : 1-9.	19102797	1320
Romania	Duca, 2003	Iasi County	General population of Iasi County 2003; as study material were used information from epidemiological and laboratory investigations conducted by Serviciul Surveillance and Control of Communicable Disease	both	23,648	5.2%	4.96%	5.52%	6.15%	18.22%	Duca, E., D. Scripcariu, et al. (2007). "[Prevalence of HBsAg carriers in Iasi County in 2001-2005 period. Epidemiological, clinical and laboratory study]." <i>Rev Med Chir Soc Med Nat Iasi</i> 111(1): 244-9.	17595875	1319

Romania	Duca, 2004	Iași County	General population of Iasi County 2004; as study material were used information from epidemiological and laboratory investigations conducted by Serviciul Surveillance and Control of Communicable Disease	both	24,331	5.4%	5.16%	5.72%	6.15%	18.09%	Duca, E., D. Scripcariu, et al. (2007). "[Prevalence of HBsAg carriers in Iasi County in 2001-2005 period. Epidemiological, clinical and laboratory study]." Rev Med Chir Soc Med Nat Iasi 111(1): 244-9.	17595875	1319
Romania	Duca, 2005	Iași County	General population of Iasi County 2005; as study material were used information from epidemiological and laboratory investigations conducted by Serviciul Surveillance and Control of Communicable Disease	both	25,449	5.2%	4.91%	5.45%	6.15%	19.82%	Duca, E., D. Scripcariu, et al. (2007). "[Prevalence of HBsAg carriers in Iasi County in 2001-2005 period. Epidemiological, clinical and laboratory study]." Rev Med Chir Soc Med Nat Iasi 111(1): 244-9.	17595875	1319
Romania	Ruta, 2005*	Constanta and 5 neighboring counties	HIV-negative adolescents; age-matched to HIV-positive; from same area; collected as part of catch-up rubella vaccination program)	both	356	7.9%	5.10%	10.70%	2.78%	0.19%	Ruta, S. M., R. F. Matusa, et al. (2005). "High prevalence of hepatitis B virus markers in Romanian adolescents with human immunodeficiency virus infection." MedGenMed 7(1): 68.	16369373	1318
				total studies	27	136,390				100.00%	100.00%		
				males	1								
				females	6								
				both	20								

\* indicates publication year; survey year not reported



**Table 90: Summary of Surveys Included in Meta-Analysis: Yugoslavia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg			RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
					Sample (n)	positive (%)	lower upper CI					
Yugoslavia	Puvacic, 1989	Sarajevo	Pregnant women; Univeristy Hopsital of Obstetrics and Gynecology; pregnant for the first time (63)	females	63	4.8%	-0.50% 10.02%	12.24%	0.96%	Puvacic, Z., S. Simic, et al. (1991). "Evaluation of the epidemiology of hepatitis B virus cross-infection in a maternity hospital." <i>Infect Control Hosp Epidemiol</i> 12(11): 669-71.	1753082	1343
Yugoslavia	Christenson, 1993	refugees to Sweden	Refugees from Former Yugoslavia to Sweden; no selection described; paper in Swedish (670)	both	670	10.0%	7.73% 12.27%	20.04%	5.16%	Christenson, B. (1995). "[Panorama of infections among refugees--the risk of epidemics from the East]." <i>Nord Med</i> 110(2): 40-47.	7854907	1346
Yugoslavia	Smith, 1999	refugees to Ireland	Refugees to Ireland; retrospective chart review of refugees who arrived in Ireland in 1999, which included screening for tuberculosis (TB) and hepatitis B; screening and immunization was voluntary but strongly recommende (945)	both	919	2.8%	1.76% 3.90%	22.61%	23.15%	Smith, A., D. O'Flanagan, et al. (2000). "Outcome of medical screening of Kosovan refugees in Ireland: 1999." <i>Commun Dis Public Health</i> 3(4): 291-4.	11280262	1344
Yugoslavia	Germinario, 1999	Kosavars; refugees to Italy	Kosavar child refugees arriving in Italy 1999; serologic survey of children housed in refugee camps (415)	both	415	0.5%	-0.18% 1.18%	23.12%	57.79%	Germinario, C., M. Chironna, et al. (2000). "Immunosurveillance on Kosovar children refugees in Southern Italy." <i>Vaccine</i> 18(20): 2073-4.	10896621	1347
Yugoslavia	Chironna, 2001*	migrants to Italy	Kosovar refugees to Italy; enrolled on a voluntary basis (526)	both	526	2.9%	1.47% 4.33%	21.98%	12.94%	Chironna, M., C. Germinario, et al. (2001). "Prevalence of hepatitis virus infections in Kosovar refugees." <i>Int J Infect Dis</i> 5(4): 209-13.	11953219	1345
				total studies	5	2,593		100.00%	100.00%			
				males	0							
				females	1							
				both	4							

\* indicates publication year; survey year not reported

**Table 91: Summary of Surveys Included in Meta-Analysis: Bosnia-Herzegovina**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg positive (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Bosnia-Herzegovina	Salkic, 2004		First-time blood donors Tuzla region; no selection reported (716)	both	716	3.6%	2.26%	5.00%	100.00%	100.00%	Salkic, N. N., M. Zildzic, et al. (2007). "Intrafamilial transmission of hepatitis B in Tuzla region of Bosnia and Herzegovina." Eur J Gastroenterol Hepatol 19(2): 113-8.	17272995	1222
				total studies	1	716			100.00%	100.00%			
				males	0								
				females	0								
				both	1								

\* indicates publication year; survey year not reported

**Table 92: Summary of Surveys Included in Meta-Analysis: Hungary**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg			RE weight (%)	FE weight (%)	Reference	Access No	Ref No.	
					Sample (n)	positive (%)	lower CI						
Hungary	CDC 1979-1991	migrants to US	CDC 1979-91, refugees to US; programs that screened all incoming refugees and had data for HBsAg; special refugee health clinics, local health department clinics, or offices of private-practice physicians (94)	both	94	1.1%	-1.01%	3.21%	16.04%	0.13%	CDC (1991) Screening for hepatitis B virus infection among refugees arriving in the United States, 1979-1991. MMWR 40(45):784-6	1944126	288
Hungary	Kekesi 1980-1990	Ajka and surroundings	Kekesi 1980-1990, pregnant women Ajka area; no selection in abstract (33,434)	females	33,434	0.5%	0.43%	0.59%	47.41%	99.02%	Kekesi, Z., M. Nika, et al. (1993). "[Experience with the screening of pregnant women for hepatitis B virus and the vertical transmission of the virus]." Orv Hetil 134(28): 1515-20.	8341529	1372
Hungary	Varga 2001*		Varga 2001*, organ donors; no selection in abstract (998)	both	998	1.8%	0.98%	2.62%	36.55%	0.85%	Varga, M., D. Gorog, et al. (2001). "[Viral screening of organ donors and human cytomegalovirus seroprevalence in the Hungarian population]." Orv Hetil 142(47): 2631-3.	11778361	1373
				total studies	3	34,526			100.00%	100.00%			
				males	0								
				females	1								
				both	2								

\* indicates publication year; survey year not reported

**Table 93: Summary of Surveys Included in Meta-Analysis: Albania**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg				RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
					Sample positive (n)	(%)	lower CI	upper CI					
Albania	Santantonio, 1991	refugees to Italy	Albanian refugees to Italy; subset of 23,000 refugees to Italy; samples taken as part of epidemiological surveillance of common viral infections male (312)	males	312	21.8%	17.22%	26.38%	5.25%	0.97%	Santantonio, T., S. Lo Caputo, et al. (1993). "Prevalence of hepatitis virus infections in Albanian refugees." <i>Eur J Epidemiol</i> 9(5): 537-40.	8307139	1253
Albania	Chironna, 1997	refugees to Italy	Albania refugees to Italy; sera taken from voluntary unselected refugees; males (425)	males	425	15.3%	11.88%	18.72%	5.65%	1.74%	Chironna, M., C. Germinario, et al. (2000). "HBV, HCV and HDV infections in Albanian refugees in Southern Italy (Apulia region)." <i>Epidemiol Infect</i> 125(1): 163-7.	11057972	1251
Albania	Da Villa, 1993	Elbasan, Shkodar, Fier, Tirana, Durres	Apparently healthy urban and rural populations; no selection described; males (452)	males	452	14.4%	11.16%	17.64%	5.71%	1.95%	Da Villa, G., B. Nuri, et al. (1995). "Epidemiology of hepatitis B and delta virus infection in Albania: an approach to universal vaccination." <i>Res Virol</i> 146(4): 245-8.	8539484	1254
Albania	Resuli, 2004-2006	all over	Military personnel; randomly selected nonvaccinated residents of urban and rural areas; soliders from several military units in main districts of Albania; male (500)	males	500	10.6%	7.90%	13.30%	5.86%	2.80%	Resuli, B., S. Prifti, et al. (2009). "Epidemiology of hepatitis B virus infection in Albania." <i>World J Gastroenterol</i> 15(7): 849-52.	19230046	1255
Albania	Santantonio, 1991	refugees to Italy	Albanian refugees to Italy; subset of 23,000 refugees to Italy; samples taken as part of epidemiological surveillance of common viral infections; female (81)	females	81	8.6%	2.52%	14.76%	4.67%	0.54%	Santantonio, T., S. Lo Caputo, et al. (1993). "Prevalence of hepatitis virus infections in Albanian refugees." <i>Eur J Epidemiol</i> 9(5): 537-40.	8307139	1253
Albania	Malamitsi-Puchner, 1991-1994	refugees to Greece	Pregnant women Albanian refugees to Greece; consecutive pregnant refugee women cared for at Alexandra Hosp (500)	females	500	13.4%	10.41%	16.39%	5.78%	2.29%	Malamitsi-Puchner, A., S. Papacharitonos, et al. (1996). "Prevalence study of different hepatitis markers among pregnant Albanian refugees in Greece." <i>Eur J Epidemiol</i> 12(3): 297-301.	8884198	1249
Albania	Chironna, 1997	refugees to Italy	Albania refugees to Italy; sera taken from voluntary unselected refugees; females (245)	females	245	10.6%	6.75%	14.45%	5.51%	1.37%	Chironna, M., C. Germinario, et al. (2000). "HBV, HCV and HDV infections in Albanian refugees in Southern Italy (Apulia region)." <i>Epidemiol Infect</i> 125(1): 163-7.	11057972	1251
Albania	Elefsiniotis, 2003-2005	migrants to Athens	Albanian women of reproductive age migrants to Greece; prospectively evaluated at Dept OBGYN at Maternal Hospital 'Helena Venizelou' (5,441)	females	5,441	4.9%	4.34%	5.48%	6.22%	61.84%	Elefsiniotis, I. S., I. Glynou, et al. (2007). "Serological and virological profile of chronic HBV infected women at reproductive age in Greece. A two-year single center study." <i>Eur J Obstet Gynecol Reprod Biol</i> 132(2): 200-3.	17030083	1247
Albania	Elefsiniotis, 2003-2004	migrants to Greece	Pregnant women migrants to Greece; evaluated at Dept OBGYN at Maternal Hospital 'Helena Venizelou' (217)	females	217	12.0%	7.68%	16.32%	5.35%	1.09%	Elefsiniotis, I. S., I. Glynou, et al. (2009). "Surveillance for hepatitis B virus infection in pregnant women in Greece shows high rates of chronic infection among immigrants and low vaccination-induced protection rates: preliminary results of a single center study." <i>Euro Surveill</i> 14(9): 5-7.	19317974	1246
Albania	Elefsiniotis, 2008-2009	immigrants to Greece	Albanian pregnant women women delivering at Maternal and Perinatal Hospital of Athens; selection not described (408)	females	408	11.0%	7.96%	14.04%	5.76%	2.21%	Elefsiniotis, I. S., E. Vezali, et al. (2009). "Hepatitis B markers and vaccination-induced protection rate among Albanian pregnant women in Greece." <i>World J Gastroenterol</i> 15(43): 5498-9.	19916183	1252
Albania	Da Villa, 1993	Elbasan, Shkodar, Fier, Tirana, Durres	Apparently healthy urban and rural populations; no selection described females (896)	females	896	10.4%	8.40%	12.40%	6.03%	5.10%	Da Villa, G., B. Nuri, et al. (1995). "Epidemiology of hepatitis B and delta virus infection in Albania: an approach to universal vaccination." <i>Res Virol</i> 146(4): 245-8.	8539484	1254
Albania	Resuli, 2004-2006	all over	Pregnant women; randomly selected nonvaccinated residents of urban and rural areas (640)	females	640	7.3%	5.28%	9.32%	6.02%	5.02%	Resuli, B., S. Prifti, et al. (2009). "Epidemiology of hepatitis B virus infection in Albania." <i>World J Gastroenterol</i> 15(7): 849-52.	19230046	1255

Albania	Dalekos, 1995*	refugees to Greece	Refugees from southern Albania to Greece; in 3 reception camps; consecutive unselected serum samples (410)	both	1,025	22.2%	19.66%	24.74%	5.90%	3.15%	Dalekos, G. N., E. Zervou, et al. (1996). "Prevalence of hepatitis B and C viruses infection in chronic alcoholics with or without liver disease in Ioannina, Greece: low incidence of HCV infection." <i>Eur J Epidemiol</i> 12(1): 21-5.	8817173	1250
Albania	Roussos, 2003*	refugees to Greece	Albania refugees to Greece; all refugees referred to outpatients clinic for health certificate (76)	both	76	22.4%	13.03%	31.77%	3.49%	0.23%	Roussos, A., C. Goritsas, et al. (2003). "Prevalence of hepatitis B and C markers among refugees in Athens." <i>World J Gastroenterol</i> 9(5): 993-5.	12717844	1248
Albania	Katsanos, 2001-2002	Tirana	Young adults age 14-20 yrs living in a well-defined are of Tirana, HEPGA I study; no selection in abstract (410)	both	410	11.9%	8.76%	15.02%	5.74%	2.08%	Katsanos KH, Resuli BF, Tsianos EV (2004) Hepatitis B in Albanian refugees across Southeast Europe: from epidemiology to vaccination and prevention policy. <i>Annals Gastroenterol</i> 17(2):160-67	NPM	1257
Albania	Resuli, 2004-2006	all over	School children from several high schools; randomly selected (410)	both	410	11.8%	8.68%	14.92%	5.74%	2.09%	Resuli, B., S. Prifti, et al. (2009). "Epidemiology of hepatitis B virus infection in Albania." <i>World J Gastroenterol</i> 15(7): 849-52.	19230046	1255
Albania	Schinaia, 2004*	Tirana	Healthy adults applying for visa to emigrate from Albania and pregnant women attending hospital (190)	both	190	10.5%	6.14%	14.86%	5.33%	1.07%	Schinaia, N., Y. Kodra, et al. (2004). "Prevalence of HHV-8 infection in Albanian adults and association with HBV and HCV." <i>Eur J Epidemiol</i> 19(5): 467-9.	15233320	1256
Albania	Resuli, 2004-2006	all over	Students from University of Tirana; randomly selected (666)	both	666	8.7%	6.56%	10.84%	5.99%	4.45%	Resuli, B., S. Prifti, et al. (2009). "Epidemiology of hepatitis B virus infection in Albania." <i>World J Gastroenterol</i> 15(7): 849-52.	19230046	1255
				total studies	18	12,894				100.00%	100.00%		
				males	4								
				females	8								
				both	6								

\* indicates publication year; survey year not reported

**Table 94: Summary of Surveys Included in Meta-Analysis: Czechoslovakia (Czech Republic and Slovakia)**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Czechoslovakia	Sobeslavsky, 1980*	Prague	Apparently healthy non-institutionalized population of Prague; individuals of both sexes and different age groups; male (472)	males	472	1.2%	0.22%	2.18%	5.49%	0.57%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Czechoslovakia	Sobeslavsky, 1980*	Prague	Apparently healthy non-institutionalized population of Prague; individuals of both sexes and different age groups; female (520)	females	520	1.5%	0.46%	2.54%	5.03%	0.50%	Sobeslavsky O. (1980) Prevalence of markers of hepatitis B virus infection in various countries: a WHO collaborative study. 58(4):621-8	6969134	371
Czechoslovakia	Cervenka, 1986		Pregnant women; article in Slovak (2,259)	females	2,259	0.3%	0.08%	0.54%	16.16%	10.44%	Cervenka, J., M. Zacharova, et al. (1981). "[The occurrence of HBsAg in different groups of population (author's transl)]." <i>Cesk Epidemiol Mikrobiol Imunol</i> 30(2): 65-9.	6452957	1275
Czechoslovakia	Podrouzek, 1986-	Prague	Pregnant women; routine screening for HBsAg of all pregnant women attending prenatal clinic at the Institute for the Care of Mother and Child (2,744)	females	2,744	0.8%	0.47%	1.13%	14.36%	4.94%	Podrouzek, P., P. Mancal, et al. (1989). "[Routine screening for serological markers of viral hepatitis B in pregnancy]." <i>Cesk Gynekol</i> 54(8): 575-80.	2582501	1274
Czechoslovakia	Ehrmann, 1990-1991		Pregnant women; symptom free pregnant women; no selection in abstract; article in Czech (12,042)	females	12,042	0.3%	0.19%	0.37%	17.81%	61.61%	Ehrmann, J., H. Zupkova, et al. (1992). "[Asymptomatic HBs antigenemia in pregnant women]." <i>Vnitr Lek</i> 38(10): 1000-4.	1481366	1272
Czechoslovakia	Stanekova, 2006*		Pregnant women; no selection in abstract (90)	females	90	4.4%	0.16%	8.64%	0.41%	0.03%	Stanekova, D., J. Adamcakova, et al. (2006). "Serological markers of selected sexually and blood transmitted infections in pregnant women and in newborns of HIV-positive mothers in the Slovak Republic." <i>Cent Eur J Public Health</i> 14(3): 104-8.	17152219	1271
Czechoslovakia	CDC 1979-91	refugees to US	Refugees to US; programs that screened all incoming refugees and had data for HBsAg; special refugee health clinics, local health department clinics, or offices of private-practice physicians (168)	both	168	1.2%	-0.45%	2.85%	2.42%	0.20%	CDC (1991) Screening for hepatitis B virus infection among refugees arriving in the United States, 1979-1991. <i>MMWR</i> 40(45):784-6	1944126	288
Czechoslovakia	Kubat, 1990*		Diabetics; no selection in abstract (880)	both	880	3.9%	2.59%	5.13%	3.72%	0.34%	Kubat, R. (1990). "[Incidence of HBs-antigen in diabetics. III. Results of examination after 5 years]." <i>Cas Lek Cesk</i> 129(44): 1393-6.	2257588	1273
Czechoslovakia	Nemecek, 2001	14 regions	General population; sera collected to be geographically representative of country; sera from population-based random sampling; random selection in cooperation with regional and district sanitary offices and with practitioners for adults, adolescents and children in 14 regions (2,568)	both	76	0.6%	-1.12%	2.24%	2.35%	0.19%	Nemecek, V., J. Castkova, et al. (2003). "The 2001 serological survey in the Czech Republic--viral hepatitis." <i>Cent Eur J Public Health</i> 11 Suppl: S54-61.	15080261	1276
Czechoslovakia	Nardone, 2001	all	General population; sera collected to be geographically representative of country; sera from population-based random sampling (2,644)	both	2,644	0.3%	0.09%	0.51%	16.48%	12.63%	Nardone, A., C. G. Anastassopoulou, et al. (2008). "A comparison of hepatitis B seroepidemiology in ten European countries." <i>Epidemiol Infect</i> : 1-9	19102797	777
Czechoslovakia	Nardone, 2002	all	General population; sera collected to be geographically representative of country; sera from population-based random sampling (3,569)	both	3,569	0.6%	0.35%	0.85%	15.77%	8.55%	Nardone, A., C. G. Anastassopoulou, et al. (2008). "A comparison of hepatitis B seroepidemiology in ten European countries." <i>Epidemiol Infect</i> : 1-9.	19102797	777
				total studies	11	25,464			100.00%	100.00%			
				males	1								
				females	5								
				both	5								

\* indicates publication year; survey year not reported

**Table 95: Summary of Surveys Included in Meta-Analysis: Belarus**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample (n)	HBsAg positive (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Belarus	Hurie, 1990-1993	Jewish refugees from Belorussia to Wisconsin	Jewish refugees to US; consecutive patients presenting for arrival screening to Soviet Immigrant Health Care Program, Sinai Samaritan Hospital, Milwaukee, Wis (120)	both	100	2.0%	-0.74%	4.74%	16.39%	0.47%	Hurie, M. B., M. A. Gennis, et al. (1995). "Prevalence of hepatitis B markers and measles, mumps, and rubella antibodies among Jewish refugees from the former Soviet Union." JAMA 273(12): 954-6.	7884955	1258
Belarus	Rein, 2006-2008		Refugees arriving in the US 2006-2008; information from states with an active refugee health coordinator (57)	both	57	3.5%	-1.27%	8.27%	7.56%	0.16%	Rein DB, Lesesne SB, O'Fallon A, Weinbaum CM (2009) Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008. Hepatology. 2010 Feb;51(2):431-4	19902482	229
Belarus	Zhavoronok, 1989*		Blood donors, no selection described; paper in Russian (9,850)	both	9,850	4.3%	3.90%	4.70%	37.63%	22.02%	Zhavoronok, S. V. (1989). "[Detection rate of antibodies against delta virus among HBsAg carriers in a region with moderate prevalence of hepatitis B]." Vopr Virusol 34(6): 675-9.	2534451	1260
Belarus	Kalinin, 1983-1997	different regions	Blood donors; article in Russian (26,740)	both	20,820	2.5%	2.33%	2.75%	38.41%	77.36%	Kalinin, A. L., S. V. Zhavoronok, et al. (1998). "[Viral hepatitis delta in the republic of Belarus]." Zh Mikrobiol Epidemiol Immunobiol(6): 74-7.	9949509	1261
				total studies	4	30,827			100.00%	100.00%			
				males	0								
				females	0								
				both	4								

\* indicates publication year; survey year not reported

**Table 96: Summary of Surveys Included in Meta-Analysis: Bulgaria**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Bulgaria	Iliev, 1983-1986	Ruse	Pregnant women in Ruse; selection in Bulgarian (5,415)	females	5,415	1.9%	1.52%	2.24%	9.09%	0.97%	Iliev, B., B. Stambolov, et al. (1987). "[Incidence of the HBsAg carrier state among pregnant women and its effect on newborn infants. I. The incidence of the HBsAg carrier state among pregnant women in different provinces of Bulgaria]." <i>Akush Ginekol (Sofia)</i> 26(4): 43-7.	3674323	1263
Bulgaria	Iliev, 1983-1986	V. Tarnovo	Pregnant women in V. Tarnovo; selection in Bulgarian (11,649)	females	11,649	2.5%	2.19%	2.75%	9.11%	1.60%	Iliev, B., B. Stambolov, et al. (1987). "[Incidence of the HBsAg carrier state among pregnant women and its effect on newborn infants. I. The incidence of the HBsAg carrier state among pregnant women in different provinces of Bulgaria]." <i>Akush Ginekol (Sofia)</i> 26(4): 43-7.	3674323	1263
Bulgaria	Iliev, 1983-1986	Lovec	Pregnant women in Lovec; selection in Bulgarian (13,143)	females	13,143	4.4%	4.05%	4.75%	9.10%	1.04%	Iliev, B., B. Stambolov, et al. (1987). "[Incidence of the HBsAg carrier state among pregnant women and its effect on newborn infants. I. The incidence of the HBsAg carrier state among pregnant women in different provinces of Bulgaria]." <i>Akush Ginekol (Sofia)</i> 26(4): 43-7.	3674323	1263
Bulgaria	Iliev, 1983-1986	Pleven	Pregnant women in Pleven; selection in Bulgarian (13,292)	females	13,292	2.5%	2.21%	2.73%	9.12%	1.83%	Iliev, B., B. Stambolov, et al. (1987). "[Incidence of the HBsAg carrier state among pregnant women and its effect on newborn infants. I. The incidence of the HBsAg carrier state among pregnant women in different provinces of Bulgaria]." <i>Akush Ginekol (Sofia)</i> 26(4): 43-7.	3674323	1263
Bulgaria	Atanasova, 1999-2000	Plovdiv (large city)	Healthy randomly selected subjects; part of a multicenter national survey sponsred by the EU programme INTERREG II (2211)	both	2,211	3.9%	3.09%	4.71%	8.89%	0.20%	Atanasova, M. V., I. A. Haydouchka, et al. (2004). "Prevalence of antibodies against hepatitis C virus and hepatitis B coinfection in healthy population in Bulgaria. A seroepidemiological study." <i>Minerva Gastroenterol Dietol</i> 50(1): 89-96.	15719010	1262
Bulgaria	Gubev, 1978-1982		Blood donors from organized population groups; no info in abstract (41,208)	both	41,208	4.7%	4.50%	4.90%	9.13%	3.05%	Gubev, E., R. Rashkov, et al. (1987). "[Comparative studies of the distribution of hepatitis B markers among blood donors and patients with post-transfusion hepatitis in the city of Sofia]." <i>Vutr Boles</i> 26(3): 38-43.	3617705	1264
Bulgaria	Gubev, 1978-1982		Unpaid blood donors; no info in abstract (228,913)	both	228,913	1.0%	0.96%	1.04%	9.14%	76.66%	Gubev, E., R. Rashkov, et al. (1987). "[Comparative studies of the distribution of hepatitis B markers among blood donors and patients with post-transfusion hepatitis in the city of Sofia]." <i>Vutr Boles</i> 26(3): 38-43.	3617705	1264
Bulgaria	Gubev, 1983		Blood donors from organized population groups (9,562)	both	9,562	5.1%	4.66%	5.54%	9.07%	0.66%	Gubev, E., R. Rashkov, et al. (1987). "[Comparative studies of the distribution of hepatitis B markers among blood donors and patients with post-transfusion hepatitis in the city of Sofia]." <i>Vutr Boles</i> 26(3): 38-43.	3617705	1264



Bulgaria	Gubev, 1983	Unpaid blood donors; no info in abstract (48,137)	both	48,137	1.4%	1.30%	1.50%	9.14%	11.56%	Gubev, E., R. Rashkov, et al. (1987). "[Comparative studies of the distribution of hepatitis B markers among blood donors and patients with post-transfusion hepatitis in the city of Sofia]." <i>Vutr Boles</i> 26(3): 38-43.	3617705	1264
Bulgaria	Maille, 2001	First-time blood donors; all donations reported, ECDC report (33,222)	both	33,222	10.1%	9.81%	10.45%	9.10%	1.21%	Maille AR , Bonneux L, and van der Poel CL (2004) The collection, testing, and use of blood and blood products in Europe in 2002. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare.	NPM	1265
Bulgaria	van der Poel, 2002	First-time blood donors; all donations reported, ECDC report (31,294)	both	31,294	9.4%	9.04%	9.68%	9.10%	1.22%	van der Poel CL and Janssen MP (2004) The collection, testing, and use of blood and blood products in Europe in 2001. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare, June 2004	NPM	1266
			total studies	11	438,046			100.00%	100.00%			
			both	7								
			females	4								
			males	0								

\* indicates publication year; survey year not reported

**Table 97: Summary of Surveys Included in Meta-Analysis: Moldova**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Moldova	Drobeniuc, 1994	44 urban and rural areas	Adult women; two-stage cluster sampling in 44 urban and rural areas selected with probability proportional to size; prenatal clinic, first-grade classroom, and pre-school group in each district (1098)	females	1,098	9.7%	7.95%	11.45%	23.78%	32.52%	Drobeniuc, J., Y. J. Hutin, et al. (1999). "Prevalence of hepatitis B, D and C virus infections among children and pregnant women in Moldova: additional evidence supporting the need for routine hepatitis B vaccination of infants." <i>Epidemiol Infect</i> 123(3): 463-7.	10694158	1290
Moldova	Rein, 2006-2008	migrants to U.S.	Refugees arriving in the US 2006-2008; information from states with an active refugee health coordinator (135)	both	135	5.9%	1.93%	9.87%	16.75%	6.31%	Rein DB, Lesesne SB, O'Fallon A, Weinbaum CM (2009) Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008. <i>Hepatology</i> . 2010 Feb;51(2):431-4	19902482	229
Moldova	Mikhailov, 1983	Kishinev	Residents of Kishinev selection in Russian; in Russian--might be blood donors? or volunteers for the study? (1,248)	both	1,248	9.0%	7.41%	10.59%	24.22%	39.53%	Mikhailov, M. I., S. A. Arakelov, et al. (1985). "[HBe antigen and its antibodies in HBsAg carriers in various regions of the USSR]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (7): 71-4.	3901627	1292
Moldova	Brehar-Cioflec, 1998*		Apparently healthy persons; no selection in abstract (226)	both	226	19.9%	14.69%	25.11%	13.27%	3.68%	Brehar-Cioflec, D., C. Claiici, et al. (1998). "Hepatitis B virus (HBV) and dual HBV-hepatitis delta virus (HDV) infection in apparently healthy persons." <i>Rom J Virol</i> 49(1-4): 3-10.	10892421	1293
Moldova	Drobeniuc, 1994		Children; two-stage cluster sampling in 44 urban and rural areas selected with probability proportional to size; prenatal clinic, first-grade classroom, and pre-school group in each district (439)	both	439	6.8%	4.45%	9.15%	21.98%	17.97%	Drobeniuc, J., Y. J. Hutin, et al. (1999). "Prevalence of hepatitis B, D and C virus infections among children and pregnant women in Moldova: additional evidence supporting the need for routine hepatitis B vaccination of infants." <i>Epidemiol Infect</i> 123(3): 463-7.	10694158	1290
				total studies	5	3,146			100.00%	100.00%			
				males	0								
				females	1								
				both	4								

\* indicates publication year; survey year not reported

**Table 98: Summary of Surveys Included in Meta-Analysis: Croatia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Croatia	Jelic, 1990-1991	Slavonski Brod	Apparently healthy individuals Slavonski Brod; represented a typical sample of the general population in that region; no selection described; males (1,130)	males	1,130	2.0%	1.14%	2.76%	17.36%	1.72%	Jelic, O., D. Jelic, et al. (1994). "Prevalence of markers of hepatitis B virus infection among the general population of the municipality of Slavonski Brod." Acta Med Croatica 48(3): 111-6.	7532046	1267
Croatia	Jelic, 1990-1991	Slavonski Brod	Apparently healthy individuals Slavonski Brod; represented a typical sample of the general population in that region; no selection described; females (1,012)	females	1,012	1.6%	0.81%	2.35%	17.83%	1.89%	Jelic, O., D. Jelic, et al. (1994). "Prevalence of markers of hepatitis B virus infection among the general population of the municipality of Slavonski Brod." Acta Med Croatica 48(3): 111-6.	7532046	1267
Croatia	Capar, 1991-1992	Istrian and Rijeka districts	Pregnant women; all pregnant women were routinely screened; testing if CDC recommendations based on risk factors pick up significant % of case (10,627)	females	10,627	1.0%	0.82%	1.20%	23.83%	30.90%	Capar, M., V. Kosic-Andrasevic, et al. (1995). "The need and value of routine screening of all pregnant women for hepatitis B surface antigen." Acta Med Croatica 49(4-5): 161-4.	8630446	1268
Croatia	Ivic, 1995	Split	Pregnant women Split; voluntary; 0 refusals to participate (400)	females	400	0.8%	-0.10%	1.60%	16.87%	1.56%	Ivic, I., I. Banovic, et al. (1999). "Hepatitis B virus infection among pregnant women in Split region." Eur J Epidemiol 15(6): 589-90.	10485355	1269
Croatia	Vucinovic, 1997-2007	Split	Pregnant women; retrospective review of records; women admitted for delivery to Split University Hospital during 10-yr period (43,096)	females	43,096	2.0%	1.87%	2.13%	24.11%	63.93%	Vucinovic, M., D. Roje, et al. (2008). "Maternal and neonatal effects of substance abuse during pregnancy: our ten-year experience." Yonsei Med J 49(5): 705-13.	18972589	1270
					total studies	5	56,265		100.00%	100.00%			
					males	1							
					females	4							
					both	0							

\* indicates publication year; survey year not reported

**Table 99: Summary of Surveys Included in Meta-Analysis: Former USSR**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg				RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
					Sample positive (n)	(%)	lower CI	upper CI					
Former USSR	Almog, 1992	migrants to Israel	Israel military recruits from Former USSR; all M and F immigrants required to report for military service within one yr of arrival; male (506)	males	506	5.3%	3.35%	7.25%	8.94%	4.58%	Almog, R., M. Low, et al. (1999). "Prevalence of anti-hepatitis A antibodies, hepatitis B viral markers, and anti-hepatitis C antibodies among immigrants from the former USSR who arrived in Israel during 1990-1991." <i>Infection</i> 27(3): 212-7.	10378135	603
Former USSR	Almog, 1992	migrants to Israel	Israel military recruits from Former USSR; all M and F immigrants required to report for military service within one yr of arrival; female (93)	females	93	2.2%	-0.78%	5.18%	6.45%	1.97%	Almog, R., M. Low, et al. (1999). "Prevalence of anti-hepatitis A antibodies, hepatitis B viral markers, and anti-hepatitis C antibodies among immigrants from the former USSR who arrived in Israel during 1990-1991." <i>Infection</i> 27(3): 212-7.	10378135	1284
Former USSR	Mikhailov, 1985*	nine different regions	Pregnant women in nine regions; locations and selection in Russian (2,316)	females	2,316	4.9%	4.04%	5.80%	11.62%	22.51%	Mikhailov, M. I., A. A. Ivankin, et al. (1985). "[Frequency of detecting HBsAg among pregnant women living in different regions of the Soviet Union]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (5): 64-6.	4036411	1282
Former USSR	Trautwine, 1993	migrants to Germany	Migrants to Germany from former Soviet Union; only selection criteria was age >18 yrs (1,025)	both	1,025	4.4%	3.14%	5.66%	10.77%	11.08%	Trautwein, C., G. Kiral, et al. (1995). "Risk factors and prevalence of hepatitis E in German immigrants from the former Soviet Union." <i>J Med Virol</i> 45(4): 429-34.	7666043	1283
Former USSR	Zacharakis, 1992-1994	migrants to Greece	Young 5-19 yo population of Thrace; community-based survey; stratified random sampling of all schools in region (412)	both	412	1.7%	0.45%	2.95%	10.78%	11.21%	Zacharakis, G., S. Kotsiou, et al. (2009). "Changes in the epidemiology of hepatitis B virus infection following the implementation of immunisation programmes in northeastern Greece." <i>Euro Surveill</i> 14(32).	19679032	1280
Former USSR	Zacharakis, 1998-2006,	migrants to Greece	Young 5-19 yo population of Thrace; community-based survey; stratified random sampling of all schools in region (363)	both	363	1.1%	0.03%	2.17%	11.20%	15.17%	Zacharakis, G., S. Kotsiou, et al. (2009). "Changes in the epidemiology of hepatitis B virus infection following the implementation of immunisation programmes in northeastern Greece." <i>Euro Surveill</i> 14(32).	19679032	1280
Former USSR	Zacharakis, 1992-1994	migrants to Greece	Migrants from Former USSR. adult 20-60 yo residents of Thrace; sample representative of population; community-based survey; volunteers informed via local media (610)	both	610	5.3%	3.52%	7.08%	9.41%	5.53%	Zacharakis, G., S. Kotsiou, et al. (2009). "Changes in the epidemiology of hepatitis B virus infection following the implementation of immunisation programmes in northeastern Greece." <i>Euro Surveill</i> 14(32).	19679032	1280
Former USSR	Zacharakis, 1998-2006	migrants to Greece	Migrants from Former USSR. adult 20-60 yo residents of Thrace; sample representative of population; community-based survey; volunteers informed via local media (463)	both	463	4.3%	2.45%	6.15%	9.22%	5.12%	Zacharakis, G., S. Kotsiou, et al. (2009). "Changes in the epidemiology of hepatitis B virus infection following the implementation of immunisation programmes in northeastern Greece." <i>Euro Surveill</i> 14(32).	19679032	1280
Former USSR	Viazov, 1981	Moscow, Almaty, Kazakhstan, and 4 other regions	Healthy children age 3-7 yrs; Moscow, Almaty, Kazakhstan, and 4 other regions; locations and selection in Russian (790)	both	790	3.5%	2.25%	4.83%	10.68%	10.52%	Viazov, S. O., A. A. Kompaniets, et al. (1985). "[Detection of HBsAg and anti-HBs in the healthy population of different cities in the USSR]." <i>Vopr Virusol</i> 30(2): 231-3.	4002694	1281
Former USSR	Viazov, 1981-1983	Moscow, Almaty, Kazakhstan, and 4 other regions	Healthy population, healthy children age 3-7 yrs; Moscow, Almaty, Kazakhstan, and 4 other regions; locations and selection in Russian(1,377)	both	1,377	5.4%	4.18%	6.56%	10.93%	12.32%	Viazov, S. O., A. A. Kompaniets, et al. (1985). "[Detection of HBsAg and anti-HBs in the healthy population of different cities in the USSR]." <i>Vopr Virusol</i> 30(2): 231-3.	4002694	1281
				total studies	10	7,955				100.00%	100.00%		
				males	1								
				females	2								
				both	7								

\* indicates publication year; survey year not reported

**Table 100: Summary of Surveys Included in Meta-Analysis: Lithuania**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Lithuania	Kupcinskas, 2003		Lithuanian army soldiers; 15 units of the Lithuanian army; no selection described (1,830)	males	1,830	2.0%	1.33%	2.61%	14.31%	5.23%	Kupcinskas, L., D. Petrauskas, et al. (2007). "Prevalence of hepatitis B virus chronic carriers and risk factors for hepatitis B virus infection among Lithuanian army soldiers." <i>Mil Med</i> 172(6): 625-7.	17615845	1286
Lithuania	Ambrozaitis, 1995*	Vilnius, Kaunas, Klaipeda, Siauliai, Panevezys	First-time blood donors from blood donors in five cities; Vilnius, Kaunas, Klaipeda, Siauliai, Panevezys (421)	both	421	2.1%	0.76%	3.52%	9.57%	1.11%	Ambrozaitis, A., Z. A. KS, et al. (1995). "Hepatitis C in Lithuania: incidence, prevalence, risk factors and viral genotypes." <i>Clin Diagn Virol</i> 4(4): 273-84.	15566848	1284
Lithuania	Caplinskas, 2000*	not in abstract	Teenagers; selection in Russian (632)	both	632	1.4%	0.50%	2.34%	12.48%	2.49%	Caplinskas, S., A. Griskevicius, et al. (2000). "[The prevalence of viral hepatitis among youth]." <i>Zh Mikrobiol Epidemiol Immunobiol</i> (4): 53-4.	10994107	1285
Lithuania	Maille, 2001		First-time blood donors (2001); all donations reported; data submitted to Council of Europe (12,244)	both	12,244	2.2%	1.89%	2.41%	16.11%	32.09%	Maille AR, Bonneux L, and van der Poel CL (2004) The collection, testing, and use of blood and blood products in Europe in 2002. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare.	NPM	1265
Lithuania	van der Poel, 2003	all	First-time blood donors (2001); all donations reported; data submitted to Council of Europe (10,379)	both	10,379	3.6%	3.20%	3.92%	15.75%	16.67%	van der Poel CL and Janssen MP (2004) The collection, testing, and use of blood and blood products in Europe in 2001. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare, June 2004	NPM	1266
Lithuania	Kalibatas, 2005		Non-remunerated first-time blood donors; donations at the National Blood Center in Lithuania in 2005 (4,877)	both	4,877	1.6%	1.22%	1.92%	15.78%	17.40%	Kalibatas, V. (2008). "Payment for whole blood donations in Lithuania: the risk for infectious disease markers." <i>Vox Sang</i> 94(3): 209-15.	18069929	1287
Lithuania	Kalibatas, 2006		Non-remunerated first-time blood donors; donations at the National Blood Center in Lithuania in 2006 (5,951)	both	5,951	1.3%	1.04%	1.62%	16.00%	25.01%	Kalibatas, V. (2008). "Payment for whole blood donations in Lithuania: the risk for infectious disease markers." <i>Vox Sang</i> 94(3): 209-15.	18069929	1287
				total studies	7	36,334			100.00%	100.00%			
				males	1								
				females	0								
				both	6								

\* indicates publication year; survey year not reported

**Table 101: Summary of Surveys Included in Meta-Analysis: Latvia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Latvia	Maille, 2001		Maille 2001, first-time blood donors; data submitted to Council of Europe (11,796)	both	11,796	1.6%	1.35%	1.79%	32.73%	29.07%	Maille AR, Bonneux L, and van der Poel CL (2004) The collection, testing, and use of blood and blood products in Europe in 2002. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare.	NPM	1265
Latvia	van der Poel, 2002		van der Poel 2002, first-time blood donors; data submitted to Council of Europe (10,023)	both	10,023	1.5%	1.24%	1.72%	32.00%	26.18%	van der Poel CL and Janssen MP (2004) The collection, testing, and use of blood and blood products in Europe in 2001. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare, June 2004	NPM	1266
Latvia	van der Poel, 2003		van der Poel 2003, first-time blood donors; data submitted to Council of Europe (13,131)	both	13,131	1.1%	0.95%	1.31%	35.28%	44.76%	van der Poel CL and Janssen MP (2004) The collection, testing, and use of blood and blood products in Europe in 2001. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare, June 2004	NPM	1266
				total studies	3	34,950			100.00%	100.00%			
				males	0								
				females	0								
				both	3								

\* indicates publication year; survey year not reported

**Table 102: Summary of Surveys Included in Meta-Analysis: Macedonia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg positive (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Macedonia			no surveys found; used weighted average for Eastern Europe	NA	NA	3.29%	2.33%	4.24%	NA	NA			

**Table 103: Summary of Surveys Included in Meta-Analysis: Estonia**

Eastern Europe

Country	Study, survey year(s)*	Region	Population and sampling method	Sex	HBsAg Sample positive (n)	HBsAg (%)	lower CI	upper CI	RE weight (%)	FE weight (%)	Reference	Access No	Ref No.
Estonia	Maille, 2001		First-time blood donors; data reported to Council of Europe (8,937)	both	8,937	0.6%	0.42%	0.74%	100.00%	100.00%	Maille AR, Bonneux L, and van der Poel CL (2004) The collection, testing, and use of blood and blood products in Europe in 2002. Final Report for the Council of Europe; European Directorate for the Quality of Medicines and HealthCare.	NPM	1265
				total studies	1	8,937			100.00%	100.00%			
				males	0								
				females	0								
				both	1								

\* indicates publication year; survey year not reported