

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.
Supplement to: Prevalence and burden of hepatitis D virus infection in the global population: a systematic review and meta-analysis

**Prevalence and burden of hepatitis D virus infection in the global population: a
systematic review and meta-analysis**

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Data Sources

We systematically searched PubMed, Embase, Cochrane Library, CNKI to identify studies providing national or local representative estimates of HDV prevalence.

1. The search for adults was conducted using the following terms:

((((HBV[Title/Abstract] OR "Hepatitis B"[Mesh])) AND (("Hepatitis Delta Virus"[Mesh] OR HDV[Title/Abstract])) AND (((((((((((prevalen*[Title/Abstract] OR inciden*[Title/Abstract] OR seroprevalen*[Title/Abstract] OR screening[Title/Abstract] OR surveillance[Title/Abstract] OR population*[Title/Abstract] OR survey*[Title/Abstract] OR epidem*[Title/Abstract] OR data collection[Title/Abstract] OR population sample*[Title/Abstract] OR community survey*[Title/Abstract] OR cohort[Title/Abstract] OR cross-sectional[Title/Abstract] OR longitude*[Title/Abstract] OR follow-up[Title/Abstract]) AND (Humans[Mesh])

Our search returned 2717 records, 182 of which were finally included in the analysis after meeting the inclusion and exclusion criteria.

2. The search for genotypes was conducted using the following terms:

((("Hepatitis Delta Virus"[Mesh] OR HDV[Title/Abstract])) AND ((genotype[Mesh] OR genotypes OR genogroup OR genogroups)

Our search returned 352 records, 81 of which were finally included in the analysis after meeting the inclusion and exclusion criteria.

Study selection criteria

Topic 1: prevalence of HDV infection

Study population:

General population: Blood donors

Antenatal clinic attendees/health-care workers

Pregnant women

High risk: Intravenous drug users

MSM (men who have sex with men)

Sex workers

Study populations selected based on a risk factor for viral hepatitis or on a condition associated with hepatitis infection or risk of hepatitis transmission (persons with liver disease, injecting and non-injecting drug users, sex-workers, people who have sex with men, hospitalized patients...)

Study inclusion criteria:

- Provide data about prevalence rate of hepatitis D virus infection

Study exclusion criteria:

- Reports
- Case studies
- Letters
- Perspectives, correspondence, abstract

- No primary data
- Other comorbidities (e.g. HIV, Thalassemia)
- Systematic reviews/meta-analyses
- Undergoing interventions that put them at increased risk of co-infection.
- Prevalence of HDV infection about migrants and refugees, children, all people who have liver cancer and liver cirrhosis

Topic 2: global distribution of HDV genotypes

Study inclusion criteria:

- Provide data about genotypes

Study exclusion criteria:

- No information about nationality

HDV seroprevalence among HBsAg carriers and patients with liver disease

We did a forest plot between HBsAg carriers and patients with liver disease. Results have been shown in Figure S2. In HBsAg carriers the prevalence of HDV was 7.78% (95% CI 6.16-9.54), while the prevalence was 12.60% (95% CI 10.16-15.26) in patients with liver disease. So patients with liver disease have a higher prevalence than HBsAg carriers.

Relationship between HBV vaccine coverage rate and HDV prevalence

There is a definite correlation between HBV vaccine coverage rate and HDV prevalence. One study has been ignored, for the reason of lacking exact year about vaccine. The downward trend will be more obvious if the extreme value of Gabon was excluded.

Prevalence of anti-hepatitis D virus in HBsAg-positive populations by global burden of infected regions

IVDU = intravenous drug users. HRSB = people who have high-risk sexual behaviors. Mixed population = HBsAg carriers (without IVDU and HRSB). “Multicenter” means we had difficulty in deciding which country or location it belongs to. Group 1 represents populations came from Africa, group 2 represents populations came from North America, group 3 represents populations came from South America, group 4 represents populations came from Asia, group 5 represents populations came from Europe, group 6 represents populations came from Oceania, multicenter represents individuals came from several continents.

SDI level affects the prevalence of HDV.

Forest plot in general population about SDI level can be seen in Fig.2B. Several locations or countries did not have published SDI level: Nauru, Palau, Tuvalu. Data can be seen in Table S4 in detail.

Sensitive analysis in HBsAg positive populations

In the context of sensitivity analysis, involves fitting a linear regression to the model response and using standardized regression coefficients as direct measures of sensitivity. The regression is required to be linear with respect to the data because otherwise it is difficult to interpret the standardized coefficients. This method is therefore most suitable when the model response is in fact linear; linearity can be confirmed, for instance, if the coefficient of determination is large. The advantages of regression

analysis are that it is simple and has a low computational cost.

Figure S1: Forest plot of estimated pooled seroprevalence of hepatitis D virus among general individuals.

Data are from a random-effects model.

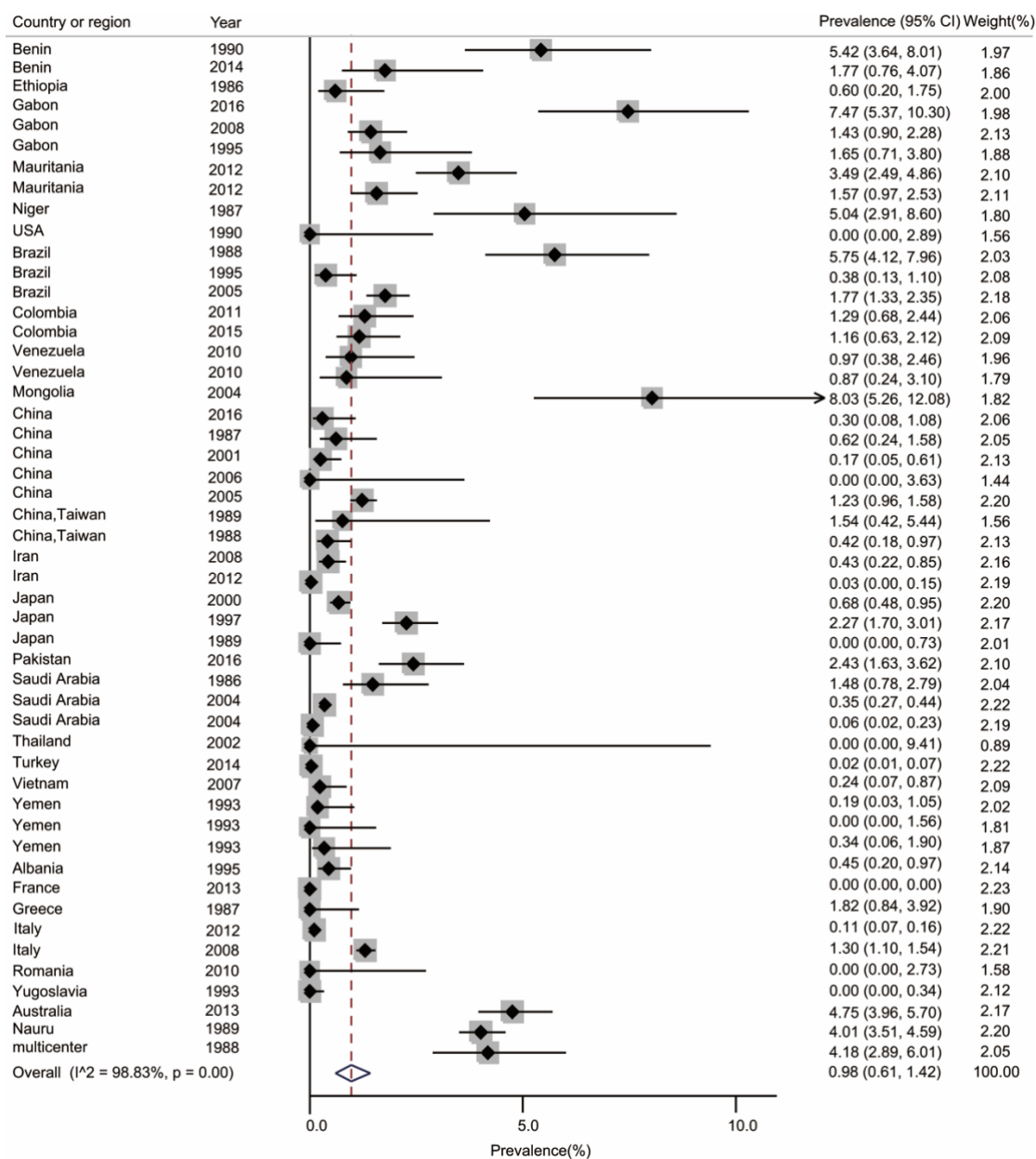


Figure S2. Forest plot showing meta-analysis of HDV seroprevalence among HBsAg carriers (A) and patients with liver disease (B) Weights are from random effects analysis.

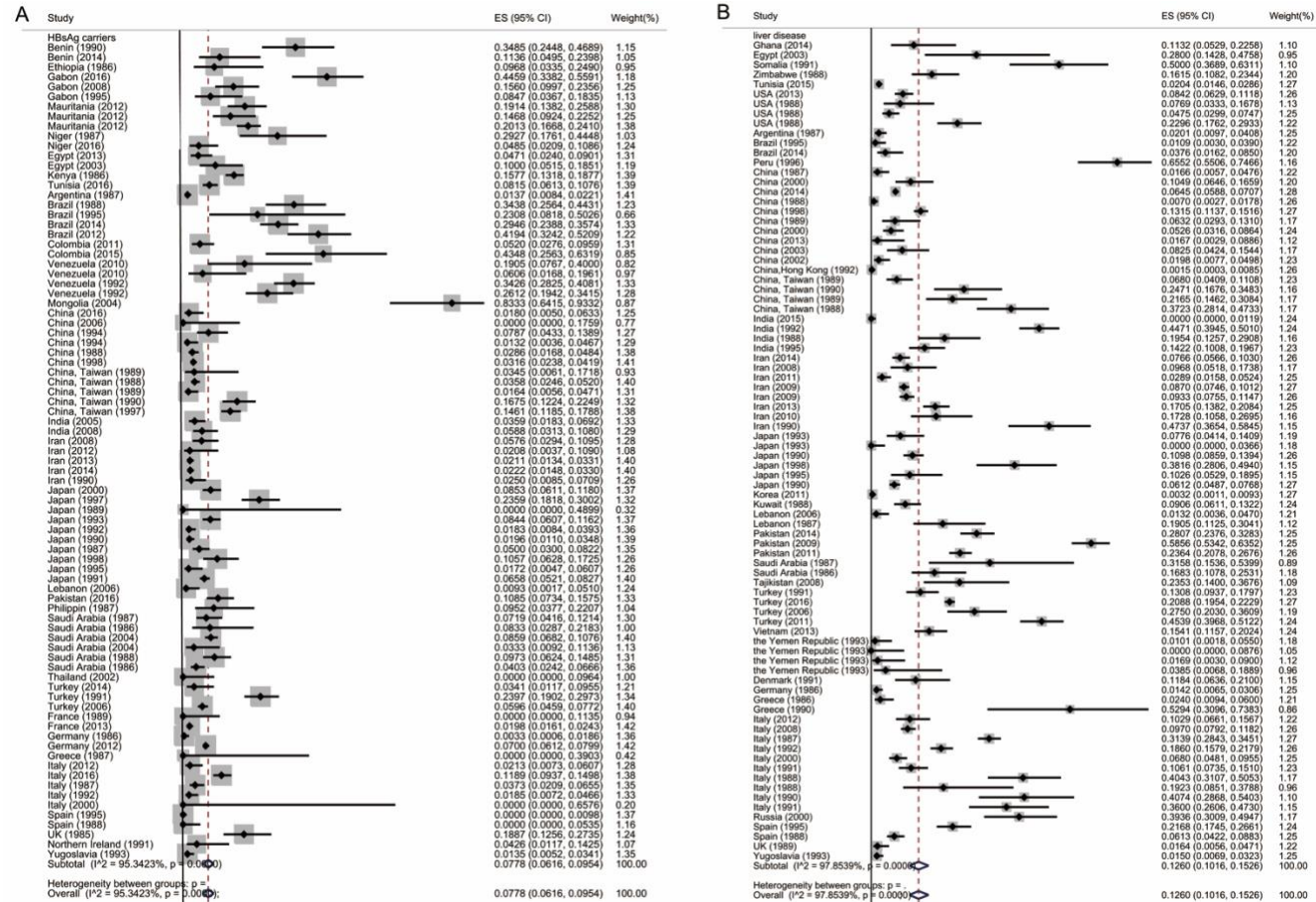


Figure S3: Global hepatitis D virus prevalence (1977-1996, 1997-2016)

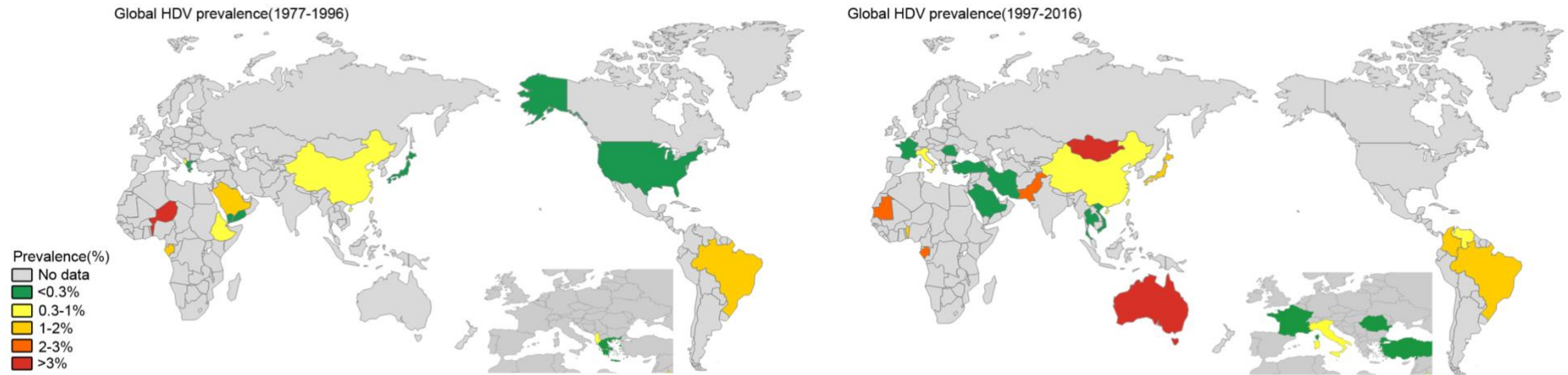


Figure S4. Forest plot of estimated global hepatitis D virus prevalence (1977-1996, 1997-2016)

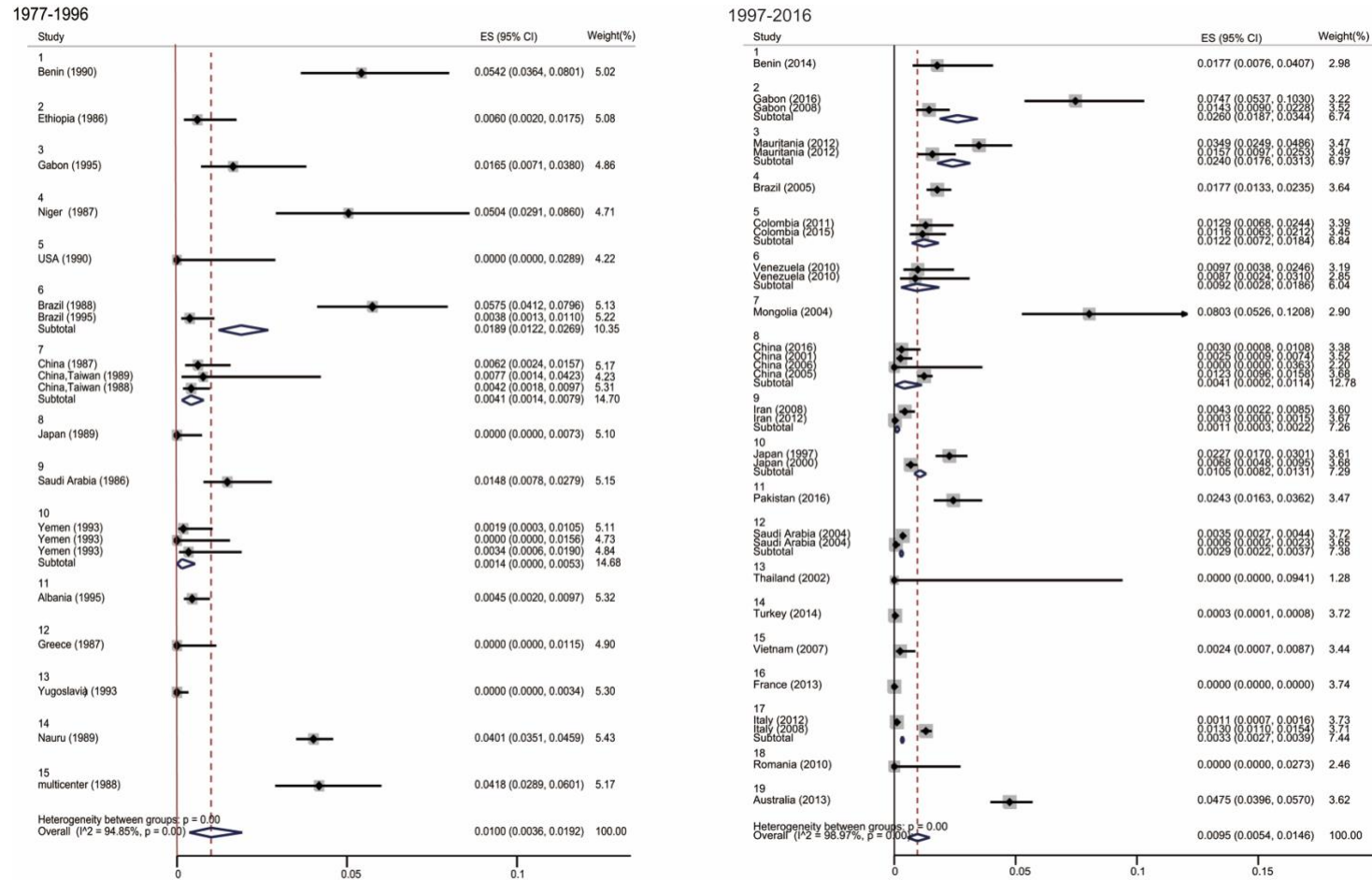


Figure S5: The relationship between HBV vaccine coverage rate and HDV prevalence

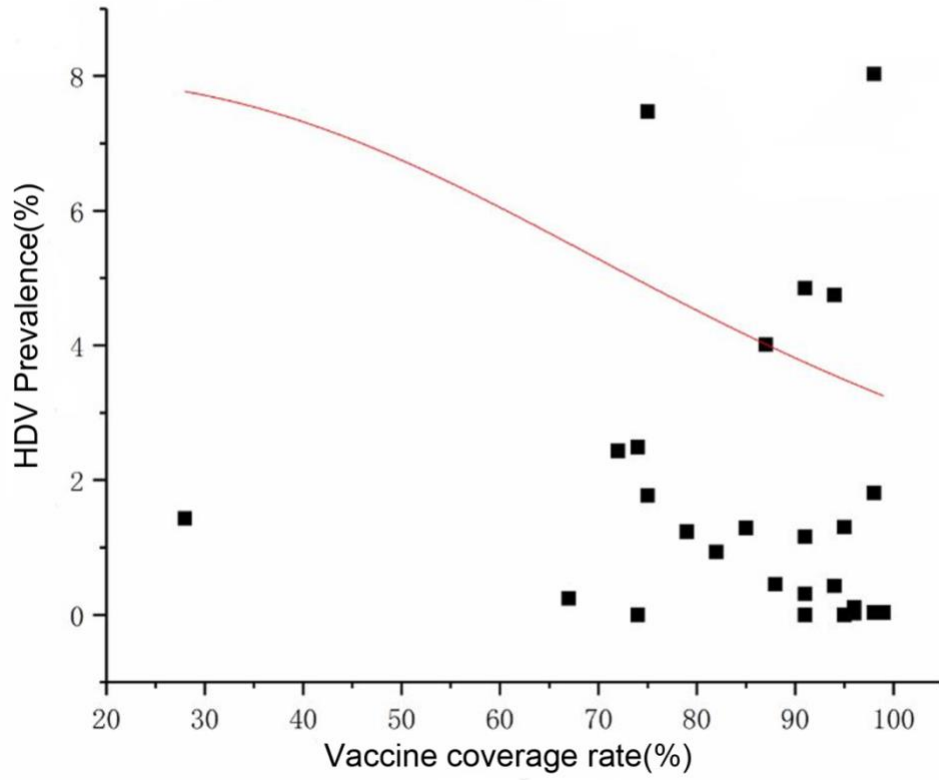


Table S1: Prevalence of anti-hepatitis D virus in HBsAg-positive populations by global burden of infected regions

Location	Year	e	n	Group	Subgroup	_ES	_seES	_LCI	_UCI	_WT
Benin	1990	23	66	1	Mixed population	0.3485	0.1226	0.2448	0.4689	0.4064
Benin	2014	5	44	1	Mixed population	0.1136	0.1499	0.0495	0.2398	0.3849
Ethiopia	1986	3	31	1	Mixed population	0.0968	0.1782	0.0335	0.2490	0.3610
Gabon	2016	33	74	1	Mixed population	0.4459	0.1159	0.3382	0.5591	0.4114
Gabon	2008	17	109	1	Mixed population	0.1560	0.0956	0.0997	0.2356	0.4253
Gabon	1995	5	59	1	Mixed population	0.0847	0.1296	0.0367	0.1835	0.4011
Ghana	2014	6	53	1	Mixed population	0.1132	0.1367	0.0529	0.2258	0.3955
Mauritania	2012	31	162	1	Mixed population	0.1914	0.0784	0.1382	0.2588	0.4356
Mauritania	2012	16	109	1	Mixed population	0.1468	0.0956	0.0924	0.2252	0.4253
Mauritania	2012	90	447	1	Mixed population	0.2013	0.0473	0.1668	0.2410	0.4498
Niger	1987	12	41	1	Mixed population	0.2927	0.1552	0.1761	0.4448	0.3805
Niger	2016	5	103	1	Mixed population	0.0485	0.0983	0.0209	0.1086	0.4236
Egypt	2013	8	170	1	Mixed population	0.0471	0.0766	0.0240	0.0901	0.4366
Egypt	2003	15	75	1	Mixed population	0.2000	0.1151	0.1251	0.3041	0.4120
Kenya	1986	103	653	1	Mixed population	0.1577	0.0391	0.1318	0.1877	0.4525
Somalia	1991	26	52	1	Mixed population	0.5000	0.1380	0.3689	0.6311	0.3945
Zimbabwe	1988	21	130	1	Mixed population	0.1615	0.0875	0.1082	0.2344	0.4303
Tunisia	2016	44	540	1	Mixed population	0.0815	0.0430	0.0613	0.1076	0.4512
Tunisia	2015	33	1615	1	Mixed population	0.0204	0.0249	0.0146	0.0286	0.4559
Canada	1986	0	186	2	Mixed population	0.0000	0.0732	0.0000	0.0202	0.4384
USA	1990	0	10	2	Mixed population	0.0000	0.3086	0.0000	0.2775	0.2534
USA	2013	42	499	2	Mixed population	0.0842	0.0447	0.0629	0.1118	0.4507
USA	1988	5	65	2	Mixed population	0.0769	0.1236	0.0333	0.1678	0.4057
USA	1988	17	358	2	Mixed population	0.0475	0.0528	0.0299	0.0747	0.4477
USA	1988	45	196	2	Mixed population	0.2296	0.0713	0.1762	0.2933	0.4393
USA	2015	73	2175	2	Mixed population	0.0336	0.0214	0.0268	0.0420	0.4566
Argentina	1987	23	1517	3	Mixed population	0.0152	0.0257	0.0101	0.0226	0.4558
Brazil	1988	33	96	3	Mixed population	0.3438	0.1018	0.2564	0.4431	0.4213
Brazil	1995	3	13	3	Mixed population	0.2308	0.2722	0.0818	0.5026	0.2814

Brazil	2014	66	224	3	Mixed population	0.2946	0.0667	0.2388	0.3574	0.4416
Brazil	2012	39	93	3	Mixed population	0.4194	0.1034	0.3242	0.5209	0.4202
Brazil	2014	5	133	3	Mixed population	0.0376	0.0865	0.0162	0.0850	0.4309
Brazil	2016	8	92	3	Mixed population	0.0870	0.1040	0.0447	0.1623	0.4198
Colombia	2011	9	173	3	Mixed population	0.0520	0.0759	0.0276	0.0959	0.4369
Colombia	2015	10	23	3	Mixed population	0.4348	0.2063	0.2563	0.6319	0.3367
Peru	1996	57	87	3	Mixed population	0.6552	0.1069	0.5506	0.7466	0.4178
Venezuela	2010	4	21	3	Mixed population	0.1905	0.2157	0.0767	0.4000	0.3286
Venezuela	2010	2	33	3	Mixed population	0.0606	0.1728	0.0168	0.1961	0.3656
Venezuela	1992	74	216	3	Mixed population	0.3426	0.0680	0.2825	0.4081	0.4410
Venezuela	1992	35	134	3	Mixed population	0.2612	0.0862	0.1942	0.3415	0.4311
Mongolia	2004	20	24	4	Mixed population	0.8333	0.2020	0.6415	0.9332	0.3404
China	2016	2	111	4	Mixed population	0.0180	0.0947	0.0050	0.0633	0.4259
China	1987	4	515	4	Mixed population	0.0078	0.0440	0.0030	0.0198	0.4509
China	2001	3	149	4	Mixed population	0.0201	0.0818	0.0069	0.0575	0.4337
China	2006	0	18	4	Mixed population	0.0000	0.2325	0.0000	0.1759	0.3141
China	2000	15	143	4	Mixed population	0.1049	0.0835	0.0646	0.1659	0.4327
China	2014	426	6604	4	Mixed population	0.0645	0.0123	0.0588	0.0707	0.4577
China	1994	10	127	4	Mixed population	0.0787	0.0886	0.0433	0.1389	0.4297
China	1994	2	152	4	Mixed population	0.0132	0.0810	0.0036	0.0467	0.4342
China	1988	17	1027	4	Mixed population	0.0166	0.0312	0.0104	0.0263	0.4546
China	1998	207	2681	4	Mixed population	0.0772	0.0193	0.0677	0.0879	0.4569
China	2012	18	1486	4	Mixed population	0.0121	0.0259	0.0077	0.0191	0.4557
China	1989	6	95	4	Mixed population	0.0632	0.1023	0.0293	0.1310	0.4209
China	2012	8	220	4	Mixed population	0.0364	0.0673	0.0185	0.0701	0.4413
China	2000	14	266	4	Mixed population	0.0526	0.0613	0.0316	0.0864	0.4442
China	2013	1	60	4	Mixed population	0.0167	0.1286	0.0029	0.0886	0.4019
China	2003	8	97	4	Mixed population	0.0825	0.1013	0.0424	0.1544	0.4216
China	2002	4	202	4	Mixed population	0.0198	0.0703	0.0077	0.0498	0.4399
China	2000	16	124	4	Mixed population	0.1290	0.0896	0.0810	0.1994	0.4291
China, Hong Kong	1992	1	664	4	Mixed population	0.0015	0.0388	0.0003	0.0085	0.4525
China, Taiwan	1989	1	29	4	Mixed population	0.0345	0.1841	0.0061	0.1718	0.3559
China, Taiwan	1988	5	211	4	Mixed population	0.0237	0.0688	0.0102	0.0543	0.4406

China, Taiwan	1988	26	726	4	Mixed population	0.0358	0.0371	0.0246	0.0520	0.4530
China, Taiwan	1989	17	389	4	Mixed population	0.0437	0.0507	0.0275	0.0689	0.4486
China, Taiwan	1989	1	61	4	Mixed population	0.0164	0.1275	0.0029	0.0872	0.4027
China, Taiwan	1990	21	85	4	Mixed population	0.2471	0.1081	0.1676	0.3483	0.4169
China, Taiwan	1989	21	97	4	Mixed population	0.2165	0.1013	0.1462	0.3084	0.4216
China, Taiwan	1988	35	94	4	Mixed population	0.3723	0.1029	0.2814	0.4733	0.4205
China, Taiwan	1990	34	203	4	Mixed population	0.1675	0.0701	0.1224	0.2249	0.4400
China, Taiwan	1997	77	527	4	Mixed population	0.1461	0.0435	0.1185	0.1788	0.4511
India	2015	0	318	4	Mixed population	0.0000	0.0560	0.0000	0.0119	0.4464
India	2005	8	223	4	Mixed population	0.0359	0.0669	0.0183	0.0692	0.4416
India	2008	9	153	4	Mixed population	0.0588	0.0807	0.0313	0.1080	0.4343
India	1992	148	331	4	Mixed population	0.4471	0.0549	0.3945	0.5010	0.4469
India	1988	17	87	4	Mixed population	0.1954	0.1069	0.1257	0.2908	0.4178
India	1995	29	204	4	Mixed population	0.1422	0.0699	0.1008	0.1967	0.4401
Iran	2008	8	139	4	Mixed population	0.0576	0.0847	0.0294	0.1095	0.4320
Iran	2012	1	48	4	Mixed population	0.0208	0.1436	0.0037	0.1090	0.3900
Iran	2014	39	509	4	Mixed population	0.0766	0.0443	0.0566	0.1030	0.4508
Iran	2013	18	854	4	Mixed population	0.0211	0.0342	0.0134	0.0331	0.4538
Iran	2008	9	93	4	Mixed population	0.0968	0.1034	0.0518	0.1738	0.4202
Iran	2011	10	346	4	Mixed population	0.0289	0.0537	0.0158	0.0524	0.4474
Iran	2009	150	1725	4	Mixed population	0.0870	0.0241	0.0746	0.1012	0.4561
Iran	2014	23	1038	4	Mixed population	0.0222	0.0310	0.0148	0.0330	0.4546
Iran	2009	79	847	4	Mixed population	0.0933	0.0344	0.0755	0.1147	0.4538
Iran	2013	75	440	4	Mixed population	0.1705	0.0476	0.1382	0.2084	0.4497
Iran	2010	14	81	4	Mixed population	0.1728	0.1108	0.1058	0.2695	0.4151
Iran	1990	3	120	4	Mixed population	0.0250	0.0911	0.0085	0.0709	0.4282
Japan	2000	32	375	4	Mixed population	0.0853	0.0516	0.0611	0.1180	0.4482
Japan	1997	46	195	4	Mixed population	0.2359	0.0715	0.1818	0.3002	0.4393
Japan	1989	0	4	4	Mixed population	0.0000	0.4714	0.0000	0.4899	0.1588
Japan	1993	42	507	4	Mixed population	0.0828	0.0444	0.0619	0.1101	0.4508
Japan	1993	0	101	4	Mixed population	0.0000	0.0993	0.0000	0.0366	0.4229
Japan	1992	6	328	4	Mixed population	0.0183	0.0552	0.0084	0.0393	0.4468
Japan	1990	69	1088	4	Mixed population	0.0634	0.0303	0.0504	0.0795	0.4548

Japan	1987	14	280	4	Mixed population	0.0500	0.0597	0.0300	0.0822	0.4449
Japan	1998	42	199	4	Mixed population	0.2111	0.0708	0.1601	0.2729	0.4396
Japan	1995	10	194	4	Mixed population	0.0515	0.0717	0.0282	0.0923	0.4392
Japan	1991	67	1019	4	Mixed population	0.0658	0.0313	0.0521	0.0827	0.4545
Japan	1990	69	1127	4	Mixed population	0.0612	0.0298	0.0487	0.0768	0.4549
Korea	2011	3	940	4	Mixed population	0.0032	0.0326	0.0011	0.0093	0.4542
Kuwait	1988	23	254	4	Mixed population	0.0906	0.0627	0.0611	0.1322	0.4435
Lebanon	2006	3	258	4	Mixed population	0.0116	0.0622	0.0040	0.0336	0.4438
Lebanon	1987	12	63	4	Mixed population	0.1905	0.1255	0.1125	0.3041	0.4043
Pakistan	2016	23	212	4	Mixed population	0.1085	0.0686	0.0734	0.1575	0.4407
Pakistan	2014	105	374	4	Mixed population	0.2807	0.0517	0.2376	0.3283	0.4482
Pakistan	2009	212	362	4	Mixed population	0.5856	0.0525	0.5342	0.6352	0.4478
Pakistan	2005	1444	8721	4	Mixed population	0.1656	0.0107	0.1579	0.1735	0.4579
Pakistan	2011	183	774	4	Mixed population	0.2364	0.0359	0.2078	0.2676	0.4534
Pakistan	2011	53	190	4	Mixed population	0.2789	0.0725	0.2200	0.3466	0.4388
Pakistan	2010	80	96	4	Mixed population	0.8333	0.1018	0.7463	0.8947	0.4213
Philippine	1987	4	42	4	Mixed population	0.0952	0.1534	0.0377	0.2207	0.3820
Saudi Arabia	1987	18	186	4	Mixed population	0.0968	0.0732	0.0621	0.1478	0.4384
Saudi Arabia	1986	3	36	4	Mixed population	0.0833	0.1655	0.0287	0.2183	0.3718
Saudi Arabia	2004	67	780	4	Mixed population	0.0859	0.0358	0.0682	0.1076	0.4534
Saudi Arabia	2004	2	60	4	Mixed population	0.0333	0.1286	0.0092	0.1136	0.4019
Saudi Arabia	1988	18	185	4	Mixed population	0.0973	0.0734	0.0624	0.1485	0.4383
Saudi Arabia	1986	31	448	4	Mixed population	0.0692	0.0472	0.0492	0.0965	0.4498
Tajikistan	2008	12	51	4	Mixed population	0.2353	0.1393	0.1400	0.3676	0.3935
Thailand	2002	0	36	4	Mixed population	0.0000	0.1655	0.0000	0.0964	0.3718
Turkey	2014	3	88	4	Mixed population	0.0341	0.1063	0.0117	0.0955	0.4182
Turkey	1991	89	479	4	Mixed population	0.1858	0.0457	0.1535	0.2231	0.4504
Turkey	2016	700	3352	4	Mixed population	0.2088	0.0173	0.1954	0.2229	0.4572
Turkey	2006	86	1009	4	Mixed population	0.0852	0.0315	0.0695	0.1041	0.4545
Turkey	2012	79	3094	4	Mixed population	0.0255	0.0180	0.0205	0.0317	0.4571
Turkey	2011	128	282	4	Mixed population	0.4539	0.0595	0.3968	0.5122	0.4450
Vietnam	2007	2	159	4	Mixed population	0.0126	0.0792	0.0035	0.0447	0.4352
Vietnam	2013	41	266	4	Mixed population	0.1541	0.0613	0.1157	0.2024	0.4442

the Yemen Republic	1993	1	99	4	Mixed population	0.0101	0.1003	0.0018	0.0550	0.4223
the Yemen Republic	1993	0	40	4	Mixed population	0.0000	0.1571	0.0000	0.0876	0.3789
the Yemen Republic	1993	1	59	4	Mixed population	0.0169	0.1296	0.0030	0.0900	0.4011
the Yemen Republic	1993	1	26	4	Mixed population	0.0385	0.1943	0.0068	0.1889	0.3471
Albania	1995	6	97	5	Mixed population	0.0619	0.1013	0.0287	0.1284	0.4216
Belgium	2013	29	757	5	Mixed population	0.0383	0.0363	0.0268	0.0545	0.4533
Denmark	1991	9	76	5	Mixed population	0.1184	0.1143	0.0636	0.2100	0.4125
France	1989	0	30	5	Mixed population	0.0000	0.1811	0.0000	0.1135	0.3585
France	2013	89	4492	5	Mixed population	0.0198	0.0149	0.0161	0.0243	0.4575
Germany	1986	7	724	5	Mixed population	0.0097	0.0372	0.0047	0.0198	0.4530
Germany	2012	199	2844	5	Mixed population	0.0700	0.0187	0.0612	0.0799	0.4570
Greece	1987	0	6	5	Mixed population	0.0000	0.3922	0.0000	0.3903	0.1987
Greece	1986	4	167	5	Mixed population	0.0240	0.0773	0.0094	0.0600	0.4362
Greece	1990	9	17	5	Mixed population	0.5294	0.2390	0.3096	0.7383	0.3086
Italy	2012	24	488	5	Mixed population	0.0492	0.0452	0.0333	0.0721	0.4505
Italy	2008	86	887	5	Mixed population	0.0970	0.0336	0.0792	0.1182	0.4540
Italy	2016	61	513	5	Mixed population	0.1189	0.0441	0.0937	0.1498	0.4509
Italy	1997	143	996	5	Mixed population	0.1436	0.0317	0.1232	0.1667	0.4545
Italy	1992	364	1556	5	Mixed population	0.2339	0.0253	0.2136	0.2556	0.4558
Italy	2000	69	834	5	Mixed population	0.0827	0.0346	0.0659	0.1034	0.4537
Italy	1988	53	310	5	Mixed population	0.1710	0.0568	0.1331	0.2168	0.4461
Italy	1988	5	63	5	Mixed population	0.0794	0.1255	0.0344	0.1727	0.4043
Italy	1991	26	245	5	Mixed population	0.1061	0.0638	0.0735	0.1510	0.4430
Italy	1988	38	94	5	Mixed population	0.4043	0.1029	0.3107	0.5053	0.4205
Italy	1988	5	26	5	Mixed population	0.1923	0.1943	0.0851	0.3788	0.3471
Italy	1991	59	226	5	Mixed population	0.2611	0.0664	0.2081	0.3220	0.4418
Italy	1990	22	54	5	Mixed population	0.4074	0.1355	0.2868	0.5403	0.3965
Italy	1991	27	75	5	Mixed population	0.3600	0.1151	0.2606	0.4730	0.4120
Norway	1986	0	113	5	Mixed population	0.0000	0.0939	0.0000	0.0329	0.4264
Portugal	2016	86	2071	5	Mixed population	0.0415	0.0220	0.0337	0.0510	0.4565
Romania	2010	0	3	5	Mixed population	0.0000	0.5345	0.0000	0.5615	0.1338
Romania	2015	639	2761	5	Mixed population	0.2314	0.0190	0.2161	0.2475	0.4569
Romania	2013	223	1094	5	Mixed population	0.2038	0.0302	0.1810	0.2287	0.4548

Russia	2000	37	94	5	Mixed population	0.3936	0.1029	0.3009	0.4947	0.4205
Spain	1995	8	622	5	Mixed population	0.0129	0.0401	0.0065	0.0252	0.4522
Spain	1988	26	424	5	Mixed population	0.0613	0.0485	0.0422	0.0883	0.4493
Spain	1988	0	68	5	Mixed population	0.0000	0.1208	0.0000	0.0535	0.4078
UK	2015	67	168	5	Mixed population	0.3988	0.0770	0.3278	0.4743	0.4363
UK	2015	158	3543	5	Mixed population	0.0446	0.0168	0.0383	0.0519	0.4572
UK	2013	33	1048	5	Mixed population	0.0315	0.0309	0.0225	0.0439	0.4547
UK	1985	20	106	5	Mixed population	0.1887	0.0969	0.1256	0.2735	0.4245
UK	2007	82	962	5	Mixed population	0.0852	0.0322	0.0692	0.1046	0.4543
Northern Ireland	1991	2	47	5	Mixed population	0.0426	0.1451	0.0117	0.1425	0.3888
UK	1989	3	183	5	Mixed population	0.0164	0.0738	0.0056	0.0471	0.4381
Yugoslavia	1993	6	401	5	Mixed population	0.0150	0.0499	0.0069	0.0323	0.4488
Yugoslavia	1993	4	297	5	Mixed population	0.0135	0.0580	0.0052	0.0341	0.4456
Kiribati	1989	90	130	6	Mixed population	0.6923	0.0875	0.6084	0.7652	0.4303
Nauru	1989	202	890	6	Mixed population	0.2270	0.0335	0.2007	0.2556	0.4540
multicenter	1988	19	58		Mixed population	0.3276	0.1307	0.2208	0.4558	0.4002
USA	1995	0	12	2	IVDU	0.0000	0.2828	0.0000	0.2425	0.2729
USA	1988	1	16	2	IVDU	0.0625	0.2462	0.0111	0.2833	0.3026
USA	1988	12	160	2	IVDU	0.0750	0.0789	0.0434	0.1265	0.4353
USA	1988	27	37	2	IVDU	0.7297	0.1633	0.5702	0.8460	0.3737
USA	2005	20	58	2	IVDU	0.3448	0.1307	0.2356	0.4733	0.4002
USA	1990	12	101	2	IVDU	0.1188	0.0993	0.0693	0.1963	0.4229
Brazil	1999	0	8	3	IVDU	0.0000	0.3430	0.0000	0.3244	0.2293
China	2016	59	226	4	IVDU	0.2611	0.0664	0.2081	0.3220	0.4418
China	2006	9	148	4	IVDU	0.0608	0.0821	0.0323	0.1115	0.4335
China, Hong Kong	1992	13	14	4	IVDU	0.9286	0.2626	0.6853	0.9873	0.2891
China, Taiwan	1988	128	151	4	IVDU	0.8477	0.0812	0.7818	0.8963	0.4340
China, Taiwan	1989	6	7	4	IVDU	0.8571	0.3651	0.4869	0.9743	0.2150
China, Taiwan	1989	62	79	4	IVDU	0.7848	0.1122	0.6821	0.8611	0.4141
China, Taiwan	2002	144	368	4	IVDU	0.3913	0.0521	0.3428	0.4420	0.4480
China, Taiwan	1986	15	19	4	IVDU	0.7895	0.2265	0.5667	0.9149	0.3193
China, Taiwan	2003	15	19	4	IVDU	0.7895	0.2265	0.5667	0.9149	0.3193
China, Taiwan	2003	12	87	4	IVDU	0.1379	0.1069	0.0807	0.2258	0.4178

China, Taiwan	1990	119	131	4	IVDU	0.9084	0.0872	0.8467	0.9468	0.4305
Iran	2008	4	14	4	IVDU	0.2857	0.2626	0.1172	0.5465	0.2891
Japan	1989	0	4	4	IVDU	0.0000	0.4714	0.0000	0.4899	0.1588
Malaysia	1994	15	44	4	IVDU	0.3409	0.1499	0.2188	0.4886	0.3849
Thailand	2002	12	55	4	IVDU	0.2182	0.1342	0.1295	0.3437	0.3975
Greece	1987	7	20	5	IVDU	0.3500	0.2209	0.1812	0.5671	0.3241
Italy	2016	3	32	5	IVDU	0.0938	0.1754	0.0324	0.2422	0.3634
Italy	1988	21	24	5	IVDU	0.8750	0.2020	0.6900	0.9566	0.3404
Italy	1994	12	19	5	IVDU	0.6316	0.2265	0.4104	0.8085	0.3193
Italy	1987	15	29	5	IVDU	0.5172	0.1841	0.3443	0.6861	0.3559
Italy	1988	29	76	5	IVDU	0.3816	0.1143	0.2806	0.4940	0.4125
Norway	1986	50	296	5	IVDU	0.1689	0.0581	0.1305	0.2158	0.4456
Northern Ireland	1991	1	20	5	IVDU	0.0500	0.2209	0.0089	0.2361	0.3241
Poland	1992	16	69	5	IVDU	0.2319	0.1200	0.1481	0.3440	0.4084
Romania	2015	8	26	5	IVDU	0.3077	0.1943	0.1650	0.4999	0.3471
Romania	2015	179	699	5	IVDU	0.2561	0.0378	0.2251	0.2897	0.4528
Romania	2015	166	654	5	IVDU	0.2538	0.0391	0.2220	0.2885	0.4525
Spain	1988	170	262	5	IVDU	0.6489	0.0617	0.5893	0.7041	0.4440
Spain	1995	59	74	5	IVDU	0.7973	0.1159	0.6921	0.8731	0.4114
Yugoslavia	1993	49	130	5	IVDU	0.3769	0.0875	0.2983	0.4626	0.4303
Yugoslavia	1993	5	7	5	IVDU	0.7143	0.3651	0.3589	0.9178	0.2150
UK	1989	10	224	5	IVDU	0.0446	0.0667	0.0244	0.0802	0.4416
UK	1989	11	54	5	IVDU	0.2037	0.1355	0.1177	0.3290	0.3965
UK	1989	11	34	5	IVDU	0.3235	0.1703	0.1913	0.4916	0.3678
UK	2013	5	22	5	IVDU	0.2273	0.2108	0.1012	0.4344	0.3327
UK	1992	12	18	5	IVDU	0.6667	0.2325	0.4375	0.8372	0.3141
Australia	1989	9	22	6	IVDU	0.4091	0.2108	0.2326	0.6127	0.3327
USA	1989	8	321	2	HRSB	0.0249	0.0558	0.0127	0.0484	0.4465
USA	1988	3	32	2	HRSB	0.0938	0.1754	0.0324	0.2422	0.3634
USA	1988	1	67	2	HRSB	0.0149	0.1217	0.0026	0.0798	0.4071
USA	1988	14	98	2	HRSB	0.1429	0.1008	0.0870	0.2256	0.4220
USA	1988	23	298	2	HRSB	0.0772	0.0579	0.0520	0.1131	0.4457
USA	1990	0	6	2	HRSB	0.0000	0.3922	0.0000	0.3903	0.1987

China, Taiwan	1997	14	136	4	HRSB	0.1029	0.0856	0.0623	0.1654	0.4315
China, Taiwan	1997	6	87	4	HRSB	0.0690	0.1069	0.0320	0.1424	0.4178
China, Taiwan	1997	30	55	4	HRSB	0.5455	0.1342	0.4152	0.6697	0.3975
China, Taiwan	1997	11	22	4	HRSB	0.5000	0.2108	0.3072	0.6928	0.3327
China, Taiwan	1997	13	36	4	HRSB	0.3611	0.1655	0.2248	0.5242	0.3718
China, Taiwan	1997	8	26	4	HRSB	0.3077	0.1943	0.1650	0.4999	0.3471
China, Taiwan	2003	24	41	4	HRSB	0.5854	0.1552	0.4337	0.7224	0.3805
China, Taiwan	2003	48	122	4	HRSB	0.3934	0.0904	0.3113	0.4821	0.4286
China, Taiwan	2003	19	48	4	HRSB	0.3958	0.1436	0.2702	0.5369	0.3900
China, Taiwan	2003	5	111	4	HRSB	0.0450	0.0947	0.0194	0.1011	0.4259
China, Taiwan	2003	0	15	4	HRSB	0.0000	0.2540	0.0000	0.2039	0.2961
China, Taiwan	2003	7	45	4	HRSB	0.1556	0.1482	0.0775	0.2878	0.3862
France	1989	6	42	5	HRSB	0.1429	0.1534	0.0672	0.2784	0.3820
Italy	1988	10	46	5	HRSB	0.2174	0.1466	0.1226	0.3557	0.3876
Romania	2015	27	86	5	HRSB	0.3140	0.1075	0.2256	0.4182	0.4174
Romania	2015	34	120	5	HRSB	0.2833	0.0911	0.2104	0.3697	0.4282
Spain	1988	0	12	5	HRSB	0.0000	0.2828	0.0000	0.2425	0.2729
Australia	1989	9	204	6	HRSB	0.0441	0.0699	0.0234	0.0817	0.4401

Table S2: Data about HBV vaccine coverage rate and HDV prevalence

Country	Year	Vaccine coverage (%)	HDV/all (%)
Albania	1995	88	0.45
Australia	2009	94	4.75
Benin	2011	75	1.77
Brazil	2002	98	1.81
China	2004	79	1.23
China	2006	91	0
China	2016	99	0.03
Colombia	2011	85	1.29
Colombia	2015	91	1.16
France	2011	74	0
Gabon	2005	28	1.43
Gabon	2016	75	7.47
Iran	2005	94	0.43
Iran	2012	98	0.03
Italy	2001	95	1.3
Italy	2008	96	0.11
Mauritania	2008	74	2.49
Mongolia	2002	98	8.03
Nauru	2013	87	4.01
Pakistan	2013	72	2.43
Romania	2009	95	0
Saudi Arabia	2004	91	0.31
Thailand	2002	95	0
Turkey	2011	96	0.02
USA	2013	91	4.85
Venezuela	2004	82	0.93
Vietnam	2002	67	0.24

Table S3. Data about global hepatitis D virus prevalence (1977-1996, 1997-2016)

1977-1996					
Location	Year	e	n	Subgroup	
Benin	1990	23	424	1	general population
Ethiopia	1986	3	500	2	general population
Gabon	1995	5	303	3	general population
Niger	1987	12	238	4	general population
USA	1990	0	129	5	general population
Brazil	1988	33	574	6	general population
Brazil	1995	3	798	6	general population
China	1987	4	649	7	general population
China, Taiwan	1989	1	130	7	general population
China, Taiwan	1988	5	1200	7	general population
Japan	1989	0	519	8	general population
Saudi Arabia	1986	9	608	9	residents
Yemen	1993	1	537	10	healthy
Yemen	1993	0	243	10	pregnant
Yemen	1993	1	294	10	blood
Albania	1995	6	1348	11	general population
Greece	1987	0	329	12	general population
Yugoslavia	1993	0	1140	13	general population
Nauru	1989	202	5032	14	general population
multicenter	1988	27	646	15	general population
1997-2016					
Location	Year	e	n	Subgroup	
Benin	2014	5	283	1	general population
Gabon	2016	33	442	2	general population
Gabon	2008	17	1187	2	general population
Mauritania	2012	33	946	3	patient
Mauritania	2012	16	1020	3	pregnant
Brazil	2005	47	2656	4	general population
Colombia	2011	9	697	5	general population
Colombia	2015	10	861	5	general population
Venezuela	2010	4	414	6	general population
Venezuela	2010	2	231	6	general population
Mongolia	2004	20	249	7	general population
China	2016	2	672	8	general population
China	2001	3	1185	8	general population
China	2006	0	102	8	controls
China	2005	60	4886	8	general population
Iran	2008	8	1850	9	general population
Iran	2012	1	3690	9	general population
Japan	1997	46	2028	10	general population
Japan	2000	32	4728	10	general population
Pakistan	2016	23	946	11	general population
Saudi Arabia	2004	67	19250	12	hospital- and clinic-based
Saudi Arabia	2004	2	3147	12	healthy blood donors
Thailand	2002	0	37	13	general population
Turkey	2014	4	12423	14	general population
Vietnam	2007	2	837	15	general population
France	2013	123	39911011	16	general population
Italy	2012	24	22758	17	general population
Italy	2008	130	9997	17	general population
Romania	2010	0	137	18	general population
Australia	2013	110	2314	19	general population

Table S4: Immunization coverage estimates by country

Hepatitis B (HepB3) immunization coverage among 1-year-olds (%)																														
Country	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989		
Afghanistan	65	65	62	64	67	68	66	63	64	63																				
Albania	98	99	98	99	99	99	99	98	99	98	98	98	99	97	96	96	96	96	94	97	96	88	99							
Algeria	91	95	95	95	95	95	95	94	91	90	80	83	81																	
Andorra	94	94	96	94	97	99	96	96	94	91	84	79	77	81	84	84	84	75	80	75										
Angola	64	64	64	77	75	72	77	61	69	73																				
Antigua and Barbuda	99	99	99	99	98	99	98	98	98	97	99	99	97	99	99	96														
Argentina	92	94	94	94	91	91	94	94	90	85	84	88	81	73	66															
Armenia	94	94	93	95	95	95	94	93	89	85	78	91	91	93	91	69	55													
Australia	94	93	91	91	91	92	92	94	94	94	95	95	95	95	95	94														
Austria	87	93	98	95	92	89	86	83	83	85	83	86	83	83	81	44	33													
Azerbaijan	97	96	94	93	88	84	80	74	68	62	52	49	50	51	50															
Bahamas	94	95	96	97	96	95	98	95	90	93	96	93	93	88	89	21														
Bahrain	99	98	98	99	99	99	99	98	97	97	98	98	98	98	98	99	97	97	95	95	96	95	93	90	57					
Bangladesh	97	97	97	96	94	96	94	97	96	95	86	45	11	5																
Barbados	97	97	94	91	87	91	86	93	85	93	84	92	93	91	66	18														
Belarus	96	99	97	98	97	98	96	98	98	91	98	99	99	56	99	93	70													
Belgium	97	98	98	98	98	97	97	97	98	94	94	77	64	64	60	60	60	46	31	2										
Belize	95	94	95	95	98	95	96	97	94	96	98	96	97	96	97	96	76													
Benin	82	82	78	77	80	75	76	79	75	82	74	70	75	73	15															
Bhutan	98	99	99	97	97	95	91	93	96	95	95	95	89	95	83	89	98	90	81	84	16									
Bolivia (Plurinational State of)	99	99	98	94	93	95	91	93	88	84	83	85	84	80	77	77	77													
Bosnia and Herzegovina	78	82	89	91	92	88	89	90	88	94	90	93	36																	
Botswana	95	95	95	95	95	95	95	94	94	93	93	92	91	90	88	87	86	85	77	60	62	73								
Brazil	86	96	96	96	96	98	96	99	96	99	99	98	96	97	92	91	94	84	13	6	15	10	4							
Brunei Darussalam	99	99	99	98	99	93	96	96	96	97	99	99	99	99	99	99	99	93	99	98	98	99	99	99	96	96	96			
Bulgaria	91	92	95	95	95	96	95	96	96	95	96	96	94	96	88	93	94	97	97	77	94	95	94	96	71					
Burkina Faso	91	91	91	88	90	91	91	92	93	89	76																			
Burundi	94	94	95	96	96	96	96	94	92	99	92	87	83																	
Côte d'Ivoire	85	83	76	80	82	62	85	81	74	76	77	76	67	63	48	10														
Cabo Verde	96	96	97	94	94	90	98	98	98	96	95	93	91	66	40															
Cambodia	90	89	88	83	86	88	89	92	91	82	80																			
Cameroon	85	84	87	89	85	82	84	80	84	82	81	79																		
Canada	55	55	55	55	70	70	56	42	28	14	14	14	14	14																
Central African Republic	47	47	47	23	47	47	45	42																						
Chad	46	46	37	39	40	33	39	24	17																					

Indonesia	79	78	78	85	83	81	83	82	82	76	66	65	64	64	63	62	65	77	76	65	62	50	42	43	28			
Iran (Islamic Republic of)	99	98	99	99	98	99	99	99	99	97	98	94	95	98	99	94	99	95	94	93	84	59	62					
Iraq	61	56	62	66	61	77	72	75	66	56	59	65	62	63	65	66	67	52	3	65	22	57	40					
Ireland	95	95	95	95	95	95	46																					
Israel	95	96	97	97	97	98	97	98	99	99	96	96	99	98	98	96	98	96	97	97	96	93	92	92	92			
Italy	93	93	95	96	96	96	96	96	96	97	96	96	96	95	95	95	94	97	95	95	95	95	95	95	95	95		
Jamaica	98	91	92	93	96	92	94	90	92	92	97	99	98	36														
Jordan	98	99	98	98	98	98	98	98	97	98	98	95	95	97	95	97	93	92	91	90	85	54						
Kazakhstan	82	98	95	99	95	99	99	99	99	94	99	94	99	99	95	95	99	90	49									
Kenya	89	89	92	93	94	96	90	88	88	81	80	76	73	73	84													
Kiribati	81	82	75	95	94	95	91	86	83	96	88	50	67	73	79	85	90	82	89	97	66	36	36	8	6	7	73	
Kuwait	99	99	96	99	98	99	99	99	99	99	99	99	94	99	99	99	95	95	99	98	99	99	93	91	38			
Kyrgyzstan	96	97	96	97	96	96	96	96	97	94	90	97	99	99	99	57	44	10										
Lao People's Democratic Republic	82	89	88	87	79	78	74	67	61	50	57	49	45	50														
Latvia	98	94	92	94	90	89	91	92	93	91	94	99	98	98	98	96	95	94	9									
Lebanon	81	81	81	81	81	81	81	81	81	80	78	77	75	74	77	80	83	86										
Lesotho	93	93	93	93	95	96	93	91	88	90	91	87	60	17														
Liberia	79	52	50	76	80	77	47	64	64																			
Libya	97	97	94	96	98	98	98	98	98	98	98	97	99	96	91	93	92	92	92	91	93	92	92	91	88			
Lithuania	95	94	94	93	93	95	94	95	96	96	95	95	94	95	94	95	98	96	73									
Luxembourg	94	94	94	94	94	95	94	95	94	87	95	95	94	95	95	86	77	67	58	49								
Madagascar	77	69	73	74	70	73	70	77	77	84	82	81	71	61	51													
Malawi	84	88	91	89	96	97	93	93	91	87	99	93	89	84	64													
Malaysia	98	99	96	96	97	96	96	96	97	96	95	96	94	95	95	95	97	96	96	97	96	96	94	86	86	89	86	69
Maldives	99	99	99	99	99	96	97	98	98	98	98	98	97	98	98	98	96	90	45	50	96	80	63	21				
Mali	68	64	73	69	66	66	72	71	74	74	90	83	73	79														
Malta	97	95	90	94	93	82	75	86	86	82	86	85	85	89														
Marshall Islands	73	85	79	80	80	89	97	99	97	93	97	89	72	74	80	76	38	80	80	70	68	47	46	17	24	17	10	3
Mauritania	73	73	84	80	80	75	64	64	74	74	68	42																
Mauritius	72	97	97	98	98	98	99	99	99	97	97	97	98	97	88	92	88	85	90	90								
Mexico	93	82	84	82	99	98	93	95	97	98	98	98	98	98	97	97	97											
Micronesia (Federated States of)	76	78	81	83	82	83	88	89	89	90	84	91	80	89	85	81	87	77	79	78	80	82	82	82	73	65	56	47
Monaco	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99											
Mongolia	99	99	99	98	99	99	96	97	96	98	98	98	98	98	98	95	93	92	91	88	93	88	67	69	47	18		
Montenegro	75	82	87	90	90	91	90	87	93	90	90																	
Morocco	99	99	99	99	99	98	98	98	97	95	95	96	95	90	92	84	43	10										
Mozambique	80	80	79	78	76	76	74	74	75	75	75	75	76	76	76	25												
Myanmar	90	89	88	75	58	40	92	91	85	85	75	62	39	8														
Namibia	92	92	88	89	84	82	83																					

Nauru	91	91	95	87	79	99	99	99	99	99	99	80	78	77	75	95	58	62	29	86	72	57	79	99	90	79	
Nepal	87	91	92	92	90	92	82	89	82	82	69	41	27	2													
Netherlands	93	94	92	51	20	20																					
New Zealand	92	92	93	93	93	95	90	93	90	88	87	87	88	89	89	90	90	89	87	99	94	88	81	74	67		
Nicaragua	98	98	98	98	98	98	98	98	97	93	88	86	79	86	85	87	83	80									
Niger	67	65	68	67	71	75	70	71																			
Nigeria	49	49	49	46	42	46	49	63	41	42	27	18															
Niue	99	99	99	99	98	98	99	99	99	98	99	85	99	94	98	99	99	99	99	99	99	90	99	99	99	99	
Oman	99	99	99	98	98	99	99	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	96	99	94	
Pakistan	72	72	72	72	72	74	82	78	65	75	78	70	65	63													
Palau	98	90	99	99	89	91	80	69	92	91	98	98	98	99	99	98	96	96	96	90	99	99	73	94	75	89	
Panama	73	73	80	80	85	87	94	85	86	85	88	92	95	98	98	98											
Papua New Guinea	66	67	67	73	68	66	56	66	59	61	71	63	60	67	60	59	57	54	47	44	43	23	20	7	12	19	20
Paraguay	93	93	87	86	87	89	89	85	87	86	92	92	90	86													
Peru	89	90	88	88	95	91	93	93	93	93	94	94	92	65													
Philippines	86	60	67	89	88	87	77	85	88	87	77	49	48	52	42	45	7	32	30	31	35	38					
Poland	96	96	96	96	97	98	98	98	98	98	98	98	98	97	98	95	99	99	99	97	56	23	4	1	1	1	
Portugal	98	98	98	98	98	97	97	96	97	97	97	94	94	94	82	70	58	61	64	49	34	6					
Qatar	98	99	89	97	93	93	97	99	97	94	96	97	97	93	98	93	89	92	92	90	90	90	90	93	89	86	
Republic of Korea	98	98	99	99	99	99	94	94	94	91	99	99	92	91	92	89	93	88	82	88	93	99					
Republic of Moldova	90	88	92	91	94	96	98	89	97	95	98	99	99	99	99	94	92	94	93	87	81	19					
Romania	90	90	94	96	96	96	98	95	97	99	99	98	99	98	99	98	98	99	99	99	99						
Russian Federation	97	97	97	97	97	97	97	98	98	98	98	97	96	94	81	43											
Rwanda	98	98	98	98	98	97	97	97	97	97	99	95	89	96	88												
Saint Kitts and Nevis	98	94	98	97	98	98	96	97	98	99	99	99	96	99	96	99	99	99	99								
Saint Lucia	95	99	99	99	98	99	97	95	96	99	85	95	91	84	14												
Saint Vincent and the Grenadines	98	98	98	97	96	96	99	99	99	99	99	99	99	31													
Samoa	55	59	56	60	64	58	57	44	12	46	35	41	54	83	86	89	89	94	97	99	98	96	94	1	18		
San Marino	66	75	80	69	96	86	78	92	87	92	95	95	97	96	95	95	94	97		97	98	98	98	98	99	99	
Sao Tome and Principe	96	96	95	97	96	96	98	98	99	87	75	96	70	43													
Saudi Arabia	98	98	98	98	98	98	98	98	98	96	96	97	96	95	97	95	93	92	95	91	92	93	94	93	89	86	66
Senegal	93	89	89	92	91	92	89	86	88	94	89	84	54														
Serbia	91	94	92	91	97	94	89	93	93	99	93	65	89														
Seychelles	97	98	99	99	99	99	99	99	99	99	99	99	99	99	99	96	98	99	97	97	98	99					
Sierra Leone	84	86	83	92	91	89	86	84	77	63																	
Singapore	96	96	96	97	97	96	96	96	97	96	95	96	94	95	95	95	97	96	96	97	96	96	94	90	78	76	74
Slovakia	96	96	97	98	99	99	99	99	99	99	99	99	99	99	99	99	98										
Solomon Islands	99	98	88	94	99	99	90	92	89	90	99	83	81	79	75	83	81	79	75	73	97	68	65	53			
Somalia	42	42	42	42																							
South Africa	66	75	80	70	68	76	71	74	76	83	83	79	76	71	72	72	73	73	74	74							

Table S5: Distribution of hepatitis D virus genotypes in different countries and regions.

Location	Year	HDV-1	HDV-2	HDV-3	HDV-4	HDV-5	HDV-6	HDV-7	HDV-8
Africa									
Cameroon ²	2011	22				1	1	1	
CAR ³	1998	1							
CAR ⁴	2014	6							
Chad ⁴	2014	3							
Egypt ⁵	2003	9							
Egypt ⁶	2016		12						
Gabon ⁷	2008	1							2
Gabon ⁸	2009	10						2	5
Gabon ⁹	2016	2							14
Mauritania ¹⁰	2012	28				3			
Mauritania ¹¹	2012	25				3			
Mauritania ¹²	2013	40				7			
Nigeria ⁴	2014	8				5	2		
Nigeria ¹³	2016	14							
Tunisia ¹⁴	2015	11							
Asia									
China Mainland ¹⁵	1996	10							
China Mainland ¹⁶	2015	3							

China Taiwan ¹⁷	1995	24	64	
China Taiwan ¹⁸	1999	4	7	
China Taiwan ¹⁹	2002	13	20	
China Taiwan ²⁰	2003		4	
China Taiwan ²¹	2006	51	74	8
China Taiwan ²²	2011	5	43	53
China Taiwan ²³	2012	11.80%	27.60%	60.50%
China Taiwan ²⁴	2014		2	10
China Taiwan ²⁵	2015	13	54	86
China Taiwan ²⁶	2015		7	
Iran ²⁷	2008	22		
Iran ²⁸	2013	3		
Iran ²⁹	2013	12		
Iran ³⁰	2014	2		
Iran ³¹	2015	38		
Iran ³²	2015	10	2	
Japan ³³	1999		6	
Japan ³⁴	2000		6	
Japan ³⁵	2003	2	31	
Japan ³⁶	2003		1	
Japan ³⁷	2005		3	
Korean ³⁸	2011	2		

Lebanon ³⁹	2007	1		
Mongolia ⁴⁰	2004	20		
Mongolia ⁴¹	2005	117		
Mongolia ⁴²	2005	27		
Mongolia ⁴³	2005	1		
Mongolia ⁴⁴	2006	32		
Pakistan ⁴⁵	2007	23		
Pakistan ⁴⁶	2014	21		
Tajikistan ⁴⁷	2008	10		
Thailand ⁴⁸	2002	8		
Turkey ⁴⁹	1997	5		
Turkey ⁵⁰	2004	13		
Turkey ⁵¹	2011	9		
Turkey ⁵²	2012	34		
Turkey ⁵³	2014	40		
Vietnam ⁵⁴	2013	19	2	
Vietnam ⁵⁵	2015	12	5	
Yakutia, Russia ⁵⁶	2001	14	15	
Europe				
Albania ⁴⁹	1997	10		
France ⁵⁷	2014	12	1	1
Greece ⁴⁹	1997	30		

Italy ⁵⁸	1996	45		
Poland ⁵⁹	2006	4		
Romania ⁶⁰	2013	40		
Russia ⁶¹	2000	4		
Spain ⁶²	1998	37		
Switzerland ⁶³	2016	66	4	
UK ⁶⁴	2012	22	17	1
UK ⁶⁵	2013	2		
UK ⁶⁶	2015	19	6	
North America				
Canada ⁶⁷	1999	1		
USA ⁴⁹	1997	22		
Oceania				
Kiribati ⁶⁸	2014	14		
South America				
Brazil ⁶⁹	2006	22	18	
Brazil ⁷⁰	2009		14	
Brazil ⁷¹	2011		1	2
Brazil ⁷²	2011	1		
Brazil ⁷³	2014		90	
Brazil ⁷⁴	2014		38	
Brazil ⁷⁵	2015	4	48	

Brazil ⁷⁶	2016			4
Colombia ⁷⁷	2011		5	
Colombia ⁷⁸	2015		7	
Peru ⁷⁹	1996		37	
Venezuela ⁸⁰	2001		3	
Venezuela ⁸¹	2001	7	5	

Table S6: The HDV prevalence in general individuals with different SDI levels

SDI	Location	Year	Events	N	_ES	_seES	_LCI	_UCI	_WT
high SDI	USA	1990	0	129	0.0000	0.0879	0.0000	0.0289	1.5104
high SDI	Italy	2012	24	22758	0.0011	0.0066	0.0007	0.0016	2.2864
high SDI	Italy	2008	130	9997	0.0130	0.0100	0.0110	0.0154	2.2778
high SDI	Greece	1987	0	329	0.0000	0.0551	0.0000	0.0115	1.9051
high SDI	France	2013	123	39911011	0.0000	0.0002	0.0000	0.0000	2.2931
high SDI	France	1988	0	50	0.0000	0.1407	0.0000	0.0713	0.9846
high SDI	Taiwan	1989	1	130	0.0077	0.0875	0.0014	0.0423	1.5143
high SDI	Taiwan	1988	5	1200	0.0042	0.0289	0.0018	0.0097	2.1717
high SDI	Japan	2000	32	4728	0.0068	0.0145	0.0048	0.0095	2.2610
high SDI	Japan	1997	46	2028	0.0227	0.0222	0.0170	0.0301	2.2197

high SDI	Japan	1989	0	519	0.0000	0.0439	0.0000	0.0073	2.0308
high SDI	Japan	1989	0	519	0.0000	0.0439	0.0000	0.0073	2.0308
high SDI	Saudi Arabia	1986	9	608	0.0148	0.0405	0.0078	0.0279	2.0653
high SDI	Saudi Arabia	2004	67	19250	0.0035	0.0072	0.0027	0.0044	2.2852
high SDI	Saudi Arabia	2004	2	3147	0.0006	0.0178	0.0002	0.0023	2.2453
high SDI	Australia	2013	110	2314	0.0475	0.0208	0.0396	0.0570	2.2285
high-middle SDI	Yugoslavia	1993	0	1140	0.0000	0.0296	0.0000	0.0034	2.1657
high-middle SDI	Romania	2010	0	137	0.0000	0.0853	0.0000	0.0273	1.5410
high-middle SDI	Iran	2008	8	1850	0.0043	0.0232	0.0022	0.0085	2.2129
high-middle SDI	Iran	2012	1	3690	0.0003	0.0165	0.0000	0.0015	2.2522
high-middle SDI	Turkey	2014	4	12423	0.0003	0.0090	0.0001	0.0008	2.2808
high-middle SDI	China, Guangdong	2005	60	4886	0.0123	0.0143	0.0096	0.0158	2.2621
high-middle SDI	Guam	1988	0	50	0.0000	0.1407	0.0000	0.0713	0.9846

middle SDI	Brazil	1988	33	574	0.0575	0.0417	0.0412	0.0796	2.0533
middle SDI	Brazil	1995	3	798	0.0038	0.0354	0.0013	0.0110	2.1153
middle SDI	Brazil	2005	47	2656	0.0177	0.0194	0.0133	0.0235	2.2366
middle SDI	Colombia	2011	9	697	0.0129	0.0379	0.0068	0.0244	2.0918
middle SDI	Colombia	2015	10	861	0.0116	0.0341	0.0063	0.0212	2.1274
middle SDI	Venezuela	2010	6	645	0.0093	0.0394	0.0043	0.0201	2.0772
middle SDI	Albania	1995	6	1348	0.0045	0.0272	0.0020	0.0097	2.1844
middle SDI	Vietnam	2007	2	837	0.0024	0.0346	0.0007	0.0087	2.1230
middle SDI	Mongolia	2004	20	249	0.0803	0.0633	0.0526	0.1208	1.8070
middle SDI	China	1987	4	649	0.0062	0.0392	0.0024	0.0157	2.0784
middle SDI	China	2001	3	1185	0.0025	0.0290	0.0009	0.0074	2.1703
middle SDI	China	2006	0	102	0.0000	0.0988	0.0000	0.0363	1.3857
middle SDI	China	2016	2	672	0.0030	0.0386	0.0008	0.0108	2.0850

middle SDI	Philippines	1988	1	62	0.0161	0.1265	0.0029	0.0859	1.1057
low-middle SDI	Pakistan	2016	23	946	0.0243	0.0325	0.0163	0.0362	2.1413
low-middle SDI	Mauritania	2012	49	1966	0.0249	0.0226	0.0189	0.0328	2.2175
low-middle SDI	Gabon	2016	33	442	0.0747	0.0475	0.0537	0.1030	1.9911
low-middle SDI	Gabon	2008	17	1187	0.0143	0.0290	0.0090	0.0228	2.1705
low-middle SDI	Gabon	1995	5	303	0.0165	0.0574	0.0071	0.0380	1.8779
low-middle SDI	Micronesia	1988	0	260	0.0000	0.0620	0.0000	0.0146	1.8234
low-middle SDI	Marshall	1988	2	50	0.0400	0.1407	0.0110	0.1346	0.9846
low-middle SDI	Vanuatu	1988	0	92	0.0000	0.1040	0.0000	0.0401	1.3289
low SDI	Yemen	1993	2	1074	0.0019	0.0305	0.0005	0.0068	2.1583
low SDI	Benin	1990	28	499	0.0561	0.0447	0.0391	0.0799	2.0215
low SDI	Benin	2014	5	283	0.0177	0.0594	0.0076	0.0407	1.8542
low SDI	Niger	1987	12	238	0.0504	0.0648	0.0291	0.0860	1.7895

low SDI	Ethiopia	1986	3	500	0.0060	0.0447	0.0020	0.0175	2.0220
low SDI	Kiribati	1988	13	50	0.2600	0.1407	0.1587	0.3955	0.9846
low SDI	Papua New Guinea	1988	1	50	0.0200	0.1407	0.0035	0.1050	0.9846

Table S7: Sensitive analysis in HBsAg positive populations

Study	Coef.	[95% Conf.	Interval]
Benin	0.1613	0.1433	0.1794
Benin	0.1621	0.1440	0.1802
Ethiopia	0.1621	0.1440	0.1802
Gabon	0.1609	0.1429	0.1790
Gabon	0.1620	0.1439	0.1801
Gabon	0.1622	0.1441	0.1803
Ghana	0.1621	0.1440	0.1802
Mauritania	0.1618	0.1437	0.1799
Mauritania	0.1620	0.1439	0.1801
Mauritania	0.1617	0.1436	0.1799
Niger	0.1616	0.1436	0.1797
Niger	0.1624	0.1443	0.1805
Egypt	0.1625	0.1444	0.1806
Egypt	0.1618	0.1437	0.1799
Kenya	0.1621	0.1439	0.1802
Somalia	0.1610	0.1429	0.1790
Zimbabwe	0.1620	0.1439	0.1801
Tunisia	0.1625	0.1444	0.1807
Tunisia	0.1630	0.1448	0.1811

Canada	0.1627	0.1446	0.1808
USA	0.1621	0.1440	0.1801
USA	0.1625	0.1443	0.1806
USA	0.1622	0.1441	0.1803
USA	0.1626	0.1445	0.1808
USA	0.1616	0.1435	0.1797
USA	0.1630	0.1448	0.1811
Argentina	0.1630	0.1448	0.1811
Brazil	0.1612	0.1432	0.1793
Brazil	0.1619	0.1438	0.1800
Brazil	0.1612	0.1431	0.1793
Brazil	0.1609	0.1429	0.1790
Brazil	0.1625	0.1444	0.1806
Brazil	0.1622	0.1441	0.1803
Colombia	0.1625	0.1444	0.1806
Colombia	0.1615	0.1434	0.1796
Peru	0.1599	0.1419	0.1779
Venezuela	0.1619	0.1438	0.1800
Venezuela	0.1622	0.1441	0.1802
Venezuela	0.1609	0.1429	0.1790
Venezuela	0.1615	0.1434	0.1796
Mongolia	0.1607	0.1427	0.1788

China	0.1625	0.1444	0.1806
China	0.1629	0.1448	0.1810
China	0.1626	0.1445	0.1807
China	0.1622	0.1441	0.1802
China	0.1622	0.1441	0.1803
China	0.1633	0.1449	0.1818
China	0.1623	0.1442	0.1804
China	0.1626	0.1445	0.1807
China	0.1629	0.1448	0.1811
China	0.1628	0.1446	0.1811
China	0.1630	0.1448	0.1811
China	0.1623	0.1442	0.1804
China	0.1626	0.1445	0.1807
China	0.1626	0.1444	0.1807
China	0.1624	0.1443	0.1805
China	0.1623	0.1442	0.1804
China	0.1627	0.1446	0.1808
China	0.1621	0.1440	0.1802
China, Hong Kong	0.1629	0.1448	0.1811
China, Taiwan	0.1622	0.1441	0.1803
China, Taiwan	0.1627	0.1445	0.1808
China, Taiwan	0.1628	0.1447	0.1809

China, Taiwan	0.1627	0.1445	0.1808
China, Taiwan	0.1624	0.1443	0.1805
China, Taiwan	0.1616	0.1436	0.1797
China, Taiwan	0.1617	0.1437	0.1798
China, Taiwan	0.1611	0.1430	0.1792
China, Taiwan	0.1619	0.1438	0.1801
China, Taiwan	0.1621	0.1440	0.1803
India	0.1629	0.1447	0.1810
India	0.1626	0.1445	0.1807
India	0.1624	0.1443	0.1805
India	0.1600	0.1420	0.1779
India	0.1618	0.1437	0.1799
India	0.1621	0.1440	0.1802
Iran	0.1624	0.1443	0.1805
Iran	0.1623	0.1442	0.1804
Iran	0.1625	0.1444	0.1807
Iran	0.1629	0.1448	0.1810
Iran	0.1622	0.1441	0.1803
Iran	0.1627	0.1446	0.1808
Iran	0.1627	0.1444	0.1809
Iran	0.1629	0.1448	0.1810
Iran	0.1625	0.1443	0.1807

Iran	0.1619	0.1438	0.1801
Iran	0.1619	0.1438	0.1800
Iran	0.1625	0.1444	0.1806
Japan	0.1624	0.1443	0.1806
Japan	0.1616	0.1435	0.1797
Japan	0.1620	0.1439	0.1801
Japan	0.1625	0.1443	0.1806
Japan	0.1626	0.1445	0.1807
Japan	0.1628	0.1447	0.1809
Japan	0.1627	0.1445	0.1809
Japan	0.1626	0.1445	0.1807
Japan	0.1617	0.1436	0.1798
Japan	0.1625	0.1444	0.1806
Japan	0.1627	0.1445	0.1809
Japan	0.1627	0.1446	0.1809
Korea	0.1630	0.1449	0.1811
Kuwait	0.1624	0.1442	0.1805
Lebanon	0.1628	0.1446	0.1809
Lebanon	0.1619	0.1438	0.1800
Pakistan	0.1623	0.1441	0.1804
Pakistan	0.1612	0.1431	0.1793
Pakistan	0.1586	0.1409	0.1763

Pakistan	0.1628	0.1442	0.1813
Pakistan	0.1615	0.1434	0.1796
Pakistan	0.1613	0.1433	0.1794
Pakistan	0.1589	0.1411	0.1767
Philippines	0.1621	0.1440	0.1802
Saudi Arabia	0.1623	0.1442	0.1804
Saudi Arabia	0.1621	0.1440	0.1802
Saudi Arabia	0.1625	0.1444	0.1807
Saudi Arabia	0.1623	0.1443	0.1804
Saudi Arabia	0.1623	0.1442	0.1804
Saudi Arabia	0.1626	0.1444	0.1807
Tajikistan	0.1618	0.1437	0.1798
Thailand	0.1623	0.1442	0.1804
Turkey	0.1624	0.1443	0.1805
Turkey	0.1618	0.1437	0.1800
Turkey	0.1617	0.1436	0.1799
Turkey	0.1626	0.1444	0.1808
Turkey	0.1630	0.1448	0.1812
Turkey	0.1600	0.1421	0.1780
Vietnam	0.1626	0.1445	0.1807
Vietnam	0.1620	0.1439	0.1801
Yemen	0.1625	0.1444	0.1806

Yemen	0.1623	0.1442	0.1804
Yemen	0.1624	0.1443	0.1805
Yemen	0.1622	0.1441	0.1802
Albania	0.1623	0.1442	0.1804
Belgium	0.1628	0.1446	0.1809
Denmark	0.1621	0.1440	0.1802
France	0.1623	0.1442	0.1803
France	0.1631	0.1449	0.1813
Germany	0.1629	0.1448	0.1810
Germany	0.1629	0.1446	0.1812
Greece	0.1620	0.1440	0.1801
Greece	0.1626	0.1445	0.1807
Greece	0.1615	0.1434	0.1795
Italy	0.1627	0.1445	0.1808
Italy	0.1625	0.1443	0.1807
Italy	0.1623	0.1441	0.1804
Italy	0.1622	0.1440	0.1804
Italy	0.1614	0.1433	0.1795
Italy	0.1626	0.1444	0.1807
Italy	0.1619	0.1438	0.1801
Italy	0.1622	0.1441	0.1803
Italy	0.1623	0.1442	0.1804

Italy	0.1610	0.1429	0.1790
Italy	0.1619	0.1438	0.1800
Italy	0.1614	0.1433	0.1795
Italy	0.1612	0.1432	0.1793
Italy	0.1612	0.1432	0.1793
Norway	0.1626	0.1445	0.1807
Portugal	0.1629	0.1447	0.1811
Romania	0.1620	0.1439	0.1801
Romania	0.1614	0.1433	0.1795
Romania	0.1617	0.1436	0.1799
Russia	0.1610	0.1430	0.1791
Spain	0.1629	0.1448	0.1810
Spain	0.1626	0.1445	0.1807
Spain	0.1625	0.1444	0.1806
UK	0.1607	0.1427	0.1787
UK	0.1630	0.1448	0.1813
UK	0.1629	0.1447	0.1810
UK	0.1619	0.1438	0.1800
UK	0.1626	0.1444	0.1807
Northern Ireland	0.1623	0.1442	0.1803
UK	0.1627	0.1446	0.1808
Yugoslavia	0.1628	0.1447	0.1809

Yugoslavia	0.1628	0.1447	0.1809
Kiribati	0.1592	0.1413	0.1771
Nauru	0.1615	0.1434	0.1796
Multicenter	0.1614	0.1434	0.1795
USA	0.1621	0.1440	0.1802
USA	0.1621	0.1440	0.1801
USA	0.1624	0.1443	0.1805
USA	0.1606	0.1426	0.1786
USA	0.1614	0.1433	0.1795
USA	0.1621	0.1440	0.1802
Brazil	0.1621	0.1440	0.1801
China	0.1614	0.1433	0.1795
China	0.1624	0.1443	0.1805
China, Hong Kong	0.1610	0.1430	0.1791
China, Taiwan	0.1579	0.1403	0.1756
China, Taiwan	0.1615	0.1435	0.1795
China, Taiwan	0.1594	0.1415	0.1773
China, Taiwan	0.1604	0.1424	0.1784
China, Taiwan	0.1610	0.1430	0.1790
China, Taiwan	0.1610	0.1430	0.1790
China, Taiwan	0.1620	0.1440	0.1801
China, Taiwan	0.1578	0.1402	0.1755

Iran	0.1618	0.1438	0.1799
Japan	0.1620	0.1439	0.1801
Malaysia	0.1615	0.1434	0.1796
Thailand	0.1618	0.1437	0.1799
Greece	0.1617	0.1436	0.1797
Italy	0.1621	0.1440	0.1802
Italy	0.1607	0.1427	0.1787
Italy	0.1613	0.1432	0.1793
Italy	0.1612	0.1432	0.1793
Italy	0.1612	0.1431	0.1792
Norway	0.1619	0.1438	0.1801
Northern Ireland	0.1621	0.1440	0.1802
Poland	0.1617	0.1436	0.1798
Romania	0.1617	0.1436	0.1798
Romania	0.1613	0.1432	0.1794
Romania	0.1613	0.1432	0.1794
Spain	0.1585	0.1408	0.1762
Spain	0.1595	0.1416	0.1774
Yugoslavia	0.1609	0.1429	0.1790
Yugoslavia	0.1616	0.1436	0.1797
UK	0.1626	0.1445	0.1807
UK	0.1618	0.1438	0.1799

UK	0.1616	0.1435	0.1797
UK	0.1619	0.1438	0.1799
UK	0.1612	0.1432	0.1793
Australia	0.1616	0.1435	0.1796
USA	0.1627	0.1446	0.1808
USA	0.1621	0.1440	0.1802
USA	0.1624	0.1443	0.1805
USA	0.1620	0.1439	0.1801
USA	0.1625	0.1443	0.1806
USA	0.1620	0.1440	0.1801
China, Taiwan	0.1622	0.1441	0.1803
China, Taiwan	0.1623	0.1442	0.1804
China, Taiwan	0.1608	0.1427	0.1788
China, Taiwan	0.1614	0.1434	0.1795
China, Taiwan	0.1615	0.1434	0.1796
China, Taiwan	0.1617	0.1436	0.1798
China, Taiwan	0.1609	0.1428	0.1789
China, Taiwan	0.1609	0.1428	0.1789
China, Taiwan	0.1613	0.1432	0.1794
China, Taiwan	0.1624	0.1443	0.1805
China, Taiwan	0.1621	0.1441	0.1802
China, Taiwan	0.1620	0.1439	0.1801

France	0.1620	0.1439	0.1801
Italy	0.1618	0.1437	0.1799
Romania	0.1614	0.1433	0.1795
Romania	0.1614	0.1433	0.1795
Spain	0.1621	0.1440	0.1802
Australia	0.1626	0.1444	0.1807
Combined	0.1619	0.1439	0.1800

Table S8: Methods for anti-HDV antibody used in included studies

Location	Year	Marker	Assay	Manufacturer
Benin	1990	HDV antibodies	EIA	Abbott Laboratories, North Chicago, USA
Benin	2014	anti-HDV	EIA	ETI-AB-DELTAK-2, DiaSorin, Saluggia, Italy
Ethiopia	1986	Anti-delta	RIA	Abbott Laboratories, Stockholm, Sweden
Gabon	2016	anti-delta (total)	~	Abbott/Murex Diagnostic Division, Wiesbaden, Germany
Gabon	2008	anti-delta	~	Abbott, Wiesbaden, Germany
Gabon	1995	Anti-delta and hepatitis delta virus antigen (HDV)	EIA	Hepanostika HDV; Organon.
Mauritania	2012	Hepatitis Delta antibodies	ELISA	Diasorin, Antony, France
Mauritania	2012	Anti-HDV	ELISA	Diasorin, Antony, France
Niger	1987	Anti-Delta	~	Abbott Laboratories (USA)
USA	1990	anti-delta	~	Abbott Laboratories
Brazil	1988	anti-HDV	EIA	Disease Control, Atlanta, Georgia, USA
Brazil	1995	anti-HD	ELISA	Abbott
Brazil	2005	antibody to HDV	~	Abbott, Abbott Park, IL
Colombia	2011	anti-HDV	~	~
Colombia	2015	anti-HDV IgM/IgG	ELISA	DIA.PRO, Italy
Venezuela	2010	anti-HDV	EIA: ETI-AB-DELTAK-2	DiaSorin, Italy
Venezuela	2010	anti-HDV	EIA: ETI-AB-DELTAK-2	DiaSorin, Italy
China	2016	anti-HDV IgG	ELISA kit	Wantai Biological Pharmacy, Beijing, China
China	1987	anti-HD	RIA	Abbott Laboratories, North Chicago, 11
China	2001	anti-HDV	~	Beijing zhongshan biotechnology company
China	2005	anti-HDV IgG	ELISA	Henan Huamei Bioengineering Co., Ltd.
China, Taiwan	1989	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	1988	anti-HDV	~	Abbott Laboratories, North Chicago, IL
Iran	2008	anti-HDV	ELISA	Radim SpA, Pomezia, Italy
Iran	2012	anti-HDV	ELISA	Biovendor, Germany
Japan	2000	anti-HDV IgG	EIA	Abbott
Japan	1997	anti-HDV	RIA	Dinabot, Tokyo, Japan
Japan	1989	anti-HDV	RIA	Abbott Laboratories, North Chicago, Illinois
Pakistan	2016	anti-HDV	ELISA	MBS-SRL, Milano, Italy
Saudi Arabia	1986	Anti-delta	RIA	Abbott, Ill., USA
Saudi Arabia	2004	anti-delta IgG	EIA	Abbott
Saudi Arabia	2004	anti-delta IgG	EIA	Abbott
Turkey	2014	total anti-delta antibody	EIA	the Alisei system (Radim, Italy)
Vietnam	2007	Anti-HDV	ETI-ABDELTAK-2	DiaSorin, Saluggia, Italy

Yemen	1993	Anti-HDV, total antibody to delta antigen	EIA	Abbott
Yemen	1993	Anti-HDV, total antibody to delta antigen	EIA	Abbott
Yemen	1993	Anti-HDV, total antibody to delta antigen	EIA	Abbott
Albania	1995	anti-HDV	ELISA ETI-AB Deltak	Sorin, Saluggia, Italy
France	2013	HDV antibodies (Ab)	ETI-AB-DELTAK-2 assay	Diasorin, Saluggia, Italy
Greece	1987	anti-HDV	RIA	Abbott lab
Italy	2012	anti-HDV	ELISA ETI-AB-DELTAK-2 (anti-HD EIA)	Diasorin
Italy	2008	anti-HDV	EIA	~
Romania	2010	anti HDV IgG antibodies	ELISA	DRG, Germany
Yugoslavia	1993	anti-HDV antibody	EIA	Abbott
Australia	2013	HDV-Ab	EIA/ (PCR)	~
Nauru	1989	anti-HDV	RIA microtitre solid-phase radioimmunoassay (SPRIA)	self-produced
multicenter	1988	Anti-HDV	ELISA	Abbott
Benin	1990	HDV antibodies	EIA	Abbott
Benin	2014	anti-HDV antibodies	EIA : ETI-AB-DELTAK-2	DiaSorin, Saluggia, Italy
Ethiopia	1986	Anti-Delta	RIA	~
Gabon	2016	anti-delta (total)	~	Abbott/Murex
Gabon	2008	anti-delta	~	Murex (Abbott, Wiesbaden, Germany).
Gabon	1995	Anti-delta (and hepatitis delta virus antigen)	EIA	Organon
Ghana	2014	anti-delta	ELISA	Globe Diagnostics, Italy
Mauritania	2012	Hepatitis Delta antibodies	ELISA	Diasorin, Antony, France
Mauritania	2012	Hepatitis Delta antibodies	ELISA	Diasorin, Antony, France
Mauritania	2012	Total HDV Ab	ETI-AB-DELTA-2	DiaSorin S.A., Antony, France
Niger	1987	Anti-D	~	Abbott
Niger	2016	(Total anti-HDV antibodies (IgG and IgM))	ELISA	ETI-AB-DELTAK-2, Dia-Sorin, Italy/QIAgen, Hilden,Germany
Egypt	2013	IgG antibodies to hepatitis delta virus (HDV)	ELISA	DiaSorin, Italy
Egypt	2003	anti-HDV antibodies (HDV RNA)	EIA	Abbott Diagnostic Division, Germany
Kenya	1986	delta Ag/anti-delta	RIA	self-produced
Somalia	1991	anti-delta/ (delta antigen)	RIA/ (EIA)	Abbott/(Nochtech)
Zimbabwe	1988	anti-HD	ELISA	Abbott Laboratories,Chicago, IL
Tunisia	2016	anti-HDV antibodies (IgG)	EIA	Globe Diagnostics®, Italy
Tunisia	2015	total anti-HDV	ELISA	InGen-France
Canada	1986	anti-HDV	EIA	Abbott Laboratories, North Chicago, Illinois
USA	1990	Anti-delta	~	Abbott
USA	2013	HDV antigen or anti-HDV	~	Quest assays
USA	1988	IgG and IgM antibodies: anti-delta (δ) antibody.	RIA	~
USA	1988	IgM antibodies	RIA	Govindarajan S,Smedile A
USA	1988	IgM antibodies	RIA	Govindarajan S,Smedile A
USA	2015	anti-HDV antibody (HDV Ab), HDV RNA	~	~
Argentina	1987	anti-Delta	RIA	Abbott

Brazil	1988	anti-HDV	ELISA	~
Brazil	1995	anti-HDV	EIA	Abbott
Brazil	2014	anti-HD IgG	ELISA kit	DiaSorin, Saluggia, Italy
Brazil	2012	ant-HD IgG	ELISA	DiaSorin, S.p.A., Saluggia, Italy
Brazil	2014	anti-HD	ELISA	DiaSorin, Italy
Brazil	2016	anti-HD	ELISA	DiaSorin, Italy
Colombia	2011	Anti-HDV	ELISA	DiaSorin, Italy
Colombia	2015	anti-HDV IgM/IgG	ELISA	DIA.PRO, Italy
Peru	1996	anti-HD	EIA	all Abbott, Abbott Park, IL
Venezuela	2010	anti-HDV	ETI-AB-DELTAK-2	DiaSorin, Italy
Venezuela	2010	anti-HDV	ETI-AB-DELTAK-2	DiaSorin, Italy
Venezuela	1992	total antibody to hepatitis delta antigen, immunoglobulin M antibody to hepatitis delta antigen	EIA	self-produced
Venezuela	1992	total antibody to hepatitis delta antigen, immunoglobulin M antibody to hepatitis delta antigen	EIA	self-produced
China	2016	anti-HDV IgG	ELISA	Wantai Biological Pharmacy, Beijing, China
China	1987	anti-HD	RIA	Abbott Laboratories, North Chicago, 111
China	2001	anti-HDV	ELISA	Beijing zhongshan biotechnology company
China	2000	anti-HD IgM	EIA	Beijing Gunda Biotechnology Co., Ltd.
China	2014	anti-HD IgM	ELISA	Zhongshan Biotech Co, China
China	1988	Anti-HD	ELISA	Abbott Laboratories, North Chicago, Illinois, USA) and Deltassay (Noctech, Ltd)
China	1998	Anti-HD	ELISA	Institute of virus research, Chinese academy of preventive medicine
China	2012	anti-HDV	ELISA	Abbott murex
China	2012	anti-HDV	ELISA	Wantai Biological Pharmacy, Beijing, China
China	2000	Anti-HD	ELISA	Henan Institute of Medical Sciences
China	2013	Anti-HD	ELISA	Shanghai Kehua Biotechnology Co., Ltd.
China	2003	anti-HDV IgG /IgM	~	Shandong Weifang 3V group company
China	2002	Anti-HD	ELISA	Luoyang Huamei Bioengineering Co., Ltd.
China	2000	anti-HDV	RIA	Beijing northern immune reagents Research Institute
China, Hong Kong	1992	anti-HDV	EIA	Abbott Laboratories, Chicago, IL
China, Taiwan	1989	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	1988	anti-HDV	~	Abbott Laboratories, North Chicago, IL
China, Taiwan	1988	Anti-Delta	RIA	Abbott Laboratories
China, Taiwan	1989	anti-HD	RIA	Abbott Laboratories, North Chicago. 111, USA
China, Taiwan	1989	anti-HD	RIA	Abbott Laboratories, North Chicago. 111, USA
China, Taiwan	1990	total and IgM anti-HD, HDAg	EIA	Noctech Ltd, Dublin, Ireland
China, Taiwan	1989	anti-HD	RIA	Abbott Laboratories, Chicago, Illinois
China, Taiwan	1988	anti-HD	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	1990	anti-HD (total)	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	1997	anti-HDV	RIA	Abbott Laboratories, Chicago, IL, USA

India	2015	IgG anti-HDV	EIA	Wantai, Beijing, China and Diasorin, Saluggia, Italy
India	2005	IgG antibodies against HDV	~	Abbott Laboratories, USA
India	2008	anti-HDV IgM+IgG	~	DiaSorin, Saluggia, Italy
India	1992	anti-HDV	ELISA	Abbott
India	1988	anti-HDV+HDAg	ELISA	Abbott+Dr Mario Rizzetto
India	1995	anti-HDV IgG	ELISA	Abbott Laboratories (USA)
Iran	2008	anti-HDV	ELISA	Radim SpA, Pomezia, Italy
Iran	2012	anti-HDV	ELISA	Biovendor, Germany
Iran	2014	anti-HDV IgG	ELISA	Diapro Italy
Iran	2013	anti-HDV	ELISA	DIA.PRO
Iran	2008	anti-HDV (IgG +IgM)	ELISA	DIA. PRO, Italy
Iran	2011	total anti-HDV	ELISA	Diapro, Italy
Iran	2009	anti-HDV (IgG +IgM)	EIA	Abbott Chicago, IL, USA
Iran	2014	anti-HDAb	ELISA	Radim SpA, Rome, Italy
Iran	2009	Anti-HDV antibodies	ELISA	DiaSorin, Italy
Iran	2013	anti-HDV	ELISA	DiaSorin, Italy
Iran	2010	anti-HDV antibodies (IgM, IgG)	ELISA	ETI-ABDELTAK-2; Diasorin, Dietzenbach, Germany
Iran	1990	anti-HDV	EIA	Abbott Laboratories North Chicago, Ill.
Japan	2000	anti-HDV IgG	EIA	Abbott
Japan	1997	anti-HDV	RIA	Dinabot, Tokyo, Japan
Japan	1989	anti-HDV	RIA	Abbott Laboratories, North Chicago, Illinois
Japan	1993	anti-HDV	EIA	Cambridge Biotech, Dublin, Ireland
Japan	1993	anti-HDV	EIA	Cambridge Biotech, Dublin, Ireland
Japan	1992	anti-HDV	ELISA	Sanofi Fuji Levio
Japan	1990	anti-HD	RIA	Abbott Laboratories
Japan	1987	anti-HD	RIA	Abbott Laboratories
Japan	1998	anti-HDV	RIA	Dinabot, Tokyo
Japan	1995	anti-HDV	RIA	Dinabot, Tokyo
Japan	1991	anti-HDV	RIA	Abbott Laboratories
Japan	1990	anti-HDV	RIA/reconfirmed with an enzyme immunoassay (EIA)	Abbott Laboratories/Diagnostics Pasteur, Marnes-la-Cofuette, France
Korea	2011	anti-HDV	EIA ETI-AB-DELTAK-2	Diasorin, Vercelli, Italy
Kuwait	1988	d antigen /Anti-HDV antibody	RIA	self-produced
Lebanon	2006	anti-HDV	ELISA	Abbott Diagnostic Division, Wiesbaden, Germany
Lebanon	1987	(Hepatitis delta antigen (HDAg)) and total antibody to HD-Ag (anti-HD)	RIA	self-produced
Pakistan	2016	anti-HDV	ELISA	MBS-SRL, Milano, Italy
Pakistan	2014	anti-HDV	ELISA	DiaSorin
Pakistan	2009	anti-HDV	EIA	AXSym Abbott
Pakistan	2005	Anti-Delta	EIA	Abbott Chicago
Pakistan	2011	anti-HDV	~	~
Pakistan	2010	anti-HDV	3rd generation Enzyme ELISA	DIA.PRO, Diagnostic Bioprobes Srl Italy

Philippin	1987	anti-delta	RIA	Abbott Laboratories North Chicago, Illinois, USA
Saudi Arabia	1987	anti-delta	RIA	Abbott Laboratories North Chicago, Illinois, USA
Saudi Arabia	1986	anti-HD (total)	RIA	Abbott
Saudi Arabia	2004	delta antibody (IgG)	EIA	Abbott
Saudi Arabia	2004	delta antibody (IgG)	EIA	Abbott
Saudi Arabia	1988	anti-HDV	ELISA	Abbott
Saudi Arabia	1986	anti-delta	RIA	Abbott
Tajikistan	2008	anti-HDV	ELISA	RPC Diagnostics Systems, Nizhnyi Novgorod, Russia
Thailand	2002	anti-HDV	EIA ETI-ABDELTA-2	Diasorin, Vercelli, Italy
Turkey	2014	total anti-delta antibody	MEIA	microplate analyzer and the Alisei system (Radim, Italy)
Turkey	1991	anti-HDV	ELISA	Abbott Laboratories, North Chicago, Ill
Turkey	2006	anti-delta	micro-ELISA	Diapro, Diagnostic Bioprobes Srl Via Columella, Milano, Italy
Turkey	2012	anti-HDV	EIA	Diasorin, Saluggia, Italy
Turkey	2011	anti-delta	ELISA	Murex, Abbott, Portugal
Vietnam	2007	anti-HDV	EIA ETI-AB DELTAK-2	DiaSorin, Saluggia, Italy
the Yemen Republic	1993	total anti-delta antibody	EIA	Abbott
the Yemen Republic	1993	total anti-delta antibody	EIA	Abbott
the Yemen Republic	1993	total anti-delta antibody	EIA	Abbott
the Yemen Republic	1993	total anti-delta antibody	EIA	Abbott
Albania	1995	anti-HDV	micro-ELISA	Sorin, Saluggia, Italy
Belgium	2013	anti-HDV	EIA ETI-ABDELTA-2	DiaSorin S.p.A. Turin, Italy
Denmark	1991	anti-HDV	RIA	Abbott Laboratories, North Chicago, Ill., USA
France	1989	d antigen /Anti-HDV antibody	EIA	Oss, The Netherlands
France	2013	anti-HDV	EIA ETI-AB DELTAK-2	DiaSorin, Saluggia, Italy
Germany	1986	HDAg and anti-HD	Immunofluorescence	self-produced
Germany	2012	anti-HDV IgG	ETI-AB-DeltaK-2	DiaSorin S.p.A, Saluggia (Vercelli), Italy
Greece	1987	anti-HDV	RIA	Abbott Lab
Greece	1986	HDAg IgM and total antibodies to HDAg	RIA	self-produced
Greece	1990	total antibody	RIA	Sorin Biomedica, Italy
Italy	2012	ETI-AB-DELTAK-2 (anti-HD EIA) and (ETI-DELTAK-2 (HDAg EIA))	EIA	DiaSorin, Saluggia, Italy
Italy	2008	anti-HDV	EIA	~
Italy	2016	anti-HDV	EIA	~
Italy	1997	anti-HD	~	~
Italy	1992	anti-HD	~	~
Italy	2000	Anti-HDV antibodies	ELISA	~
Italy	1988	HDAg and antidelata antibody	EIA	Abbott
Italy	1988	HDAg and antidelata antibody	EIA	Abbott
Italy	1988	total anti-delta	RIA	Abbott
Italy	1988	total anti-delta	RIA	Abbott
Italy	1991	anti-HDV (total)	EIA	Abbott

Italy	1990	anti-HDV	ELISA	Abbott
Italy	1991	anti-HD	RIA	Sorin, Saluggia, Italy
Norway	1986	Anti-delta	RIA	self-produced
Portugal	2016	anti-HDV	~	~
Romania	2010	anti HDV IgG antibodies	ELISA	DRG, Germany
Romania	2015	anti HDV IgG antibodies	ELISA	~
Romania	2013	anti-HDV IgG	PCR	SmarTest Diagnostics; Orgenics, Yavne, Israel
Russia	2000	HDVAg and anti-HDV antibody	RIA	self-produced
Spain	1995	anti-HDV IgG	RIA	Sorin, Saluggia, Italy
Spain	1988	anti-HD	RIA	Abbott
Spain	1988	anti-HD	RIA	Abbott
UK	2015	Anti-HDV	EIA ETI-AB DELTAK-2	DiaSorin, Saluggia, Italy
UK	2015	Anti-HDV	EIA ETI-AB DELTAK-2	DiaSorin, Saluggia, Italy
UK	2013	total antibodies against HDV anti-HDV	EIA ETI-AB DELTAK-2	DiaSorin, Saluggia, Italy
UK	1985	Anti-delta	RIA	kindly performed by Dr MRizzetto, Department of Medicine, Turin
UK	2007	HDV Ab and IgM anti-HDV	EIA	DiaSorin, Saluggia, Italy
Northern Ireland	1991	anti-HD	Microelisa	Teknika Hepanostika
UK	1989	delta antibody	EIA	Noctech Ltd., Dublin
Yugoslavia	1993	Anti-delta	EIA	Abbott
Kiribati	1989	Anti-HDV	RIA	Abbott Laboratories, Chicago
Nauru	1989	Anti-HDV	RIA	self-produced
Multicenter	1988	Anti-HDV	ELISA	Abbott
USA	1995	Anti-HDV	EIA	Abbott Laboratories, Abbott Park, Illinois
USA	1988	IgG and IgM antibodies	RIA	self-produced
USA	1988	IgG and IgM antibody to HDV	RIA	self-produced
USA	1988	IgG and IgM antibody to HDV	RIA	self-produced
USA	2005	anti-HDV	EIA	Abbott Park, Illinois
USA	1990	anti-HDV	~	Abbott
Brazil	1999	anti-HDV	EIA	Abbott Laboratories, Diagnostic Division, Chicago, IL, USA
China	2016	anti-HDV IgG	ELISA	Wantai Biological Pharmacy, Beijing, China
China, Hong Kong	1992	anti-HDV	~	~
China, Taiwan	1988	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	1989	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	1989	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	2002	anti-HDV	EIA	Abbott Laboratories
China, Taiwan	1986	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories
China, Taiwan	1990	anti-HDV	RIA	Abbott Laboratories
Iran	2008	total anti-HDV (IgG +IgM)	ELISA	DIA. PRO, Italy

Japan	1989	anti-HDV	RIA	Abbott Laboratories
Malaysia	1994	anti-HDV	EIA	Abbott Laboratories
Thailand	2002	Anti-HDV	EIA ETI-AB DELTAK-2	Diasorin, Vercelli, Italy
Greece	1987	anti-HDV	RIA	Abbott Laboratories
Italy	2016	anti-HDV	EIA	~
Italy	1988	anti-HDV	RIA	~
Italy	1994	anti-HD and IgM anti-HD	ETI-AB-DELTAK and ETI-DELTA IgMK	Sorin
Italy	1987	anti-HDV	solidphase radioimmunoassay	Sorin, Saluggia, Italy
Italy	1988	HDAg and anti-delta antibody	EIA	Abbott Laboratories
Norway	1986	Anti-delta	EIA	self-produced
Northern Ireland	1991	Anti-HDV	microELISA	Organon Teknika Hepanostika
Poland	1992	Anti-HDV	microELISA	Organon Teknika
Romania	2015	anti-HDV IgG antibody	ELISA	~
Romania	2015	anti-HDV IgG antibody	ELISA	~
Romania	2015	anti-HDV IgG antibody	ELISA	~
Spain	1988	anti-HDV	RIA	Abbott Laboratories
Spain	1995	anti-HDV IgG antibody	RIA	Sorin, Saluggia, Italy
Yugoslavia	1993	Anti-delta	EIA	Abbott
UK	1989	Anti-delta	EIA	Noctech Ltd., Dublin
UK	1989	Anti-delta	EIA	Noctech Ltd., Dublin
UK	1989	Anti-delta	EIA	Noctech Ltd., Dublin
UK	2013	anti-HDV	EIA ETI-AB DELTAK-2	Diasorin, Italy
UK	1992	total anti-HDAg	RIA	Abbott Laboratories, Chicago, IL, USA
Australia	1989	total antibody to HDV	EIA	Abbott Laboratories, North Chicago, USA
USA	1989	Total anti-delta and IgM-specific anti-delta	EIA	self-produced
USA	1988	IgG and IgM antibodies	solid-phase-capture RIA	self-produced
USA	1988	IgG and IgM antibody to HDV	solid-phase-capture RIA	self-produced
USA	1988	IgG and IgM antibody to HDV	solid-phase-capture RIA	self-produced
USA	1988	anti-HD	solid-phase-capture RIA	self-produced
USA	1990	Anti-delta	~	Abbott Laboratories
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	1997	Anti-delta	RIA	Abbott Laboratories, Chicago, IL, USA
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL

China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL
China, Taiwan	2003	anti-HDV	RIA	Abbott Laboratories, Chicago, IL
French	1989	total and/or IgM anti-hepatitis delta antibodies	EIA	Organon Teknika (Oss, The Netherlands)
Italy	1988	anti-HDV	ELISA	Abbott
Romania	2015	anti-HDV IgG antibody	ELISA	~
Romania	2015	anti-HDV IgG antibody	ELISA	~
Spain	1988	anti-HDV	RIA	Abbott Laboratories
Australia	1989	total antibody to HDV	EIA	Abbott

“~ “ means ” unknown”

”self-produced” means that the assays mainly used the improved procedure based on previous methods (Rizzetto et al., 1980 or Govindarajan S, Smedile A).

Table S9. Citations for all sources used for estimating the prevalence of HDV in general population and HBsAg-positive population.

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