

Global burden of primary liver cancer in 2020 and predictions to 2040

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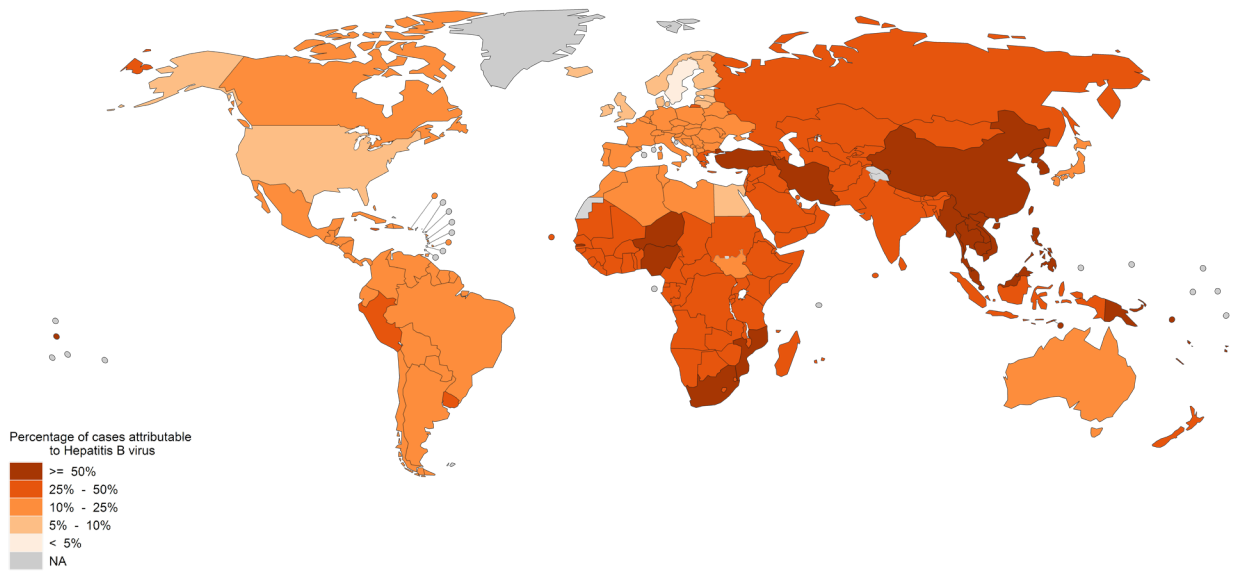
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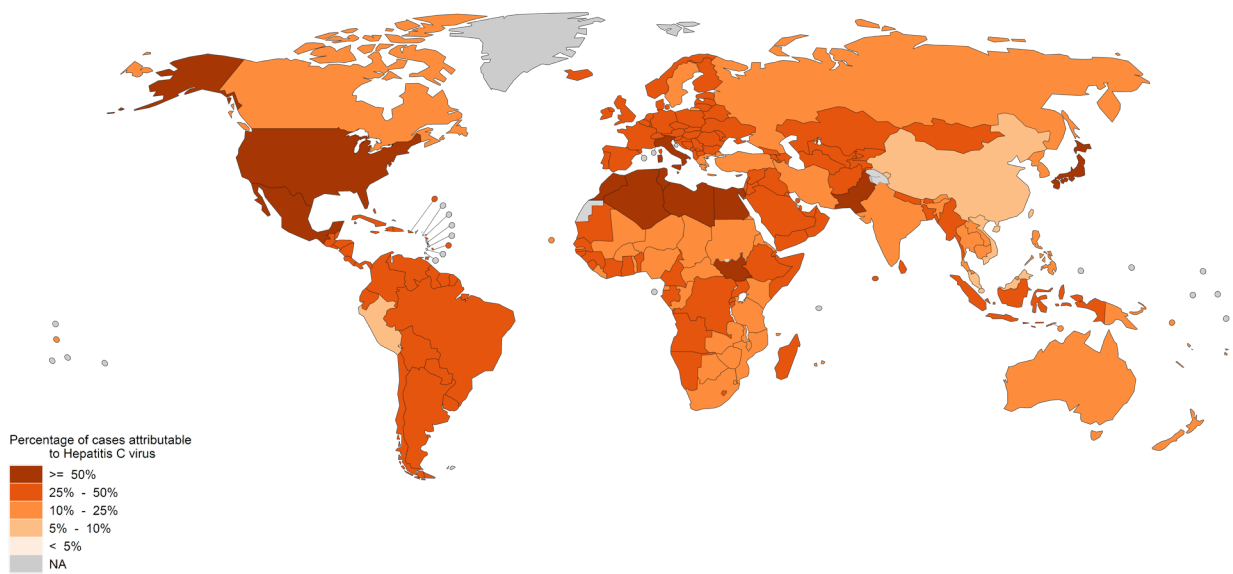
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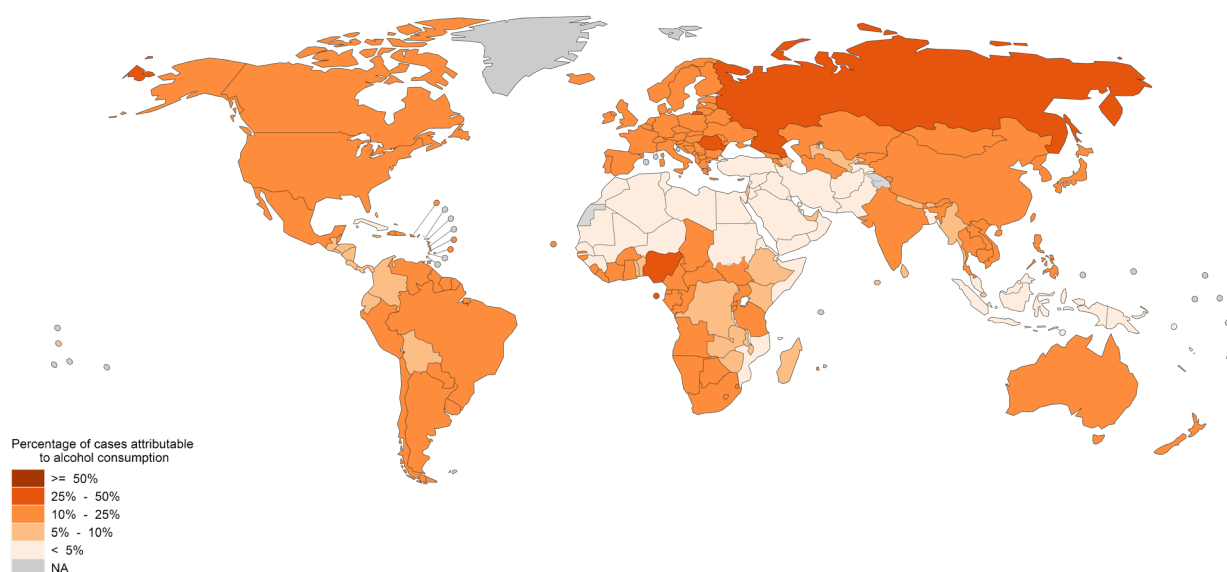
A)



B)



C)



D)

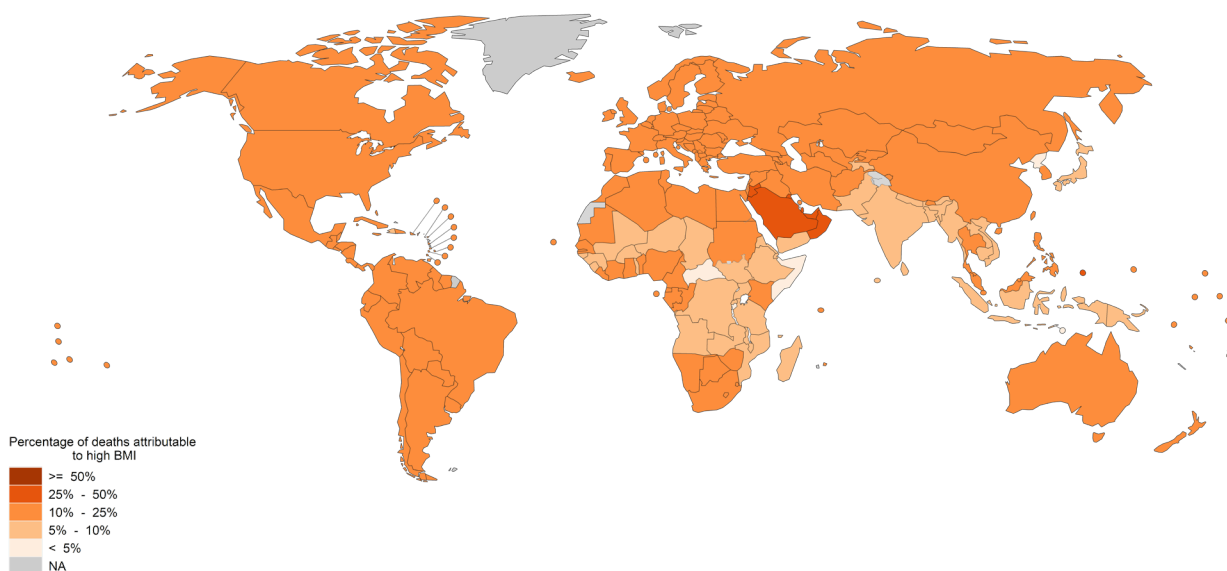


Fig. S1. Population attributable fractions for liver cancer cases or deaths attributable to major risk factors. (A) Hepatitis B virus. (B) Hepatitis C virus. (C) Alcohol consumption. (D) High body mass index. Sources of data: Maucourt-Boulch et al. 2018 (hepatitis B and C virus) [1], Runggay et al. 2021 (alcohol) [2], Murray et al. 2020 (high body mass index) [3].

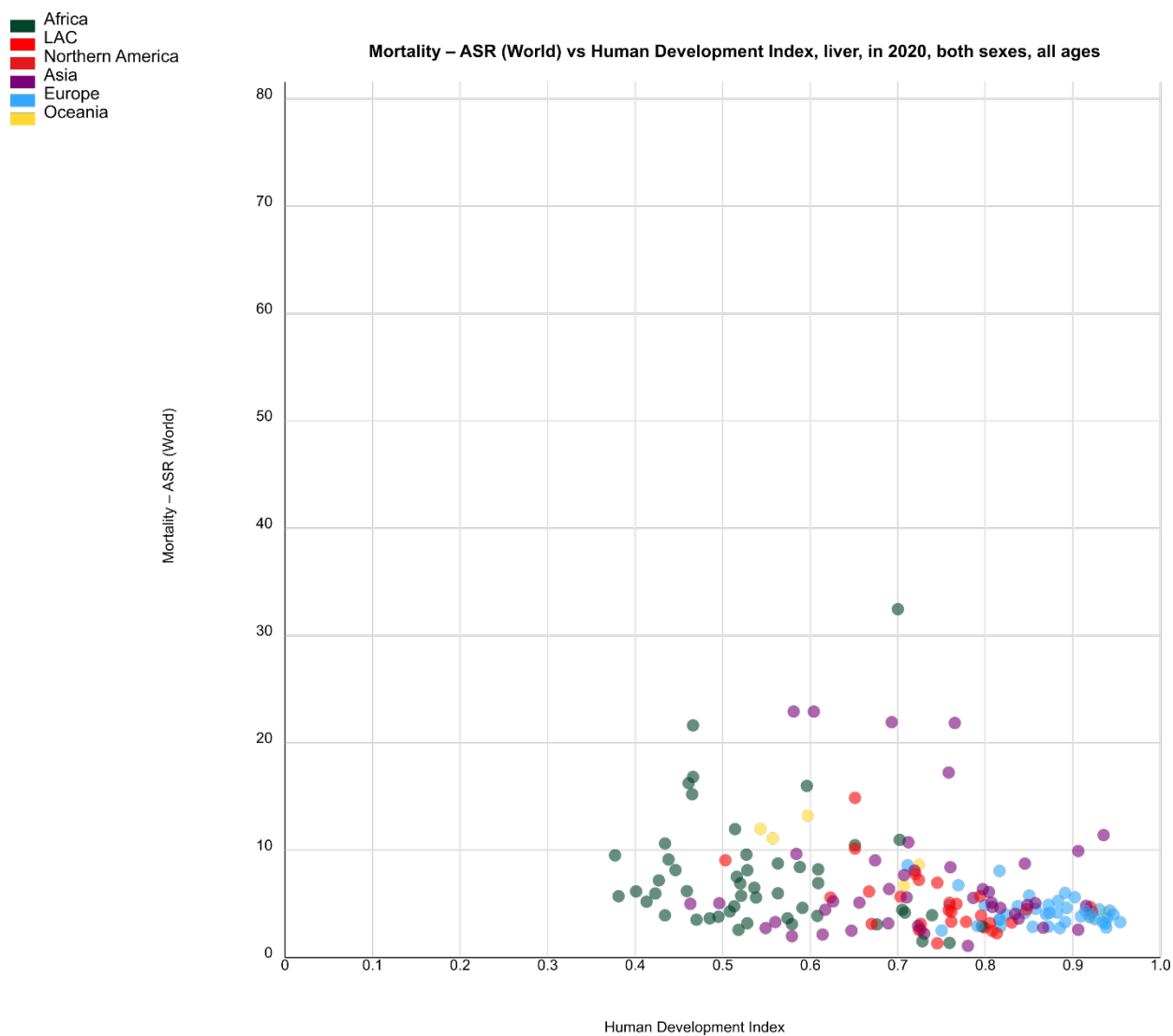


Fig. S2. Relationship between country-specific Human Development Index and age-standardised liver cancer mortality rates per 100,000 persons in 2020.

ASR, age-standardised rate; LAC, Latin America and the Caribbean

Table S1. Estimated number of cases and deaths of primary liver cancer and age-standardised incidence and mortality rates per 100,000 persons in 2020, by country.

Number of cases and deaths suppressed if less than five.

	Incidence			Mortality		
	Number of cases	AS R	M: F	Number of deaths	AS R	M:F
Eastern Africa						
Burundi	360	6.2	1.7	340	6.0	1.7
Comoros	30	5.6	1.7	30	5.6	1.7
Djibouti	30	3.8	2.3	30	3.8	2.3
Eritrea	90	4.1	1.7	90	3.9	1.7
Ethiopia	2,400	3.7	1.5	2,300	3.5	1.5
Kenya	920	3.3	1.2	860	3.1	1.3
La Reunion	120	7.6	2.2	100	6.3	2.0
Madagascar	1,100	6.0	1.6	980	5.8	1.6
Malawi	410	3.8	1.8	380	3.7	1.8
Mauritius	70	3.1	1.4	60	2.9	1.5
Mozambique	1,600	8.6	1.7	1,400	8.2	1.7
Rwanda	480	6.8	2.4	450	6.5	2.4
Somalia	280	3.6	1.4	280	3.6	1.4
South Sudan	360	5.4	1.7	350	5.2	1.7
Tanzania	1,000	3.3	1.3	1,000	3.2	1.3
Uganda	2,000	8.5	1.5	1,900	8.1	1.5
Zambia	400	4.8	1.8	370	4.6	1.8
Zimbabwe	680	9.0	1.6	650	8.8	1.6
Middle Africa						
Angola	610	3.8	2.0	580	3.7	2.0
Cameroon	1,000	6.3	2.9	960	6.0	2.9
Central African Republic	160	5.8	2.6	150	5.7	2.6
Chad	490	6.3	2.3	460	6.2	2.2
Democratic People Republic of Congo	3,300	6.5	2.3	3,100	6.2	2.3
Equatorial Guinea	70	8.5	1.6	70	8.4	1.6
Gabon	160	11.3	1.4	160	11.0	1.4
Republic of Congo	250	7.1	2.5	240	7.0	2.5
Sao Tome and Principe	10	8.2	7.0	10	8.2	7.0
Northern Africa						
Algeria	610	1.5	1.3	570	1.4	1.3
Egypt	27,900	34.1	2.0	26,500	32.5	2.0
Libya	230	4.4	1.9	210	4.2	1.9
Morocco	1,300	3.3	1.4	1,300	3.1	1.3
Sudan	1,200	4.4	1.9	1,100	4.3	1.9

Tunisia	630	4.3	1.2	600	4.0	1.2
Southern Africa						
Botswana	30	1.5	1.1	30	1.5	1.1
Eswatini	30	4.0	1.8	30	3.9	1.8
Lesotho	50	2.6	2.1	50	2.6	2.0
Namibia	60	3.8	1.9	60	3.7	1.9
South Africa	2,400	4.8	2.2	2,300	4.5	2.4
Western Africa						
Benin	500	7.2	2.2	470	6.9	2.2
Burkina Faso	1,200	10.9	1.8	1,200	10.6	1.8
Cape Verde	50	11.3	1.2	50	10.5	1.2
Cote d'Ivoire	1,100	7.9	1.8	1,100	7.5	1.8
Ghana	3,500	16.9	2.4	3,200	16.0	2.4
Guinea	1,400	21.8	1.7	1,400	21.6	1.7
Guinea-Bissau	160	16.2	1.6	160	16.3	1.6
Liberia	460	15.3	1.7	450	15.2	1.7
Mali	730	7.5	1.9	680	7.2	1.9
Mauritania	260	9.8	1.8	260	9.6	1.8
Niger	1,100	9.9	2.0	1,000	9.5	2.0
Nigeria	5,200	5.2	2.5	5,000	5.1	2.5
Senegal	1,100	12.2	1.7	1,100	12.0	1.7
Sierra Leone	410	9.4	1.8	390	9.2	1.7
The Gambia	250	17.2	3.5	250	16.8	3.5
Togo	220	4.9	1.6	210	4.8	1.6
Caribbean						
Bahamas	20	3.2	2.8	20	3.2	2.8
Barbados	10	2.3	1.6	10	2.3	1.6
Cuba	870	3.8	1.5	810	3.3	1.5
Dominican Republic	890	7.6	1.3	830	7.0	1.3
Guadeloupe	40	4.0	2.5	40	3.7	2.5
Haiti	810	9.2	1.5	790	9.1	1.5
Jamaica	110	3.0	1.0	100	2.6	1.1
Martinique	40	3.8	2.0	30	2.8	1.9
Puerto Rico	430	6.1	4.1	400	5.3	3.8
Saint Lucia	<5	1.3	2.3	<5	1.3	2.0
Trinidad and Tobago	70	3.0	1.4	60	2.8	1.4
Central America						
Belize	20	7.8	2.8	20	7.8	2.8
Costa Rica	460	6.1	1.5	440	5.7	1.6
El Salvador	520	6.6	1.0	490	6.2	1.0
Guatemala	2,000	15.6	1.2	1,900	14.9	1.1
Honduras	460	6.0	2.5	420	5.6	2.4
Mexico	7,500	5.3	1.2	7,200	5.0	1.1
Nicaragua	600	10.6	1.3	580	10.2	1.3
Panama	230	4.3	0.9	220	3.9	0.9

South America						
Argentina	2,400	3.7	2.1	2,200	3.3	2.0
Bolivia	740	6.0	0.8	700	5.7	0.8
Brazil	12,700	4.5	1.9	12,100	4.3	1.9
Chile	1,600	4.8	1.6	1,500	4.5	1.6
Colombia	2,300	3.5	1.2	2,200	3.4	1.2
Ecuador	920	4.6	1.0	880	4.4	1.0
French Guyana	10	4.1	-	10	3.8	10.6
Guyana	30	3.1	1.1	30	3.2	1.1
Paraguay	180	2.7	1.0	180	2.6	1.0
Peru	2,200	5.4	1.0	2,100	5.1	1.0
Suriname	50	8.0	1.7	50	7.2	1.8
Uruguay	180	2.7	2.6	160	2.5	3.4
Venezuela	1,100	3.2	1.6	1,000	3.2	1.7
Northern America						
Canada	4,300	5.2	2.3	3,700	4.3	2.3
United States of America	42,300	7.0	2.8	31,100	4.7	2.4
Eastern Asia						
China	410,000	18.2	3.1	391,200	17.3	3.0
Democratic People Republic of Korea	5,600	15.5	2.8	5,200	14.4	3.0
Japan	45,700	10.4	3.0	28,200	4.8	3.4
Mongolia	2,200	85.7	1.5	2,100	80.6	1.6
Republic of Korea	14,800	14.3	3.5	11,200	9.9	3.8
South-Eastern Asia						
Brunei Darussalam	40	10.5	5.0	40	8.8	4.5
Cambodia	3,100	24.3	2.6	2,900	22.9	2.6
Indonesia	21,400	7.9	3.6	20,900	7.7	3.7
Lao People Democratic Republic	1,300	24.4	2.5	1,200	22.9	2.5
Malaysia	2,100	6.4	2.6	2,100	6.1	2.6
Myanmar	5,500	10.0	2.3	5,300	9.7	2.3
Philippines	10,600	11.4	2.9	10,000	10.8	2.9
Singapore	1,300	12.2	3.2	1,300	11.4	3.1
Thailand	27,400	22.6	2.6	26,700	21.9	2.7
Timor-Leste	50	5.5	3.2	50	5.2	3.3
Viet Nam	26,400	23.0	3.8	25,300	21.9	3.9
South-Central Asia						
Afghanistan	960	5.3	1.4	920	5.1	1.5
Bangladesh	3,300	2.2	3.1	3,100	2.2	3.3
Bhutan	30	4.7	3.2	30	4.5	3.0
India	34,700	2.6	2.3	33,800	2.5	2.3
Islamic Republic of Iran	5,700	6.8	1.2	5,300	6.4	1.2
Kazakhstan	1,000	4.9	2.1	990	4.6	2.2
Kyrgyzstan	480	9.3	2.4	470	9.1	2.4
Maldives	30	8.2	3.1	30	8.1	3.1

Nepal	520	2.1	4.1	500	2.0	4.4
Pakistan	5,300	3.5	1.2	5,100	3.3	1.2
Sri Lanka	350	1.2	3.2	340	1.1	2.8
Tajikistan	300	5.4	1.2	290	5.1	1.1
Turkmenistan	320	6.3	2.0	300	5.8	2.0
Uzbekistan	1,600	6.0	1.2	1,500	5.6	1.2
Western Asia						
Armenia	430	8.7	2.1	410	8.4	2.1
Azerbaijan	510	4.5	1.3	500	4.4	1.3
Bahrain	40	3.7	1.2	30	3.6	1.2
Georgia	420	5.9	4.4	400	5.6	4.3
Iraq	710	3.3	1.2	690	3.2	1.2
Israel	390	2.9	2.3	360	2.6	2.2
Jordan	200	3.0	1.4	200	3.0	1.4
Kuwait	130	5.0	1.3	120	4.7	1.3
Lebanon	170	2.3	1.2	170	2.2	1.1
Oman	130	4.4	2.3	120	4.1	2.3
Palestine	160	6.5	1.7	160	6.4	1.7
Qatar	60	5.0	1.4	50	4.9	1.5
Saudi Arabia	1,100	5.2	2.1	1,100	5.1	2.1
Syrian Arab Republic	380	2.9	1.3	360	2.8	1.3
Turkey	5,600	5.3	2.2	5,500	5.1	2.1
United Arab Emirates	80	2.9	0.9	80	2.8	0.8
Yemen	750	5.1	2.0	710	5.0	2.1
Central and Eastern Europe						
Belarus	540	3.2	3.4	510	2.9	4.0
Bulgaria	640	4.2	2.7	580	3.6	2.5
Czechia	1,000	3.9	2.4	870	3.3	2.3
Hungary	1,000	4.8	3.3	940	4.2	3.1
Moldova	580	9.2	3.4	560	8.6	3.5
Poland	2,800	3.5	2.0	2,500	2.9	2.0
Romania	3,600	8.8	2.8	3,400	8.1	2.8
Russian Federation	11,700	4.3	2.4	11,100	4.0	2.5
Slovakia	630	5.7	3.3	530	4.6	3.5
Ukraine	2,200	2.7	2.5	2,100	2.5	2.7
Northern Europe						
Denmark	650	4.9	2.2	630	4.5	2.0
Estonia	140	4.4	2.8	130	4.2	2.6
Finland	630	3.9	2.5	600	3.6	2.9
Iceland	20	3.2	2.6	20	2.8	2.6
Ireland	480	5.2	2.3	420	4.4	2.4
Latvia	150	3.2	2.7	130	2.9	3.2
Lithuania	280	4.2	3.2	250	4.1	3.4
Norway	410	3.7	2.5	390	3.3	2.9
Sweden	980	4.4	2.6	860	3.2	2.6

United Kingdom	8,200	5.3	1.9	7,100	4.1	1.9
Southern Europe						
Albania	170	3.4	1.8	160	3.0	1.8
Bosnia Herzegovina	540	7.2	1.6	520	6.8	1.6
Croatia	580	5.7	3.3	530	4.8	3.3
Cyprus	110	4.8	2.3	100	4.2	2.4
Greece	1,800	6.6	2.6	1,500	4.9	2.6
Italy	11,700	7.7	3.2	9,800	5.3	3.6
Malta	40	3.4	3.3	30	2.8	3.3
Montenegro	50	3.9	1.8	50	3.5	2.7
North Macedonia	190	5.1	2.3	190	4.9	2.2
Portugal	1,600	6.1	4.9	1,500	5.8	4.9
Serbia	1,000	5.2	1.7	960	4.9	1.7
Slovenia	330	6.3	3.5	310	5.6	3.3
Spain	6,600	6.3	4.2	5,600	4.6	3.6
Western Europe						
Austria	1,100	5.3	3.0	990	4.4	3.1
Belgium	1,300	5.2	3.2	1,100	3.8	2.9
France (metropolitan)	11,500	7.6	3.8	10,300	6.0	3.7
Germany	9,500	4.3	3.0	8,900	3.7	2.7
Luxembourg	70	5.6	2.1	50	3.8	3.0
Netherlands	1,500	3.6	2.1	1,400	3.3	2.2
Switzerland	1,100	5.2	3.2	910	4.0	3.0
Australia and New Zealand						
Australia	2,900	6.4	3.3	2,100	4.2	2.7
New Zealand	420	4.7	2.7	360	3.7	2.3
Melanesia, Micronesia & Polynesia						
Fiji	80	8.8	2.5	70	8.7	2.6
French Polynesia	30	8.9	3.3	30	8.5	3.1
Guam	30	14.5	4.8	30	11.9	3.8
New Caledonia	40	9.2	3.0	30	7.9	3.0
Papua New Guinea	750	11.7	1.3	730	12.0	1.4
Samoa	10	7.3	1.9	10	6.7	1.6
Solomon Islands	50	11.1	3.0	50	11.1	3.0
Vanuatu	30	13.2	3.9	30	13.2	3.9

ASR, age-standardised rate per 100,000; M:F, Male:Female ASR ratio.

Supplementary references

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