

Supplemental Materials

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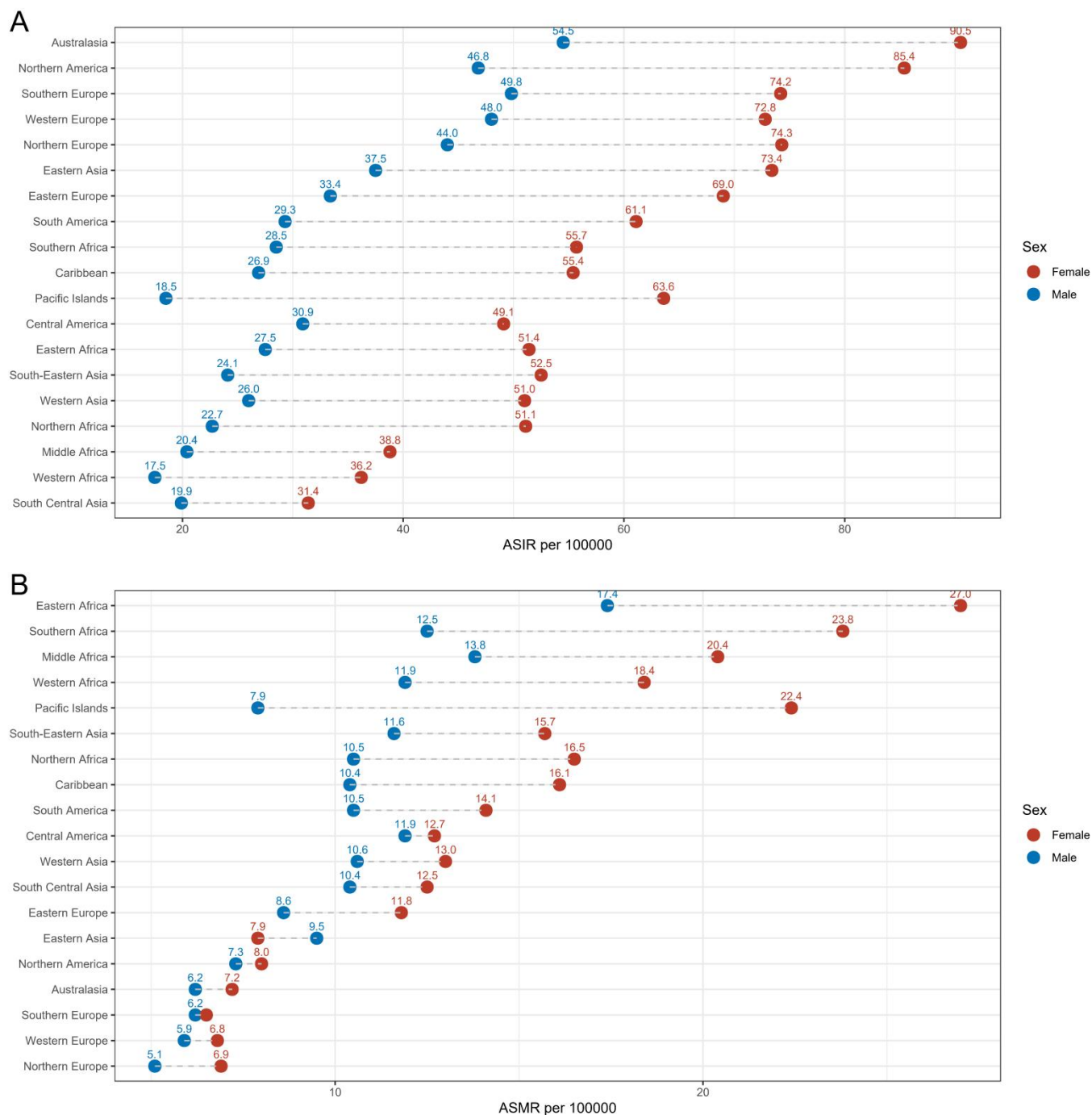


Figure S1. Gender disparity in burden of adolescent and young adult cancers across regions, 2022. Abbreviation:

ASIR: age-standardized incidence rate; ASMR: age-standardized mortality rate.

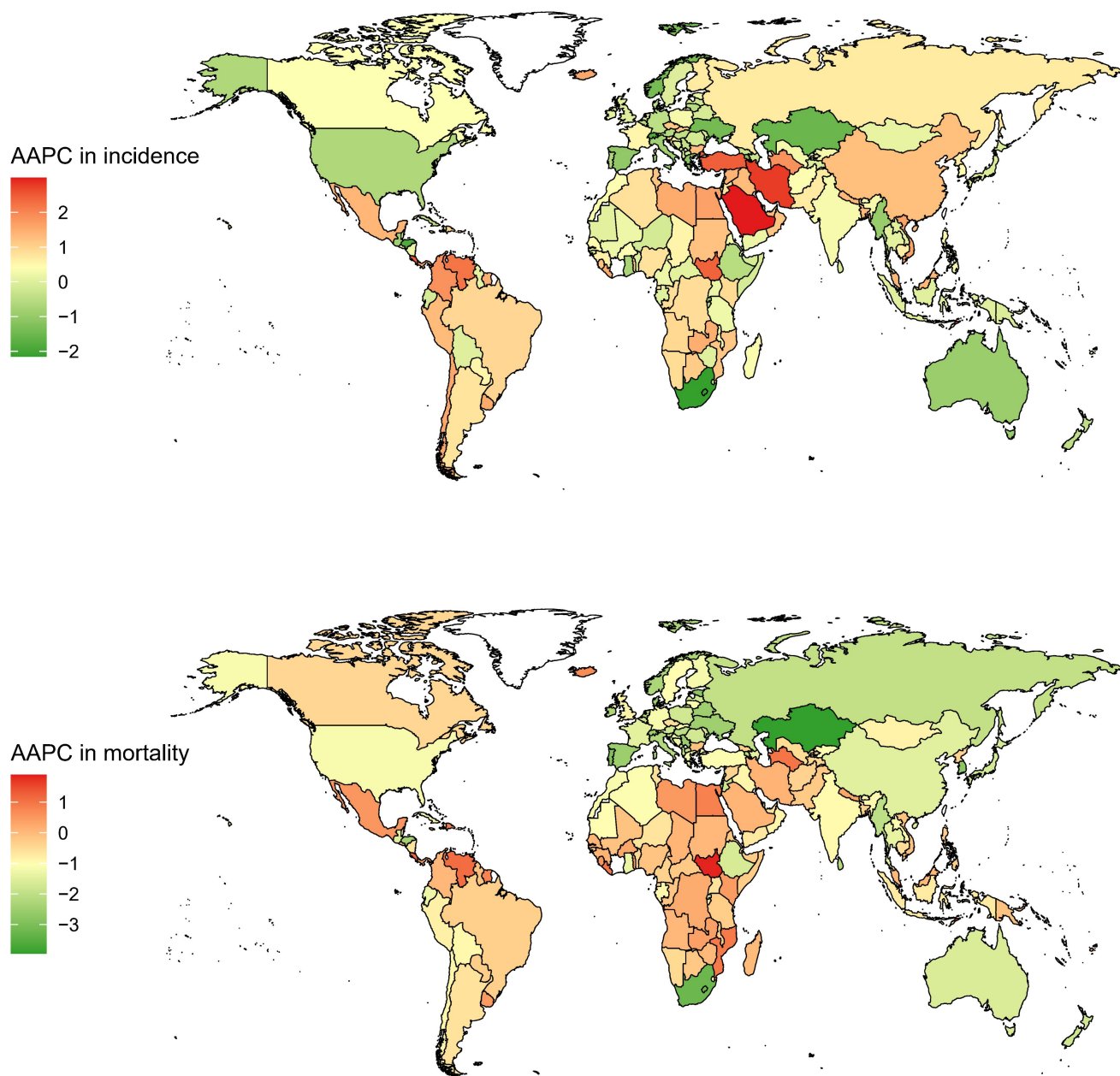


Figure S2. Global maps present the Average Annual Percentage Change in age-standardized rates of incidence and mortality of adolescent and young adult cancers in each country. Abbreviation: AAPC, Average Annual Percent Change. Source: The Global Burden of Disease Study 2021.

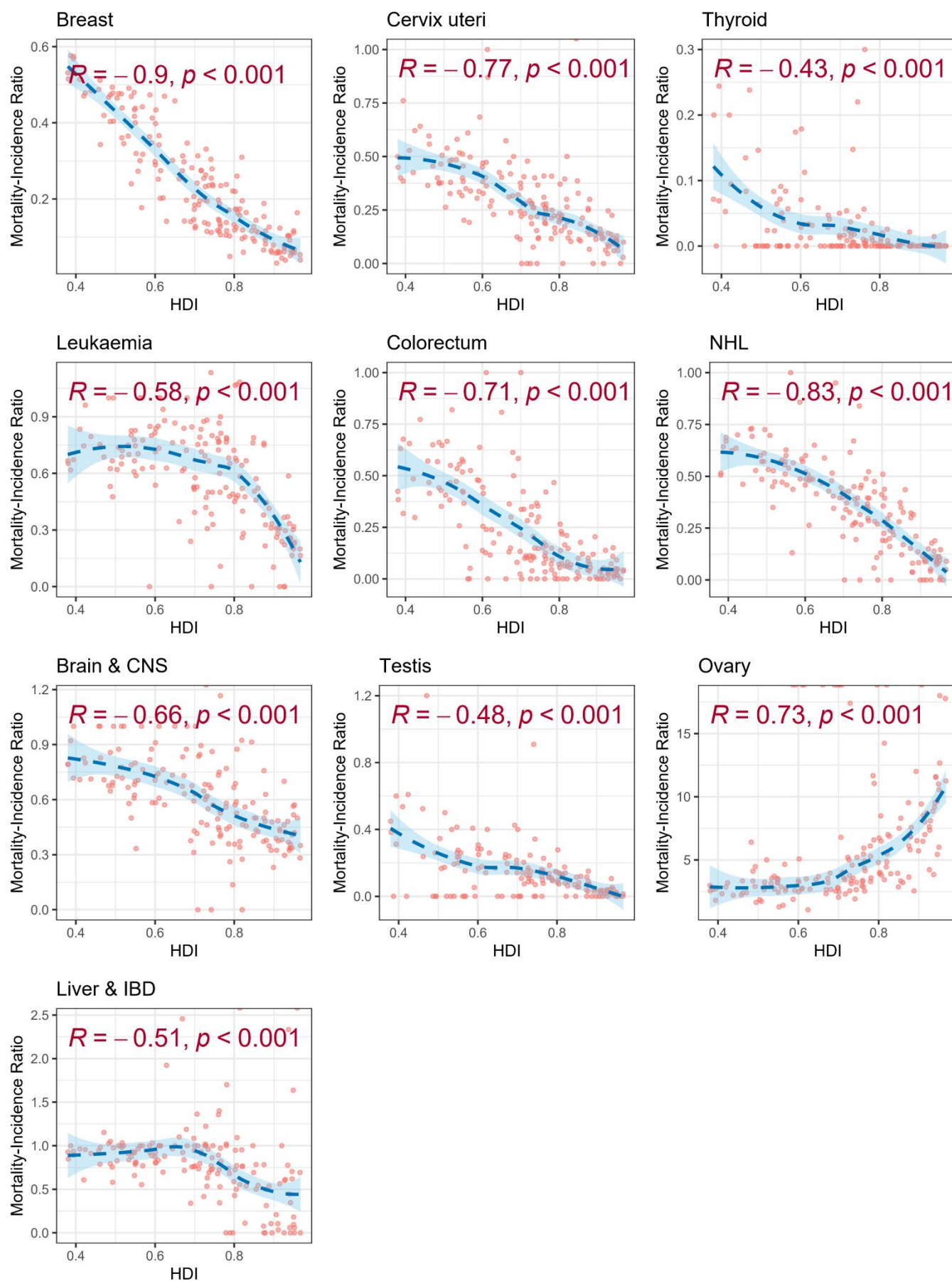


Figure S3. Associations between age-standardized rates, incidence-mortality ratio, and HDI in the 10 most common adolescent and young adult cancers.

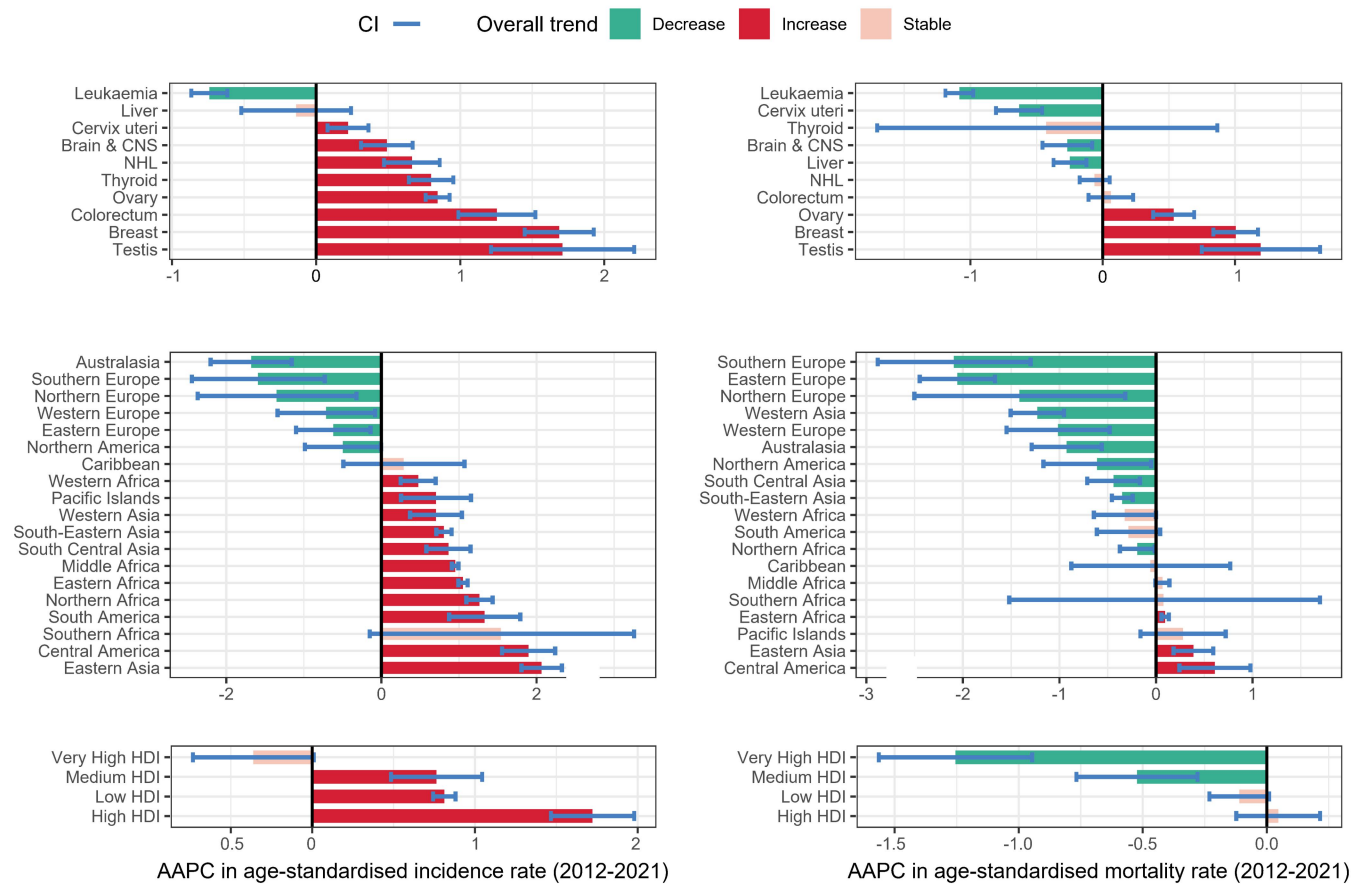


Figure S4. Temporal trend in age-standardized rates for adolescent and young adult cancers from 2012 to 2021, by the 10 most frequent cancer type, region, and level of Human Development Index. Source: the Global Burden of Disease Study 2021.

Table S1. 185 countries or territories organized into 19 UN regions.	
UN Region	Country
Australasia	Australia, New Zealand
Caribbean	Bahamas, Barbados, Cuba, Dominican Republic, France, Guadeloupe, Haiti, Jamaica, France, Martinique, Puerto Rico, Saint Lucia, Trinidad and Tobago
Central America	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama
Eastern Africa	Burundi, Comoros, Ethiopia, Eritrea, Djibouti, Kenya, Madagascar, Malawi, Mauritius, Mozambique, France, La Réunion, Rwanda, Somalia, Zimbabwe, South Sudan, Uganda, Tanzania, United Republic of, Zambia
Eastern Asia	China, Japan, Korea (Democratic People Republic of), Korea (Republic of), Mongolia
Eastern Europe	Bulgaria, Belarus, Czechia, Hungary, Moldova, Poland, Romania, Russian Federation, Slovakia, Ukraine
Middle Africa	Angola, Cameroon, Central African Republic, Chad, Congo, Republic of, Congo, Democratic People Republic of, Equatorial Guinea, Gabon
Northern Africa	Algeria, Libya, Morocco, Sudan, Tunisia, Egypt
Northern America	Canada, United States of America
Northern Europe	Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, United Kingdom
Pacific Islands	Solomon Islands, Fiji, French Polynesia, Guam, New Caledonia, Vanuatu, Papua New Guinea, Samoa
South America	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guyana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela
South Central Asia	Afghanistan, Bangladesh, Bhutan, Sri Lanka, India, Iran, Islamic Republic of, Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Tajikistan, Turkmenistan, Uzbekistan
South-Eastern Asia	Brunei Darussalam, Myanmar, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Philippines, Timor-Leste, Singapore, Viet Nam, Thailand
Southern Africa	Botswana, Lesotho, Namibia, South Africa, Eswatini
Southern Europe	Albania, Bosnia Herzegovina, Croatia, Cyprus, Greece, Italy, Malta, Montenegro, Portugal, Serbia, Slovenia, Spain, North Macedonia
Western Africa	Cape Verde, Benin, The Republic of the Gambia, Ghana, Guinea, Côte d'Ivoire, Liberia, Mali, Mauritania, Niger, Nigeria, Guinea-Bissau, Sao Tome and Principe, Senegal, Sierra Leone, Togo, Burkina Faso
Western Asia	Azerbaijan, Bahrain, Armenia, Georgia, Gaza Strip and West Bank, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Türkiye, Yemen
Western Europe	Austria, Belgium, France (metropolitan), Germany, Luxembourg, The Netherlands, Switzerland
Note: UN = United Nations. Melanesia, Micronesia, and Polynesia were merged into a single category referred to as the Pacific Islands.	

Table S2. 185 countries or territories organized into four HDI categories based on their 2022 HDIs.

HDI category	Country
Very High HDI	Argentina, Australia, Austria, Bahamas, Bahrain, Belgium, Brunei Darussalam, Belarus, Canada, Chile, Costa Rica, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France (metropolitan), French Guyana, Georgia, Germany, Greece, France, Guadeloupe, Guam, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Republic of, Kuwait, Latvia, Lithuania, Luxembourg, Malaysia, Malta, France, Martinique, Mauritius, Montenegro, Oman, The Netherlands, New Caledonia, New Zealand, Norway, Panama, Poland, Portugal, Puerto Rico, Qatar, France, La Réunion, Romania, Russian Federation, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Thailand, Trinidad and Tobago, United Arab Emirates, Türkiye, United Kingdom, United States of America, Uruguay
High HDI	Albania, Algeria, Azerbaijan, Armenia, Barbados, Bosnia Herzegovina, Brazil, Bulgaria, Sri Lanka, China, Colombia, Cuba, Dominican Republic, Ecuador, Fiji, French Polynesia, Gabon, Gaza Strip and West Bank, Guyana, Indonesia, Iran, Islamic Republic of, Jamaica, Jordan, Lebanon, Libya, Maldives, Mexico, Mongolia, Moldova, Paraguay, Peru, Saint Lucia, Viet Nam, South Africa, Suriname, Tunisia, Turkmenistan, Ukraine, North Macedonia, Egypt, Uzbekistan, Samoa
Medium HDI	Angola, Bangladesh, Bhutan, Bolivia, Botswana, Belize, Solomon Islands, Myanmar, Cambodia, Cameroon, Cape Verde, Comoros, Congo, Republic of, El Salvador, Equatorial Guinea, Ghana, Guatemala, Honduras, India, Iraq, Côte d'Ivoire, Kenya, Korea, Democratic People Republic of, Kyrgyzstan, Lao People's Democratic Republic, Mauritania, Morocco, Namibia, Nepal, Vanuatu, Nicaragua, Papua New Guinea, Philippines, Timor-Leste, Sao Tome and Principe, Zimbabwe, Eswatini, Syrian Arab Republic, Tajikistan, Venezuela, Zambia
Low HDI	Afghanistan, Burundi, Central African Republic, Chad, Congo, Democratic People Republic of, Benin, Ethiopia, Eritrea, Djibouti, The Republic of the Gambia, Guinea, Haiti, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Pakistan, Guinea-Bissau, Rwanda, Senegal, Sierra Leone, Somalia, South Sudan, Sudan, Togo, Uganda, Tanzania, United Republic of, Burkina Faso, Yemen

Note: HDI = human development index. We used data on HDI for each country from the United Nations website (<https://hdr.undp.org/data-center/human-development-index>).

Table S3. Summary of key differences of GBD 2021 and GLOBOCAN 2022.

	GBD 2021	GLOBOCAN 2022
Managing Organization	Institute for Health Metrics and Evaluation	International Agency for Research on Cancer
Scope and Coverage	204 countries and territories; 52 cancer types from 1990 to 2021.	185 countries; 36 cancer types for the year 2022.
Cancer Coverage	50 cancer types: Lip and oral cavity cancer (C00-C06), salivary glands (C07-C08), other pharynx cancer (C09-C10), nasopharynx cancer (C11), hypopharynx (C12-C13), oesophagus cancer (C15), stomach cancer (C16), colon and rectum cancer (C18-C20), anus cancer (C21), liver cancer (including intrahepatic bile ducts, C22), liver cancer due to hepatitis B (C22), liver cancer due to hepatitis C (C22), liver cancer due to alcohol use (C22), liver cancer due to other causes (C22), hepatoblastoma (C22.2), gallbladder and biliary tract cancer (C23), pancreas cancer (C25), larynx cancer (C32), tracheal, bronchus, and lung cancer (C33-C34), malignant melanoma of skin (C43), non-melanoma skin cancer (squamous-cell carcinoma and basal-cell carcinoma, C44), mesothelioma (C45), Kaposi sarcoma (C46), female breast cancer (C50), vulva cancer (C51), vagina cancer (C52), cervix uteri cancer (C53), corpus uteri cancer (C54), ovary cancer (C56), penis cancer (C60), prostate cancer (C61), testicular cancer (C62), kidney cancer (C64), bladder cancer (C67), brain and central nervous system cancer (C70-C72), thyroid cancer (C73), Hodgkin lymphoma (C81), non-Hodgkin lymphoma (C82-C86, C88), Burkitt lymphoma (C83.7), multiple myeloma (C90), leukemia (C91-C95), acute lymphoid leukemia (C91.0), chronic lymphoid leukemia (C91.1), acute myeloid leukemia (C92.0), chronic myeloid	36 cancer types: Lip and oral cavity (C00-06), salivary glands (C07-08), oropharynx (C09-10), nasopharynx (C11), hypopharynx (C12-13), oesophagus (C15), stomach (C16), colon (C18), rectum (C19-20), anus (C21), liver (including intrahepatic bile ducts, C22), gallbladder (C23), pancreas (C25), larynx (C32), lung (including trachea, C33-34), melanoma of the skin (C43), non-melanoma skin cancer (C44), mesothelioma (C45), Kaposi sarcoma (C46), female breast (C50), vulva (C51), vagina (C52), cervix uteri (C53), corpus uteri (C54), ovary (C56), penis (C60), prostate (C61), testis (C62), kidney (C64), bladder (C67), brain and central nervous system (C70-72), thyroid (C73), Hodgkin lymphoma (C81), non-Hodgkin lymphoma (C82-86, C88), multiple myeloma (C90), and leukaemia (C91-95).

	leukemia (C92.1), other leukemia (C91-C95), soft tissue and other extraosseous sarcomas (C49), malignant neoplasm of bone and articular cartilage (C40-C41), neuroblastoma and other peripheral nervous cell tumors (C47), other malignant neoplasms (C76-C80), eye cancer (C69), retinoblastoma (C69.2).	
Methodology	Uses DisMod-MR 2.1 (Bayesian meta-regression) and spatiotemporal Gaussian process regression for consistency across regions and time. Includes disability estimates.	Short-term prediction models and mortality-to-incidence ratios (MIRs); relies on regional and neighboring country data when local data is unavailable.
Data Sources	Comprehensive sources: cancer registries, vital registration systems, hospital records, clinical data, SEER data, and scientific literature.	Mainly relies on national and subnational cancer registries; proxies used for countries with limited data.
Data Accessibility and Outputs	Interactive tools like GBD Compare and Mortality Visualization; covers cancer data, risk factors, and long-term trends.	Offers Cancer Today tool focusing on current incidence and mortality estimates for 2022.

Table S4. Estimated absolute number, proportion, and ASRs of incidence and mortality by cancer type and sex, among AYAs aged 15 to 19 years worldwide in 2022.																		
Cancer type	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
All cancers excluded	72289	100	11.8	38632	100	12.2	33657	100	11.3	28071	100	4.6	16131	100	5.1	11940	100	4
Leukaemia	13115	18.1	2.1.0	8050	20.8	2.5	5065	15.0	1.7	7281	25.9	1.2	4467	27.7	1.4	2814	23.6	0.9
Thyroid	7998	11.1	1.3	1548	4.0	0.5	6450	19.2	2.2	102	0.4	0	27	0.2	0	75	0.6	0
Brain & CNS	6194	8.6	1.0	3605	9.3	1.1	2589	7.7	0.9	3292	11.7	0.5	1966	12.2	0.6	1326	11.1	0.4
Non-Hodgkin lymphoma	6049	8.4	1.0	3691	9.6	1.2	2358	7.0	0.8	2531	9.0	0.4	1575	9.8	0.5	956	8.0	0.3
Hodgkin lymphoma	5929	8.2	1.0	3423	8.9	1.1	2506	7.4	0.8	879	3.1	0.1	521	3.2	0.2	358	3.0	0.1
Testis	4067	5.6	1.3	4067	10.5	1.3				382	1.4	0.1	382	2.4	0.1			
Ovary	2423	3.4	0.8				2423	7.2	0.8	685	2.4	0.2				685	5.7	0.2
Colorectum	2131	2.9	0.3	1250	3.2	0.4	881	2.6	0.3	655	2.3	0.1	419	2.6	0.1	236	2.0	0.1
Nasopharynx	1530	2.1	0.2	943	2.4	0.3	587	1.7	0.2	636	2.3	0.1	404	2.5	0.1	232	1.9	0.1
Kaposi sarcoma	1392	1.9	0.2	877	2.3	0.3	515	1.5	0.2	988	3.5	0.2	626	3.9	0.2	362	3.0	0.1
Liver & IBD	1034	1.4	0.2	610	1.6	0.2	424	1.3	0.1	915	3.3	0.1	555	3.4	0.2	360	3.0	0.1
Melanoma of skin	979	1.4	0.2	389	1.0	0.1	590	1.8	0.2	72	0.3	0	48	0.3	0	24	0.2	0
Salivary glands	716	1.0	0.1	354	0.9	0.1	362	1.1	0.1	147	0.5	0	71	0.4	0	76	0.6	0
Kidney	679	0.9	0.1	354	0.9	0.1	325	1	0.1	301	1.1	0	168	1.0	0	133	1.1	0
Stomach	671	0.9	0.1	397	1.0	0.1	274	0.8	0.1	473	1.7	0.1	256	1.6	0.1	217	1.8	0.1
Lip, oral cavity	648	0.9	0.1	365	0.9	0.1	283	0.8	0.1	261	0.9	0	147	0.9	0	114	1.0	0
Trachea, bronchus and lung	627	0.9	0.1	341	0.9	0.1	286	0.8	0.1	775	2.8	0.1	606	3.8	0.2	169	1.4	0.1
Bladder	306	0.4	0	194	0.5	0.1	112	0.3	0	60	0.2	0	40	0.2	0	20	0.2	0
Breast	264	0.4	0.1				264	0.8	0.1	386	1.4	0.1				386	3.2	0.1
Pancreas	246	0.3	0	66	0.2	0	180	0.5	0.1	69	0.2	0	16	0.1	0	53	0.4	0
Corpus uteri	235	0.3	0.1				235	0.7	0.1	7	0	0				7	0.1	0
Cervix uteri	202	0.3	0.1				202	0.6	0.1	114	0.4	0				114	1.0	0
Oesophagus	193	0.3	0	87	0.2	0	106	0.3	0	152	0.5	0	104	0.6	0	48	0.4	0
Prostate	175	0.2	0.1	175	0.5	0.1				80	0.3	0	80	0.5	0			
Multiple myeloma	126	0.2	0	93	0.2	0	33	0.1	0	109	0.4	0	67	0.4	0	42	0.4	0
Oropharynx	123	0.2	0	67	0.2	0	56	0.2	0	39	0.1	0	21	0.1	0	18	0.2	0
Larynx	88	0.1	0	70	0.2	0	18	0.1	0	41	0.1	0	36	0.2	0	5	0	0
Hypopharynx	64	0.1	0	45	0.1	0	19	0.1	0	37	0.1	0	30	0.2	0	7	0.1	0
Vagina	57	0.1	0				57	0.2	0	11	0	0				11	0.1	0
Vulva	49	0.1	0				49	0.1	0	9	0	0				9	0.1	0
Penis	47	0.1	0	47	0.1	0				19	0.1	0	19	0.1	0			
Mesothelioma	35	0	0	22	0.1	0	13	0	0	4	0	0	3	0	0	1	0	0
Gallbladder	23	0	0	10	0	0	13	0	0	12	0	0	5	0	0	7	0.1	0
Note: ASR = age-standardized rate; AYAs = adolescents and young adults; NMSC = non-melanoma skin cancer; CNS = central nervous system; IBD = intrahepatic bile ducts.																		

Table S5. Estimated absolute number, proportion, and ASRs of incidence and mortality by cancer type and sex, among AYAs aged 20 to 24 years worldwide in 2022.

Cancer type	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
All cancers excluded NMSC	110050	100	18.8	50581	100	16.7	59469	100	21	35922	100	6.1	19757	100	6.5	16165	100	5.7
Thyroid	19730	17.9	3.4	4521	8.9	1.5	15209	25.6	5.4	201	0.6	0	52	0.3	0	149	0.9	0
Leukaemia	11105	10.1	1.9	6699	13.2	2.2	4406	7.4	1.6	7059	19.7	1.2	4330	21.9	1.4	2729	16.9	1
Testis	7362	6.7	2.4	7362	14.6	2.4				724	2.0	0.2	724	3.7	0.2			
Non-Hodgkin lymphoma	6691	6.1	1.1	4072	8.1	1.4	2619	4.4	0.9	2752	7.7	0.5	1725	8.7	0.6	1027	6.4	0.4
Breast	6645	6.0	2.3				6645	11.2	2.3	1309	3.6	0.5				1309	8.1	0.5
Brain & CNS	6340	5.8	1.1	3735	7.4	1.2	2605	4.4	0.9	3426	9.5	0.6	2132	10.8	0.7	1294	8.0	0.5
Hodgkin lymphoma	6230	5.7	1.1	3327	6.6	1.1	2903	4.9	1.0	926	2.6	0.2	513	2.6	0.2	413	2.6	0.1
Colorectum	5362	4.9	0.9	3034	6.0	1	2328	3.9	0.8	1947	5.4	0.3	1136	5.7	0.4	811	5.0	0.3
Cervix uteri	3793	3.4	1.3				3793	6.4	1.3	715	2.0	0.2				715	4.4	0.2
Ovary	3543	3.2	1.3				3543	6.0	1.3	939	2.6	0.3				939	5.8	0.3
Trachea, bronchus and lung	2400	2.2	0.4	1550	3.1	0.5	850	1.4	0.3	1245	3.5	0.2	891	4.5	0.3	354	2.2	0.1
Kaposi sarcoma	2306	2.1	0.4	1427	2.8	0.5	879	1.5	0.3	1397	3.9	0.2	870	4.4	0.3	527	3.3	0.2
Melanoma of skin	2285	2.1	0.4	835	1.7	0.3	1450	2.4	0.5	140	0.4	0	86	0.4	0	54	0.3	0
Liver & IBD	2132	1.9	0.4	1356	2.7	0.4	776	1.3	0.3	1898	5.3	0.3	1283	6.5	0.4	615	3.8	0.2
Stomach	1716	1.6	0.3	836	1.7	0.3	880	1.5	0.3	1225	3.4	0.2	677	3.4	0.2	548	3.4	0.2
Nasopharynx	1562	1.4	0.3	945	1.9	0.3	617	1.0	0.2	630	1.8	0.1	401	2.0	0.1	229	1.4	0.1
Lip, oral cavity	1023	0.9	0.2	409	0.8	0.1	614	1.0	0.2	683	1.9	0.1	395	2.0	0.1	288	1.8	0.1
Kidney	821	0.7	0.1	448	0.9	0.1	373	0.6	0.1	268	0.7	0	138	0.7	0	130	0.8	0
Salivary glands	773	0.7	0.1	330	0.7	0.1	443	0.7	0.2	140	0.4	0	60	0.3	0	80	0.5	0
Bladder	682	0.6	0.1	428	0.8	0.1	254	0.4	0.1	116	0.3	0	61	0.3	0	55	0.3	0
Pancreas	480	0.4	0.1	177	0.3	0.1	303	0.5	0.1	198	0.6	0	101	0.5	0	97	0.6	0
Oesophagus	457	0.4	0.1	268	0.5	0.1	189	0.3	0.1	423	1.2	0.1	193	1.0	0.1	230	1.4	0.1
Corpus uteri	425	0.4	0.1				425	0.7	0.1	49	0.1	0				49	0.3	0
Larynx	219	0.2	0	121	0.2	0	98	0.2	0	117	0.3	0	71	0.4	0	46	0.3	0
Hypopharynx	195	0.2	0	115	0.2	0	80	0.1	0	95	0.3	0	55	0.3	0	40	0.2	0
Oropharynx	179	0.2	0	134	0.3	0	45	0.1	0	47	0.1	0	37	0.2	0	10	0.1	0
Penis	160	0.1	0	160	0.3	0				27	0.1	0	27	0.1	0			
Prostate	159	0.1	0	159	0.3	0				61	0.2	0	61	0.3	0			
Gallbladder	155	0.1	0	54	0.1	0	101	0.2	0	96	0.3	0	40	0.2	0	56	0.3	0
Multiple myeloma	152	0.1	0	97	0.2	0	55	0.1	0	84	0.2	0	37	0.2	0	47	0.3	0
Vulva	139	0.1	0				139	0.2	0	43	0.1	0				43	0.3	0
Mesothelioma	67	0.1	0	37	0.1	0	30	0.1	0	76	0.2	0	45	0.2	0	31	0.2	0
Vagina	48	0	0				48	0.1	0	12	0	0				12	0.1	0

Note: ASR = age-standardized rate; AYAs = adolescents and young adults; NMSC = non-melanoma skin cancer; CNS = central nervous system; IBD = intrahepatic bile ducts.

Table S6. Estimated absolute number, proportion, and ASRs of incidence and mortality by cancer type and sex, among AYAs aged 25 to 29 years worldwide in 2022.

Cancer type	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
All cancers excluded NMSC	214020	100	36.7	79845	100	26.6	134175	100	47.5	59025	100	10.1	28878	100	9.6	30147	100	10.7
Thyroid	44584	20.8	7.7	12198	15.3	4.1	32386	24.1	11.5	423	0.7	0.1	128	0.4	0	295	1.0	0.1
Breast	33777	15.8	12.0				33777	25.2	12	5727	9.7	2.0				5727	19.0	2.0
Cervix uteri	15943	7.4	5.6				15943	11.9	5.6	3787	6.4	1.3				3787	12.6	1.3
Leukaemia	11860	5.5	2.0	6860	8.6	2.3	5000	3.7	1.8	7862	13.3	1.4	4609	16.0	1.5	3253	10.8	1.2
Testis	9885	4.6	3.3	9885	12.4	3.3				943	1.6	0.3	943	3.3	0.3			
Colorectum	9719	4.5	1.7	5387	6.7	1.8	4332	3.2	1.5	3872	6.6	0.7	2259	7.8	0.8	1613	5.4	0.6
Non-Hodgkin lymphoma	8874	4.1	1.5	5264	6.6	1.8	3610	2.7	1.3	3333	5.6	0.6	2013	7.0	0.7	1320	4.4	0.5
Brain & CNS	8349	3.9	1.4	4902	6.1	1.6	3447	2.6	1.2	4652	7.9	0.8	2860	9.9	0.9	1792	5.9	0.6
Hodgkin lymphoma	6678	3.1	1.2	3720	4.7	1.2	2958	2.2	1.1	1030	1.7	0.2	602	2.1	0.2	428	1.4	0.1
Ovary	6092	2.8	2.2				6092	4.5	2.2	1486	2.5	0.5				1486	4.9	0.5
Trachea, bronchus and lung	5253	2.5	0.9	3124	3.9	1.0	2129	1.6	0.8	3106	5.3	0.5	2344	8.1	0.8	762	2.5	0.3
Melanoma of skin	4442	2.1	0.8	1594	2.0	0.5	2848	2.1	1.0	340	0.6	0.1	167	0.6	0.1	173	0.6	0.1
Stomach	4328	2.0	0.7	2248	2.8	0.8	2080	1.6	0.7	2562	4.3	0.4	1256	4.3	0.4	1306	4.3	0.5
Liver & IBD	4276	2.0	0.7	2949	3.7	1.0	1327	1.0	0.5	3066	5.2	0.5	2100	7.3	0.7	966	3.2	0.3
Lip, oral cavity	3762	1.8	0.7	2933	3.7	1.0	829	0.6	0.3	1527	2.6	0.3	1215	4.2	0.4	312	1.0	0.1
Kaposi sarcoma	3719	1.7	0.6	2355	2.9	0.8	1364	1.0	0.5	1835	3.1	0.3	1155	4.0	0.4	680	2.3	0.2
Nasopharynx	2428	1.1	0.4	1532	1.9	0.5	896	0.7	0.3	816	1.4	0.1	516	1.8	0.2	300	1.0	0.1
Kidney	1743	0.8	0.3	933	1.2	0.3	810	0.6	0.3	421	0.7	0.1	234	0.8	0.1	187	0.6	0.1
Salivary glands	1584	0.7	0.3	726	0.9	0.2	858	0.6	0.3	351	0.6	0.1	168	0.6	0.1	183	0.6	0.1
Corpus uteri	1544	0.7	0.6				1544	1.2	0.6	204	0.3	0.1				204	0.7	0.1
Bladder	1390	0.6	0.2	914	1.1	0.3	476	0.4	0.2	233	0.4	0	153	0.5	0	80	0.3	0
Oesophagus	1052	0.5	0.2	515	0.6	0.2	537	0.4	0.2	817	1.4	0.1	438	1.5	0.1	379	1.3	0.1
Pancreas	954	0.4	0.2	487	0.6	0.2	467	0.3	0.2	455	0.8	0.1	267	0.9	0.1	188	0.6	0.1
Gallbladder	470	0.2	0.1	127	0.2	0	343	0.3	0.1	349	0.6	0.1	89	0.3	0	260	0.9	0.1
Vulva	409	0.2	0.1				409	0.3	0.1	124	0.2	0				124	0.4	0
Prostate	362	0.2	0.1	362	0.5	0.1				599	1.0	0.2	599	2.1	0.2			
Multiple myeloma	337	0.2	0.1	169	0.2	0.1	168	0.1	0.1	145	0.2	0	86	0.3	0	59	0.2	0
Larynx	336	0.2	0.1	215	0.3	0.1	121	0.1	0	168	0.3	0	114	0.4	0	54	0.2	0
Hypopharynx	325	0.2	0.1	202	0.3	0.1	123	0.1	0	185	0.3	0	121	0.4	0	64	0.2	0
Oropharynx	319	0.1	0	187	0.2	0.1	132	0.1	0	101	0.2	0	53	0.2	0	48	0.2	0
Penis	268	0.1	0.1	268	0.3	0.1				33	0.1	0	33	0.1	0			
Vagina	155	0.1	0				155	0.1	0	58	0.1	0				58	0.2	0
Mesothelioma	109	0.1	0	43	0.1	0	66	0	0	26	0	0	19	0.1	0	7	0	0

Note: ASR = age-standardized rate; AYAs = adolescents and young adults; NMSC = non-melanoma skin cancer; CNS = central nervous system; IBD = intrahepatic bile ducts.

Table S7. Estimated absolute number, proportion, and ASRs of incidence and mortality by cancer type and sex, among AYAs aged 30 to 34 years worldwide in 2022.

Cancer type	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
All cancers excluded NMSC	372367	100	62.4	123177	100	40.3	249190	100	85.5	99116	100	16.6	42597	100	13.9	56519	100	19.4
Thyroid	78359	21	13.1	21945	17.8	7.2	56414	22.6	19.3	597	0.6	0.1	166	0.4	0	431	0.8	0.1
Breast	76407	20.5	26.2				76407	30.7	26.2	14791	14.9	5.1				14791	26.2	5.1
Cervix uteri	33987	9.1	11.7				33987	13.6	11.7	10046	10.1	3.4				10046	17.8	3.4
Colorectum	15862	4.3	2.7	8151	6.6	2.7	7711	3.1	2.6	6742	6.8	1.1	3670	8.6	1.2	3072	5.4	1.1
Leukaemia	13805	3.7	2.3	7835	6.4	2.6	5970	2.4	2.1	8783	8.9	1.5	5024	11.8	1.6	3759	6.7	1.3
Non-Hodgkin lymphoma	12850	3.5	2.2	7520	6.1	2.5	5330	2.1	1.8	4323	4.4	0.7	2563	6.0	0.8	1760	3.1	0.6
Brain & CNS	11719	3.1	2.0	6858	5.6	2.2	4861	2.0	1.7	6808	6.9	1.1	4103	9.6	1.3	2705	4.8	0.9
Testis	11126	3.0	3.6	11126	9.0	3.6				1015	1.0	0.3	1015	2.4	0.3			
Ovary	10390	2.8	3.6				10390	4.2	3.6	2207	2.2	0.8				2207	3.9	0.8
Liver & IBD	9552	2.6	1.6	7155	5.8	2.3	2397	1.0	0.8	7333	7.4	1.2	5527	13	1.8	1806	3.2	0.6
Trachea, bronchus and lung	8772	2.4	1.5	4237	3.4	1.4	4535	1.8	1.6	4289	4.3	0.7	2323	5.5	0.8	1966	3.5	0.7
Lip, oral cavity	8537	2.3	1.4	6621	5.4	2.2	1916	0.8	0.7	3380	3.4	0.6	2749	6.5	0.9	631	1.1	0.2
Melanoma of skin	7406	2	1.2	2862	2.3	0.9	4544	1.8	1.6	647	0.7	0.1	342	0.8	0.1	305	0.5	0.1
Stomach	6795	1.8	1.1	2863	2.3	0.9	3932	1.6	1.4	4509	4.5	0.8	2123	5.0	0.7	2386	4.2	0.8
Hodgkin lymphoma	6414	1.7	1.1	3633	2.9	1.2	2781	1.1	0.9	959	1.0	0.2	582	1.4	0.2	377	0.7	0.1
Kidney	5018	1.3	0.8	2946	2.4	1.0	2072	0.8	0.7	850	0.9	0.1	473	1.1	0.1	377	0.7	0.1
Nasopharynx	4713	1.3	0.8	3098	2.5	1.0	1615	0.6	0.6	1401	1.4	0.2	915	2.1	0.3	486	0.9	0.2
Kaposi sarcoma	4594	1.2	0.8	2995	2.4	1.0	1599	0.6	0.6	2030	2.0	0.3	1301	3.1	0.4	729	1.3	0.2
Corpus uteri	3337	0.9	1.1				3337	1.3	1.1	492	0.5	0.2				492	0.9	0.2
Bladder	2987	0.8	0.5	2170	1.8	0.7	817	0.3	0.3	392	0.4	0.1	249	0.6	0.1	143	0.3	0
Pancreas	2227	0.6	0.4	1262	1.0	0.4	965	0.4	0.3	1288	1.3	0.2	780	1.8	0.3	508	0.9	0.2
Oesophagus	2071	0.6	0.3	1058	0.9	0.3	1013	0.4	0.3	1380	1.4	0.2	804	1.9	0.3	576	1.0	0.2
Salivary glands	2013	0.5	0.3	976	0.8	0.3	1037	0.4	0.4	435	0.4	0.1	229	0.5	0.1	206	0.4	0.1
Prostate	1759	0.5	0.6	1759	1.4	0.6				539	0.5	0.2	539	1.3	0.2			
Gallbladder	995	0.3	0.2	313	0.3	0.1	682	0.3	0.2	700	0.7	0.1	200	0.5	0.1	500	0.9	0.2
Larynx	960	0.3	0.2	629	0.5	0.2	331	0.1	0.1	434	0.4	0.1	285	0.7	0.1	149	0.3	0
Vulva	927	0.2	0.3				927	0.4	0.3	305	0.3	0.1				305	0.5	0.1
Multiple myeloma	770	0.2	0.1	487	0.4	0.2	283	0.1	0.1	363	0.4	0.1	249	0.6	0.1	114	0.2	0
Hypopharynx	744	0.2	0.1	510	0.4	0.2	234	0.1	0.1	381	0.4	0.1	259	0.6	0.1	122	0.2	0
Penis	731	0.2	0.2	731	0.6	0.2				134	0.1	0	134	0.3	0			
Oropharynx	622	0.2	0.1	369	0.3	0.1	253	0.1	0.1	199	0.2	0	121	0.3	0	78	0.1	0
Vagina	323	0.1	0.1				323	0.1	0.1	98	0.1	0				98	0.2	0
Mesothelioma	201	0.1	0	94	0.1	0	107	0	0	131	0.1	0	91	0.2	0	40	0.1	0

Note: ASR = age-standardized rate; AYAs = adolescents and young adults; NMSC = non-melanoma skin cancer; CNS = central nervous system; IBD = intrahepatic bile ducts.

Table S8. Estimated absolute number, proportion, and ASR of incidence and mortality by cancer type and sex, among AYAs aged 35 to 39 years worldwide in 2022.																		
Cancer type	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
All cancers excluded NMSC	531470	100	94.6	165889	100	58.1	365581	100	132.3	155487	100	27.7	62977	100	22.1	92510	100	33.5
Breast	128734	24.2	46.6				128734	35.2	46.6	26445	17	9.6				26445	28.6	9.6
Thyroid	86090	16.2	15.3	23297	14.0	8.2	62793	17.2	22.7	784	0.5	0.1	257	0.4	0.1	527	0.6	0.2
Cervix uteri	51803	9.7	18.8				51803	14.2	18.8	17913	11.5	6.5				17913	19.4	6.5
Colorectum	26446	5.0	4.7	12974	7.8	4.6	13472	3.7	4.9	9560	6.1	1.7	5012	8	1.8	4548	4.9	1.7
Non-Hodgkin lymphoma	16631	3.1	3.0	9631	5.8	3.4	7000	1.9	2.5	5464	3.5	1	3213	5.1	1.1	2251	2.4	0.8
Liver & IBD	15519	2.9	2.8	11738	7.1	4.1	3781	1.0	1.4	12976	8.3	2.3	9898	15.7	3.5	3078	3.3	1.1
Ovary	15255	2.9	5.5				15255	4.2	5.5	4529	2.9	1.6				4529	4.9	1.6
Lip, oral cavity	14960	2.8	2.7	11543	7.0	4.0	3417	0.9	1.2	6360	4.1	1.1	5019	8.0	1.8	1341	1.4	0.5
Leukaemia	14819	2.8	2.6	8116	4.9	2.8	6703	1.8	2.4	9379	6.0	1.7	5180	8.2	1.8	4199	4.5	1.5
Trachea, bronchus and lung	14629	2.8	2.6	6444	3.9	2.3	8185	2.2	3.0	5774	3.7	1.0	3127	5.0	1.1	2647	2.9	1.0
Brain & CNS	14226	2.7	2.5	8026	4.8	2.8	6200	1.7	2.2	8765	5.6	1.6	5197	8.3	1.8	3568	3.9	1.3
Stomach	11359	2.1	2.0	5285	3.2	1.9	6074	1.7	2.2	7042	4.5	1.3	3239	5.1	1.1	3803	4.1	1.4
Melanoma of skin	10774	2.0	1.9	4457	2.7	1.6	6317	1.7	2.3	1122	0.7	0.2	605	1.0	0.2	517	0.6	0.2
Testis	10292	1.9	3.6	10292	6.2	3.6				829	0.5	0.3	829	1.3	0.3			
Kidney	9451	1.8	1.7	6029	3.6	2.1	3422	0.9	1.2	1293	0.8	0.2	786	1.2	0.3	507	0.5	0.2
Corpus uteri	7601	1.4	2.8				7601	2.1	2.8	819	0.5	0.3				819	0.9	0.3
Nasopharynx	7005	1.3	1.3	4872	2.9	1.7	2133	0.6	0.8	2442	1.6	0.4	1687	2.7	0.6	755	0.8	0.3
Oesophagus	6118	1.2	1.1	3818	2.3	1.3	2300	0.6	0.8	5233	3.4	0.9	3289	5.2	1.2	1944	2.1	0.7
Hodgkin lymphoma	5866	1.1	1.0	3390	2.0	1.2	2476	0.7	0.9	997	0.6	0.2	597	0.9	0.2	400	0.4	0.1
Kaposi sarcoma	4508	0.8	0.8	2988	1.8	1.1	1520	0.4	0.6	1994	1.3	0.4	1264	2.0	0.4	730	0.8	0.3
Bladder	3597	0.7	0.6	2407	1.5	0.8	1190	0.3	0.4	805	0.5	0.1	555	0.9	0.2	250	0.3	0.1
Pancreas	3436	0.6	0.6	1928	1.2	0.7	1508	0.4	0.6	2617	1.7	0.5	1606	2.6	0.6	1011	1.1	0.4
Prostate	3277	0.6	1.2	3277	2.0	1.2				299	0.2	0.1	299	0.5	0.1			
Salivary glands	2429	0.5	0.4	1148	0.7	0.4	1281	0.4	0.5	559	0.4	0.1	282	0.4	0.1	277	0.3	0.1
Gallbladder	2270	0.4	0.4	567	0.3	0.2	1703	0.5	0.6	1628	1.0	0.3	397	0.6	0.1	1231	1.3	0.4
Larynx	1959	0.4	0.3	1487	0.9	0.5	472	0.1	0.2	895	0.6	0.2	679	1.1	0.2	216	0.2	0.1
Hypopharynx	1809	0.3	0.3	1262	0.8	0.4	547	0.1	0.2	1033	0.7	0.2	750	1.2	0.3	283	0.3	0.1
Multiple myeloma	1742	0.3	0.3	1006	0.6	0.3	736	0.2	0.3	863	0.6	0.1	504	0.8	0.2	359	0.4	0.1
Oropharynx	1694	0.3	0.3	1277	0.8	0.4	417	0.1	0.1	661	0.4	0.1	498	0.8	0.2	163	0.2	0.1
Penis	1383	0.3	0.5	1383	0.8	0.5				286	0.2	0.1	286	0.5	0.1			
Vulva	1290	0.2	0.5				1290	0.4	0.5	351	0.2	0.1				351	0.4	0.1
Vagina	588	0.1	0.2				588	0.2	0.2	187	0.1	0.1				187	0.2	0.1
Mesothelioma	258	0	0	143	0.1	0	115	0	0	181	0.1	0	91	0.1	0	90	0.1	0
Note: ASR = age-standardized rate; AYAs = adolescents and young adults; NMSC = non-melanoma skin cancer; CNS = central nervous system; IBD = intrahepatic bile ducts.																		

Table S9. Estimated absolute number, proportion, and ASRs of incidence and mortality by UN regions and sex, among AYAs aged 15 to 39 years worldwide in 2022.

UN region	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
Eastern Africa	72019	5.5	39.6	25274	5.5	27.5	46745	5.6	51.4	40549	10.7	22.3	15988	9.4	17.4	24561	11.8	27.0
Middle Africa	20275	1.6	29.6	7114	1.6	20.4	13161	1.6	38.8	11666	3.1	17.1	4756	2.8	13.8	6910	3.3	20.4
Northern Africa	39011	3.0	36.9	11839	2.6	22.7	27172	3.2	51.1	14234	3.8	13.5	5446	3.2	10.5	8788	4.2	16.5
Southern Africa	13726	1.1	42.0	4602	1.0	28.5	9124	1.1	55.7	5886	1.6	18.1	1967	1.2	12.5	3919	1.9	23.8
Western Africa	41691	3.2	26.8	13990	3.1	17.5	27701	3.3	36.2	23435	6.2	15.1	9345	5.5	11.9	14090	6.8	18.4
Caribbean	7234	0.6	41.2	2309	0.5	26.9	4925	0.6	55.4	2346	0.6	13.3	902	0.5	10.4	1444	0.7	16.1
Central America	31385	2.4	40.3	11722	2.6	30.9	19663	2.3	49.1	9549	2.5	12.3	4506	2.6	11.9	5043	2.4	12.7
South America	84073	6.5	45.2	26378	5.8	29.3	57695	6.9	61.1	22979	6.1	12.3	9527	5.6	10.5	13452	6.5	14.1
Northern America	92507	7.1	65.9	32475	7.1	46.8	60032	7.1	85.4	10699	2.8	7.6	5062	3.0	7.3	5637	2.7	8.0
Eastern Asia	346206	26.6	54.8	119932	26.2	37.5	226274	26.9	73.4	54241	14.4	8.7	30253	17.8	9.5	23988	11.6	7.9
South-Eastern Asia	109897	8.5	38.2	34287	7.5	24.1	75610	9.0	52.5	39300	10.4	13.6	16685	9.8	11.6	22615	10.9	15.7
South Central Asia	234138	18.0	25.5	93757	20.5	19.9	140381	16.7	31.4	104452	27.7	11.4	48872	28.7	10.4	55580	26.8	12.5
Western Asia	48023	3.7	37.4	17517	3.8	26.0	30506	3.6	51.0	14866	3.9	11.6	7073	4.2	10.6	7793	3.8	13.0
Eastern Europe	57199	4.4	51.0	17843	3.9	33.4	39356	4.7	69.0	12100	3.2	10.2	4990	2.9	8.6	7110	3.4	11.8
Northern Europe	22749	1.7	59.0	8298	1.8	44.0	14451	1.7	74.3	2360	0.6	6.0	987	0.6	5.1	1373	0.7	6.9
Southern Europe	29378	2.3	61.9	11482	2.5	49.8	17896	2.1	74.2	3110	0.8	6.4	1476	0.9	6.2	1634	0.8	6.5
Western Europe	40023	3.1	60.2	15648	3.4	48.0	24375	2.9	72.8	4263	1.1	6.3	1927	1.1	5.9	2336	1.1	6.8
Australasia	8558	0.7	72.4	3168	0.7	54.5	5390	0.6	90.5	809	0.2	6.7	371	0.2	6.2	438	0.2	7.2
Pacific Islands	2104	0.2	40.6	489	0.1	18.5	1615	0.2	63.6	777	0.2	15.0	207	0.1	7.9	570	0.3	22.4
Note: ASR = age-standardized rate; AYAs = adolescents and young adults; UN = United Nations. Melanesia, Micronesia, and Polynesia were merged into a single category referred to as the																		

Table S10. Estimated absolute number, proportion, and ASRs of incidence and mortality by country and sex, among AYAs aged 15 to 39 years worldwide in 2022.																	
Country or territory	Estimated new cancer cases and ASR per 100 000 people per year						Estimated cancer-related deaths and ASR per 100 000 people per year										
	Both sexes			Male			Female			Both sexes			Male			Female	
	Cases	ASR		Cases	ASR		Cases	ASR		Cases	ASR		Cases	ASR		Cases	ASR
Afghanistan	5310	33.1		2090	24.6		3220	42.4		2747	17.2		1193	14.0		1554	20.5
Albania	445	39.1		160	27.4		285	53.0		50	4.4		29	4.8		21	3.8
Algeria	8134	41.6		2121	22.7		6013	61.0		2242	11.7		690	7.6		1552	15.8
Angola	5143	40.6		1787	28.3		3356	52.4		2883	22.8		1244	19.9		1639	25.5
Argentina	10313	56.4		3411	38.2		6902	74.6		2507	13.5		1024	11.2		1483	15.8
Armenia	334	27.5		137	24.1		197	30.4		107	8.4		59	10.3		48	6.4
Australia	7511	75.0		2760	55.9		4751	94.4		661	6.4		307	6.0		354	6.8
Austria	1918	58.9		739	46.3		1179	72.0		162	4.9		77	4.9		85	4.9
Azerbaijan	1790	39.1		659	29.8		1131	48.5		601	12.9		253	11.0		348	14.7
Bahamas	62	37.1		18	22.4		44	51.2		9	5.2		2	2.4		7	7.8
Bahrain	185	16.9		87	12.3		98	29.1		48	3.9		27	3.4		21	5.9
Bangladesh	19240	24.5		7428	19.1		11812	29.8		9809	12.5		4412	11.3		5397	13.5
Barbados	37	34.7		7	13.5		30	55.6		5	4.4		0	0.0		5	8.7
Belarus	1966	52.2		658	35.5		1308	69.5		395	9.7		185	9.2		210	10.1
Belgium	2716	67.3		922	47.0		1794	87.9		212	5.2		102	5.2		110	5.2
Belize	43	23.0		11	12.0		32	33.5		15	7.9		3	3.3		12	12.4
Benin	999	20.9		371	15.4		628	26.4		531	11.1		239	9.8		292	12.3
Bhutan	46	11.1		18	8.4		28	14.5		26	6.4		13	6.2		13	6.7
Bolivia	2000	39.8		435	17.4		1565	62.4		629	12.5		216	8.6		413	16.3
Bosnia Herzegovina	527	44.9		196	34.3		331	55.9		79	6.4		37	6.3		42	6.5
Botswana	499	46.1		154	29.5		345	61.6		230	21.3		81	15.5		149	26.7
Brazil	41586	44.5		12376	27.4		29210	61.6		11056	11.8		4502	9.8		6554	13.7
Brunei Darussalam	91	44.3		24	23.5		67	67.8		12	5.9		5	4.8		7	7.2
Bulgaria	981	41.3		331	28.8		650	54.7		241	9.6		111	9.1		130	10.2
Burkina Faso	2323	28.9		795	19.5		1528	38.4		1472	18.2		603	14.9		869	21.7
Burundi	1634	32.7		590	23.5		1044	41.7		865	17.4		320	12.9		545	21.8
Cambodia	2755	33.5		1022	25.3		1733	41.6		1294	15.5		640	15.5		654	15.6
Cameroon	3723	34.0		1315	23.7		2408	44.3		2001	18.3		774	14.1		1227	22.5
Canada	8739	60.8		3321	47.3		5418	74.3		1396	9.8		790	11.2		606	8.2
Cape Verde	49	17.1		15	10.7		34	24.2		17	6.0		7	4.6		10	7.5
Central African Republic	459	25.7		156	17.2		303	34.2		267	15.4		98	11.2		169	19.6

Chad	2180	36.6		842	27.7		1338	45.6		1536	25.8		641	20.9		895	30.7
Chile	3139	39.8		1252	32.4		1887	47.4		762	9.6		373	9.4		389	9.7
China	313828	55.6		111289	38.7		202539	73.9		48918	8.8		27846	9.7		21072	7.8
Colombia	9862	44.0		3411	31.1		6451	56.9		2883	13.0		1317	12.1		1566	13.9
Comoros	120	32.4		33	17.5		87	47.7		61	16.5		23	12.2		38	20.9
Congo, Democratic People Republic of	7835	23.8		2678	15.9		5157	31.6		4452	13.5		1757	10.6		2695	16.5
Congo, Republic of	295	13.8		111	10.3		184	17.2		184	8.6		87	8.1		97	9.0
Costa Rica	977	43.4		332	30.3		645	56.8		271	12.1		122	11.0		149	13.2
Croatia	955	70.5		391	58.7		564	82.6		100	7.1		50	7.3		50	6.9
Cuba	1602	40.2		522	26.6		1080	54.6		441	10.9		201	9.9		240	11.8
Cyprus	392	75.1		114	43.7		278	108.2		23	4.2		14	5.0		9	3.3
Czechia	2082	58.8		758	44.0		1324	74.5		193	5.1		90	4.9		103	5.4
Côte d'Ivoire	3737	35.3		1195	22.4		2542	48.2		2282	21.5		828	15.5		1454	27.5
Denmark	1486	74.8		576	57.7		910	92.4		81	4.1		34	3.4		47	4.7
Djibouti	124	26.3		35	14.4		89	39.5		62	13.1		18	7.4		44	19.5
Dominican Republic	2203	47.7		693	30.6		1510	64.7		728	15.7		273	11.9		455	19.5
Ecuador	2958	38.8		914	24.3		2044	53.4		949	12.5		406	10.8		543	14.2
Egypt	17141	38.8		5544	25.3		11597	52.5		6971	15.8		2717	12.3		4254	19.3
El Salvador	975	35.4		336	26.2		639	42.9		351	12.8		151	11.8		200	13.5
Equatorial Guinea	276	36.7		112	24.4		164	57.3		163	21.7		78	16.9		85	29.7
Eritrea	450	31.0		137	18.6		313	43.5		200	13.8		62	8.5		138	19.2
Estonia	233	48.3		86	37.5		147	60.4		24	4.2		10	3.4		14	5.2
Eswatini	270	53.4		68	27.7		202	76.3		144	28.5		44	17.9		100	37.6
Ethiopia	17684	36.8		5576	22.5		12108	51.0		9469	19.8		3345	13.6		6124	26.0
Fiji	229	60.7		61	33.0		168	89.5		64	16.7		25	13.2		39	20.3
Finland	1082	56.8		430	45.0		652	69.3		84	4.5		40	4.3		44	4.8
France (metropolitan)	15708	72.5		5487	52.5		10221	91.8		1731	8.0		833	8.0		898	7.9
France, Guadeloupe	41	38.7		13	24.2		28	49.0		7	6.4		2	4.0		5	8.3
France, La Réunion	109	36.6		35	24.5		74	47.1		20	6.6		6	4.1		14	8.6
France, Martinique	25	24.4		0	0.0		25	44.0		4	3.9		0	0.0		4	6.8
French Guyana	30	25.3		7	12.1		23	37.3		2	1.7		0	0.0		2	3.3
French Polynesia	38	30.4		7	11.4		31	48.9		3	2.3		0	0.0		3	4.4
Gabon	350	34.5		108	21.3		242	48.3		171	16.6		72	13.9		99	19.5
Gaza Strip and West Bank	788	35.3		286	24.9		502	46.0		275	12.4		121	10.7		154	14.1
Georgia	606	42.3		235	33.4		371	51.2		148	10.1		77	10.7		71	9.5

Germany	13720	48.7		6075	43.3		7645	54.5		1699	5.9		713	5.0		986	6.9
Ghana	5550	42.0		2421	35.6		3129	48.6		3191	24.2		1649	24.4		1542	24.0
Greece	1570	48.1		617	39.0		953	57.9		189	5.6		83	5.0		106	6.2
Guam	16	23.3		1	3.1		15	43.9		1	1.5		0	0.0		1	3.1
Guatemala	2241	27.6		746	18.5		1495	36.5		889	11.0		387	9.5		502	12.3
Guinea	1752	34.4		460	18.6		1292	49.3		1066	21.2		384	15.9		682	26.2
Guinea-Bissau	226	27.6		69	17.1		157	37.3		133	16.3		53	13.3		80	19.1
Guyana	87	28.8		20	12.9		67	45.0		31	10.3		10	6.3		21	14.4
Haiti	1697	33.0		601	24.0		1096	41.6		761	14.8		297	11.8		464	17.6
Honduras	1650	36.2		560	24.4		1090	48.0		894	19.6		407	17.6		487	21.5
Hungary	2475	78.0		900	56.9		1575	99.8		258	7.8		120	7.6		138	8.0
Iceland	64	47.9		22	33.3		42	63.2		9	7.0		6	9.8		3	4.1
India	148821	23.6		61886	18.9		86935	28.7		67260	10.7		32092	9.9		35168	11.7
Indonesia	49598	42.5		14952	25.7		34646	59.6		16878	14.4		6778	11.5		10100	17.2
Iran, Islamic Republic of	14481	36.0		4982	26.4		9499	45.6		4993	12.8		2352	12.7		2641	12.8
Iraq	6503	37.4		2181	24.4		4322	50.9		2538	14.7		1052	11.9		1486	17.6
Ireland	1002	56.0		362	41.9		640	69.9		103	5.7		42	4.9		61	6.4
Israel	1792	55.7		664	41.2		1128	70.5		245	7.5		111	6.7		134	8.2
Italy	12735	70.9		5417	61.5		7318	80.4		1272	7.0		650	7.2		622	6.6
Jamaica	669	51.3		174	26.8		495	75.8		218	16.5		64	9.8		154	23.2
Japan	16792	45.4		4697	27.6		12095	64.0		2317	6.1		1092	5.7		1225	6.5
Jordan	1895	42.5		647	28.9		1248	56.6		604	13.5		257	11.4		347	15.7
Kazakhstan	2265	28.4		680	18.4		1585	38.1		995	12.5		422	11.1		573	13.8
Kenya	5825	24.7		1751	14.7		4074	34.4		2926	12.5		1058	9.1		1868	15.7
Korea, Democratic People Republic of	3055	29.4		952	18.7		2103	40.3		1537	15.2		595	12.2		942	18.4
Korea, Republic of	12163	64.5		2852	30.3		9311	102.6		1300	7.0		637	6.7		663	7.3
Kuwait	367	20.1		136	13.2		231	31.4		88	5.1		45	4.5		43	6.1
Kyrgyzstan	785	27.1		240	17.4		545	36.9		289	9.9		132	9.2		157	10.6
Lao People's Democratic Republic	1371	41.1		460	27.7		911	54.7		566	16.9		250	15.0		316	18.9
Latvia	345	54.4		100	33.8		245	75.9		54	7.5		22	5.8		32	9.3
Lebanon	1036	36.1		386	28.7		650	42.5		290	10.0		127	9.3		163	10.4
Lesotho	358	36.8		102	20.6		256	54.3		192	19.7		61	12.3		131	27.7
Liberia	725	36.0		216	21.1		509	51.0		410	20.5		151	15.0		259	26.0
Libya	886	28.1		249	16.5		637	39.9		302	9.5		103	6.7		199	12.4
Lithuania	447	50.4		143	32.5		304	69.8		104	11.8		47	10.6		57	13.0

Luxembourg	155	59.6		66	52.1		89	67.1		4	1.3		0	0.0		4	2.6
Madagascar	4384	38.6		1391	24.1		2993	53.0		2265	19.9		848	14.7		1417	25.1
Malawi	6111	78.3		2016	51.9		4095	103.6		3958	50.5		1457	37.2		2501	63.1
Malaysia	5918	37.3		1964	24.6		3954	50.9		2316	14.5		1012	12.3		1304	16.8
Maldives	98	24.7		44	15.8		54	45.6		25	6.4		17	6.5		8	6.1
Mali	2943	40.5		879	23.4		2064	57.5		1868	25.6		654	17.4		1214	33.7
Malta	118	68.0		44	50.1		74	87.4		5	2.5		2	1.9		3	3.1
Mauritania	604	30.8		190	19.0		414	42.9		328	16.8		122	12.3		206	21.4
Mauritius	146	29.1		41	17.0		105	41.3		31	6.4		13	5.3		18	7.4
Mexico	23652	42.9		9080	34.0		14572	51.1		6493	11.8		3146	11.8		3347	11.8
Moldova	871	46.9		311	33.9		560	60.3		230	11.2		97	9.5		133	12.9
Mongolia	368	24.5		142	19.6		226	29.3		169	12.5		83	12.7		86	12.2
Montenegro	71	30.4		37	32.4		34	28.0		17	7.0		9	7.6		8	6.4
Morocco	6350	39.9		1788	23.3		4562	56.2		1822	11.6		729	9.5		1093	13.5
Mozambique	9349	75.8		3736	60.6		5613	90.1		6225	50.0		2645	42.5		3580	57.0
Myanmar	8421	35.7		2549	22.3		5872	48.6		3590	15.1		1393	12.0		2197	18.0
Namibia	688	61.0		258	46.9		430	74.3		328	29.1		143	26.0		185	32.0
Nepal	2668	20.4		747	13.3		1921	25.2		1189	9.1		376	6.6		813	10.7
New Caledonia	53	44.4		15	25.5		38	64.1		11	8.7		3	4.9		8	12.7
New Zealand	1047	58.3		408	46.5		639	69.9		148	8.3		64	7.2		84	9.3
Nicaragua	1006	33.4		406	27.4		600	39.4		439	14.6		211	14.2		228	14.9
Niger	3087	37.1		1076	25.2		2011	48.6		2048	24.6		849	20.1		1199	28.8
Nigeria	15480	19.6		5005	12.2		10475	27.3		7683	9.8		2887	7.2		4796	12.5
North Macedonia	296	34.5		109	27.2		187	42.0		52	5.7		18	4.3		34	7.2
Norway	1418	68.9		543	52.8		875	86.0		92	4.6		46	4.6		46	4.5
Oman	918	25.9		505	20.2		413	42.3		322	8.9		206	8.1		116	11.6
Pakistan	30941	31.9		12456	25.1		18485	39.1		13312	13.8		6177	12.5		7135	15.2
Panama	841	47.5		251	28.7		590	66.4		197	11.1		79	9.2		118	13.1
Papua New Guinea	1531	40.3		357	18.3		1174	63.3		626	16.5		157	8.1		469	25.3
Paraguay	1769	53.6		519	31.6		1250	76.5		425	12.8		153	9.1		272	16.5
Peru	6537	45.6		1964	28.8		4573	62.4		1984	13.9		821	12.2		1163	15.9
Philippines	19004	39.7		5881	24.4		13123	55.3		6683	14.0		2894	12.0		3789	16.0
Poland	6448	47.1		2733	42.5		3715	52.2		1198	8.0		642	8.7		556	7.2
Portugal	2380	76.4		767	51.6		1613	100.2		278	8.7		128	8.4		150	8.9
Puerto Rico	447	49.7		154	34.4		293	65.2		64	7.0		30	6.6		34	7.3

Qatar	383	18.7		244	15.5		139	30.2		95	5.0		67	4.6		28	6.1
Romania	3342	51.5		1113	34.9		2229	69.5		591	8.6		261	7.6		330	9.7
Russian Federation	30883	53.2		8474	30.8		22409	75.9		6958	11.5		2668	9.1		4290	13.9
Rwanda	1272	22.7		468	17.1		804	27.9		751	13.4		317	11.6		434	15.1
Saint Lucia	24	27.8		3	7.8		21	46.9		2	2.2		0	0.0		2	4.3
Samoa	27	38.3		8	20.3		19	58.4		3	3.8		2	4.8		1	2.8
Sao Tome and Principe	14	16.9		5	11.7		9	22.1		9	10.8		5	11.7		4	9.8
Saudi Arabia	4710	28.0		1891	20.1		2819	38.9		1356	8.1		688	7.4		668	9.1
Senegal	2317	34.7		632	19.4		1685	48.9		1274	19.1		437	13.5		837	24.3
Serbia	1243	39.4		529	34.5		714	44.4		263	8.2		118	7.5		145	8.9
Sierra Leone	548	16.6		182	10.8		366	22.5		347	10.5		159	9.4		188	11.6
Singapore	1200	51.2		413	35.6		787	68.9		185	8.2		98	8.3		87	8.1
Slovakia	1008	49.4		438	44.2		570	54.8		144	6.7		59	5.7		85	7.8
Slovenia	425	63.3		168	51.6		257	75.9		35	4.7		19	5.2		16	4.1
Solomon Islands	116	43.8		28	20.4		88	67.3		47	17.7		14	10.0		33	25.3
Somalia	1793	31.6		559	18.6		1234	44.3		964	17.2		316	10.6		648	23.6
South Africa	11911	41.1		4020	28.0		7891	54.3		4991	17.3		1637	11.8		3354	22.9
South Sudan	1065	24.0		361	16.0		704	32.1		590	13.4		209	9.3		381	17.4
Spain	8489	59.3		3037	44.4		5452	74.3		764	5.2		328	4.7		436	5.7
Sri Lanka	1891	24.5		587	16.2		1304	31.7		552	7.1		236	6.5		316	7.6
Sudan	4785	27.3		1534	17.0		3251	37.4		2390	13.6		973	10.9		1417	16.3
Suriname	108	44.2		31	26.0		77	63.0		19	7.8		9	7.4		10	8.2
Sweden	2308	63.1		884	48.8		1424	78.0		177	4.8		86	4.7		91	4.8
Switzerland	1756	56.0		771	50.6		985	61.4		120	3.8		57	3.7		63	3.9
Syrian Arab Republic	2913	32.4		974	21.9		1939	42.9		1147	12.9		496	11.4		651	14.4
Tajikistan	1349	32.4		495	24.0		854	40.7		690	16.9		341	16.8		349	16.9
Tanzania, United Republic of	6217	26.4		2284	19.2		3933	33.6		3456	14.6		1488	12.4		1968	16.8
Thailand	8746	34.3		2826	22.7		5920	46.0		2969	11.6		1381	10.7		1588	12.4
The Netherlands	4046	69.4		1587	55.1		2459	84.0		335	5.6		145	5.0		190	6.3
The Republic of the Gambia	407	41.8		157	32.4		250	50.8		279	28.5		135	27.9		144	29.1
Timor-Leste	135	24.5		39	13.9		96	35.5		34	6.5		16	5.9		18	7.1
Togo	944	27.9		327	19.1		617	36.7		506	15.0		188	11.1		318	18.9
Trinidad and Tobago	273	46.1		80	29.0		193	63.3		70	12.3		21	8.4		49	16.3
Tunisia	1618	31.7		574	23.5		1044	39.8		488	9.8		227	9.4		261	10.2
Turkmenistan	948	34.8		305	23.2		643	46.3		411	15.1		154	11.6		257	18.4

Türkiye	18666	53.0		6513	37.6		12153	68.5		4334	12.5		2274	13.4		2060	11.6
Uganda	9032	50.5		3701	41.6		5331	58.7		5090	28.3		2282	25.4		2808	30.9
Ukraine	7143	40.4		2127	25.0		5016	56.4		1892	10.3		757	8.4		1135	12.3
United Arab Emirates	652	9.1		144	3.0		508	23.8		131	1.8		45	1.0		86	4.0
United Kingdom	14323	57.6		5141	42.6		9182	72.6		1631	6.4		654	5.2		977	7.6
United States of America	83756	66.5		29153	46.8		54603	86.7		9303	7.4		4272	6.8		5031	7.9
Uruguay	750	56.7		258	39.6		492	74.0		146	10.9		62	9.4		84	12.4
Uzbekistan	5295	33.8		1799	23.9		3496	43.7		2154	13.8		955	12.5		1199	15.1
Vanuatu	41	32.0		8	12.5		33	49.9		18	14.1		6	9.4		12	18.1
Venezuela	4934	42.0		1780	31.3		3154	52.2		1586	13.5		634	11.3		952	15.6
Viet Nam	12658	29.4		4157	20.0		8501	39.1		4773	11.5		2218	10.9		2555	12.0
Yemen	4315	31.8		1773	25.7		2542	38.0		2498	18.5		1151	16.8		1347	20.2
Zambia	3780	51.0		1632	44.1		2148	57.6		2051	27.3		994	26.6		1057	28.0
Zimbabwe	2887	49.2		919	34.1		1968	61.2		1551	26.2		583	21.2		968	30.0
Note: ASR = age-standardized rate; AYAs = adolescents and young adults.																	

Table S11. Estimated absolute number, proportion, and ASRs of incidence and mortality by HDI and sex, among AYAs aged 15 to 39 years worldwide in 2022.

HDI category	Estimated new cancer cases and ASR per 100 000 people per year									Estimated cancer-related deaths and ASR per 100 000 people per year								
	Both sexes			Men			Women			Both sexes			Men			Women		
	Cases	(%)	ASR	Cases	(%)	ASR	Cases	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR	Deaths	(%)	ASR
Very High HDI	333038	25.6	54.8	115514	25.2	38.5	217524	25.8	72.2	51776	13.7	8.4	23697	13.9	7.7	28079	13.6	9.2
High HDI	546699	42.1	47.8	186012	40.6	32.7	360687	42.8	63.5	123763	32.8	11.0	58880	34.6	10.4	64883	31.3	11.5
Medium HDI	271413	20.9	27.2	103293	22.5	20.3	168120	20.0	34.5	122317	32.4	12.3	55337	32.5	10.9	66980	32.3	13.8
Low HDI	148746	11.4	32.0	53255	11.6	22.4	95491	11.3	41.7	79667	21.1	17.2	32394	19	13.7	47273	22.8	20.6

Note: ASR = age-standardized rate, HDI = Human Development Index; AYAs = adolescents and young adults.

Table S12. Comprehensive measures monitoring HDI-related inequalities in age-standardized rates and incidence-mortality ratio.				
	Disproportionality measures		Regression-based measures	
	Absolute concentration index	Relative concentration index	Slope index of inequality	Relative index of inequality
Age-standardized Incidence Rate	6.11 (5.27 to 6.94)	0.13 (0.11 to 0.15)	37.23 (24.90 to 49.57)	2.37 (1.66 to 3.38)
Age-standardized Mortality Rate	-2.40 (-2.92 to -1.87)	-0.17 (-0.21 to -0.14)	-14.50 (-21.73 to -7.27)	0.31 (0.18 to 0.54)
Mortality-Incidence Rate Ratio	-0.08 (-0.09 to -0.07)	-0.21 (-0.23 to -0.20)	-0.48 (-0.57 to -0.40)	0.22 (0.13 to 0.35)

Table S13. AAPC in ASRs of incidence and mortality by sex, cancer type, region, HDI, and country among AYAs aged 15 to 39 years worldwide from 2000 to 2021.

	Age-standardized incidence rate		Age-standardized mortality rates	
	AAPC from 2000 to 2021	P value	AAPC from 2000 to 2021	P value
Both	0.17 (0.09 to 0.24)	P < 0.001	-1.1 (-1.26 to -0.94)	P < 0.001
Sex				
Male	0.09 (-0.02 to 0.19)	0.093	-1.25 (-1.42 to -1.09)	P < 0.001
Female	0.22 (0.15 to 0.29)	P < 0.001	-0.95 (-1.1 to -0.8)	P < 0.001
Top 10 cancer types				
Brain & CNS	0.52 (0.47 to 0.57)	P < 0.001	-0.45 (-0.51 to -0.4)	P < 0.001
Breast	1.24 (1.12 to 1.35)	P < 0.001	0.28 (0.09 to 0.47)	0.006
Cervix	-0.09 (-0.16 to -0.01)	0.026	-1.16 (-1.27 to -1.05)	P < 0.001
Colorectum	0.50 (0.35 to 0.65)	P < 0.001	-0.98 (-1.21 to -0.76)	P < 0.001
Leukemia	-1.04 (-1.1 to -0.98)	P < 0.001	-1.58 (-1.67 to -1.49)	P < 0.001
Liver	-1.49 (-1.84 to -1.14)	P < 0.001	-1.92 (-2.31 to -1.52)	P < 0.001
NHL	0.46 (0.33 to 0.59)	P < 0.001	-0.52 (-0.65 to -0.39)	P < 0.001
Ovary	0.54 (0.45 to 0.63)	P < 0.001	0.21 (0.07 to 0.34)	0.004
Testis	1.76 (1.64 to 1.88)	P < 0.001	0.31 (0.04 to 0.57)	0.026
Thyroid	1.73 (1.5 to 1.96)	P < 0.001	0.09 (-0.24 to 0.42)	0.564
UN region				
Australasia	-0.85 (-1.1 to -0.6)	P < 0.001	-1.61 (-1.76 to -1.46)	P < 0.001
Caribbean	0.03 (-0.14 to 0.21)	0.716	0.01 (-0.19 to 0.2)	0.944
Central America	1.02 (0.8 to 1.23)	P < 0.001	0.15 (0.03 to 0.27)	0.017
Eastern Africa	0.19 (0.01 to 0.37)	0.041	-0.5 (-0.63 to -0.38)	P < 0.001
Eastern Asia	1.11 (0.91 to 1.32)	P < 0.001	-1.47 (-1.83 to -1.1)	P < 0.001
Eastern Europe	0.26 (0.06 to 0.46)	0.014	-1.94 (-2.04 to -1.84)	P < 0.001
Middle Africa	0.67 (0.57 to 0.78)	P < 0.001	0 (-0.08 to 0.07)	0.961
Northern Africa	1.23 (1.17 to 1.29)	P < 0.001	0.25 (0.17 to 0.33)	P < 0.001
Northern America	-0.53 (-0.64 to -0.41)	P < 0.001	-1.07 (-1.23 to -0.9)	P < 0.001
Northern Europe	-0.01 (-0.38 to 0.36)	0.952	-1.18 (-1.4 to -0.96)	P < 0.001
Pacific Islands	0.01 (-0.25 to 0.27)	0.939	-0.01 (-0.2 to 0.17)	0.867
South America	1.15 (1.02 to 1.29)	P < 0.001	-0.31 (-0.37 to -0.24)	P < 0.001
South Central Asia	0.64 (0.53 to 0.74)	P < 0.001	-0.64 (-0.72 to -0.56)	P < 0.001
South-Eastern Asia	0.09 (-0.08 to 0.26)	0.264	-0.88 (-1 to -0.75)	P < 0.001
Southern Africa	-1.85 (-2.89 to -0.79)	0.002	-2.86 (-3.82 to -1.88)	P < 0.001

Southern Europe	-0.78 (-1.03 to -0.53)	P < 0.001		-2.19 (-2.36 to -2.03)	P < 0.001
Western Africa	0.48 (0.29 to 0.66)	P < 0.001		-0.22 (-0.41 to -0.03)	0.026
Western Asia	1.38 (1.22 to 1.53)	P < 0.001		-1.18 (-1.29 to -1.06)	P < 0.001
Western Europe	-0.09 (-0.36 to 0.18)	0.496		-1.42 (-1.57 to -1.27)	P < 0.001
HDI category					
Very High HDI	-0.02 (-0.13 to 0.09)	0.709		-1.51 (-1.6 to -1.41)	P < 0.001
High HDI	0.93 (0.76 to 1.1)	P < 0.001		-1.19 (-1.43 to -0.95)	P < 0.001
Medium HDI	0.41 (0.3 to 0.52)	P < 0.001		-0.77 (-0.84 to -0.69)	P < 0.001
Low HDI	0.42 (0.31 to 0.54)	P < 0.001		-0.35 (-0.45 to -0.26)	P < 0.001
Country or territory					
Afghanistan	0.40 (0.24 to 0.56)	P < 0.001		-0.37 (-0.52 to -0.23)	P < 0.001
Albania	-0.19 (-0.60 to 0.21)	0.33		-1.93 (-2.22 to -1.63)	P < 0.001
Algeria	0.80 (0.63 to 0.98)	P < 0.001		-1.04 (-1.21 to -0.88)	P < 0.001
Angola	0.93 (0.77 to 1.09)	P < 0.001		0.03 (-0.14 to 0.20)	0.707
Argentina	0.77 (0.45 to 1.08)	P < 0.001		-0.61 (-0.89 to -0.33)	P < 0.001
Armenia	-1.16 (-1.59 to -0.71)	P < 0.001		-2.03 (-2.48 to -1.57)	P < 0.001
Australia	-0.93 (-1.22 to -0.64)	P < 0.001		-1.57 (-1.74 to -1.40)	P < 0.001
Austria	-0.54 (-0.82 to -0.25)	0.001		-1.69 (-1.84 to -1.54)	P < 0.001
Azerbaijan	-0.26 (-0.54 to 0.02)	0.067		-1.39 (-1.6 to -1.18)	P < 0.001
Bahamas	0.55 (0.32 to 0.77)	P < 0.001		0.21 (0.02 to 0.41)	0.035
Bahrain	0.81 (0.52 to 1.1)	P < 0.001		-1.33 (-1.67 to -1.00)	P < 0.001
Bangladesh	1.34 (1.08 to 1.6)	P < 0.001		-0.36 (-0.64 to -0.07)	0.017
Barbados	-0.07 (-0.32 to 0.17)	0.547		-0.76 (-0.97 to -0.54)	P < 0.001
Belarus	-0.10 (-0.45 to 0.26)	0.585		-2.50 (-2.9 to -2.10)	P < 0.001
Belgium	-0.47 (-0.88 to -0.06)	0.026		-1.71 (-2.12 to -1.31)	P < 0.001
Belize	0.27 (-0.21 to 0.74)	0.253		-0.57 (-0.99 to -0.14)	0.012
Benin	0.03 (-0.19 to 0.26)	0.772		-0.49 (-0.72 to -0.26)	P < 0.001
Bhutan	0.39 (0.31 to 0.48)	P < 0.001		-0.9 (-0.96 to -0.84)	P < 0.001
Bolivia (Plurinational State of)	0.02 (-0.19 to 0.22)	0.877		-0.93 (-1.14 to -0.72)	P < 0.001
Bosnia and Herzegovina	0.01 (-0.31 to 0.34)	0.93		-1.29 (-1.58 to -1.00)	P < 0.001
Botswana	1.09 (0.45 to 1.74)	0.002		-0.21 (-0.77 to 0.35)	0.444
Brazil	0.95 (0.79 to 1.10)	P < 0.001		-0.32 (-0.39 to -0.24)	P < 0.001
Brunei Darussalam	0.66 (0.43 to 0.88)	P < 0.001		-0.13 (-0.35 to 0.09)	0.234
Bulgaria	1.27 (0.81 to 1.74)	P < 0.001		-0.11 (-0.61 to 0.39)	0.649
Burkina Faso	0.43 (0.16 to 0.70)	0.003		0.28 (-0.02 to 0.58)	0.068

Burundi	-0.5 (-0.70 to -0.31)	P < 0.001		-0.88 (-1.08 to -0.68)	P < 0.001
Cabo Verde	-1.02 (-1.48 to -0.56)	P < 0.001		-1.67 (-2.07 to -1.27)	P < 0.001
Cambodia	0.62 (0.52 to 0.72)	P < 0.001		-0.56 (-0.66 to -0.46)	P < 0.001
Cameroon	0.19 (0.09 to 0.30)	0.001		-0.36 (-0.47 to -0.24)	P < 0.001
Canada	0.42 (0.19 to 0.65)	0.001		-0.43 (-0.74 to -0.12)	0.009
Central African Republic	0.07 (-0.1 to 0.25)	0.393		-0.23 (-0.41 to -0.06)	0.012
Chad	0.56 (0.51 to 0.62)	P < 0.001		0.09 (0.03 to 0.15)	0.004
Chile	1.59 (1.39 to 1.79)	P < 0.001		-0.92 (-1.08 to -0.75)	P < 0.001
China	1.26 (1.01 to 1.51)	P < 0.001		-1.47 (-1.86 to -1.09)	P < 0.001
Colombia	1.85 (1.65 to 2.04)	P < 0.001		0.03 (-0.17 to 0.23)	0.744
Comoros	0.75 (-0.42 to 1.94)	0.198		0.21 (-1.06 to 1.51)	0.734
Congo	0.84 (0.62 to 1.05)	P < 0.001		-0.18 (-0.37 to 0.02)	0.078
Costa Rica	2.41 (1.99 to 2.84)	P < 0.001		1.13 (0.74 to 1.52)	P < 0.001
Croatia	0.63 (0 to 1.27)	0.051		-1.29 (-1.81 to -0.76)	P < 0.001
Cuba	-0.38 (-0.72 to -0.04)	0.03		-1.13 (-1.41 to -0.84)	P < 0.001
Cyprus	-0.21 (-0.97 to 0.56)	0.58		-2.68 (-2.99 to -2.37)	P < 0.001
Czechia	1.13 (0.77 to 1.50)	P < 0.001		-0.56 (-0.91 to -0.2)	0.004
Democratic People's Republic of Korea	0.62 (0.51 to 0.73)	P < 0.001		-0.39 (-0.49 to -0.29)	P < 0.001
Democratic Republic of the Congo	0.85 (0.58 to 1.13)	P < 0.001		0.20 (-0.01 to 0.42)	0.065
Denmark	-0.39 (-0.76 to -0.01)	0.043		-2.42 (-2.79 to -2.06)	P < 0.001
Djibouti	0.21 (-0.01 to 0.43)	0.064		-0.54 (-0.78 to -0.30)	P < 0.001
Dominican Republic	0.97 (0.55 to 1.40)	P < 0.001		0.89 (0.38 to 1.39)	0.001
Ecuador	-0.10 (-0.44 to 0.24)	0.527		-1.27 (-1.71 to -0.83)	P < 0.001
Egypt	1.64 (1.54 to 1.74)	P < 0.001		0.84 (0.69 to 0.99)	P < 0.001
El Salvador	0.70 (0.34 to 1.06)	0.001		0.02 (-0.36 to 0.4)	0.906
Equatorial Guinea	0.86 (0.59 to 1.12)	P < 0.001		-0.37 (-0.61 to -0.14)	0.004
Eritrea	0.29 (0.18 to 0.40)	P < 0.001		-0.18 (-0.28 to -0.09)	0.001
Estonia	0.18 (-0.41 to 0.78)	0.533		-2.73 (-3.07 to -2.39)	P < 0.001
Eswatini	-0.51 (-1.07 to 0.06)	0.075		-1.05 (-1.64 to -0.46)	0.001
Ethiopia	-0.53 (-0.94 to -0.12)	0.013		-1.63 (-1.98 to -1.27)	P < 0.001
Fiji	0.58 (0.37 to 0.78)	P < 0.001		0.53 (0.39 to 0.67)	P < 0.001
Finland	0.69 (0.39 to 1.00)	P < 0.001		-1.19 (-1.40 to -0.98)	P < 0.001
France	0.54 (0.16 to 0.92)	0.008		-1.43 (-1.56 to -1.28)	P < 0.001
Gabon	0.03 (-0.13 to 0.19)	0.718		-0.92 (-1.05 to -0.77)	P < 0.001
Gambia	0.84 (0.32 to 1.38)	0.003		0.34 (-0.25 to 0.94)	0.239

Georgia	-0.26 (-0.80 to 0.28)	0.322		-0.32 (-0.91 to 0.28)	0.278
Germany	-0.45 (-0.69 to -0.20)	0.001		-1.11 (-1.32 to -0.89)	P < 0.001
Ghana	-0.71 (-0.99 to -0.42)	P < 0.001		-1.33 (-1.63 to -1.03)	P < 0.001
Greece	-1.06 (-1.52 to -0.61)	P < 0.001		-1.11 (-1.36 to -0.86)	P < 0.001
Guam	1.07 (0.41 to 1.74)	0.003		1.54 (0.98 to 2.11)	P < 0.001
Guatemala	-0.85 (-1.2 to -0.5)	P < 0.001		-1.51 (-1.82 to -1.2)	P < 0.001
Guinea	0.60 (0.47 to 0.73)	P < 0.001		0.10 (-0.07 to 0.27)	0.244
Guinea-Bissau	0.14 (0.08 to 0.20)	P < 0.001		-0.36 (-0.43 to -0.29)	P < 0.001
Guyana	0.12 (-0.24 to 0.48)	0.498		-0.12 (-0.42 to 0.18)	0.407
Haiti	-0.32 (-0.5 to -0.15)	0.001		-0.54 (-0.72 to -0.36)	P < 0.001
Honduras	-1.85 (-2.34 to -1.37)	P < 0.001		-2.38 (-2.83 to -1.93)	P < 0.001
Hungary	-0.40 (-0.72 to -0.08)	0.017		-2.00 (-2.29 to -1.71)	P < 0.001
Iceland	1.57 (1.29 to 1.85)	P < 0.001		0.67 (0.23 to 1.12)	0.005
India	0.31 (0.16 to 0.47)	P < 0.001		-0.96 (-1.07 to -0.84)	P < 0.001
Indonesia	0.04 (-0.01 to 0.08)	0.09		-0.71 (-0.79 to -0.64)	P < 0.001
Iran (Islamic Republic of)	2.78 (2.49 to 3.08)	P < 0.001		0.10 (-0.13 to 0.34)	0.359
Iraq	1.3 (1.06 to 1.55)	P < 0.001		-0.88 (-1.09 to -0.67)	P < 0.001
Ireland	0.12 (-0.52 to 0.76)	0.705		-2.25 (-2.58 to -1.91)	P < 0.001
Israel	-0.56 (-0.82 to -0.31)	P < 0.001		-2.32 (-2.66 to -1.97)	P < 0.001
Italy	-0.83 (-1.24 to -0.42)	P < 0.001		-2.17 (-2.43 to -1.90)	P < 0.001
Jamaica	0.59 (-0.17 to 1.36)	0.121		0.11 (-0.7 to 0.93)	0.775
Japan	-0.05 (-0.27 to 0.17)	0.666		-1.64 (-1.75 to -1.53)	P < 0.001
Jordan	0.77 (0.47 to 1.07)	P < 0.001		-1.78 (-1.94 to -1.62)	P < 0.001
Kazakhstan	-1.54 (-1.9 to -1.19)	P < 0.001		-3.94 (-4.26 to -3.62)	P < 0.001
Kenya	0.91 (0.76 to 1.05)	P < 0.001		0.46 (0.2 to 0.71)	0.001
Kuwait	0.39 (-0.06 to 0.84)	0.087		-1.93 (-2.30 to -1.57)	P < 0.001
Kyrgyzstan	0.29 (0.01 to 0.56)	0.041		-1.03 (-1.24 to -0.83)	P < 0.001
Lao People's Democratic Republic	0.06 (-0.04 to 0.15)	0.246		-1.00 (-1.1 to -0.9)	P < 0.001
Latvia	-0.19 (-0.51 to 0.14)	0.238		-1.69 (-2.02 to -1.37)	P < 0.001
Lebanon	1.78 (1.47 to 2.09)	P < 0.001		-0.56 (-0.73 to -0.39)	P < 0.001
Lesotho	2.08 (1.52 to 2.63)	P < 0.001		1.77 (1.19 to 2.36)	P < 0.001
Liberia	1.52 (1.2 to 1.84)	P < 0.001		0.99 (0.62 to 1.36)	P < 0.001
Libya	1.52 (0.94 to 2.1)	P < 0.001		0.49 (0.08 to 0.90)	0.023
Lithuania	-0.51 (-1 to 0)	0.048		-1.09 (-1.69 to -0.48)	0.001
Luxembourg	-2.15 (-2.6 to -1.7)	P < 0.001		-3.86 (-4.11 to -3.60)	P < 0.001

Madagascar	0.37 (0.2 to 0.54)	P < 0.001		-0.01 (-0.15 to 0.13)	0.908
Malawi	0.40 (0.29 to 0.51)	P < 0.001		-0.3 (-0.41 to -0.19)	P < 0.001
Malaysia	1.34 (1.05 to 1.62)	P < 0.001		0 (-0.32 to 0.33)	0.977
Maldives	-1.52 (-1.71 to -1.34)	P < 0.001		-2.78 (-2.95 to -2.60)	P < 0.001
Mali	0.21 (0.09 to 0.33)	0.001		-0.11 (-0.23 to 0.01)	0.069
Malta	0.78 (0.22 to 1.34)	0.009		-0.54 (-1.07 to -0.02)	0.043
Mauritania	0.07 (-0.12 to 0.25)	0.466		-1.01 (-1.17 to -0.85)	P < 0.001
Mauritius	1.88 (1.56 to 2.21)	P < 0.001		1.12 (0.86 to 1.38)	P < 0.001
Mexico	1.39 (1.11 to 1.67)	P < 0.001		0.53 (0.37 to 0.69)	P < 0.001
Mongolia	0.13 (-0.22 to 0.47)	0.455		-0.84 (-1.19 to -0.49)	P < 0.001
Montenegro	0.13 (-0.14 to 0.4)	0.339		-1.75 (-1.98 to -1.53)	P < 0.001
Morocco	0.41 (0.21 to 0.6)	P < 0.001		-1.12 (-1.34 to -0.90)	P < 0.001
Mozambique	1.16 (1.03 to 1.29)	P < 0.001		0.92 (0.70 to 1.14)	P < 0.001
Myanmar	-0.95 (-1.22 to -0.68)	P < 0.001		-2.02 (-2.25 to -1.79)	P < 0.001
Namibia	0.88 (0.72 to 1.03)	P < 0.001		-0.47 (-0.61 to -0.33)	P < 0.001
Nepal	1.33 (1.22 to 1.45)	P < 0.001		0.31 (0.20 to 0.42)	P < 0.001
Netherlands	0.08 (-0.15 to 0.31)	0.485		-2.01 (-2.23 to -1.78)	P < 0.001
New Zealand	-0.42 (-0.64 to -0.19)	0.001		-1.75 (-1.95 to -1.54)	P < 0.001
Nicaragua	0.22 (-0.09 to 0.54)	0.15		-0.64 (-0.94 to -0.35)	P < 0.001
Niger	-0.14 (-0.34 to 0.05)	0.141		-0.63 (-0.88 to -0.37)	P < 0.001
Nigeria	0.80 (0.54 to 1.05)	P < 0.001		-0.14 (-0.39 to 0.11)	0.261
North Macedonia	-0.19 (-0.62 to 0.25)	0.381		-1.94 (-2.16 to -1.72)	P < 0.001
Norway	-1.4 (-1.8 to -0.99)	P < 0.001		-2.26 (-2.53 to -2)	P < 0.001
Oman	1.19 (0.65 to 1.74)	P < 0.001		-0.89 (-1.45 to -0.33)	0.004
Pakistan	0.68 (0.62 to 0.74)	P < 0.001		-0.23 (-0.29 to -0.16)	P < 0.001
Palestine	1.44 (0.99 to 1.89)	P < 0.001		-0.43 (-0.8 to -0.06)	0.023
Panama	1.50 (1.39 to 1.60)	P < 0.001		0.42 (0.14 to 0.70)	0.005
Papua New Guinea	-0.05 (-0.37 to 0.27)	0.728		-0.12 (-0.36 to 0.12)	0.298
Paraguay	0.56 (0.36 to 0.77)	P < 0.001		-0.3 (-0.53 to -0.08)	0.011
Peru	1.31 (0.98 to 1.65)	P < 0.001		-0.82 (-1.14 to -0.50)	P < 0.001
Philippines	0.32 (0.14 to 0.5)	0.001		-0.32 (-0.42 to -0.22)	P < 0.001
Poland	0.29 (0.18 to 0.4)	P < 0.001		-1.75 (-1.85 to -1.64)	P < 0.001
Portugal	-0.62 (-0.94 to -0.3)	0.001		-2.93 (-3.21 to -2.65)	P < 0.001
Puerto Rico	1.21 (0.92 to 1.49)	P < 0.001		-0.64 (-0.92 to -0.35)	P < 0.001
Qatar	1.51 (1.05 to 1.98)	P < 0.001		-1.81 (-2.17 to -1.46)	P < 0.001

Republic of Korea	0.41 (-0.03 to 0.85)	0.065		-2.76 (-3.11 to -2.42)	P < 0.001
Republic of Moldova	0.01 (-0.26 to 0.28)	0.963		-1.60 (-1.98 to -1.22)	P < 0.001
Romania	-0.16 (-0.34 to 0.03)	0.09		-1.70 (-1.83 to -1.56)	P < 0.001
Russian Federation	0.68 (0.31 to 1.04)	0.001		-1.95 (-2.15 to -1.74)	P < 0.001
Rwanda	-0.95 (-1.35 to -0.55)	P < 0.001		-1.94 (-2.37 to -1.50)	P < 0.001
Saint Lucia	0.42 (0.03 to 0.82)	0.036		-0.31 (-0.60 to -0.03)	0.03
Samoa	1.32 (1.16 to 1.49)	P < 0.001		0.76 (0.60 to 0.92)	P < 0.001
Sao Tome and Principe	-1.29 (-1.67 to -0.91)	P < 0.001		-1.94 (-2.26 to -1.62)	P < 0.001
Saudi Arabia	3.00 (2.68 to 3.31)	P < 0.001		0.09 (-0.22 to 0.4)	0.533
Senegal	0.45 (0.14 to 0.76)	0.007		0.08 (-0.26 to 0.42)	0.639
Serbia	-0.36 (-0.58 to -0.14)	0.003		-2.48 (-2.70 to -2.25)	P < 0.001
Sierra Leone	1.19 (0.99 to 1.39)	P < 0.001		0.52 (0.31 to 0.73)	P < 0.001
Singapore	0.53 (0.16 to 0.89)	0.007		-1.81 (-2.40 to -1.23)	P < 0.001
Slovakia	1.10 (0.89 to 1.31)	P < 0.001		-0.95 (-1.08 to -0.82)	P < 0.001
Slovenia	0.92 (0.41 to 1.42)	0.001		-1.99 (-2.53 to -1.45)	P < 0.001
Solomon Islands	1.09 (0.90 to 1.28)	P < 0.001		0.66 (0.52 to 0.80)	P < 0.001
Somalia	-0.11 (-0.28 to 0.06)	0.179		-0.27 (-0.41 to -0.13)	0.001
South Africa	-2.13 (-3.27 to -0.97)	0.001		-3.21 (-4.28 to -2.13)	P < 0.001
South Sudan	2.41 (2.14 to 2.67)	P < 0.001		1.83 (1.58 to 2.08)	P < 0.001
Spain	-1.03 (-1.23 to -0.84)	P < 0.001		-2.54 (-2.85 to -2.22)	P < 0.001
Sri Lanka	-0.08 (-0.48 to 0.32)	0.665		-2.15 (-2.60 to -1.69)	P < 0.001
Sudan	1.24 (1.15 to 1.33)	P < 0.001		0.04 (-0.10 to 0.17)	0.585
Suriname	1.46 (1.10 to 1.81)	P < 0.001		0.80 (0.49 to 1.11)	P < 0.001
Sweden	-0.03 (-0.56 to 0.50)	0.91		-1.01 (-1.27 to -0.75)	P < 0.001
Switzerland	-1.86 (-2.12 to -1.60)	P < 0.001		-2.54 (-2.78 to -2.3)	P < 0.001
Syrian Arab Republic	1.42 (1.16 to 1.68)	P < 0.001		-0.39 (-0.76 to -0.02)	0.041
Tajikistan	-0.04 (-0.39 to 0.31)	0.801		-0.45 (-0.77 to -0.12)	0.01
Thailand	0.07 (-0.41 to 0.55)	0.766		-1.38 (-1.88 to -0.86)	P < 0.001
Timor-Leste	2.87 (1.87 to 3.88)	P < 0.001		1.90 (0.90 to 2.90)	0.001
Togo	1.05 (0.85 to 1.25)	P < 0.001		0.37 (0.18 to 0.57)	0.001
Trinidad and Tobago	1.08 (0.86 to 1.31)	P < 0.001		0 (-0.24 to 0.23)	0.977
Tunisia	1.19 (1.08 to 1.29)	P < 0.001		-0.60 (-0.69 to -0.52)	P < 0.001
Turkey	2.44 (2.12 to 2.77)	P < 0.001		-1.06 (-1.32 to -0.8)	P < 0.001
Turkmenistan	1.83 (1.54 to 2.12)	P < 0.001		1.00 (0.73 to 1.26)	P < 0.001
Uganda	0.18 (-0.2 to 0.55)	0.335		-0.60 (-0.95 to -0.26)	0.002

Ukraine	-1.41 (-1.66 to -1.15)	P < 0.001		-2.50 (-2.79 to -2.20)	P < 0.001
United Arab Emirates	1.32 (0.75 to 1.89)	P < 0.001		-0.60 (-1.06 to -0.14)	0.013
United Kingdom	0 (-0.39 to 0.39)	0.986		-0.86 (-1.13 to -0.59)	P < 0.001
United Republic of Tanzania	0.22 (0.13 to 0.31)	P < 0.001		-0.30 (-0.36 to -0.23)	P < 0.001
United States of America	-0.63 (-0.75 to -0.51)	P < 0.001		-1.13 (-1.28 to -0.97)	P < 0.001
Uruguay	1.54 (1.31 to 1.77)	P < 0.001		0.44 (0.20 to 0.68)	0.001
Uzbekistan	0.27 (-0.10 to 0.65)	0.145		-0.51 (-0.88 to -0.13)	0.011
Vanuatu	0.40 (0.27 to 0.53)	P < 0.001		0.22 (0.10 to 0.34)	0.001
Venezuela (Bolivarian Republic of)	2.21 (1.97 to 2.46)	P < 0.001		1.09 (0.93 to 1.25)	P < 0.001
Viet Nam	1.63 (1.41 to 1.85)	P < 0.001		-0.14 (-0.32 to 0.04)	0.134
Yemen	0.19 (-0.28 to 0.66)	0.414		-0.68 (-1.15 to -0.21)	0.007
Zambia	1.47 (1.12 to 1.82)	P < 0.001		0.38 (0.15 to 0.61)	0.003
Zimbabwe	0.02 (-0.48 to 0.52)	0.93		0 (-0.54 to 0.54)	0.996
Note: AAPC = Average Annual Percentage Change; ASR = age-standardized rate, HDI = Human Development Index; AYAs = adolescents and young adults; CNS = central nervous system; NHL = Non-Hodgkin lymphoma.					

Table S14. AAPC in ASRs of incidence and mortality by sex, cancer type, region, and HDI among AYAs aged 15 to 39 years worldwide from 2000 to 2011 and 2012 to 2021.								
	Age-standardized incidence rate				Age-standardized mortality rates			
	From 2000 to 2011		From 2012 to 2021		From 2000 to 2011		From 2012 to 2021	
	AAPC	P value	AAPC	P value	AAPC	P value	AAPC	P value
Both	-0.04 (-0.18 to 0.10)	0.528	0.53 (0.37 to 0.68)	P < 0.001	-1.64 (-1.79 to -1.49)	P < 0.001	-0.32 (-0.40 to -0.23)	P < 0.001
Sex								
Male	-0.12 (-0.27 to 0.04)	0.117	0.61 (0.35 to 0.87)	0.001	-1.77 (-1.92 to -1.61)	P < 0.001	-0.34 (-0.50 to -0.19)	0.001
Female	0.01 (-0.13 to 0.15)	0.892	0.49 (0.38 to 0.60)	P < 0.001	-1.52 (-1.68 to -1.37)	P < 0.001	-0.28 (-0.38 to -0.18)	P < 0.001
Top 10 cancer								
Brain & CNS	0.59 (0.47 to 0.71)	P < 0.001	0.49 (0.31 to 0.67)	P < 0.001	-0.62 (-0.72 to -0.52)	P < 0.001	-0.27 (-0.46 to -0.08)	0.011
Breast	0.78 (0.64 to 0.93)	P < 0.001	1.62 (1.38 to 1.86)	P < 0.001	-0.53 (-0.65 to -0.41)	P < 0.001	0.97 (0.80 to 1.14)	P < 0.001
Cervix	-0.36 (-0.50 to -0.23)	P < 0.001	0.16 (0.02 to 0.29)	0.029	-1.56 (-1.69 to -1.43)	P < 0.001	-0.69 (-0.84 to -0.54)	P < 0.001
Colorectum	0.04 (-0.14 to 0.23)	0.63	1.25 (0.99 to 1.52)	P < 0.001	-1.75 (-2.04 to -1.47)	P < 0.001	0.06 (-0.11 to 0.23)	0.426
Leukemia	-1.10 (-1.21 to -0.99)	P < 0.001	-0.74 (-0.87 to -0.62)	P < 0.001	-1.76 (-1.9 to -1.63)	P < 0.001	-1.08 (-1.19 to -0.98)	P < 0.001
Liver	-2.55 (-3.29 to -1.80)	P < 0.001	-0.14 (-0.52 to 0.24)	0.426	-3.12 (-3.92 to -2.32)	P < 0.001	-0.25 (-0.37 to -0.12)	0.002
NHL	0.19 (-0.22 to 0.60)	0.327	0.66 (0.47 to 0.86)	P < 0.001	-0.92 (-1.21 to -0.63)	P < 0.001	-0.06 (-0.17 to 0.05)	0.244
Ovary	0.21 (0.05 to 0.38)	0.016	0.79 (0.68 to 0.90)	P < 0.001	-0.13 (-0.48 to 0.22)	0.432	0.57 (0.29 to 0.86)	0.002
Testis	1.84 (1.54 to 2.13)	P < 0.001	1.78 (1.29 to 2.28)	P < 0.001	-0.7 (-0.99 to -0.4)	P < 0.001	1.35 (0.91 to 1.79)	P < 0.001
Thyroid	2.65 (2.38 to 2.92)	P < 0.001	0.80 (0.64 to 0.95)	P < 0.001	0.66 (-0.11 to 1.44)	0.084	-0.43 (-1.71 to 0.87)	0.466
UN region								
Australasia	0.09 (-0.25 to 0.42)	0.573	-1.68 (-2.20 to -1.16)	P < 0.001	-1.93 (-2.2 to -1.66)	P < 0.001	-0.92 (-1.29 to -0.56)	P < 0.001
Caribbean	-0.42 (-0.64 to -0.19)	0.002	0.29 (-0.49 to 1.07)	0.422	-0.57 (-0.75 to -0.4)	P < 0.001	-0.06 (-0.88 to 0.77)	0.876
Central America	0.31 (-0.03 to 0.65)	0.072	1.90 (1.55 to 2.24)	P < 0.001	-0.14 (-0.36 to 0.08)	0.198	0.61 (0.24 to 0.98)	0.005
Eastern Africa	-0.49 (-0.60 to -0.38)	P < 0.001	1.05 (0.99 to 1.11)	P < 0.001	-0.99 (-1.07 to -0.91)	P < 0.001	0.10 (0.06 to 0.13)	P < 0.001
Eastern Asia	0.56 (0.20 to 0.92)	0.006	2.06 (1.80 to 2.33)	P < 0.001	-2.61 (-3.07 to -2.15)	P < 0.001	0.39 (0.18 to 0.59)	0.002
Eastern Europe	0.79 (0.46 to 1.12)	P < 0.001	-0.62 (-1.10 to -0.14)	0.018	-1.8 (-2.04 to -1.55)	P < 0.001	-2.06 (-2.45 to -1.67)	P < 0.001
Middle Africa	0.24 (0.06 to 0.43)	0.015	0.95 (0.91 to 0.99)	P < 0.001	-0.3 (-0.45 to -0.15)	0.001	0.07 (0 to 0.14)	0.064
Northern Africa	1.2 (1.01 to 1.38)	P < 0.001	1.26 (1.09 to 1.43)	P < 0.001	0.38 (0.27 to 0.48)	P < 0.001	-0.19 (-0.37 to -0.01)	0.039
Northern America	-0.57 (-0.85 to -0.30)	0.001	-0.50 (-0.99 to -0.01)	0.048	-1.59 (-1.78 to -1.4)	P < 0.001	-0.61 (-1.17 to -0.05)	0.036
Northern Europe	1.19 (0.69 to 1.70)	P < 0.001	-1.35 (-2.37 to -0.32)	0.016	-1.12 (-1.46 to -0.77)	P < 0.001	-1.42 (-2.50 to -0.32)	0.018
Pacific Islands	-0.95 (-1.46 to -0.44)	0.002	0.70 (0.25 to 1.15)	0.007	-0.59 (-1.04 to -0.14)	0.016	0.28 (-0.16 to 0.72)	0.183
South America	0.84 (0.51 to 1.17)	P < 0.001	1.33 (0.87 to 1.79)	P < 0.001	-0.31 (-0.44 to -0.19)	P < 0.001	-0.28 (-0.61 to 0.04)	0.080
South Central Asia	0.35 (0.10 to 0.59)	0.010	0.86 (0.58 to 1.15)	P < 0.001	-0.76 (-0.97 to -0.55)	P < 0.001	-0.44 (-0.71 to -0.17)	0.006
South-Eastern Asia	-0.54 (-0.77 to -0.30)	P < 0.001	0.81 (0.71 to 0.90)	P < 0.001	-1.34 (-1.54 to -1.15)	P < 0.001	-0.35 (-0.46 to -0.24)	P < 0.001

Southern Africa	-0.58 (-3.63 to 2.55)	0.683		1.54 (-0.15 to 3.26)	0.069		-1.33 (-4.1 to 1.51)	0.318		0.08 (-1.52 to 1.70)	0.916
Southern Europe	-0.07 (-0.41 to 0.26)	0.63		-1.59 (-2.44 to -0.73)	0.003		-2.56 (-2.7 to -2.43)	P < 0.001		-2.09 (-2.88 to -1.30)	P < 0.001
Western Africa	-0.26 (-0.61 to 0.09)	0.132		0.47 (0.25 to 0.70)	0.001		-0.99 (-1.3 to -0.68)	P < 0.001		-0.32 (-0.64 to 0)	0.05
Western Asia	1.59 (1.21 to 1.98)	P < 0.001		0.70 (0.37 to 1.04)	0.001		-1.55 (-1.81 to -1.28)	P < 0.001		-1.23 (-1.51 to -0.95)	P < 0.001
Western Europe	0.97 (0.58 to 1.36)	P < 0.001		-0.71 (-1.34 to -0.08)	0.031		-1.6 (-1.97 to -1.24)	P < 0.001		-1.01 (-1.55 to -0.48)	0.002
HDI level											
Very High HDI	0.29 (0.09 to 0.49)	0.008		-0.36 (-0.73 to 0.01)	0.055		-1.83 (-1.95 to -1.7)	P < 0.001		-1.25 (-1.56 to -0.95)	P < 0.001
High HDI	0.42 (0.16 to 0.68)	0.005		1.72 (1.47 to 1.98)	P < 0.001		-1.95 (-2.24 to -1.66)	P < 0.001		0.05 (-0.12 to 0.22)	0.546
Medium HDI	0.07 (-0.14 to 0.28)	0.490		0.76 (0.48 to 1.04)	P < 0.001		-0.91 (-1.08 to -0.73)	P < 0.001		-0.52 (-0.77 to -0.28)	0.001
Low HDI	-0.07 (-0.18 to 0.05)	0.225		0.81 (0.74 to 0.88)	P < 0.001		-0.76 (-0.83 to -0.69)	P < 0.001		-0.11 (-0.23 to 0.01)	0.068
Note: AAPC = Average Annual Percentage Change; ASR = age-standardized rate, HDI = Human Development Index; AYAs = adolescents and young adults; CNS = central nervous system; NHL = Non-Hodgkin lymphoma.											