

Table S1 | List of International Classification of Diseases (ICD) codes for causes from Global Burden of Disease 2019 (Level 1-3).

Level	Cause	ICD10	ICD9	
2	A.1	HIV/AIDS and sexually transmitted infections	A50-A60.9, A63-A64.0, B20-B23.8, B24-B24.0, B63, B97.81, C46-C46.52, C46.7-C46.9, F02.4, I98.0, K67.0-K67.2, M73.0-M73.8, N70-N71.9, N73-N74, N74.2-N74.8, O98.7-O98.73, Z11.3-Z11.4, Z20.2, Z20.6, Z21, Z22.4, Z83.0	042-044.9, 054.1, 054.11-054.19, 090-099.9, 131-131.9, 176-176.9, 613-615.9, V01.6, V02.7-V02.9, V08, V73.8, V73.88, V73.9-V73.98, V74.5-V74.6
3	A.1.1	HIV/AIDS	B20-B23.8, B24-B24.0, B97.81, C46-C46.52, C46.7-C46.9, F02.4, O98.7-O98.73, Z11.4, Z20.6, Z21, Z83.0	042-044.9, 176-176.9, V08
3	A.1.2	Sexually transmitted infections excluding HIV	A50-A60.9, A63-A64.0, B63, I98.0, K67.0-K67.2, M73.0-M73.8, N70-N71.9, N73-N74, N74.2-N74.8, Z11.3, Z20.2, Z22.4	054.1, 054.11-054.19, 090-099.9, 131-131.9, 613-615.9, V01.6, V02.7-V02.9, V73.8, V73.88, V73.9-V73.98, V74.5-V74.6
2	A.2	Respiratory infections and tuberculosis	A10-A14, A15-A18.89, A19-A19.9, A48.1, A70, B90-B90.9, B96.0-B96.1, B97.21, B97.4-B97.6, H65-H70.93, J00-J06.9, J09-J18.2, J18.8-J18.9, J19.6-J22.9, J36-J36.0, J85.1, J91.0, K67.3, K93.0, M49.0, N74.0-N74.1, P23-P23.9, P37.0, U04-U04.9, U84.3, Z03.0, Z11.1, Z20.1, Z23.2, Z25.1	010-019.9, 079.82, 137-137.9, 320.4, 381-383.9, 460-469, 470.0, 475-475.9, 480-484, 484.1-490.9, 510-511.9, 513.0-513.9, 730.4-730.6, 770.0, V01.1, V01.82, V03.2, V04.7, V04.81, V12.01, V12.61, V74.1
3	A.2.1	Tuberculosis	A10-A14, A15-A18.89, A19-A19.9, B90-B90.9, K67.3, K93.0, M49.0, N74.0-N74.1, P37.0, U84.3, Z03.0, Z11.1, Z20.1, Z23.2	010-019.9, 137-137.9, 320.4, 730.4-730.6, V01.1, V03.2, V12.01, V74.1
3	A.2.2	Lower respiratory infections	A48.1, A70, B96.0-B96.1, B97.21, B97.4-B97.6, J09-J18.2, J18.8-J18.9, J19.6-J22.9, J85.1, J91.0, P23-P23.9, U04-U04.9, Z25.1	079.82, 466-469, 470.0, 480-484, 484.1-490.9, 510-511.9, 513.0-513.9, 770.0, V01.82, V04.7, V04.81, V12.61
3	A.2.3	Upper respiratory infections	J00-J06.9, J36-J36.0	460-465.9, 475-475.9
3	A.2.4	Otitis media	H65-H70.93	381-383.9
2	A.3	Enteric infections	A00-A08.8, A09, A80-A80.9, B91, K52.1, Z11.0, Z20.0-Z20.09, Z22.1, Z23.0	001-009.9, 045-045.93, 138, V01.0, V01.83, V02.0, V02.2-V02.3, V03.0, V74.0
3	A.3.1	Diarrheal diseases	A00-A00.9, A02-A02.0, A02.8-A07, A07.2-A07.4, A08-A08.8, A09, K52.1, Z22.1, Z23.0	001-001.9, 003.8-009.9, V01.0, V01.83, V02.0, V02.2-V02.3, V03.0, V74.0
3	A.3.2	Typhoid and paratyphoid	A01-A01.4, Z11.0, Z20.0-Z20.09	002-002.9
3	A.3.3	Invasive Non-typhoidal Salmonella (iNTS)	A02.1-A02.29	003-003.7
3	A.3.4	Other intestinal infectious diseases	A07.0-A07.1, A07.8-A07.9, A80-A80.9, B91	045-045.93, 138
2	A.4	Neglected tropical diseases and malaria	A30-A30.9, A68-A68.9, A69.2-A69.29, A69.8-A69.9, A71-A71.9, A74.0, A75-A75.9, A77-A79.9, A82-A82.9, A90-A91.0, A92-A96.9, A98-A99.0, B33.0-B33.1, B50-B50.0,	030-030.9, 060-061.8, 065-066.9, 071-071.9, 076-076.9, 080-088.9, 120-129.0, 425.6, V01.5,

Level	Cause	ICD10	ICD9
		B50.8-B52.0, B52.8-B53.1, B53.8-B57.5, B60-B60.8, B64-B83.9, B89, B92, B94.0, K93.1, P37.1, P37.3-P37.4, U06-U06.9, Z11.6, Z20.3, Z24.2-Z24.3, Z26.0	V04.4-V04.5, V05.2, V12.03, V73.4-V73.6, V74.2, V75.1-V75.3, V75.5-V75.8
3	A.4.1	Malaria B50-B50.0, B50.8-B52.0, B52.8-B53.1, B53.8-B54.0, P37.3-P37.4	084-084.9, V12.03, V75.1
3	A.4.2	Chagas disease B57-B57.5, K93.1	086-086.2, 425.6
3	A.4.3	Leishmaniasis B55-B55.9, Z26.0	085-085.9, V05.2, V75.2
3	A.4.4	African trypanosomiasis B56-B56.9	086.3-086.9, V75.3
3	A.4.5	Schistosomiasis B65-B65.9	120-120.9, V75.5
3	A.4.6	Cysticercosis B69-B69.9	123.1
3	A.4.7	Cystic echinococcosis B67-B67.4, B67.8-B67.99	122-122.4, 122.8-122.9
3	A.4.8	Lymphatic filariasis B74-B74.2	125.0-125.2
3	A.4.9	Onchocerciasis B73-B73.1	125.3
3	A.4.10	Trachoma A71-A71.9, A74.0, B94.0	076-076.9, V73.6
3	A.4.11	Dengue A90-A91.0	061-061.8
3	A.4.12	Yellow fever A95-A95.9, Z24.3	060-060.9, V04.4, V73.4
3	A.4.13	Rabies A82-A82.9, Z20.3, Z24.2	071-071.9, V01.5, V04.5
3	A.4.14	Intestinal nematode infections B76-B77.9, B79, Z11.6	126-126.9, 127.0, 127.3, V75.7
3	A.4.15	Food-borne trematodiasis B66-B66.9, B72.0	121-121.9, V75.6
3	A.4.16	Leprosy A30-A30.9, B92	030-030.9, V74.2
3	A.4.17	Ebola A98.4	
3	A.4.18	Zika virus U06-U06.9	066.3
3	A.4.19	Guinea worm disease B72	
3	A.4.20	Other neglected tropical diseases A68-A68.9, A69.2-A69.29, A69.8-A69.9, A75-A75.9, A77-A79.9, A92-A94.0, A96-A96.9, A98-A98.3, A98.5-A99.0, B33.0-B33.1, B60-B60.8, B64, B67.5-B67.7, B68-B68.9, B70-B71.9, B74.3-B75, B78-B78.9, B80-B83.9, B89, P37.1	065-066.2, 066.4-066.9, 080-083.9, 087-088.9, 122.5-122.7, 123-123.0, 123.2-125, 125.4-125.9, 127, 127.1-127.2, 127.4-129.0, V73.5, V75.8
2	A.5	Other infectious diseases A20-A28.9, A31-A39.9, A42-A44.9, A48-A48.0, A48.2-A49.9, A65-A65.0, A69-A69.1, A74, A74.8-A74.9, A81-A81.9, A83-A85.2, A85.8-A86.0, A87-A89.0, B00-B06.9, B10-B10.89, B15-B19.9, B25-B27.99, B33, B33.3-B34.9, B37-B37.2, B37.5-B47.1, B47.9-B49, B58-B59, B94, B94.1-B95.0, B95.2-B96, B96.2-B97.2, B97.29-B97.39, B97.7-B97.8,	020-029, 031-034.9, 036-039.4, 039.8-040, 040.1-040.9, 046-054.0, 054.10, 054.2-059.9, 062-064.9, 070-070.9, 072-074.1, 074.20, 074.3-075.9, 078, 078.2-079.81, 079.83-079.99, 100-101.6, 104-104.9, 112-112.0, 112.3-118.9, 130-130.9, 136-136.0, 136.2-136.9, 138.0-139.9,

Level	Cause	ICD10	ICD9	
		B97.89, B99-B99.9, D70.3, D86.81, D89.3, F02.1, F07.1, G00-G09.9, G14-G14.6, I00, I02, I02.9, I96-I96.9, I98.1, J85-J85.0, J85.2-J85.3, J86-J86.9, K75.0, K75.3, K76.3, M49.1, M89.6-M89.69, P35-P35.9, P37, P37.2, P37.5-P37.9, R02-R02.9, U82-U84, U85-U89, Z11, Z11.2, Z11.5-Z11.59, Z11.8-Z11.9, Z16-Z16.39, Z20, Z20.4-Z20.5, Z20.8-Z20.9, Z22-Z22.0, Z22.2-Z22.39, Z22.5-Z22.9, Z23.3-Z23.7, Z24.0-Z24.1, Z24.4-Z25.0, Z83.1	310.89, 320-320.3, 320.5-326.9, 390-390.9, 392, 392.9, 484.0, 572.0-572.1, 771.0-771.3, V01, V01.2-V01.4, V01.7-V01.81, V01.84-V02, V02.1, V02.4-V02.5, V02.52-V02.69, V03.1, V03.3-V04.3, V04.6, V04.8, V04.89-V05.1, V05.3-V06, V07-V07.0, V07.2-V07.3, V09-V09.91, V12.00, V12.02, V12.04-V12.09, V18.8, V58.62, V73.0-V73.3, V73.81, V73.89, V73.99, V74.3, V74.8-V74.9, V75.0, V75.4, V75.9	
3	A.5.1	Meningitis	A39-A39.9, A87-A87.9, D86.81, G00-G03.9, G06-G09.9, Z20.811, Z22.31	036-036.9, 047-049.9, 054.72, 320-320.3, 320.5-322.9, 324-326.9, V01.84
3	A.5.2	Encephalitis	A83-A85.2, A85.8-A86.0, B94.1, F07.1, G04-G05.8, Z24.1	062-064.9, 310.89, 323-323.9, V05.0-V05.1
3	A.5.3	Diphtheria	A36-A36.9, Z22.2, Z23.6	032-032.9, V02.4, V03.5, V74.3
3	A.5.4	Whooping cough	A37-A37.91, Z23.7	033-033.9, V03.6
3	A.5.5	Tetanus	A33-A35.0, Z23.5	037-037.9, 771.3, V03.7
3	A.5.6	Measles	B05-B05.9, Z24.4	055-055.9, 484.0, V04.2, V73.2
3	A.5.7	Varicella and herpes zoster	B01-B02.9, Z20.820	052-053.9, V01.71-V01.79, V05.4
3	A.5.8	Acute hepatitis	B15-B19.9, B94.2, P35.3, Z20.5, Z22.5-Z22.59, Z24.6	070-070.9, V02.6-V02.69, V05.3
3	A.5.9	Other unspecified infectious diseases	A20-A28.9, A31-A32.9, A38-A38.9, A42-A44.9, A48-A48.0, A48.2-A49.9, A65-A65.0, A69-A69.1, A74, A74.8-A74.9, A81-A81.9, A88-A89.0, B00-B00.9, B03-B04, B06-B06.9, B10-B10.89, B25-B27.99, B33, B33.3-B34.9, B37-B37.2, B37.5-B47.1, B47.9-B49, B58-B59, B94, B94.8-B95.0, B95.2-B96, B96.2-B97.2, B97.29-B97.39, B97.7-B97.8, B97.89, B99-B99.9, D70.3, D89.3, F02.1, G14-G14.6, I00, I02, I02.9, I96-I96.9, I98.1, J85-J85.0, J85.2-J85.3, J86-J86.9, K75.0, K75.3, K76.3, M49.1, M89.6-M89.69, P35-P35.2, P35.8-P35.9, P37, P37.2, P37.5-P37.9, R02-R02.9, U82-U84, U85-U89, Z11, Z11.2, Z11.5-Z11.59, Z11.8-Z11.9, Z16-Z16.39, Z20, Z20.4, Z20.8-Z20.810, Z20.818-Z20.82, Z20.828-Z20.9, Z22-Z22.0, Z22.3, Z22.32-Z22.39, Z22.6-Z22.9, Z23.3-Z23.4, Z24.0, Z24.5, Z25.0, Z83.1	020-029, 031-031.9, 034-034.9, 039-039.4, 039.8-040, 040.1-040.9, 046-046.9, 050-051.9, 054-054.0, 054.10, 054.2-054.71, 054.73-054.9, 056-059.9, 072-074.1, 074.20, 074.3-075.9, 078, 078.2-079.81, 079.83-079.99, 100-101.6, 104-104.9, 112-112.0, 112.3-118.9, 130-130.9, 136-136.0, 136.2-136.9, 138.0-139.9, 390-390.9, 392, 392.9, 572.0-572.1, 771.0-771.2, V01, V01.2-V01.4, V01.7, V01.8-V01.81, V01.89-V02, V02.1, V02.5, V02.52-V02.59, V03.1, V03.3-V03.4, V03.8-V04.1, V04.3, V04.6, V04.8, V04.89-V05, V05.8-V06, V07-V07.0, V07.2-V07.3, V09-V09.91, V12.00, V12.02, V12.04-V12.09, V18.8, V58.62, V73.0-V73.1, V73.3, V73.81, V73.89, V73.99, V74.8-V74.9, V75.0, V75.4, V75.9

Level	Cause	ICD10	ICD9	
2	A.6	Maternal and neonatal disorders	A40.1, B95.1, F53-F54, N82-N82.9, N96, O00-O16.9, O18.0, O20-O26.93, O28-O36.93, O38.4, O40-O48.1, O60-O77.9, O80-O92.79, O94-O95, O96-O98.63, O98.8-P05.9, P07-P15.9, P19-P22.9, P24-P29.9, P36-P36.9, P38-P39.9, P50-P61.9, P70-P72.9, P74-P74.9, P75.0-P78.9, P80-P81.9, P83-P84, P90-P92.9, P94-P94.9, P96, P96.3-P96.4, P96.8-P96.9, P99.9, Z03.7-Z03.79, Z32-Z37.9, Z39-Z3A49, Z64.0-Z64.3, Z87.5-Z87.6	041.02, 619-619.9, 630-679.14, 760-768, 768.2-770, 770.2-771, 771.4-775.1, 775.4-779.34, 779.7-779.9, V02.51, V13.1, V13.21, V13.7, V15.21-V15.22, V15.87, V22-V24.2, V27-V28.9, V72.4-V72.42, V82.4, V91-V91.99
3	A.6.1	Maternal disorders	F53-F54, N82-N82.9, N96, O00-O16.9, O18.0, O20-O26.93, O28-O36.93, O38.4, O40-O48.1, O60-O77.9, O80-O92.79, O94-O95, O96-O98.63, O98.8-O9A513, Z03.7-Z03.79, Z32-Z37.9, Z39-Z3A49, Z64.0-Z64.3, Z87.5-Z87.6	619-619.9, 630-655.23, 655.7-679.14, V13.1, V13.21, V15.21-V15.22, V22-V24.2, V27-V28.9, V72.4-V72.42, V82.4, V91-V91.99
3	A.6.2	Neonatal disorders	A40.1, B95.1, P00-P05.9, P07-P15.9, P19-P22.9, P24-P29.9, P36-P36.9, P38-P39.9, P50-P61.9, P70-P72.9, P74-P74.9, P75.0-P78.9, P80-P81.9, P83-P84, P90-P92.9, P94-P94.9, P96, P96.3-P96.4, P96.8-P96.9, P99.9	041.02, 655.3-655.63, 760-768, 768.2-770, 770.2-771, 771.4-775.1, 775.4-779.34, 779.7-779.9, V02.51, V13.7, V15.87
2	A.7	Nutritional deficiencies	D50-D53.9, E00-E02, E40-E46.9, E50-E61.9, E63-E64.9, Z13.2-Z13.3	244.2, 260-269.9, 280-281.2, V12.1, V18.2-V18.3, V77.2, V78.0-V78.1
3	A.7.1	Protein-energy malnutrition	E40-E46.9, E64.0	260-263.9
3	A.7.2	Iodine deficiency	E00-E02	244.2
3	A.7.3	Vitamin A deficiency	E50-E50.9, E64.1	264-264.9
3	A.7.4	Dietary iron deficiency	D50-D50.9	280-280.9
3	A.7.5	Other nutritional deficiencies	D51-D53.9, E51-E61.9, E63-E64, E64.2-E64.9	265-269.9, 281-281.2
2	B.1	Neoplasms	C00-C07, C08-C19.0, C20, C21-C21.8, C22-C22.4, C22.7-C23, C24-C26.1, C26.8-C26.9, C30-C30.1, C31-C33, C34-C34.92, C37-C37.0, C38-C39.9, C40-C41.4, C41.8-C41.9, C43-C45.2, C45.7, C45.9, C47-C4A, C50-C50.629, C50.8-C52, C53-C54.3, C54.8-C56.2, C56.9-C58.0, C60-C64.2, C64.9-C69.92, C70-C70.1, C70.9-C73, C74-C75.5, C75.8-C79.9, C80-C81.49, C81.7-C81.79, C81.9-C85.29, C85.7-C86.6, C88-C90.32, C91-C93.7, C93.9-C95.2, C95.7-C97.9, D00-D24.9, D26.0-D39.9, D4-D49.9, E34.0, K51.4-K51.419, K62.0-K62.3, K63.5, N60-N60.99, N84.0-N84.1, N87-N87.9, Z03.1, Z08-Z09.9, Z12-Z12.9, Z80-Z80.9, Z85-Z85.9, Z86.0-Z86.03	140-175.9, 177-217.8, 219-237.6, 237.70-237.72, 237.9-239.9, 569.0, 610-610.9, 622.1-622.2, 622.7, V07.39, V10-V11, V13.22-V13.24, V16-V16.9, V42.4, V42.81-V42.82, V59.2-V59.3, V72.32, V76-V76.9

Level	Cause	ICD10	ICD9	
3	B.1.1	Lip and oral cavity cancer	C00-C07, C08-C08.9, Z85.81-Z85.810	140-145.9, V76.42
3	B.1.2	Nasopharynx cancer	C11-C11.9	147-147.9
3	B.1.3	Other pharynx cancer	C09-C10.9, C12-C13.9	146-146.9, 148-148.9
3	B.1.4	Esophageal cancer	C15-C15.9, Z85.01	150-150.9
3	B.1.5	Stomach cancer	C16-C16.9, Z12.0, Z85.02-Z85.028	151-151.9, 209.23, V10.04
3	B.1.6	Colon and rectum cancer	C18-C19.0, C20, C21-C21.8, Z12.1-Z12.13, Z85.03-Z85.048, Z86.010	153-154.9, 209.1-209.17, V10.05-V10.06, V76.41, V76.5-V76.52
3	B.1.7	Liver cancer	C22-C22.4, C22.7-C22.9, Z85.05	155-155.9, V10.07
3	B.1.8	Gallbladder and biliary tract cancer	C23, C24-C24.9	156-156.9
3	B.1.9	Pancreatic cancer	C25-C25.9, Z85.07	157-157.9
3	B.1.10	Larynx cancer	C32-C32.9, Z85.21	161-161.9, V10.21
3	B.1.11	Tracheal, bronchus, and lung cancer	C33, C34-C34.92, Z12.2, Z80.1-Z80.2, Z85.1-Z85.20	162-162.9, 209.21, V10.1-V10.20, V16.1-V16.2, V16.4-V16.40
3	B.1.12	Malignant skin melanoma	C43-C43.9, Z85.82-Z85.828	172-172.9
3	B.1.13	Non-melanoma skin cancer	C44.01-C44.99	173-173.99
3	B.1.14	Breast cancer	C50-C50.629, C50.8-C50.929, Z12.3-Z12.39, Z80.3, Z85.3, Z86.000	174-175.9, V10.3, V16.3
3	B.1.15	Cervical cancer	C53-C53.9, Z12.4, Z85.41	180-180.9, V10.41, V72.32
3	B.1.16	Uterine cancer	C54-C54.3, C54.8-C54.9, Z85.42, Z86.001	182-182.9
3	B.1.17	Ovarian cancer	C56-C56.2, C56.9, Z80.41, Z85.43	183-183.0, 183.8-183.9, V10.43, V16.41
3	B.1.18	Prostate cancer	C61-C61.9, Z12.5, Z80.42, Z85.46	185-185.9, V10.46, V16.42, V76.44
3	B.1.19	Testicular cancer	C62-C62.92, Z80.43, Z85.47-Z85.48	186-186.9, V10.47-V10.48, V16.43
3	B.1.20	Kidney cancer	C64-C64.2, C64.9-C65.9, Z80.51, Z85.52-Z85.54	189-189.1, 189.5-189.6, 209.24
3	B.1.21	Bladder cancer	C67-C67.9, Z12.6-Z12.79, Z80.52, Z85.51	188-188.9, V10.51, V16.52, V76.3
3	B.1.22	Brain and central nervous system cancer	C70-C70.1, C70.9-C72.9, Z85.841-Z85.848, Z86.011	191-191.9
3	B.1.23	Thyroid cancer	C73, Z85.850	193-193.9
3	B.1.24	Mesothelioma	C45-C45.2, C45.7, C45.9	
3	B.1.25	Hodgkin lymphoma	C81-C81.49, C81.7-C81.79, C81.9-C81.99, Z85.71-Z85.72	201-201.98, V10.72
3	B.1.26	Non-Hodgkin lymphoma	C82-C85.29, C85.7-C86.6, C96-C96.9	200-200.9, 202-202.98
3	B.1.27	Multiple myeloma	C88-C90.32	203-203.9

Level	Cause	ICD10	ICD9
3	B.1.28	Leukemia	C91-C93.7, C93.9-C95.2, C95.7-C95.92, Z80.6, Z85.6 204-208.92, V10.59-V10.69, V16.6
3	B.1.30	Other neoplasms	C75.90-C75.92, D00-D24.9, D26.0-D39.9, D4-D49.9, E34.0, K51.4-K51.419, K62.0-K62.3, K63.5, N60-N60.99, N84.0- N84.1, N87-N87.9 209.4-209.57, 209.61, 209.63-209.67, 210.0- 217.8, 219-237.6, 237.70-237.72, 237.9-239.9, 569.0, 610-610.9, 622.1-622.2, 622.7 074.2, 074.21-074.23, 391-391.9, 392.0, 393- 398.99, 402-402.91, 410-416.0, 416.8-417.9, 420-425.5, 425.7-440.29, 440.4-445.89, 447- 454.9, 456, 456.3-457, 457.1, 457.8-458.1, 459- 459.9, 785-785.3, V12.5-V12.59, V15.1, V17.1, V17.3-V17.49, V42.1-V42.2, V43.2-V43.5, V45.0-V45.09, V45.81-V45.82, V47.2, V58.61, V58.63, V58.66, V58.73, V81-V81.2
2	B.2	Cardiovascular diseases	B33.2-B33.24, D86.85, G45-G46.8, I01-I01.9, I02.0, I05-I09.9, I11-I11.2, I11.9, I20-I21.6, I21.9-I27.0, I27.2-I28.9, I30-I38.0, I39-I41.8, I42-I43.8, I44-I44.8, I45-I52.8, I60-I64, I64.1, I65- I83.93, I86-I89.0, I89.9, I95.0-I95.1, I98, I98.8-I99.9, K75.1, R00-R01.2, Z01.3-Z01.31, Z03.4-Z03.5, Z13.6, Z52.7, Z82.3- Z82.49, Z86.7-Z86.79, Z94.1-Z94.3, Z95-Z95.9 391-391.9, 392.0, 393-398.99
3	B.2.1	Rheumatic heart disease	I01-I01.9, I02.0, I05-I09.9
3	B.2.2	Ischemic heart disease	I20-I21.6, I21.9-I25.9, Z82.4-Z82.49
3	B.2.3	Stroke	G45-G46.8, I60-I62, I62.9-I64, I64.1, I65-I69.998, Z82.3
3	B.2.4	Hypertensive heart disease	I11-I11.2, I11.9
3	B.2.5	Non-rheumatic valvular heart disease	I34-I37.9
3	B.2.6	Cardiomyopathy and myocarditis	B33.2-B33.20, B33.22-B33.24, D86.85, I40-I41.8, I42-I43.8, I51.4-I51.6
3	B.2.8	Atrial fibrillation and flutter	I48-I48.92
3	B.2.10	Peripheral artery disease	I70.2-I70.92, I73-I73.9
3	B.2.11	Endocarditis	B33.21, I33-I33.9, I38-I38.0, I39-I39.9
2	B.3	Chronic respiratory diseases	D86-D86.2, D86.9, G47.3-G47.39, J30-J35.9, J37-J39.9, J41- J42.4, J43-J46.0, J47-J47.9, J60-J68.9, J70.8-J70.9, J80-J80.9, J82, J84-J84.9, J90-J90.0, J91, J91.8-J93.12, J93.8-J94.9, J96- J96.92, J98-J99.8, R05.0-R06.9, R09-R09.89, R84-R84.9, R91- R91.8, Z82.5 074.2, 074.23, 422-422.99, 425-425.5, 425.7- 425.9, 429.0-429.1 427.3-427.32 440.2-440.29, 440.4-440.9, 443-443.2, 443.8- 443.9 074.22, 421-421.9, 424, 424.4-424.99 135-135.9, 278.03, 327.2-327.29, 470, 470.9- 474.9, 476-479, 491-508.9, 512-513, 514-518.53, 518.8-519, 519.11-519.9, 786-786.9, 793.1- 793.2, 799.0-799.1, V07.1, V12.6-V12.60, V12.69, V13.81, V14-V15.09, V15.84, V17.5- V17.6, V19.6, V42.6, V43.81, V45.76, V58.74, V81.3-V81.4
3	B.3.1	Chronic obstructive pulmonary disease	J41-J42.4, J43-J44.9
3	B.3.2	Pneumoconiosis	J60-J65.0, J92.0
3	B.3.3	Asthma	J45-J46.0, Z82.5

Level	Cause	ICD10	ICD9	
3	B.3.4	Interstitial lung disease and pulmonary sarcoidosis	D86-D86.2, D86.9, J84-J84.9	135-135.9, 515, 515.9-516.9
3	B.3.5	Other chronic respiratory diseases	J30-J35.9, J37-J39.9, J47-J47.9, J66-J68.9, J70.8-J70.9, J82, J90-J90.0, J91, J91.8-J92, J92.9-J93.12, J93.8-J94.9, J96.1-J96.8, J98-J99.8	470, 470.9-474.9, 476-479, 494-495.9, 506-508.9, 512-513, 514-514.9, 515.0, 517-518.4, 518.8-518.81, 518.83-519, 519.11-519.9, V07.1, V12.6-V12.60, V12.69, V13.81, V14-V15.09, V15.84, V17.6, V19.6, V42.6, V43.81, V45.76, V58.74, V81.3-V81.4
2	B.4	Digestive diseases	I84-I85.9, I98.2, K20-K23.8, K25-K31.9, K35-K38.9, K40-K42.9, K44-K46.9, K50-K51.319, K51.5-K52, K52.2-K52.9, K55-K62, K62.4-K62.6, K62.8-K63.4, K63.8-K67, K67.8-K68.1, K68.12-K68.9, K70-K75, K75.2, K75.4-K76.2, K76.4-K77.8, K80-K80.81, K81-K83.9, K85-K87.1, K90-K90.9, K92-K92.9, K93.8, R11-R19.8, R85-R85.9, Z13.81-Z13.818, Z43.1-Z43.4, Z52.6, Z83.7-Z83.79, Z87.1-Z87.19, Z94.4	455-455.9, 456.0-456.21, 530-530.85, 530.89-536.3, 536.8-538, 540-543.9, 550-551.1, 551.3-552.1, 552.3-553.1, 553.3-558.9, 560-560.39, 560.8-562.13, 564-564.1, 564.5-569, 569.1-569.5, 569.81-572, 572.2-579.2, 579.4-579.9, 784-784.99, 787-787.99, 789.9, 792.1-792.4, V12.7-V12.79, V18.5-V18.59, V42.7, V45.72, V45.75, V47.3, V58.75, V59.6
3	B.4.1	Cirrhosis and other chronic liver diseases	I85-I85.9, I98.2, K70-K71, K71.3-K72, K72.1-K75, K75.2, K75.4-K76.2, K76.4-K77.8, R16-R18.9, Z52.6, Z94.4	456.0-456.21, 570-572, 572.2-573.9, V42.7, V59.6
3	B.4.2	Upper digestive system diseases	K21-K21.9, K22.7-K22.719, K25-K30, R12	530.11, 530.7-530.85, 530.89-536.3, 536.8-536.9, 787.1
3	B.4.3	Appendicitis	K35-K37.9	540-542.9
3	B.4.4	Paralytic ileus and intestinal obstruction	K56-K56.9	560-560.39, 560.8-560.9, 569.87
3	B.4.5	Inguinal, femoral, and abdominal hernia	K40-K42.9, K44-K46.9	550-551.1, 551.3-552.1, 552.3-553.1, 553.3-553.9
3	B.4.6	Inflammatory bowel disease	K50-K51.319, K51.5-K52, K52.8-K52.9	555-556.9, 558-558.9, 564.1, 569.5
3	B.4.7	Vascular intestinal disorders	K55-K55.9	557-557.9, 569.84-569.86
3	B.4.8	Gallbladder and biliary diseases	K80-K80.81, K81-K83.9, K87-K87.1	574-576.9
3	B.4.9	Pancreatitis	K85-K86.9	577-577.9
3	B.4.10	Other digestive diseases	I84-I84.9, K20-K20.9, K22-K22.6, K22.8-K23.8, K31-K31.9, K38-K38.9, K52.2-K52.3, K57-K62, K62.4-K62.6, K62.8-K63.4, K63.8-K67, K67.8-K68.1, K68.12-K68.9, K71.0-K71.2, K72.0-K72.01, K90-K90.9, K92-K92.9, K93.8	455-455.9, 530-530.10, 530.12-530.6, 537-538, 543-543.9, 561-562.13, 564-564.09, 564.5-569, 569.1-569.49, 569.81-569.83, 569.89-569.9, 578-579.2, 579.4-579.9
2	B.5	Neurological disorders	F00-F02.0, F02.2-F02.3, F02.8-F03.91, F06.2, G10-G10.0, G11-G13.8, G20-G21, G21.2-G24, G24.1-G25.0, G25.2-	290-290.9, 294.0-294.9, 307.8-307.89, 315-315.9, 330-331.8, 331.82-333.91, 333.93-346.93,

Level	Cause	ICD10	ICD9	
		G25.3, G25.5, G25.8-G26.0, G30-G31.1, G31.8-G32.89, G35-G35.0, G36-G37.9, G40-G41.9, G43-G44.89, G50-G54.1, G54.5-G62, G62.2-G65.2, G70-G71.19, G71.3-G72, G72.1-G73.7, G80-G83.9, G89-G93.6, G93.8-G95.29, G95.8-G96, G96.1, G96.12-G96.9, G98-G99.8, M33-M33.99, M60-M60.19, M60.8-M60.9, M79.7, R25-R27.9, R29-R29.91, R41-R42.0, R56-R56.9, R90-R90.89, Z03.3, Z13.85, Z13.858, Z82.0, Z86.6-Z86.69	348-348.9, 350-353.0, 353.5-357.5, 357.7-359.23, 359.29-359.9, 710.3-710.4, 725-725.9, 728-728.85, 728.87-728.9, 775.2, 780.3-780.59, 780.7-780.72, 780.96, 781-781.99, 793.0, 799.3-799.7, V17.2, V58.72	
3	B.5.1	Alzheimer's disease and other dementias	F00-F02.0, F02.8-F03.91, F06.2, G30-G31.1, G31.8-G32.89	290-290.9, 294.0-294.9, 331-331.2, 331.6-331.7, 331.82, 331.89-331.9
3	B.5.2	Parkinson's disease	F02.3, G20-G20.9	332-332.0
3	B.5.3	Idiopathic epilepsy	G40-G41.9, Z82.0	345-345.91
3	B.5.4	Multiple sclerosis	G35-G35.0	340-340.9
3	B.5.6	Headache disorders	G43-G44.89	307.81, 339-339.89, 346-346.93
3	B.5.7	Other neurological disorders	F02.2, G10-G10.0, G11-G13.8, G21, G21.2-G24, G24.1-G25.0, G25.2-G25.3, G25.5, G25.8-G26.0, G36-G37.9, G50-G54.1, G54.5-G62, G62.2-G65.2, G70-G71.19, G71.3-G72, G72.1-G73.7, G80-G83.9, G89-G93.6, G93.8-G95.29, G95.8-G96, G96.1, G96.12-G96.9, G98-G99.8, M33-M33.99, M60-M60.19, M60.8-M60.9, M79.7	307.8-307.80, 307.89, 330-330.9, 331.3-331.5, 331.8, 331.83, 332.1-333.91, 333.93-338.4, 341-344.9, 348-348.9, 350-353.0, 353.5-357.5, 357.7-359.23, 359.29-359.9, 710.3-710.4, 725-725.9, 728-728.85, 728.87-728.9, 775.2, 780.96
2	B.6	Mental disorders	F04-F06.1, F06.3-F07.0, F08-F09.9, F20-F34.9, F38-F52.9, F55-F55.8, F56-F99.0, G47-G47.29, G47.4-G47.9, R40-R40.4, R45-R46.89, R55-R55.0, Z03.2, Z04.6-Z04.72, Z13.4, Z64, Z81-Z81.0, Z81.8, Z86.5-Z86.59	293-294, 295-302.9, 306-307.7, 307.9-310.1, 311-314.9, 316-319.9, 327-327.19, 327.3-327.8, 347-347.9, 780-780.2, 780.93, 780.97, 797-797.9, 799.2-799.29, V11.0-V11.2, V11.4-V12.0, V17-V17.0, V18.4, V40-V41.9, V79-V79.9
3	B.6.1	Schizophrenia	F20-F20.9, F25-F25.9	295-295.35, 295.5-295.8
3	B.6.2	Depressive disorders	F32-F33.9, F34.1	296.2-296.36, 300.4, 311-311.9
3	B.6.3	Bipolar disorder	F30-F31.9, F34.0	296-296.16, 296.4-296.81
3	B.6.4	Anxiety disorders	F40-F44.9, F93-F93.2	300-300.3, 308-309.9
3	B.6.5	Eating disorders	F50-F50.9	307.1, 307.5-307.59
3	B.6.7	Attention-deficit/hyperactivity disorder	F90-F90.9	314-314.9
3	B.6.8	Conduct disorder	F91-F92.9	312-312.9

Level	Cause	ICD10	ICD9	
3	B.6.9	Idiopathic developmental intellectual disability	F70-F79.9, Z81.0	317-319.9, V18.4
3	B.6.10	Other mental disorders	F04-F06.1, F06.3-F07.0, F08-F09.9, F21-F24, F26-F29.9, F34, F34.8-F34.9, F38-F39, F45-F49, F51-F52.9, F55-F55.8, F56-F69.0, F80-F89.0, F93.3-F99.0, G47-G47.29, G47.4-G47.9, R40-R40.4, R45-R46.89, R55-R55.0, Z03.2, Z04.6-Z04.72, Z13.4, Z64, Z81, Z81.8, Z86.5-Z86.59	293-294, 295.4-295.45, 295.80-295.95, 296.82-298.9, 300.5-302.9, 306-307.0, 307.2-307.49, 307.6-307.7, 307.9, 310-310.1, 313-313.9, 316-316.9, 327-327.19, 327.3-327.8, 347-347.9, 780-780.2, 780.93, 780.97, 797-797.9, 799.2-799.29, V11.0-V11.2, V11.4-V12.0, V17-V17.0, V40-V41.9, V79-V79.9
2	B.7	Substance use disorders	E24.4, F10-F19.99, G31.2, G62.1, P96.1, R78.0-R78.9, X45-X45.9, X65-X65.9, Y15-Y15.9, Z81.1-Z81.4	291-292.9, 303-305.93, 790.3, E850.0-E850.29, E860-E860.19, V11.3, V15.8-V15.83, V15.85-V15.86, nan
3	B.7.1	Alcohol use disorders	E24.4, F10-F10.99, G31.2, G62.1, R78.0, X45-X45.9, X65-X65.9, Y15-Y15.9, Z81.1	291-291.9, 303-303.93, 305-305.03, 790.3, E860-E860.19, V11.3
3	B.7.2	Drug use disorders	F11-F19.99, P96.1, R78.1-R78.9, Z81.2-Z81.4	292-292.9, 304-304.93, 305.1-305.93, E850.0-E850.29, V15.8-V15.83, V15.85-V15.86, nan
2	B.8	Diabetes and kidney diseases	D63.1, E08-E08.9, E10-E14.9, I12-I13.9, N00-N08.8, N15.0, N17-N19, Q60-Q63.2, Q63.8-Q63.9, Q64.2-Q64.9, R73-R73.9, Z13.1, Z49-Z49.32, Z52.4, Z83.3, Z99.2	249-250.99, 285.21, 362.0-362.07, 403-404.93, 580-587.9, 753.0-753.4, 753.6-753.9, 790.2-790.29, V13.03-V13.09, V18-V18.0, V18.6, V18.69, V42.0, V42.83, V45.1-V45.12, V45.73, V45.85, V56-V56.8, V58.67, V59.4, V77.1, V81.5-V81.6
3	B.8.1	Diabetes mellitus	E08-E08.11, E08.3-E08.9, E10-E10.11, E10.3-E11.1, E11.3-E12.1, E12.3-E13.11, E13.3-E14.1, E14.3-E14.9, R73-R73.9, Z13.1, Z83.3	249-249.31, 249.5-250.39, 250.5-250.99, 362.0-362.07, 790.2-790.29, V18-V18.0, V42.83, V45.85, V58.67, V77.1
3	B.8.2	Chronic kidney disease	D63.1, E08.2-E08.29, E10.2-E10.29, E11.2-E11.29, E12.2, E13.2-E13.29, E14.2, I12-I13.9, N02-N08.8, N15.0, N17-N19, Q60-Q63.2, Q63.8-Q63.9, Q64.2-Q64.9, Z49-Z49.32, Z52.4, Z99.2	249.4-249.41, 250.4-250.49, 285.21, 403-404.93, 581-587.9, 753.0-753.4, 753.6-753.9, V13.03-V13.09, V18.6, V18.69, V42.0, V45.1-V45.12, V45.73, V56-V56.8, V59.4, V81.5-V81.6
3	B.8.3	Acute glomerulonephritis	N00-N01.9	580-580.9
2	B.9	Skin and subcutaneous diseases	A46-A46.0, A66-A67.3, A67.9, B07-B09, B35-B36.9, B85-B88.9, D86.3, E80.1-E80.29, I89.1-I89.8, L00-L05.92, L08-L08.9, L10-L14.0, L20-L23.2, L23.4-L27, L27.2-L30.9, L40-L45, L49-L54.0, L56, L56.2-L57.9, L59-L60.9, L62-L64, L64.8-L68.9, L70-L75.9, L80-L92.9, L94-L95.9, L97-L99.8,	035-035.9, 040.0, 078.0-078.19, 102-103.9, 110-111.9, 132-134.9, 136.1, 457.2-457.3, 680-709.3, 709.8-709.9, 728.86, 782-782.9, 785.4, V13.3, V19.4, V42.3, V43.83, V58.77, V59.1, V82.0

Level	Cause	ICD10	ICD9
		M72.5-M72.6, N49.2-N49.3, R20-R24.0, Z20.7, Z41.1, Z84.0, Z87.2, Z94.5	
3	B.9.1	Dermatitis	690-692.7, 692.79-692.9
3	B.9.2	Psoriasis	696-696.9
3	B.9.3	Bacterial skin diseases	035-035.9, 040.0, 102-103.9, 457.2-457.3, 680-689, 728.86, 785.4
3	B.9.4	Scabies	133-133.6
3	B.9.5	Fungal skin diseases	110-111.9
3	B.9.6	Viral skin diseases	078.0-078.19
3	B.9.7	Acne vulgaris	706.0-706.1
3	B.9.8	Alopecia areata	704.0-704.09
3	B.9.9	Pruritus	698-699
3	B.9.10	Urticaria	708-708.9
3	B.9.11	Decubitus ulcer	707-707.09, 707.2-707.7
3	B.9.12	Other skin and subcutaneous diseases	132-132.9, 133.8-134.9, 136.1, 692.70-692.77, 693-695.9, 697-697.9, 700-704, 704.1-706, 706.2-706.9, 707.1-707.19, 707.8-707.9, 709-709.3, 709.8-709.9
2	B.10	Sense organ diseases	077-077.99, 360-360.44, 360.8-362, 362.1-374.85, 374.87-376.52, 376.8-379.59, 379.8-380.9, 384-389.9, 744.0, V19.0-V19.3, V42.5, V43.0-V43.1, V45.6-V45.69, V45.78, V48.4-V48.5, V50.3, V58.71, V59.5, V74.4, V80-V80.0, V80.09-V80.3
3	B.10.1	Blindness and vision loss	360.8-362, 362.1-363.9, 365-369.9, 377-378.9
3	B.10.2	Age-related and other hearing loss	384-385.9, 387-387.9, 388.1-388.2, 389-389.9, 744.0
3	B.10.3	Other sense organ diseases	077-077.99, 360-360.44, 364-364.9, 370-374.85, 374.87-376.52, 376.8-376.9, 379-379.59, 379.8-380.9, 386-386.9, 388-388.02, 388.3-388.9

Level	Cause	ICD10	ICD9	
2	B.11	Musculoskeletal disorders	G54.2-G54.4, I27.1, L93-L93.2, M00-M03.6, M05-M10.19, M10.3-M25.9, M30-M32.9, M34-M36.8, M40-M43.9, M45-M49, M49.2-M51.9, M53-M54.9, M61-M63.89, M65-M68.8, M70-M72.4, M72.8-M73, M75-M77.9, M79-M79.676, M79.8-M87.09, M87.2-M89.59, M89.7-M95.9, M99-M99.9, Z13.82-Z13.83, Z82.6-Z82.69, Z87.3-Z87.39	274-274.9, 353.1-353.4, 416.1, 446-446.9, 710-710.2, 710.5-724.9, 726-727.9, 729-730.39, 730.7-739.9, V13.4-V13.59, V17.7-V17.89, V43.6-V43.8, V58.64-V58.65, V58.78, V77.5, V82.1-V82.2
3	B.11.1	Rheumatoid arthritis	M05-M05.9, M08-M09.8	714-714.9
3	B.11.2	Osteoarthritis	M16-M18.9	715-715.98
3	B.11.3	Low back pain	G54.4, M47.015-M47.019, M47.15-M47.18, M47.25-M47.28, M47.815-M47.818, M47.896-M47.899, M48.05-M48.08, M48.16-M48.19, M48.25-M48.27, M48.35-M48.38, M48.45-M48.48, M48.55-M48.58, M49.85-M49.88, M51.05-M51.07, M51.15-M51.17, M51.25-M51.27, M51.35-M51.37, M51.45-M51.47, M51.85-M51.87, M53.3, M53.85-M53.88, M54.05-M54.09, M54.15-M54.18, M54.3-M54.5, M99.03-M99.04, M99.13-M99.14, M99.23-M99.24, M99.33-M99.34, M99.43-M99.44, M99.53-M99.54, M99.63-M99.64, M99.73-M99.74, M99.83-M99.84	353.1, 353.4, 721.3, 721.42, 722.10, 722.32, 722.52, 722.73, 722.83, 722.93, 724.02-724.03, 724.2-724.3, 724.6-724.79
3	B.11.4	Neck pain	G54.2, M47.011-M47.013, M47.11-M47.13, M47.21-M47.23, M47.811-M47.813, M47.892-M47.894, M48.01-M48.03, M48.12-M48.14, M48.21-M48.23, M48.31-M48.33, M48.41-M48.43, M48.51-M48.53, M49.81-M49.83, M50-M50.93, M53.0-M53.1, M53.81-M53.83, M54.01-M54.03, M54.11-M54.13, M54.2, M54.81, M99.01, M99.11, M99.21, M99.31, M99.41, M99.51, M99.61, M99.71, M99.81	353.2, 721.0-721.1, 722.0, 722.71, 722.81, 722.91, 723-723.9
3	B.11.5	Gout	M10-M10.19, M10.3-M10.9, M1A00X0-M1A9XX1	274-274.9, 712.0-712.09
3	B.11.6	Other musculoskeletal disorders	G54.3, I27.1, L93-L93.2, M00-M03.6, M06-M07.69, M11-M15.9, M19-M19.93, M20-M25.9, M30-M32.9, M34-M36.8, M40-M43.9, M45-M47.01, M47.014, M47.02-M47.10, M47.14, M47.2-M47.20, M47.24, M47.8-M47.81, M47.814, M47.819-M47.891, M47.895, M47.9-M48.00, M48.04, M48.1-M48.11, M48.15, M48.2-M48.20, M48.24, M48.3-M48.30, M48.34, M48.4-M48.40, M48.44, M48.5-M48.50, M48.54, M48.8-M49, M49.2-M49.80, M49.84, M49.89, M51-M51.04, M51.1-M51.14, M51.2-M51.24, M51.3-M51.34, M51.4-M51.44, M51.8-M51.84, M51.9, M53, M53.2, M53.8-M53.80,	353.3, 416.1, 446-446.9, 710-710.2, 710.5-712, 712.1-713.8, 716-721, 721.2, 721.4-721.41, 721.5-722, 722.1, 722.11-722.31, 722.39-722.51, 722.6-722.70, 722.72, 722.8-722.80, 722.82, 722.9-722.90, 722.92, 724-724.01, 724.09-724.1, 724.4-724.5, 724.8-724.9, 726-727.9, 729-730.39, 730.7-739.9

Level	Cause	ICD10	ICD9
2	B.12	Other non-communicable diseases	
		M53.84, M53.9-M54.00, M54.04, M54.1-M54.10, M54.14, M54.6-M54.8, M54.89-M54.9, M61-M63.89, M65-M68.8, M70-M72.4, M72.8-M73, M75-M77.9, M79-M79.676, M79.8-M87.09, M87.2-M89.59, M89.7-M95.9, M99-M99.00, M99.02, M99.05-M99.10, M99.12, M99.15-M99.20, M99.22, M99.25-M99.30, M99.32, M99.35-M99.40, M99.42, M99.45-M99.50, M99.52, M99.55-M99.60, M99.62, M99.65-M99.70, M99.72, M99.75-M99.80, M99.82, M99.85-M99.9	
		B37.3-B37.49, C7A00-C7B8, D25-D26, D3A00-D3A8, D55-D61.9, D64-D69.49, D69.6-D70.0, D70.4-D77, D80-D84.9, D86.8, D86.82-D86.84, D86.86-D86.89, D89-D89.2, D89.8, D89.82-D89.9, E03-E03.1, E03.3-E06.3, E06.5-E07.9, E15-E16, E16.1-E16.9, E20-E23.0, E23.2-E24.1, E24.3, E24.8-E27.2, E27.4-E32.9, E34, E34.1-E35.8, E65-E66.09, E66.2-E68, E70-E80.09, E80.3-E85.9, E88-E88.9, E90-E998, G71.2, K00-K08.499, K08.8-K14.9, M26-M27.9, N10-N13.9, N15, N15.1-N16.8, N20-N23.0, N25-N29, N29.1-N30.31, N30.8-N37.8, N39-N46.02, N46.022-N46.12, N46.122-N49.1, N49.8-N52.1, N52.8-N53.9, N61-N64.9, N72-N72.0, N75-N77.8, N80-N81.9, N83-N84, N84.2-N86, N88-N95.9, N97-N98.9, P96.0, Q00-Q07.9, Q10-Q15.9, Q17-Q18.9, Q20-Q28.9, Q30-Q45.9, Q50-Q56.4, Q63.3, Q64-Q64.19, Q65-Q87.89, Q89-Q89.8, Q90-Q93.9, Q95-Q99.9, R30-R37, R39-R39.9, R86-R87.9, Z01.2-Z01.21, Z01.4-Z01.7, Z13.7-Z13.79, Z13.84, Z14-Z15.89, Z31-Z31.9, Z43.5-Z43.7, Z82.7-Z82.79, Z83.4-Z83.49, Z84.1-Z84.2, Z86.1-Z86.19, Z87.4-Z87.448, Z87.7-Z87.798, Z96.5	112.1-112.2, 218-218.9, 237.7, 237.73-237.79, 240-244, 244.8-246.9, 251-251.2, 251.4-253.6, 253.8-259.9, 270-273.9, 275-278.02, 278.1-279.49, 279.6-279.9, 282-285.0, 285.8-289.9, 520-525.54, 525.8-526.61, 526.69-529.9, 588-595.81, 595.89-596.8, 596.89-598.1, 598.8-609, 611-611.9, 616-618.9, 620-622.0, 622.3-622.6, 622.8-629.9, 740-744, 744.00-753, 753.5, 754-759.9, 775.3, 788-788.99, 799.81, V07.31, V07.4-V07.59, V12.2-V12.49, V13.0-V13.02, V13.2, V13.29, V13.6-V13.69, V18.1-V18.19, V18.61, V18.7, V18.9, V19.5, V19.7-V19.8, V26-V26.9, V43.82, V45.71, V45.74, V45.83-V45.84, V45.86, V47.4-V47.5, V49.81-V49.82, V58.5, V58.76, V59.7-V59.74, V72.2-V72.31, V77.0, V77.3-V77.4, V77.6-V77.8, V77.91, V78, V78.2-V78.9, V82.3, V85-V85.45, V85.51, V85.53-V85.54
3	B.12.1	Congenital birth defects	
		G71.2, P96.0, Q00-Q07.9, Q10-Q15.9, Q17-Q18.9, Q20-Q28.9, Q30-Q45.9, Q50-Q56.4, Q63.3, Q64-Q64.19, Q65-Q87.89, Q89-Q89.8, Q90-Q93.9, Q95-Q99.9, Z13.7-Z13.79, Z14-Z15.89, Z82.7-Z82.79, Z87.7-Z87.798	237.7, 237.73-237.79, 740-744, 744.00-753, 753.5, 754-759.9, V13.6-V13.69, V18.61, V18.9, V19.5, V19.7-V19.8, V82.3
3	B.12.2	Urinary diseases and male infertility	
		N10-N13.9, N15, N15.1-N16.8, N20-N23.0, N25-N29, N29.1-N30.31, N30.8-N37.8, N39-N46.02, N46.022-N46.12, N46.122-N49.1, N49.8-N52.1, N52.8-N53.9, R86-R86.9, Z43.5-Z43.7, Z84.1-Z84.2	588-595.81, 595.89-596.8, 596.89-598.1, 598.8-609, 788.3-788.39, 788.91, V13.0-V13.02, V26.5, V26.52, V45.74, V47.4, V58.76

Level	Cause	ICD10	ICD9	
3	B.12.3	Gynecological diseases	B37.3-B37.49, D25-D26, E28.2, N61-N64.9, N72-N72.0, N75-N77.8, N80-N81.9, N83-N84, N84.2-N86, N88-N95.9, N97-N98.9, R30-R37, R39-R39.9, R87-R87.9, Z01.4-Z01.7, Z31-Z31.9, Z86.1-Z86.19, Z87.4-Z87.448	112.1-112.2, 218-218.9, 256.4, 611-611.9, 616-618.9, 620-622.0, 622.3-622.6, 622.8-629.9, 788-788.29, 788.4-788.9, 788.99, 799.81, V07.4-V07.59, V13.2, V13.29, V18.7, V26-V26.49, V26.51, V26.8-V26.9, V43.82, V45.71, V45.83, V47.5, V49.81, V59.7-V59.74, V72.3-V72.31
3	B.12.4	Hemoglobinopathies and hemolytic anemias	D55-D61.9, D64-D64.8	282-285.0, 285.8-285.9, V78, V78.2-V78.9
3	B.12.5	Endocrine, metabolic, blood, and immune disorders	C7A00-C7B8, D3A00-D3A8, D66-D69.49, D69.6-D70.0, D70.4-D77, D80-D84.9, D86.8, D86.82-D86.84, D86.86-D86.89, D89-D89.2, D89.8, D89.82-D89.9, E03-E03.1, E03.3-E06.3, E06.5-E07.9, E15-E16, E16.1-E16.9, E20-E23.0, E23.2-E24.1, E24.3, E24.8-E27.2, E27.4-E28.1, E28.3-E32.9, E34, E34.1-E35.8, E65-E66.09, E66.2-E68, E70-E80.09, E80.3-E85.9, E88-E88.9, E90-E998, Z83.4-Z83.49	240-244, 244.8-246.9, 251-251.2, 251.4-253.6, 253.8-256.39, 256.8-259.9, 270-273.9, 275-278.02, 278.1-279.49, 279.6-279.9, 286-289.9, 775.3, V12.2-V12.49, V18.1-V18.19, V45.86, V77.0, V77.3-V77.4, V77.6-V77.8, V77.91, V85-V85.45, V85.51, V85.53-V85.54
3	B.12.6	Oral disorders	K00-K08.499, K08.8-K14.9, M26-M27.9, Z01.2-Z01.21, Z13.84, Z96.5	520-525.54, 525.8-526.61, 526.69-529.9, V07.31, V45.84, V49.82, V58.5, V72.2
2	C.1	Transport injuries	V00-V86.99, V87.2-V87.3, V88.2-V88.3, V90-V98.8	E800-E800.3, E801-E801.3, E802-E802.3, E803-E803.3, E804-E804.3, E805-E805.3, E806-E806.3, E807-E807.3, E810.0-E810.7, E811.0-E811.7, E812.0-E812.7, E813.0-E813.7, E814.0-E814.7, E815.0-E815.7, E816.0-E816.7, E817.0-E817.7, E818.0-E818.7, E819.0-E819.7, E820.0-E820.7, E821.0-E821.7, E822.0-E822.7, E823.0-E823.7, E824.0-E824.7, E825.0-E825.7, E826.0-E826.4, E827.0-E827.4, E828.0-E828.4, E829.0-E829.4, E830-E838.9, E840-E849.9, E929.1, V03, V07.8-V07.9, V13, V13.8, V13.9, V15.2, V15.3, V15.9, V19, V42, V42.8, V42.9-V43, V47-V47.1
3	C.1.1	Road injuries	V01-V04.99, V06-V80.929, V82-V82.9, V87.2-V87.3	E800.3, E801.3, E802.3, E803.3, E804.3, E805.3, E806.3, E807.3, E810.0-E810.6, E811.0-E811.7, E812.0-E812.7, E813.0-E813.7, E814.0-E814.7, E815.0-E815.7, E816.0-E816.7, E817.0-E817.7, E818.0-E818.7, E819.0-E819.7, E820.0-E820.6, E821.0-E821.6, E822.0-E822.7, E823.0-

Level	Cause	ICD10	ICD9	
3	C.1.2	Other transport injuries	V00-V00.898, V05-V05.99, V81-V81.9, V83-V86.99, V88.2-V88.3, V90-V98.8	E823.7, E824.0-E824.7, E825.0-E825.7, E826.0-E826.1, E826.3-E826.4, E827.0, E827.3-E827.4, E828.0, E828.4, E829.0-E829.4, V03, V07.8-V07.9, V13, V13.8, V13.9, V15.2, V15.3, V15.9, V19, V42, V42.8, V42.9-V43, V47-V47.1 E800-E800.2, E801-E801.2, E802-E802.2, E803-E803.2, E804-E804.2, E805-E805.2, E806-E806.2, E807-E807.2, E810.7, E820.7, E821.7, E826.2, E827.2, E828.2, E830-E838.9, E840-E849.9, E929.1
2	C.2	Unintentional injuries	D69.5-D69.59, D70.1-D70.2, D78-D78.89, D89.81-D89.813, E03.2, E06.4, E09-E09.9, E16.0, E23.1, E24.2, E27.3, E36-E36.8, E66.1, E86.02-E87.99, E89-E89.9, G21.0-G21.19, G24.0-G24.09, G25.1, G25.4, G25.6-G25.79, G62.0, G72.0, G93.7, G96.0, G96.11, G97-G97.9, H02.81-H02.819, H05.33-H05.339, H05.42-H05.53, H44.6-H44.799, H59-H59.89, H91.0-H91.09, H95-H95.9, I95.2-I95.81, I97-I97.9, J70-J70.5, J95-J95.9, K08.5-K08.59, K43-K43.9, K52.0, K62.7, K68.11, K91-K91.9, K94-K95.89, L23.3, L27.0-L27.1, L55-L55.9, L56.0-L56.1, L58-L58.9, L64.0, L76-L76.82, M10.2-M10.29, M60.2-M60.28, M87.1-M87.19, M96-M96.9, N14-N14.4, N30.4-N30.41, N46.021, N46.121, N52.2-N52.39, N65-N65.1, N99-N99.9, P93-P93.8, P96.2, P96.5, R50.2-R50.83, W00-W46.2, W49-W62.9, W64-W70.9, W73-W81.9, W83-W94.9, W97.9, W99-X06.9, X08-X44.9, X46-X58.9, Y10-Y14.9, Y16-Y19.9, Y40-Y84.9, Y88-Y88.3, Z21.0, Z42-Z43.0, Z43.8-Z43.9, Z48-Z48.9, Z51-Z51.9, Z88-Z88.9, Z92-Z94.0, Z94.6, Z94.8-Z94.9, Z96-Z96.49, Z96.6-Z97.2, Z97.8-Z99.12, Z99.3-Z99.9	244.0-244.1, 244.3, 251.3, 253.7, 279.5-279.53, 331.81, 333.92, 349-349.9, 357.6, 359.24, 360.5-360.69, 374.86, 376.6, 379.6-379.63, 440.3-440.32, 457.0, 458.2-458.29, 518.6-518.7, 519.0-519.1, 525.6-525.79, 526.62-526.63, 530.86-530.87, 536.4-536.49, 539-539.9, 551.2-551.29, 552.2-552.29, 553.2-553.29, 564.2-564.4, 569.6-569.8, 579.3, 595.82, 596.81-596.83, 598.2, 612-612.1, 709.4, 770.1-770.18, 779.4-779.5, 780.62-780.66, 995.89, E850.3-E858.99, E862-E869.99, E870-E876.9, E878-E879.9, E880-E886.99, E888-E928.89, E929.2-E929.5, E930-E949.9, V44-V45, V45.2-V45.4, V45.7, V45.77, V45.79-V45.8, V45.87-V45.89
3	C.2.1	Falls	W00-W19.9	E880-E886.99, E888-E888.9, E929.3
3	C.2.2	Drowning	W65-W70.9, W73-W74.9	E910-E910.99
3	C.2.3	Fire, heat, and hot substances	X00-X06.9, X08-X19.9	E890-E899.09, E924-E924.99, E929.4
3	C.2.4	Poisonings	E86.02-E86.99, J70.5, X40-X44.9, X46-X49.9, Y10-Y14.9, Y16-Y19.9	E850.3-E858.99, E862-E869.99, E929.2
3	C.2.5	Exposure to mechanical forces	W20-W38.9, W40-W43.9, W45.0-W45.2, W46-W46.2, W49-W52	E916-E922.99, E928.1-E928.7

Level	Cause	ICD10	ICD9	
3	C.2.6	Adverse effects of medical treatment	D69.5-D69.59, D70.1-D70.2, D78-D78.89, D89.81-D89.813, E03.2, E06.4, E09-E09.9, E16.0, E23.1, E24.2, E27.3, E36-E36.8, E66.1, E87.0-E87.99, E89-E89.9, G21.0-G21.19, G24.0-G24.09, G25.1, G25.4, G25.6-G25.79, G62.0, G72.0, G93.7, G96.0, G96.11, G97-G97.9, H05.33-H05.339, H05.42-H05.53, H59-H59.89, H91.0-H91.09, H95-H95.9, I95.2-I95.81, I97-I97.9, J70-J70.4, J95-J95.9, K08.5-K08.59, K43-K43.9, K52.0, K62.7, K68.11, K91-K91.9, K94-K95.89, L23.3, L27.0-L27.1, L56.0-L56.1, L64.0, L76-L76.82, M10.2-M10.29, M87.1-M87.19, M96-M96.9, N14-N14.4, N30.4-N30.41, N46.021, N46.121, N52.2-N52.39, N65-N65.1, N99-N99.9, P93-P93.8, P96.2, P96.5, R50.2-R50.83, Y40-Y84.9, Y88-Y88.3, Z21.0, Z42-Z43.0, Z43.8-Z43.9, Z48-Z48.9, Z51-Z51.9, Z88-Z88.9, Z92-Z94.0, Z94.6, Z94.8-Z94.9, Z96-Z96.49, Z96.6-Z97.2, Z97.8-Z99.12, Z99.3-Z99.9	244.0-244.1, 244.3, 251.3, 253.7, 279.5-279.53, 331.81, 333.92, 349-349.9, 357.6, 359.24, 379.6-379.63, 440.3-440.32, 457.0, 458.2-458.29, 518.6-518.7, 519.0-519.1, 525.6-525.79, 526.62-526.63, 530.86-530.87, 536.4-536.49, 539-539.9, 551.2-551.29, 552.2-552.29, 553.2-553.29, 564.2-564.4, 569.6-569.8, 579.3, 595.82, 596.81-596.83, 598.2, 612-612.1, 779.4-779.5, 780.62-780.66, 995.89, E870-E876.9, E878-E879.9, E930-E949.9, V44-V45, V45.2-V45.4, V45.7, V45.77, V45.79-V45.8, V45.87-V45.89
3	C.2.7	Animal contact	W52.0-W62.9, W64-W64.9, X20-X29.9	E905-E906.99
3	C.2.8	Foreign body	H02.81-H02.819, H44.6-H44.799, M60.2-M60.28, W44-W45, W45.3-W45.9, W75-W76.9, W78-W80.9, W83-W84.9	360.5-360.69, 374.86, 376.6, 709.4, 770.1-770.18, E911-E912.09, E913.8-E915.09
3	C.2.9	Environmental heat and cold exposure	L55-L55.9, L58-L58.9, W88-W94.9, W97.9, W99-W99.9, X30-X32.9, X39-X39.9	E900-E902.99, E926-E926.99, E929.5
3	C.2.10	Exposure to forces of nature	X33-X38.9	E907-E909.9
3	C.2.11	Other unintentional injuries	W39-W39.9, W77-W77.9, W81-W81.9, W85-W87.9, X50-X58.9	E903-E904.99, E913.2-E913.39, E923-E923.99, E927-E928.09, E928.8-E928.89
2	C.3	Self-harm and interpersonal violence	T74.2-U03, X60-X64.9, X66-Y08.9, Y35-Y38.9, Y87.0-Y87.2, Y89.0-Y89.1	E950-E979.9, E990-E999.1
3	C.3.1	Self-harm	X60-X64.9, X66-X84.9, Y87.0	E950-E959
3	C.3.2	Interpersonal violence	T74.2-T76.22, X85-Y08.9, Y87.1-Y87.2	E960-E969
3	C.3.3	Conflict and terrorism	U00-U03, Y36-Y38.9, Y89.1	E979-E979.9, E990-E999.1
3	C.3.4	Executions and police conflict	Y35-Y35.93, Y89.0	E970-E978

Note: A, communicable, maternal, neonatal, and nutritional diseases; B, non-communicable diseases; C, injuries. A small number of causes don't use ICD codes.

Table S2 | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) from 1990 to 2019.

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	1.0925	0.2290	1.3216	3.4591	2.1376
HIV/AIDS and sexually transmitted infections	A.1	-0.0462	-0.0029	-0.0491	-0.0319	0.0173
HIV/AIDS	A.1.1	-0.0484	-0.0033	-0.0517	-0.0386	0.0131
Sexually transmitted infections excluding HIV	A.1.2	0.0022	0.0004	0.0026	0.0068	0.0042
Respiratory infections and tuberculosis	A.2	0.7790	0.0430	0.8219	1.8622	1.0403
Tuberculosis	A.2.1	0.3600	0.0328	0.3927	0.3786	-0.0141
Lower respiratory infections	A.2.2	0.3850	0.0033	0.3884	1.4458	1.0575
Upper respiratory infections	A.2.3	0.0336	-0.0004	0.0331	0.0374	0.0042
Otitis media	A.2.4	0.0004	0.0073	0.0077	0.0004	-0.0073
Enteric infections	A.3	0.0719	0.0004	0.0723	0.2872	0.2148
Diarrheal diseases	A.3.1	0.0642	0.0004	0.0645	0.2813	0.2168
Typhoid and paratyphoid	A.3.2	0.0059	0.0001	0.0060	0.0035	-0.0025
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0013	0.0000	0.0013	0.0012	-0.0001
Other intestinal infectious diseases	A.3.4	0.0004	0.0000	0.0004	0.0011	0.0006
Neglected tropical diseases and malaria	A.4	0.0136	0.0994	0.1130	0.0143	-0.0986
Malaria	A.4.1	0.0046	0.0007	0.0053	0.0039	-0.0014
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0047	0.0043	0.0091	0.0044	-0.0047
Cysticercosis	A.4.6	0.0002	0.0059	0.0061	0.0002	-0.0060
Cystic echinococcosis	A.4.7	0.0001	0.0000	0.0001	0.0001	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0032	0.0032	0.0000	-0.0032
Dengue	A.4.11	0.0001	-0.0022	-0.0021	0.0002	0.0023
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0021	0.0000	0.0021	0.0024	0.0003
Intestinal nematode infections	A.4.14	0.0007	0.0409	0.0416	0.0013	-0.0403
Food-borne trematodiasis	A.4.15	0.0000	0.0380	0.0380	0.0000	-0.0380
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0011	0.0084	0.0096	0.0019	-0.0077
Other infectious diseases	A.5	0.1677	0.0183	0.1860	0.4507	0.2647
Meningitis	A.5.1	0.0393	0.0050	0.0443	0.0993	0.0550
Encephalitis	A.5.2	0.0068	0.0031	0.0099	0.0196	0.0097
Diphtheria	A.5.3	0.0003	0.0000	0.0003	0.0006	0.0003
Whooping cough	A.5.4	0.0167	0.0010	0.0177	0.0949	0.0773

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Tetanus	A.5.5	0.0132	0.0001	0.0133	0.0581	0.0448	
Measles	A.5.6	0.0276	0.0007	0.0282	0.0912	0.0630	
Varicella and herpes zoster	A.5.7	0.0064	0.0000	0.0064	0.0068	0.0004	
Acute hepatitis	A.5.8	0.0490	0.0013	0.0503	0.0621	0.0118	
Other unspecified infectious diseases	A.5.9	0.0084	0.0072	0.0156	0.0181	0.0025	
Maternal and neonatal disorders	A.6	0.0717	-0.0916	-0.0199	0.7633	0.7833	
Maternal disorders	A.6.1	0.0634	0.0039	0.0673	0.0355	-0.0318	
Neonatal disorders	A.6.2	0.0083	-0.0955	-0.0872	0.7279	0.8151	
Nutritional deficiencies	A.7	0.0348	0.1625	0.1973	0.1132	-0.0842	
Protein-energy malnutrition	A.7.1	0.0358	-0.0135	0.0223	0.1105	0.0882	
Iodine deficiency	A.7.2	0.0000	0.0028	0.0028	0.0000	-0.0028	
Vitamin A deficiency	A.7.3	0.0000	0.0035	0.0035	0.0000	-0.0035	
Dietary iron deficiency	A.7.4	0.0000	0.1719	0.1719	0.0000	-0.1719	
Other nutritional deficiencies	A.7.5	-0.0010	-0.0022	-0.0032	0.0026	0.0058	
Non-communicable diseases	B	6.0503	0.2284	6.2788	5.8257	-0.4530	
Neoplasms	B.1	0.7057	-0.0425	0.6632	0.8299	0.1667	
Lip and oral cavity cancer	B.1.1	-0.0036	-0.0005	-0.0041	-0.0036	0.0005	
Nasopharynx cancer	B.1.2	0.0340	-0.0018	0.0323	0.0318	-0.0005	
Other pharynx cancer	B.1.3	0.0018	-0.0001	0.0017	0.0017	0.0000	
Esophageal cancer	B.1.4	0.1554	0.0016	0.1570	0.1679	0.0108	
Stomach cancer	B.1.5	0.2938	0.0001	0.2939	0.3065	0.0127	
Colon and rectum cancer	B.1.6	-0.0652	-0.0120	-0.0772	-0.0522	0.0250	
Liver cancer	B.1.7	0.3395	0.0034	0.3428	0.3445	0.0016	
Gallbladder and biliary tract cancer	B.1.8	-0.0031	-0.0002	-0.0033	-0.0023	0.0009	
Pancreatic cancer	B.1.9	-0.0472	-0.0007	-0.0479	-0.0419	0.0059	
Larynx cancer	B.1.10	0.0074	-0.0005	0.0069	0.0079	0.0010	
Tracheal, bronchus, and lung cancer	B.1.11	-0.1166	-0.0045	-0.1211	-0.0717	0.0493	
Malignant skin melanoma	B.1.12	0.0012	-0.0003	0.0009	0.0012	0.0003	
Non-melanoma skin cancer	B.1.13	-0.0030	-0.0001	-0.0032	-0.0018	0.0014	
Breast cancer	B.1.14	0.0024	-0.0071	-0.0047	0.0036	0.0083	
Cervical cancer	B.1.15	0.0076	-0.0008	0.0068	0.0065	-0.0003	
Uterine cancer	B.1.16	0.0123	-0.0005	0.0118	0.0123	0.0004	
Ovarian cancer	B.1.17	-0.0087	-0.0006	-0.0093	-0.0095	-0.0002	
Prostate cancer	B.1.18	0.0007	-0.0044	-0.0037	0.0030	0.0067	
Testicular cancer	B.1.19	0.0002	-0.0004	-0.0002	0.0002	0.0004	
Kidney cancer	B.1.20	-0.0116	-0.0010	-0.0126	-0.0092	0.0034	
Bladder cancer	B.1.21	0.0064	-0.0017	0.0047	0.0062	0.0015	
Brain and central nervous system cancer	B.1.22	0.0107	-0.0008	0.0099	0.0165	0.0066	
Thyroid cancer	B.1.23	0.0010	-0.0005	0.0005	0.0010	0.0006	
Mesothelioma	B.1.24	-0.0002	0.0000	-0.0002	-0.0002	0.0000	
Hodgkin lymphoma	B.1.25	0.0096	-0.0001	0.0095	0.0084	-0.0011	
Non-Hodgkin lymphoma	B.1.26	-0.0090	-0.0029	-0.0119	-0.0073	0.0046	
Multiple myeloma	B.1.27	-0.0012	-0.0003	-0.0014	-0.0005	0.0010	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Leukemia	B.1.28	0.0692	-0.0005	0.0688	0.0826	0.0139	
Other malignant neoplasms	B.1.29	0.0227	-0.0039	0.0188	0.0289	0.0101	
Other neoplasms	B.1.30	-0.0010	-0.0013	-0.0024	-0.0006	0.0018	
Cardiovascular diseases	B.2	1.8440	-0.0776	1.7664	1.8217	0.0553	
Rheumatic heart disease	B.2.1	0.2780	0.0013	0.2792	0.2372	-0.0420	
Ischemic heart disease	B.2.2	-0.2965	-0.0040	-0.3004	-0.0680	0.2324	
Stroke	B.2.3	1.4604	-0.0730	1.3875	1.3135	-0.0740	
Hypertensive heart disease	B.2.4	0.3703	0.0040	0.3743	0.2936	-0.0806	
Non-rheumatic valvular heart disease	B.2.5	0.0050	-0.0010	0.0039	0.0037	-0.0003	
Cardiomyopathy and myocarditis	B.2.6	0.0018	0.0000	0.0018	0.0109	0.0091	
Atrial fibrillation and flutter	B.2.8	0.0035	-0.0039	-0.0004	0.0035	0.0040	
Aortic aneurysm	B.2.9	0.0010	0.0000	0.0010	0.0012	0.0002	
Peripheral artery disease	B.2.10	-0.0004	0.0016	0.0012	-0.0002	-0.0014	
Endocarditis	B.2.11	0.0042	0.0000	0.0041	0.0066	0.0025	
Other cardiovascular and circulatory diseases	B.2.12	0.0168	-0.0025	0.0143	0.0197	0.0054	
Chronic respiratory diseases	B.3	2.7212	0.1112	2.8324	2.0179	-0.8145	
Chronic obstructive pulmonary disease	B.3.1	2.6142	0.0981	2.7123	1.9314	-0.7809	
Pneumoconiosis	B.3.2	0.0165	0.0022	0.0187	0.0154	-0.0032	
Asthma	B.3.3	0.0903	0.0137	0.1040	0.0694	-0.0346	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0003	-0.0009	-0.0006	0.0007	0.0013	
Other chronic respiratory diseases	B.3.5	0.0000	-0.0019	-0.0019	0.0010	0.0029	
Digestive diseases	B.4	0.4969	0.0477	0.5446	0.4885	-0.0561	
Cirrhosis and other chronic liver diseases	B.4.1	0.2425	0.0030	0.2455	0.2345	-0.0110	
Upper digestive system diseases	B.4.2	0.1254	0.0201	0.1455	0.1116	-0.0339	
Appendicitis	B.4.3	0.0098	-0.0002	0.0096	0.0078	-0.0018	
Paralytic ileus and intestinal obstruction	B.4.4	0.0205	-0.0002	0.0203	0.0423	0.0220	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0028	0.0017	0.0045	0.0062	0.0018	
Inflammatory bowel disease	B.4.6	0.0103	-0.0032	0.0071	0.0091	0.0021	
Vascular intestinal disorders	B.4.7	0.0017	0.0000	0.0017	0.0015	-0.0002	
Gallbladder and biliary diseases	B.4.8	0.0351	0.0252	0.0603	0.0292	-0.0310	
Pancreatitis	B.4.9	0.0117	0.0003	0.0119	0.0100	-0.0020	
Other digestive diseases	B.4.10	0.0371	0.0012	0.0383	0.0363	-0.0020	
Neurological disorders	B.5	0.0503	-0.0786	-0.0283	0.0514	0.0797	
Alzheimer's disease and other dementias	B.5.1	0.0043	-0.0403	-0.0360	0.0043	0.0402	
Parkinson's disease	B.5.2	0.0162	-0.0073	0.0089	0.0143	0.0054	
Idiopathic epilepsy	B.5.3	0.0288	-0.0030	0.0258	0.0275	0.0018	
Multiple sclerosis	B.5.4	0.0009	-0.0001	0.0008	0.0009	0.0000	
Motor neuron disease	B.5.5	0.0010	-0.0001	0.0009	0.0031	0.0022	
Headache disorders	B.5.6	0.0000	-0.0236	-0.0236	0.0000	0.0236	
Other neurological disorders	B.5.7	-0.0009	-0.0042	-0.0052	0.0014	0.0065	
Mental disorders	B.6	-0.0001	0.0354	0.0353	-0.0001	-0.0353	
Schizophrenia	B.6.1	0.0000	-0.0057	-0.0057	0.0000	0.0057	
Depressive disorders	B.6.2	0.0000	0.0192	0.0192	0.0000	-0.0192	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Anxiety disorders	B.6.4	0.0000	0.0249	0.0249	0.0000	-0.0249	
Eating disorders	B.6.5	-0.0001	-0.0065	-0.0065	-0.0001	0.0065	
Autism spectrum disorders	B.6.6	0.0000	-0.0015	-0.0015	0.0000	0.0015	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	-0.0010	-0.0010	0.0000	0.0010	
Conduct disorder	B.6.8	0.0000	-0.0015	-0.0015	0.0000	0.0015	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0077	0.0077	0.0000	-0.0077	
Other mental disorders	B.6.10	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Substance use disorders	B.7	0.0599	0.0063	0.0662	0.0419	-0.0244	
Alcohol use disorders	B.7.1	-0.0032	-0.0002	-0.0034	-0.0029	0.0005	
Drug use disorders	B.7.2	0.0631	0.0065	0.0696	0.0447	-0.0249	
Diabetes and kidney diseases	B.8	0.0778	-0.0578	0.0200	0.0890	0.0690	
Diabetes mellitus	B.8.1	-0.0010	-0.0517	-0.0527	0.0135	0.0661	
Chronic kidney disease	B.8.2	0.0578	-0.0062	0.0516	0.0570	0.0054	
Acute glomerulonephritis	B.8.3	0.0210	0.0000	0.0210	0.0185	-0.0025	
Skin and subcutaneous diseases	B.9	0.0134	-0.0084	0.0049	0.0113	0.0064	
Dermatitis	B.9.1	0.0000	-0.0012	-0.0012	0.0000	0.0012	
Psoriasis	B.9.2	0.0000	0.0106	0.0106	0.0000	-0.0106	
Bacterial skin diseases	B.9.3	0.0145	0.0001	0.0146	0.0119	-0.0027	
Scabies	B.9.4	0.0000	0.0016	0.0016	0.0000	-0.0016	
Fungal skin diseases	B.9.5	0.0000	0.0006	0.0006	0.0000	-0.0006	
Viral skin diseases	B.9.6	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Acne vulgaris	B.9.7	0.0000	-0.0141	-0.0141	0.0000	0.0141	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0010	-0.0010	0.0000	0.0010	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	-0.0015	-0.0003	-0.0017	-0.0008	0.0010	
Other skin and subcutaneous diseases	B.9.12	0.0003	-0.0045	-0.0043	0.0002	0.0044	
Sense organ diseases	B.10	0.0000	0.0491	0.0491	0.0000	-0.0491	
Blindness and vision loss	B.10.1	0.0000	0.0311	0.0311	0.0000	-0.0311	
Age-related and other hearing loss	B.10.2	0.0000	0.0199	0.0199	0.0000	-0.0199	
Other sense organ diseases	B.10.3	0.0000	-0.0018	-0.0018	0.0000	0.0018	
Musculoskeletal disorders	B.11	-0.0035	0.1084	0.1049	-0.0014	-0.1062	
Rheumatoid arthritis	B.11.1	-0.0002	-0.0015	-0.0017	0.0005	0.0022	
Osteoarthritis	B.11.2	0.0000	-0.0215	-0.0215	0.0000	0.0215	
Low back pain	B.11.3	0.0000	0.2376	0.2376	0.0000	-0.2376	
Neck pain	B.11.4	0.0000	-0.0093	-0.0093	0.0000	0.0093	
Gout	B.11.5	0.0000	-0.0066	-0.0066	0.0000	0.0066	
Other musculoskeletal disorders	B.11.6	-0.0033	-0.0905	-0.0938	-0.0019	0.0919	
Other non-communicable diseases	B.12	0.0846	0.1352	0.2199	0.4755	0.2556	
Congenital birth defects	B.12.1	0.0499	0.0078	0.0576	0.4223	0.3647	
Urinary diseases and male infertility	B.12.2	0.0164	0.0053	0.0217	0.0140	-0.0077	
Gynecological diseases	B.12.3	-0.0004	0.0477	0.0473	-0.0003	-0.0476	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0151	0.0573	0.0724	0.0210	-0.0514	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0036	0.0087	0.0123	0.0100	-0.0023	
Oral disorders	B.12.6	0.0000	0.0085	0.0085	0.0000	-0.0085	
Injuries	C	1.1618	-0.0525	1.1093	1.2036	0.0943	
Transport injuries	C.1	0.2112	-0.0565	0.1547	0.2092	0.0545	
Road injuries	C.1.1	0.1789	-0.0603	0.1186	0.1811	0.0625	
Other transport injuries	C.1.2	0.0323	0.0038	0.0361	0.0281	-0.0080	
Unintentional injuries	C.2	0.3668	-0.0063	0.3605	0.5719	0.2114	
Falls	C.2.1	-0.0085	-0.0131	-0.0215	0.0208	0.0424	
Drowning	C.2.2	0.2494	0.0011	0.2505	0.3204	0.0699	
Fire, heat, and hot substances	C.2.3	0.0248	-0.0004	0.0244	0.0322	0.0077	
Poisonings	C.2.4	0.0069	0.0000	0.0068	0.0195	0.0127	
Exposure to mechanical forces	C.2.5	0.0270	-0.0097	0.0173	0.0276	0.0103	
Adverse effects of medical treatment	C.2.6	0.0186	0.0000	0.0186	0.0276	0.0090	
Animal contact	C.2.7	0.0171	0.0029	0.0200	0.0184	-0.0016	
Foreign body	C.2.8	0.0038	0.0098	0.0136	0.0740	0.0604	
Environmental heat and cold exposure	C.2.9	0.0207	0.0021	0.0227	0.0225	-0.0003	
Exposure to forces of nature	C.2.10	0.0036	-0.0015	0.0021	0.0027	0.0006	
Other unintentional injuries	C.2.11	0.0036	0.0025	0.0060	0.0063	0.0003	
Self-harm and interpersonal violence	C.3	0.5838	0.0104	0.5941	0.4225	-0.1717	
Self-harm	C.3.1	0.4787	0.0057	0.4844	0.3374	-0.1470	
Interpersonal violence	C.3.2	0.0933	0.0047	0.0980	0.0778	-0.0202	
Conflict and terrorism	C.3.3	0.0001	0.0000	0.0001	0.0001	0.0000	
Executions and police conflict	C.3.4	0.0117	0.0000	0.0117	0.0073	-0.0044	

Table S3 | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) from 1990 to 1999.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.7619	0.1295	0.8914	1.2887	0.3973
HIV/AIDS and sexually transmitted infections	A.1	-0.0620	-0.0005	-0.0625	-0.0077	0.0548
HIV/AIDS	A.1.1	-0.0652	-0.0006	-0.0659	-0.0102	0.0556
Sexually transmitted infections excluding HIV	A.1.2	0.0032	0.0002	0.0034	0.0025	-0.0009
Respiratory infections and tuberculosis	A.2	0.4303	0.0146	0.4448	0.7645	0.3197
Tuberculosis	A.2.1	0.2843	0.0110	0.2953	0.1754	-0.1198
Lower respiratory infections	A.2.2	0.1298	0.0012	0.1310	0.5754	0.4444
Upper respiratory infections	A.2.3	0.0154	0.0002	0.0156	0.0133	-0.0023
Otitis media	A.2.4	0.0008	0.0021	0.0029	0.0003	-0.0026
Enteric infections	A.3	0.0758	0.0053	0.0810	0.1408	0.0598
Diarrheal diseases	A.3.1	0.0655	0.0052	0.0708	0.1382	0.0674
Typhoid and paratyphoid	A.3.2	0.0085	0.0000	0.0086	0.0017	-0.0068
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0015	0.0000	0.0015	0.0005	-0.0010
Other intestinal infectious diseases	A.3.4	0.0002	0.0000	0.0002	0.0005	0.0002
Neglected tropical diseases and malaria	A.4	0.0146	0.0485	0.0630	0.0070	-0.0560
Malaria	A.4.1	0.0036	0.0005	0.0041	0.0012	-0.0029
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0041	0.0023	0.0065	0.0021	-0.0044
Cysticercosis	A.4.6	0.0002	-0.0027	-0.0025	0.0001	0.0026
Cystic echinococcosis	A.4.7	0.0002	0.0000	0.0002	0.0001	-0.0001
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0009	0.0009	0.0000	-0.0009
Dengue	A.4.11	0.0002	-0.0003	-0.0001	0.0001	0.0002
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0038	0.0000	0.0038	0.0016	-0.0023
Intestinal nematode infections	A.4.14	0.0007	0.0200	0.0207	0.0007	-0.0200
Food-borne trematodiasis	A.4.15	0.0000	0.0242	0.0242	0.0000	-0.0242
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0017	0.0035	0.0052	0.0011	-0.0041
Other infectious diseases	A.5	0.1859	0.0072	0.1931	0.2368	0.0437
Meningitis	A.5.1	0.0299	0.0020	0.0319	0.0460	0.0142
Encephalitis	A.5.2	0.0035	0.0014	0.0049	0.0056	0.0007
Diphtheria	A.5.3	0.0004	0.0000	0.0004	0.0004	0.0000

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0177	0.0004	0.0181	0.0533	0.0352	
Tetanus	A.5.5	0.0209	0.0000	0.0210	0.0395	0.0186	
Measles	A.5.6	0.0356	0.0003	0.0359	0.0531	0.0172	
Varicella and herpes zoster	A.5.7	0.0058	0.0000	0.0058	0.0027	-0.0031	
Acute hepatitis	A.5.8	0.0631	0.0001	0.0632	0.0312	-0.0320	
Other unspecified infectious diseases	A.5.9	0.0090	0.0030	0.0120	0.0052	-0.0069	
Maternal and neonatal disorders	A.6	0.0839	-0.0143	0.0696	0.0891	0.0194	
Maternal disorders	A.6.1	0.0830	0.0027	0.0857	0.0111	-0.0747	
Neonatal disorders	A.6.2	0.0009	-0.0170	-0.0161	0.0780	0.0941	
Nutritional deficiencies	A.7	0.0334	0.0687	0.1021	0.0581	-0.0440	
Protein-energy malnutrition	A.7.1	0.0325	-0.0036	0.0289	0.0571	0.0282	
Iodine deficiency	A.7.2	0.0000	0.0019	0.0019	0.0000	-0.0019	
Vitamin A deficiency	A.7.3	0.0000	0.0020	0.0020	0.0000	-0.0020	
Dietary iron deficiency	A.7.4	0.0000	0.0665	0.0665	0.0000	-0.0665	
Other nutritional deficiencies	A.7.5	0.0009	0.0020	0.0029	0.0011	-0.0018	
Non-communicable diseases	B	1.4347	0.1446	1.5793	1.5873	0.0081	
Neoplasms	B.1	-0.1800	-0.0048	-0.1848	0.1231	0.3079	
Lip and oral cavity cancer	B.1.1	0.0004	0.0000	0.0004	0.0010	0.0007	
Nasopharynx cancer	B.1.2	0.0141	-0.0001	0.0140	0.0091	-0.0049	
Other pharynx cancer	B.1.3	0.0009	0.0000	0.0009	0.0007	-0.0002	
Esophageal cancer	B.1.4	0.0032	0.0000	0.0031	0.0139	0.0107	
Stomach cancer	B.1.5	0.0570	0.0006	0.0576	0.0816	0.0240	
Colon and rectum cancer	B.1.6	-0.0263	-0.0010	-0.0273	-0.0023	0.0251	
Liver cancer	B.1.7	-0.0121	0.0001	-0.0120	0.0102	0.0221	
Gallbladder and biliary tract cancer	B.1.8	0.0026	0.0000	0.0026	0.0020	-0.0006	
Pancreatic cancer	B.1.9	-0.0135	-0.0001	-0.0136	-0.0062	0.0074	
Larynx cancer	B.1.10	0.0037	0.0000	0.0038	0.0031	-0.0006	
Tracheal, bronchus, and lung cancer	B.1.11	-0.0773	-0.0009	-0.0782	-0.0264	0.0518	
Malignant skin melanoma	B.1.12	-0.0004	0.0000	-0.0004	0.0004	0.0008	
Non-melanoma skin cancer	B.1.13	-0.0012	0.0000	-0.0013	0.0003	0.0015	
Breast cancer	B.1.14	-0.0379	-0.0009	-0.0388	0.0012	0.0400	
Cervical cancer	B.1.15	-0.0162	0.0000	-0.0162	0.0082	0.0244	
Uterine cancer	B.1.16	-0.0053	-0.0002	-0.0055	0.0017	0.0073	
Ovarian cancer	B.1.17	-0.0093	-0.0001	-0.0095	-0.0024	0.0071	
Prostate cancer	B.1.18	-0.0017	-0.0007	-0.0024	-0.0005	0.0019	
Testicular cancer	B.1.19	-0.0005	-0.0001	-0.0005	0.0000	0.0005	
Kidney cancer	B.1.20	-0.0007	-0.0001	-0.0008	-0.0004	0.0003	
Bladder cancer	B.1.21	0.0031	-0.0002	0.0029	0.0019	-0.0010	
Brain and central nervous system cancer	B.1.22	-0.0189	-0.0001	-0.0190	-0.0005	0.0185	
Thyroid cancer	B.1.23	-0.0013	-0.0001	-0.0014	0.0006	0.0019	
Mesothelioma	B.1.24	0.0002	0.0000	0.0002	0.0003	0.0001	
Hodgkin lymphoma	B.1.25	0.0088	0.0000	0.0088	0.0031	-0.0057	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0133	-0.0003	-0.0135	0.0000	0.0135	
Multiple myeloma	B.1.27	-0.0056	0.0000	-0.0057	0.0000	0.0057	
Leukemia	B.1.28	-0.0234	0.0001	-0.0233	0.0156	0.0390	
Other malignant neoplasms	B.1.29	-0.0080	-0.0005	-0.0085	0.0072	0.0157	
Other neoplasms	B.1.30	-0.0010	0.0000	-0.0010	-0.0002	0.0008	
Cardiovascular diseases	B.2	0.6131	-0.0112	0.6019	0.6348	0.0329	
Rheumatic heart disease	B.2.1	0.1844	0.0019	0.1864	0.1018	-0.0846	
Ischemic heart disease	B.2.2	0.0206	-0.0036	0.0170	0.1038	0.0868	
Stroke	B.2.3	0.1553	-0.0128	0.1426	0.2647	0.1222	
Hypertensive heart disease	B.2.4	0.2587	0.0013	0.2600	0.1525	-0.1076	
Non-rheumatic valvular heart disease	B.2.5	0.0008	-0.0001	0.0008	0.0008	0.0000	
Cardiomyopathy and myocarditis	B.2.6	-0.0081	0.0000	-0.0081	0.0013	0.0094	
Atrial fibrillation and flutter	B.2.8	0.0003	0.0026	0.0029	0.0015	-0.0015	
Aortic aneurysm	B.2.9	0.0002	0.0000	0.0002	0.0006	0.0004	
Peripheral artery disease	B.2.10	-0.0002	-0.0001	-0.0003	0.0000	0.0002	
Endocarditis	B.2.11	-0.0047	0.0000	-0.0047	0.0001	0.0048	
Other cardiovascular and circulatory diseases	B.2.12	0.0056	-0.0005	0.0051	0.0077	0.0026	
Chronic respiratory diseases	B.3	0.8253	-0.0039	0.8214	0.5520	-0.2694	
Chronic obstructive pulmonary disease	B.3.1	0.7761	-0.0066	0.7695	0.5228	-0.2466	
Pneumoconiosis	B.3.2	0.0097	-0.0037	0.0059	0.0061	0.0002	
Asthma	B.3.3	0.0409	0.0075	0.0484	0.0222	-0.0262	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0008	0.0003	0.0011	0.0007	-0.0004	
Other chronic respiratory diseases	B.3.5	-0.0022	-0.0014	-0.0035	0.0001	0.0037	
Digestive diseases	B.4	0.3044	0.0220	0.3264	0.1755	-0.1509	
Cirrhosis and other chronic liver diseases	B.4.1	0.1444	0.0011	0.1455	0.0767	-0.0688	
Upper digestive system diseases	B.4.2	0.0858	0.0087	0.0944	0.0466	-0.0478	
Appendicitis	B.4.3	0.0070	0.0001	0.0070	0.0029	-0.0042	
Paralytic ileus and intestinal obstruction	B.4.4	0.0147	-0.0002	0.0145	0.0149	0.0004	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0014	0.0009	0.0023	0.0022	0.0000	
Inflammatory bowel disease	B.4.6	0.0026	-0.0014	0.0012	0.0022	0.0010	
Vascular intestinal disorders	B.4.7	0.0006	0.0000	0.0006	0.0006	-0.0001	
Gallbladder and biliary diseases	B.4.8	0.0147	0.0121	0.0268	0.0100	-0.0168	
Pancreatitis	B.4.9	0.0086	0.0002	0.0088	0.0037	-0.0051	
Other digestive diseases	B.4.10	0.0247	0.0005	0.0251	0.0156	-0.0096	
Neurological disorders	B.5	0.0108	-0.0350	-0.0243	0.0157	0.0399	
Alzheimer's disease and other dementias	B.5.1	0.0126	-0.0165	-0.0038	0.0057	0.0096	
Parkinson's disease	B.5.2	0.0023	-0.0057	-0.0035	0.0038	0.0073	
Idiopathic epilepsy	B.5.3	0.0016	-0.0147	-0.0131	0.0059	0.0189	
Multiple sclerosis	B.5.4	-0.0020	0.0000	-0.0020	0.0000	0.0020	
Motor neuron disease	B.5.5	-0.0016	0.0000	-0.0016	0.0000	0.0015	
Headache disorders	B.5.6	0.0000	0.0044	0.0044	0.0000	-0.0044	
Other neurological disorders	B.5.7	-0.0022	-0.0025	-0.0047	0.0003	0.0050	

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Mental disorders	B.6	-0.0001	-0.0096	-0.0098	0.0000	0.0098
Schizophrenia	B.6.1	0.0000	-0.0007	-0.0007	0.0000	0.0007
Depressive disorders	B.6.2	0.0000	0.0014	0.0014	0.0000	-0.0014
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001
Anxiety disorders	B.6.4	0.0000	-0.0086	-0.0086	0.0000	0.0086
Eating disorders	B.6.5	-0.0001	-0.0007	-0.0008	0.0000	0.0008
Autism spectrum disorders	B.6.6	0.0000	-0.0007	-0.0007	0.0000	0.0007
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	-0.0013	-0.0013	0.0000	0.0013
Conduct disorder	B.6.8	0.0000	-0.0001	-0.0001	0.0000	0.0001
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0015	0.0015	0.0000	-0.0015
Other mental disorders	B.6.10	0.0000	-0.0003	-0.0003	0.0000	0.0003
Substance use disorders	B.7	-0.1063	0.0079	-0.0983	-0.0055	0.0928
Alcohol use disorders	B.7.1	-0.0015	-0.0008	-0.0023	0.0005	0.0028
Drug use disorders	B.7.2	-0.1048	0.0087	-0.0960	-0.0060	0.0900
Diabetes and kidney diseases	B.8	-0.0165	-0.0074	-0.0239	0.0259	0.0498
Diabetes mellitus	B.8.1	-0.0318	-0.0157	-0.0475	-0.0026	0.0449
Chronic kidney disease	B.8.2	-0.0109	0.0083	-0.0026	0.0190	0.0216
Acute glomerulonephritis	B.8.3	0.0262	0.0000	0.0261	0.0095	-0.0166
Skin and subcutaneous diseases	B.9	0.0045	-0.0017	0.0028	0.0030	0.0002
Dermatitis	B.9.1	0.0000	0.0003	0.0003	0.0000	-0.0003
Psoriasis	B.9.2	0.0000	0.0030	0.0030	0.0000	-0.0030
Bacterial skin diseases	B.9.3	0.0098	0.0000	0.0098	0.0046	-0.0052
Scabies	B.9.4	0.0000	0.0006	0.0006	0.0000	-0.0006
Fungal skin diseases	B.9.5	0.0000	0.0001	0.0001	0.0000	-0.0001
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001
Acne vulgaris	B.9.7	0.0000	-0.0042	-0.0042	0.0000	0.0042
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000
Pruritus	B.9.9	0.0000	-0.0002	-0.0002	0.0000	0.0002
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000
Decubitus ulcer	B.9.11	-0.0025	-0.0001	-0.0026	-0.0007	0.0019
Other skin and subcutaneous diseases	B.9.12	-0.0028	-0.0011	-0.0038	-0.0009	0.0029
Sense organ diseases	B.10	0.0000	-0.0270	-0.0270	0.0000	0.0270
Blindness and vision loss	B.10.1	0.0000	-0.0243	-0.0243	0.0000	0.0243
Age-related and other hearing loss	B.10.2	0.0000	-0.0021	-0.0021	0.0000	0.0021
Other sense organ diseases	B.10.3	0.0000	-0.0006	-0.0006	0.0000	0.0006
Musculoskeletal disorders	B.11	-0.0179	0.1421	0.1242	-0.0012	-0.1254
Rheumatoid arthritis	B.11.1	0.0007	-0.0008	-0.0001	0.0008	0.0010
Osteoarthritis	B.11.2	0.0000	-0.0003	-0.0003	0.0000	0.0003
Low back pain	B.11.3	0.0000	0.1752	0.1752	0.0000	-0.1752
Neck pain	B.11.4	0.0000	-0.0030	-0.0030	0.0000	0.0030
Gout	B.11.5	0.0000	0.0009	0.0009	0.0000	-0.0009
Other musculoskeletal disorders	B.11.6	-0.0186	-0.0299	-0.0485	-0.0020	0.0465

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	-0.0026	0.0733	0.0706	0.0642	-0.0065	
Congenital birth defects	B.12.1	-0.0078	0.0017	-0.0060	0.0516	0.0576	
Urinary diseases and male infertility	B.12.2	-0.0003	0.0038	0.0036	0.0033	-0.0002	
Gynecological diseases	B.12.3	0.0000	0.0004	0.0004	0.0001	-0.0003	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0063	0.0223	0.0286	0.0061	-0.0225	
Endocrine, metabolic, blood, and immune disorders	B.12.5	-0.0009	0.0045	0.0035	0.0034	-0.0002	
Oral disorders	B.12.6	0.0000	0.0406	0.0406	0.0000	-0.0406	
Injuries	C	0.3761	0.0064	0.3825	0.3204	-0.0621	
Transport injuries	C.1	-0.3562	-0.0033	-0.3595	0.0076	0.3671	
Road injuries	C.1.1	-0.3736	-0.0054	-0.3790	0.0006	0.3796	
Other transport injuries	C.1.2	0.0175	0.0020	0.0195	0.0070	-0.0125	
Unintentional injuries	C.2	0.2916	0.0067	0.2983	0.1893	-0.1091	
Falls	C.2.1	0.0540	-0.0013	0.0527	0.0192	-0.0335	
Drowning	C.2.2	0.1073	0.0003	0.1076	0.0971	-0.0105	
Fire, heat, and hot substances	C.2.3	0.0241	0.0024	0.0265	0.0138	-0.0127	
Poisonings	C.2.4	-0.0037	0.0003	-0.0034	0.0054	0.0088	
Exposure to mechanical forces	C.2.5	0.0511	-0.0002	0.0509	0.0015	-0.0494	
Adverse effects of medical treatment	C.2.6	0.0123	0.0001	0.0123	0.0099	-0.0024	
Animal contact	C.2.7	0.0146	0.0013	0.0159	0.0063	-0.0096	
Foreign body	C.2.8	-0.0052	0.0022	-0.0031	0.0225	0.0255	
Environmental heat and cold exposure	C.2.9	0.0250	0.0014	0.0263	0.0098	-0.0165	
Exposure to forces of nature	C.2.10	-0.0026	-0.0004	-0.0030	-0.0004	0.0026	
Other unintentional injuries	C.2.11	0.0148	0.0007	0.0156	0.0043	-0.0113	
Self-harm and interpersonal violence	C.3	0.4407	0.0030	0.4437	0.1235	-0.3202	
Self-harm	C.3.1	0.3162	0.0019	0.3182	0.1004	-0.2177	
Interpersonal violence	C.3.2	0.1014	0.0011	0.1025	0.0211	-0.0814	
Conflict and terrorism	C.3.3	-0.0042	0.0000	-0.0042	-0.0006	0.0037	
Executions and police conflict	C.3.4	0.0273	0.0000	0.0273	0.0026	-0.0247	

Table S4 | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) from 2000 to 2009.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.4342	0.0821	0.5163	1.2765	0.7603
HIV/AIDS and sexually transmitted infections	A.1	-0.0109	-0.0011	-0.0121	-0.0094	0.0026
HIV/AIDS	A.1.1	-0.0112	-0.0017	-0.0129	-0.0087	0.0042
Sexually transmitted infections excluding HIV	A.1.2	0.0003	0.0005	0.0008	-0.0007	-0.0015
Respiratory infections and tuberculosis	A.2	0.3312	0.0150	0.3462	0.6761	0.3298
Tuberculosis	A.2.1	0.1367	0.0110	0.1476	0.1202	-0.0274
Lower respiratory infections	A.2.2	0.1766	0.0013	0.1779	0.5388	0.3609
Upper respiratory infections	A.2.3	0.0179	-0.0002	0.0177	0.0170	-0.0007
Otitis media	A.2.4	0.0000	0.0029	0.0030	0.0000	-0.0029
Enteric infections	A.3	0.0219	0.0024	0.0243	0.0985	0.0742
Diarrheal diseases	A.3.1	0.0201	0.0024	0.0225	0.0969	0.0744
Typhoid and paratyphoid	A.3.2	0.0012	0.0000	0.0012	0.0008	-0.0004
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0004	0.0000	0.0004	0.0004	0.0000
Other intestinal infectious diseases	A.3.4	0.0002	0.0000	0.0002	0.0004	0.0002
Neglected tropical diseases and malaria	A.4	-0.0008	0.0363	0.0355	0.0000	-0.0355
Malaria	A.4.1	0.0003	0.0001	0.0004	0.0003	-0.0001
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0018	0.0011	0.0029	0.0014	-0.0016
Cysticercosis	A.4.6	0.0001	0.0046	0.0047	0.0001	-0.0046
Cystic echinococcosis	A.4.7	0.0001	0.0000	0.0001	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0018	0.0018	0.0000	-0.0018
Dengue	A.4.11	0.0000	-0.0010	-0.0009	0.0000	0.0010
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	-0.0034	0.0000	-0.0034	-0.0025	0.0009
Intestinal nematode infections	A.4.14	0.0002	0.0167	0.0170	0.0003	-0.0166
Food-borne trematodiasis	A.4.15	0.0000	0.0096	0.0096	0.0000	-0.0096
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0001	0.0033	0.0034	0.0004	-0.0031
Other infectious diseases	A.5	0.0552	0.0067	0.0619	0.1142	0.0523
Meningitis	A.5.1	0.0152	0.0021	0.0172	0.0289	0.0117
Encephalitis	A.5.2	0.0020	0.0008	0.0028	0.0054	0.0026
Diphtheria	A.5.3	0.0000	0.0000	0.0000	0.0001	0.0001

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0035	0.0001	0.0036	0.0172	0.0136	
Tetanus	A.5.5	0.0033	0.0000	0.0033	0.0111	0.0078	
Measles	A.5.6	0.0061	0.0003	0.0064	0.0196	0.0132	
Varicella and herpes zoster	A.5.7	0.0025	0.0000	0.0025	0.0027	0.0002	
Acute hepatitis	A.5.8	0.0187	0.0005	0.0191	0.0196	0.0005	
Other unspecified infectious diseases	A.5.9	0.0040	0.0029	0.0069	0.0096	0.0027	
Maternal and neonatal disorders	A.6	0.0273	-0.0359	-0.0087	0.3613	0.3700	
Maternal disorders	A.6.1	0.0233	0.0007	0.0241	0.0158	-0.0082	
Neonatal disorders	A.6.2	0.0040	-0.0367	-0.0327	0.3455	0.3782	
Nutritional deficiencies	A.7	0.0102	0.0588	0.0690	0.0359	-0.0331	
Protein-energy malnutrition	A.7.1	0.0118	-0.0046	0.0073	0.0357	0.0284	
Iodine deficiency	A.7.2	0.0000	-0.0020	-0.0020	0.0000	0.0020	
Vitamin A deficiency	A.7.3	0.0000	0.0012	0.0012	0.0000	-0.0012	
Dietary iron deficiency	A.7.4	0.0000	0.0683	0.0683	0.0000	-0.0683	
Other nutritional deficiencies	A.7.5	-0.0016	-0.0041	-0.0057	0.0002	0.0059	
Non-communicable diseases	B	2.2806	0.0502	2.3307	2.0617	-0.2690	
Neoplasms	B.1	0.3577	-0.0203	0.3374	0.3586	0.0212	
Lip and oral cavity cancer	B.1.1	-0.0057	-0.0003	-0.0060	-0.0047	0.0013	
Nasopharynx cancer	B.1.2	0.0185	-0.0007	0.0179	0.0144	-0.0035	
Other pharynx cancer	B.1.3	0.0009	0.0000	0.0008	0.0006	-0.0002	
Esophageal cancer	B.1.4	0.0715	0.0006	0.0721	0.0654	-0.0067	
Stomach cancer	B.1.5	0.0650	-0.0014	0.0637	0.0633	-0.0004	
Colon and rectum cancer	B.1.6	-0.0603	-0.0063	-0.0666	-0.0446	0.0220	
Liver cancer	B.1.7	0.3406	0.0032	0.3439	0.2822	-0.0616	
Gallbladder and biliary tract cancer	B.1.8	-0.0107	-0.0002	-0.0109	-0.0078	0.0031	
Pancreatic cancer	B.1.9	-0.0248	-0.0003	-0.0251	-0.0187	0.0064	
Larynx cancer	B.1.10	0.0028	-0.0003	0.0026	0.0027	0.0001	
Tracheal, bronchus, and lung cancer	B.1.11	-0.0820	-0.0022	-0.0842	-0.0478	0.0364	
Malignant skin melanoma	B.1.12	0.0005	-0.0001	0.0003	0.0004	0.0000	
Non-melanoma skin cancer	B.1.13	-0.0045	0.0000	-0.0045	-0.0031	0.0015	
Breast cancer	B.1.14	0.0043	-0.0031	0.0013	0.0034	0.0021	
Cervical cancer	B.1.15	-0.0046	-0.0005	-0.0051	-0.0039	0.0012	
Uterine cancer	B.1.16	0.0014	-0.0008	0.0007	0.0012	0.0005	
Ovarian cancer	B.1.17	-0.0026	-0.0002	-0.0028	-0.0024	0.0003	
Prostate cancer	B.1.18	0.0018	-0.0018	0.0000	0.0019	0.0019	
Testicular cancer	B.1.19	0.0005	-0.0001	0.0003	0.0004	0.0000	
Kidney cancer	B.1.20	-0.0101	-0.0006	-0.0106	-0.0073	0.0033	
Bladder cancer	B.1.21	0.0029	-0.0008	0.0021	0.0024	0.0002	
Brain and central nervous system cancer	B.1.22	0.0108	-0.0002	0.0105	0.0126	0.0020	
Thyroid cancer	B.1.23	-0.0002	-0.0002	-0.0004	-0.0001	0.0004	
Mesothelioma	B.1.24	-0.0008	0.0000	-0.0008	-0.0007	0.0002	
Hodgkin lymphoma	B.1.25	0.0043	0.0000	0.0042	0.0034	-0.0008	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0070	-0.0013	-0.0083	-0.0054	0.0029	
Multiple myeloma	B.1.27	0.0003	-0.0001	0.0002	0.0002	0.0000	
Leukemia	B.1.28	0.0372	0.0002	0.0374	0.0400	0.0026	
Other malignant neoplasms	B.1.29	0.0080	-0.0019	0.0061	0.0108	0.0047	
Other neoplasms	B.1.30	-0.0005	-0.0009	-0.0014	-0.0003	0.0012	
Cardiovascular diseases	B.2	0.4021	-0.0119	0.3902	0.4180	0.0278	
Rheumatic heart disease	B.2.1	0.0915	-0.0008	0.0907	0.0677	-0.0230	
Ischemic heart disease	B.2.2	-0.4836	0.0017	-0.4820	-0.2674	0.2146	
Stroke	B.2.3	0.6466	-0.0122	0.6344	0.5078	-0.1266	
Hypertensive heart disease	B.2.4	0.1366	0.0032	0.1398	0.0960	-0.0439	
Non-rheumatic valvular heart disease	B.2.5	0.0022	-0.0005	0.0018	0.0015	-0.0003	
Cardiomyopathy and myocarditis	B.2.6	-0.0046	0.0000	-0.0046	-0.0004	0.0042	
Atrial fibrillation and flutter	B.2.8	0.0029	-0.0025	0.0004	0.0016	0.0012	
Aortic aneurysm	B.2.9	0.0005	0.0000	0.0005	0.0003	-0.0002	
Peripheral artery disease	B.2.10	-0.0001	0.0011	0.0009	-0.0001	-0.0010	
Endocarditis	B.2.11	0.0041	0.0000	0.0041	0.0049	0.0008	
Other cardiovascular and circulatory diseases	B.2.12	0.0061	-0.0020	0.0042	0.0061	0.0020	
Chronic respiratory diseases	B.3	1.2184	0.0718	1.2902	0.8150	-0.4752	
Chronic obstructive pulmonary disease	B.3.1	1.1761	0.0571	1.2331	0.7844	-0.4488	
Pneumoconiosis	B.3.2	0.0048	0.0026	0.0074	0.0041	-0.0033	
Asthma	B.3.3	0.0411	0.0138	0.0548	0.0285	-0.0263	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	-0.0015	-0.0007	-0.0021	-0.0010	0.0012	
Other chronic respiratory diseases	B.3.5	-0.0020	-0.0010	-0.0030	-0.0010	0.0020	
Digestive diseases	B.4	0.1758	0.0157	0.1916	0.1497	-0.0419	
Cirrhosis and other chronic liver diseases	B.4.1	0.0890	0.0014	0.0904	0.0727	-0.0178	
Upper digestive system diseases	B.4.2	0.0357	0.0099	0.0456	0.0281	-0.0175	
Appendicitis	B.4.3	0.0041	-0.0002	0.0039	0.0030	-0.0010	
Paralytic ileus and intestinal obstruction	B.4.4	0.0060	-0.0001	0.0059	0.0130	0.0071	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0011	0.0005	0.0017	0.0021	0.0004	
Inflammatory bowel disease	B.4.6	0.0053	-0.0008	0.0045	0.0039	-0.0005	
Vascular intestinal disorders	B.4.7	0.0003	0.0000	0.0003	0.0003	-0.0001	
Gallbladder and biliary diseases	B.4.8	0.0153	0.0043	0.0197	0.0113	-0.0084	
Pancreatitis	B.4.9	0.0036	0.0000	0.0036	0.0028	-0.0008	
Other digestive diseases	B.4.10	0.0153	0.0006	0.0159	0.0126	-0.0033	
Neurological disorders	B.5	0.0043	-0.0202	-0.0159	0.0116	0.0275	
Alzheimer's disease and other dementias	B.5.1	-0.0193	-0.0037	-0.0229	-0.0108	0.0122	
Parkinson's disease	B.5.2	0.0061	-0.0005	0.0055	0.0040	-0.0015	
Idiopathic epilepsy	B.5.3	0.0149	0.0060	0.0209	0.0138	-0.0071	
Multiple sclerosis	B.5.4	0.0008	0.0000	0.0008	0.0006	-0.0002	
Motor neuron disease	B.5.5	0.0018	0.0000	0.0018	0.0031	0.0012	
Headache disorders	B.5.6	0.0000	-0.0213	-0.0213	0.0000	0.0213	
Other neurological disorders	B.5.7	-0.0001	-0.0007	-0.0007	0.0009	0.0016	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	0.0000	0.0444	0.0444	0.0000	-0.0444	
Schizophrenia	B.6.1	0.0000	-0.0018	-0.0018	0.0000	0.0018	
Depressive disorders	B.6.2	0.0000	0.0203	0.0203	0.0000	-0.0203	
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Anxiety disorders	B.6.4	0.0000	0.0262	0.0262	0.0000	-0.0262	
Eating disorders	B.6.5	0.0000	-0.0022	-0.0022	0.0000	0.0022	
Autism spectrum disorders	B.6.6	0.0000	-0.0004	-0.0004	0.0000	0.0004	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	0.0001	0.0001	0.0000	-0.0001	
Conduct disorder	B.6.8	0.0000	-0.0012	-0.0012	0.0000	0.0012	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0036	0.0036	0.0000	-0.0036	
Other mental disorders	B.6.10	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Substance use disorders	B.7	0.0554	0.0133	0.0687	0.0394	-0.0293	
Alcohol use disorders	B.7.1	-0.0099	0.0072	-0.0027	-0.0079	-0.0052	
Drug use disorders	B.7.2	0.0653	0.0061	0.0713	0.0472	-0.0241	
Diabetes and kidney diseases	B.8	0.0207	-0.0865	-0.0658	0.0264	0.0923	
Diabetes mellitus	B.8.1	0.0033	-0.0606	-0.0572	0.0081	0.0653	
Chronic kidney disease	B.8.2	0.0126	-0.0260	-0.0134	0.0143	0.0278	
Acute glomerulonephritis	B.8.3	0.0048	0.0000	0.0048	0.0040	-0.0008	
Skin and subcutaneous diseases	B.9	0.0068	-0.0034	0.0033	0.0056	0.0023	
Dermatitis	B.9.1	0.0000	-0.0008	-0.0008	0.0000	0.0008	
Psoriasis	B.9.2	0.0000	0.0035	0.0035	0.0000	-0.0035	
Bacterial skin diseases	B.9.3	0.0070	0.0001	0.0071	0.0053	-0.0017	
Scabies	B.9.4	0.0000	0.0004	0.0004	0.0000	-0.0004	
Fungal skin diseases	B.9.5	0.0000	0.0003	0.0003	0.0000	-0.0003	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0049	-0.0049	0.0000	0.0049	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	-0.0016	-0.0001	-0.0017	-0.0009	0.0008	
Other skin and subcutaneous diseases	B.9.12	0.0013	-0.0015	-0.0001	0.0011	0.0013	
Sense organ diseases	B.10	0.0000	0.0381	0.0381	0.0000	-0.0381	
Blindness and vision loss	B.10.1	0.0000	0.0318	0.0318	0.0000	-0.0318	
Age-related and other hearing loss	B.10.2	0.0000	0.0068	0.0068	0.0000	-0.0068	
Other sense organ diseases	B.10.3	0.0000	-0.0004	-0.0004	0.0000	0.0004	
Musculoskeletal disorders	B.11	-0.0019	-0.0383	-0.0402	-0.0013	0.0390	
Rheumatoid arthritis	B.11.1	-0.0021	-0.0015	-0.0036	-0.0014	0.0022	
Osteoarthritis	B.11.2	0.0000	-0.0170	-0.0170	0.0000	0.0170	
Low back pain	B.11.3	0.0000	0.0217	0.0217	0.0000	-0.0217	
Neck pain	B.11.4	0.0000	-0.0047	-0.0047	0.0000	0.0047	
Gout	B.11.5	0.0000	-0.0038	-0.0038	0.0000	0.0038	
Other musculoskeletal disorders	B.11.6	0.0002	-0.0330	-0.0328	0.0001	0.0329	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	Total Effect	
Other non-communicable diseases	B.12	0.0414	0.0475	0.0888	0.2388	0.1500	
Congenital birth defects	B.12.1	0.0271	0.0040	0.0311	0.2157	0.1846	
Urinary diseases and male infertility	B.12.2	0.0071	0.0003	0.0074	0.0056	-0.0018	
Gynecological diseases	B.12.3	-0.0007	0.0449	0.0442	-0.0006	-0.0448	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0047	0.0215	0.0262	0.0071	-0.0191	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0032	0.0038	0.0070	0.0056	-0.0015	
Oral disorders	B.12.6	0.0000	-0.0271	-0.0271	0.0000	0.0271	
Injuries	C	0.2456	0.0724	0.3180	0.3139	-0.0041	
Transport injuries	C.1	0.0009	-0.0162	-0.0153	0.0140	0.0292	
Road injuries	C.1.1	-0.0094	-0.0180	-0.0274	0.0051	0.0326	
Other transport injuries	C.1.2	0.0104	0.0018	0.0122	0.0089	-0.0033	
Unintentional injuries	C.2	0.0301	0.0841	0.1142	0.1421	0.0279	
Falls	C.2.1	-0.0519	0.0708	0.0189	-0.0223	-0.0411	
Drowning	C.2.2	0.0983	0.0008	0.0991	0.1203	0.0212	
Fire, heat, and hot substances	C.2.3	0.0077	0.0004	0.0081	0.0099	0.0018	
Poisonings	C.2.4	-0.0120	0.0001	-0.0119	-0.0004	0.0115	
Exposure to mechanical forces	C.2.5	-0.0142	-0.0029	-0.0171	0.0015	0.0186	
Adverse effects of medical treatment	C.2.6	0.0082	0.0001	0.0083	0.0111	0.0028	
Animal contact	C.2.7	0.0078	0.0022	0.0100	0.0077	-0.0024	
Foreign body	C.2.8	0.0021	0.0121	0.0142	0.0231	0.0089	
Environmental heat and cold exposure	C.2.9	0.0084	0.0010	0.0094	0.0083	-0.0010	
Exposure to forces of nature	C.2.10	0.0003	-0.0018	-0.0015	0.0002	0.0018	
Other unintentional injuries	C.2.11	-0.0246	0.0013	-0.0233	-0.0172	0.0061	
Self-harm and interpersonal violence	C.3	0.2145	0.0046	0.2191	0.1577	-0.0613	
Self-harm	C.3.1	0.1771	0.0022	0.1793	0.1247	-0.0546	
Interpersonal violence	C.3.2	0.0324	0.0024	0.0348	0.0296	-0.0053	
Conflict and terrorism	C.3.3	-0.0005	0.0000	-0.0005	-0.0004	0.0001	
Executions and police conflict	C.3.4	0.0055	0.0000	0.0055	0.0039	-0.0016	

Table S5 | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) from 2010 to 2019.

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.1174	-0.0094	0.1080	0.4863	0.3783
HIV/AIDS and sexually transmitted infections	A.1	-0.0172	-0.0012	-0.0184	-0.0144	0.0040
HIV/AIDS	A.1.1	-0.0174	-0.0008	-0.0182	-0.0183	-0.0001
Sexually transmitted infections excluding HIV	A.1.2	0.0002	-0.0004	-0.0002	0.0039	0.0041
Respiratory infections and tuberculosis	A.2	0.1098	0.0098	0.1195	0.2166	0.0970
Tuberculosis	A.2.1	0.0331	0.0081	0.0411	0.0415	0.0004
Lower respiratory infections	A.2.2	0.0745	0.0005	0.0750	0.1723	0.0973
Upper respiratory infections	A.2.3	0.0022	-0.0005	0.0017	0.0028	0.0011
Otitis media	A.2.4	0.0000	0.0017	0.0017	0.0000	-0.0017
Enteric infections	A.3	0.0042	-0.0090	-0.0048	0.0149	0.0197
Diarrheal diseases	A.3.1	0.0035	-0.0090	-0.0056	0.0139	0.0195
Typhoid and paratyphoid	A.3.2	0.0005	0.0000	0.0006	0.0007	0.0001
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0002	0.0000	0.0002	0.0002	0.0000
Other intestinal infectious diseases	A.3.4	0.0001	0.0000	0.0001	0.0001	0.0001
Neglected tropical diseases and malaria	A.4	0.0029	0.0072	0.0101	0.0039	-0.0061
Malaria	A.4.1	0.0000	0.0000	0.0001	0.0000	0.0000
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0003	0.0005	0.0008	0.0004	-0.0005
Cysticercosis	A.4.6	0.0000	0.0034	0.0034	0.0000	-0.0034
Cystic echinococcosis	A.4.7	0.0000	0.0000	0.0000	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0003	0.0003	0.0000	-0.0003
Dengue	A.4.11	0.0000	-0.0008	-0.0008	0.0000	0.0008
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0022	0.0000	0.0022	0.0031	0.0008
Intestinal nematode infections	A.4.14	0.0000	0.0017	0.0017	0.0001	-0.0016
Food-borne trematodiasis	A.4.15	0.0000	0.0013	0.0013	0.0000	-0.0013
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0003	0.0009	0.0012	0.0004	-0.0007
Other infectious diseases	A.5	0.0104	0.0027	0.0132	0.0366	0.0235
Meningitis	A.5.1	0.0038	0.0005	0.0043	0.0116	0.0073
Encephalitis	A.5.2	0.0020	0.0007	0.0028	0.0068	0.0041
Diphtheria	A.5.3	0.0000	0.0000	0.0000	0.0001	0.0000

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0021	0.0004	0.0026	0.0136	0.0110	
Tetanus	A.5.5	0.0004	0.0000	0.0004	0.0009	0.0006	
Measles	A.5.6	-0.0001	-0.0001	-0.0002	-0.0004	-0.0002	
Varicella and herpes zoster	A.5.7	0.0005	-0.0001	0.0004	0.0007	0.0003	
Acute hepatitis	A.5.8	0.0017	0.0007	0.0024	0.0027	0.0003	
Other unspecified infectious diseases	A.5.9	-0.0001	0.0006	0.0004	0.0006	0.0001	
Maternal and neonatal disorders	A.6	0.0084	-0.0349	-0.0265	0.2248	0.2513	
Maternal disorders	A.6.1	0.0055	0.0003	0.0058	0.0044	-0.0014	
Neonatal disorders	A.6.2	0.0029	-0.0352	-0.0323	0.2204	0.2527	
Nutritional deficiencies	A.7	-0.0011	0.0160	0.0149	0.0038	-0.0111	
Protein-energy malnutrition	A.7.1	-0.0013	-0.0044	-0.0057	0.0024	0.0081	
Iodine deficiency	A.7.2	0.0000	0.0024	0.0024	0.0000	-0.0024	
Vitamin A deficiency	A.7.3	0.0000	0.0001	0.0001	0.0000	-0.0001	
Dietary iron deficiency	A.7.4	0.0000	0.0190	0.0190	0.0000	-0.0190	
Other nutritional deficiencies	A.7.5	0.0002	-0.0012	-0.0010	0.0014	0.0023	
Non-communicable diseases	B	1.9068	0.0191	1.9259	2.2493	0.3234	
Neoplasms	B.1	0.2699	-0.0122	0.2577	0.3712	0.1135	
Lip and oral cavity cancer	B.1.1	0.0010	-0.0001	0.0009	0.0015	0.0005	
Nasopharynx cancer	B.1.2	0.0038	-0.0009	0.0029	0.0054	0.0025	
Other pharynx cancer	B.1.3	0.0001	0.0000	0.0001	0.0002	0.0001	
Esophageal cancer	B.1.4	0.0749	0.0013	0.0762	0.0986	0.0224	
Stomach cancer	B.1.5	0.1380	0.0015	0.1395	0.1779	0.0383	
Colon and rectum cancer	B.1.6	0.0017	-0.0038	-0.0020	0.0073	0.0093	
Liver cancer	B.1.7	-0.0044	-0.0003	-0.0047	-0.0051	-0.0004	
Gallbladder and biliary tract cancer	B.1.8	0.0045	0.0001	0.0046	0.0059	0.0013	
Pancreatic cancer	B.1.9	-0.0102	-0.0002	-0.0104	-0.0114	-0.0010	
Larynx cancer	B.1.10	0.0015	-0.0002	0.0013	0.0021	0.0008	
Tracheal, bronchus, and lung cancer	B.1.11	0.0256	-0.0005	0.0251	0.0380	0.0130	
Malignant skin melanoma	B.1.12	0.0002	-0.0001	0.0001	0.0003	0.0002	
Non-melanoma skin cancer	B.1.13	0.0018	-0.0001	0.0017	0.0022	0.0005	
Breast cancer	B.1.14	-0.0007	-0.0027	-0.0034	-0.0001	0.0033	
Cervical cancer	B.1.15	0.0027	-0.0001	0.0026	0.0030	0.0005	
Uterine cancer	B.1.16	0.0077	0.0006	0.0083	0.0098	0.0015	
Ovarian cancer	B.1.17	-0.0031	-0.0002	-0.0033	-0.0040	-0.0007	
Prostate cancer	B.1.18	0.0012	-0.0016	-0.0004	0.0022	0.0025	
Testicular cancer	B.1.19	-0.0002	-0.0002	-0.0003	-0.0002	0.0002	
Kidney cancer	B.1.20	-0.0001	-0.0002	-0.0003	0.0004	0.0008	
Bladder cancer	B.1.21	0.0014	-0.0006	0.0009	0.0025	0.0016	
Brain and central nervous system cancer	B.1.22	0.0018	-0.0004	0.0015	0.0037	0.0022	
Thyroid cancer	B.1.23	0.0006	-0.0001	0.0004	0.0007	0.0003	
Mesothelioma	B.1.24	0.0004	0.0000	0.0004	0.0005	0.0001	
Hodgkin lymphoma	B.1.25	0.0007	-0.0001	0.0006	0.0009	0.0003	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0004	-0.0011	-0.0015	0.0003	0.0018	
Multiple myeloma	B.1.27	-0.0007	-0.0001	-0.0008	-0.0007	0.0001	
Leukemia	B.1.28	0.0141	-0.0007	0.0133	0.0208	0.0075	
Other malignant neoplasms	B.1.29	0.0061	-0.0012	0.0049	0.0086	0.0037	
Other neoplasms	B.1.30	-0.0002	-0.0003	-0.0005	-0.0001	0.0004	
Cardiovascular diseases	B.2	0.8607	-0.0529	0.8078	0.9477	0.1399	
Rheumatic heart disease	B.2.1	0.0425	0.0001	0.0426	0.0475	0.0049	
Ischemic heart disease	B.2.2	0.2011	-0.0020	0.1991	0.2095	0.0103	
Stroke	B.2.3	0.6161	-0.0439	0.5722	0.6783	0.1061	
Hypertensive heart disease	B.2.4	-0.0097	-0.0022	-0.0119	-0.0055	0.0064	
Non-rheumatic valvular heart disease	B.2.5	0.0013	-0.0004	0.0009	0.0013	0.0004	
Cardiomyopathy and myocarditis	B.2.6	0.0059	-0.0001	0.0058	0.0101	0.0042	
Atrial fibrillation and flutter	B.2.8	-0.0002	-0.0049	-0.0050	0.0007	0.0057	
Aortic aneurysm	B.2.9	0.0004	0.0000	0.0004	0.0007	0.0003	
Peripheral artery disease	B.2.10	-0.0001	0.0005	0.0004	0.0000	-0.0005	
Endocarditis	B.2.11	0.0003	0.0000	0.0003	0.0007	0.0004	
Other cardiovascular and circulatory diseases	B.2.12	0.0030	0.0000	0.0030	0.0045	0.0015	
Chronic respiratory diseases	B.3	0.5909	0.0411	0.6321	0.5984	-0.0336	
Chronic obstructive pulmonary disease	B.3.1	0.5702	0.0476	0.6178	0.5758	-0.0420	
Pneumoconiosis	B.3.2	0.0040	0.0034	0.0074	0.0046	-0.0028	
Asthma	B.3.3	0.0138	-0.0100	0.0037	0.0144	0.0107	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0009	-0.0004	0.0004	0.0012	0.0008	
Other chronic respiratory diseases	B.3.5	0.0022	0.0006	0.0027	0.0024	-0.0004	
Digestive diseases	B.4	0.0983	0.0055	0.1038	0.1241	0.0204	
Cirrhosis and other chronic liver diseases	B.4.1	0.0528	0.0002	0.0530	0.0660	0.0129	
Upper digestive system diseases	B.4.2	0.0274	-0.0008	0.0266	0.0310	0.0044	
Appendicitis	B.4.3	0.0011	-0.0001	0.0010	0.0012	0.0002	
Paralytic ileus and intestinal obstruction	B.4.4	0.0039	0.0001	0.0040	0.0103	0.0063	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0005	0.0000	0.0005	0.0012	0.0007	
Inflammatory bowel disease	B.4.6	0.0023	-0.0006	0.0017	0.0027	0.0010	
Vascular intestinal disorders	B.4.7	0.0006	0.0000	0.0006	0.0007	0.0001	
Gallbladder and biliary diseases	B.4.8	0.0053	0.0068	0.0120	0.0056	-0.0064	
Pancreatitis	B.4.9	0.0025	0.0000	0.0025	0.0029	0.0004	
Other digestive diseases	B.4.10	0.0017	0.0001	0.0018	0.0025	0.0007	
Neurological disorders	B.5	0.0287	-0.0175	0.0112	0.0315	0.0204	
Alzheimer's disease and other dementias	B.5.1	0.0166	-0.0155	0.0012	0.0161	0.0150	
Parkinson's disease	B.5.2	0.0089	0.0006	0.0095	0.0101	0.0006	
Idiopathic epilepsy	B.5.3	0.0040	0.0057	0.0096	0.0054	-0.0042	
Multiple sclerosis	B.5.4	0.0001	-0.0001	0.0000	0.0002	0.0001	
Motor neuron disease	B.5.5	-0.0005	-0.0001	-0.0006	-0.0005	0.0001	
Headache disorders	B.5.6	0.0000	-0.0073	-0.0073	0.0000	0.0073	
Other neurological disorders	B.5.7	-0.0004	-0.0009	-0.0013	0.0002	0.0015	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	0.0000	-0.0049	-0.0049	0.0000	0.0049	
Schizophrenia	B.6.1	0.0000	-0.0030	-0.0030	0.0000	0.0030	
Depressive disorders	B.6.2	0.0000	-0.0092	-0.0092	0.0000	0.0092	
Bipolar disorder	B.6.3	0.0000	0.0001	0.0001	0.0000	-0.0001	
Anxiety disorders	B.6.4	0.0000	0.0085	0.0085	0.0000	-0.0085	
Eating disorders	B.6.5	0.0000	-0.0032	-0.0032	0.0000	0.0032	
Autism spectrum disorders	B.6.6	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	0.0002	0.0002	0.0000	-0.0002	
Conduct disorder	B.6.8	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0020	0.0020	0.0000	-0.0020	
Other mental disorders	B.6.10	0.0000	0.0001	0.0001	0.0000	-0.0001	
Substance use disorders	B.7	0.0035	-0.0229	-0.0194	0.0048	0.0241	
Alcohol use disorders	B.7.1	0.0049	-0.0089	-0.0040	0.0060	0.0100	
Drug use disorders	B.7.2	-0.0013	-0.0140	-0.0154	-0.0012	0.0142	
Diabetes and kidney diseases	B.8	0.0334	0.0402	0.0736	0.0431	-0.0304	
Diabetes mellitus	B.8.1	0.0067	0.0275	0.0342	0.0118	-0.0224	
Chronic kidney disease	B.8.2	0.0235	0.0127	0.0362	0.0278	-0.0084	
Acute glomerulonephritis	B.8.3	0.0031	0.0000	0.0031	0.0036	0.0004	
Skin and subcutaneous diseases	B.9	0.0025	-0.0025	0.0000	0.0024	0.0024	
Dermatitis	B.9.1	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Psoriasis	B.9.2	0.0000	0.0033	0.0033	0.0000	-0.0033	
Bacterial skin diseases	B.9.3	0.0002	0.0000	0.0002	0.0004	0.0002	
Scabies	B.9.4	0.0000	0.0005	0.0005	0.0000	-0.0005	
Fungal skin diseases	B.9.5	0.0000	0.0001	0.0001	0.0000	-0.0001	
Viral skin diseases	B.9.6	0.0000	0.0000	0.0000	0.0000	0.0000	
Acne vulgaris	B.9.7	0.0000	-0.0040	-0.0040	0.0000	0.0040	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	0.0022	0.0000	0.0022	0.0019	-0.0003	
Other skin and subcutaneous diseases	B.9.12	0.0001	-0.0017	-0.0016	0.0001	0.0017	
Sense organ diseases	B.10	0.0000	0.0459	0.0459	0.0000	-0.0459	
Blindness and vision loss	B.10.1	0.0000	0.0297	0.0297	0.0000	-0.0297	
Age-related and other hearing loss	B.10.2	0.0000	0.0169	0.0169	0.0000	-0.0169	
Other sense organ diseases	B.10.3	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Musculoskeletal disorders	B.11	0.0020	-0.0001	0.0018	0.0024	0.0006	
Rheumatoid arthritis	B.11.1	0.0010	0.0013	0.0023	0.0015	-0.0009	
Osteoarthritis	B.11.2	0.0000	-0.0046	-0.0046	0.0000	0.0046	
Low back pain	B.11.3	0.0000	0.0265	0.0265	0.0000	-0.0265	
Neck pain	B.11.4	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Gout	B.11.5	0.0000	-0.0035	-0.0035	0.0000	0.0035	
Other musculoskeletal disorders	B.11.6	0.0009	-0.0197	-0.0188	0.0009	0.0197	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0170	-0.0006	0.0164	0.1236	0.1072	
Congenital birth defects	B.12.1	0.0107	0.0014	0.0122	0.1115	0.0993	
Urinary diseases and male infertility	B.12.2	0.0045	0.0005	0.0050	0.0050	0.0000	
Gynecological diseases	B.12.3	0.0002	-0.0024	-0.0022	0.0002	0.0024	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0038	0.0083	0.0122	0.0060	-0.0062	
Endocrine, metabolic, blood, and immune disorders	B.12.5	-0.0023	-0.0009	-0.0032	-0.0009	0.0023	
Oral disorders	B.12.6	0.0000	-0.0075	-0.0075	0.0000	0.0075	
Injuries	C	0.4055	-0.1394	0.2661	0.5019	0.2358	
Transport injuries	C.1	0.1922	-0.0352	0.1571	0.2104	0.0534	
Road injuries	C.1.1	0.1823	-0.0346	0.1478	0.1997	0.0520	
Other transport injuries	C.1.2	0.0099	-0.0006	0.0093	0.0107	0.0014	
Unintentional injuries	C.2	0.1363	-0.1060	0.0303	0.2063	0.1760	
Falls	C.2.1	0.0149	-0.0895	-0.0746	0.0204	0.0950	
Drowning	C.2.2	0.0428	-0.0002	0.0426	0.0750	0.0324	
Fire, heat, and hot substances	C.2.3	0.0044	-0.0036	0.0008	0.0060	0.0052	
Poisonings	C.2.4	0.0131	-0.0005	0.0127	0.0168	0.0042	
Exposure to mechanical forces	C.2.5	0.0226	-0.0063	0.0163	0.0261	0.0098	
Adverse effects of medical treatment	C.2.6	0.0020	-0.0001	0.0019	0.0034	0.0015	
Animal contact	C.2.7	0.0013	-0.0009	0.0005	0.0018	0.0014	
Foreign body	C.2.8	0.0014	-0.0055	-0.0041	0.0201	0.0242	
Environmental heat and cold exposure	C.2.9	0.0010	-0.0006	0.0004	0.0014	0.0010	
Exposure to forces of nature	C.2.10	0.0136	0.0010	0.0146	0.0147	0.0001	
Other unintentional injuries	C.2.11	0.0191	0.0001	0.0192	0.0205	0.0013	
Self-harm and interpersonal violence	C.3	0.0770	0.0017	0.0787	0.0852	0.0065	
Self-harm	C.3.1	0.0619	0.0010	0.0629	0.0691	0.0062	
Interpersonal violence	C.3.2	0.0152	0.0007	0.0159	0.0161	0.0002	
Conflict and terrorism	C.3.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Executions and police conflict	C.3.4	-0.0001	0.0000	-0.0001	-0.0001	0.0000	

Table S6a | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for males from 1990 to 2019.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	1.0082	0.1694	1.1775	3.2198	2.0423
HIV/AIDS and sexually transmitted infections	A.1	-0.0738	-0.0044	-0.0782	-0.0443	0.0339
HIV/AIDS	A.1.1	-0.0754	-0.0047	-0.0801	-0.0503	0.0298
Sexually transmitted infections excluding HIV	A.1.2	0.0016	0.0002	0.0019	0.0060	0.0041
Respiratory infections and tuberculosis	A.2	0.7789	0.0492	0.8281	1.7113	0.8832
Tuberculosis	A.2.1	0.4321	0.0387	0.4708	0.3796	-0.0912
Lower respiratory infections	A.2.2	0.3185	0.0026	0.3211	1.3020	0.9809
Upper respiratory infections	A.2.3	0.0280	0.0001	0.0282	0.0293	0.0012
Otitis media	A.2.4	0.0003	0.0077	0.0080	0.0003	-0.0077
Enteric infections	A.3	0.0770	0.0000	0.0770	0.2701	0.1931
Diarrheal diseases	A.3.1	0.0689	-0.0001	0.0688	0.2644	0.1955
Typhoid and paratyphoid	A.3.2	0.0064	0.0001	0.0065	0.0038	-0.0027
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0013	0.0000	0.0013	0.0011	-0.0003
Other intestinal infectious diseases	A.3.4	0.0004	0.0000	0.0004	0.0008	0.0004
Neglected tropical diseases and malaria	A.4	0.0146	0.0951	0.1097	0.0134	-0.0963
Malaria	A.4.1	0.0052	0.0005	0.0057	0.0036	-0.0021
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0046	0.0030	0.0076	0.0037	-0.0039
Cysticercosis	A.4.6	0.0002	0.0047	0.0049	0.0001	-0.0047
Cystic echinococcosis	A.4.7	0.0001	0.0000	0.0001	0.0001	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0027	0.0027	0.0000	-0.0027
Dengue	A.4.11	0.0001	-0.0022	-0.0020	0.0002	0.0023
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0024	0.0000	0.0024	0.0026	0.0002
Intestinal nematode infections	A.4.14	0.0007	0.0364	0.0371	0.0013	-0.0358
Food-borne trematodiasis	A.4.15	0.0000	0.0437	0.0437	0.0000	-0.0437
Leprosy	A.4.16	0.0000	0.0001	0.0001	0.0000	-0.0001
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0013	0.0063	0.0076	0.0019	-0.0057
Other infectious diseases	A.5	0.1824	0.0162	0.1987	0.4437	0.2450
Meningitis	A.5.1	0.0410	0.0049	0.0459	0.1039	0.0580
Encephalitis	A.5.2	0.0067	0.0031	0.0098	0.0183	0.0085
Diphtheria	A.5.3	0.0003	0.0000	0.0003	0.0006	0.0003

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0137	0.0009	0.0145	0.0779	0.0634	
Tetanus	A.5.5	0.0172	0.0001	0.0173	0.0671	0.0499	
Measles	A.5.6	0.0240	0.0007	0.0246	0.0826	0.0579	
Varicella and herpes zoster	A.5.7	0.0050	0.0000	0.0050	0.0055	0.0004	
Acute hepatitis	A.5.8	0.0634	0.0015	0.0649	0.0667	0.0019	
Other unspecified infectious diseases	A.5.9	0.0112	0.0052	0.0164	0.0211	0.0047	
Maternal and neonatal disorders	A.6	0.0086	-0.0899	-0.0812	0.7395	0.8207	
Maternal disorders	A.6.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Neonatal disorders	A.6.2	0.0086	-0.0899	-0.0812	0.7395	0.8207	
Nutritional deficiencies	A.7	0.0204	0.1031	0.1235	0.0861	-0.0374	
Protein-energy malnutrition	A.7.1	0.0219	-0.0212	0.0007	0.0839	0.0832	
Iodine deficiency	A.7.2	0.0000	0.0051	0.0051	0.0000	-0.0051	
Vitamin A deficiency	A.7.3	0.0000	0.0044	0.0044	0.0000	-0.0044	
Dietary iron deficiency	A.7.4	0.0000	0.1194	0.1194	0.0000	-0.1194	
Other nutritional deficiencies	A.7.5	-0.0015	-0.0046	-0.0062	0.0022	0.0084	
Non-communicable diseases	B	5.1347	0.1102	5.2449	4.5046	-0.7403	
Neoplasms	B.1	0.6692	-0.0487	0.6205	0.7585	0.1380	
Lip and oral cavity cancer	B.1.1	-0.0112	-0.0008	-0.0120	-0.0086	0.0035	
Nasopharynx cancer	B.1.2	0.0368	-0.0028	0.0340	0.0298	-0.0043	
Other pharynx cancer	B.1.3	0.0022	-0.0001	0.0021	0.0015	-0.0005	
Esophageal cancer	B.1.4	0.1510	0.0014	0.1525	0.1454	-0.0070	
Stomach cancer	B.1.5	0.3101	-0.0015	0.3086	0.2848	-0.0238	
Colon and rectum cancer	B.1.6	-0.1211	-0.0154	-0.1365	-0.0802	0.0563	
Liver cancer	B.1.7	0.4475	0.0039	0.4515	0.3886	-0.0628	
Gallbladder and biliary tract cancer	B.1.8	-0.0068	-0.0002	-0.0070	-0.0046	0.0024	
Pancreatic cancer	B.1.9	-0.0581	-0.0007	-0.0589	-0.0428	0.0161	
Larynx cancer	B.1.10	0.0095	-0.0009	0.0086	0.0086	0.0001	
Tracheal, bronchus, and lung cancer	B.1.11	-0.1445	-0.0054	-0.1499	-0.0573	0.0926	
Malignant skin melanoma	B.1.12	0.0013	-0.0003	0.0011	0.0011	0.0000	
Non-melanoma skin cancer	B.1.13	-0.0022	-0.0002	-0.0024	-0.0009	0.0015	
Breast cancer	B.1.14	-0.0032	-0.0004	-0.0037	-0.0028	0.0008	
Cervical cancer	B.1.15	0.0000	0.0000	0.0000	0.0000	0.0000	
Uterine cancer	B.1.16	0.0000	0.0000	0.0000	0.0000	0.0000	
Ovarian cancer	B.1.17	0.0000	0.0000	0.0000	0.0000	0.0000	
Prostate cancer	B.1.18	0.0080	-0.0078	0.0001	0.0084	0.0083	
Testicular cancer	B.1.19	0.0004	-0.0007	-0.0003	0.0004	0.0007	
Kidney cancer	B.1.20	-0.0197	-0.0014	-0.0211	-0.0132	0.0079	
Bladder cancer	B.1.21	0.0033	-0.0029	0.0004	0.0032	0.0027	
Brain and central nervous system cancer	B.1.22	0.0080	-0.0005	0.0075	0.0156	0.0082	
Thyroid cancer	B.1.23	-0.0026	-0.0005	-0.0031	-0.0014	0.0018	
Mesothelioma	B.1.24	-0.0011	0.0000	-0.0011	-0.0009	0.0002	
Hodgkin lymphoma	B.1.25	0.0113	-0.0002	0.0111	0.0085	-0.0026	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0193	-0.0037	-0.0230	-0.0130	0.0101	
Multiple myeloma	B.1.27	-0.0036	-0.0004	-0.0040	-0.0021	0.0019	
Leukemia	B.1.28	0.0628	-0.0007	0.0621	0.0724	0.0103	
Other malignant neoplasms	B.1.29	0.0120	-0.0047	0.0072	0.0186	0.0114	
Other neoplasms	B.1.30	-0.0017	-0.0016	-0.0033	-0.0009	0.0024	
Cardiovascular diseases	B.2	1.2564	-0.0493	1.2071	1.1889	-0.0182	
Rheumatic heart disease	B.2.1	0.1820	0.0016	0.1836	0.1262	-0.0574	
Ischemic heart disease	B.2.2	-0.3899	0.0002	-0.3897	-0.0817	0.3080	
Stroke	B.2.3	1.1494	-0.0525	1.0968	0.9115	-0.1853	
Hypertensive heart disease	B.2.4	0.2986	0.0055	0.3041	0.2000	-0.1041	
Non-rheumatic valvular heart disease	B.2.5	0.0036	-0.0007	0.0028	0.0023	-0.0006	
Cardiomyopathy and myocarditis	B.2.6	-0.0013	0.0000	-0.0013	0.0085	0.0098	
Atrial fibrillation and flutter	B.2.8	-0.0047	-0.0021	-0.0068	-0.0007	0.0061	
Aortic aneurysm	B.2.9	-0.0005	0.0000	-0.0005	0.0004	0.0009	
Peripheral artery disease	B.2.10	-0.0008	0.0008	0.0000	-0.0004	-0.0004	
Endocarditis	B.2.11	0.0046	0.0000	0.0046	0.0063	0.0017	
Other cardiovascular and circulatory diseases	B.2.12	0.0154	-0.0021	0.0134	0.0164	0.0030	
Chronic respiratory diseases	B.3	2.4486	0.0845	2.5331	1.4886	-1.0446	
Chronic obstructive pulmonary disease	B.3.1	2.3353	0.0711	2.4064	1.4116	-0.9948	
Pneumoconiosis	B.3.2	0.0315	0.0033	0.0348	0.0235	-0.0114	
Asthma	B.3.3	0.0827	0.0121	0.0948	0.0524	-0.0424	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	-0.0003	-0.0009	-0.0012	0.0004	0.0017	
Other chronic respiratory diseases	B.3.5	-0.0006	-0.0011	-0.0018	0.0006	0.0024	
Digestive diseases	B.4	0.5565	0.0434	0.5998	0.4702	-0.1296	
Cirrhosis and other chronic liver diseases	B.4.1	0.2972	0.0033	0.3005	0.2428	-0.0577	
Upper digestive system diseases	B.4.2	0.1493	0.0199	0.1692	0.1130	-0.0561	
Appendicitis	B.4.3	0.0091	-0.0003	0.0088	0.0065	-0.0023	
Paralytic ileus and intestinal obstruction	B.4.4	0.0197	-0.0003	0.0195	0.0379	0.0184	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0042	0.0024	0.0066	0.0085	0.0020	
Inflammatory bowel disease	B.4.6	0.0086	-0.0031	0.0055	0.0060	0.0005	
Vascular intestinal disorders	B.4.7	0.0007	0.0000	0.0007	0.0007	0.0000	
Gallbladder and biliary diseases	B.4.8	0.0227	0.0202	0.0429	0.0164	-0.0266	
Pancreatitis	B.4.9	0.0106	0.0002	0.0108	0.0076	-0.0032	
Other digestive diseases	B.4.10	0.0343	0.0011	0.0354	0.0308	-0.0047	
Neurological disorders	B.5	0.0299	-0.0596	-0.0297	0.0389	0.0686	
Alzheimer's disease and other dementias	B.5.1	-0.0098	-0.0265	-0.0363	-0.0018	0.0345	
Parkinson's disease	B.5.2	0.0097	-0.0085	0.0012	0.0086	0.0073	
Idiopathic epilepsy	B.5.3	0.0304	-0.0031	0.0273	0.0276	0.0003	
Multiple sclerosis	B.5.4	0.0007	-0.0001	0.0006	0.0006	-0.0001	
Motor neuron disease	B.5.5	0.0009	-0.0001	0.0008	0.0027	0.0019	
Headache disorders	B.5.6	0.0000	-0.0172	-0.0172	0.0000	0.0172	
Other neurological disorders	B.5.7	-0.0020	-0.0042	-0.0062	0.0013	0.0074	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	-0.0001	0.0155	0.0154	-0.0001	-0.0154	
Schizophrenia	B.6.1	0.0000	-0.0055	-0.0055	0.0000	0.0055	
Depressive disorders	B.6.2	0.0000	0.0080	0.0080	0.0000	-0.0080	
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Anxiety disorders	B.6.4	0.0000	0.0157	0.0157	0.0000	-0.0157	
Eating disorders	B.6.5	-0.0001	-0.0059	-0.0060	-0.0001	0.0060	
Autism spectrum disorders	B.6.6	0.0000	-0.0022	-0.0022	0.0000	0.0022	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	-0.0011	-0.0011	0.0000	0.0011	
Conduct disorder	B.6.8	0.0000	-0.0012	-0.0012	0.0000	0.0012	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0080	0.0080	0.0000	-0.0080	
Other mental disorders	B.6.10	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Substance use disorders	B.7	0.0443	0.0065	0.0508	0.0266	-0.0242	
Alcohol use disorders	B.7.1	-0.0167	0.0003	-0.0164	-0.0116	0.0049	
Drug use disorders	B.7.2	0.0610	0.0062	0.0672	0.0382	-0.0290	
Diabetes and kidney diseases	B.8	0.0454	-0.0766	-0.0311	0.0540	0.0851	
Diabetes mellitus	B.8.1	-0.0255	-0.0713	-0.0968	-0.0062	0.0906	
Chronic kidney disease	B.8.2	0.0484	-0.0053	0.0431	0.0434	0.0003	
Acute glomerulonephritis	B.8.3	0.0225	0.0000	0.0226	0.0168	-0.0058	
Skin and subcutaneous diseases	B.9	0.0116	-0.0046	0.0070	0.0093	0.0023	
Dermatitis	B.9.1	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Psoriasis	B.9.2	0.0000	0.0106	0.0106	0.0000	-0.0106	
Bacterial skin diseases	B.9.3	0.0129	0.0001	0.0130	0.0099	-0.0031	
Scabies	B.9.4	0.0000	0.0018	0.0018	0.0000	-0.0018	
Fungal skin diseases	B.9.5	0.0000	0.0007	0.0007	0.0000	-0.0007	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0118	-0.0118	0.0000	0.0118	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0008	-0.0008	0.0000	0.0008	
Urticaria	B.9.10	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Decubitus ulcer	B.9.11	-0.0016	-0.0002	-0.0018	-0.0007	0.0011	
Other skin and subcutaneous diseases	B.9.12	0.0003	-0.0045	-0.0042	0.0001	0.0043	
Sense organ diseases	B.10	0.0000	0.0453	0.0453	0.0000	-0.0453	
Blindness and vision loss	B.10.1	0.0000	0.0253	0.0253	0.0000	-0.0253	
Age-related and other hearing loss	B.10.2	0.0000	0.0214	0.0214	0.0000	-0.0214	
Other sense organ diseases	B.10.3	0.0000	-0.0014	-0.0014	0.0000	0.0014	
Musculoskeletal disorders	B.11	0.0007	0.0794	0.0801	0.0014	-0.0787	
Rheumatoid arthritis	B.11.1	-0.0009	-0.0009	-0.0018	0.0001	0.0019	
Osteoarthritis	B.11.2	0.0000	-0.0168	-0.0168	0.0000	0.0168	
Low back pain	B.11.3	0.0000	0.1996	0.1996	0.0000	-0.1996	
Neck pain	B.11.4	0.0000	-0.0047	-0.0047	0.0000	0.0047	
Gout	B.11.5	0.0000	-0.0089	-0.0089	0.0000	0.0089	
Other musculoskeletal disorders	B.11.6	0.0017	-0.0890	-0.0873	0.0014	0.0887	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0721	0.0746	0.1467	0.4682	0.3215	
Congenital birth defects	B.12.1	0.0466	0.0090	0.0555	0.4260	0.3705	
Urinary diseases and male infertility	B.12.2	0.0139	0.0119	0.0259	0.0106	-0.0153	
Gynecological diseases	B.12.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0133	0.0388	0.0521	0.0188	-0.0333	
Endocrine, metabolic, blood, and immune disorders	B.12.5	-0.0017	0.0071	0.0054	0.0059	0.0005	
Oral disorders	B.12.6	0.0000	0.0078	0.0078	0.0000	-0.0078	
Injuries	C	1.2773	-0.0501	1.2273	1.1974	-0.0299	
Transport injuries	C.1	0.2812	-0.0653	0.2158	0.2398	0.0240	
Road injuries	C.1.1	0.2350	-0.0704	0.1647	0.2061	0.0415	
Other transport injuries	C.1.2	0.0461	0.0051	0.0512	0.0337	-0.0175	
Unintentional injuries	C.2	0.4645	0.0062	0.4707	0.6221	0.1514	
Falls	C.2.1	-0.0044	-0.0018	-0.0062	0.0253	0.0315	
Drowning	C.2.2	0.3015	0.0022	0.3038	0.3576	0.0538	
Fire, heat, and hot substances	C.2.3	0.0305	0.0006	0.0311	0.0348	0.0037	
Poisonings	C.2.4	0.0104	-0.0001	0.0102	0.0233	0.0130	
Exposure to mechanical forces	C.2.5	0.0474	-0.0123	0.0351	0.0390	0.0039	
Adverse effects of medical treatment	C.2.6	0.0169	0.0000	0.0169	0.0235	0.0065	
Animal contact	C.2.7	0.0246	0.0031	0.0277	0.0230	-0.0047	
Foreign body	C.2.8	0.0014	0.0115	0.0129	0.0608	0.0479	
Environmental heat and cold exposure	C.2.9	0.0317	0.0026	0.0342	0.0279	-0.0063	
Exposure to forces of nature	C.2.10	0.0046	-0.0018	0.0028	0.0030	0.0002	
Other unintentional injuries	C.2.11	-0.0001	0.0021	0.0020	0.0038	0.0018	
Self-harm and interpersonal violence	C.3	0.5316	0.0091	0.5407	0.3355	-0.2053	
Self-harm	C.3.1	0.3697	0.0022	0.3719	0.2309	-0.1409	
Interpersonal violence	C.3.2	0.1376	0.0069	0.1445	0.0920	-0.0525	
Conflict and terrorism	C.3.3	0.0001	0.0000	0.0002	0.0001	-0.0001	
Executions and police conflict	C.3.4	0.0242	0.0000	0.0242	0.0125	-0.0117	

Table S6b | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for females from 1990 to 2019.

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	1.2126	0.2983	1.5109	3.7428	2.2319
HIV/AIDS and sexually transmitted infections	A.1	-0.0218	-0.0011	-0.0228	-0.0147	0.0081
HIV/AIDS	A.1.1	-0.0245	-0.0018	-0.0264	-0.0226	0.0038
Sexually transmitted infections excluding HIV	A.1.2	0.0028	0.0008	0.0035	0.0078	0.0043
Respiratory infections and tuberculosis	A.2	0.8117	0.0369	0.8486	2.0374	1.1888
Tuberculosis	A.2.1	0.2945	0.0269	0.3215	0.3572	0.0357
Lower respiratory infections	A.2.2	0.4748	0.0042	0.4790	1.6323	1.1533
Upper respiratory infections	A.2.3	0.0418	-0.0011	0.0407	0.0473	0.0066
Otitis media	A.2.4	0.0005	0.0069	0.0074	0.0006	-0.0068
Enteric infections	A.3	0.0691	0.0012	0.0703	0.3067	0.2364
Diarrheal diseases	A.3.1	0.0616	0.0011	0.0627	0.3006	0.2379
Typhoid and paratyphoid	A.3.2	0.0055	0.0001	0.0056	0.0032	-0.0024
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0014	0.0000	0.0014	0.0015	0.0000
Other intestinal infectious diseases	A.3.4	0.0005	0.0000	0.0005	0.0014	0.0009
Neglected tropical diseases and malaria	A.4	0.0129	0.1040	0.1169	0.0154	-0.1014
Malaria	A.4.1	0.0041	0.0009	0.0051	0.0042	-0.0008
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0049	0.0058	0.0107	0.0053	-0.0054
Cysticercosis	A.4.6	0.0002	0.0074	0.0076	0.0002	-0.0074
Cystic echinococcosis	A.4.7	0.0001	0.0000	0.0001	0.0001	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0039	0.0039	0.0000	-0.0039
Dengue	A.4.11	0.0000	-0.0023	-0.0022	0.0001	0.0023
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0017	0.0000	0.0017	0.0021	0.0003
Intestinal nematode infections	A.4.14	0.0007	0.0459	0.0466	0.0014	-0.0451
Food-borne trematodiasis	A.4.15	0.0000	0.0316	0.0316	0.0000	-0.0316
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0010	0.0109	0.0118	0.0019	-0.0099
Other infectious diseases	A.5	0.1594	0.0206	0.1800	0.4560	0.2760
Meningitis	A.5.1	0.0387	0.0051	0.0438	0.0932	0.0494
Encephalitis	A.5.2	0.0070	0.0031	0.0101	0.0213	0.0111
Diphtheria	A.5.3	0.0003	0.0000	0.0003	0.0006	0.0004

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0209	0.0011	0.0220	0.1159	0.0939	
Tetanus	A.5.5	0.0093	0.0000	0.0093	0.0461	0.0367	
Measles	A.5.6	0.0332	0.0007	0.0339	0.1019	0.0679	
Varicella and herpes zoster	A.5.7	0.0084	0.0000	0.0084	0.0085	0.0001	
Acute hepatitis	A.5.8	0.0358	0.0011	0.0369	0.0545	0.0176	
Other unspecified infectious diseases	A.5.9	0.0058	0.0095	0.0153	0.0141	-0.0012	
Maternal and neonatal disorders	A.6	0.1296	-0.0937	0.0359	0.7934	0.7575	
Maternal disorders	A.6.1	0.1217	0.0081	0.1298	0.0802	-0.0496	
Neonatal disorders	A.6.2	0.0079	-0.1018	-0.0940	0.7132	0.8072	
Nutritional deficiencies	A.7	0.0517	0.2304	0.2821	0.1486	-0.1335	
Protein-energy malnutrition	A.7.1	0.0523	-0.0049	0.0475	0.1452	0.0977	
Iodine deficiency	A.7.2	0.0000	0.0003	0.0003	0.0000	-0.0003	
Vitamin A deficiency	A.7.3	0.0000	0.0025	0.0025	0.0000	-0.0025	
Dietary iron deficiency	A.7.4	0.0000	0.2319	0.2319	0.0000	-0.2319	
Other nutritional deficiencies	A.7.5	-0.0006	0.0005	-0.0001	0.0034	0.0035	
Non-communicable diseases	B	7.2870	0.3589	7.6459	7.6789	0.0330	
Neoplasms	B.1	0.7711	-0.0334	0.7377	0.9586	0.2209	
Lip and oral cavity cancer	B.1.1	0.0045	-0.0001	0.0044	0.0047	0.0003	
Nasopharynx cancer	B.1.2	0.0312	-0.0006	0.0306	0.0333	0.0027	
Other pharynx cancer	B.1.3	0.0015	0.0000	0.0015	0.0019	0.0004	
Esophageal cancer	B.1.4	0.1619	0.0020	0.1638	0.1986	0.0348	
Stomach cancer	B.1.5	0.2823	0.0021	0.2844	0.3283	0.0439	
Colon and rectum cancer	B.1.6	-0.0075	-0.0079	-0.0155	-0.0013	0.0142	
Liver cancer	B.1.7	0.2253	0.0027	0.2280	0.2629	0.0349	
Gallbladder and biliary tract cancer	B.1.8	0.0007	-0.0001	0.0006	0.0015	0.0010	
Pancreatic cancer	B.1.9	-0.0363	-0.0006	-0.0369	-0.0378	-0.0009	
Larynx cancer	B.1.10	0.0057	0.0000	0.0057	0.0069	0.0011	
Tracheal, bronchus, and lung cancer	B.1.11	-0.0812	-0.0031	-0.0843	-0.0644	0.0200	
Malignant skin melanoma	B.1.12	0.0010	-0.0003	0.0007	0.0011	0.0005	
Non-melanoma skin cancer	B.1.13	-0.0038	-0.0001	-0.0039	-0.0027	0.0013	
Breast cancer	B.1.14	0.0109	-0.0145	-0.0036	0.0141	0.0177	
Cervical cancer	B.1.15	0.0161	-0.0016	0.0145	0.0179	0.0034	
Uterine cancer	B.1.16	0.0256	-0.0011	0.0245	0.0305	0.0060	
Ovarian cancer	B.1.17	-0.0178	-0.0013	-0.0191	-0.0233	-0.0041	
Prostate cancer	B.1.18	0.0000	0.0000	0.0000	0.0000	0.0000	
Testicular cancer	B.1.19	0.0000	0.0000	0.0000	0.0000	0.0000	
Kidney cancer	B.1.20	-0.0034	-0.0005	-0.0039	-0.0022	0.0017	
Bladder cancer	B.1.21	0.0122	-0.0003	0.0119	0.0125	0.0006	
Brain and central nervous system cancer	B.1.22	0.0134	-0.0011	0.0123	0.0180	0.0057	
Thyroid cancer	B.1.23	0.0048	-0.0005	0.0043	0.0048	0.0006	
Mesothelioma	B.1.24	0.0008	0.0000	0.0008	0.0008	0.0001	
Hodgkin lymphoma	B.1.25	0.0080	-0.0001	0.0079	0.0080	0.0001	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	0.0018	-0.0020	-0.0003	0.0017	0.0020	
Multiple myeloma	B.1.27	0.0014	-0.0002	0.0012	0.0021	0.0009	
Leukemia	B.1.28	0.0770	-0.0001	0.0769	0.0966	0.0197	
Other malignant neoplasms	B.1.29	0.0355	-0.0029	0.0326	0.0440	0.0114	
Other neoplasms	B.1.30	-0.0003	-0.0010	-0.0013	-0.0001	0.0012	
Cardiovascular diseases	B.2	2.5295	-0.1188	2.4108	2.7732	0.3625	
Rheumatic heart disease	B.2.1	0.3859	0.0009	0.3868	0.3922	0.0055	
Ischemic heart disease	B.2.2	-0.2253	-0.0089	-0.2342	0.0083	0.2425	
Stroke	B.2.3	1.8593	-0.1042	1.7551	1.8880	0.1329	
Hypertensive heart disease	B.2.4	0.4619	0.0026	0.4644	0.4205	-0.0439	
Non-rheumatic valvular heart disease	B.2.5	0.0067	-0.0015	0.0052	0.0056	0.0004	
Cardiomyopathy and myocarditis	B.2.6	0.0046	0.0000	0.0045	0.0146	0.0101	
Atrial fibrillation and flutter	B.2.8	0.0110	-0.0066	0.0044	0.0104	0.0060	
Aortic aneurysm	B.2.9	0.0028	0.0000	0.0028	0.0026	-0.0002	
Peripheral artery disease	B.2.10	0.0000	0.0019	0.0019	0.0001	-0.0018	
Endocarditis	B.2.11	0.0038	0.0000	0.0038	0.0068	0.0030	
Other cardiovascular and circulatory diseases	B.2.12	0.0189	-0.0029	0.0160	0.0240	0.0080	
Chronic respiratory diseases	B.3	3.1692	0.1375	3.3067	2.6772	-0.6295	
Chronic obstructive pulmonary disease	B.3.1	3.0623	0.1237	3.1860	2.5817	-0.6044	
Pneumoconiosis	B.3.2	0.0021	0.0011	0.0032	0.0021	-0.0011	
Asthma	B.3.3	0.1030	0.0163	0.1193	0.0904	-0.0288	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0011	-0.0008	0.0003	0.0015	0.0012	
Other chronic respiratory diseases	B.3.5	0.0007	-0.0028	-0.0021	0.0015	0.0037	
Digestive diseases	B.4	0.4481	0.0536	0.5017	0.4979	-0.0038	
Cirrhosis and other chronic liver diseases	B.4.1	0.1892	0.0026	0.1918	0.2142	0.0224	
Upper digestive system diseases	B.4.2	0.1050	0.0204	0.1255	0.1034	-0.0220	
Appendicitis	B.4.3	0.0108	-0.0002	0.0107	0.0095	-0.0012	
Paralytic ileus and intestinal obstruction	B.4.4	0.0225	-0.0002	0.0223	0.0481	0.0257	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0017	0.0010	0.0027	0.0031	0.0004	
Inflammatory bowel disease	B.4.6	0.0127	-0.0033	0.0094	0.0132	0.0038	
Vascular intestinal disorders	B.4.7	0.0026	0.0000	0.0026	0.0026	0.0000	
Gallbladder and biliary diseases	B.4.8	0.0489	0.0315	0.0803	0.0475	-0.0328	
Pancreatitis	B.4.9	0.0131	0.0003	0.0134	0.0132	-0.0002	
Other digestive diseases	B.4.10	0.0416	0.0013	0.0429	0.0430	0.0001	
Neurological disorders	B.5	0.0703	-0.1023	-0.0320	0.0718	0.1038	
Alzheimer's disease and other dementias	B.5.1	0.0139	-0.0599	-0.0460	0.0119	0.0579	
Parkinson's disease	B.5.2	0.0268	-0.0056	0.0211	0.0258	0.0047	
Idiopathic epilepsy	B.5.3	0.0271	-0.0029	0.0242	0.0274	0.0033	
Multiple sclerosis	B.5.4	0.0012	-0.0002	0.0010	0.0013	0.0002	
Motor neuron disease	B.5.5	0.0011	-0.0001	0.0010	0.0037	0.0027	
Headache disorders	B.5.6	0.0000	-0.0294	-0.0294	0.0000	0.0294	
Other neurological disorders	B.5.7	0.0003	-0.0043	-0.0040	0.0017	0.0057	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	-0.0001	0.0581	0.0580	-0.0001	-0.0581	
Schizophrenia	B.6.1	0.0000	-0.0063	-0.0063	0.0000	0.0063	
Depressive disorders	B.6.2	0.0000	0.0317	0.0317	0.0000	-0.0317	
Bipolar disorder	B.6.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Anxiety disorders	B.6.4	0.0000	0.0345	0.0345	0.0000	-0.0345	
Eating disorders	B.6.5	-0.0001	-0.0070	-0.0071	-0.0001	0.0071	
Autism spectrum disorders	B.6.6	0.0000	-0.0005	-0.0005	0.0000	0.0005	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Conduct disorder	B.6.8	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0074	0.0074	0.0000	-0.0074	
Other mental disorders	B.6.10	0.0000	-0.0005	-0.0005	0.0000	0.0005	
Substance use disorders	B.7	0.0749	0.0035	0.0784	0.0606	-0.0177	
Alcohol use disorders	B.7.1	0.0092	-0.0029	0.0063	0.0083	0.0020	
Drug use disorders	B.7.2	0.0657	0.0064	0.0721	0.0524	-0.0197	
Diabetes and kidney diseases	B.8	0.1158	-0.0372	0.0786	0.1445	0.0659	
Diabetes mellitus	B.8.1	0.0244	-0.0299	-0.0055	0.0454	0.0510	
Chronic kidney disease	B.8.2	0.0714	-0.0073	0.0641	0.0786	0.0146	
Acute glomerulonephritis	B.8.3	0.0200	0.0000	0.0201	0.0204	0.0004	
Skin and subcutaneous diseases	B.9	0.0163	-0.0129	0.0033	0.0137	0.0103	
Dermatitis	B.9.1	0.0000	-0.0016	-0.0016	0.0000	0.0016	
Psoriasis	B.9.2	0.0000	0.0102	0.0102	0.0000	-0.0102	
Bacterial skin diseases	B.9.3	0.0174	0.0001	0.0175	0.0142	-0.0033	
Scabies	B.9.4	0.0000	0.0013	0.0013	0.0000	-0.0013	
Fungal skin diseases	B.9.5	0.0000	0.0006	0.0006	0.0000	-0.0006	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0172	-0.0172	0.0000	0.0172	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0011	-0.0011	0.0000	0.0011	
Urticaria	B.9.10	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Decubitus ulcer	B.9.11	-0.0014	-0.0003	-0.0018	-0.0007	0.0011	
Other skin and subcutaneous diseases	B.9.12	0.0003	-0.0045	-0.0042	0.0002	0.0044	
Sense organ diseases	B.10	0.0000	0.0531	0.0531	0.0000	-0.0531	
Blindness and vision loss	B.10.1	0.0000	0.0366	0.0366	0.0000	-0.0366	
Age-related and other hearing loss	B.10.2	0.0000	0.0189	0.0189	0.0000	-0.0189	
Other sense organ diseases	B.10.3	0.0000	-0.0025	-0.0025	0.0000	0.0025	
Musculoskeletal disorders	B.11	-0.0079	0.1428	0.1350	-0.0050	-0.1400	
Rheumatoid arthritis	B.11.1	0.0005	-0.0020	-0.0015	0.0013	0.0028	
Osteoarthritis	B.11.2	0.0000	-0.0271	-0.0271	0.0000	0.0271	
Low back pain	B.11.3	0.0000	0.2812	0.2812	0.0000	-0.2812	
Neck pain	B.11.4	0.0000	-0.0130	-0.0130	0.0000	0.0130	
Gout	B.11.5	0.0000	-0.0040	-0.0040	0.0000	0.0040	
Other musculoskeletal disorders	B.11.6	-0.0084	-0.0924	-0.1007	-0.0063	0.0944	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0998	0.2149	0.3147	0.4865	0.1717	
Congenital birth defects	B.12.1	0.0535	0.0066	0.0601	0.4178	0.3578	
Urinary diseases and male infertility	B.12.2	0.0203	0.0010	0.0213	0.0188	-0.0025	
Gynecological diseases	B.12.3	-0.0008	0.1071	0.1063	-0.0008	-0.1071	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0174	0.0781	0.0955	0.0242	-0.0713	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0093	0.0141	0.0234	0.0161	-0.0073	
Oral disorders	B.12.6	0.0000	0.0081	0.0081	0.0000	-0.0081	
Injuries	C	1.0332	-0.0589	0.9743	1.2129	0.2386	
Transport injuries	C.1	0.1388	-0.0472	0.0915	0.1666	0.0750	
Road injuries	C.1.1	0.1201	-0.0496	0.0705	0.1463	0.0758	
Other transport injuries	C.1.2	0.0187	0.0023	0.0211	0.0202	-0.0008	
Unintentional injuries	C.2	0.2472	-0.0235	0.2237	0.5114	0.2878	
Falls	C.2.1	-0.0176	-0.0287	-0.0463	0.0173	0.0636	
Drowning	C.2.2	0.1806	-0.0003	0.1804	0.2780	0.0976	
Fire, heat, and hot substances	C.2.3	0.0200	-0.0016	0.0184	0.0283	0.0099	
Poisonings	C.2.4	0.0023	0.0001	0.0024	0.0145	0.0122	
Exposure to mechanical forces	C.2.5	0.0060	-0.0069	-0.0009	0.0118	0.0127	
Adverse effects of medical treatment	C.2.6	0.0211	0.0000	0.0211	0.0328	0.0117	
Animal contact	C.2.7	0.0094	0.0027	0.0121	0.0120	-0.0001	
Foreign body	C.2.8	0.0062	0.0079	0.0141	0.0909	0.0768	
Environmental heat and cold exposure	C.2.9	0.0104	0.0015	0.0119	0.0144	0.0025	
Exposure to forces of nature	C.2.10	0.0028	-0.0012	0.0016	0.0023	0.0008	
Other unintentional injuries	C.2.11	0.0062	0.0028	0.0090	0.0091	0.0001	
Self-harm and interpersonal violence	C.3	0.6472	0.0119	0.6591	0.5349	-0.1242	
Self-harm	C.3.1	0.5954	0.0096	0.6049	0.4753	-0.1296	
Interpersonal violence	C.3.2	0.0514	0.0023	0.0537	0.0591	0.0053	
Conflict and terrorism	C.3.3	0.0000	0.0000	0.0001	0.0000	0.0000	
Executions and police conflict	C.3.4	0.0004	0.0000	0.0004	0.0005	0.0001	

Table S7a | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for those aged <14 years from 1990 to 2019.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.2237	0.0417	0.2654	2.8015	2.5360
HIV/AIDS and sexually transmitted infections	A.1	-0.0012	0.0000	-0.0013	0.0031	0.0044
HIV/AIDS	A.1.1	-0.0014	0.0000	-0.0014	-0.0019	-0.0005
Sexually transmitted infections excluding HIV	A.1.2	0.0002	0.0000	0.0002	0.0050	0.0049
Respiratory infections and tuberculosis	A.2	0.1087	0.0048	0.1135	1.3392	1.2257
Tuberculosis	A.2.1	0.0160	0.0025	0.0185	0.0724	0.0538
Lower respiratory infections	A.2.2	0.0894	0.0012	0.0906	1.2471	1.1565
Upper respiratory infections	A.2.3	0.0032	-0.0002	0.0030	0.0196	0.0166
Otitis media	A.2.4	0.0001	0.0012	0.0013	0.0001	-0.0012
Enteric infections	A.3	0.0267	0.0009	0.0276	0.2552	0.2276
Diarrheal diseases	A.3.1	0.0231	0.0009	0.0240	0.2519	0.2279
Typhoid and paratyphoid	A.3.2	0.0028	0.0000	0.0028	0.0017	-0.0011
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0005	0.0000	0.0005	0.0006	0.0001
Other intestinal infectious diseases	A.3.4	0.0003	0.0000	0.0003	0.0010	0.0007
Neglected tropical diseases and malaria	A.4	0.0030	0.0147	0.0178	0.0056	-0.0122
Malaria	A.4.1	0.0009	0.0002	0.0011	0.0014	0.0003
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0001	0.0003	0.0005	0.0001	-0.0004
Cysticercosis	A.4.6	0.0000	0.0000	0.0000	0.0000	0.0000
Cystic echinococcosis	A.4.7	0.0000	0.0000	0.0000	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0000	0.0000	0.0000	0.0000
Dengue	A.4.11	0.0000	-0.0004	-0.0004	0.0001	0.0005
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0011	0.0000	0.0011	0.0016	0.0004
Intestinal nematode infections	A.4.14	0.0005	0.0097	0.0102	0.0012	-0.0090
Food-borne trematodiasis	A.4.15	0.0000	0.0016	0.0016	0.0000	-0.0016
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0002	0.0034	0.0037	0.0011	-0.0025
Other infectious diseases	A.5	0.0712	0.0059	0.0771	0.3741	0.2969
Meningitis	A.5.1	0.0184	0.0012	0.0196	0.0843	0.0647
Encephalitis	A.5.2	0.0040	0.0005	0.0046	0.0176	0.0131
Diphtheria	A.5.3	0.0002	0.0000	0.0002	0.0005	0.0003

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0149	0.0010	0.0159	0.0939	0.0779	
Tetanus	A.5.5	0.0021	0.0000	0.0022	0.0487	0.0465	
Measles	A.5.6	0.0247	0.0007	0.0253	0.0896	0.0643	
Varicella and herpes zoster	A.5.7	0.0015	0.0000	0.0015	0.0041	0.0025	
Acute hepatitis	A.5.8	0.0030	0.0004	0.0034	0.0219	0.0185	
Other unspecified infectious diseases	A.5.9	0.0023	0.0022	0.0045	0.0135	0.0090	
Maternal and neonatal disorders	A.6	0.0087	-0.0233	-0.0147	0.7281	0.7427	
Maternal disorders	A.6.1	0.0004	0.0000	0.0004	0.0002	-0.0002	
Neonatal disorders	A.6.2	0.0083	-0.0234	-0.0151	0.7279	0.7429	
Nutritional deficiencies	A.7	0.0066	0.0387	0.0453	0.0962	0.0509	
Protein-energy malnutrition	A.7.1	0.0064	-0.0006	0.0058	0.0932	0.0873	
Iodine deficiency	A.7.2	0.0000	0.0007	0.0007	0.0000	-0.0007	
Vitamin A deficiency	A.7.3	0.0000	0.0035	0.0035	0.0000	-0.0035	
Dietary iron deficiency	A.7.4	0.0000	0.0353	0.0353	0.0000	-0.0353	
Other nutritional deficiencies	A.7.5	0.0002	-0.0002	0.0000	0.0030	0.0030	
Non-communicable diseases	B	0.1495	0.0093	0.1588	0.6919	0.5331	
Neoplasms	B.1	0.0471	0.0006	0.0477	0.0844	0.0366	
Lip and oral cavity cancer	B.1.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Nasopharynx cancer	B.1.2	0.0011	0.0000	0.0011	0.0007	-0.0005	
Other pharynx cancer	B.1.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Esophageal cancer	B.1.4	0.0000	0.0000	0.0000	0.0000	0.0000	
Stomach cancer	B.1.5	0.0000	0.0000	0.0000	0.0000	0.0000	
Colon and rectum cancer	B.1.6	0.0003	0.0000	0.0003	0.0002	-0.0001	
Liver cancer	B.1.7	0.0025	0.0000	0.0026	0.0042	0.0017	
Gallbladder and biliary tract cancer	B.1.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pancreatic cancer	B.1.9	0.0000	0.0000	0.0000	0.0000	0.0000	
Larynx cancer	B.1.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Tracheal, bronchus, and lung cancer	B.1.11	0.0002	0.0000	0.0002	0.0001	-0.0001	
Malignant skin melanoma	B.1.12	0.0000	0.0000	0.0000	0.0000	0.0000	
Non-melanoma skin cancer	B.1.13	0.0000	0.0000	0.0000	0.0000	0.0000	
Breast cancer	B.1.14	0.0000	0.0000	0.0000	0.0000	0.0000	
Cervical cancer	B.1.15	0.0000	0.0000	0.0000	0.0000	0.0000	
Uterine cancer	B.1.16	0.0000	0.0000	0.0000	0.0000	0.0000	
Ovarian cancer	B.1.17	0.0001	0.0000	0.0001	0.0001	0.0000	
Prostate cancer	B.1.18	0.0000	0.0000	0.0000	0.0000	0.0000	
Testicular cancer	B.1.19	0.0000	-0.0001	0.0000	0.0001	0.0001	
Kidney cancer	B.1.20	0.0001	0.0000	0.0001	0.0008	0.0008	
Bladder cancer	B.1.21	0.0000	0.0000	0.0000	0.0000	0.0000	
Brain and central nervous system cancer	B.1.22	0.0071	-0.0001	0.0070	0.0120	0.0049	
Thyroid cancer	B.1.23	0.0001	0.0000	0.0001	0.0001	0.0000	
Mesothelioma	B.1.24	0.0000	0.0000	0.0000	0.0000	0.0000	
Hodgkin lymphoma	B.1.25	0.0011	0.0000	0.0011	0.0012	0.0001	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	0.0020	0.0000	0.0020	0.0028	0.0009	
Multiple myeloma	B.1.27	0.0000	0.0000	0.0000	0.0000	0.0000	
Leukemia	B.1.28	0.0262	0.0010	0.0272	0.0494	0.0222	
Other malignant neoplasms	B.1.29	0.0062	-0.0002	0.0059	0.0126	0.0066	
Other neoplasms	B.1.30	0.0000	0.0000	0.0001	0.0002	0.0001	
Cardiovascular diseases	B.2	0.0185	0.0002	0.0187	0.0594	0.0406	
Rheumatic heart disease	B.2.1	0.0050	0.0003	0.0053	0.0060	0.0008	
Ischemic heart disease	B.2.2	0.0000	0.0000	0.0000	0.0000	0.0000	
Stroke	B.2.3	0.0086	0.0002	0.0088	0.0327	0.0239	
Hypertensive heart disease	B.2.4	0.0000	0.0000	0.0000	0.0000	0.0000	
Non-rheumatic valvular heart disease	B.2.5	0.0000	0.0000	0.0000	0.0000	0.0000	
Cardiomyopathy and myocarditis	B.2.6	0.0014	0.0000	0.0014	0.0086	0.0072	
Atrial fibrillation and flutter	B.2.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Aortic aneurysm	B.2.9	0.0000	0.0000	0.0000	0.0000	0.0000	
Peripheral artery disease	B.2.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Endocarditis	B.2.11	0.0007	0.0000	0.0007	0.0041	0.0034	
Other cardiovascular and circulatory diseases	B.2.12	0.0028	-0.0003	0.0026	0.0080	0.0054	
Chronic respiratory diseases	B.3	0.0066	-0.0004	0.0062	0.0095	0.0032	
Chronic obstructive pulmonary disease	B.3.1	0.0032	0.0004	0.0037	0.0041	0.0005	
Pneumoconiosis	B.3.2	0.0000	0.0000	0.0000	0.0000	0.0000	
Asthma	B.3.3	0.0026	0.0001	0.0027	0.0039	0.0011	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0002	0.0000	0.0002	0.0002	0.0001	
Other chronic respiratory diseases	B.3.5	0.0006	-0.0009	-0.0003	0.0012	0.0016	
Digestive diseases	B.4	0.0150	0.0018	0.0168	0.0567	0.0399	
Cirrhosis and other chronic liver diseases	B.4.1	0.0032	0.0001	0.0033	0.0037	0.0003	
Upper digestive system diseases	B.4.2	0.0018	0.0009	0.0027	0.0026	-0.0001	
Appendicitis	B.4.3	0.0013	0.0000	0.0013	0.0014	0.0000	
Paralytic ileus and intestinal obstruction	B.4.4	0.0020	-0.0001	0.0019	0.0284	0.0265	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0003	0.0003	0.0005	0.0043	0.0038	
Inflammatory bowel disease	B.4.6	0.0009	0.0000	0.0009	0.0027	0.0018	
Vascular intestinal disorders	B.4.7	0.0001	0.0000	0.0001	0.0001	0.0000	
Gallbladder and biliary diseases	B.4.8	0.0006	0.0003	0.0009	0.0014	0.0005	
Pancreatitis	B.4.9	0.0003	0.0000	0.0003	0.0003	-0.0001	
Other digestive diseases	B.4.10	0.0046	0.0003	0.0049	0.0118	0.0070	
Neurological disorders	B.5	0.0077	-0.0020	0.0057	0.0171	0.0114	
Alzheimer's disease and other dementias	B.5.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Parkinson's disease	B.5.2	0.0000	0.0000	0.0000	0.0000	0.0000	
Idiopathic epilepsy	B.5.3	0.0071	0.0005	0.0075	0.0130	0.0054	
Multiple sclerosis	B.5.4	0.0001	0.0000	0.0001	0.0000	0.0000	
Motor neuron disease	B.5.5	0.0002	0.0000	0.0002	0.0023	0.0021	
Headache disorders	B.5.6	0.0000	-0.0013	-0.0013	0.0000	0.0013	
Other neurological disorders	B.5.7	0.0004	-0.0012	-0.0008	0.0017	0.0025	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	0.0000	-0.0019	-0.0019	0.0000	0.0019	
Schizophrenia	B.6.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Depressive disorders	B.6.2	0.0000	0.0001	0.0001	0.0000	-0.0001	
Bipolar disorder	B.6.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Anxiety disorders	B.6.4	0.0000	-0.0012	-0.0012	0.0000	0.0012	
Eating disorders	B.6.5	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Autism spectrum disorders	B.6.6	0.0000	-0.0005	-0.0005	0.0000	0.0005	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	-0.0011	-0.0011	0.0000	0.0011	
Conduct disorder	B.6.8	0.0000	-0.0010	-0.0010	0.0000	0.0010	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0022	0.0022	0.0000	-0.0022	
Other mental disorders	B.6.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Substance use disorders	B.7	0.0000	0.0000	0.0000	0.0000	0.0000	
Alcohol use disorders	B.7.1	0.0000	0.0001	0.0001	0.0000	-0.0001	
Drug use disorders	B.7.2	0.0000	0.0000	0.0000	0.0000	0.0000	
Diabetes and kidney diseases	B.8	0.0086	0.0001	0.0087	0.0149	0.0062	
Diabetes mellitus	B.8.1	0.0010	-0.0001	0.0009	0.0021	0.0012	
Chronic kidney disease	B.8.2	0.0052	0.0002	0.0054	0.0093	0.0039	
Acute glomerulonephritis	B.8.3	0.0024	0.0000	0.0024	0.0035	0.0012	
Skin and subcutaneous diseases	B.9	0.0008	-0.0037	-0.0029	0.0035	0.0064	
Dermatitis	B.9.1	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Psoriasis	B.9.2	0.0000	0.0006	0.0006	0.0000	-0.0006	
Bacterial skin diseases	B.9.3	0.0008	0.0000	0.0008	0.0035	0.0027	
Scabies	B.9.4	0.0000	0.0004	0.0004	0.0000	-0.0004	
Fungal skin diseases	B.9.5	0.0000	0.0003	0.0003	0.0000	-0.0003	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0041	-0.0041	0.0000	0.0041	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	0.0000	0.0000	0.0000	0.0000	0.0000	
Other skin and subcutaneous diseases	B.9.12	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Sense organ diseases	B.10	0.0000	0.0001	0.0001	0.0000	-0.0001	
Blindness and vision loss	B.10.1	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Age-related and other hearing loss	B.10.2	0.0000	0.0005	0.0005	0.0000	-0.0005	
Other sense organ diseases	B.10.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Musculoskeletal disorders	B.11	0.0005	0.0000	0.0006	0.0003	-0.0003	
Rheumatoid arthritis	B.11.1	0.0001	0.0000	0.0001	0.0001	0.0000	
Osteoarthritis	B.11.2	0.0000	0.0000	0.0000	0.0000	0.0000	
Low back pain	B.11.3	0.0000	0.0001	0.0001	0.0000	-0.0001	
Neck pain	B.11.4	0.0000	0.0000	0.0000	0.0000	0.0000	
Gout	B.11.5	0.0000	0.0000	0.0000	0.0000	0.0000	
Other musculoskeletal disorders	B.11.6	0.0004	-0.0001	0.0004	0.0003	-0.0001	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0446	0.0143	0.0589	0.4462	0.3873	
Congenital birth defects	B.12.1	0.0366	0.0018	0.0384	0.4145	0.3761	
Urinary diseases and male infertility	B.12.2	0.0010	0.0000	0.0010	0.0018	0.0009	
Gynecological diseases	B.12.3	0.0000	0.0004	0.0004	0.0000	-0.0004	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0051	0.0102	0.0153	0.0131	-0.0021	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0019	0.0013	0.0033	0.0083	0.0050	
Oral disorders	B.12.6	0.0000	0.0004	0.0004	0.0000	-0.0004	
Injuries	C	0.3093	0.0035	0.3128	0.5921	0.2793	
Transport injuries	C.1	0.0604	-0.0002	0.0602	0.1000	0.0398	
Road injuries	C.1.1	0.0556	-0.0004	0.0552	0.0919	0.0366	
Other transport injuries	C.1.2	0.0047	0.0002	0.0050	0.0081	0.0031	
Unintentional injuries	C.2	0.2161	0.0033	0.2195	0.4570	0.2376	
Falls	C.2.1	0.0092	0.0014	0.0106	0.0249	0.0144	
Drowning	C.2.2	0.1698	0.0002	0.1700	0.2675	0.0975	
Fire, heat, and hot substances	C.2.3	0.0065	0.0000	0.0065	0.0192	0.0127	
Poisonings	C.2.4	0.0072	0.0000	0.0072	0.0197	0.0125	
Exposure to mechanical forces	C.2.5	0.0050	0.0002	0.0052	0.0121	0.0069	
Adverse effects of medical treatment	C.2.6	0.0042	0.0000	0.0042	0.0167	0.0125	
Animal contact	C.2.7	0.0046	0.0002	0.0048	0.0081	0.0033	
Foreign body	C.2.8	0.0047	0.0010	0.0056	0.0742	0.0686	
Environmental heat and cold exposure	C.2.9	0.0014	0.0003	0.0016	0.0081	0.0065	
Exposure to forces of nature	C.2.10	0.0008	0.0000	0.0008	0.0008	-0.0001	
Other unintentional injuries	C.2.11	0.0027	0.0002	0.0029	0.0056	0.0027	
Self-harm and interpersonal violence	C.3	0.0328	0.0004	0.0331	0.0351	0.0019	
Self-harm	C.3.1	0.0178	0.0000	0.0179	0.0083	-0.0096	
Interpersonal violence	C.3.2	0.0148	0.0003	0.0151	0.0265	0.0114	
Conflict and terrorism	C.3.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Executions and police conflict	C.3.4	0.0001	0.0000	0.0002	0.0003	0.0001	

Table S7b | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for those aged 15-44 years from 1990 to 2019.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.2484	0.0584	0.3068	0.1508	-0.1560
HIV/AIDS and sexually transmitted infections	A.1	-0.0321	-0.0010	-0.0331	-0.0203	0.0127
HIV/AIDS	A.1.1	-0.0329	-0.0012	-0.0342	-0.0209	0.0133
Sexually transmitted infections excluding HIV	A.1.2	0.0008	0.0003	0.0011	0.0005	-0.0006
Respiratory infections and tuberculosis	A.2	0.1446	0.0097	0.1543	0.0915	-0.0628
Tuberculosis	A.2.1	0.1023	0.0056	0.1078	0.0660	-0.0419
Lower respiratory infections	A.2.2	0.0391	0.0004	0.0396	0.0235	-0.0160
Upper respiratory infections	A.2.3	0.0031	-0.0001	0.0030	0.0019	-0.0011
Otitis media	A.2.4	0.0002	0.0037	0.0039	0.0001	-0.0038
Enteric infections	A.3	0.0148	0.0002	0.0150	0.0088	-0.0062
Diarrheal diseases	A.3.1	0.0111	0.0002	0.0112	0.0067	-0.0045
Typhoid and paratyphoid	A.3.2	0.0030	0.0000	0.0030	0.0016	-0.0014
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0006	0.0000	0.0006	0.0003	-0.0002
Other intestinal infectious diseases	A.3.4	0.0001	0.0000	0.0001	0.0001	0.0000
Neglected tropical diseases and malaria	A.4	0.0053	0.0370	0.0423	0.0032	-0.0391
Malaria	A.4.1	0.0030	0.0003	0.0033	0.0017	-0.0016
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0011	0.0027	0.0038	0.0008	-0.0031
Cysticercosis	A.4.6	0.0001	0.0011	0.0012	0.0001	-0.0012
Cystic echinococcosis	A.4.7	0.0000	0.0000	0.0000	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0001	0.0001	0.0000	-0.0001
Dengue	A.4.11	0.0000	-0.0012	-0.0012	0.0000	0.0012
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0006	0.0000	0.0006	0.0004	-0.0002
Intestinal nematode infections	A.4.14	0.0001	0.0199	0.0200	0.0000	-0.0199
Food-borne trematodiasis	A.4.15	0.0000	0.0119	0.0119	0.0000	-0.0119
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0004	0.0022	0.0026	0.0003	-0.0024
Other infectious diseases	A.5	0.0486	0.0067	0.0553	0.0301	-0.0251
Meningitis	A.5.1	0.0129	0.0022	0.0151	0.0075	-0.0076
Encephalitis	A.5.2	0.0020	0.0017	0.0037	0.0011	-0.0026
Diphtheria	A.5.3	0.0001	0.0000	0.0001	0.0000	0.0000

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Whooping cough	A.5.4	0.0016	0.0000	0.0016	0.0009	-0.0007
Tetanus	A.5.5	0.0049	0.0000	0.0049	0.0032	-0.0017
Measles	A.5.6	0.0028	0.0000	0.0028	0.0015	-0.0013
Varicella and herpes zoster	A.5.7	0.0010	0.0000	0.0010	0.0006	-0.0004
Acute hepatitis	A.5.8	0.0208	0.0005	0.0213	0.0137	-0.0075
Other unspecified infectious diseases	A.5.9	0.0026	0.0022	0.0048	0.0016	-0.0032
Maternal and neonatal disorders	A.6	0.0624	-0.0372	0.0251	0.0345	0.0094
Maternal disorders	A.6.1	0.0624	0.0039	0.0663	0.0345	-0.0317
Neonatal disorders	A.6.2	0.0000	-0.0412	-0.0412	0.0000	0.0412
Nutritional deficiencies	A.7	0.0049	0.0430	0.0479	0.0029	-0.0450
Protein-energy malnutrition	A.7.1	0.0048	-0.0056	-0.0009	0.0029	0.0037
Iodine deficiency	A.7.2	0.0000	0.0014	0.0014	0.0000	-0.0014
Vitamin A deficiency	A.7.3	0.0000	0.0001	0.0001	0.0000	-0.0001
Dietary iron deficiency	A.7.4	0.0000	0.0487	0.0487	0.0000	-0.0487
Other nutritional deficiencies	A.7.5	0.0001	-0.0015	-0.0014	0.0001	0.0014
Non-communicable diseases	B	0.7465	0.1433	0.8898	0.5117	-0.3781
Neoplasms	B.1	0.2084	-0.0052	0.2032	0.1505	-0.0528
Lip and oral cavity cancer	B.1.1	0.0005	0.0000	0.0005	0.0003	-0.0002
Nasopharynx cancer	B.1.2	0.0117	-0.0006	0.0111	0.0081	-0.0030
Other pharynx cancer	B.1.3	0.0006	0.0000	0.0006	0.0004	-0.0001
Esophageal cancer	B.1.4	0.0116	0.0001	0.0117	0.0096	-0.0020
Stomach cancer	B.1.5	0.0393	-0.0001	0.0391	0.0297	-0.0095
Colon and rectum cancer	B.1.6	-0.0038	-0.0009	-0.0047	-0.0030	0.0017
Liver cancer	B.1.7	0.0851	0.0003	0.0854	0.0634	-0.0219
Gallbladder and biliary tract cancer	B.1.8	0.0005	0.0000	0.0005	0.0003	-0.0002
Pancreatic cancer	B.1.9	-0.0043	0.0000	-0.0043	-0.0034	0.0009
Larynx cancer	B.1.10	0.0014	0.0000	0.0014	0.0010	-0.0003
Tracheal, bronchus, and lung cancer	B.1.11	0.0130	0.0000	0.0130	0.0099	-0.0030
Malignant skin melanoma	B.1.12	0.0005	-0.0001	0.0005	0.0004	-0.0001
Non-melanoma skin cancer	B.1.13	0.0000	0.0000	0.0000	0.0000	0.0000
Breast cancer	B.1.14	0.0052	-0.0011	0.0041	0.0041	0.0000
Cervical cancer	B.1.15	0.0020	-0.0003	0.0017	0.0011	-0.0005
Uterine cancer	B.1.16	0.0027	-0.0001	0.0026	0.0019	-0.0006
Ovarian cancer	B.1.17	0.0000	-0.0001	-0.0001	-0.0001	0.0000
Prostate cancer	B.1.18	0.0002	0.0000	0.0001	0.0001	0.0000
Testicular cancer	B.1.19	0.0002	-0.0002	0.0001	0.0001	0.0001
Kidney cancer	B.1.20	-0.0023	-0.0002	-0.0025	-0.0016	0.0009
Bladder cancer	B.1.21	0.0015	-0.0001	0.0014	0.0010	-0.0004
Brain and central nervous system cancer	B.1.22	0.0038	-0.0003	0.0034	0.0026	-0.0008
Thyroid cancer	B.1.23	0.0006	-0.0001	0.0004	0.0004	-0.0001
Mesothelioma	B.1.24	0.0000	0.0000	0.0000	0.0000	0.0000
Hodgkin lymphoma	B.1.25	0.0040	0.0000	0.0040	0.0024	-0.0016

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0022	-0.0003	-0.0025	-0.0014	0.0011	
Multiple myeloma	B.1.27	-0.0009	0.0000	-0.0009	-0.0005	0.0004	
Leukemia	B.1.28	0.0301	-0.0003	0.0298	0.0183	-0.0115	
Other malignant neoplasms	B.1.29	0.0077	-0.0006	0.0071	0.0051	-0.0020	
Other neoplasms	B.1.30	-0.0003	0.0000	-0.0002	-0.0002	0.0001	
Cardiovascular diseases	B.2	0.1963	0.0021	0.1985	0.1364	-0.0620	
Rheumatic heart disease	B.2.1	0.0562	0.0014	0.0576	0.0377	-0.0199	
Ischemic heart disease	B.2.2	0.0264	-0.0003	0.0261	0.0175	-0.0086	
Stroke	B.2.3	0.0899	0.0023	0.0921	0.0650	-0.0272	
Hypertensive heart disease	B.2.4	0.0163	-0.0001	0.0162	0.0116	-0.0047	
Non-rheumatic valvular heart disease	B.2.5	0.0009	0.0000	0.0009	0.0006	-0.0004	
Cardiomyopathy and myocarditis	B.2.6	0.0016	0.0000	0.0015	0.0010	-0.0006	
Atrial fibrillation and flutter	B.2.8	0.0001	0.0000	0.0000	0.0000	0.0000	
Aortic aneurysm	B.2.9	-0.0002	0.0000	-0.0002	-0.0002	0.0000	
Peripheral artery disease	B.2.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Endocarditis	B.2.11	0.0017	0.0000	0.0017	0.0010	-0.0007	
Other cardiovascular and circulatory diseases	B.2.12	0.0034	-0.0010	0.0024	0.0022	-0.0002	
Chronic respiratory diseases	B.3	0.0747	0.0112	0.0859	0.0524	-0.0335	
Chronic obstructive pulmonary disease	B.3.1	0.0605	0.0097	0.0702	0.0430	-0.0272	
Pneumoconiosis	B.3.2	0.0039	0.0010	0.0049	0.0028	-0.0021	
Asthma	B.3.3	0.0101	0.0012	0.0114	0.0065	-0.0049	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0002	0.0001	0.0003	0.0001	-0.0002	
Other chronic respiratory diseases	B.3.5	0.0000	-0.0009	-0.0009	0.0000	0.0009	
Digestive diseases	B.4	0.1235	0.0076	0.1311	0.0854	-0.0456	
Cirrhosis and other chronic liver diseases	B.4.1	0.0782	0.0006	0.0788	0.0556	-0.0233	
Upper digestive system diseases	B.4.2	0.0223	0.0037	0.0260	0.0153	-0.0107	
Appendicitis	B.4.3	0.0030	0.0000	0.0030	0.0018	-0.0012	
Paralytic ileus and intestinal obstruction	B.4.4	0.0040	0.0000	0.0040	0.0024	-0.0015	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0003	0.0007	0.0010	0.0002	-0.0008	
Inflammatory bowel disease	B.4.6	0.0014	-0.0010	0.0004	0.0009	0.0005	
Vascular intestinal disorders	B.4.7	0.0002	0.0000	0.0002	0.0001	-0.0001	
Gallbladder and biliary diseases	B.4.8	0.0036	0.0034	0.0070	0.0025	-0.0046	
Pancreatitis	B.4.9	0.0048	0.0001	0.0049	0.0031	-0.0018	
Other digestive diseases	B.4.10	0.0057	0.0002	0.0059	0.0037	-0.0022	
Neurological disorders	B.5	0.0178	-0.0131	0.0047	0.0106	0.0059	
Alzheimer's disease and other dementias	B.5.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Parkinson's disease	B.5.2	0.0003	-0.0001	0.0002	0.0003	0.0000	
Idiopathic epilepsy	B.5.3	0.0181	0.0000	0.0180	0.0105	-0.0075	
Multiple sclerosis	B.5.4	0.0004	0.0000	0.0004	0.0003	-0.0001	
Motor neuron disease	B.5.5	0.0003	0.0000	0.0003	0.0002	-0.0001	
Headache disorders	B.5.6	0.0000	-0.0120	-0.0120	0.0000	0.0120	
Other neurological disorders	B.5.7	-0.0013	-0.0010	-0.0022	-0.0006	0.0016	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	-0.0001	0.0591	0.0590	0.0000	-0.0591	
Schizophrenia	B.6.1	0.0000	-0.0035	-0.0035	0.0000	0.0035	
Depressive disorders	B.6.2	0.0000	0.0503	0.0503	0.0000	-0.0503	
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Anxiety disorders	B.6.4	0.0000	0.0162	0.0162	0.0000	-0.0162	
Eating disorders	B.6.5	-0.0001	-0.0059	-0.0060	0.0000	0.0059	
Autism spectrum disorders	B.6.6	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	0.0000	0.0000	0.0000	0.0000	
Conduct disorder	B.6.8	0.0000	-0.0004	-0.0004	0.0000	0.0004	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0033	0.0033	0.0000	-0.0033	
Other mental disorders	B.6.10	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Substance use disorders	B.7	0.0456	0.0150	0.0606	0.0263	-0.0343	
Alcohol use disorders	B.7.1	-0.0019	0.0042	0.0022	-0.0015	-0.0037	
Drug use disorders	B.7.2	0.0475	0.0108	0.0584	0.0278	-0.0306	
Diabetes and kidney diseases	B.8	0.0550	-0.0145	0.0405	0.0352	-0.0053	
Diabetes mellitus	B.8.1	0.0060	-0.0149	-0.0089	0.0040	0.0129	
Chronic kidney disease	B.8.2	0.0405	0.0004	0.0409	0.0259	-0.0150	
Acute glomerulonephritis	B.8.3	0.0085	0.0000	0.0085	0.0053	-0.0033	
Skin and subcutaneous diseases	B.9	0.0020	-0.0073	-0.0053	0.0013	0.0065	
Dermatitis	B.9.1	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Psoriasis	B.9.2	0.0000	0.0035	0.0035	0.0000	-0.0035	
Bacterial skin diseases	B.9.3	0.0022	0.0000	0.0022	0.0014	-0.0008	
Scabies	B.9.4	0.0000	0.0008	0.0008	0.0000	-0.0008	
Fungal skin diseases	B.9.5	0.0000	0.0002	0.0002	0.0000	-0.0002	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0091	-0.0091	0.0000	0.0091	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	-0.0002	0.0000	-0.0002	-0.0001	0.0000	
Other skin and subcutaneous diseases	B.9.12	0.0000	-0.0015	-0.0015	0.0000	0.0015	
Sense organ diseases	B.10	0.0000	0.0023	0.0023	0.0000	-0.0023	
Blindness and vision loss	B.10.1	0.0000	0.0011	0.0011	0.0000	-0.0011	
Age-related and other hearing loss	B.10.2	0.0000	0.0015	0.0015	0.0000	-0.0015	
Other sense organ diseases	B.10.3	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Musculoskeletal disorders	B.11	-0.0014	0.0295	0.0281	-0.0007	-0.0288	
Rheumatoid arthritis	B.11.1	0.0005	-0.0003	0.0002	0.0004	0.0002	
Osteoarthritis	B.11.2	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Low back pain	B.11.3	0.0000	0.0565	0.0565	0.0000	-0.0565	
Neck pain	B.11.4	0.0000	0.0055	0.0055	0.0000	-0.0055	
Gout	B.11.5	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Other musculoskeletal disorders	B.11.6	-0.0019	-0.0309	-0.0328	-0.0011	0.0318	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0246	0.0566	0.0811	0.0143	-0.0668	
Congenital birth defects	B.12.1	0.0125	0.0034	0.0159	0.0069	-0.0090	
Urinary diseases and male infertility	B.12.2	0.0042	0.0002	0.0043	0.0027	-0.0017	
Gynecological diseases	B.12.3	-0.0001	0.0235	0.0235	-0.0001	-0.0235	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0054	0.0219	0.0273	0.0032	-0.0241	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0026	0.0062	0.0088	0.0016	-0.0072	
Oral disorders	B.12.6	0.0000	0.0014	0.0014	0.0000	-0.0014	
Injuries	C	0.6654	0.0103	0.6757	0.3942	-0.2815	
Transport injuries	C.1	0.1276	-0.0079	0.1197	0.0791	-0.0405	
Road injuries	C.1.1	0.1069	-0.0092	0.0978	0.0668	-0.0310	
Other transport injuries	C.1.2	0.0207	0.0012	0.0219	0.0124	-0.0095	
Unintentional injuries	C.2	0.1313	0.0141	0.1454	0.0776	-0.0678	
Falls	C.2.1	0.0084	0.0100	0.0184	0.0052	-0.0132	
Drowning	C.2.2	0.0650	0.0007	0.0656	0.0371	-0.0285	
Fire, heat, and hot substances	C.2.3	0.0100	-0.0002	0.0097	0.0059	-0.0038	
Poisonings	C.2.4	0.0018	0.0000	0.0018	0.0012	-0.0006	
Exposure to mechanical forces	C.2.5	0.0188	-0.0018	0.0171	0.0114	-0.0057	
Adverse effects of medical treatment	C.2.6	0.0078	0.0000	0.0078	0.0047	-0.0031	
Animal contact	C.2.7	0.0070	0.0009	0.0079	0.0044	-0.0036	
Foreign body	C.2.8	0.0003	0.0035	0.0037	0.0002	-0.0036	
Environmental heat and cold exposure	C.2.9	0.0092	0.0007	0.0099	0.0057	-0.0042	
Exposure to forces of nature	C.2.10	0.0021	-0.0006	0.0015	0.0012	-0.0003	
Other unintentional injuries	C.2.11	0.0010	0.0010	0.0020	0.0007	-0.0013	
Self-harm and interpersonal violence	C.3	0.4065	0.0041	0.4107	0.2374	-0.1732	
Self-harm	C.3.1	0.3282	0.0021	0.3303	0.1925	-0.1378	
Interpersonal violence	C.3.2	0.0676	0.0020	0.0696	0.0389	-0.0307	
Conflict and terrorism	C.3.3	0.0001	0.0000	0.0001	0.0000	-0.0001	
Executions and police conflict	C.3.4	0.0107	0.0000	0.0107	0.0060	-0.0047	

Table S7c | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for those aged 45-64 years from 1990 to 2019.

Causes	Level	ΔHALE			ΔLE	ΔLED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.1534	0.0581	0.2115	0.1911	-0.0204
HIV/AIDS and sexually transmitted infections	A.1	-0.0094	-0.0010	-0.0104	-0.0112	-0.0008
HIV/AIDS	A.1.1	-0.0100	-0.0011	-0.0111	-0.0119	-0.0008
Sexually transmitted infections excluding HIV	A.1.2	0.0006	0.0001	0.0007	0.0008	0.0001
Respiratory infections and tuberculosis	A.2	0.1291	0.0122	0.1413	0.1608	0.0195
Tuberculosis	A.2.1	0.0962	0.0101	0.1063	0.1197	0.0134
Lower respiratory infections	A.2.2	0.0307	0.0005	0.0312	0.0384	0.0072
Upper respiratory infections	A.2.3	0.0020	-0.0001	0.0020	0.0025	0.0006
Otitis media	A.2.4	0.0001	0.0016	0.0017	0.0001	-0.0016
Enteric infections	A.3	0.0064	-0.0012	0.0052	0.0079	0.0027
Diarrheal diseases	A.3.1	0.0061	-0.0012	0.0049	0.0075	0.0026
Typhoid and paratyphoid	A.3.2	0.0001	0.0000	0.0001	0.0002	0.0000
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0001	0.0000	0.0001	0.0002	0.0000
Other intestinal infectious diseases	A.3.4	0.0000	0.0000	0.0000	0.0000	0.0000
Neglected tropical diseases and malaria	A.4	0.0027	0.0280	0.0307	0.0033	-0.0274
Malaria	A.4.1	0.0005	0.0001	0.0007	0.0006	0.0000
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0015	0.0009	0.0024	0.0019	-0.0005
Cysticercosis	A.4.6	0.0000	0.0021	0.0022	0.0001	-0.0021
Cystic echinococcosis	A.4.7	0.0000	0.0000	0.0000	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0009	0.0009	0.0000	-0.0009
Dengue	A.4.11	0.0000	-0.0003	-0.0003	0.0000	0.0003
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0003	0.0000	0.0003	0.0004	0.0001
Intestinal nematode infections	A.4.14	0.0000	0.0071	0.0071	0.0000	-0.0071
Food-borne trematodiasis	A.4.15	0.0000	0.0154	0.0154	0.0000	-0.0154
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0003	0.0018	0.0021	0.0004	-0.0017
Other infectious diseases	A.5	0.0215	0.0037	0.0252	0.0264	0.0013
Meningitis	A.5.1	0.0031	0.0010	0.0041	0.0038	-0.0002
Encephalitis	A.5.2	0.0004	0.0006	0.0011	0.0005	-0.0005
Diphtheria	A.5.3	0.0000	0.0000	0.0000	0.0000	0.0000

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Whooping cough	A.5.4	0.0002	0.0000	0.0002	0.0002	0.0000	
Tetanus	A.5.5	0.0029	0.0000	0.0029	0.0035	0.0006	
Measles	A.5.6	0.0001	0.0000	0.0001	0.0001	0.0000	
Varicella and herpes zoster	A.5.7	0.0003	0.0000	0.0003	0.0004	0.0001	
Acute hepatitis	A.5.8	0.0133	0.0003	0.0136	0.0163	0.0028	
Other unspecified infectious diseases	A.5.9	0.0012	0.0018	0.0029	0.0014	-0.0015	
Maternal and neonatal disorders	A.6	0.0007	-0.0230	-0.0223	0.0007	0.0230	
Maternal disorders	A.6.1	0.0007	0.0000	0.0007	0.0007	0.0001	
Neonatal disorders	A.6.2	0.0000	-0.0230	-0.0230	0.0000	0.0230	
Nutritional deficiencies	A.7	0.0025	0.0394	0.0419	0.0031	-0.0388	
Protein-energy malnutrition	A.7.1	0.0024	-0.0041	-0.0017	0.0030	0.0047	
Iodine deficiency	A.7.2	0.0000	0.0004	0.0004	0.0000	-0.0004	
Vitamin A deficiency	A.7.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Dietary iron deficiency	A.7.4	0.0000	0.0435	0.0435	0.0000	-0.0435	
Other nutritional deficiencies	A.7.5	0.0001	-0.0003	-0.0003	0.0001	0.0003	
Non-communicable diseases	B	1.4898	0.0612	1.5510	1.8684	0.3174	
Neoplasms	B.1	0.3848	-0.0114	0.3734	0.4800	0.1066	
Lip and oral cavity cancer	B.1.1	-0.0010	-0.0002	-0.0011	-0.0013	-0.0001	
Nasopharynx cancer	B.1.2	0.0131	-0.0008	0.0123	0.0162	0.0039	
Other pharynx cancer	B.1.3	0.0007	0.0000	0.0007	0.0009	0.0002	
Esophageal cancer	B.1.4	0.0679	0.0008	0.0687	0.0856	0.0169	
Stomach cancer	B.1.5	0.1249	0.0005	0.1254	0.1571	0.0317	
Colon and rectum cancer	B.1.6	-0.0097	-0.0036	-0.0133	-0.0121	0.0012	
Liver cancer	B.1.7	0.1477	0.0016	0.1493	0.1829	0.0337	
Gallbladder and biliary tract cancer	B.1.8	-0.0002	0.0000	-0.0002	-0.0003	-0.0001	
Pancreatic cancer	B.1.9	-0.0105	-0.0001	-0.0107	-0.0131	-0.0024	
Larynx cancer	B.1.10	0.0036	-0.0002	0.0034	0.0046	0.0011	
Tracheal, bronchus, and lung cancer	B.1.11	0.0192	-0.0004	0.0188	0.0238	0.0050	
Malignant skin melanoma	B.1.12	0.0005	-0.0001	0.0004	0.0006	0.0002	
Non-melanoma skin cancer	B.1.13	0.0000	0.0000	-0.0001	0.0000	0.0000	
Breast cancer	B.1.14	0.0044	-0.0032	0.0012	0.0051	0.0040	
Cervical cancer	B.1.15	0.0015	-0.0004	0.0011	0.0019	0.0008	
Uterine cancer	B.1.16	0.0051	-0.0003	0.0048	0.0064	0.0016	
Ovarian cancer	B.1.17	-0.0040	-0.0003	-0.0043	-0.0050	-0.0008	
Prostate cancer	B.1.18	0.0015	-0.0006	0.0009	0.0020	0.0010	
Testicular cancer	B.1.19	0.0001	-0.0001	0.0000	0.0001	0.0001	
Kidney cancer	B.1.20	-0.0029	-0.0004	-0.0033	-0.0036	-0.0004	
Bladder cancer	B.1.21	0.0021	-0.0005	0.0017	0.0027	0.0010	
Brain and central nervous system cancer	B.1.22	0.0037	-0.0001	0.0035	0.0045	0.0010	
Thyroid cancer	B.1.23	0.0005	-0.0002	0.0002	0.0006	0.0003	
Mesothelioma	B.1.24	-0.0001	0.0000	-0.0001	-0.0002	0.0000	
Hodgkin lymphoma	B.1.25	0.0022	0.0000	0.0022	0.0027	0.0006	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0027	-0.0008	-0.0035	-0.0034	0.0001	
Multiple myeloma	B.1.27	0.0003	-0.0001	0.0002	0.0004	0.0002	
Leukemia	B.1.28	0.0098	-0.0005	0.0093	0.0120	0.0027	
Other malignant neoplasms	B.1.29	0.0075	-0.0009	0.0066	0.0094	0.0027	
Other neoplasms	B.1.30	-0.0001	-0.0005	-0.0006	-0.0002	0.0004	
Cardiovascular diseases	B.2	0.5701	-0.0029	0.5671	0.7178	0.1506	
Rheumatic heart disease	B.2.1	0.0684	-0.0001	0.0683	0.0850	0.0168	
Ischemic heart disease	B.2.2	0.0641	-0.0015	0.0626	0.0808	0.0182	
Stroke	B.2.3	0.3704	0.0017	0.3721	0.4673	0.0953	
Hypertensive heart disease	B.2.4	0.0593	-0.0008	0.0584	0.0746	0.0162	
Non-rheumatic valvular heart disease	B.2.5	0.0009	-0.0001	0.0008	0.0011	0.0003	
Cardiomyopathy and myocarditis	B.2.6	0.0016	-0.0001	0.0015	0.0020	0.0005	
Atrial fibrillation and flutter	B.2.8	0.0008	-0.0012	-0.0004	0.0010	0.0014	
Aortic aneurysm	B.2.9	0.0007	0.0000	0.0007	0.0009	0.0002	
Peripheral artery disease	B.2.10	0.0000	0.0002	0.0002	0.0000	-0.0002	
Endocarditis	B.2.11	0.0006	0.0000	0.0005	0.0007	0.0001	
Other cardiovascular and circulatory diseases	B.2.12	0.0034	-0.0010	0.0024	0.0043	0.0019	
Chronic respiratory diseases	B.3	0.3215	0.0445	0.3660	0.4058	0.0398	
Chronic obstructive pulmonary disease	B.3.1	0.3047	0.0391	0.3438	0.3849	0.0411	
Pneumoconiosis	B.3.2	0.0046	0.0017	0.0063	0.0057	-0.0006	
Asthma	B.3.3	0.0118	0.0038	0.0156	0.0147	-0.0009	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	0.0004	-0.0001	0.0003	0.0005	0.0002	
Other chronic respiratory diseases	B.3.5	0.0001	0.0000	0.0000	0.0001	0.0001	
Digestive diseases	B.4	0.1503	0.0182	0.1685	0.1867	0.0182	
Cirrhosis and other chronic liver diseases	B.4.1	0.0947	0.0015	0.0962	0.1173	0.0211	
Upper digestive system diseases	B.4.2	0.0340	0.0082	0.0423	0.0424	0.0002	
Appendicitis	B.4.3	0.0014	-0.0002	0.0012	0.0017	0.0005	
Paralytic ileus and intestinal obstruction	B.4.4	0.0029	0.0000	0.0029	0.0036	0.0007	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0004	0.0007	0.0010	0.0005	-0.0006	
Inflammatory bowel disease	B.4.6	0.0012	-0.0014	-0.0002	0.0015	0.0017	
Vascular intestinal disorders	B.4.7	0.0004	0.0000	0.0004	0.0005	0.0001	
Gallbladder and biliary diseases	B.4.8	0.0067	0.0090	0.0157	0.0084	-0.0073	
Pancreatitis	B.4.9	0.0030	0.0001	0.0031	0.0037	0.0006	
Other digestive diseases	B.4.10	0.0057	0.0002	0.0059	0.0071	0.0012	
Neurological disorders	B.5	0.0076	-0.0141	-0.0065	0.0094	0.0159	
Alzheimer's disease and other dementias	B.5.1	0.0008	-0.0019	-0.0011	0.0011	0.0022	
Parkinson's disease	B.5.2	0.0029	-0.0020	0.0009	0.0037	0.0028	
Idiopathic epilepsy	B.5.3	0.0027	-0.0014	0.0013	0.0032	0.0019	
Multiple sclerosis	B.5.4	0.0003	-0.0001	0.0003	0.0004	0.0001	
Motor neuron disease	B.5.5	0.0004	0.0000	0.0004	0.0005	0.0001	
Headache disorders	B.5.6	0.0000	-0.0076	-0.0076	0.0000	0.0076	
Other neurological disorders	B.5.7	0.0004	-0.0011	-0.0007	0.0005	0.0012	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	0.0000	-0.0068	-0.0068	0.0000	0.0068	
Schizophrenia	B.6.1	0.0000	-0.0014	-0.0014	0.0000	0.0014	
Depressive disorders	B.6.2	0.0000	-0.0113	-0.0113	0.0000	0.0113	
Bipolar disorder	B.6.3	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Anxiety disorders	B.6.4	0.0000	0.0046	0.0046	0.0000	-0.0046	
Eating disorders	B.6.5	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Autism spectrum disorders	B.6.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	0.0001	0.0001	0.0000	-0.0001	
Conduct disorder	B.6.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0015	0.0015	0.0000	-0.0015	
Other mental disorders	B.6.10	0.0000	0.0001	0.0001	0.0000	-0.0001	
Substance use disorders	B.7	0.0091	-0.0028	0.0062	0.0111	0.0048	
Alcohol use disorders	B.7.1	-0.0009	-0.0009	-0.0019	-0.0010	0.0008	
Drug use disorders	B.7.2	0.0100	-0.0019	0.0081	0.0121	0.0040	
Diabetes and kidney diseases	B.8	0.0380	-0.0268	0.0112	0.0472	0.0359	
Diabetes mellitus	B.8.1	0.0133	-0.0226	-0.0093	0.0168	0.0261	
Chronic kidney disease	B.8.2	0.0207	-0.0042	0.0166	0.0255	0.0089	
Acute glomerulonephritis	B.8.3	0.0040	0.0000	0.0040	0.0049	0.0009	
Skin and subcutaneous diseases	B.9	0.0013	0.0016	0.0029	0.0016	-0.0013	
Dermatitis	B.9.1	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Psoriasis	B.9.2	0.0000	0.0039	0.0039	0.0000	-0.0039	
Bacterial skin diseases	B.9.3	0.0013	0.0000	0.0013	0.0016	0.0003	
Scabies	B.9.4	0.0000	0.0002	0.0002	0.0000	-0.0002	
Fungal skin diseases	B.9.5	0.0000	0.0001	0.0001	0.0000	-0.0001	
Viral skin diseases	B.9.6	0.0000	0.0001	0.0001	0.0000	-0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Urticaria	B.9.10	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Decubitus ulcer	B.9.11	-0.0001	0.0000	-0.0001	-0.0001	0.0000	
Other skin and subcutaneous diseases	B.9.12	0.0000	-0.0013	-0.0012	0.0000	0.0013	
Sense organ diseases	B.10	0.0000	0.0077	0.0077	0.0000	-0.0077	
Blindness and vision loss	B.10.1	0.0000	0.0002	0.0002	0.0000	-0.0002	
Age-related and other hearing loss	B.10.2	0.0000	0.0081	0.0081	0.0000	-0.0081	
Other sense organ diseases	B.10.3	0.0000	-0.0006	-0.0006	0.0000	0.0006	
Musculoskeletal disorders	B.11	0.0003	0.0215	0.0217	0.0003	-0.0214	
Rheumatoid arthritis	B.11.1	0.0005	-0.0007	-0.0002	0.0006	0.0009	
Osteoarthritis	B.11.2	0.0000	-0.0095	-0.0095	0.0000	0.0095	
Low back pain	B.11.3	0.0000	0.0814	0.0814	0.0000	-0.0814	
Neck pain	B.11.4	0.0000	-0.0090	-0.0090	0.0000	0.0090	
Gout	B.11.5	0.0000	-0.0021	-0.0021	0.0000	0.0021	
Other musculoskeletal disorders	B.11.6	-0.0002	-0.0385	-0.0388	-0.0003	0.0385	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0069	0.0326	0.0395	0.0086	-0.0309	
Congenital birth defects	B.12.1	0.0007	0.0017	0.0023	0.0008	-0.0015	
Urinary diseases and male infertility	B.12.2	0.0033	0.0032	0.0065	0.0041	-0.0024	
Gynecological diseases	B.12.3	-0.0001	0.0171	0.0170	-0.0001	-0.0171	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0022	0.0117	0.0139	0.0027	-0.0112	
Endocrine, metabolic, blood, and immune disorders	B.12.5	0.0009	-0.0027	-0.0018	0.0011	0.0029	
Oral disorders	B.12.6	0.0000	0.0016	0.0016	0.0000	-0.0016	
Injuries	C	0.1336	-0.0102	0.1234	0.1624	0.0390	
Transport injuries	C.1	0.0251	-0.0199	0.0052	0.0302	0.0250	
Road injuries	C.1.1	0.0203	-0.0212	-0.0009	0.0244	0.0253	
Other transport injuries	C.1.2	0.0048	0.0013	0.0061	0.0058	-0.0003	
Unintentional injuries	C.2	0.0271	0.0058	0.0328	0.0331	0.0002	
Falls	C.2.1	0.0015	0.0040	0.0055	0.0019	-0.0036	
Drowning	C.2.2	0.0090	0.0004	0.0094	0.0109	0.0015	
Fire, heat, and hot substances	C.2.3	0.0025	0.0000	0.0025	0.0031	0.0005	
Poisonings	C.2.4	0.0002	0.0000	0.0001	0.0002	0.0000	
Exposure to mechanical forces	C.2.5	0.0034	-0.0037	-0.0003	0.0041	0.0044	
Adverse effects of medical treatment	C.2.6	0.0027	0.0000	0.0027	0.0033	0.0006	
Animal contact	C.2.7	0.0033	0.0010	0.0043	0.0040	-0.0002	
Foreign body	C.2.8	0.0002	0.0031	0.0033	0.0003	-0.0031	
Environmental heat and cold exposure	C.2.9	0.0037	0.0005	0.0042	0.0045	0.0003	
Exposure to forces of nature	C.2.10	0.0004	-0.0005	-0.0001	0.0005	0.0006	
Other unintentional injuries	C.2.11	0.0002	0.0009	0.0011	0.0003	-0.0008	
Self-harm and interpersonal violence	C.3	0.0814	0.0039	0.0853	0.0991	0.0138	
Self-harm	C.3.1	0.0724	0.0020	0.0744	0.0883	0.0139	
Interpersonal violence	C.3.2	0.0083	0.0019	0.0102	0.0099	-0.0003	
Conflict and terrorism	C.3.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Executions and police conflict	C.3.4	0.0008	0.0000	0.0008	0.0009	0.0002	

Table S7d | Cause-specific effects of mortality and disability (years) on changes in life expectancy (LE) and health-adjusted life expectancy (HALE) for those aged 65+ years from 1990 to 2019.

Causes	Level	Δ HALE			Δ LE	Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Communicable, maternal, neonatal, and nutritional diseases	A	0.4670	0.0708	0.5378	0.3158	-0.2220
HIV/AIDS and sexually transmitted infections	A.1	-0.0035	-0.0009	-0.0044	-0.0034	0.0009
HIV/AIDS	A.1.1	-0.0041	-0.0009	-0.0050	-0.0039	0.0011
Sexually transmitted infections excluding HIV	A.1.2	0.0006	0.0000	0.0007	0.0005	-0.0002
Respiratory infections and tuberculosis	A.2	0.3966	0.0163	0.4129	0.2707	-0.1422
Tuberculosis	A.2.1	0.1455	0.0145	0.1600	0.1205	-0.0395
Lower respiratory infections	A.2.2	0.2258	0.0011	0.2269	0.1368	-0.0901
Upper respiratory infections	A.2.3	0.0253	-0.0001	0.0252	0.0133	-0.0118
Otitis media	A.2.4	0.0001	0.0007	0.0008	0.0001	-0.0007
Enteric infections	A.3	0.0241	0.0005	0.0246	0.0153	-0.0093
Diarrheal diseases	A.3.1	0.0239	0.0005	0.0244	0.0151	-0.0093
Typhoid and paratyphoid	A.3.2	0.0000	0.0000	0.0000	0.0000	0.0000
Invasive Non-typhoidal Salmonella (iNTS)	A.3.3	0.0001	0.0000	0.0001	0.0001	0.0000
Other intestinal infectious diseases	A.3.4	0.0001	0.0000	0.0000	0.0000	0.0000
Neglected tropical diseases and malaria	A.4	0.0026	0.0196	0.0222	0.0022	-0.0200
Malaria	A.4.1	0.0002	0.0001	0.0002	0.0002	-0.0001
Chagas disease	A.4.2	0.0000	0.0000	0.0000	0.0000	0.0000
Leishmaniasis	A.4.3	0.0000	0.0000	0.0000	0.0000	0.0000
African trypanosomiasis	A.4.4	0.0000	0.0000	0.0000	0.0000	0.0000
Schistosomiasis	A.4.5	0.0020	0.0004	0.0024	0.0017	-0.0007
Cysticercosis	A.4.6	0.0000	0.0027	0.0027	0.0000	-0.0027
Cystic echinococcosis	A.4.7	0.0000	0.0000	0.0000	0.0000	0.0000
Lymphatic filariasis	A.4.8	0.0000	0.0000	0.0000	0.0000	0.0000
Onchocerciasis	A.4.9	0.0000	0.0000	0.0000	0.0000	0.0000
Trachoma	A.4.10	0.0000	0.0022	0.0022	0.0000	-0.0022
Dengue	A.4.11	0.0000	-0.0002	-0.0002	0.0000	0.0002
Yellow fever	A.4.12	0.0000	0.0000	0.0000	0.0000	0.0000
Rabies	A.4.13	0.0001	0.0000	0.0001	0.0001	0.0000
Intestinal nematode infections	A.4.14	0.0001	0.0043	0.0044	0.0000	-0.0043
Food-borne trematodiasis	A.4.15	0.0000	0.0091	0.0091	0.0000	-0.0091
Leprosy	A.4.16	0.0000	0.0000	0.0000	0.0000	0.0000
Ebola	A.4.17	0.0000	0.0000	0.0000	0.0000	0.0000
Zika virus	A.4.18	0.0000	0.0000	0.0000	0.0000	0.0000
Guinea worm disease	A.4.19	0.0000	0.0000	0.0000	0.0000	0.0000
Other neglected tropical diseases	A.4.20	0.0002	0.0011	0.0013	0.0002	-0.0011
Other infectious diseases	A.5	0.0264	0.0021	0.0284	0.0201	-0.0083
Meningitis	A.5.1	0.0049	0.0006	0.0055	0.0036	-0.0019
Encephalitis	A.5.2	0.0003	0.0002	0.0005	0.0003	-0.0002
Diphtheria	A.5.3	0.0000	0.0000	0.0000	0.0000	0.0000

Causes	Level	Δ HALE		Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect	
Whooping cough	A.5.4	0.0000	0.0000	0.0000	0.0000	0.0000
Tetanus	A.5.5	0.0033	0.0000	0.0033	0.0026	-0.0007
Measles	A.5.6	0.0000	0.0000	0.0000	0.0000	0.0000
Varicella and herpes zoster	A.5.7	0.0036	0.0000	0.0036	0.0018	-0.0018
Acute hepatitis	A.5.8	0.0120	0.0002	0.0121	0.0102	-0.0020
Other unspecified infectious diseases	A.5.9	0.0023	0.0011	0.0034	0.0016	-0.0018
Maternal and neonatal disorders	A.6	0.0000	-0.0081	-0.0081	0.0000	0.0081
Maternal disorders	A.6.1	0.0000	0.0000	0.0000	0.0000	0.0000
Neonatal disorders	A.6.2	0.0000	-0.0081	-0.0081	0.0000	0.0081
Nutritional deficiencies	A.7	0.0208	0.0413	0.0621	0.0109	-0.0512
Protein-energy malnutrition	A.7.1	0.0222	-0.0032	0.0190	0.0115	-0.0076
Iodine deficiency	A.7.2	0.0000	0.0003	0.0003	0.0000	-0.0003
Vitamin A deficiency	A.7.3	0.0000	0.0000	0.0000	0.0000	0.0000
Dietary iron deficiency	A.7.4	0.0000	0.0445	0.0445	0.0000	-0.0445
Other nutritional deficiencies	A.7.5	-0.0014	-0.0002	-0.0016	-0.0005	0.0010
Non-communicable diseases	B	3.6646	0.0146	3.6791	2.7537	-0.9254
Neoplasms	B.1	0.0653	-0.0265	0.0388	0.1150	0.0762
Lip and oral cavity cancer	B.1.1	-0.0032	-0.0003	-0.0035	-0.0026	0.0008
Nasopharynx cancer	B.1.2	0.0081	-0.0004	0.0077	0.0068	-0.0009
Other pharynx cancer	B.1.3	0.0005	0.0000	0.0005	0.0004	-0.0001
Esophageal cancer	B.1.4	0.0760	0.0007	0.0767	0.0726	-0.0040
Stomach cancer	B.1.5	0.1296	-0.0002	0.1294	0.1197	-0.0096
Colon and rectum cancer	B.1.6	-0.0520	-0.0075	-0.0595	-0.0372	0.0223
Liver cancer	B.1.7	0.1042	0.0014	0.1056	0.0939	-0.0118
Gallbladder and biliary tract cancer	B.1.8	-0.0034	-0.0001	-0.0036	-0.0024	0.0012
Pancreatic cancer	B.1.9	-0.0324	-0.0005	-0.0329	-0.0255	0.0074
Larynx cancer	B.1.10	0.0025	-0.0003	0.0021	0.0023	0.0002
Tracheal, bronchus, and lung cancer	B.1.11	-0.1490	-0.0040	-0.1530	-0.1055	0.0475
Malignant skin melanoma	B.1.12	0.0002	-0.0001	0.0001	0.0002	0.0001
Non-melanoma skin cancer	B.1.13	-0.0030	-0.0001	-0.0031	-0.0017	0.0014
Breast cancer	B.1.14	-0.0071	-0.0029	-0.0100	-0.0057	0.0043
Cervical cancer	B.1.15	0.0041	0.0000	0.0041	0.0035	-0.0005
Uterine cancer	B.1.16	0.0046	-0.0001	0.0044	0.0040	-0.0005
Ovarian cancer	B.1.17	-0.0048	-0.0002	-0.0050	-0.0044	0.0006
Prostate cancer	B.1.18	-0.0010	-0.0038	-0.0047	0.0010	0.0057
Testicular cancer	B.1.19	-0.0001	-0.0001	-0.0002	-0.0001	0.0001
Kidney cancer	B.1.20	-0.0065	-0.0004	-0.0069	-0.0048	0.0021
Bladder cancer	B.1.21	0.0028	-0.0012	0.0017	0.0025	0.0008
Brain and central nervous system cancer	B.1.22	-0.0038	-0.0003	-0.0041	-0.0026	0.0015
Thyroid cancer	B.1.23	-0.0002	-0.0002	-0.0003	0.0000	0.0003
Mesothelioma	B.1.24	0.0000	0.0000	0.0000	0.0000	0.0000
Hodgkin lymphoma	B.1.25	0.0023	-0.0001	0.0023	0.0021	-0.0002

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Non-Hodgkin lymphoma	B.1.26	-0.0061	-0.0019	-0.0079	-0.0053	0.0026	
Multiple myeloma	B.1.27	-0.0006	-0.0002	-0.0008	-0.0004	0.0004	
Leukemia	B.1.28	0.0031	-0.0007	0.0025	0.0030	0.0005	
Other malignant neoplasms	B.1.29	0.0013	-0.0022	-0.0009	0.0019	0.0028	
Other neoplasms	B.1.30	-0.0007	-0.0010	-0.0016	-0.0005	0.0012	
Cardiovascular diseases	B.2	1.0592	-0.0771	0.9821	0.9082	-0.0739	
Rheumatic heart disease	B.2.1	0.1484	-0.0003	0.1481	0.1085	-0.0396	
Ischemic heart disease	B.2.2	-0.3870	-0.0022	-0.3892	-0.1663	0.2228	
Stroke	B.2.3	0.9916	-0.0771	0.9145	0.7485	-0.1660	
Hypertensive heart disease	B.2.4	0.2947	0.0049	0.2996	0.2075	-0.0921	
Non-rheumatic valvular heart disease	B.2.5	0.0032	-0.0010	0.0022	0.0020	-0.0002	
Cardiomyopathy and myocarditis	B.2.6	-0.0028	0.0001	-0.0027	-0.0007	0.0020	
Atrial fibrillation and flutter	B.2.8	0.0027	-0.0027	0.0000	0.0025	0.0025	
Aortic aneurysm	B.2.9	0.0005	0.0000	0.0005	0.0005	0.0000	
Peripheral artery disease	B.2.10	-0.0004	0.0014	0.0010	-0.0002	-0.0012	
Endocarditis	B.2.11	0.0012	0.0000	0.0011	0.0008	-0.0003	
Other cardiovascular and circulatory diseases	B.2.12	0.0071	-0.0002	0.0070	0.0052	-0.0017	
Chronic respiratory diseases	B.3	2.3184	0.0559	2.3743	1.5502	-0.8241	
Chronic obstructive pulmonary disease	B.3.1	2.2457	0.0489	2.2946	1.4994	-0.7952	
Pneumoconiosis	B.3.2	0.0080	-0.0005	0.0075	0.0069	-0.0006	
Asthma	B.3.3	0.0657	0.0085	0.0743	0.0444	-0.0299	
Interstitial lung disease and pulmonary sarcoidosis	B.3.4	-0.0004	-0.0009	-0.0013	-0.0001	0.0013	
Other chronic respiratory diseases	B.3.5	-0.0006	-0.0001	-0.0007	-0.0003	0.0003	
Digestive diseases	B.4	0.2080	0.0202	0.2282	0.1597	-0.0685	
Cirrhosis and other chronic liver diseases	B.4.1	0.0663	0.0008	0.0671	0.0580	-0.0092	
Upper digestive system diseases	B.4.2	0.0673	0.0072	0.0745	0.0513	-0.0233	
Appendicitis	B.4.3	0.0042	-0.0001	0.0041	0.0029	-0.0012	
Paralytic ileus and intestinal obstruction	B.4.4	0.0116	-0.0001	0.0116	0.0079	-0.0037	
Inguinal, femoral, and abdominal hernia	B.4.5	0.0019	0.0000	0.0019	0.0013	-0.0006	
Inflammatory bowel disease	B.4.6	0.0068	-0.0008	0.0060	0.0041	-0.0020	
Vascular intestinal disorders	B.4.7	0.0011	0.0000	0.0011	0.0008	-0.0002	
Gallbladder and biliary diseases	B.4.8	0.0241	0.0125	0.0366	0.0169	-0.0197	
Pancreatitis	B.4.9	0.0036	0.0001	0.0037	0.0029	-0.0007	
Other digestive diseases	B.4.10	0.0211	0.0005	0.0217	0.0137	-0.0079	
Neurological disorders	B.5	0.0172	-0.0494	-0.0322	0.0143	0.0466	
Alzheimer's disease and other dementias	B.5.1	0.0035	-0.0384	-0.0349	0.0032	0.0381	
Parkinson's disease	B.5.2	0.0130	-0.0052	0.0077	0.0103	0.0026	
Idiopathic epilepsy	B.5.3	0.0009	-0.0020	-0.0011	0.0008	0.0019	
Multiple sclerosis	B.5.4	0.0001	0.0000	0.0001	0.0001	0.0000	
Motor neuron disease	B.5.5	0.0001	0.0000	0.0001	0.0001	0.0000	
Headache disorders	B.5.6	0.0000	-0.0027	-0.0027	0.0000	0.0027	
Other neurological disorders	B.5.7	-0.0004	-0.0010	-0.0014	-0.0002	0.0012	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Mental disorders	B.6	0.0000	-0.0151	-0.0151	0.0000	0.0151	
Schizophrenia	B.6.1	0.0000	-0.0007	-0.0007	0.0000	0.0007	
Depressive disorders	B.6.2	0.0000	-0.0200	-0.0200	0.0000	0.0200	
Bipolar disorder	B.6.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Anxiety disorders	B.6.4	0.0000	0.0054	0.0054	0.0000	-0.0054	
Eating disorders	B.6.5	0.0000	0.0000	0.0000	0.0000	0.0000	
Autism spectrum disorders	B.6.6	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Attention-deficit/hyperactivity disorder	B.6.7	0.0000	0.0000	0.0000	0.0000	0.0000	
Conduct disorder	B.6.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Idiopathic developmental intellectual disability	B.6.9	0.0000	0.0007	0.0007	0.0000	-0.0007	
Other mental disorders	B.6.10	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Substance use disorders	B.7	0.0053	-0.0059	-0.0006	0.0045	0.0052	
Alcohol use disorders	B.7.1	-0.0004	-0.0034	-0.0038	-0.0003	0.0035	
Drug use disorders	B.7.2	0.0056	-0.0025	0.0032	0.0049	0.0017	
Diabetes and kidney diseases	B.8	-0.0238	-0.0167	-0.0405	-0.0083	0.0322	
Diabetes mellitus	B.8.1	-0.0212	-0.0142	-0.0354	-0.0094	0.0259	
Chronic kidney disease	B.8.2	-0.0086	-0.0026	-0.0112	-0.0037	0.0076	
Acute glomerulonephritis	B.8.3	0.0061	0.0000	0.0061	0.0048	-0.0013	
Skin and subcutaneous diseases	B.9	0.0093	0.0008	0.0102	0.0050	-0.0052	
Dermatitis	B.9.1	0.0000	0.0000	0.0000	0.0000	0.0000	
Psoriasis	B.9.2	0.0000	0.0027	0.0027	0.0000	-0.0027	
Bacterial skin diseases	B.9.3	0.0103	0.0000	0.0103	0.0053	-0.0049	
Scabies	B.9.4	0.0000	0.0002	0.0002	0.0000	-0.0002	
Fungal skin diseases	B.9.5	0.0000	0.0001	0.0001	0.0000	-0.0001	
Viral skin diseases	B.9.6	0.0000	-0.0001	-0.0001	0.0000	0.0001	
Acne vulgaris	B.9.7	0.0000	-0.0002	-0.0002	0.0000	0.0002	
Alopecia areata	B.9.8	0.0000	0.0000	0.0000	0.0000	0.0000	
Pruritus	B.9.9	0.0000	-0.0003	-0.0003	0.0000	0.0003	
Urticaria	B.9.10	0.0000	0.0000	0.0000	0.0000	0.0000	
Decubitus ulcer	B.9.11	-0.0012	-0.0003	-0.0015	-0.0006	0.0009	
Other skin and subcutaneous diseases	B.9.12	0.0003	-0.0012	-0.0009	0.0002	0.0011	
Sense organ diseases	B.10	0.0000	0.0391	0.0391	0.0000	-0.0391	
Blindness and vision loss	B.10.1	0.0000	0.0301	0.0301	0.0000	-0.0301	
Age-related and other hearing loss	B.10.2	0.0000	0.0099	0.0099	0.0000	-0.0099	
Other sense organ diseases	B.10.3	0.0000	-0.0008	-0.0008	0.0000	0.0008	
Musculoskeletal disorders	B.11	-0.0029	0.0574	0.0545	-0.0013	-0.0558	
Rheumatoid arthritis	B.11.1	-0.0014	-0.0004	-0.0018	-0.0005	0.0012	
Osteoarthritis	B.11.2	0.0000	-0.0113	-0.0113	0.0000	0.0113	
Low back pain	B.11.3	0.0000	0.0997	0.0997	0.0000	-0.0997	
Neck pain	B.11.4	0.0000	-0.0058	-0.0058	0.0000	0.0058	
Gout	B.11.5	0.0000	-0.0038	-0.0038	0.0000	0.0038	
Other musculoskeletal disorders	B.11.6	-0.0015	-0.0210	-0.0225	-0.0008	0.0218	

Causes	Level	Δ HALE			Δ LE		Δ LED
		Mortality Effect	Disability Effect	Total Effect	Total Effect		
Other non-communicable diseases	B.12	0.0085	0.0319	0.0404	0.0064	-0.0339	
Congenital birth defects	B.12.1	0.0000	0.0009	0.0010	0.0001	-0.0009	
Urinary diseases and male infertility	B.12.2	0.0080	0.0019	0.0099	0.0054	-0.0045	
Gynecological diseases	B.12.3	-0.0002	0.0066	0.0064	-0.0001	-0.0065	
Hemoglobinopathies and hemolytic anemias	B.12.4	0.0024	0.0135	0.0159	0.0020	-0.0139	
Endocrine, metabolic, blood, and immune disorders	B.12.5	-0.0018	0.0038	0.0021	-0.0009	-0.0030	
Oral disorders	B.12.6	0.0000	0.0051	0.0051	0.0000	-0.0051	
Injuries	C	0.0534	-0.0561	-0.0026	0.0550	0.0576	
Transport injuries	C.1	-0.0019	-0.0285	-0.0304	-0.0001	0.0303	
Road injuries	C.1.1	-0.0040	-0.0295	-0.0335	-0.0019	0.0316	
Other transport injuries	C.1.2	0.0021	0.0010	0.0031	0.0018	-0.0013	
Unintentional injuries	C.2	-0.0076	-0.0295	-0.0372	0.0042	0.0414	
Falls	C.2.1	-0.0275	-0.0284	-0.0560	-0.0112	0.0448	
Drowning	C.2.2	0.0056	-0.0003	0.0054	0.0048	-0.0006	
Fire, heat, and hot substances	C.2.3	0.0058	-0.0001	0.0057	0.0039	-0.0017	
Poisonings	C.2.4	-0.0023	0.0000	-0.0023	-0.0016	0.0007	
Exposure to mechanical forces	C.2.5	-0.0002	-0.0044	-0.0046	0.0000	0.0046	
Adverse effects of medical treatment	C.2.6	0.0039	0.0000	0.0039	0.0029	-0.0010	
Animal contact	C.2.7	0.0021	0.0009	0.0030	0.0019	-0.0011	
Foreign body	C.2.8	-0.0014	0.0023	0.0009	-0.0007	-0.0016	
Environmental heat and cold exposure	C.2.9	0.0064	0.0005	0.0070	0.0041	-0.0028	
Exposure to forces of nature	C.2.10	0.0003	-0.0004	-0.0001	0.0002	0.0003	
Other unintentional injuries	C.2.11	-0.0004	0.0004	0.0000	-0.0003	-0.0003	
Self-harm and interpersonal violence	C.3	0.0630	0.0020	0.0650	0.0509	-0.0141	
Self-harm	C.3.1	0.0603	0.0015	0.0619	0.0483	-0.0135	
Interpersonal violence	C.3.2	0.0026	0.0005	0.0031	0.0025	-0.0006	
Conflict and terrorism	C.3.3	0.0000	0.0000	0.0000	0.0000	0.0000	
Executions and police conflict	C.3.4	0.0001	0.0000	0.0001	0.0001	0.0000	