

Supplementary appendix

This appendix provides further methodological details and supplementary results for “Global and regional burden of bacterial antimicrobial resistance in endocarditis in 2019: a systematic analysis”.

Parts of the appendix are taken directly from the appendix of the papers “Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis” which is referenced throughout the text.

Figure S1. Flowchart of bacterial AMR fatal and non-fatal estimation steps.

Figure S2. DALYs attributable to and associated with bacterial AMR among 21 GBD regions, 2019.

Figure S3. DALYs attributable to and associated with bacterial AMR globally among 16 pathogens.

Figure S4. Fraction of DALYs attributable to (A) and associated with (B) AMR for the four leading pathogens.

Figure S5. Fraction of DALYs attributable to (A) and associated with (B) AMR among 21 GBD regions and 16 pathogens.

Figure S6. DALYs attributable to and associated with bacterial AMR globally among 14 antibiotic classes.

Figure S7. Fraction of DALYs attributable to (A) and associated with (B) AMR for the five leading antibiotic classes.

Figure S8. Fraction of DALYs attributable to (A) and associated with (B) AMR among 21 GBD regions and 14 antibiotic classes.

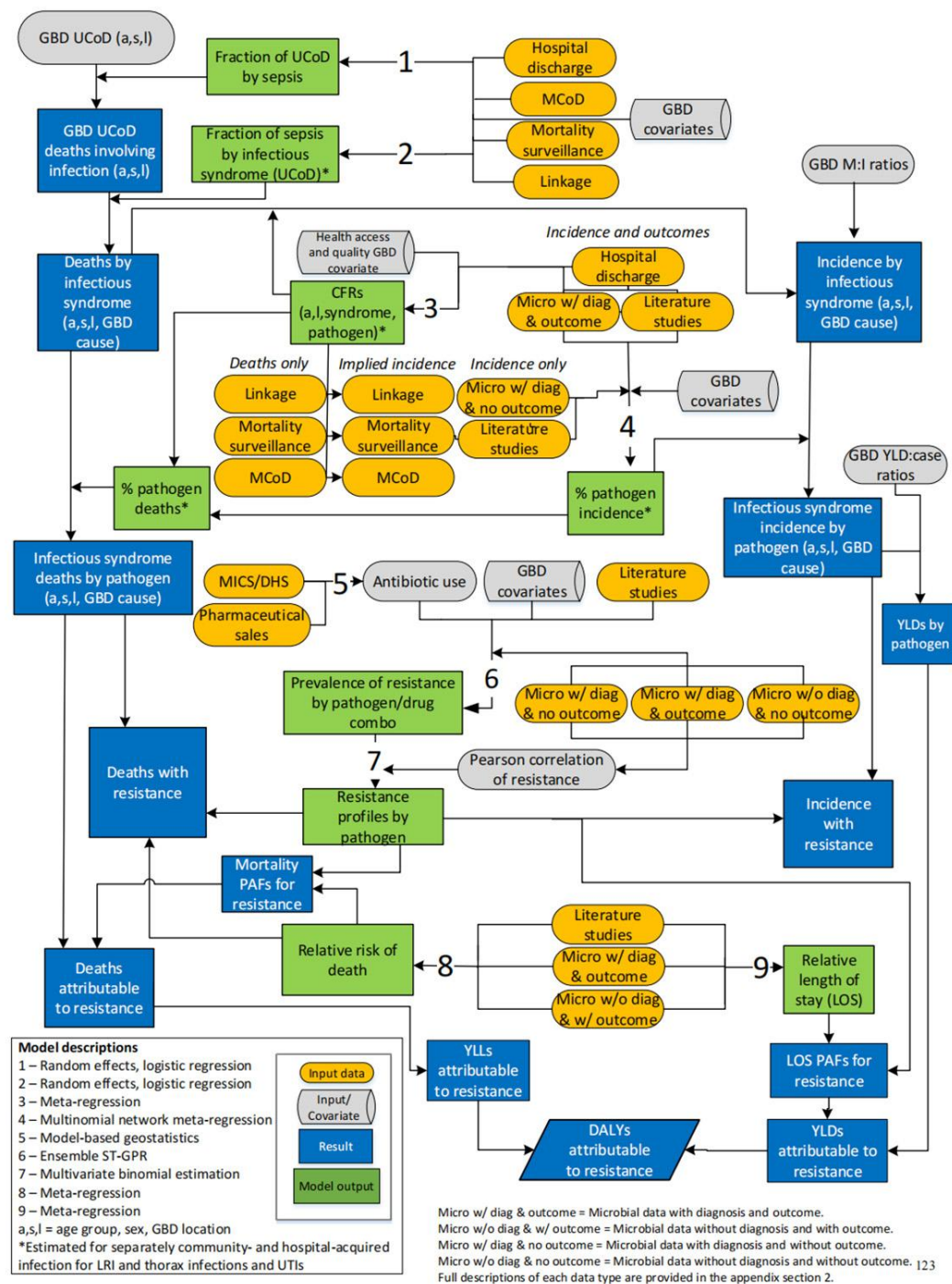
Figure S9. DALYs attributable to bacterial AMR globally among 14 antibiotic classes and 16 pathogens.

Table S1. List of endocarditis mapped to International Classification of Diseases (ICD) codes.

Table S2. List of GBD location hierarchy by region.

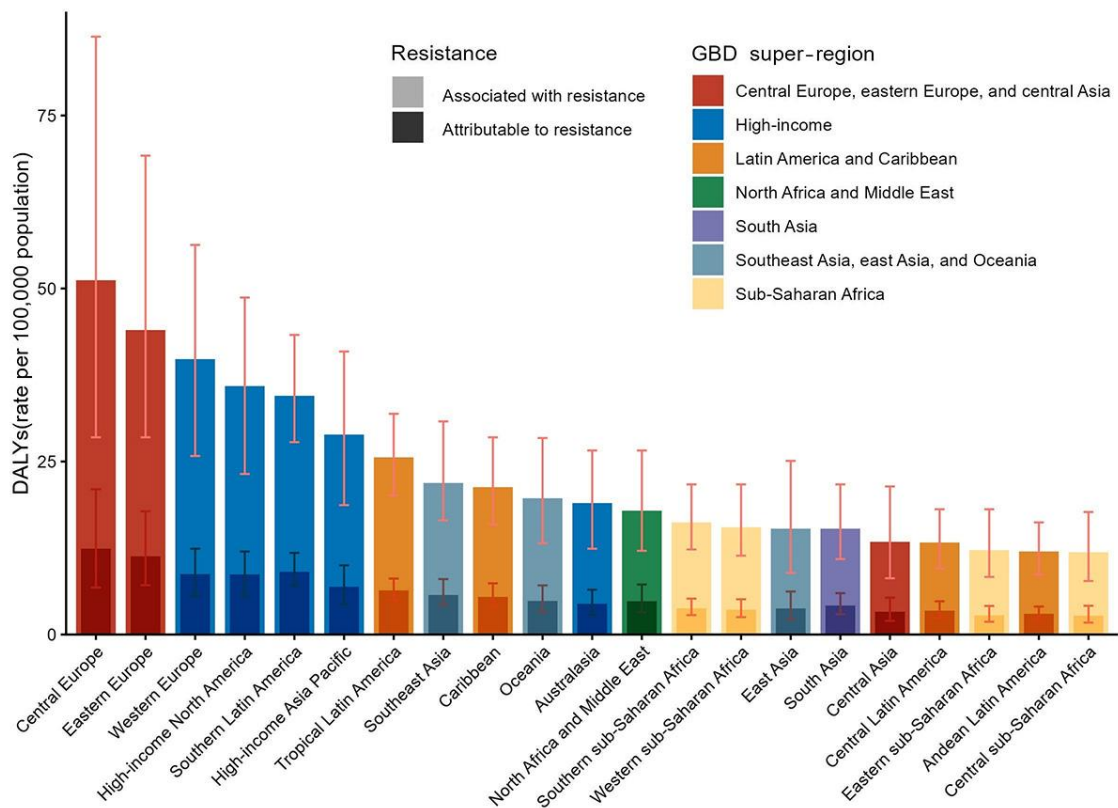
Table S3. All-age count of deaths attributable to bacterial AMR among 14 antibiotic classes and 16 pathogens for 21 GBD regions.

Figure S1. Flowchart of bacterial AMR fatal and non-fatal estimation steps.



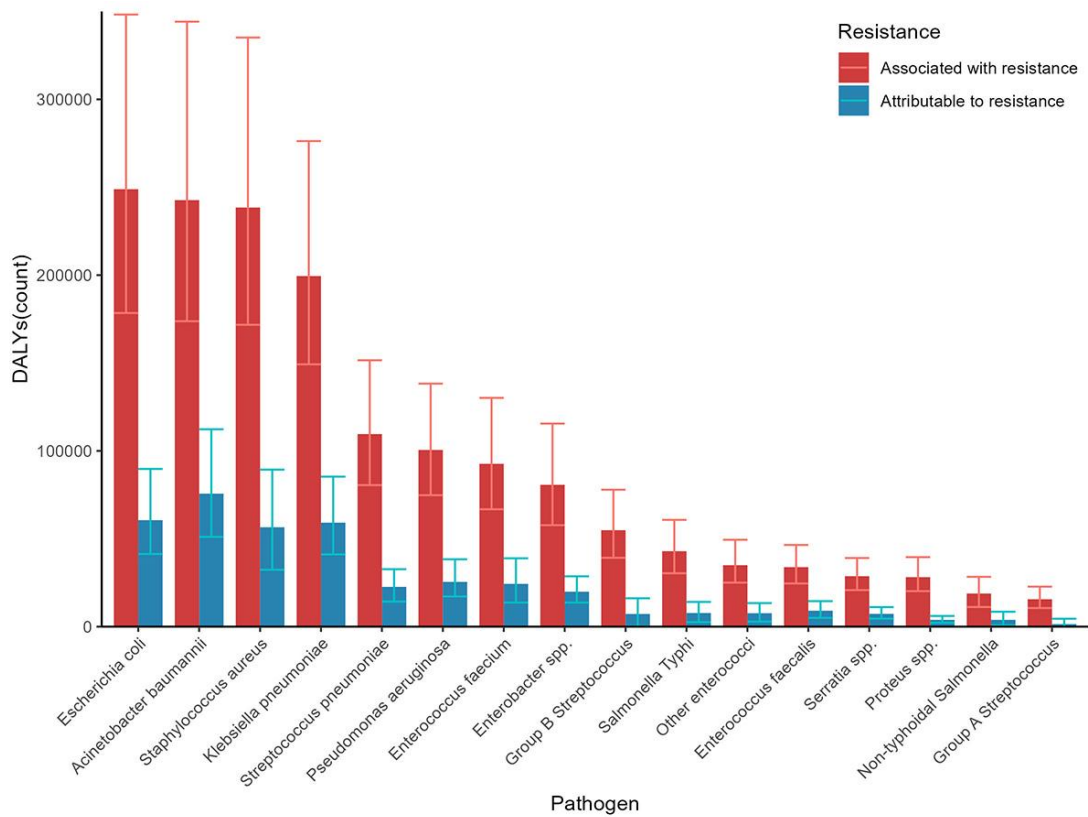
AMR=antimicrobial resistance.

Figure S2. DALYs attributable to and associated with bacterial AMR among 21 GBD regions, 2019.



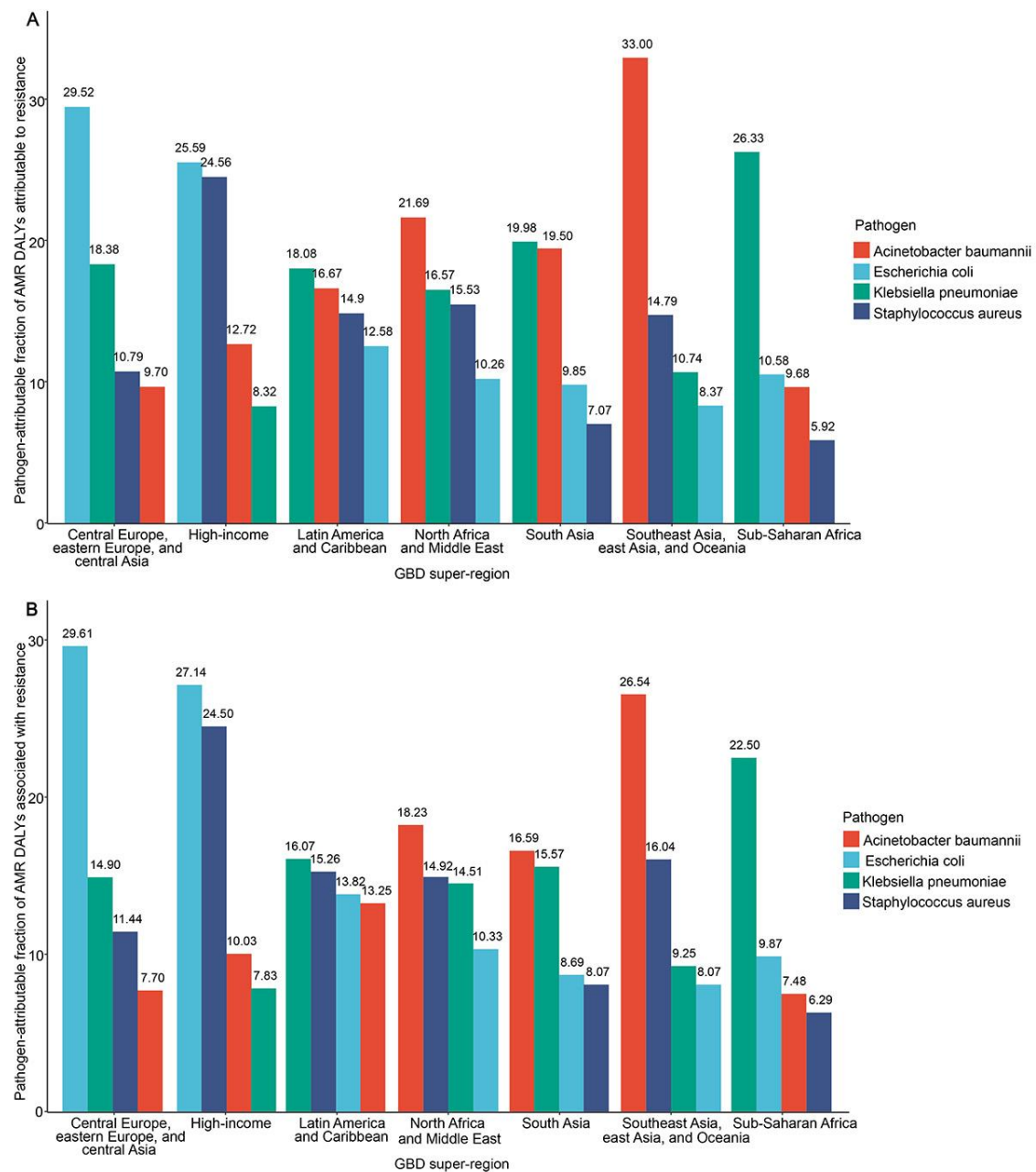
DALYs=disability-adjusted life-years. AMR=antimicrobial resistance. GBD= Global Burden of Diseases, Injuries, and Risk Factors Study. Error bars indicate 95% uncertainty intervals.

Figure S3. DALYs attributable to and associated with bacterial AMR globally among 16 pathogens.



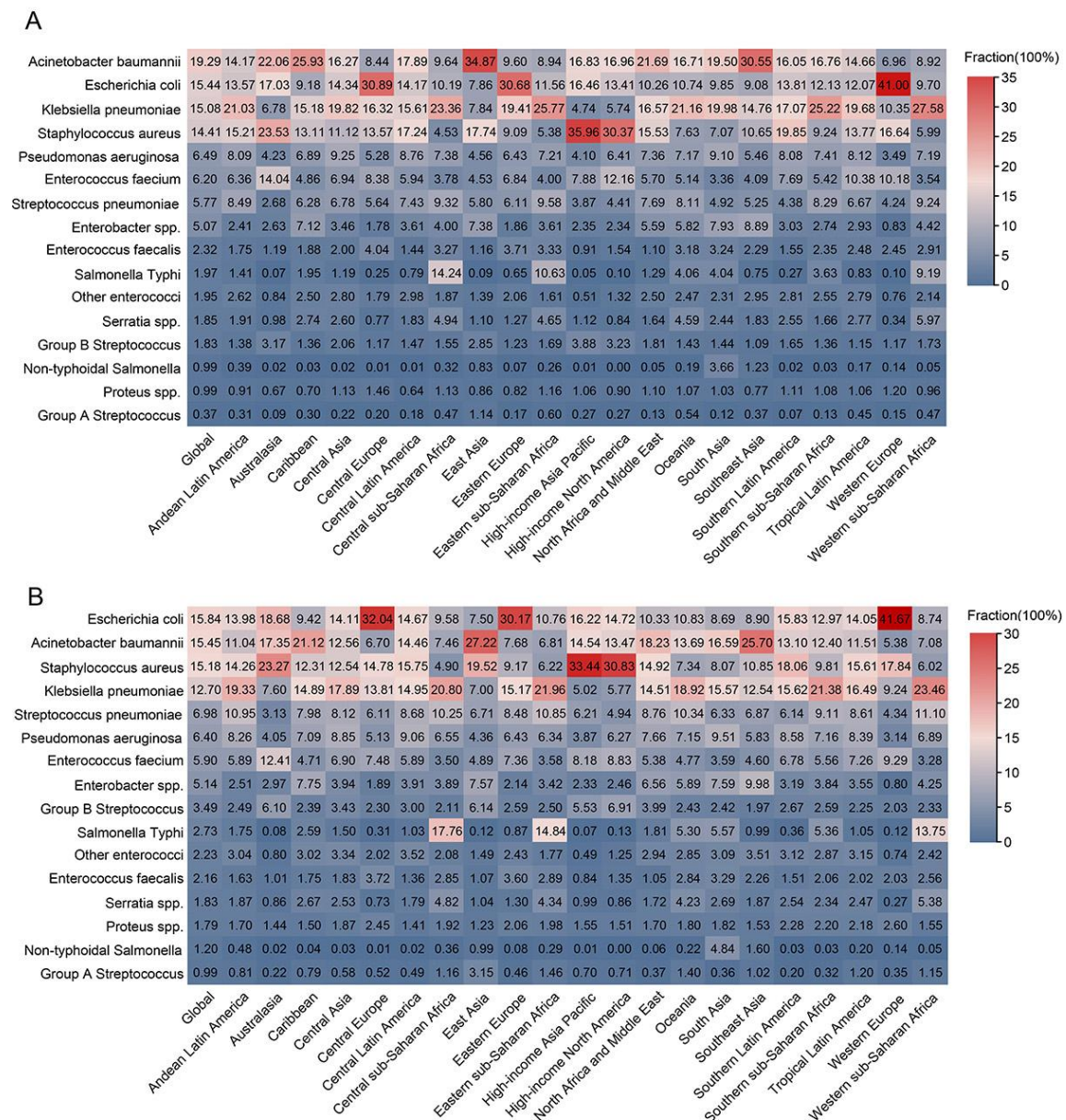
DALYs=disability-adjusted life-years. AMR=antimicrobial resistance. Error bars indicate 95% uncertainty intervals.

Figure S4. Fraction of DALYs attributable to (A) and associated with (B) AMR for the four leading pathogens.



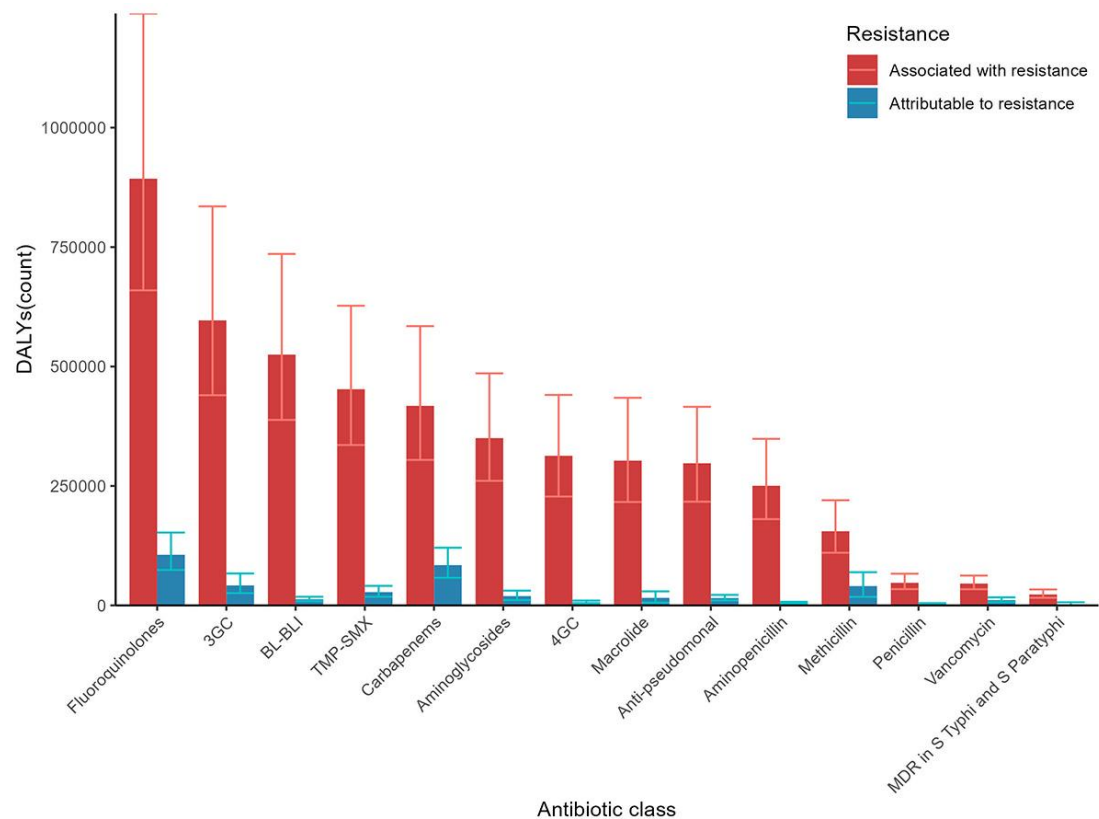
DALYs=disability-adjusted life-years. AMR=antimicrobial resistance. GBD= Global Burden of Diseases, Injuries, and Risk Factors Study.

Figure S5. Fraction of DALYs attributable to (A) and associated with (B) AMR among 21 GBD regions and 16 pathogens.



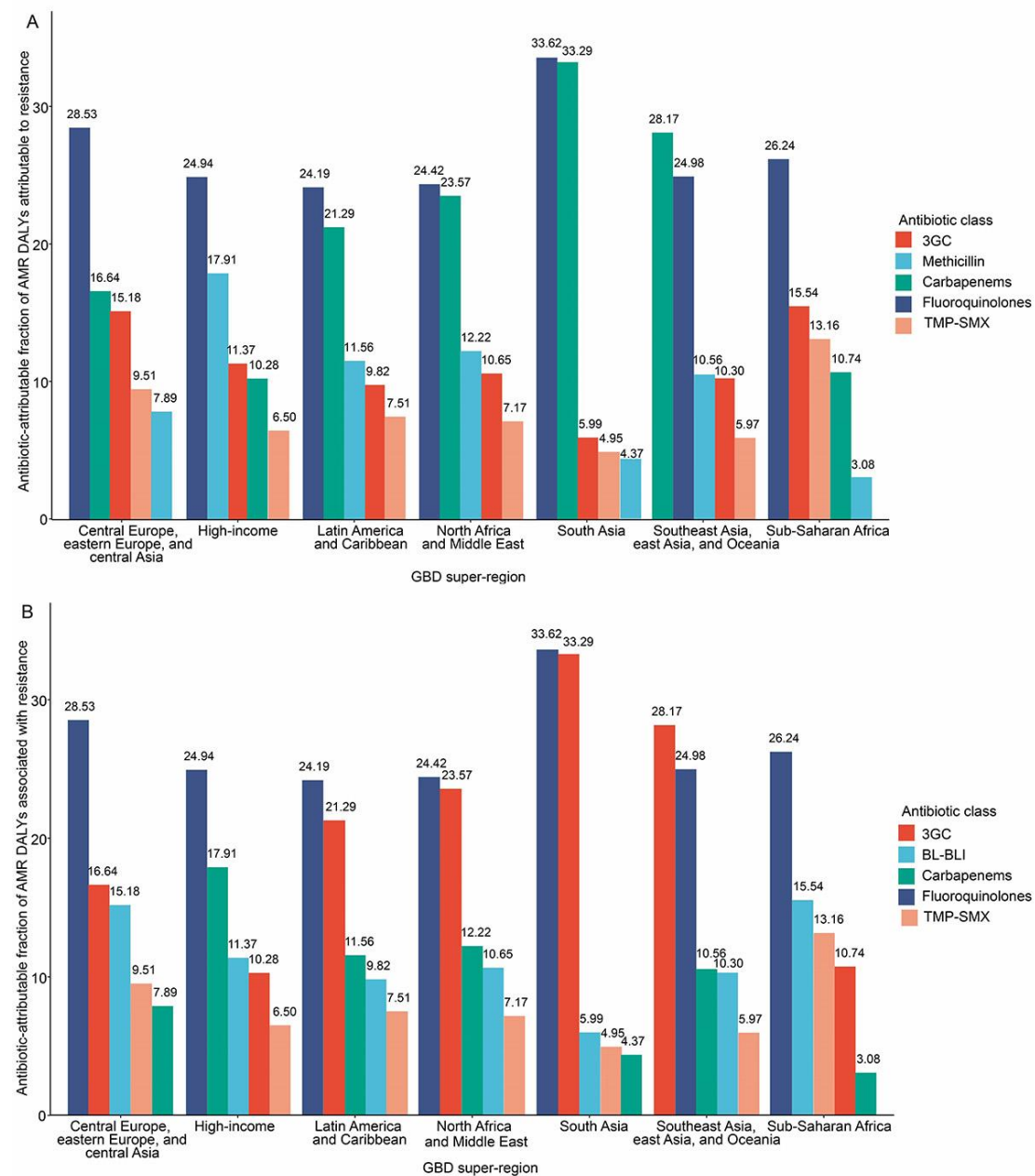
DALYs=disability-adjusted life-years. AMR=antimicrobial resistance. GBD= Global Burden of Diseases, Injuries, and Risk Factors Study.

Figure S6. DALYs attributable to and associated with bacterial AMR globally among 14 antibiotic classes.



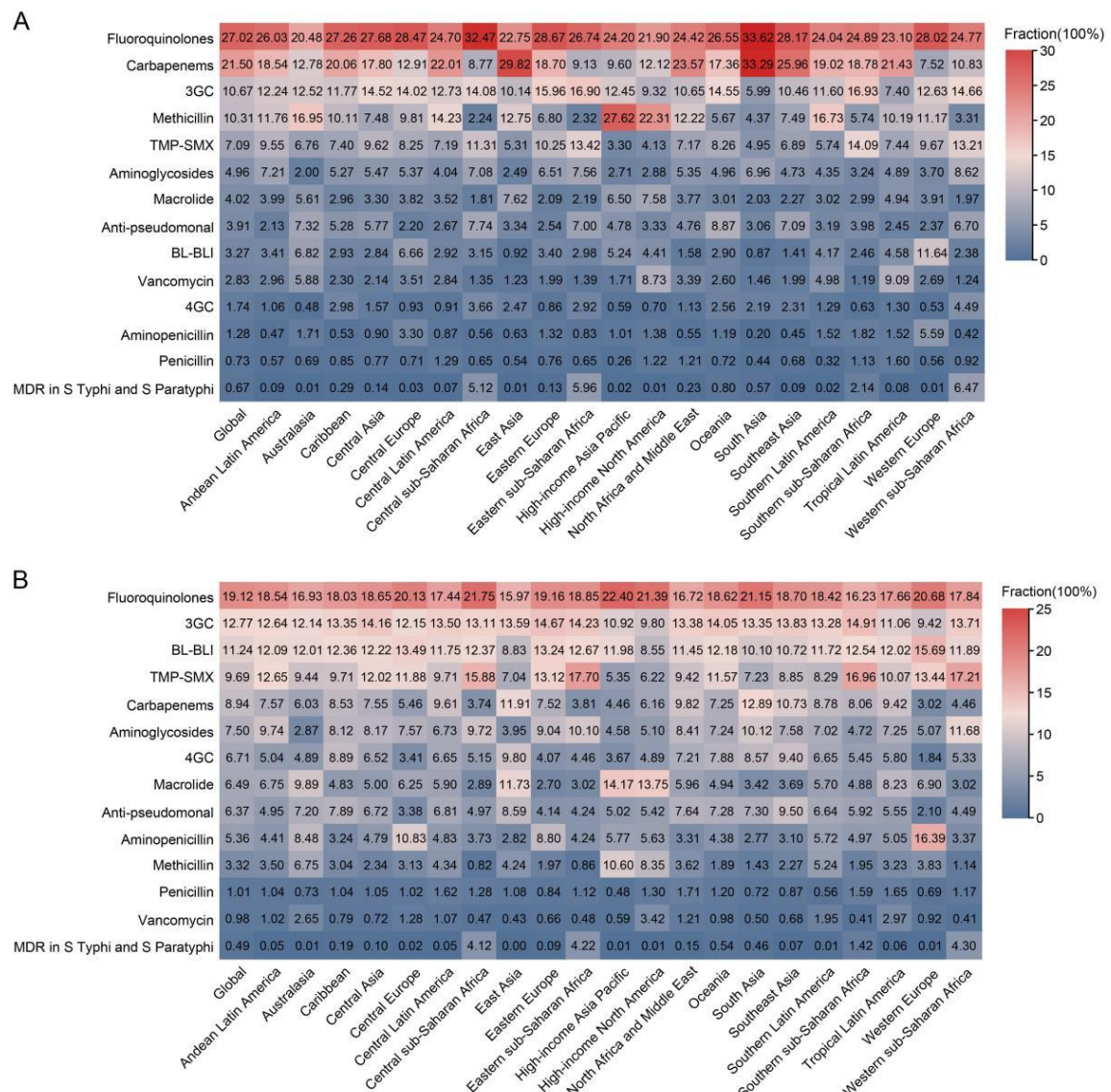
DALYs=disability-adjusted life-years. 3GC=third-generation cephalosporins. 4GC=fourth-generation cephalosporins. Anti-pseudomonal=anti-pseudomonal penicillin or beta-lactamase inhibitors. BL-BLI= β -lactam or β -lactamase inhibitors. MDR in S Typhi and S Paratyphi=multi-drug resistance in S enterica serotype Typhi and Salmonella enterica serotype Paratyphi. TMP-SMX=trimethoprim/sulfamethoxazole. AMR=antimicrobial resistance. Error bars indicate 95% uncertainty intervals.

Figure S7. Fraction of DALYs attributable to (A) and associated with (B) AMR for the five leading antibiotic classes.



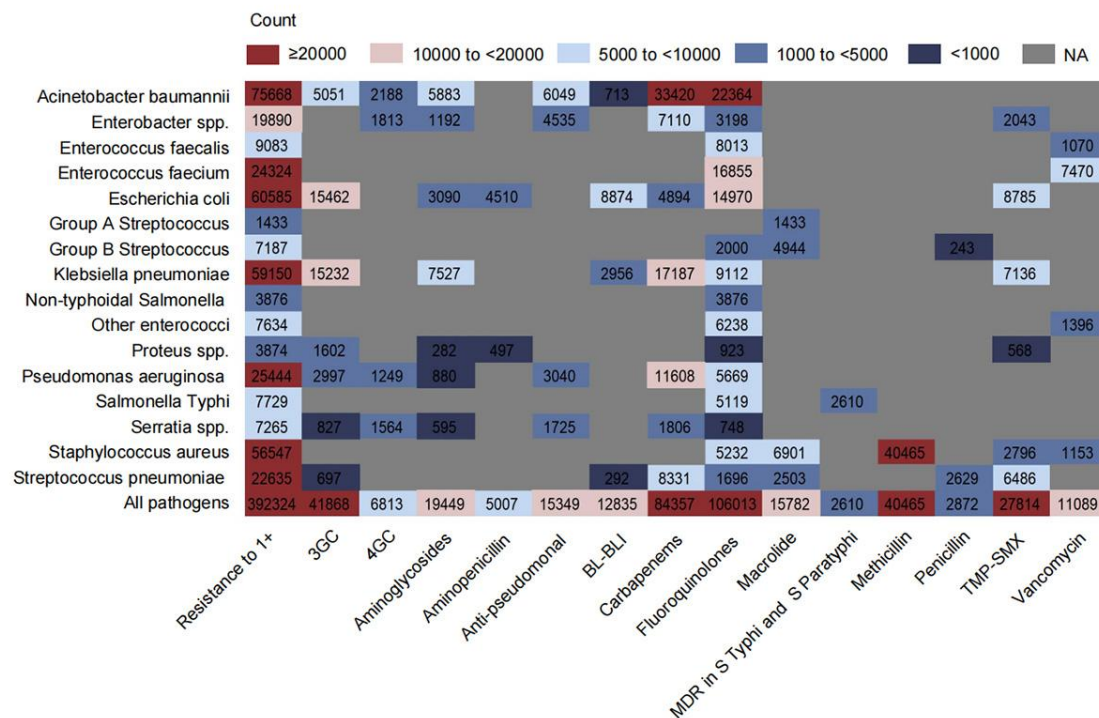
DALYs=disability-adjusted life-years. 3GC=third-generation cephalosporins. BL-BLI= β -lactam or β -lactamase inhibitors. TMP-SMX=trimethoprim/sulfamethoxazole. AMR=antimicrobial resistance. GBD= Global Burden of Diseases, Injuries, and Risk Factors Study.

Figure S8. Fraction of DALYs attributable to (A) and associated with (B) AMR among 21 GBD regions and 14 antibiotic classes.



DALYs=disability-adjusted life-years. 3GC=third-generation cephalosporins. 4GC=fourth-generation cephalosporins. Anti-pseudomonal=anti-pseudomonal penicillin or beta-lactamase inhibitors. BL-BLI= β -lactam or β -lactamase inhibitors. MDR in S Typhi and S Paratyphi=multi-drug resistance in S enterica serotype Typhi and Salmonella enterica serotype Paratyphi. TMP-SMX=trimethoprim/sulfamethoxazole. AMR=antimicrobial resistance. GBD= Global Burden of Diseases, Injuries, and Risk Factors Study.

Figure S9. DALYs attributable to bacterial AMR globally among 14 antibiotic classes and 16 pathogens.



DALYs=disability-adjusted life-years. 3GC=third-generation cephalosporins. 4GC=fourth-generation cephalosporins. Anti-pseudomonal=anti-pseudomonal penicillin or beta-lactamase inhibitors. BL-BLI= β -lactam or β -lactamase inhibitors. MDR in S Typhi and S Paratyphi=multi-drug resistance in S enterica serotype Typhi and Salmonella enterica serotype Paratyphi. TMP-SMX=trimethoprim/sulfamethoxazole. Resistance to 1+=resistance to one or more drugs. AMR=antimicrobial resistance.

Table S1. List of endocarditis mapped to International Classification of Diseases (ICD) codes

Infectious syndrome name and level					Infectious syndrome name and ICD code
Level	L0	L1	L2	L3	ICD Codes for all level
0	Explicit sepsis				A02.1, A20.7, A21.7, A22.7, A26.7, A28.2, A32.7, A40-A41.9, A42.7, A48.8, A50-A50.0, B37.7, I76, O03.0,O03.5, O04.5, O08.0, O23-O23.9, O41.1, O75.3, O85-O86.8, O88.3, O91-O91.2, O98, P36-P37, R65.2
0	Implicit sepsis				A00-A02.0, A02.2-A20.3, A20.8-A21.3, A21.8-A22.2, A22.8-A26.0, A26.8-A28.1, A28.8-A32.1, A32.8-A39.9, A42-A42.2, A42.8-A48.5, A49-A49.9, A50.1-B37.6, B37.8-B99.9, D65-D65.9, D69.5, D70.3, D89.3, E87.2-E87.9, F02.1, F02.4, F07.1, G00-G08.0, G14-G14.6, G21.3, G93.4, H05.0-H05.1, H60.2, H62-H62.3, H65-H68.0, H70-H70.9, H73.0, H75-H75.0, I00, I01-I02.9, I30, I30.1, I33-I33.9, I38-I41.9, I46-I46.9, I80-I82.9, I87.0, I89.1, I95.1-I96.9, I98.0-I98.1, J00-J06.9, J09-J22.9, J31-J32.9, J35-J37.1, J39.0-J39.1, J40-J42.6, J80-J80.9, J85-J85.3, J86-J86.9, J91.0, J95.2-J95.3, J96-J96.9, K04-K05.5, K35-K37.9, K38.3-K38.9, K40-K42.9, K44-K46.9, K50-K52, K52.1-K52.9, K55-K57.9, K61-K61.4, K63.0-K63.1, K65-K65.9, K67-K69, K72-K72.9, K75.0-K75.1, K75.3, K76.3, K77.0, K80-K83.9, K93.0-K93.1, L00-L08.9, L30.3, L88-L89.9, L97-L98.4, M00-M01.8, M09.1, M46.2-M46.5, M49.0-M49.1, M65.0-M65.1, M71.0-M71.1, M72.5-M72.6, M73.0-M73.8, M86-M86.9, M89.6, N00-N01.9, N10-N12.9, N13.6, N15, N15.1-N17.9, N30-N30.9, N34-N34.3, N39.0-N39.2, N41-N41.9, N45-N45.9, N49-N49.9, N70-N77.8, N98.0, O04.0, O05.0, O05.5, O06.0, O06.5, O07.0, O07.5, O98.0-O98.9, P00.2, P22-P23.9, P35-P35.9, P37.0-P39.9, R02-R02.9, R09.2, R19.7, R40.0-R40.4, R55-R55.0, R57-R57.9, R65.0, R83.5, R84.5, R85.5, R86.5, R87.5, T80.2, T81.4, T82.6-T82.7, T83.5-T83.6, T84.5-T84.7, T85.7, T87.4, T88.0, U04.9, U06-U07.2, U82-U89.9, Y62-Y62.9, Y95, Z03.0, Z11.1, Z16-Z16.3, Z21-Z22.9
1		Endocarditis and other cardiac infections			I00, I01-I02.0, I30, I30.1, I33-I33.9, I38-I41.9
2			Endocarditis due to specific bacteria		I00, I01-I02.0
3			Endocarditis due to group a strep		I00, I01-I02.0
2			Endocarditis due to unspecific bacteria		I30, I30.1, I33-I33.9, I38-I41.9

Table S2. List of GBD location hierarchy by region.

GBD super-region	GBD region	Country
Central Europe, eastern Europe, and central Asia	Central Asia	Armenia
		Azerbaijan
		Georgia
		Kazakhstan
		Kyrgyzstan
		Mongolia
		Tajikistan
		Turkmenistan
		Uzbekistan
	Central Europe	Albania
		Bosnia and Herzegovina
		Bulgaria
		Croatia
		Czechia
		Hungary
		Montenegro
		North Macedonia
		Poland
		Romania
		Serbia
		Slovakia
		Slovenia
	Eastern Europe	Belarus
		Estonia
		Latvia
		Lithuania
		Moldova
		Russia
		Ukraine
High income	Australasia	Australia
		New Zealand
	High-income Asia Pacific	Brunei
		Japan
		Singapore
	High-income North America	South Korea
		Canada
		Greenland
		USA
	Southern Latin America	Argentina
		Chile
		Uruguay
	Western Europe	Andorra
		Austria
		Belgium
		Cyprus
		Denmark
		Finland
		France
		Germany

		Greece
		Iceland
		Ireland
		Israel
		Italy
		Luxembourg
		Malta
		Monaco
		Netherlands
		Norway
		Portugal
		San Marino
		Spain
		Sweden
		Switzerland
		UK
Latin America and Caribbean	Andean Latin America	Bolivia
		Ecuador
		Peru
	Caribbean	Antigua and Barbuda
		The Bahamas
		Barbados
		Belize
		Bermuda
		Cuba
		Dominica
		Dominican Republic
		Grenada
		Guyana
		Haiti
		Jamaica
		Puerto Rico
		Saint Kitts and Nevis
		Saint Lucia
		Saint Vincent and the Grenadines
		Suriname
		Trinidad and Tobago
		Virgin Islands
	Central Latin America	Colombia
		Costa Rica
		El Salvador
		Guatemala
		Honduras
		Mexico
		Nicaragua
		Panama
		Venezuela
	Tropical Latin America	Brazil
		Paraguay
North Africa and Middle East	North Africa and Middle East	Afghanistan
		Algeria
		Bahrain

		Egypt
		Iran
		Iraq
		Jordan
		Kuwait
		Lebanon
		Libya
		Morocco
		Oman
		Palestine
		Qatar
		Saudi Arabia
		Sudan
		Syria
		Tunisia
		Turkey
		United Arab Emirates
		Yemen
South Asia	South Asia	Bangladesh
		Bhutan
		India
		Nepal
		Pakistan
Southeast Asia, east Asia, and Oceania	East Asia	China
		North Korea
		Taiwan (province of China)
	Oceania	American Samoa
		Cook Islands
		Fiji
		Guam
		Kiribati
		Marshall Islands
		Federated States of Micronesia
		Nauru
		Niue
		Northern Mariana Islands
		Palau
		Papua New Guinea
		Samoa
		Solomon Islands
		Tokelau
		Tonga
		Tuvalu
		Vanuatu
	Southeast Asia	Cambodia
		Indonesia
		Laos
		Malaysia
		Maldives
		Mauritius
		Myanmar

		Philippines
		Seychelles
		Sri Lanka
		Thailand
		Timor-Leste
		Vietnam
Sub-Saharan Africa	Central sub-Saharan Africa	Angola
		Central African Republic
		Congo (Brazzaville)
		DR Congo
		Equatorial Guinea
		Gabon
	Eastern Sub-Saharan Africa	Burundi
		Comoros
		Djibouti
		Eritrea
		Ethiopia
		Kenya
		Madagascar
		Malawi
		Mozambique
		Rwanda
		Somalia
		South Sudan
		Uganda
		Tanzania
		Zambia
	Southern sub-Saharan Africa	Botswana
		Eswatini
		Lesotho
		Namibia
		South Africa
		Zimbabwe
	Western sub-Saharan Africa	Benin
		Burkina Faso
		Cape Verde
		Cameroon
		Chad
		Côte d'Ivoire
		The Gambia
		Ghana
		Guinea
		Guinea-Bissau
		Liberia
		Mali
		Mauritania
		Niger
		Nigeria
		São Tomé and Príncipe
		Senegal
		Sierra Leone
		Togo

Table S3. All-age count of deaths attributable to bacterial AMR among 14 antibiotic classes and 16 pathogens for 21 GBD regions.

Pathogen-drug combinations	Global	GBD regions																				
		Andean Latin America	Australasia	Caribbean	Central Asia	Central Europe	Central Latin America	Central sub-Saharan Africa	East Asia	Eastern Europe	Eastern sub-Saharan Africa	High-income Asia Pacific	High-income North America	North Africa and Middle East	Oceania	South Asia	Southeast Asia	Southern Latin America	Southern sub-Saharan Africa	Tropical Latin America	Western Europe	Western sub-Saharan Africa
All pathogens-3GC	1864.44	7.95	9.74	10.52	15.52	114.29	39.43	15.04	242.59	160.53	52.54	124.06	172.34	104.13	2.47	165.50	140.81	38.19	17.16	39.93	341.75	50.06
All pathogens-4GC	241.96	0.61	0.36	2.25	1.58	6.84	2.56	3.59	55.25	8.04	8.14	5.58	12.26	10.09	0.40	55.59	29.86	3.80	0.54	6.31	13.60	14.75
All pathogens-Aminoglycosides	766.83	4.61	1.53	4.39	5.72	42.97	11.78	7.38	56.02	62.76	22.97	25.33	51.82	49.39	0.82	187.14	61.50	13.82	2.97	25.30	99.64	29.00
All pathogens-Aminopenicillin	299.92	0.34	1.40	0.56	1.03	28.14	3.04	0.68	16.30	14.52	3.00	10.39	27.06	6.47	0.23	6.06	6.82	5.36	2.11	9.01	155.68	1.74
All pathogens-Anti-pseudomonal	584.53	1.26	5.44	4.08	5.86	16.28	7.63	7.74	70.18	23.61	20.33	45.55	56.63	41.29	1.37	77.70	90.23	9.59	3.58	12.12	61.49	22.69
All pathogens-BL-BLI	717.60	2.33	5.48	2.65	3.06	55.43	9.47	3.37	22.93	35.71	9.52	53.16	84.59	17.27	0.52	23.65	19.33	14.24	2.62	25.69	318.20	8.44
All pathogens-Carbapenems	3242.13	10.96	9.54	17.45	18.48	98.60	63.25	8.87	662.20	171.40	26.90	84.42	211.55	210.51	2.87	892.44	335.11	59.14	17.98	108.41	196.29	35.62
All pathogens-Fluoroquinolones	4354.30	15.99	14.99	22.89	28.30	222.55	72.90	30.32	512.76	270.11	76.17	227.20	387.70	223.48	4.27	851.96	365.11	74.69	23.82	118.69	728.30	82.16
All pathogens-Macrolide	627.97	2.11	3.68	2.36	2.95	26.83	9.07	1.52	146.33	16.78	5.36	57.62	117.54	30.74	0.43	46.40	25.16	8.55	2.55	22.37	93.84	5.68
All pathogens-MDR in S Typhi and Paratyphi	46.39	0.03	0.00	0.14	0.10	0.18	0.12	3.61	0.09	0.82	12.34	0.11	0.10	1.18	0.09	8.99	0.74	0.04	1.23	0.27	0.26	15.94
All pathogens-Methicillin	1877.47	7.17	12.28	9.28	7.55	73.93	41.67	2.34	285.68	57.62	7.09	260.52	382.00	119.48	1.01	115.14	93.35	50.10	5.71	51.31	282.49	11.62
All pathogens-Penicillin	101.50	0.28	0.45	0.56	0.69	4.88	3.10	0.58	10.38	6.27	1.70	2.22	18.93	9.40	0.10	9.82	7.37	0.86	0.92	6.96	13.38	2.64
All pathogens-Resistance to 1+	16365.21	61.29	74.28	85.26	102.69	782.39	294.04	98.09	2227.28	945.03	290.49	942.00	1744.69	919.65	16.37	2610.37	1289.59	311.33	96.25	511.41	2634.68	328.17
All pathogens-TMP-SMX	1154.80	5.84	5.22	6.08	9.73	65.92	21.61	11.65	117.97	97.89	40.25	32.32	75.95	64.45	1.35	130.90	87.77	18.27	13.93	39.40	264.95	43.45
All pathogens-Vancomycin	485.37	1.80	4.19	2.06	2.12	25.54	8.41	1.39	28.58	18.97	4.19	13.49	146.23	31.77	0.44	39.06	26.42	14.69	1.13	45.64	64.83	4.39
Acinetobacter baumannii-3GC	264.96	0.21	4.92	0.93	0.17	3.10	1.92	0.21	50.95	1.12	1.62	47.93	69.33	2.02	0.07	10.18	13.53	1.61	0.56	3.25	51.11	0.17
Acinetobacter baumannii-4GC	92.49	0.08	0.26	0.82	0.03	1.25	0.43	0.00	46.74	0.76	0.18	3.48	5.74	0.85	0.08	7.64	14.07	0.39	0.02	1.04	8.63	0.00
Acinetobacter baumannii-Aminoglycosides	224.10	0.80	0.43	1.91	1.62	5.56	5.18	0.55	36.60	10.42	1.45	9.92	18.28	21.48	0.18	52.30	34.44	4.31	1.10	6.68	8.31	2.64
Acinetobacter baumannii-Anti-pseudomonal	234.49	0.23	3.87	1.86	2.14	5.49	1.09	4.16	10.80	7.22	10.54	19.59	22.87	15.15	0.86	23.93	53.30	1.01	2.31	2.22	32.54	13.42
Acinetobacter baumannii-BL-BLI	47.00	0.00	0.09	0.17	0.01	3.50	0.12	0.00	0.75	0.05	0.18	20.53	3.09	0.46	0.02	0.37	1.43	0.01	0.00	0.67	15.55	0.00
Acinetobacter baumannii-Carbapenems	1319.89	4.18	4.99	9.79	6.56	25.88	25.14	2.23	450.33	40.08	5.34	42.97	109.20	82.71	0.81	232.11	165.36	25.14	6.05	33.52	39.85	7.68
Acinetobacter baumannii-Fluoroquinolones	865.05	3.02	2.19	7.62	5.94	22.18	18.22	2.58	192.40	34.79	6.67	19.42	77.00	75.37	0.73	190.70	119.31	18.21	5.96	26.60	29.61	6.65

Acinetobacter baumannii-Resistance to 1+	3047.98	8.51	16.75	23.10	16.46	66.97	52.08	9.74	788.57	94.45	25.97	163.83	305.49	198.04	2.75	517.23	401.44	50.67	15.99	73.98	185.60	30.56
Enterobacter spp.-4GC	57.30	0.24	0.05	0.92	0.42	1.48	0.91	0.90	4.30	2.74	2.79	0.36	0.84	3.25	0.15	19.71	9.85	1.01	0.10	2.35	1.86	3.09
Enterobacter spp.-Aminoglycosides	37.72	0.05	0.05	0.23	0.19	0.68	0.45	0.36	4.90	0.50	0.95	0.31	1.68	2.50	0.06	15.49	5.97	0.21	0.08	0.97	0.41	1.70
Enterobacter spp.-Anti-pseudomonal	163.48	0.30	0.68	0.89	1.31	4.33	2.51	0.54	40.24	7.21	1.38	8.84	16.10	14.19	0.18	28.50	20.83	2.27	0.17	2.94	8.27	1.79
Enterobacter spp.-Carbapenems	244.57	0.37	0.51	1.20	0.55	2.30	3.58	0.62	59.35	2.80	1.11	7.55	10.58	12.36	0.23	92.31	35.33	3.15	0.74	3.02	4.95	1.95
Enterobacter spp.-Fluoroquinolones	105.92	0.22	0.14	1.43	0.34	1.90	1.11	0.80	24.66	1.42	2.21	1.53	4.21	6.98	0.17	31.88	19.21	1.01	0.25	1.04	2.08	3.37
Enterobacter spp.-Resistance to 1+	676.61	1.32	1.73	5.40	3.33	12.33	9.78	3.80	150.03	16.65	9.83	19.56	36.37	44.70	0.89	195.04	108.07	8.39	2.39	13.70	19.37	14.01
Enterobacter spp.-TMP-SMX	67.63	0.14	0.31	0.73	0.52	1.64	1.23	0.58	16.58	1.98	1.38	0.97	2.96	5.42	0.10	7.16	16.88	0.74	1.05	3.38	1.79	2.12
Enterococcus faecalis-Fluoroquinolones	340.80	1.01	0.73	1.33	1.96	29.98	3.49	3.21	24.50	33.05	9.93	8.02	22.62	7.91	0.44	81.19	28.73	4.39	2.14	8.17	58.45	9.52
Enterococcus faecalis-Resistance to 1+	386.47	1.15	0.94	1.61	2.19	31.94	4.28	3.49	27.60	35.88	10.58	8.63	28.66	10.13	0.54	91.08	31.60	5.12	2.39	13.48	64.97	10.17
Enterococcus faecalis-	45.67	0.14	0.20	0.28	0.23	1.96	0.79	0.29	3.10	2.84	0.65	0.61	6.04	2.22	0.09	9.90	2.87	0.72	0.25	5.31	6.52	0.65
Enterococcus faecium-Fluoroquinolones	753.05	2.53	6.80	2.91	5.39	40.02	12.09	2.95	88.96	49.50	8.97	64.61	81.23	32.49	0.58	61.98	44.42	12.03	4.54	14.97	206.27	9.82
Enterococcus faecium-Resistance to 1+	1080.54	3.80	9.92	4.21	6.84	60.18	17.08	3.86	99.83	60.17	11.95	71.08	202.06	53.22	0.84	85.32	50.46	22.37	5.04	51.40	248.12	12.76
Enterococcus faecium-Vancomycin	327.49	1.27	3.11	1.30	1.44	20.16	4.99	0.90	10.87	10.68	2.98	6.47	120.83	20.73	0.27	23.34	6.03	10.34	0.49	36.43	41.85	2.94
Escherichia coli-3GC	774.61	2.43	2.87	2.73	4.30	61.32	16.00	2.93	78.19	114.09	10.81	48.13	47.62	36.14	0.52	72.39	44.79	13.40	3.10	11.16	190.44	11.25
Escherichia coli-Aminoglycosides	162.97	1.02	0.55	0.42	1.09	15.17	1.10	0.93	4.60	18.86	2.55	10.29	15.41	5.59	0.10	17.58	5.98	1.43	0.23	1.99	53.96	4.10
Escherichia coli-Aminopenicillin	274.55	0.24	1.27	0.44	0.87	26.53	2.64	0.51	14.58	12.44	2.52	9.60	25.75	5.54	0.21	3.08	5.11	4.69	1.89	7.80	147.55	1.32
Escherichia coli-BL-BLJ	527.62	1.46	4.46	1.45	2.16	44.66	5.51	1.45	17.09	29.93	4.90	23.37	64.40	10.41	0.29	9.83	11.75	10.99	1.86	16.30	261.66	3.74
Escherichia coli-Carbapenems	219.56	0.45	0.87	0.56	2.20	7.85	1.86	1.13	7.83	23.67	3.97	3.70	5.52	14.17	0.21	89.75	12.51	2.27	0.55	3.01	34.21	3.24
Escherichia coli-Fluoroquinolones	798.12	2.62	1.94	2.31	3.56	67.78	13.37	2.72	57.98	70.48	7.69	56.87	70.73	26.53	0.43	85.67	35.72	9.06	2.39	14.57	256.73	8.98
Escherichia coli-Resistance to 1+	3233.62	10.06	13.99	9.36	16.98	260.95	48.68	12.32	205.21	316.16	41.67	166.14	264.12	115.41	2.09	303.93	133.75	48.34	13.93	71.80	1137.88	40.86
Escherichia coli-TMP-SMX	476.18	1.84	2.03	1.43	2.79	37.65	8.21	2.65	24.94	46.69	9.23	14.18	34.70	17.03	0.34	25.64	17.90	6.50	3.90	16.97	193.33	8.25
Group A Streptococcus-Macrolide	33.01	0.11	0.04	0.15	0.14	0.96	0.31	0.30	14.38	0.99	1.15	1.54	2.52	0.68	0.06	1.88	2.95	0.12	0.07	1.34	2.25	1.07

Group A Streptococcus- Resistance to 1+	33.01	0.11	0.04	0.15	0.14	0.96	0.31	0.30	14.38	0.99	1.15	1.54	2.52	0.68	0.06	1.88	2.95	0.12	0.07	1.34	2.25	1.07
Group B Streptococcus- Fluoroquinolones	73.29	0.20	0.29	0.33	0.61	1.21	0.71	0.75	5.68	1.22	1.97	21.52	3.69	2.38	0.07	17.55	3.01	2.52	0.15	0.97	5.25	3.20
Group B Streptococcus- Macrolide	179.01	0.42	1.55	0.57	0.97	6.21	2.60	0.51	46.32	7.60	2.12	10.68	40.87	11.26	0.12	13.24	6.60	1.57	0.84	3.63	19.59	1.70
Group B Streptococcus- Penicillin	8.68	0.04	0.07	0.06	0.14	0.25	0.15	0.07	0.87	0.45	0.11	1.02	1.09	0.29	0.01	0.66	1.73	0.12	0.04	0.21	1.18	0.11
Group B Streptococcus- Resistance to 1+	260.98	0.66	1.91	0.96	1.72	7.66	3.45	1.33	52.87	9.27	4.20	33.22	45.65	13.93	0.20	31.46	11.35	4.21	1.04	4.80	26.02	5.01
Klebsiella pneumoniae-3GC	583.89	4.16	1.16	5.46	8.88	39.52	17.83	9.75	70.86	32.58	30.10	16.52	29.61	45.49	1.58	48.57	62.87	18.75	12.44	17.74	79.02	31.15
Klebsiella pneumoniae- Aminoglycosides	280.20	2.42	0.44	1.46	2.24	19.23	3.84	4.66	7.32	27.12	15.25	3.63	12.13	15.56	0.38	83.04	10.71	6.34	1.01	13.81	33.18	16.43
Klebsiella pneumoniae-BL- BLI	133.92	0.82	0.89	0.93	0.82	6.98	3.69	1.37	3.43	5.44	4.07	9.17	16.78	6.09	0.14	12.66	5.23	2.89	0.67	7.98	39.86	4.02
Klebsiella pneumoniae- Carbapenems	650.68	1.80	0.87	1.01	2.80	24.26	8.45	0.81	42.61	64.63	5.24	2.95	16.24	44.43	0.38	276.17	62.04	11.09	3.63	34.92	38.31	7.92
Klebsiella pneumoniae- Fluoroquinolones	345.29	1.86	0.45	1.87	3.00	22.28	5.92	3.84	24.72	29.81	11.41	4.17	14.57	21.66	0.61	79.22	29.52	9.43	2.59	17.77	45.70	14.91
Klebsiella pneumoniae- Resistance to 1+	2270.54	13.00	5.20	12.58	20.88	127.17	46.17	24.19	181.54	181.28	77.83	43.51	104.33	151.03	3.48	543.57	191.15	54.74	25.12	102.87	272.89	88.09
Klebsiella pneumoniae-TMP- SMX	276.56	1.94	1.39	1.84	3.14	14.90	6.43	3.76	32.59	21.69	11.76	7.07	15.01	17.80	0.39	43.92	20.77	6.24	4.77	10.65	36.83	13.67
Non-typhoidal Salmonella- Fluoroquinolones	117.79	0.19	0.01	0.02	0.02	0.06	0.03	0.27	15.18	0.56	0.65	0.05	0.03	0.33	0.03	82.26	14.05	0.06	0.02	0.71	3.08	0.12
Non-typhoidal Salmonella- Resistance to 1+	117.79	0.19	0.01	0.02	0.02	0.06	0.03	0.27	15.18	0.56	0.65	0.05	0.03	0.33	0.03	82.26	14.05	0.06	0.02	0.71	3.08	0.12
Other enterococci- Fluoroquinolones	240.97	1.43	0.33	1.92	2.80	12.25	7.50	1.87	22.74	17.42	4.79	2.44	10.19	17.49	0.37	61.82	33.33	6.19	2.43	12.06	14.77	6.87
Other enterococci- Resistance to 1+	301.87	1.68	0.64	2.18	3.00	13.74	9.10	2.00	32.06	20.23	5.08	4.86	23.59	24.11	0.43	65.16	40.76	8.99	2.66	14.81	19.63	7.20
Other enterococci- Vancomycin	60.89	0.26	0.30	0.26	0.21	1.49	1.61	0.13	9.32	2.81	0.29	2.41	13.39	6.62	0.05	3.34	7.44	2.80	0.23	2.75	4.86	0.33
Proteus spp.-3GC	77.23	0.30	0.31	0.26	0.65	6.39	0.93	0.50	12.25	1.93	1.15	6.59	5.48	5.78	0.12	10.92	5.33	1.82	0.57	2.54	11.84	1.56
Proteus spp.- Aminoglycosides	12.23	0.03	0.02	0.03	0.10	0.43	0.07	0.12	0.57	1.89	0.50	0.14	1.19	0.99	0.01	3.52	0.55	0.12	0.02	0.14	1.45	0.34
Proteus spp.- Aminopenicillin	25.36	0.10	0.13	0.12	0.16	1.61	0.40	0.17	1.71	2.08	0.48	0.80	1.31	0.93	0.02	2.98	1.71	0.67	0.22	1.21	8.12	0.42
Proteus spp.- Fluoroquinolones	44.41	0.15	0.04	0.15	0.21	2.42	0.36	0.30	5.87	1.56	1.08	1.70	7.22	2.12	0.03	11.28	1.80	0.89	0.08	1.60	4.67	0.87

Proteus spp.- Resistance to 1+	186.98	0.67	0.55	0.70	1.31	12.25	2.19	1.38	22.19	8.82	4.21	10.67	17.84	11.55	0.21	32.14	11.49	3.91	1.26	6.31	33.32	4.00
Proteus spp.-TMP- SMX	27.74	0.09	0.05	0.14	0.19	1.39	0.43	0.30	1.78	1.36	1.01	1.43	2.64	1.73	0.03	3.44	2.10	0.41	0.37	0.82	7.24	0.80
Pseudomonas aeruginosa-3GC	110.90	0.31	0.26	0.49	1.10	2.15	1.45	1.17	26.27	3.33	6.88	2.21	17.07	12.00	0.07	18.71	7.16	1.31	0.25	2.20	3.33	3.17
Pseudomonas aeruginosa-4GC	46.95	0.14	0.03	0.14	0.43	1.50	0.68	0.34	2.21	1.87	1.10	1.64	5.41	3.12	0.05	18.74	3.36	0.96	0.23	1.07	2.62	1.29
Pseudomonas aeruginosa- Aminoglycosides	31.73	0.19	0.04	0.22	0.28	1.58	0.80	0.25	0.99	2.65	0.71	0.89	2.33	2.37	0.04	10.13	2.57	0.85	0.08	1.03	2.12	1.61
Pseudomonas aeruginosa-Anti- pseudomonal	125.72	0.49	0.81	1.01	1.77	5.71	3.11	2.26	10.73	6.30	4.47	13.30	12.79	8.66	0.24	9.39	11.26	3.73	0.91	4.55	19.02	5.25
Pseudomonas aeruginosa- Carbapenems	455.30	2.57	1.43	2.95	3.51	18.93	14.43	2.08	46.05	28.47	4.00	11.89	40.98	26.14	0.56	132.55	34.30	11.67	4.07	20.25	41.22	7.24
Pseudomonas aeruginosa- Fluoroquinolones	222.75	1.25	0.55	0.95	2.26	10.50	5.37	1.41	17.03	15.98	4.25	7.36	32.98	14.51	0.22	48.50	11.69	6.46	1.46	12.43	21.21	6.36
Pseudomonas aeruginosa- Resistance to 1+	993.35	4.95	3.12	5.75	9.35	40.37	25.84	7.51	103.28	58.60	21.41	37.28	111.57	66.79	1.18	238.02	70.35	24.98	7.00	41.54	89.52	24.92
Salmonella Typhi- Fluoroquinolones	105.56	0.50	0.03	0.79	0.71	1.14	1.29	6.39	1.25	3.10	9.70	0.24	1.02	5.68	0.38	56.14	5.11	0.51	0.88	2.49	1.59	6.65
Salmonella Typhi- MDR in S Typhi and Paratyphi	46.39	0.03	0.00	0.14	0.10	0.18	0.12	3.61	0.09	0.82	12.34	0.11	0.10	1.18	0.09	8.99	0.74	0.04	1.23	0.27	0.26	15.94
Salmonella Typhi- Resistance to 1+	151.95	0.53	0.03	0.92	0.80	1.31	1.41	10.00	1.34	3.92	22.05	0.36	1.12	6.86	0.47	65.13	5.85	0.55	2.10	2.76	1.85	22.59
Serratia spp.-3GC	30.11	0.32	0.12	0.41	0.37	0.46	1.08	0.28	3.82	1.25	1.29	2.43	1.98	2.23	0.08	1.61	3.35	1.24	0.09	2.45	3.48	1.79
Serratia spp.-4GC	45.23	0.15	0.02	0.37	0.69	2.61	0.55	2.34	2.00	2.67	4.07	0.10	0.26	2.88	0.12	9.51	2.58	1.43	0.18	1.86	0.48	10.37
Serratia spp.- Aminoglycosides	17.88	0.09	0.01	0.12	0.20	0.32	0.35	0.51	1.03	1.32	1.56	0.15	0.81	0.91	0.05	5.09	1.28	0.57	0.44	0.67	0.22	2.19
Serratia spp.-Anti- pseudomonal	60.84	0.25	0.07	0.31	0.65	0.75	0.93	0.78	8.42	2.87	3.93	3.82	4.87	3.29	0.09	15.88	4.84	2.58	0.19	2.41	1.66	2.24
Serratia spp.- Carbapenems	62.94	0.21	0.32	0.62	0.48	0.96	1.86	0.54	5.53	2.63	0.88	2.46	3.00	3.59	0.33	23.01	7.46	0.87	0.33	5.17	1.49	1.22
Serratia spp.- Fluoroquinolones	24.76	0.08	0.11	0.17	0.19	0.33	0.43	0.44	2.46	0.25	1.50	0.87	2.55	1.32	0.06	6.70	2.85	0.70	0.22	0.89	0.73	1.89
Serratia spp.- Resistance to 1+	241.76	1.10	0.67	2.00	2.58	5.43	5.21	4.90	23.25	10.99	13.24	9.84	13.47	14.22	0.71	61.79	22.36	7.39	1.44	13.45	8.05	19.71
Staphylococcus aureus- Fluoroquinolones	251.85	0.86	1.23	0.76	1.18	8.36	2.52	0.37	26.90	9.46	1.23	37.18	56.01	6.58	0.10	26.27	13.90	2.87	0.51	3.61	51.20	0.72
Staphylococcus aureus-Macrolide	323.25	0.97	1.93	1.10	1.49	15.71	4.30	0.33	66.10	6.11	1.48	34.58	65.71	13.17	0.13	16.79	9.78	4.99	1.12	12.22	63.43	1.77
Staphylococcus aureus-Methicillin	1877.47	7.17	12.28	9.28	7.55	73.93	41.67	2.34	285.68	57.62	7.09	260.52	382.00	119.48	1.01	115.14	93.35	50.10	5.71	51.31	282.49	11.62
Staphylococcus aureus-Resistance to 1+	2606.74	9.27	17.02	11.94	11.12	102.18	50.24	4.71	396.43	77.73	16.39	338.98	519.35	149.31	1.34	186.06	135.40	59.49	9.06	69.31	420.11	21.08
Staphylococcus aureus-TMP-SMX	102.86	0.13	1.01	0.58	0.67	2.26	0.74	1.59	12.47	1.88	6.32	2.71	9.67	7.90	0.08	25.39	8.28	0.70	1.57	1.02	11.40	6.51

Staphylococcus aureus-	51.32	0.13	0.57	0.22	0.24	1.92	1.02	0.08	5.29	2.65	0.28	4.00	5.96	2.19	0.02	2.49	10.08	0.83	0.16	1.15	11.59	0.47
Streptococcus pneumoniae-3GC	22.73	0.21	0.09	0.23	0.06	1.36	0.22	0.20	0.25	6.23	0.68	0.25	1.25	0.47	0.04	3.13	3.78	0.06	0.16	0.58	2.53	0.96
Streptococcus pneumoniae-BL-BLI	9.06	0.05	0.03	0.10	0.08	0.30	0.15	0.55	1.67	0.28	0.38	0.09	0.32	0.30	0.06	0.80	0.91	0.36	0.09	0.74	1.12	0.69
Streptococcus pneumoniae-Carbapenems	289.20	1.38	0.54	1.31	2.38	18.41	7.93	1.46	50.50	9.12	6.37	12.91	26.03	27.11	0.35	46.55	18.12	4.95	2.63	8.51	36.27	6.37
Streptococcus pneumoniae-Fluoroquinolones	64.69	0.08	0.14	0.35	0.13	2.14	0.50	2.42	2.42	1.51	4.11	1.21	3.65	2.13	0.07	10.81	2.45	0.36	0.21	0.82	26.97	2.21
Streptococcus pneumoniae-Macrolide	92.70	0.61	0.16	0.53	0.35	3.96	1.87	0.38	19.53	2.09	0.61	10.83	8.44	5.63	0.13	14.48	5.83	1.86	0.52	5.18	8.57	1.15
Streptococcus pneumoniae-Penicillin	92.82	0.25	0.38	0.50	0.56	4.63	2.95	0.51	9.52	5.82	1.58	1.20	17.84	9.11	0.09	9.16	5.64	0.73	0.88	6.76	12.20	2.53
Streptococcus pneumoniae-Resistance to 1+	775.02	4.26	1.77	4.39	5.97	38.87	18.18	8.29	113.49	49.32	24.30	32.44	68.51	59.32	1.16	110.29	58.57	12.00	6.74	29.15	102.02	26.02
Streptococcus pneumoniae-TMP-SMX	203.82	1.70	0.43	1.36	2.42	8.08	4.57	2.77	29.60	24.28	10.56	5.95	10.97	14.57	0.41	25.36	21.84	3.68	2.26	6.56	14.36	12.10

GBD= Global Burden of Diseases, Injuries, and Risk Factors Study. 3GC=third-generation cephalosporins. 4GC=fourth-generation cephalosporins. Anti-pseudomonal=anti-pseudomonal penicillin or beta-lactamase inhibitors. BL-BLI= β -lactam or β -lactamase inhibitors. MDR in S Typhi and Paratyphi=Multi-drug resistance in Salmonella Typhi and S Paratyphi. Resistance to 1+=resistance to one or more drugs. TMP-SMX= trimethoprim/sulfamethoxazole. AMR=antimicrobial resistance.