

Assessing the health burden of infections with antibiotic-resistant bacteria in the EU/EEA, 2016-2020

Annex 1: Estimated number of infections, number of attributable deaths and number of disability-adjusted life-years per 100 000 population, EU/EEA, 2016-2020

Table S1-1: Estimated number of infections with antibiotic-resistant bacteria, EU/EEA, 2016-2020 (by decreasing number of infections in 2020)

	2016	2017	2018	2019	2020
Third-generation cephalosporin-resistant <i>E. coli</i>	196 202 (170 928 - 224 100)	206 649 (179 936 - 235 812)	237 020 (205 915 - 271 169)	243 588 (211 927 - 278 726)	203 909 (177 480 - 233 237)
Meticillin-resistant <i>S. aureus</i>	170 713 (146 818 - 197 243)	168 240 (144 697 - 194 216)	195 287 (168 058 - 225 638)	187 378 (161 303 - 216 273)	159 670 (137 179 - 184 632)
Vancomycin-resistant <i>E. faecalis</i> / <i>E. faecium</i>	47 124 (36 533 - 59 549)	58 009 (44 902 - 73 502)	79 919 (61 654 - 101 378)	99 184 (76 809 - 125 604)	117 866 (91 969 - 148 215)
Third-generation cephalosporin-resistant <i>K. pneumoniae</i>	106 230 (95 547 - 117 703)	108 166 (97 247 - 119 877)	128 787 (115 762 - 142 771)	136 861 (122 759 - 151 949)	116 620 (104 445 - 129 686)
Carbapenem-resistant <i>Acinetobacter</i> spp.	49 525 (42 481 - 57 265)	51 265 (44 372 - 58 707)	51 450 (45 236 - 58 049)	56 960 (50 148 - 64 187)	75 555 (66 279 - 85 442)
Carbapenem-resistant <i>P. aeruginosa</i>	65 417 (54 047 - 78 420)	60 898 (50 113 - 73 261)	70 372 (58 112 - 84 461)	72 579 (59 843 - 87 066)	67 638 (55 356 - 81 636)
Carbapenem-resistant <i>K. pneumoniae</i>	26 399 (23 123 - 29 982)	24 748 (21 758 - 28 007)	31 097 (27 318 - 35 184)	36 517 (32 081 - 41 308)	38 668 (34 020 - 43 658)
Multidrug-resistant <i>P. aeruginosa</i>	8 702 (6 649 - 11 277)	8 811 (6 711 - 11 394)	10 528 (8 289 - 13 206)	10 979 (8 634 - 13 802)	8 023 (6 221 - 10 213)
Penicillin-non-wild-type and macrolide-resistant <i>S. pneumoniae</i>	6 355 (5 791 - 7 085)	5 851 (5 321 - 6 538)	7 398 (6 772 - 8 223)	8 271 (7 578 - 9 169)	4 894 (4 465 - 5 460)
Penicillin-non-wild-type <i>S. pneumoniae</i>	4 242 (3 851 - 4 767)	4 910 (4 470 - 5 479)	6 162 (5 635 - 6 845)	6 347 (5 809 - 7 043)	4 486 (4 080 - 5 023)
Aminoglycoside- and fluoroquinolone-resistant <i>Acinetobacter</i> spp.	3 509 (2 887 - 4 204)	3 183 (2 662 - 3 765)	2 414 (1 969 - 2 914)	3 009 (2 459 - 3 631)	2 201 (1 799 - 2 650)
Carbapenem-resistant <i>E. coli</i>	1 015 (796 - 1 278)	1 086 (863 - 1 367)	1 641 (1 350 - 1 978)	4 094 (3 452 - 4 833)	1 987 (1 662 - 2 361)
Overall	685 433 (589 451 - 792 873)	701 816 (603 052 - 811 925)	822 075 (706 070 - 951 816)	865 767 (742 802 - 1 003 591)	801 517 (684 955 - 932 213)

Table S1-2: Estimated number of attributable deaths due to infections with antibiotic-resistant bacteria, EU/EEA, 2016-2020 (by decreasing number of attributable deaths in 2020)

	2016	2017	2018	2019	2020
Third-generation cephalosporin-resistant <i>E. coli</i>	8 715 (7 703 - 9 783)	9 181 (8 113 - 10 305)	10 552 (9 310 - 11 870)	10 841 (9 567 - 12 197)	9 079 (8 015 - 10 211)
Meticillin-resistant <i>S. aureus</i>	6 889 (6 208 - 7 641)	6 789 (6 123 - 7 529)	7 917 (7 141 - 8 783)	7 574 (6 833 - 8 392)	6 463 (5 823 - 7 172)
Third-generation cephalosporin-resistant <i>K. pneumoniae</i>	4 256 (3 976 - 4 555)	4 346 (4 056 - 4 657)	5 185 (4 839 - 5 556)	5 526 (5 149 - 5 929)	4 714 (4 386 - 5 064)
Carbapenem-resistant <i>K. pneumoniae</i>	2 770 (2 415 - 3 125)	2 598 (2 274 - 2 926)	3 278 (2 862 - 3 695)	3 853 (3 363 - 4 347)	4 076 (3 565 - 4 585)
Carbapenem-resistant <i>Acinetobacter</i> spp.	2 395 (1 928 - 2 875)	2 464 (2 014 - 2 932)	2 484 (2 070 - 2 909)	2 749 (2 294 - 3 211)	3 656 (3 036 - 4 289)
Vancomycin-resistant <i>E. faecalis</i> / <i>E. faecium</i>	1 335 (1 193 - 1 501)	1 645 (1 471 - 1 854)	2 314 (2 063 - 2 608)	2 876 (2 565 - 3 242)	3 414 (3 052 - 3 834)
Carbapenem-resistant <i>P. aeruginosa</i>	3 091 (2 446 - 3 821)	2 867 (2 260 - 3 555)	3 325 (2 628 - 4 112)	3 433 (2 707 - 4 252)	3 210 (2 513 - 4 004)
Multidrug-resistant <i>P. aeruginosa</i>	386 (279 - 518)	393 (284 - 526)	471 (353 - 610)	492 (367 - 638)	362 (266 - 476)
Penicillin-non-wild-type and macrolide-resistant <i>S. pneumoniae</i>	390 (360 - 427)	359 (331 - 393)	455 (420 - 496)	508 (470 - 553)	301 (277 - 329)
Penicillin-non-wild-type <i>S. pneumoniae</i>	260 (239 - 287)	301 (278 - 330)	379 (350 - 413)	390 (361 - 425)	276 (254 - 303)
Carbapenem-resistant <i>E. coli</i>	79 (62 - 98)	86 (67 - 105)	130 (105 - 155)	324 (269 - 380)	157 (129 - 185)
Aminoglycoside- and fluoroquinolone-resistant <i>Acinetobacter</i> spp.	164 (126 - 205)	149 (117 - 184)	115 (86 - 145)	144 (108 - 182)	105 (79 - 132)
Overall	30 730 (26 935 - 34 836)	31 178 (27 388 - 35 296)	36 605 (32 227 - 41 352)	38 710 (34 053 - 43 748)	35 813 (31 395 - 40 584)

Table S1-3: Estimated number of disability-adjusted life-years (DALYs) due to infections with antibiotic-resistant bacteria, EU/EEA, 2016-2020 (by decreasing number of DALYs in 2020)

	2016	2017	2018	2019	2020
Third-generation cephalosporin-resistant <i>E. coli</i>	215 092 (196 334 - 234 529)	223 684 (204 159 - 243 818)	251 866 (229 483 - 275 078)	256 825 (234 192 - 280 215)	216 440 (197 539 - 236 012)
Meticillin-resistant <i>S. aureus</i>	187 520 (172 768 - 203 664)	185 405 (170 676 - 201 539)	209 693 (193 338 - 227 652)	204 729 (189 022 - 221 905)	170 581 (157 100 - 185 491)
Third-generation cephalosporin-resistant <i>K. pneumoniae</i>	148 158 (139 698 - 157 182)	145 479 (137 285 - 154 206)	169 097 (159 534 - 179 229)	172 365 (162 413 - 182 882)	145 761 (137 308 - 154 739)
Carbapenem-resistant <i>K. pneumoniae</i>	84 166 (74 063 - 94 339)	79 274 (70 282 - 88 340)	97 757 (86 724 - 108 799)	113 493 (100 650 - 126 231)	123 253 (109 534 - 136 941)
Carbapenem-resistant <i>Acinetobacter</i> spp.	76 621 (64 145 - 89 659)	88 210 (72 194 - 105 175)	83 641 (71 825 - 95 822)	92 991 (79 640 - 106 652)	119 107 (101 634 - 137 021)
Carbapenem-resistant <i>P. aeruginosa</i>	112 066 (91 853 - 134 836)	102 881 (83 844 - 124 288)	117 887 (96 594 - 141 698)	120 133 (97 854 - 145 055)	107 511 (87 216 - 130 357)
Vancomycin-resistant <i>E. faecalis</i> / <i>E. faecium</i>	36 542 (33 231 - 40 429)	45 687 (41 422 - 50 846)	59 039 (53 416 - 65 678)	74 198 (67 175 - 82 594)	87 375 (79 260 - 97 015)
Penicillin-non-wild-type and macrolide-resistant <i>S. pneumoniae</i>	17 105 (15 669 - 18 916)	15 408 (14 003 - 17 266)	19 603 (17 984 - 21 761)	22 724 (20 823 - 25 268)	14 566 (13 289 - 16 257)
Penicillin-non-wild-type <i>S. pneumoniae</i>	11 091 (10 113 - 12 360)	11 872 (10 863 - 13 169)	15 882 (14 558 - 17 561)	15 892 (14 608 - 17 528)	11 882 (10 854 - 13 234)
Multidrug-resistant <i>P. aeruginosa</i>	12 724 (9 452 - 16 762)	12 638 (9 420 - 16 591)	14 847 (11 463 - 18 767)	15 268 (11 873 - 19 216)	10 727 (8 146 - 13 830)
Carbapenem-resistant <i>E. coli</i>	2 594 (1 975 - 3 243)	2 174 (1 719 - 2 656)	3 518 (2 854 - 4 199)	8 405 (7 125 - 9 693)	4 199 (3 526 - 4 882)
Aminoglycoside- and fluoroquinolone-resistant <i>Acinetobacter</i> spp.	5 809 (4 557 - 7 141)	5 405 (4 333 - 6 549)	4 028 (3 086 - 5 024)	4 265 (3 328 - 5 259)	3 397 (2 616 - 4 220)
Overall	909 488 (813 858 - 1 013 060)	918 117 (820 200 - 1 024 443)	1 046 858 (940 859 - 1 161 268)	1 101 288 (988 703 - 1 222 498)	1 014 799 (908 022 - 1 129 999)