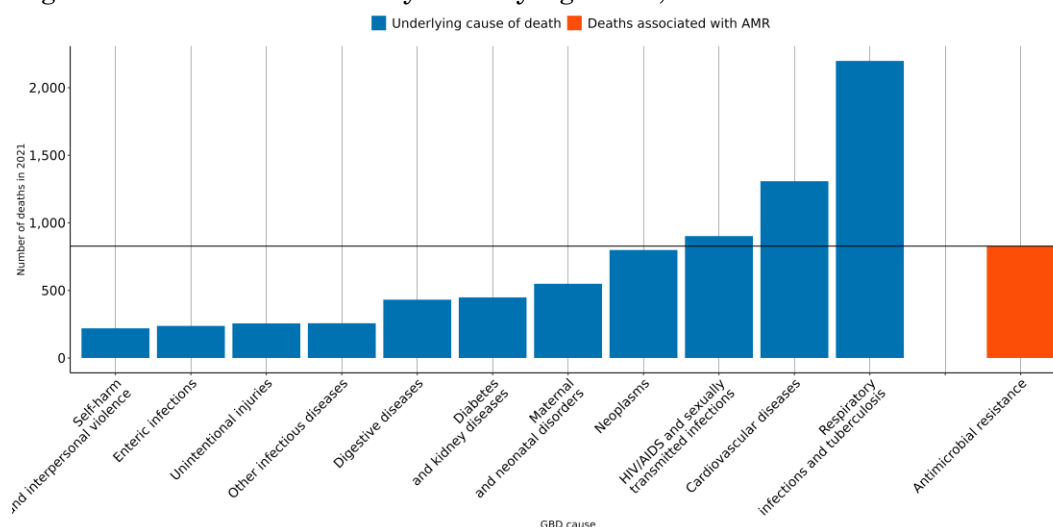


The burden of antimicrobial resistance (AMR) in Djibouti

Executive summary

- Antimicrobial Resistance (AMR) is a major global health threat, over **200 lives** have been lost each year since 1990 in Djibouti due to AMR.
- In 2021, there were an estimated **200 UI (135-264)** deaths attributable to AMR and **828 UI (590-1,070)** deaths associated with AMR in this location.
- The largest number of deaths associated with AMR in 2021 occurred among those aged **50 to 69** in the country.
- Among the most deadly pathogen-drug combinations in 2021 were multi-drug resistant *Mycobacterium tuberculosis* (excluding extensive drug-resistance), *Acinetobacter baumannii* resistant to carbapenems and *Streptococcus pneumoniae* resistant to carbapenems.

Figure 1 Number of deaths by underlying cause, and those associated with AMR in 2021



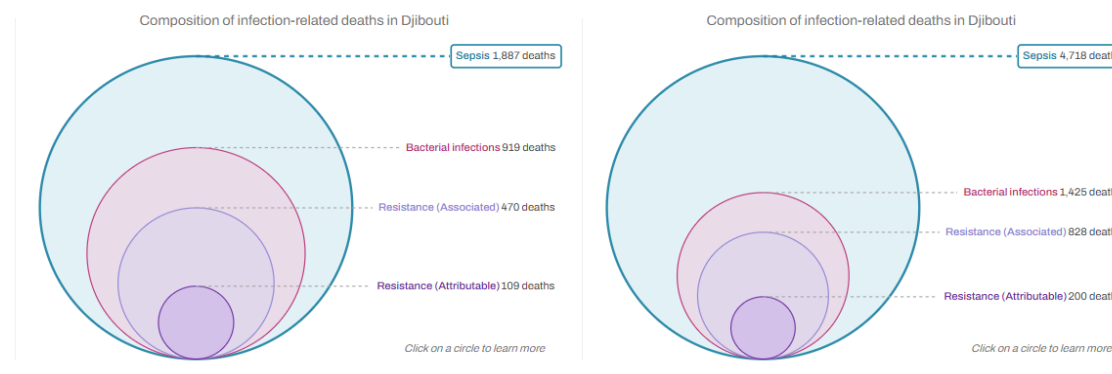
- In 2021, the number of deaths associated with AMR (orange bar in *figure 2*) were high compared to the most relevant underlying causes of death (depicted in blue) in the country. AMR associated deaths occur within multiple Global Burden of Disease (GBD) causes of death and AMR is not an underlying cause of death by itself.
- At the [2024 United Nations General Assembly high level meeting on antimicrobial resistance](#), country members agreed to aim for a **10% reduction** compared to 2019 baseline (**from 4.95 to 4.45 million**) in the global number of deaths associated with AMR by 2030. But [our forecast](#) indicates that in absence of concerted action, deaths associated with AMR could reach **5.5 million** (UI 4.8 - 6.2) if current trends continue. For Djibouti, a 10% reduction means to decrease the number of deaths associated with AMR to **776**, but currently the trend for this country could reach up to **1,040 UI [708-1,510]** AMR-associated deaths in 2030.

AMR in Djibouti

Key takeaways

- Antimicrobial Resistance (AMR) is a major global health threat, over *a million lives* have been lost each year since 1990.
- Globally, 4.71 (95% Uncertainty Interval (UI) 4.2-5.2) million deaths were associated with bacterial drug-resistant infections in 2021.
- And 1.14 (UI 1 - 1.3) million deaths were attributable to bacterial drug-resistant infection in the same year.
- *39 (UI 33 - 46) million deaths* directly attributable to bacterial AMR are projected to occur between 2025-2050 unless concerted action is taken. This equates to three deaths every minute.

Figure 2 Comparing 30 years of infection related deaths, and those associated with and attributable to AMR in Djibouti between 1990 and 2019.



- To look at these and more visualization interactively visit [Measuring Infectious Causes and Resistance Outcomes for Burden Estimation \(MICROBE\)](#)
- In **Djibouti** in 2021, there were an estimated **200 UI (135-264)** deaths attributable to AMR and **828 UI (590-1,070)** deaths associated with AMR. Here “*attributable deaths*” are considered to be those that would have been prevented had the drug-resistant bacteria causing the infections not been drug-resistant. “*Associated deaths*” are considered to be those that would not have occurred had the infections been prevented entirely.
- Across 204 countries, **Djibouti has the 22nd highest** age-standardized mortality rate associated with AMR in 2021.
- *Table 1* shows the bacteria which caused most deaths in 2021 (↑ indicates an increasing estimated annual rate between 1990-2021, ↓ indicates a decreasing annual trend), and *table 2* shows the pathogen-drug combinations which caused most deaths in 2021.

Table 1. Bacteria which cause most deaths in 2021 (Number of deaths in parenthesis)

Burden rank	Overall susceptible and resistant		Associated		Attributable	
	Mycobacterium tuberculosis 410 UI (225-594)	↑	Klebsiella pneumoniae 139 UI (102-177)	↑	Acinetobacter baumannii 37 UI (29-46)	↑
	Streptococcus pneumoniae 173 UI (123-223)	↓	Streptococcus pneumoniae 137 UI (93-181)	↑	Klebsiella pneumoniae 33 UI (23-43)	↑
	Klebsiella pneumoniae 151 UI (110-191)	↑	Escherichia coli 112 UI (78-146)	↑	Streptococcus pneumoniae 28 UI (17-39)	↓
	Escherichia coli 119 UI (84-155)	↑	Acinetobacter baumannii 95 UI (69-122)	↑	Escherichia coli 26 UI (17-35)	↑
	Staphylococcus aureus 113 UI (82-144)	↑	Staphylococcus aureus 82 UI (51-112)	↑	Mycobacterium tuberculosis 18 UI (0-53)	↑
	Pseudomonas aeruginosa 108 UI (78-137)	↑	Pseudomonas aeruginosa 68 UI (46-91)	↑	Pseudomonas aeruginosa 17 UI (11-23)	↑
	Acinetobacter baumannii 97 UI (70-124)	↑	Mycobacterium tuberculosis 60 UI (19-130)	↑	Staphylococcus aureus 17 UI (9-24)	↑
	Group B Streptococcus 37 UI (27-47)	↑	Enterobacter spp. 21 UI (15-26)	↑	Enterobacter spp. 6 UI (5-8)	↑
	Serratia spp. 26 UI (20-33)	↑	Serratia spp. 18 UI (13-23)	↑	Serratia spp. 4 UI (3-6)	↑
	Haemophilus influenzae 26 UI (19-34)	↑	Group B Streptococcus 17 UI (12-22)	↑	Enterococcus faecalis 2 UI (1-4)	↑

Annualized rate of change (1990-2021) <-3% -3% to -1.5% -1.5% to 0% 0% to 1.5% 1.5% to 3% 3% to 5% >5.0%

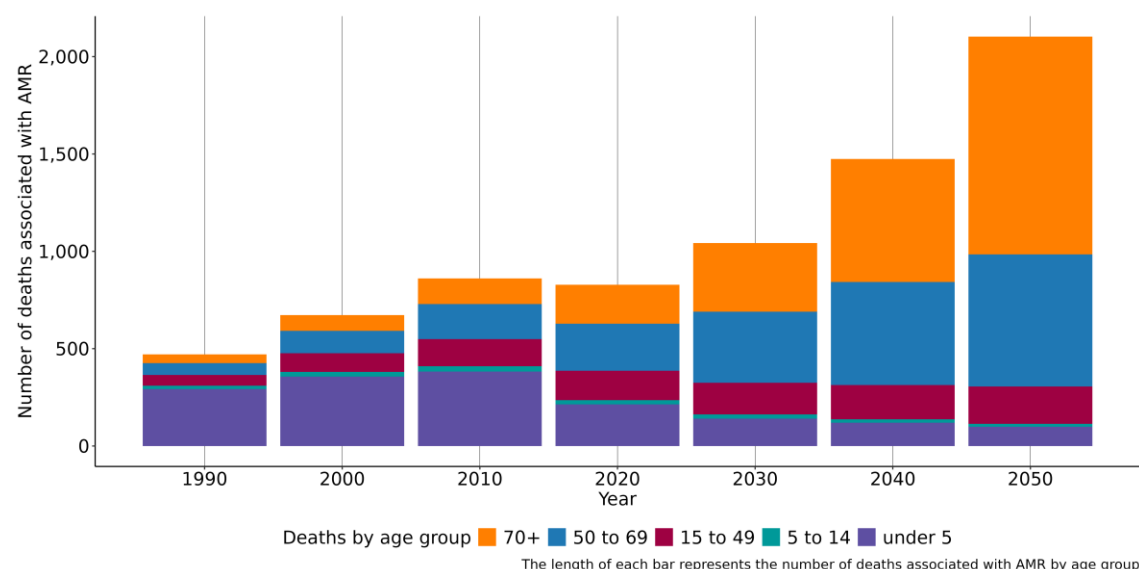
Table 2. Combinations which cause most deaths in 2021 (Number of deaths in parenthesis)

Burden Rank	Associated			Attributable		
	Klebsiella pneumoniae Beta-Lactam/Lactamase Inhib.	133 UI (96-169)	↑	Mycobacterium tuberculosis MDR excluding XDR	18 UI (0-52)	↑
	Klebsiella pneumoniae TMP-SMX	128 UI (94-164)	↑	Acinetobacter baumannii Carbapenems	16 UI (11-22)	↑
	Streptococcus pneumoniae TMP-SMX	125 UI (82-168)	↑	Streptococcus pneumoniae Carbapenems	13 UI (6-19)	↓
	Escherichia coli Aminopenicillin	109 UI (73-146)	↑	Acinetobacter baumannii Fluoroquinolones	10 UI (7-12)	↑
	Acinetobacter baumannii 4GC	95 UI (69-122)	↑	Staphylococcus aureus Methicillin	7 UI (2-13)	↑
	Klebsiella pneumoniae Fluoroquinolones	94 UI (64-123)	↑	Klebsiella pneumoniae 3GC	7 UI (3-10)	↑
	Klebsiella pneumoniae Aminoglycosides	92 UI (65-119)	↑	Klebsiella pneumoniae Fluoroquinolones	7 UI (4-9)	↑
	Escherichia coli TMP-SMX	92 UI (64-119)	↑	Escherichia coli Carbapenems	6 UI (1-11)	↑
	Klebsiella pneumoniae 3GC	91 UI (65-117)	↑	Klebsiella pneumoniae Aminoglycosides	6 UI (4-8)	↑
	Acinetobacter baumannii 3GC	90 UI (65-115)	↑	Escherichia coli 3GC	6 UI (3-9)	↑

Annualized rate of change (1990-2021) <-3% -3% to -1.5% -1.5% to 0% 0% to 1.5% 1.5% to 3% 3% to 5% >5.0%

- Independently of antimicrobial resistance, the infectious syndromes accounting for the most deaths in 2021 were as follows (estimated thousands of deaths in parenthesis) lower respiratory infection (excl. COVID) (600 UI (425-775)), bloodstream infections (547 UI (403-690)), tuberculosis (410 UI (225-594)), diarrhea (221 UI (100-343)) and meningitis (106 UI (70-142)).

Figure 3. Number of deaths associated with AMR by age group between 1990-2020 and 2050 projection



- In Djibouti, people aged under 5 experienced the largest number of deaths associated with AMR in 1990 but this changed by 2021 as the largest number of deaths occurred among the 50 to 69. This indicates that prevention of infections among the under 5 has contributed to the reduction in the number of AMR associated deaths. In 2021, the number of deaths associated with AMR among the 50 to 69 was 252 UI (169-335), whereas the mortality rate per 100,000 was 930 UI (700-1,160).

Data sources for Djibouti

In total, 520 million individual records or isolates covering 19,513 study-location-years were used as input data to our estimation process. The subset of input data for this country is shown below.

Table 3. Data inputs for Djibouti by source type

Source type	Years	Sample size	Sample size units
Antibiotic use	1990-2009	238	Study-year datapoints
Literature studies	2010-2021	205	Cases/isolates/susceptibility tests

More information

About GRAM:

The purpose of the Global Research on AntiMicrobial resistance (GRAM) project is to **generate accurate and timely estimates of the magnitude and trends in antimicrobial resistance (AMR) burden** across the world, which can be used to inform treatment guidelines and agendas for decision-making and research, detect emerging problems and monitor trends to inform global strategies, as well as facilitate the assessment of interventions over time.

GRAM is the flagship project of the University of Oxford–IHME Strategic Partnership. GRAM was launched with support from the United Kingdom Department of Health and Social Care's Fleming Fund, and the Wellcome Trust.

All resources:

For all resources on AMR analysis at IHME, visit <https://www.healthdata.org/antimicrobial-resistance>.

To look at these and more visualization interactively visit [Measuring Infectious Causes and Resistance Outcomes for Burden Estimation \(MICROBE\)](#).

Data sources:

To download the list of data input sources by country, and AMR results by region, visit the [Global Health Data Exchange \(GHDx\)](#).

Contact us:

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