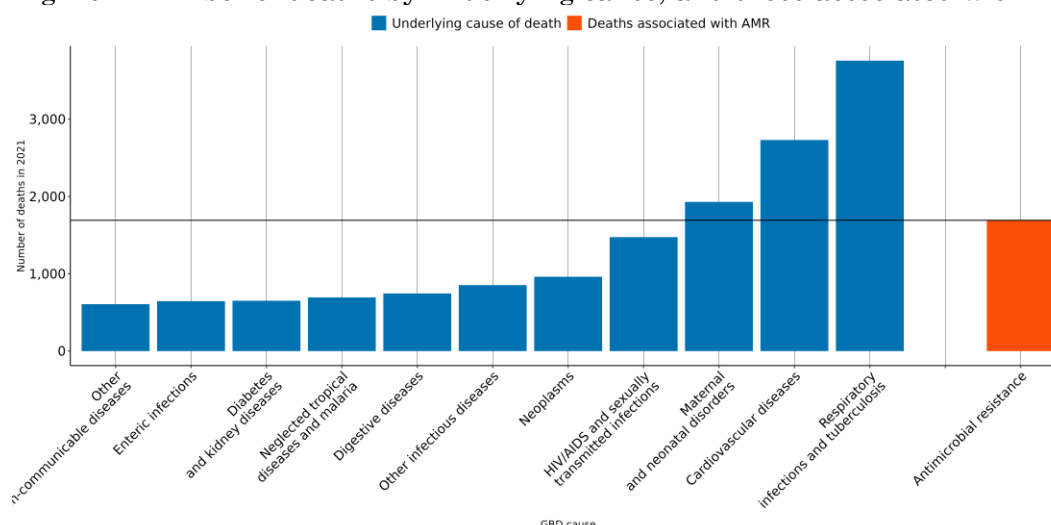


The burden of antimicrobial resistance (AMR) in Guinea-Bissau

Executive summary

- Antimicrobial Resistance (AMR) is a major global health threat, over **500 lives** have been lost each year since 1990 in Guinea-Bissau due to AMR.
- In 2021, there were an estimated **378 UI (276-480)** deaths attributable to AMR and **1,690 UI (1,320-2,070)** deaths associated with AMR in this location.
- The largest number of deaths associated with AMR in 2021 occurred among those aged **under 5** in the country.
- Among the most deadly pathogen-drug combinations in 2021 were *Staphylococcus aureus* resistant to methicillin, *Klebsiella pneumoniae* resistant to beta lactam / beta-lactamase inhibitors and *Klebsiella pneumoniae* resistant to fluoroquinolones.

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



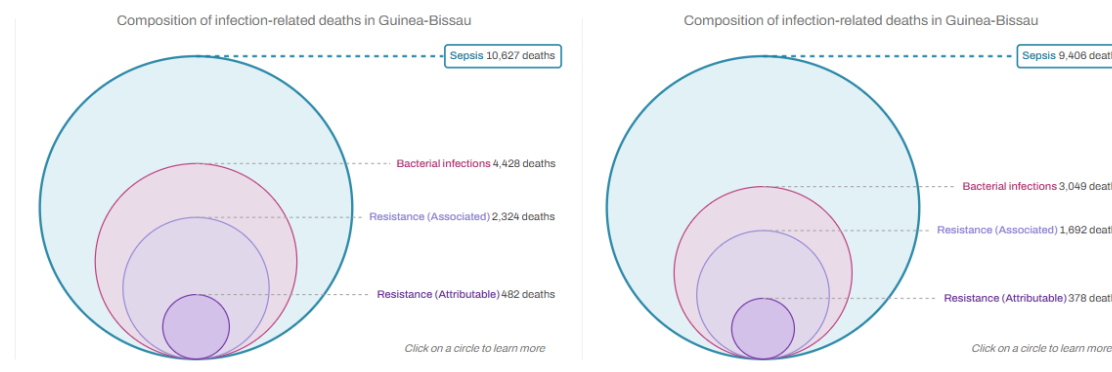
- In 2021, the number of deaths associated with AMR (orange bar in *figure 2*) were high compared to the most relevant underlying causes of death (depicted in blue) in the country. AMR associated deaths occur within multiple Global Burden of Disease (GBD) causes of death and AMR is not an underlying 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 Guinea-Bissau, a 10% reduction means to decrease the number of deaths associated with AMR to **1,670**, but currently the trend for this country could reach up to **1,870 UI [1,230-2,540]** AMR-associated deaths in 2030.

AMR in Guinea-Bissau

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 Guinea-Bissau between 1990 and 2019.



- To look at these and more visualization interactively visit [Measuring Infectious Causes and Resistance Outcomes for Burden Estimation \(MICROBE\)](#)
- In **Guinea-Bissau** in 2021, there were an estimated **378 UI (276-480)** deaths attributable to AMR and **1,690 UI (1,320-2,070)** 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, **Guinea-Bissau was among the highest 10 countries in** 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 818 UI (587-1,050)	↓		Klebsiella pneumoniae 349 UI (285-413)	↓		Klebsiella pneumoniae 80 UI (59-101)	↓	
	Klebsiella pneumoniae 375 UI (308-441)	↓		Streptococcus pneumoniae 288 UI (218-359)	↓		Acinetobacter baumannii 57 UI (46-68)	↓	
	Streptococcus pneumoniae 343 UI (280-406)	↓		Escherichia coli 219 UI (174-264)	↓		Streptococcus pneumoniae 48 UI (31-64)	↓	
	Escherichia coli 236 UI (190-281)	↓		Acinetobacter baumannii 159 UI (125-192)	↓		Escherichia coli 45 UI (32-58)	↓	
	Pseudomonas aeruginosa 222 UI (184-260)	↓		Staphylococcus aureus 157 UI (109-204)	↑		Staphylococcus aureus 36 UI (22-52)	↑	
	Staphylococcus aureus 206 UI (170-242)	↑		Pseudomonas aeruginosa 144 UI (107-180)	↑		Pseudomonas aeruginosa 35 UI (24-46)	↓	
	Acinetobacter baumannii 183 UI (149-217)	↓		Serratia spp. 57 UI (42-73)	↓		Serratia spp. 15 UI (11-19)	↓	
	Group B Streptococcus 118 UI (88-147)	↓		Group B Streptococcus 53 UI (36-70)	↑		Enterobacter spp. 14 UI (10-18)	↑	
	Serratia spp. 77 UI (59-96)	↓		Enterobacter spp. 44 UI (36-53)	↓		Mycobacterium tuberculosis 12 UI (0-48)	↑	
	Shigella spp. 75 UI (40-110)	↓		Mycobacterium tuberculosis 35 UI (7-100)	↑		Citrobacter spp. 7 UI (5-9)	↓	

Annualized rate of change (1990-2021):
 <-3% (dark blue), -3% to -1.5% (medium blue), -1.5% to 0% (light blue), 0% to 1.5% (pink), 1.5% to 3% (red), 3% to 5% (dark red), >5.0% (brown)

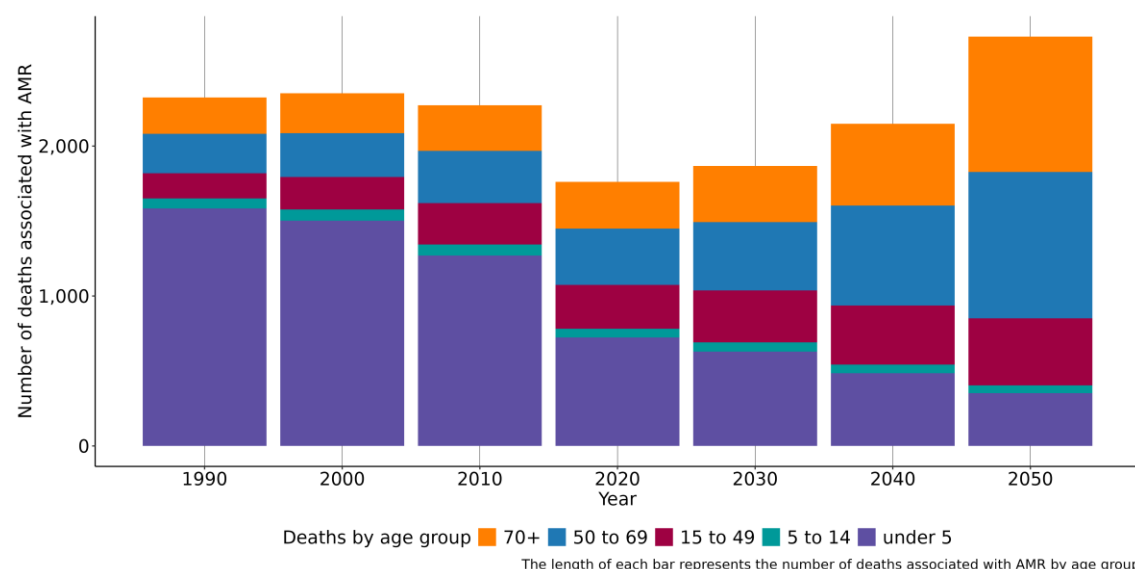
Table 2. Combinations which cause most deaths in 2021 (Number of deaths in parenthesis)

Burden Rank	Associated			Attributable		
	Klebsiella pneumoniae TMP-SMX 336 UI (274-399)	↓		Staphylococcus aureus Methicillin 19 UI (8-31)	↑	
	Klebsiella pneumoniae Beta-Lactam/Lactamase Inhib. 319 UI (253-384)	↓		Klebsiella pneumoniae Beta-Lactam/Lactamase Inhib. 19 UI (7-32)	↓	
	Klebsiella pneumoniae Fluoroquinolones 259 UI (197-321)	↑		Klebsiella pneumoniae Fluoroquinolones 18 UI (12-25)	↑	
	Klebsiella pneumoniae Aminoglycosides 237 UI (182-292)	↑		Acinetobacter baumannii Anti-pseudomonal 18 UI (14-21)	↓	
	Streptococcus pneumoniae TMP-SMX 232 UI (160-304)	↓		Streptococcus pneumoniae Fluoroquinolones 15 UI (6-24)	↓	
	Escherichia coli Aminopenicillin 209 UI (148-270)	↓		Klebsiella pneumoniae Aminoglycosides 14 UI (10-19)	↑	
	Escherichia coli TMP-SMX 187 UI (148-225)	↓		Klebsiella pneumoniae TMP-SMX 14 UI (7-21)	↓	
	Streptococcus pneumoniae Macrolides 172 UI (118-226)	↓		Mycobacterium tuberculosis MDR excluding XDR 12 UI (0-47)	↑	
	Escherichia coli Beta-Lactam/Lactamase Inhib. 160 UI (127-193)	↓		Klebsiella pneumoniae Carbapenems 12 UI (8-15)	↑	
	Streptococcus pneumoniae Fluoroquinolones 142 UI (72-212)	↓		Streptococcus pneumoniae 3GC 11 UI (7-15)	↓	

Annualized rate of change (1990-2021):
 <-3% (dark blue), -3% to -1.5% (medium blue), -1.5% to 0% (light blue), 0% to 1.5% (pink), 1.5% to 3% (red), 3% to 5% (dark red), >5.0% (brown)

- Independently of antimicrobial resistance, the infectious syndromes accounting for the most deaths in 2021 were as follows (estimated thousands of deaths in parenthesis) bloodstream infections (1,490 UI (1,150-1,830)), lower respiratory infection (excl. COVID) (1,240 UI (1,010-1,470)), tuberculosis (818 UI (587-1,050)), diarrhea (591 UI (366-817)) and meningitis (244 UI (156-333)).

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



- In Guinea-Bissau, people aged under 5 saw the largest number of deaths associated with AMR both in 1990 and 2021, which indicates that under 5 continues to be particularly vulnerable to infections which are resistant to antibiotics. In 2021, the number of deaths associated with AMR among the under 5 was 676 UI (467-885), whereas the mortality rate per 100,000 was 1,180 UI (950-1,410).

Data sources for Guinea-Bissau

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 Guinea-Bissau by source type

Source type	Years	Sample size	Sample size units
Antibiotic use	1990-2021	490	Study-year datapoints
Microbial or laboratory data without outcome	2010-2021	272	Isolates
Literature studies	1990-2021	165	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 \(GHDx\)](#).

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