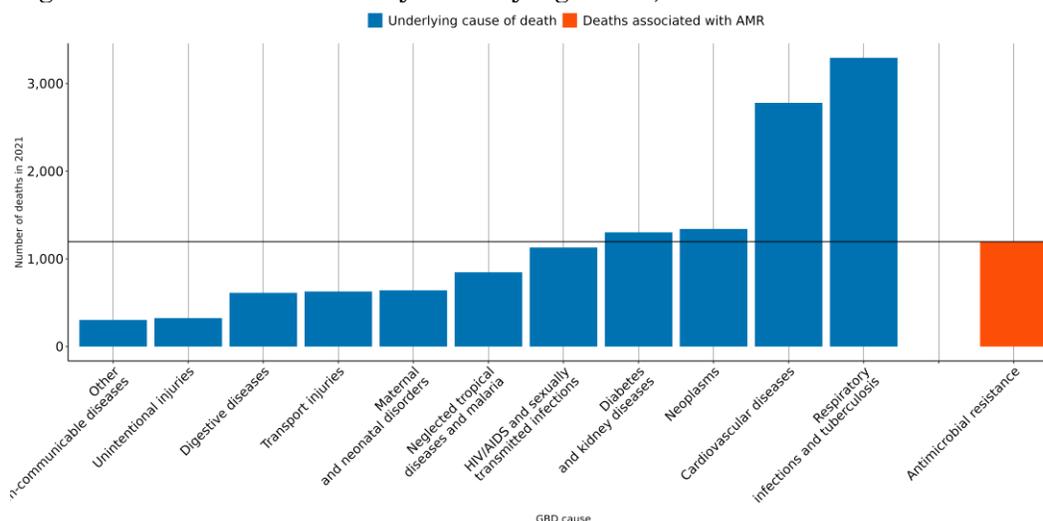


The burden of antimicrobial resistance (AMR) in Gabon

Executive summary

- Antimicrobial Resistance (AMR) is a major global health threat, over **300 lives** have been lost each year since 1990 in Gabon due to AMR.
- In 2021, there were an estimated **295 UI (208-382)** deaths attributable to AMR and **1,200 UI (876-1,520)** deaths associated with AMR in this location.
- The largest number of deaths associated with AMR in 2021 occurred among those aged **70+** in the country.
- Among the most deadly pathogen-drug combinations in 2021 were *Staphylococcus aureus* resistant to methicillin, *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



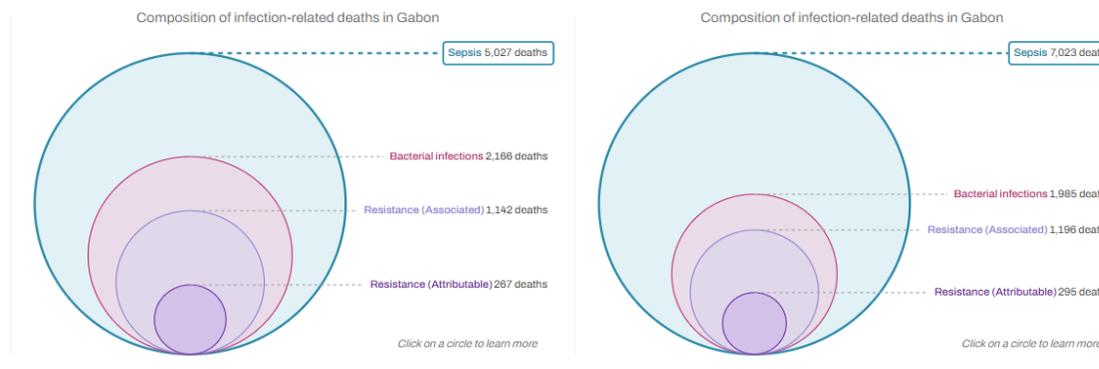
- In 2021, the number of deaths associated with AMR (orange bar in *figure 2*) were high compared to the most relevant underlying causes of death (depicted in blue) in the country. AMR associated deaths occur within multiple Global Burden of Disease (GBD) causes of death and AMR is not an underlying 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 Gabon, a 10% reduction means to decrease the number of deaths associated with AMR to **1,130**, but currently the trend for this country could reach up to **1,530 UI [1,030-2,110]** AMR-associated deaths in 2030.

AMR in Gabon

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 Gabon between 1990 and 2019.



- To look at these and more visualization interactively visit [Measuring Infectious Causes and Resistance Outcomes for Burden Estimation \(MICROBE\)](#)
- In **Gabon** in 2021, there were an estimated **295 UI (208-382)** deaths attributable to AMR and **1,200 UI (876-1,520)** 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, **Gabon has the 34th 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)

	Overall susceptible and resistant	Associated	Attributable
Burden rank	Mycobacterium tuberculosis 436 UI (249-623) ↓	Streptococcus pneumoniae 285 UI (205-365) ↓	Streptococcus pneumoniae 66 UI (43-90) ↓
	Streptococcus pneumoniae 309 UI (225-393) ↓	Staphylococcus aureus 159 UI (108-209) ↑	Acinetobacter baumannii 62 UI (48-75) ↑
	Staphylococcus aureus 203 UI (158-249) ↑	Klebsiella pneumoniae 156 UI (115-197) ↓	Staphylococcus aureus 37 UI (23-51) ↑
	Klebsiella pneumoniae 203 UI (155-251) ↓	Acinetobacter baumannii 155 UI (117-193) ↑	Klebsiella pneumoniae 36 UI (26-46) ↓
	Acinetobacter baumannii 174 UI (133-216) ↑	Escherichia coli 130 UI (94-167) ↓	Pseudomonas aeruginosa 25 UI (16-34) ↑
	Pseudomonas aeruginosa 158 UI (122-194) ↑	Pseudomonas aeruginosa 102 UI (72-131) ↑	Escherichia coli 25 UI (16-34) ↑
	Escherichia coli 158 UI (121-194) ↑	Enterobacter spp. 33 UI (25-42) ↑	Enterobacter spp. 9 UI (5-13) ↑
	Enterobacter spp. 46 UI (36-57) ↑	Mycobacterium tuberculosis 27 UI (5-75) ↑	Mycobacterium tuberculosis 8 UI (0-33) ↑
	Group B Streptococcus 41 UI (29-52) ↓	Enterococcus faecalis 24 UI (18-30) ↑	Serratia spp. 6 UI (5-8) ↓
	Enterococcus faecalis 37 UI (29-46) ↑	Serratia spp. 22 UI (16-28) ↓	Enterococcus faecalis 4 UI (2-5) ↑

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%

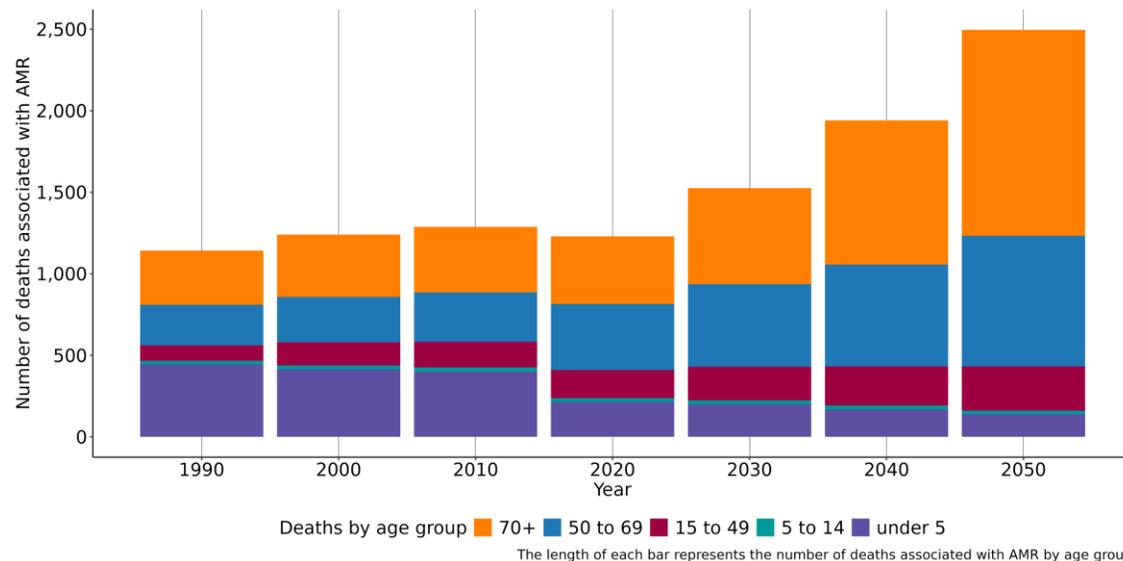
Table 2. Combinations which cause most deaths in 2021 (Number of deaths in parenthesis)

	Associated	Attributable
Burden Rank	Streptococcus pneumoniae Macrolides 265 UI (190-340) ↑	Streptococcus pneumoniae Carbapenems 32 UI (17-47) ↓
	Streptococcus pneumoniae Beta-Lactam/Lactamase Inhib. 212 UI (137-287) ↓	Acinetobacter baumannii Carbapenems 32 UI (22-41) ↑
	Streptococcus pneumoniae TMP-SMX 173 UI (99-247) ↓	Staphylococcus aureus Methicillin 19 UI (9-29) ↑
	Acinetobacter baumannii Carbapenems 141 UI (102-180) ↑	Acinetobacter baumannii Fluoroquinolones 18 UI (14-22) ↑
	Acinetobacter baumannii 4GC 141 UI (101-181) ↑	Klebsiella pneumoniae 3GC 12 UI (7-17) ↑
	Acinetobacter baumannii Fluoroquinolones 138 UI (102-174) ↑	Streptococcus pneumoniae Beta-Lactam/Lactamase Inhib. 11 UI (5-16) ↓
	Klebsiella pneumoniae TMP-SMX 136 UI (99-173) ↓	Streptococcus pneumoniae Macrolides 10 UI (6-14) ↑
	Acinetobacter baumannii Beta-Lactam/Lactamase Inhib. 133 UI (98-168) ↑	Pseudomonas aeruginosa Carbapenems 9 UI (5-13) ↑
	Acinetobacter baumannii 3GC 127 UI (87-167) ↑	Staphylococcus aureus TMP-SMX 9 UI (5-12) ↑
	Streptococcus pneumoniae Carbapenems 120 UI (66-174) ↓	Mycobacterium tuberculosis MDR excluding XDR 8 UI (0-32) ↑

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) (897 UI (658-1,140)), bloodstream infections (835 UI (614-1,060)), tuberculosis (436 UI (249-623)), diarrhea (191 UI (44-338)) and peritoneal and intra-abdominal infections (121 UI (87-156)).

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



- In Gabon, 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 70+. 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 70+ was 410 UI (332-488), whereas the mortality rate per 100,000 was 1,010 UI (819-1,200).

Data sources for Gabon

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 Gabon by source type

Source type	Years	Sample size	Sample size units
Antibiotic use	2010-2021	299	Study-year datapoints
Literature studies	1990-2021	2,714	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:

- For inquiries about the analysis and questions from government officials, health departments, or research institutions: engage@healthdata.org
- For media-related inquiries: media@healthdata.org
- **Bluesky:** @ihmeuw.bsky.social
- **Twitter:** @IHME_UW
- **Facebook:** <https://www.facebook.com/IHMEUW>
- **LinkedIn:** <https://www.linkedin.com/company/institute-for-health-metrics-and-evaluation>