# The burden of antimicrobial resistance (AMR) in Mauritania

Executive summary

- Antimicrobial Resistance (AMR) is a major global health threat, over **700 lives** have been lost each year since 1990 in Mauritania due to AMR.

- In 2021, there were an estimated **613 UI (450-775)** deaths attributable to AMR and **2,640 UI (2,020-3,260)** 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 third-generation cephalosporins.

Figure 1 Number of deaths by underlying cause, and those associated with AMR in 2021
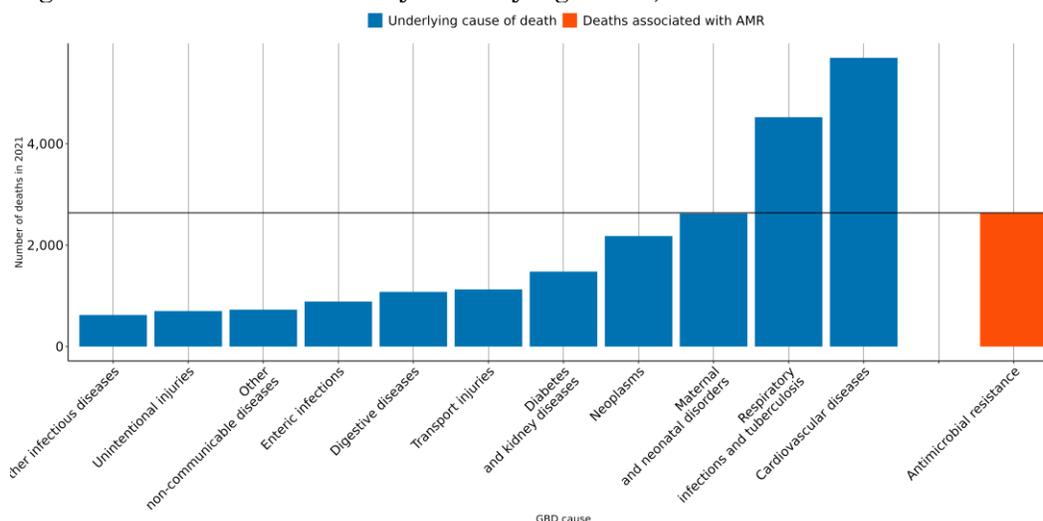
- In 2021, the number of deaths associated with AMR (orange bar in *figure 2*) were high compared to the most relevant underlying causes of death (depicted in blue) in the country. AMR associated deaths occur within multiple Global Burden of Disease (GBD) causes of death and AMR is not an underlying 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 Mauritania, a 10% reduction means to decrease the number of deaths associated with AMR to **2,530**, but currently the trend for this country could reach up to **3,020 UI [2,160-4,180]** AMR-associated deaths in 2030.

AMR in Mauritania

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 Mauritania between 1990 and 2019.
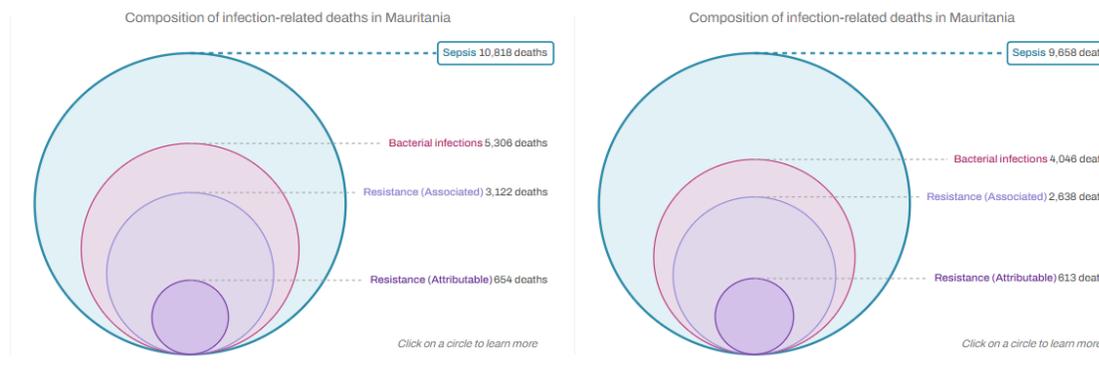
- To look at these and more visualization interactively visit [Measuring Infectious Causes and Resistance Outcomes for Burden Estimation (MICROBE)](#)

- In **Mauritania** in 2021, there were an estimated **613 UI (450-775)** deaths attributable to AMR and **2,640 UI (2,020-3,260)** 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, **Mauritania has the 50th 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	
Streptococcus pneumoniae 581 UI (468-695)	↓	Streptococcus pneumoniae 453 UI (338-568)	↓	Klebsiella pneumoniae 111 UI (87-135)	↑
Klebsiella pneumoniae 466 UI (380-551)	↓	Klebsiella pneumoniae 433 UI (352-514)	↓	Acinetobacter baumannii 106 UI (85-127)	↑
Mycobacterium tuberculosis 452 UI (270-634)	↓	Escherichia coli 412 UI (309-516)	↓	Escherichia coli 89 UI (59-119)	↓
Escherichia coli 441 UI (335-547)	↓	Staphylococcus aureus 324 UI (231-416)	↑	Streptococcus pneumoniae 82 UI (56-109)	↓
Staphylococcus aureus 437 UI (351-523)	↑	Acinetobacter baumannii 283 UI (220-345)	↓	Staphylococcus aureus 66 UI (40-92)	↑
Pseudomonas aeruginosa 356 UI (290-423)	↑	Pseudomonas aeruginosa 214 UI (152-276)	↑	Pseudomonas aeruginosa 55 UI (37-73)	↑
Acinetobacter baumannii 325 UI (261-389)	↓	Group B Streptococcus 80 UI (58-101)	↓	Enterobacter spp. 24 UI (19-29)	↓
Group B Streptococcus 134 UI (106-162)	↓	Enterobacter spp. 78 UI (62-93)	↑	Serratia spp. 16 UI (12-19)	↓
Serratia spp. 92 UI (74-111)	↓	Serratia spp. 58 UI (44-73)	↓	Citrobacter spp. 11 UI (8-14)	↓
Haemophilus influenzae 90 UI (72-107)	↓	Proteus spp. 43 UI (32-53)	↑	Group B Streptococcus 11 UI (6-16)	↓

Burden rank

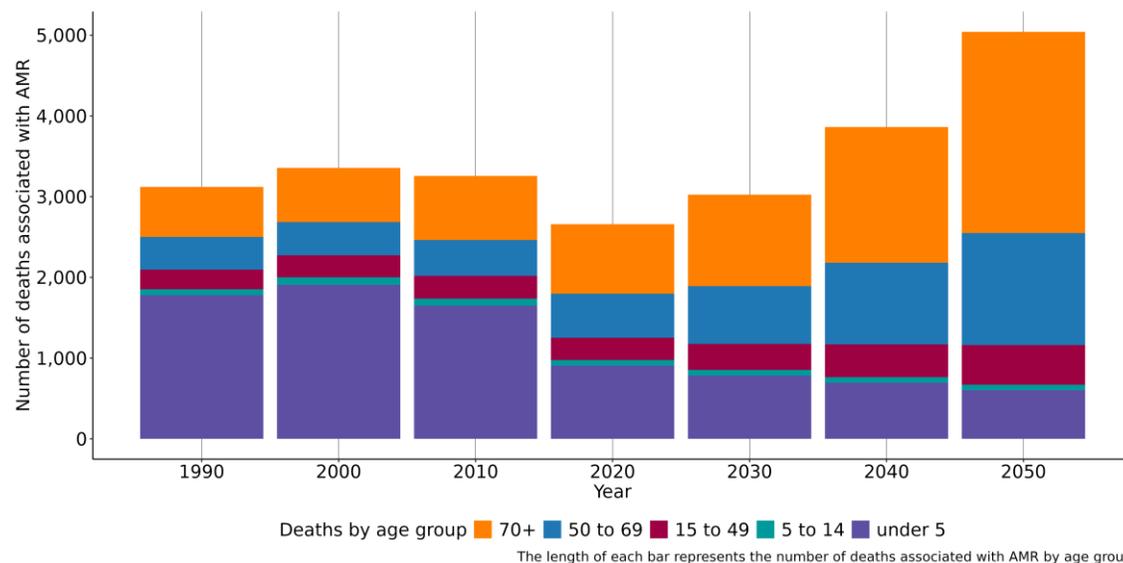Annualized rate of change (1990-2021): <-3% | -3% to -1.5% | -1.5% to 0% | 0% to 1.5% | 1.5% to 3% | 3% to 5% | >5.0%

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

Associated			Attributable		
Escherichia coli Aminopenicillin	408 UI (292-524)	↓	Streptococcus pneumoniae 3GC	41 UI (28-54)	↑
Klebsiella pneumoniae TMP-SMX	406 UI (328-483)	↓	Acinetobacter baumannii Carbapenems	30 UI (17-43)	↑
Klebsiella pneumoniae Beta-Lactam/Lactamase Inhib.	405 UI (324-486)	↓	Staphylococcus aureus Methicillin	29 UI (12-47)	↑
Streptococcus pneumoniae TMP-SMX	378 UI (256-500)	↓	Klebsiella pneumoniae Carbapenems	25 UI (18-31)	↑
Escherichia coli TMP-SMX	345 UI (257-432)	↓	Acinetobacter baumannii Fluoroquinolones	24 UI (18-29)	↑
Escherichia coli Beta-Lactam/Lactamase Inhib.	292 UI (217-367)	↓	Klebsiella pneumoniae Fluoroquinolones	21 UI (14-29)	↑
Klebsiella pneumoniae Fluoroquinolones	290 UI (215-365)	↑	Escherichia coli Carbapenems	20 UI (4-37)	↑
Acinetobacter baumannii 3GC	270 UI (207-334)	↑	Pseudomonas aeruginosa Carbapenems	20 UI (11-28)	↑
Klebsiella pneumoniae Aminoglycosides	267 UI (203-331)	↓	Acinetobacter baumannii Anti-pseudomonal	18 UI (14-22)	↓
Streptococcus pneumoniae 3GC	254 UI (179-330)	↓	Klebsiella pneumoniae Aminoglycosides	18 UI (12-23)	↓

Burden Rank

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) (2,190 UI (1,740-2,640)), bloodstream infections (2,000 UI (1,600-2,400)), diarrhea (748 UI (370-1,130)), tuberculosis (452 UI (270-634)) and meningitis (267 UI (195-340)).

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

Deaths by age group ▮ 70+ ▮ 50 to 69 ▮ 15 to 49 ▮ 5 to 14 ▮ under 5
The length of each bar represents the number of deaths associated with AMR by age group

- In Mauritania, 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 863 UI (648-1,080), whereas the mortality rate per 100,000 was 848 UI (637-1,060).

Data sources for Mauritania

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 Mauritania by source type

Source type	Years	Sample size	Sample size units
Antibiotic use	1990-2021	879	Study-year datapoints
Literature studies	2010-2021	1,373	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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