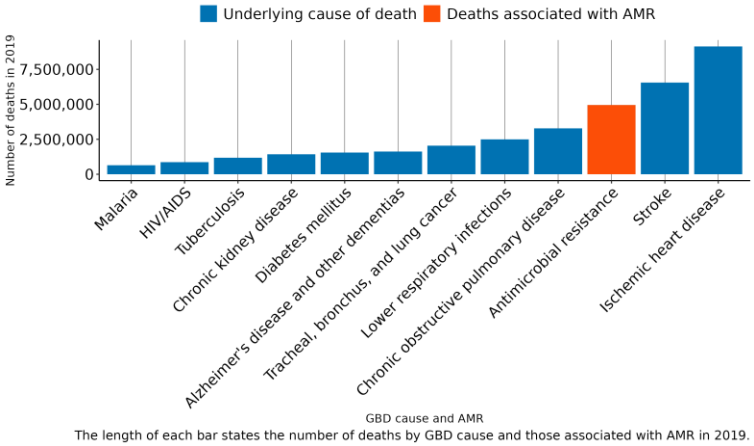
The burden of antimicrobial resistance (AMR) in United States of America

AMR represents a global challenge

- **4.95 million** people who died in 2019 suffered from drug-resistant infections.
- AMR directly caused **1.27 million** of those deaths.
- **1 in 5** of those deaths occurred among children under 5 years old.

Figure 1 Global number of deaths by GBD cause and those associated with AMR

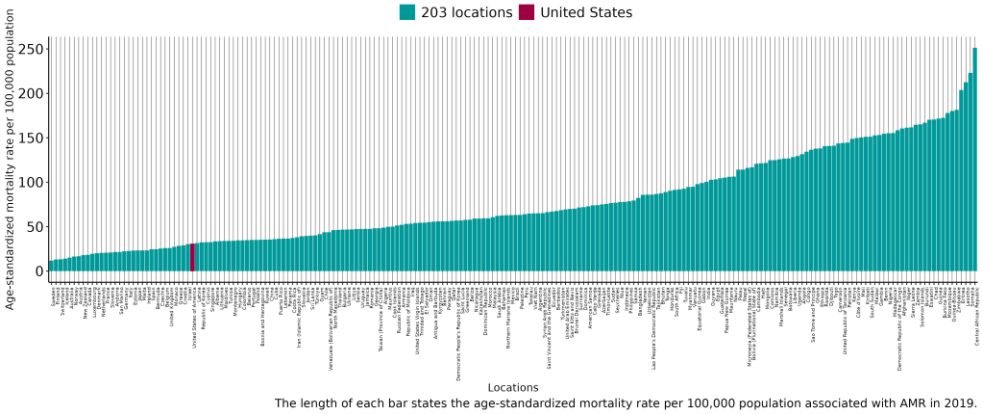


The length of each bar states the number of deaths by GBD cause and those associated with AMR in 2019.

AMR burden in United States of America

- In **United States of America** in 2019, there were **41,900** deaths attributable to AMR and **172,900** deaths associated with AMR.
- **United States of America** has **the 32nd lowest** age-standardized mortality rate per 100,000 population associated with AMR across 204 countries.

Figure 2. Age-standardized mortality rate associated with AMR in 2019 for 204 locations

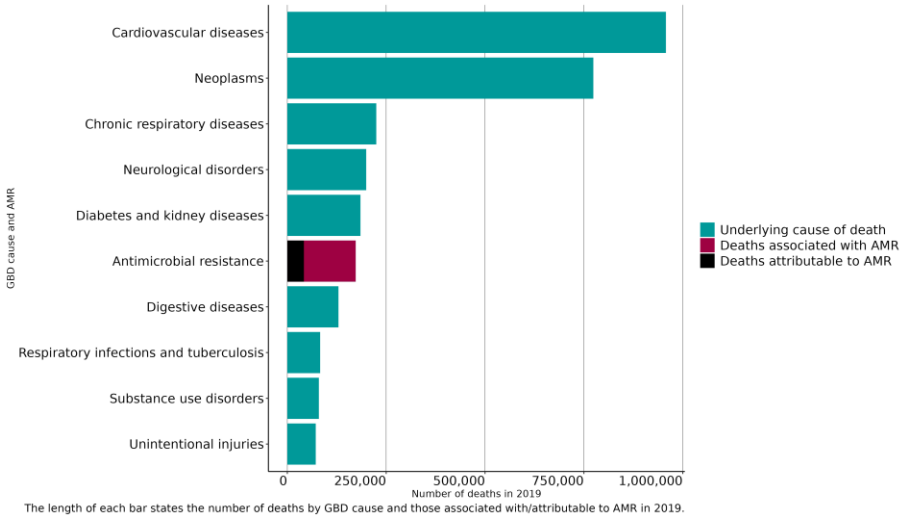


The length of each bar states the age-standardized mortality rate per 100,000 population associated with AMR in 2019.

- In the GBD region of **High-income North America**, **United States of America** has **the 2nd lowest** age-standardized mortality across **3** countries.

- The number of AMR deaths in **United States of America** is higher than deaths from **digestive diseases, respiratory infections and tuberculosis, substance use disorders, unintentional injuries, and other non-communicable diseases**.

Figure 3. Placing AMR in context with other causes of death in 2019, United States of America



- There are five pathogens to be aware of in **United States of America** (number of deaths associated with AMR in parenthesis): ***Staphylococcus aureus (49,100), Escherichia coli (34,000), Pseudomonas aeruginosa (15,300), Enterococcus faecium (13,700)*, and *Acinetobacter baumannii (13,300)***.
- These commonly caused **lower respiratory infections and all related infections in the thorax, bloodstream infections, and peritoneal and intra-abdominal infections**.
- According to the Tracking AMR Country Self-Assessment Survey (TrACSS)1], **"a National AMR action plan has financial provision in national budget"** in **United States of America**. The next step is that the plan should be **"continuosly under monitoring and evaluation"** in the short term, and this data should be used to ensure this progression.

1 World Health Organization (WHO). TrACSS 2021-2022 [Internet]. [cited 2023 Feb 16]. Available from: https://amrcountryprogress.org/download/AMR-self-assessment-survey-responses-2020-2021.xlsx

Addendum: A summary of data sources for United States of America

In total, 471 million individual records or isolates covering 7,585 study-location-years were used as input data to our estimation process to develop the most comprehensive set of AMR estimates to date. A subset of data pertinent to this country is shown below, and as our analyses depend on reliable data sources, there is a need to improve this in the future. Going forward, new strategies for data preparation, implementation of more usable data, and inclusion of new systematic literature reviews will result in an enhanced overall analysis. Specific policies that will improve AMR surveillance and link outcomes with resistance data will help us improve this research endeavor. If we expand the quantity and quality of data in this country (but also worldwide), we are confident that future iterations of these estimates (but also those of other research groups) will be able to assess the effect of AMR even more precisely and help tailor optimal approaches to ever-increasing threat of antibiotic resistance.

Table 1. Data inputs for United States of America by source type

Source type	Sample size	Sample size units
Hospital discharge	1,532,226	Discharges
Literature studies	135,786	Cases/isolates/susceptibility tests
Multiple cause of death (MCoD)	92,680,824	Deaths
Microbial or laboratory data with/without outcome	51,998,600	Isolates
Single drug resistance profile data	793,350	Antibiotic susceptibility test

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, the Wellcome Trust, and the Bill & Melinda Gates Foundation.

All resources:

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

Further details are available on our FAQ page

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
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