



The burden of antimicrobial resistance in G7 countries and globally: **AN URGENT CALL FOR ACTION**



IN COOPERATION WITH

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The burden of antimicrobial resistance in G7 countries and globally: An Urgent Call for Action

Global context: At least **1.27 million deaths per year** are **directly attributable** to AMR, with another **4.95 million deaths per year associated with** resistant bacteria

Antimicrobial Resistance (AMR) – Important Definitions

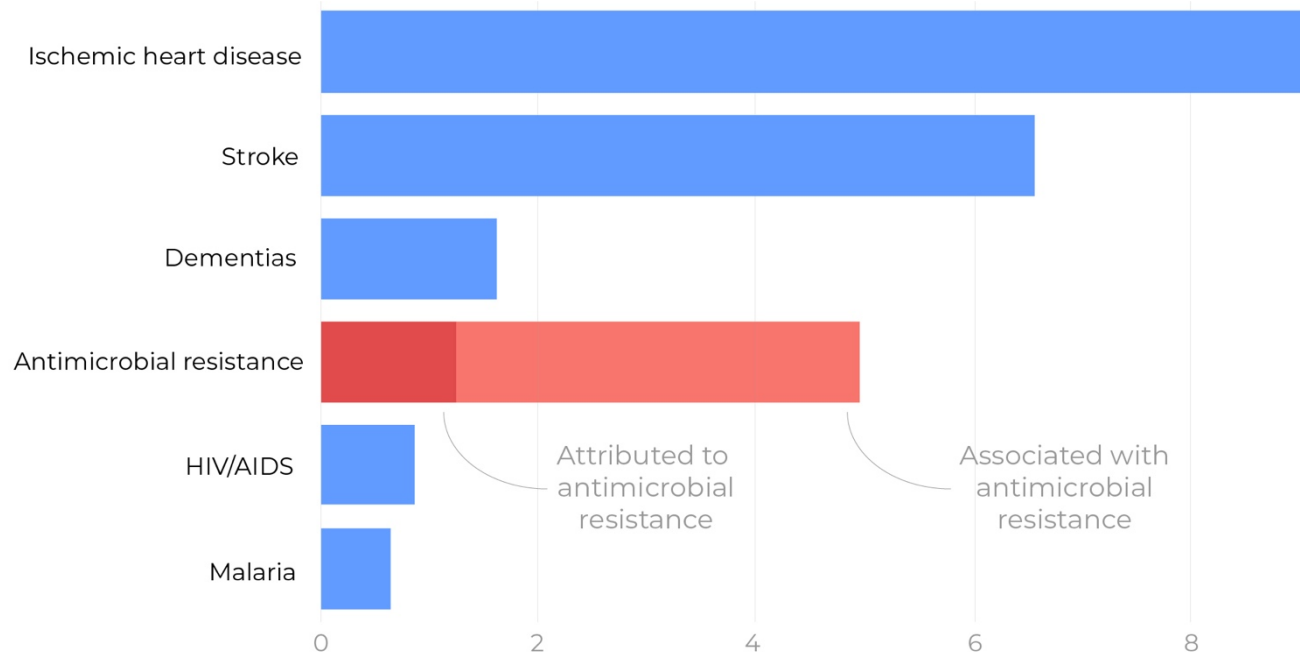
What is antimicrobial resistance (AMR)?	What are deaths attributable to AMR?	What are deaths associated with AMR?	What is age-standardization?
Changes in microorganisms leading to less effective or ineffective treatment of infections.	Deaths that were directly caused by drug-resistance (ineffective treatment).	Deaths that occurred from a drug-resistant infection, but for which AMR may or may not have been the cause.	A technique for comparing populations with different age structures to account for over- or under-representation of age groups in different countries.

(source: *Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. Lancet, 2022*).

REAL	INCREASING	RELEVANT	PREVENTABLE
AMR is a leading cause of death globally, higher than HIV/AIDS or malaria. It also poses a unique global threat due to its spread from one country to another.	Continued worldwide spread of antimicrobial resistant bacteria has increasingly reduced the effectiveness of available therapies.	AMR is already putting extra pressure on frontline healthcare workers by making common infections harder to treat and causing millions of preventable deaths worldwide.	There are immediate actions that can help countries around the world protect their health systems against the threat of AMR, but we need a multifaceted and comprehensive approach now.

Placing global burden of AMR in context

How big is the threat and how did it compare to other deaths in 2019 (in millions)?



Over a million people are now dying each year due to infections such as lower respiratory, bloodstream, and intra-abdominal infections caused by bacteria which have become resistant to treatment.

Sub-Saharan Africa faces the highest burden of AMR, with 255,000 deaths attributable to AMR, and a particularly high number from vaccine-preventable bacterial disease (*Streptococcus pneumoniae*).

High income countries also face high levels of antimicrobial resistance, including to treatments for *Escherichia coli*, which commonly causes kidney infections, and *Staphylococcus aureus*, which can cause bloodstream infections.

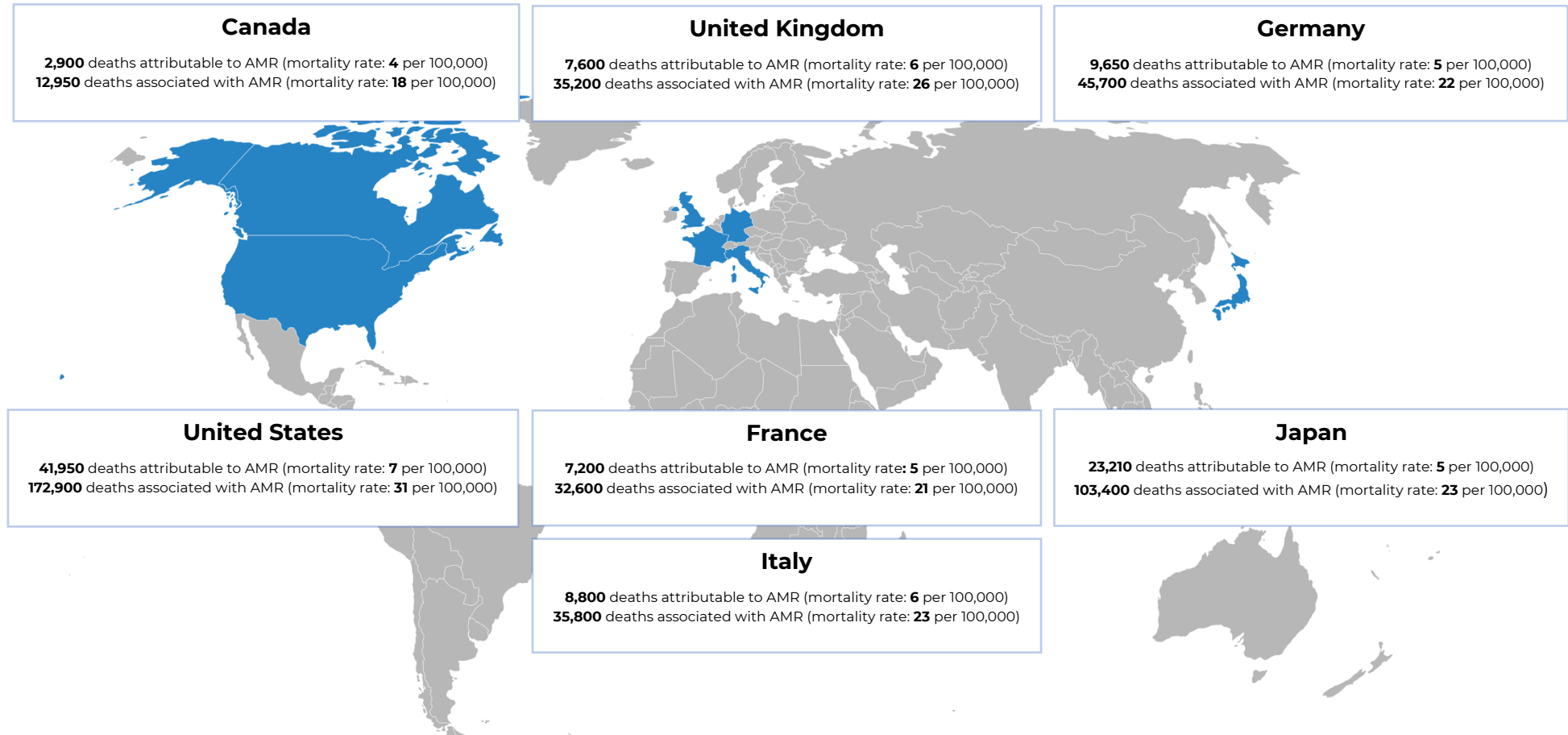
Young children are at significant risk: In 2019, 1 in 5 deaths caused by AMR occurred in children under the age of five – often from previously treatable infections.

Beyond the human cost, with 52,800,000 productive life years lost attributable to AMR, we should be cognizant of the growing economic impact of inaction.

In 2019, seven bacteria had each more than 80,000 deaths attributable to AMR: *S. aureus*, *E. coli*, *Klebsiella pneumoniae*, *S. pneumoniae*, *Acinetobacter baumannii*, *Mycobacterium tuberculosis*, and *Pseudomonas aeruginosa*.

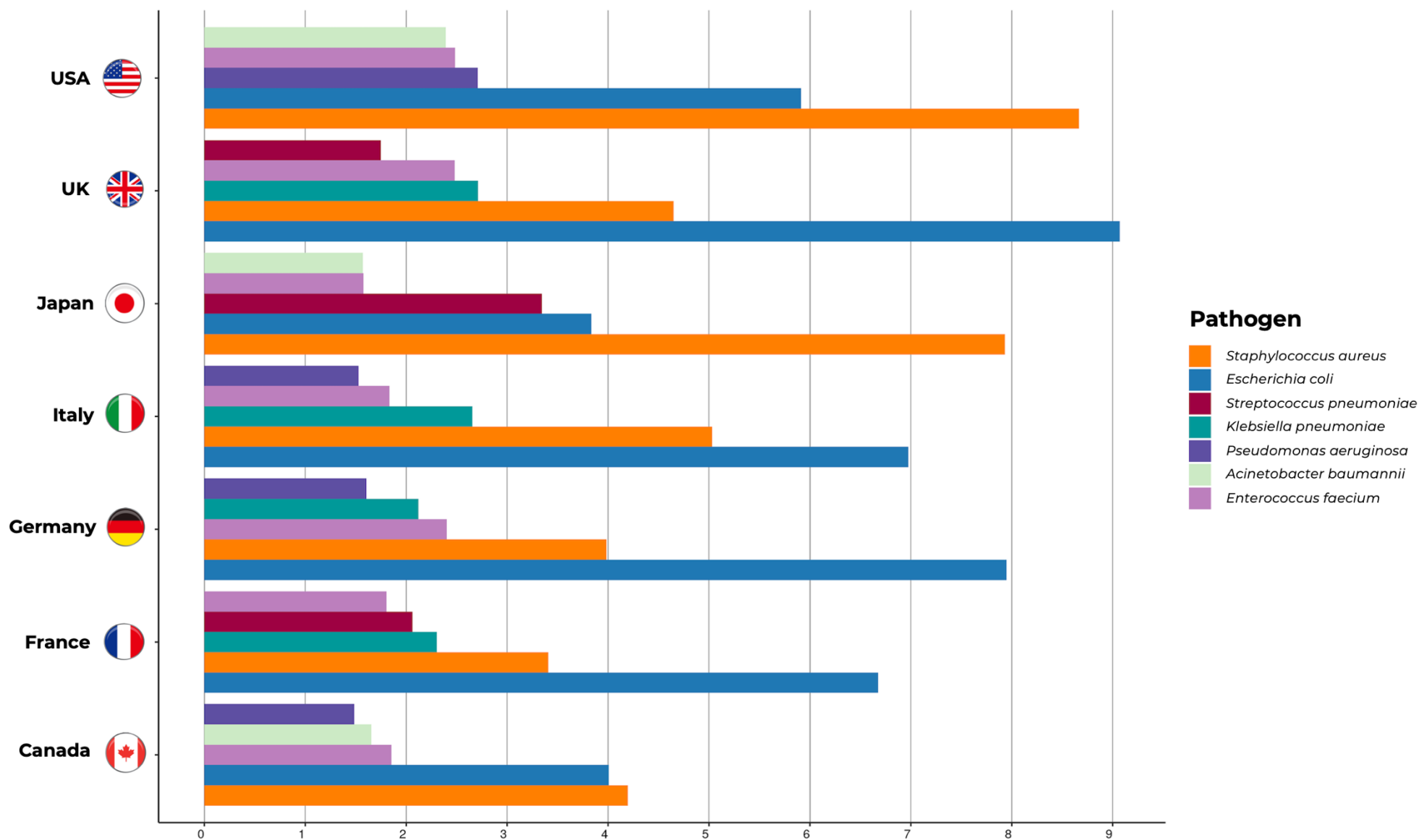
A snapshot of the AMR landscape in the Group of Seven (G7) countries

Attributable and associated death counts with age-standardized mortality rates per 100,000 people



In 2019, almost half a million deaths could have been prevented in all G7 countries combined, if all drug-resistant infections were prevented.

Top five leading pathogens for every G7 country in 2019
With age-standardized mortality rates associated with AMR per 100,000 people



In all G7 countries combined, the most common pathogen-drug combination for deaths attributable to AMR was **methicillin-resistant *Staphylococcus aureus***, while **aminopenicillin-resistant *Escherichia coli*** was the most common for deaths associated with AMR.

The number of AMR deaths is higher than all cancer deaths in Japan, higher than all cirrhosis deaths in Canada, France, Germany and Italy, and also higher than all deaths from Alzheimer's disease in the United Kingdom and the United States.

Antimicrobial Resistance (AMR) – A Call to Action

NATIONAL POLICY

Preliminary analyses show, that current action plans may not have been sufficient to stop an overall upward trend in AMR spread – both in humans and animals.

SURVEILLANCE

Even among G7 countries we found gaps in the AMR data that hinder comprehensive surveillance and burden estimation, highlighting the need for more data sources.

STEWARDSHIP

Country differences in leading pathogen-bug combinations may emphasize the potential of antibiotic stewardship – the management of an optimal therapy for every patient.

INDIVIDUAL ACTION

Everyone has a role to play to reduce the spread of AMR by practicing good hygiene and following the advice of health care professionals to take antibiotics only as prescribed.

