

## Antibiotic resistance could cause over 39 million deaths by 2050, study says

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More than 39 million people could die of antibiotic-resistant infections between now and 2050, according to a [study](#) published Monday in The Lancet.

The authors of the study forecast a nearly 70 percent increase in deaths due to antimicrobial resistance from 2022 to 2050 with older people most at risk and driving the rise in fatalities. Such resistance, also known as AMR, occurs when microbes, such as bacteria and fungi, evolve in a way that makes them [harder to kill with existing medications](#).

“It’s a big problem, and it is here to stay,” said Christopher J. L. Murray, senior author on the study and director of the Institute for Health Metrics and Evaluation at the University of Washington.

Researchers have flagged [antimicrobial resistance](#) as a public health concern for decades, but this study — conducted by a large team of researchers as part of the Global Research on Antimicrobial Resistance Project — is the first to analyze AMR trends around the world and over time. The World Health Organization says the threat of such antimicrobial resistance not only makes common infections harder to treat but makes medical interventions, such as chemotherapy and Caesarean sections, more risky.

The study looked at 520 million datasets, including hospital discharge records, insurance claims and death certificates from 204 countries. Using statistical modeling, the authors found that more than a million deaths related to antimicrobial resistance took place each year between 1990 and 2021. Since then, AMR deaths have only increased and will accelerate, according to the researchers.

Kevin Ikuta, a lead author on the study and assistant professor of clinical medicine at UCLA, said the projected 39 million deaths over the next quarter-century equates to about three deaths every minute.

Their findings also suggest that the burden is not equally distributed. From 1990 and 2021, children ages five and younger saw a greater than 50 percent decrease in AMR deaths, while seniors ages 70 and older saw an increase of more than 80 percent.

The authors predict that such deaths among children will continue to decline, halving by 2050, but will double among seniors over the same period. The researchers highlight that over the past 30 years, the decrease in deaths related to antimicrobial resistance among youth and increase in such deaths among elders have balanced each other out. However, as the global population ages and becomes more vulnerable to infection, AMR deaths among seniors may soon outpace those in other age groups, drastically increasing the number of AMR deaths to come.

Additionally, an estimated 11.8 million deaths — about 30 percent of the 39 million fatalities forecast — will be in South Asia, the study said. The authors predict that regions in sub-Saharan Africa will also see a large number of AMR deaths.

“Increasingly, we’re seeing that antibiotics are being overused or misused, which just puts more pressure on bacteria to become more resistant as time goes on,” Ikuta said.

As a result, the authors call for [antibiotic stewardship](#) to thoughtfully improve access to antibiotics while [taming excessive use of the medication](#).

Ishani Ganguli, a primary care physician and associate professor of medicine at Harvard Medical School, relies on thorough evaluations and conversations with her patients to avoid prescribing antibiotics when they are not needed. For example, she has had patients inquire about antibiotics for the common cold — a viral infection that cannot be treated with antibiotics, which are designed to fight bacteria.

“If there is a disconnect and the person I’m sitting with really wants an antibiotic ... and I don’t think it’s going to help them in that case, I will more often turn to the ways in which it would hurt them” via side effects like diarrhea and yeast infections, Ganguli said.

Ganguli said her job as a clinician is to inform patients when antibiotics are not appropriate and to offer other treatment options, such as salt water gargles and humidifiers in the case of a cold.

In addition to antibiotic stewardship, the authors advocate for infection prevention strategies, such as increased access to clean water and vaccines, and the development of new antibiotics to reduce the number of deaths caused by AMR.

Implementing solutions to fight AMR will require teamwork, according to Murray.

“You can’t do this piecemeal,” Murray said. “You really need a concerted global effort.”