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Research suggests 750 000 deaths linked to antimicrobial resistance could be prevented every year

The University of Cape Town (UCT) academics are among a group of international scientists calling for urgent global action on antimicrobial resistance (AMR) and ensuring sustainable access to antibiotics.

This can be ensured through:

- intensifying efforts to promote vaccination, access to safe water and sanitation, and hospital infection control, thereby reducing infections and the use of antibiotics, which protects their long-term effectiveness.
- expanding access to existing and new antibiotics, which could save many lives lost to bacterial infections.
- increasing investment in new antibiotics, vaccines and diagnostics that are designed to be affordable and accessible to patients in need globally.

Authors say if the world does not prioritise action on AMR now, there will be a steady increase in the global death toll. The current death toll is 4.95 million per year from infections linked to AMR – with young infants, elderly people, and people with chronic illnesses or requiring surgical procedures at the highest risk.

A new modelling analysis, part of four-paper series published in [The Lancet](#), estimates that over 750 000 deaths related to AMR could be prevented annually in low-and middle-income countries (LMICs) by improving and expanding existing infection prevention methods. These methods include hand hygiene, regular cleaning and sterilisation of healthcare equipment, ensuring the availability of safe drinking water, effective sanitation and the use of paediatric vaccines.

Each year, an estimated 7.7 million deaths globally are caused by bacterial infections – one in eight of all global deaths, making bacterial infections the second largest cause of death globally. Out of these bacterial infection deaths, almost five million are associated with bacteria which have developed resistance to antibiotics. Authors of the new *Lancet* Series on antimicrobial resistance call for support for sustainable access to antibiotics to be central to ambitious and actionable targets on tackling AMR introduced at the High-Level Meeting of the United Nations General Assembly in September 2024.

Novel modelling analysis undertaken for the series estimates that existing infection prevention methods could prevent 750 000 deaths associated with AMR infections annually. The analysis estimates:

- improving infection prevention and control in healthcare facilities including better hand hygiene and more regular cleaning and sterilisation of equipment, could save up to 337 000 lives a year.
- universal access to safe drinking water and effective sanitation in community settings could prevent approximately 247 800 deaths annually.
- expanding the roll out of some paediatric vaccines, such as pneumococcal vaccines which help protect against pneumonia and meningitis, and introducing new ones, such as Respiratory Syncytial Virus (RSV) vaccines for pregnant mothers, could save 181 500 lives a year.

The series also looks at the evidence for preventing resistance emerging in bacteria, alongside preventing infections in the first place.

Antibiotic stewardship (reducing the use of antibiotics when the benefit to patients is limited) is thought to reduce the selection pressure on bacteria to develop resistance. However there is a lack of research in this area.

Co-author Associate Professor Esmita Charani from UCT says: "The current limited evidence on the impact of antibiotic stewardship on AMR from low- and middle-income countries does not mean it is not a key intervention that needs focus, but rather makes it difficult to anticipate the effects of antibiotic stewardship in those countries. We urgently need studies to investigate the impact to help inform future policies and interventions fit for different contexts."

A recent study in *The Lancet* estimated that 7.7 million deaths were caused by non-Tuberculosis bacterial infections in 2019, of which almost five million were associated with bacterial AMR and 1.3 million directly caused by bacterial pathogens resistant to the antibiotics available to treat them.

The new series highlights how babies, children, the elderly and people with chronic illness are most vulnerable to AMR as they have a higher risk of contracting bacterial infections in general.

AMR is a huge threat to newborn survival around the world. A third of deaths in newborn babies globally are caused by infections and half of those to sepsis (a potentially lethal system-wide response to infection). Increasingly, the bacteria or fungi which cause these infections are no longer responding to most readily available antibiotics, for example, in a study including 11 countries across Africa, Asia, Europe, and Latin America between 2018-2020, 18% of babies with sepsis did not survive despite being given antibiotics.

Elderly and chronically ill people also face significant risk from AMR, especially when seeking treatment for medical conditions in hospitals and long-term care facilities. AMR undermines the safety of common medical procedures such as organ transplants, joint replacements, cancer chemotherapy, and treatment of non-communicable diseases such as cardiovascular disease, diabetes and chronic lung illnesses.

ENDS

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