

Salmonella unmasked as major killer of young children in Africa

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Invasive *Salmonella* infections in sub-Saharan Africa are a major cause of child illness and deaths, a new body of research into this usually overlooked infectious disease has revealed.

In the West, *Salmonella* is commonly thought of as a [bacterium](#) responsible for relatively benign cases of [food poisoning](#). However, a supplement to the leading [infectious diseases](#) journal *Clinical Infectious Diseases* published today now exposes the unacceptable toll of sickness and [death](#) caused by invasive *Salmonella* infections in sub-Saharan Africa.

The supplement, sponsored by New Zealand's University of Otago and supported by a grant from the Bill & Melinda Gates Foundation, is a key output of a project to better understand the disease burden of this major cause of child death in sub-Saharan Africa.

Guest edited by Professor John Crump, Co-Director of the University's Centre for International Health, and by Professor Robert Heyderman, Professor of Infectious Diseases and International Health, at University College London, the supplement emerged from a consensus meeting of experts held in Malawi last year, supported by the Wellcome Trust and Bill & Melinda Gates Foundation.

The supplement includes 19 scientific papers that describe the toll of invasive *Salmonella* infections in Burkina Faso, Ethiopia, Gambia, Ghana, Guinea-Bissau, Madagascar, Mali, Nigeria, Kenya, Democratic

Republic of Congo, Malawi, Mozambique, Senegal, South Africa, Sudan, and Tanzania.

It also includes papers on the application of genetic fingerprinting and mathematical modeling to understand disease sources and modes of transmission, as well as vaccines and other prevention measures.

"Invasive *Salmonella* infections include typhoid fever, a disease that is widely appreciated by the public, but also non-typhoidal *Salmonella* (often abbreviated as NTS) that tends to be thought of as a cause of diarrhoeal disease in the west but in sub-Saharan Africa it is the leading cause of sepsis or blood poisoning," says Professor Crump.

"NTS occurs in infants and young children, particularly those with malaria and malnutrition, and in HIV-infected adults. About 20% of those who get *Salmonella* blood poisoning will die."

"The papers in the supplement demonstrate not only that typhoid fever is underappreciated problem in Africa, but also bring to the fore considerable new data to underpin the first-ever global disease burden estimates for invasive NTS disease that were published earlier this year. The estimates were that in 2010, NTS caused 3.4 million illnesses and 681,000 deaths worldwide, with the majority in sub-Saharan Africa," says Professor Heyderman.

"This collection of papers support other evidence that invasive *Salmonella* is a leading cause of severe bacterial disease in Africa, urgently requiring investment in both vaccine and non-vaccine control measures."

One of the papers from western Kenya shows that the majority of NTS strains are now resistant to most antibiotics available in Africa.

"With options for treatment diminishing, we must renew our efforts to prevent these severe bacterial infections," says Professor Heyderman.

The data published in this supplement will be available to the scientific community, including groups at the World Health Organization and the Institute for Health Metrics and Evaluation who are responsible for estimating the global burden of diseases.

"These data are key to improving estimates of [typhoid fever](#) in Africa and adding invasive non-typhoidal *Salmonella* disease to the global causes of illness and death. Currently, the number of illnesses and deaths associated with *Salmonella* diarrhea are counted, but not the number of *Salmonella* sepsis illnesses and deaths," says Professor Crump.

"In global health there is a great risk that the uncounted will be ignored: this body of work will help to focus much needed attention and justification for investment in a major neglected disease that carries a unacceptably high burden of death."

More information: *Clinical Infectious Diseases*,
cid.oxfordjournals.org/content/61/suppl_4.toc

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