

A Systematic Review of the Incidence, Risk Factors and Case Fatality Rates of Invasive Nontyphoidal *Salmonella* (iNTS) Disease in Africa (1966 to 2014)

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Background: Data on the burden of iNTS disease in Africa are sparse and generally have not been aggregated, making it difficult to describe the epidemiology that is needed to inform the development and implementation of effective prevention and control policies. The study aims to document the geographical spread of iNTS disease reported over time in Africa, and describes its reported incidence, risk factors and CFR.

Methods: This study systematically reviewed the literature on the occurrence, incidence and case fatality rate (CFR) of invasive nontyphoidal *Salmonella* (iNTS) disease in Africa from 1966 to 2014. This study involved a comprehensive search of PubMed and Embase databases using a comprehensive search string.

Results: We found that Nontyphoidal *Salmonella* (NTS) have been reported as a cause of bacteraemia in 33 out of 54 African countries, spanning the five geographical regions of Africa, and especially in sub-Saharan Africa since 1966. Our review indicates that NTS have been responsible for up to 39% of community acquired blood stream infections in sub-Saharan Africa with an average CFR of 19%. *Salmonella* Typhimurium and Enteritidis are the major serovars implicated and together have been responsible for 91% of the cases of iNTS disease (where serotype was determined), reported in Africa. The study confirms that iNTS disease is more prevalent amongst Human Immunodeficiency Virus (HIV)-infected individuals, infants, and young children with malaria, anaemia and malnutrition.

Conclusions: In conclusion, iNTS disease is a substantial cause of community acquired bacteraemia in Africa. Given the high morbidity and mortality of iNTS disease in Africa, it is important to develop effective prevention and control strategies including vaccination.