GLOBAL REPORT ON THE EPIDEMIOLOGY AND BURDEN OF SEPSIS

Current evidence, identifying gaps and future directions

World Health Organization

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Foreword

In 2017, the 70th World Health Assembly adopted a historic resolution aiming to improve "the prevention, diagnosis and clinical management of sepsis". Member States and global health leaders recognized that suffering and death from sepsis can be prevented through early diagnosis, timely and appropriate treatment, and effective infection prevention and control measures. They also urged the World Health Organization (WHO) to draw attention to the public health impact of sepsis.

Sepsis contributes significantly to preventable mortality and is the final common pathway to death for severe infectious diseases; it can also arise as a complication of injuries and non-communicable diseases. As reflected in the Sustainable Development Goals (target 3 in particular), reducing global mortality from infectious diseases, especially in fragile populations, builds upon our progress in preventing and treating sepsis effectively. Preventing sepsis also reduces the use of antimicrobials, thus curbing the threat related to antimicrobial resistance. As sepsis represents the negative evolution of any infection when not diagnosed early enough or not treated effectively, its prevention and appropriate management are linked to achieving quality care for all in the context of universal health coverage, improving country capacity to comply with the International Health Regulations (IHR 2005), developing health emergency preparedness, implementing appropriate infection prevention and control measures, and ensuring that water, sanitation and hygiene standards are met.

However, understanding the problem of sepsis and its magnitude is challenging. This is the first WHO report on the global epidemiology and burden of sepsis. It stems from original research and existing published evidence and represents the first ever comprehensive 'deep dive' on this topic. To best appraise the existing evidence, WHO established a multidisciplinary group of international experts to discuss the status and limitations of research to date, and to identify approaches and priorities for improvement.

According to available estimates, approximately 20% of all-cause global deaths are due to sepsis, disproportionately affecting neonates, pregnant or recently-pregnant women, and people living in low-resource settings. Yet, our current understanding of the epidemiology of sepsis remains limited, particularly where the burden is highest, and is hampered by poor data quality, which illustrates the urgent need for this report. Furthermore, our knowledge of sepsis pathophysiology, aetiological factors, and clinical progression has evolved over time, together with its definition. Thus, strengthening national capacity for better health information systems, vital statistics and administrative data is urgently needed.

In this report, we highlight the public health impact of sepsis, with a particular focus on specific populations and those seeking health care, and we propose future directions and priorities in sepsis epidemiology research. Sepsis has many faces and can be a life-threatening condition, but it is potentially preventable and reversible. Research and policy-makers must be ready to forge partnerships to stimulate funding and help place sepsis more firmly on the list of critical health conditions to target in the pursuit of universal health coverage.

Dr Tedros Adhanom Ghebreyesus
Director-General
World Health Organization

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Abbreviations and acronyms

AFRINEST	african neonatal sepsis trial
AMR	antimicrobial resistance
EOS	early onset sepsis
ESBL	extended spectrum beta-lactamase
GARDP	global antibiotic research and development partnership
GBD	global burden of disease, injuries, and risk factors
GLASS	global antimicrobial resistance surveillance system
GLOSS	global maternal sepsis study
HA-sepsis	health care-associated sepsis
HAI	health care-associated infection
HCW	health care worker
HDSS	health and demographic surveillance system
HIC	high-income country
ICD	international classification of diseases
ICU	intensive care unit
IHR	international health regulations
IPC	infection prevention and control
LMIC	low- and middle-income country
LOS	late onset sepsis
MCEE	maternal and child epidemiology estimation group
MCS	multi-country survey
MCS-A	multi-country survey on abortion
MDR	multidrug-resistant
MRSA	methicillin-resistant Staphylococcus aureus
NCD	non-communicable disease
NICU	neonatal intensive care unit
PSBI	possible serious bacterial infection
SATT	simplified antibiotic therapy trial
SDG	sustainable development goals
SDI	sociodemographic index
SIRS	systemic inflammatory response syndrome
SMO	severe maternal outcome
SOFA	sequential organ failure assessment
STROBE	strengthening the reporting of observational studies in epidemiology
SDG	sustainable development goals