

Snakebite: The world's biggest hidden health crisis



Translating science into global health impact

Snakebite is a potentially life-threatening neglected tropical disease (NTD) that is responsible for immense suffering among some 5.8 billion people who are at risk of encountering a venomous snake.

The human cost of snakebite

Each year, approximately **5.4 million** people are bitten by a snake, of whom **2.7 million** are injected with venom. This leads to **400,000** people being permanently disabled and between **83,000-138,000** deaths annually, mostly in sub-Saharan Africa and South Asia.

Snakebite: both a consequence and a cause of tropical poverty

Survivors of untreated envenoming may be left with amputation, blindness, mental health issues, and other forms of disability that severely affect their productivity. Most victims are agricultural workers and children in the poorest parts of Africa and Asia. The economic cost of treating snakebite envenoming is unimaginable in most communities and puts families and communities at risk of economic peril just to pay for treatment.

Global antivenom crisis

The world produces less than half of the antivenom it needs, and this only covers 57% of the world's species of venomous snake. Barriers to treatment are driven by challenges plaguing antivenom production and use, characterized by a 19th century technology, which continues to have high manufacturing costs and remain unaffordable and inaccessible to the poorest people who are most in need. Moreover, multi-venom treatments commonly used in Africa and India have weak, unreliable effectiveness against the venom of any single snake species and may even have harmful side effects, such as anaphylactic shock. As such, the world is in critical need of next generation snakebite therapies (NGSTs).

Snakebite Treatment Timeline

1895

The first snake antivenom produced, against the Indian Cobra. Immunotherapy with animal-derived antivenom has continued to be the main treatment for snakebite evenoming for **120 years**

2014

The Fav-Afrique antivenom, produced by Sanofi Pasteur (France) permanently discontinued

2018

World Health Organization (WHO) lists snakebite envenoming as a neglected tropical disease

2019

WHO launches a strategy to prevent and control snakebite envenoming, including a program targeting affected communities and their health systems

The Scientific Research Partnership for Neglected Tropical Snakebite (SRPNTS) launched

Sources available at iavi.org/fact-sheets-sources

Every 5 minutes 50 people are bitten by a snake

- 25 will be injected by venom
- 4 will be permanently disabled
- 1 will die

Next-generation snakebite therapies with universal efficacy against multiple snakes are urgently needed, especially in Africa and India

The Scientific Research Partnership for Neglected Tropical Snakebite (SRPNTS)

SRPNTS is a consortium of partners in five countries, constituting a significant investment in snakebite therapy research. SRPNTS aims to treat critical illness from snake venom in sub-Saharan Africa and India -regions with the highest snakebite morbidity and mortality burden. This partnership represents expert institutions in snakebite and snakebite treatment paired with antibody technologies and capabilities to combat HIV/AIDS. They will apply state-of-the-art science in advanced immunology and monoclonal antibody and recombinant protein technology. Funded through a generous grant from the U.K. government through the Department for International Development (DFID), SRPNTS seeks to develop novel NGSTs with unparalleled efficacy, safety, and affordability to reduce morbidity and mortality of venomous snakebite.

Outputs of NGST pipeline

Toxin Characterization



Most pathogenic toxin targets for African and Indian snakes identified and produced

Antibody Discovery



Broadly protective antibodies against venom from diverse snake species discovered and developed

Political/Civil Support



Information and knowledge contributing to political and civil society support for NGSTs

Capacity Building



Clinical and scientific capacity enhanced for sustained snakebite research and evaluation capabilities in low- and middle-income countries

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