Current progress, and the mid-term review of the WHO Roadmap on Snakebite Envenoming

Dr David Williams
Scientist (Antivenoms)
Prequalification Unit (PQT), Regulation and Prequalification Department (RPQ)
Access to Medicines and Health Products Division (MHP),
World Health Organization, Geneva, Switzerland

World Health Organization

WHO Snakebite Envenoming Strategy: Key pillars and priority areas

Engage and empower communities

- Active local community engagement and participation
- Improve SBE prevention, risk-reduction and avoidance
- Effective pre-hospital care and ambulance transport
- Accelerate development of pre-hospital treatments
- Improve health care-seeking behaviours
- Build understanding of socio-cultural and economic factors affecting outcomes

Ensure safe, effective treatment

- Make safe, effective treatments available, accessible and affordable to all.
- Better control and regulation of antivenoms
- Prequalification of antivenoms
- Invest in innovative research on new therapeutics
- Integrated health worker training and education
- Improved clinical decision-making, treatment, recovery, and rehabilitation

Strengthen health systems

- Strengthening community health services
- Facilitating research and policy development around health-care cost mitigation
- Improving infrastructure, services, and health facilities
- Country-level implementation via national and sub-national health plans
- Enhanced disease burden monitoring and surveillance
- Research on snakebite envenoming ecology, epidemiology, clinical outcomes, and therapeutics

Partnerships, coordination & resources

- Support governance and leadership
- Promote advocacy, effective communication, and productive engagement
- Enhancing integration, coordination, and cooperation
- Build strong regional partnerships and alliances
- Coordinated data management and analysis
- Establishing a strong, sustainable investment case

NTD listing (2017); WHA resolution 71.5 (2018); WHO strategic plan launched (2019)

Progress in-spite of a global pandemic

Progress has been made despite the disruptions caused by the pandemic, but major challenges remain

- **Empower and engage communities**
  - Developed a community engagement toolkit based on landscape analysis of other public health-related community-based programmes.
- **Ensure, safe effective antivenoms**
  - Developed target product profiles for plasma-derived antivenoms, next generation technologies and small molecule inhibitors.
  - Undertaken risk-benefit assessments of antivenoms for African and Asian markets, as a precursor to the implementation of formal prequalification.
  - Initiated listing of WHO-recommended antivenoms in the WHO Procurement Catalogue to facilitate a pooled procurement programme for sub-Saharan African countries to improve access to safe, effective and affordable treatments.
- **Strengthen health systems**
  - Implemented a snakebite reporting module for DHIS2 that has been rolled out in AFRO and SEARO to collect data on incidence and mortality due to snakebite envenoming, and on antivenom products and supplied stock volumes.
  - Supported the development of regional and country-level snakebite action plans, and provided technical assistance and expert guidance.
- **Increase partnerships, coordination and resources**
  - Established a Snakebite Information & Data Platform to enable accessible data sharing (https://snbdatainfo.who.int).
  - Engaged with stakeholders on issues such as community empowerment and education, health worker training, antivenoms, national action plans, and minimum standards for health facilities that manage snakebites
  - Maintain a Roster of Experts to ensure that WHO has access to qualified opinion and assistance as the programme expands and gains ground.
  - Working with Member States to better understand their specific needs and challenges.
- **Critical issues**
  - Funding of implementation activities on snakebite envenoming though Member State voluntary contributions has not occurred.
  - Philanthropic and project grant funding has fallen substantially short of expectations and needs.
  - While funding for academic research has grown substantially, the lack of support for in-country implementation stifles real progress.

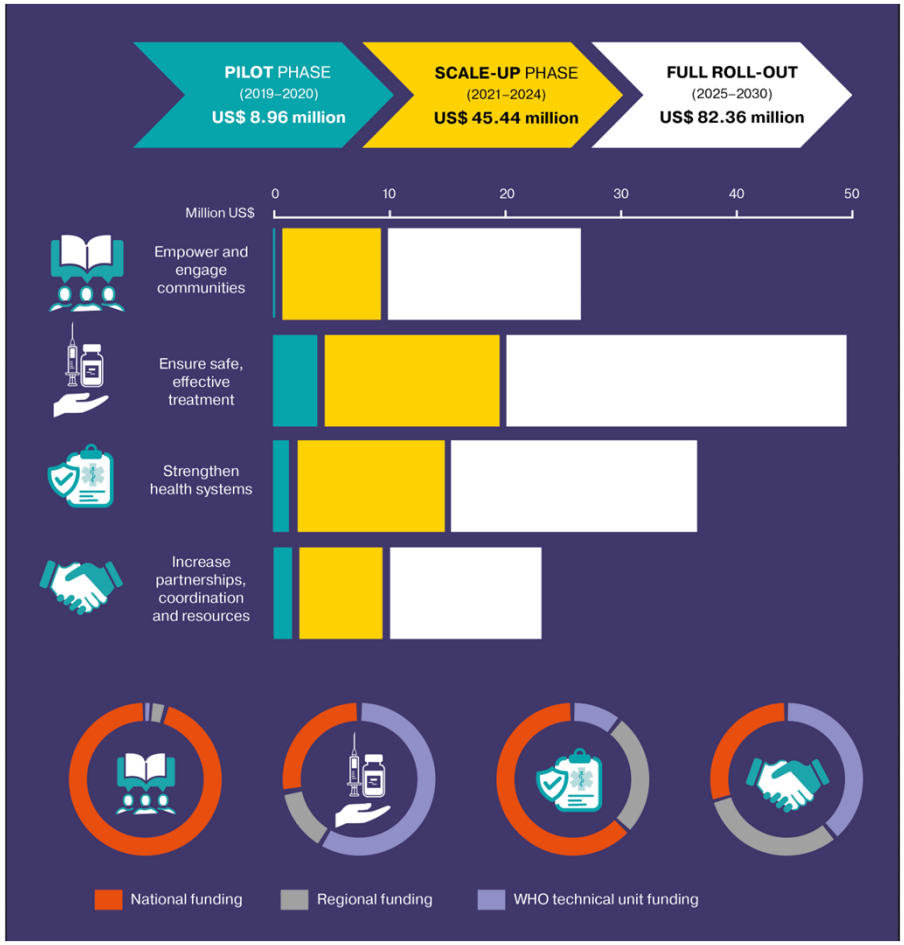
Resource mobilization

The need for resources

- WHO relies upon Member States, partners and donors for funding
- Assessed contributions (AC) are a percentage of a country's Gross Domestic Product (the percentage is agreed by the United Nations General Assembly).
- Member States approve them every two years at the World Health Assembly. They cover less than 20% of the total budget.
- The remainder of WHO's financing is in the form of voluntary contributions (VC), largely from Member States as well as from other United Nations organizations, intergovernmental organizations, philanthropic foundations, the private sector, and other sources.
- The withdrawal of the USA has seriously impacted WHO work across the whole organization, with drastic budget cuts, staff losses and program restructuring.

Funding for the snakebite strategy

- WHO has received approximately US$6.5 million (<12% of 2019-2024 budget) for implementation of the roadmap since 2018.
- The outcome of efforts to secure resource commitments from Member States and other donors represents a major rate-limiting step towards the success or otherwise of the strategy.



Mid-term review of the snakebite envenoming roadmap

The lack of investment and support for implementation demands a critical review of the strategy, and drastic changes

- **Reprioritization**
  - The current strategy will be refocused to prioritize implementation of activities in snakebite endemic countries in the global south where the burden of suffering is greatest.
  - Key priorities will be:
    - Community engagement, empowerment and education.
    - Training and education of health care workers in the diagnosis and treatment of snakebite envenoming.
    - Increasing access to safe, effective and affordable antivenoms
    - Epidemiological surveillance, programmatic monitoring and reporting
- **Engagement of local implementation partners**
  - The active participation of local stakeholders in the planning, development and implementation of interventions, with support from WHO and other collaborators will be central to the revised strategy.
- **Funding and resource mobilization**
  - The integration of snakebite envenoming into national health plans will be the key focus, with countries encouraged to provide resources for local program activities.
  - WHO will work with partners to secure additional funding to support stakeholder implementation in collaboration with Member States.
  - WHO HQ and RO teams will focus on providing technical NTD support, normative guidance, and stronger regulation of treatments.

INTERNAL WHO REVIEW	*September 2025*
↓	
TECHNICAL ADVISORY GROUP	*November 2025*
↓	
PUBLIC CONSULTATION	*February 2026*
↓	
NTD STAG COMMITTEE	*April 2026*
↓	
PUBLICATION & RE-LAUNCH	*WHA May 2026*

Putting at-risk communities first

Directly working with communities to mitigate human-snake conflict

- **Communities must be an integral part of the solution**
  - Unless populations at risk are placed at the centre of the future strategy, the likelihood of achieving key goals is slim.
  - WHO will work with all stakeholders to prioritize and accelerate interventions related to solving human-snake conflict situations and improving prevention, risk mitigation, knowledge exchange and more effective treatment seeking behaviours.
  - Driven by local implementation with strong coordination, collaboration and partnering across public and private networks
- **Placing community-based interventions at the centre of national action plans**
  - Strong advocacy needed to place community-based interventions at the centre of snakebite action plans, and embed appropriate resource allocation into national health budgets to strengthen such activities in partnership with local and international donors.
- **Building national, regional and global community intervention networks**
  - WHO will work with all stakeholders to establish effective, cross-disciplinary networks to ensure that all community-based activities have the benefit of broad cooperation and collaboration, learning from one another to build resilient and benchmarkable approaches.
- **Standard tools, monitoring and evaluation frameworks**
  - Working together, and with support from global leaders through scientific and technical working groups convened by WHO, to deliver critical tools, applications and resources for program implementation, monitoring and evaluation.

Training and education of health workers

New guidance, tools and locally programs to support improved primary and on-going training initiatives

- **Health workers are the front-line of medical care for snakebite envenoming**
  - Training, education and resource development to improve the skills and competencies of health workers will be elevated to become a key pillar of the revised strategy.
  - Essential to achieving sustained reductions in morbidity, disability and mortality.
  - Training and education of health workers in core clinical skills and competencies, and better resourcing of health facilities nt as a major pillar to achieve 2030 outcomes.
- **Establishing training in treatment of envenoming within medical curricula**
  - Critical need for adequate training in the diagnosis and treatment of envenoming within curricula offered to health workers across the professional spectrum.
  - Multidisciplinary technical advisory groups comprised of clinical experts established to provide clear, evidence-based guidance and normative tools to standardize management appropriately.
  - Professional associations and colleges encouraged to build clinical toxinology sub-specialty streams into fellowship programs.
- **Enhancing continuing medical education for established health care workers**
  - WHO would work with stakeholders to build robust, regionally relevant CME programs pitched at all levels of the health system.
  - Local implementation partners and Ministries of Health would be supported by WHO to create programs aimed at supporting ongoing knowledge transfer, practical skills development and training of all health workers involved in diagnosis, treatment and management of snakebite cases.
  - This would include first responders, traditional practitioners and primary health care workers as well as more secondary and tertiary professionals.

Increasing access to safe, effective antivenoms

Technical activities to improve the availability and accessibility of quality assured treatments

- **Target product profiles (TPPs) for snakebite treatment**
  - WHO has published TPPs on conventional plasma-derived antivenoms for South Asia, and sub-Saharan Africa.
  - New TPPs for next-generation products and small molecule inhibitors will be published later in 2025.
- **Risk-benefit assessment of antivenoms**
  - Evaluation of 8 South Asian, 10 African, and 9 Middle Eastern antivenom products.
  - WHO will establish ongoing monitoring processes for products that will commence in 2026.
  - Expanded collaboration, training and data sharing with national regulatory systems will also be implemented.
- **Pooled procurement program for WHO-recommended antivenoms**
  - First products will be added to WHO Procurement Catalogue in 2025.
  - WHO will work through local implementation partners and Ministries of Health to implement integrated data collection systems to examine antivenom usage patterns, develop forward needs assessments and operationalize monitoring and surveillance strategy to collect usage and safety data.
  - Orders through WHO Procurement System delivered quarterly via WHO Logistics
  - Bulk purchasing = lower unit costs via long-term supply agreements with manufacturers.
  - WHO will pay manufacturers, and countries will reimburse WHO accordingly.
  - The scheme will operate initially for African products but will expand to South Asia and the Middle East as products become available.
  - Scheme will also operate for emergencies, such as natural disasters and human conflict.

Active monitoring, reporting and evaluation

Global data on snakebite burdens and the success of interventions fundamental to program sustainability

- **Enhanced epidemiological surveillance with standardized tools and data**
  - Lack of robust, reliable data critically undermines efforts to expand resource availability due to doubt about the extent of the problem at national, regional and global levels.
  - Greater commitment to surveillance and reporting of cases and outcomes at national and subnational level is essential to providing data of sufficient granularity to inform policy, investment and resource allocation needed to achieve sustainable reductions.
  - Standardization is essential, and new tools will be developed to empower countries to collect and analyse snakebite epidemiological from health systems and at community level efficiently and effectively in collaboration with local implementation partners and technical experts.
- **Implementing program level monitoring, reporting and evaluation**
  - Essential that progress towards goals are captured and used to justify investments and activities across the whole strategy.
  - New tools including RHIS that will launch in 2025/26 will empower countries to collect, analyse, report and evaluate progress and achievements.
- **New technologies to better understand the ecology of snakebite**
  - Multidisciplinary approaches that improve our knowledge of human-snake interactions and ecological intersections that lead to envenoming will be expanded to better inform decision-making and prioritize how and where resources are deployed.
  - Health economics, social science, and combined with geospatial and health systems data will be used to generate high impact investment cases that accelerate progress towards strategic goals.