



Delivering effective healthcare and systems to reduce the global burden of disease caused by tropical snakebite: what still needs to be done?

Tuesday 18th June 2019 from 5:00-7:00pm, Committee Room 12, Palace of Westminster



Background to the APPMG meeting on tropical snakebite:

With the support of the Kofi Annan Foundation, Médecins Sans Frontières, The Global Snakebite Initiative, Health Action International, some governments and several academics, the World Health Organization (WHO) listed tropical snakebite as a priority Neglected Tropical Disease (NTD) in 2017 and, on 23rd May this year, launched its strategy to halve global mortality and morbidity rates by 2030. On the 16th May, the Wellcome Trust announced a £80m/7 year Strategic Programme that provides urgently needed investment to achieve key tasks within WHO's strategy. On the same day the UK Department for International Development also announced their £9m funding of the Scientific Research Project for Neglected Tropical Snakebite.

In light of these very recent, unprecedented investments in tropical snakebite, the APPG met to review the medical and societal burden posed by tropical snakebite. We heard of the (i) WHO's strategy to halve this burden by 2030, (ii) which planks of WHO's multifaceted strategy will be supported with Wellcome and UK Government investments and, (iii) of other current/planned investment in this NTD domain including potential grants from the Hamish Ogsten Foundation.

Armed with this key information, **the objective of this APPG meeting** was to identify which sections of WHO's snakebite-management strategy will require support and identify opportunities/strategies to plug these gaps in the provision of effective systems to reduce the mortality and morbidity of tropical snakebite.



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Report from the meeting:



(L-R: Dr Diogo Martins, Dr Dirk Mueller, Jeremy Lefroy MP, Prof. David Warrell, Prof. David Lalloo, Prof. Robert Harrison)

Context

Professor Robert Harrison (Liverpool School of Tropical Medicine)

Snakebite, like the other WHO listed Neglected Tropical Diseases, primarily affects rural, subsistence farming, impoverished African, Asian, Latin American and Oceania communities that lack adequate health resources. The significant morbidity (400,000 disabilities per year globally) suffered by surviving snakebite victims causes a socioeconomic burden equal and often exceeding that of other NTDs. Unlike most NTDs, snakebite causes high mortality rates (81,000-138,000 deaths per year), which equate to a quarter of the number of people dying from malaria globally. This is partly because snakebite is a medical emergency requiring rapid treatment in hospitals equipped with effective antivenom and appropriately trained staff. The lack of such rapid healthcare in these remote communities, and the high treatment costs, explains why most victims, particularly in sub-Saharan Africa, consult traditional healers rather than seek hospital care. Whilst affordable, there is no evidence that traditional treatments are effective. The market failure of the two most effective antivenoms has resulted in a crisis in the supply of effective treatments to sub-Saharan Africa, which has been exacerbated by the influx of weakly-effective/ineffective antivenoms, because of poor



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regulatory control systems. The multiple medical, cultural and logistic barriers faced by snakebite victims testifies to a historical medical, infrastructure and fiscal neglect of tropical snakebite management by governments and international health agencies.

Against this background, the 2019 WHO strategy to halve snakebite mortality and morbidity by 2030 is transformative, especially with the investment support from Wellcome Trust, and the UK Government, and private donor funding agencies. It is hoped that these initiatives will galvanise additional support from other government and philanthropic agencies to assist WHO to coordinate and achieve its multiple strategic objectives.

The WHO Strategy for the Prevention and Control of Snakebite

Professor David Warrell (Oxford University)

The WHO Strategy for the Prevention and Control of Snakebite envisages three phases: Pilot phase (2019-2020); Scale-up phase (2021-2024); and Full roll-out (2025-2030), with the aim of halving snakebite-related deaths and disabilities by 2030. The strategy rests on four pillars:

1. Empowering and engaging communities to reduce the risk of bites: through community education; investigating effective first-aid methods; developing ambulance transport; encouraging preference for medical care rather than traditional remedies; and understanding the cultural and economic factors that determine outcome.
2. Ensuring safe and effective treatment is accessible and affordable for all snake-bite victims, including the rehabilitation of survivors. Investment is urgently needed to improve design, formulation, production, control, and regulation of antivenoms towards GMP and WHO prequalification together with pre-clinical and clinical testing. WHO will create regional stockpiles of selected approved antivenoms. Research is needed to improve conventional antivenoms and explore novel treatments such as low molecular weight enzyme inhibitors.
3. Strengthening Health Systems by reinforcing community health services, exploring methods for cost reduction and improving assessment and surveillance of disease burden.
4. Increasing partnerships, coordination and resources and promoting advocacy, particularly within affected countries.

WHO's urgent funding priorities over the first year include £2,500,000 for antivenom stockpiles; US\$461,400 to develop and implement integrated health worker training, to improve clinical decision-making, treatment, recovery and rehabilitation of snake-bite victims; US\$342,280 to enhance monitoring and surveillance of disease burden across 10 African and 2 Asian countries as a basis for calculating future resource needs; and US\$1,004,976 to employ WHO technical staff. The entire programme is estimated to cost US\$ 136.76 million.

The UK Government Perspective

Dr Dirk Mueller (Department for International Development)

The UK Government is supporting research and development of new approaches to snakebite envenoming from two Government Departments: In 2017, the Department of Health and Social Care embarked on the support (of £2 million) towards the 'Global Health Research Group on African Snakebite Research' led by the Liverpool School of Tropical Medicine. The Programme contains six pilot research projects to develop



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facilities for testing antivenom efficacy; develop a rapid diagnostic test; establish the pathophysiology of envenomings, review the medical and socio-economic burden of snakebite, establish the cost-effectiveness of snakebite emergency responses and, critically, to establish first aid and hospital and rehabilitation guidelines and training. In 2018, the Department for International Development started a multi-year investment of initially £9 million towards the development of next-generation snakebite treatments that uses knowledge generated from HIV vaccine research to identify recombinant antibodies that will lead to a more universal antivenom for multiple snakes at once. This research led by the International AIDS Vaccine Initiative (IAVI) jointly with the Liverpool School of Tropical Medicine and partners in Africa and India will help to establish a safer and more effective way of treating victims of snakebite, whereas the current treatment, based on treatments developed over 100 years ago, is risky, expensive and requires specialised treatment in hospital.

All treatments will require access and scale up in order to achieve universal coverage of health care including for snakebite victims, which often include the most vulnerable and poor in rural areas. This will depend on effective, accessible and affordable health services, which DFID and DHSC help to develop jointly with their partners.

The Private Donor Perspective

Dr Diogo Martins (Wellcome Trust)

Wellcome is a global charity foundation based in the UK. Its mission is to improve health for everyone through science and research. In April 2019, we announced a £80M investment in Snakebite with the goal of improving the way treatments are researched, developed and delivered to the people who need it the most. The portfolio was designed in harmony with the WHO Global Strategy for Prevention and Control of Snakebite Envenoming, which aims at halving deaths and disability from snakebite by 2030. We believe that research & development, innovation and access are at the heart of the success of this global strategy. Our programme has three ambitions to accelerate research and policy: 1) Bring production of antivenoms to the 21st century; 2) Jumpstart the next generation of Snakebite treatments; 3) Sustain Snakebite as a global health priority. To achieve our vision of a world where Snakebite treatments are safe, effective and accessible for all, we will need work with governments, civil society, manufacturers, funders and the research community to agree on priorities, complement and maximise our resources.

Further details:

APPMG officers and members present at this meeting: Pauline Latham MP, Fiona Bruce MP, Jeremy Lefroy MP, Lord Trees, Lord Crisp, Baroness Hayman and Baroness Masham

Many experts from the Snakebite community were represented at this meeting including:

- Moderation and comments from Professor David Laloo, the Director of the Liverpool School of Tropical Medicine
- Representation and contributions from
 - Médecins Sans Frontières
 - Hôpitaux Universitaires de Genève
 - Micropharm
 - Naturalis
 - Hamish Ogston Foundation
 - Currently funding antivenom trials and sponsoring graduate research fellowships and would like to encourage those interested to apply for a fellowship



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- Mologic
- Institut Pasteur De Dakar
- KCCR Ghana
- IPD
- Students for Global Health
- Health Action International



Appendix A: APPG Panel and Presentation Agenda:

- 5.00-5.10 Introduction to the meeting**
Chair, Jeremy Lefroy, MP
- 5.10-5.25 The burden of snakebite upon communities and nations: barriers to accessing effective healthcare**
Professor Robert Harrison, Liverpool School of Tropical Medicine
- 5.25-5.40 The World Health Organization strategy to halve snakebite mortality and morbidity by 2030**
Dr Bernadette Abela-Ridder, WHO and Professor David Warrell, University of Oxford
- 5.40-6.00 Discussion & comments from delegates**
- 6.00-6.15 UK funding to improve the management of snakebite**
Drs Diogo Martins, Wellcome Trust and Dirk Mueller, DFID
- 6.15-6.25 Discussion: snakebite investment-input from delegates**
- 6.25-6.55 Discussion: identify (i) sections of WHO's snakebite-management strategy that will require support and (ii) opportunities/strategies to address these unmet needs**
- 6.55-7.00 Conclusion and Actions**
Jeremy Lefroy, MP