

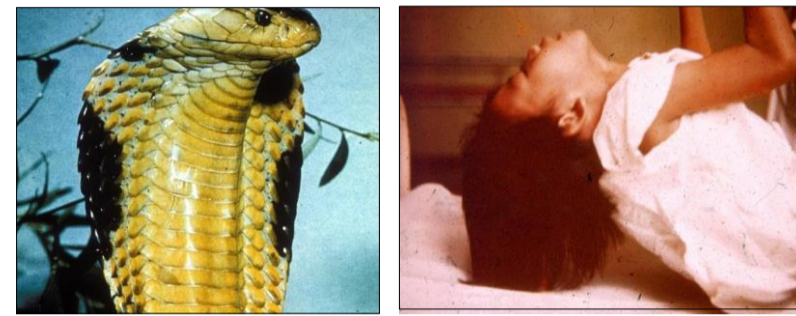
The EchiTAB Study Group

A global collaboration to improve the treatment of snakebite victims in Nigeria and wider West Africa

The Problem

Over 90,000 people worldwide, and >20,000 in West Africa, are killed each year by the neurotoxic or haemorrhagic effects of systemic snake envenoming. Many more snakebite victims suffer from severe tissue-destruction and disfigurement.

Systemic Effects



Cobras Neuromuscular paralysis

Tissue Effects



Oedema, blisters

Permanent Effects



Disfigurement



Vipers Haemorrhage



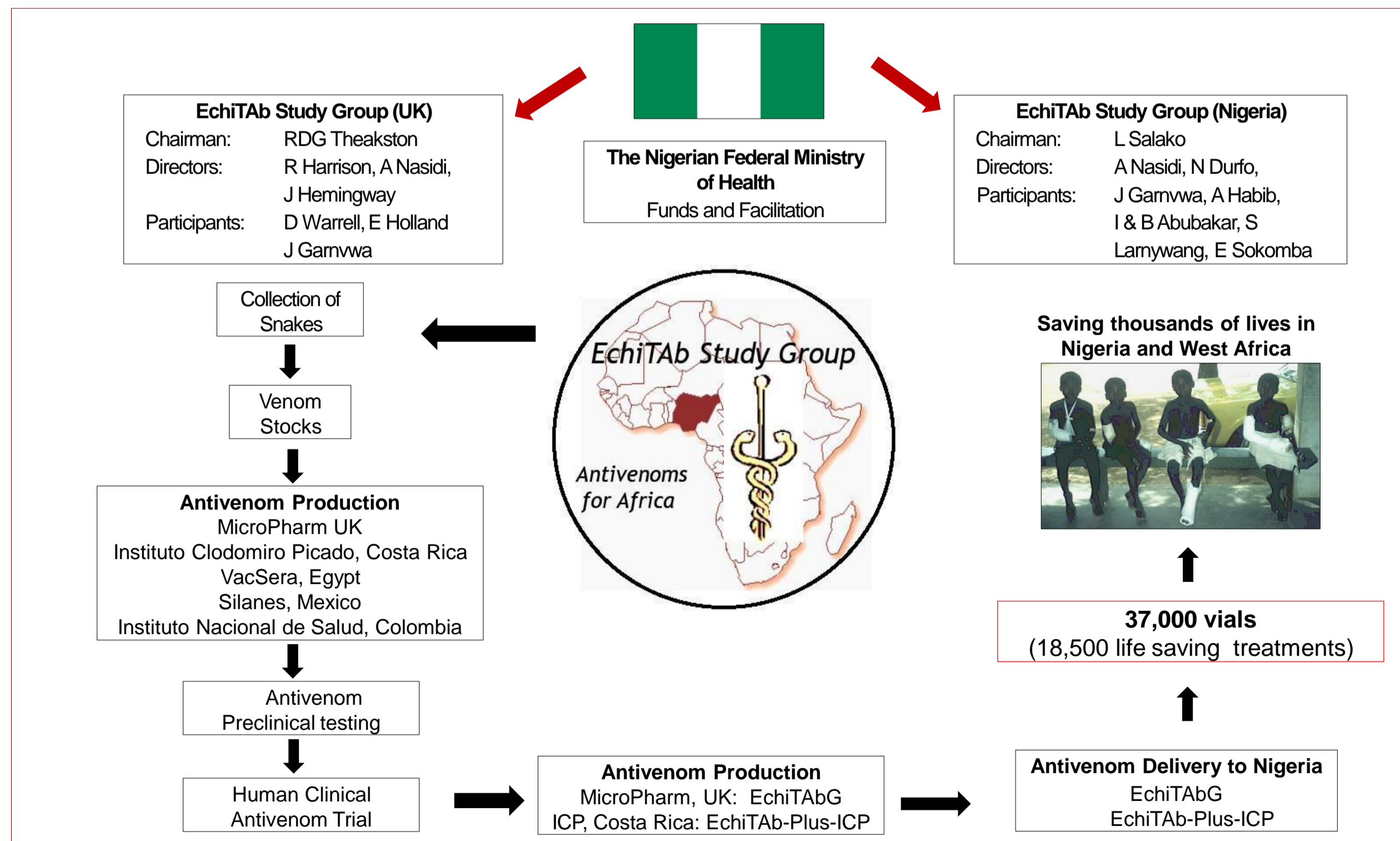
Necrosis

Antivenom is prepared from IgG of venom-immunised horses or sheep. It is the only effective treatment of snake envenoming. Africa is the only continent reliant upon commercially-produced antivenom, mostly from European manufacturers. Elsewhere, antivenom production receives government subsidies. The expense of antivenom production and retail (over \$200 per treatment in Africa) reduced governmental demand, which reduced commercial manufacturing incentives.

In the late 1990s, this resulted in the cessation of antivenom supply for Africa – with a consequent dramatic rise in snakebite-induced mortality and morbidity.

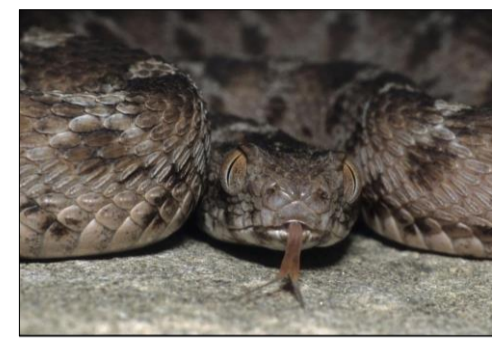
The Solution

The Nigerian Federal Ministry of Health has, uniquely in Africa, recognised that snakebite is a major public health concern. A collaboration was formed to address the antivenom supply crisis in Nigeria – the EchiTAB Study Group.



Preparing the EchiTAB Antivenoms

1. Snakes sent to Liverpool: Saw-scale Vipers



Puff Adders



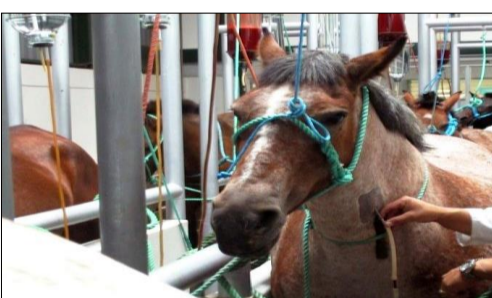
Spitting Cobras



2. Venom Extracted in Liverpool



3. Horses immunised with venom and blood extracted in Costa Rica:



4. Immunoglobulin purified from blood:



5. Antivenom formulated in Wales and Costa Rica:



Productivity of the EchiTAB Study Group (2006 – 2012)

Established a collaboration of clinicians, scientists and antivenom manufacturers:

- Federal Ministry of Health, Republic of Nigeria
- Liverpool School of Tropical Medicine, UK
- Nuffield Department of Clinical Medicine, University of Oxford, UK
- Instituto Clodomiro Picado, Costa Rica
- MicroPharm Ltd, Wales, UK

Established & constructed snakebite-specific resources in Kaltungo Hospital



EchiTAB Study Group Snake Bite Ward



EchiTAB Study Group Ambulance



Clinical expertise: Prof Warrell, Dr Abubakar

Establishment of venom-immunising and antivenom testing resources:

- Extraction and storage of venom from *Echis ocellatus*, *Bitis arietans* and *Naja nigricollis*
- Provision of these venoms to antivenom manufacturers worldwide
- Preclinical testing of experimental antivenoms

Completion of a double-blinded clinical trial of new EchiTAB antivenoms:

- EchiTABG – an ovine *Echis ocellatus* monospecific antivenom: MicroPharm Ltd
- EchiTAB-Plus-ICP – an equine polyspecific antivenom: Instituto Clodomiro Picado

Delivered over 37,000 vials of antivenom to Nigeria

- Equating to over 18,500 life-saving treatments
- Production of both antivenoms continues – subject to funding

Increased public, government & scientific awareness of ETSG objectives:

- Meetings with Ministers of Health, State Governors, Emirs
- Poster displays and oral presentations in medical and pharmaceutical conferences in Nigeria
- Oral presentations at International Conferences (Global Issues in Clinical Toxicology, 2008)
- Publications in International peer-reviewed journals (eg, Lancet, PLOS Medicine)

Current and Future Activities of the EchiTAB Study Group

- Constructing, equipping and staffing an Antivenom Production Facility in Nigeria: comprising a herpetarium, an animal housing/bleeding unit
- Constructing an International Research Centre in Kaltungo for instruction of national and international students in the clinical treatment of snake envenoming and other studies on:
 - Epidemiological studies to establish the medical burden of snake bite in Nigeria
 - Preclinical studies to determine the efficacy of the EchiTAB antivenoms against the effects of venoms from other medically-important snakes in Africa – 'antivenomics'
 - Socioeconomic studies determining the burden of snake bite, and its treatment, to rural African communities and the hospitals serving them
 - Studies identifying effective measures to reduce snakebite incidence that are technologically appropriate to the rural communities that risk snakebite in all their daily activities
- Establishing a Public Health Education Program on the prevention and treatment of snakebite
- Raising awareness of the medical problem of snakebite in Africa with International Health and Funding agencies: the WHO, The B&M Gates Foundation, World Bank, DIFID etc

Some Members of the EchiTAB Study Group



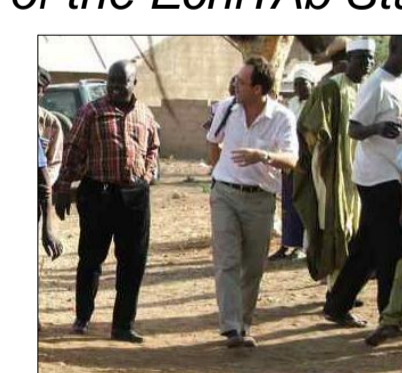
Dr Nasidi at ICP, Costa Rica



Professor Theakston with the Emir of Kaltungo



Dr N Durfo in Kaltungo



Drs Garnwva and Harrison in Kaltungo



Dr Habib in Costa Rica



Mr Rowley in Liverpool



Dr Abubakar in Kaltungo



Professor Gutierrez, ICP in traditional Hausa dress

Acknowledgment

All EchiTAB Study Group activities are supported by generous funding from the Republic of Nigeria.