

SNAKE ENVENOMATION MANAGEMENT

An Ongoing Series

Asclepius Snakebite Foundation Update

*Asclepius Snakebite Foundation**



The foundation founder and executive director, Jordan Benjamin, is a herpetologist, wilderness paramedic, and scientist with more than a decade of experience in snakebite treatment, research, and training in rural sub-Saharan Africa. He is an expert in the clinical management of snakebites and other envenomations in austere, wilderness, and operational medicine environments. He is a Fellow of the Academy of Wilderness Medicine and serves as a primary subject matter expert on austere snake envenomation management for the United States Department of Defense and special operations medicine community.

The Asclepius Snakebite Foundation is composed of many of the world's leading experts in snakebite medicine, herpetology, antivenom research, and a range of other fields, as well as partners from the corporate world and academia.¹

In Summer 2020, the JSOM published the Joint Trauma System Clinical Practice Guideline: Global Snake Envenomation Management (CPG ID: 81).² In addition, Benjamin presented "International Snakebites" at the Denver Venom Conference on October 6, 2021.

The foundation donates medications and critical medical supplies such as IV fluids, catheters, syringes, intraosseous needles, atropine, neostigmine, analgesics, antibiotics, endotracheal tubes, laryngeal mask airways, bag-valve masks, ventilators, cardiac monitors, bandages, diagnostic tools, and so on to stock their snakebite centers in East and West Africa with the tools needed to save lives.

Inosan Biopharma, an independent antivenom producer, has generously offered to provide donations of field-stable polyvalent antivenom to support some of our projects in sub-Saharan Africa. This is a revolutionary product that can be stored at room temperature on the shelf of poorly equipped clinics in rural areas where 95% of snakebites occur.

Some of the many activities of the foundation are to establish dedicated snakebite centers, donate critical medical supplies, investigate the high fatality rate of neurotoxic snakebites in Guinea, provide snakebite medicine training materials for local medical providers, improve prehospital care, and snake venom research. Toward satisfying several of these goals, a center is being established in Guinea.

ASF Snakebite Center of Excellence in Kindia, Guinea

It has long been the dream of Dr Cellou Baldé and the ASF team to build a new snakebite clinic from the ground up to support a



growing patient population and enable use of the new diagnosis and treatment capabilities that were introduced during trainings. Thanks to a very generous donation from BTG Specialty Pharmaceuticals, this dream became a reality.

The new clinic will be constructed on a 5-acre plot of land located closer to the city center for improved patient access. This compound will ultimately form the nexus of a new Snakebite Center of Excellence containing classroom space for training medical providers, housing for guest researchers, a herpetological research building, a serpentarium for snake keeping and venom collection, administrative offices, kitchen and dining facilities, and dedicated space for hosting conferences where other healthcare workers from across Africa can learn how to appropriately treat snakebites using the ASF-Guinea model to improve care in their respective areas.

Guinea is a small West African country with one of the highest burdens of snakebite on the continent. The ASF Guinea team estimates a burden of 24,000 envenomations, 3,600 deaths, and 4,600 amputations and other disabilities every year, approximately 15 times higher than previous estimates indicated. Snakebite in Guinea is complicated by an unusually high number of bites by neurotoxic cobras and mambas that account for roughly 30% of bites and over 70% of fatalities seen at the clinic every year. Some of the Guinean snake species can kill within an hour by paralyzing the respiratory muscles, and many patients die before ever reaching a clinic.

References

1. <https://www.snakebitefoundation.org>
2. <https://www.snakebitefoundation.org/jts-cpg-81-global-snake-envenomation-management>

*Jordan Benjamin, Founder & Executive Director Asclepius Snakebite Foundation www.snakebitefoundation.org

We are an international team of clinicians and scientists on a mission to reverse the cycle of tragic snakebite outcomes through a combination of innovative research, clinical medicine, and education-based public health initiatives.



© Thomas Nicolon

(photo above) "If you are getting involved in snakebite for money, you should know that there is no money to be made. But if you want to make a real difference - help your people, save lives, prevent disability, and advance science - then you have found the right project."

— Dr Cellou Balde, Founder & Director of ASF Guinea Clinic

Photo compliments of Thomas Nicolon, Asclepius Snakebite Foundation.



(photos above and below) The patient below was bitten by a Rhinoceros Viper (*Bitis nasicornis*). These snakes rarely exceed 1 meter in length but have wide heads with large venom glands that enable them to inject massive doses of a potent cytotoxic and hemotoxic venom. Rhinoceros Viper venom can induce a profound hypotension and many patients die of cardiovascular collapse in the first hours after a bite.

Photos compliments of Jordan Benjamin, Asclepius Snakebite Foundation.



(photos above) Dr Mohammed Cire Diallo, head clinician at the ASF Guinea clinic, supervises an i-Gel airway lab as part of an intensive resuscitation training conducted in February of 2020 in response to a surge in serious neurotoxic bites earlier in the year. Many of these supplies were donated by US Special Operations medics who worked with the ASF team to develop the new snakebite CPGs.

Photos compliments of Jordan Benjamin, Asclepius Snakebite Foundation.

(photo right) The leg of a young man who arrived at the ASF Guinea clinic 18 hours after suffering a Rhinoceros Viper (*Bitis nasicornis*) bite to his left foot. Signs of the cytotoxic syndrome (swelling, blistering, extensive tissue destruction) and hemotoxic syndrome (persistent bleeding and bruising along the bitten limb) are clearly visible. This patient was critically ill upon arrival but ultimately made a full recovery after receiving antivenom and aggressive supportive care.



Photo compliments of Dr Nick Brandehoff, Asclepius Snakebite Foundation.

(photo right) Dried venom samples collected from hundreds of snakes over the years by Dr Mamadou Cellou Baldé, founder and director of the ASF Guinea clinic.

Photo compliments of Dr Nick Brandehoff, Asclepius Snakebite Foundation.



(photo left) Dr Nick Brandehoff hands a syringe containing 2 vials of reconstituted antivenom to Jordan Benjamin at the ASF snakebite clinic in Kindia, Guinea.

Photo compliments of Aziz Baldé, Asclepius Snakebite Foundation.



(photo left) ASF founder Jordan Benjamin administers a dose of reconstituted polyvalent antivenom by slow intravenous push to a woman.

Photo compliments of Aziz Baldé, Asclepius Snakebite Foundation.



JSOM



Winter 2021
Volume 21, Edition 4

JOURNAL of SPECIAL OPERATIONS MEDICINE™

THE JOURNAL FOR OPERATIONAL MEDICINE AND TACTICAL CASUALTY CARE



Inside this Issue:

- › FEATURE ARTICLES: Prehospital Blood Transfusion
- › Processionary Caterpillar as Threat in Australia
- › Helicopter Simulation Video Laryngoscope
- › Loading Patterns in Military Personnel With Back Pain
- › Stress Inoculation Training: A Performance Training Protocol, Part 1 and Part 2
- › Ultrasound for Special Operations Medics
- › Hemostatic Dressings in an Extended Field Care Model
- › EMS Providers Having Firearms
- › Anesthesia Gas Machines During Coronavirus Pandemic
- › Swine Polytrauma Model Without Fluid Resuscitation
- › Overview of the Combat Medical Care (CMC) Conference 2021
- › Combat Medical Care Conference 2021 Abstracts
- › CASE REPORTS: Prehospital Iliac Crest IO Whole Blood Infusion
- › Walking Blood Bank at Point of Injury
- › CASEVAC Case Series in Austere Environment
- › ONGOING SERIES: Infectious Diseases, Injury Prevention, Snakebite Envenomation Management, There I Was, TCCC Updates, and more!

*Dedicated to the
Indomitable Spirit,
Lessons Learned &
Sacrifices of the
SOF Medic*