

Addressing snakebite envenoming as a One Health issue in the Caribbean

To the Editor,

The prevalence of snakebite envenoming and its understated impact on health and socioeconomic well-being in the Caribbean demand urgent attention. As a One Health challenge, this issue intersects human, animal, and environmental health, necessitating a multifaceted approach for comprehensive management (1).

Despite the Caribbean's rich biodiversity and cultural mosaic, there is a scarcity of data on the epidemiology and impact of snakebites in the region. This gap in knowledge, coupled with the absence of systematic records or survey-based studies, hampers the development of effective interventions. In countries such as Belize, Saint Lucia, and Trinidad and Tobago, among others, venomous snakes pose a significant threat, particularly to those in rural agricultural settings (1).

Snakebite envenoming not only inflicts a direct health burden, evidenced by high rates of mortality and morbidity among humans, but also precipitates profound financial repercussions. The cost of clinical management for those affected and the loss of productivity due to long-term sequelae are considerable (2). Moreover, the impact on domestic animals, primarily livestock, translates into tangible economic losses for rural households, who rely on these animals for sustenance and income (3).

In the French territories of Guiana and Martinique, *Bothrops* species stand out as the primary source of envenoming incidents. The specificity of this threat underscores the need for targeted research and resources, especially when considering the substantial proportion of bites attributable to species such as *Bothrops atrox* in this region (4, 5).

The One Health perspective provides a holistic framework for tackling this issue, promoting interdisciplinary collaboration and integrated policies. Through this lens, we can better understand and address the direct health impacts on humans, the economic consequences for affected individuals, and the broader implications for domestic animal health.

Despite some advances, such as the development of antivenoms to those of *B. atrox* and *B. lanceolatus*, treatment accessibility remains a challenge. Not all venomous species have corresponding antivenoms, and the availability of these life-saving treatments varies, sometimes resulting in cost barriers despite the need for free access (6, 7). We recently conducted a comprehensive survey among ministers of health across several Caribbean nations to assess the adequacy of antivenom supplies in their respective countries. The survey included 10 critical questions, and an encouraging 80% of the responses indicated a positive outlook. Given these findings, the establishment of a

centralized antivenom repository in the Caribbean has become a pressing necessity. Such a bank would serve as a vital resource, particularly for those nations in dire need of these life-saving medications.

Looking forward, aligning with the World Health Organization road map for neglected tropical diseases 2021–2030, the Caribbean must adopt a concerted regional One Health strategy to mitigate the multifaceted repercussions of snakebite envenoming. This strategy should encompass human health initiatives, including community-based epidemiological studies and educational campaigns on snakebite prevention and first response. In the realm of animal health, collaboration with researchers to study snake biology and ecology, as well as with veterinarians, will be crucial. In addition, addressing environmental health factors such as climate change and land use practices will be integral to reducing human–snake conflicts.

In conclusion, the One Health approach is imperative for a sustainable and effective response to the challenge of snakebite in the Caribbean. It is time for a collective and interdisciplinary stride toward a solution that secures the well-being of all affected species and ecosystems.

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