

Technical Brief

Increased Snakebite Cases and Deaths in Sierra Leone: A call to action

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Introduction

Snakebite envenoming is a critical yet often neglected public health issue in Sierra Leone, where rural communities are disproportionately affected by increased snakebite cases and associated mortality have raised concerns. Limited access to antivenom, combined with a lack of comprehensive data on snake species responsible for bites, exacerbates the problem, placing vulnerable populations at significant risk. Globally, snakebite envenoming has been identified by the World Health Organization (WHO) as a Category A Neglected Tropical Disease (NTD), highlighting the urgent need for coordinated efforts to mitigate its impact.

This technical brief issues a call to action to address the growing public health threat posed by snakebites in Sierra Leone, providing both local and global context.

Current Situation in Sierra Leone

1. Rising Snakebite Incidence

Snakebite was included in the Integrated Disease Surveillance Technical Guidelines (IDSR) in 2020 as an immediately reportable priority condition in Sierra Leone ¹. Since 2021 cases of snakebite have been reported across the country. From January 2021 to 18 September 2024, a total of 2,616 snakebite cases and 109 deaths have been reported. The number of snakebite cases reported in 2023 was 836 (9.5 per 100,000 population), a 36% increase from 2022 (615 cases; 7.1 per 100,000 population). Currently, there are 482 reported cases this year (01 Jan – 18 Sep 2024). Males (58%) account for most of the reported cases. Time series analysis shows seasonal pattern

¹ Integrated Disease Surveillance and Response Technical Guidelines, Third Edition. Ministry of Health, Sierra Leone 2020

in snakebite incidence with peaks occurring from August through November (**Figure 1**). Rural populations in Sierra Leone are mostly affected by snakebites, particularly during farming activities and rainy seasons. The geographic distribution of snakebite cases shows similar patterns in the four-year period under review with Bombali district having the highest cases of snakebites followed by Port Loko (**Figure 2**).

Similarly, deaths from snakebites increased from 26 in 2021 to 30 in 2023 and 31 in 2023. As at week 37, 2024, the surveillance system has reported 22 deaths an increased by 3 for the same period in 2023.

These figures represent an underestimate of the true burden of the problem as not all cases are reported through the routine surveillance system.

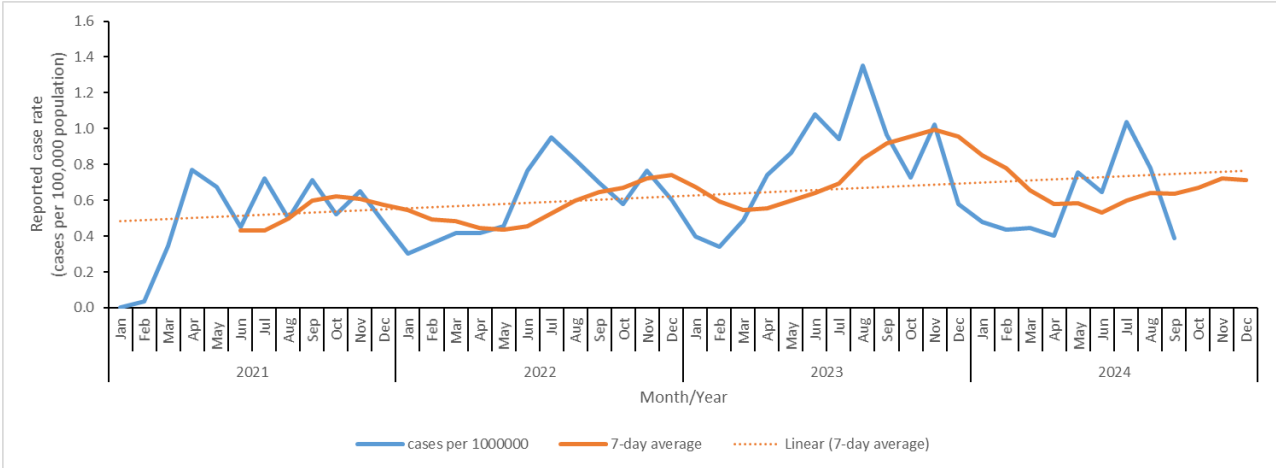


Figure 1: Time series analysis of reported snakebite cases in Sierra Leone, Jan 2021 – Sep 2024

Note: 2024 data is from 01 Jan – 18 Sep; Data Source: IDSR data in DHIS-2, Retrieved: 18 Sep. 2024

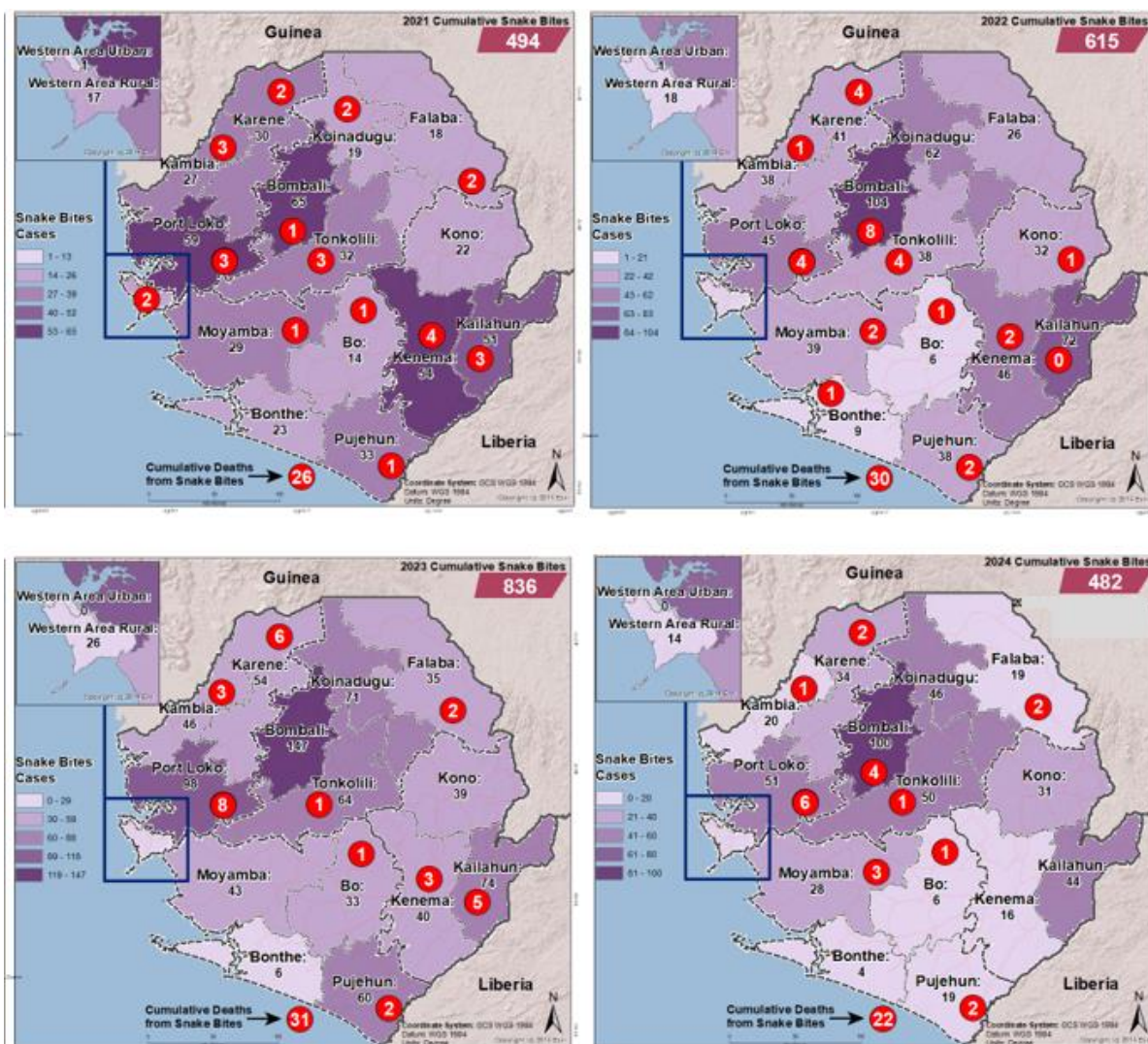


Figure 2: Geographic distribution of snakebite cases and deaths, Sierra Leone, 2021 - 2024

2. Unknown Snake Species

There is a significant gap in the understanding of the snake species responsible for envenomation in Sierra Leone, as no comprehensive studies have been conducted to identify and map the species present in different regions. The lack of local expertise in herpetology limits the ability to identify venomous species and understand their ecological behavior.

Venomous snakes common in West Africa, such as the West African carpet viper (*Echis ocellatus*), puff adder (*Bitis arietans*), and various cobra species (*Naja*), are likely involved, but the exact species composition remains unknown, further complicating treatment strategies.

3. Lack of Access to Antivenom

Antivenom is often unavailable or unaffordable, resulting in delayed treatment and increased mortality. The logistical challenges in supply chains and insufficient funding further limit access to this critical resource.

4. Limited Knowledge and Awareness

Healthcare workers are not adequately trained in the management of snakebite cases, leading to delayed or improper treatment. Communities generally lack awareness about snakebite prevention, recognition of symptoms, and the importance of seeking prompt medical care.

5. Healthcare System Challenges:

Many rural areas face barriers to accessing healthcare facilities, which can delay treatment. Transportation difficulties and inadequate infrastructure compound the problem. The lack of a cold chain and infrastructure for distributing antivenom also hampers the ability to treat envenomed patients in a timely manner, especially in rural areas.

Global Picture of Snakebite and Envenoming

1. Global Burden

Annually, approximately 5.4 million people are bitten by snakes, resulting in 1.8 to 2.7 million cases of envenomation and between 81,000 and 138,000 deaths globally². Millions more suffer from disabilities such as amputations, blindness, and psychological trauma. Sub-Saharan Africa, South Asia, and Southeast Asia experience the highest burden, with rural agricultural workers and children being the most vulnerable populations.

2. Challenges in Treatment

A major barrier to addressing snakebite envenoming globally is the lack of accessible, affordable, and effective antivenom. The production of antivenom is complex and expensive, and its distribution is limited in many high-burden countries. Additionally, global shortages of antivenom, particularly in Africa, are exacerbated by challenges in cold chain management and logistical hurdles in reaching rural areas.

3. WHO Initiatives and Targets

In response to the global burden of snakebite envenoming, the WHO launched a roadmap in 2019 to halve the number of deaths and disabilities caused by snakebites by 2030³. This initiative focuses on improving access to antivenom, strengthening healthcare systems, and enhancing research on venomous snake species and treatments.

Global partnerships, including collaboration with pharmaceutical companies, aim to increase the production and availability of affordable antivenoms, with a focus on regions such as sub-Saharan Africa where the need is greatest.

² <https://www.who.int/news-room/fact-sheets/detail/snakebite-envenoming>

³ Snakebite envenoming: a strategy for prevention and control. Geneva: World Health Organization, 2019

Call to Action: Addressing Snakebite Envenoming in Sierra Leone

The rising incidence of snakebites in Sierra Leone requires immediate and coordinated action across government, healthcare, and international sectors. Key actions must focus on improving antivenom access, healthcare system strengthening, and research on snake species and envenomation patterns.

1. Enhance Antivenom Access and Distribution

Expand procurement and distribution of antivenoms that are effective against the specific species of snakes in Sierra Leone. Strengthening the supply chain, especially in rural areas, is essential to reducing the mortality associated with envenomation.

Establish cold chain infrastructure to ensure that antivenoms remain viable as they are transported to remote regions.

2. Train Healthcare Workers and Communities

Implement nationwide training programs for healthcare workers to improve their ability to diagnose and treat snakebite cases. This includes the proper administration of antivenom and post-bite care.

Community education campaigns should be launched to raise awareness of the risks of snakebites, prevention strategies, and the importance of seeking immediate medical attention. Such campaigns should focus on high-risk groups, such as farmers and rural communities.

3. Invest in Research and Data Collection

Conduct research to identify the snake species responsible for envenomations in Sierra Leone. This will help to tailor antivenom procurement and treatment protocols to the specific needs of the population.

Strengthen the national surveillance system for snakebites to improve data collection on cases, outcomes, species identification, and geographic patterns. Accurate data will guide resource allocation and enable the monitoring of progress in reducing snakebite mortality and morbidity.

4. International Collaboration

Leverage global partnerships to ensure that Sierra Leone benefits from international efforts to increase the availability of affordable, effective antivenoms. Collaboration with WHO and other stakeholders can provide technical support and funding for the scaling up of snakebite prevention and treatment programs.

Advocate for increased funding and policy support for snakebite prevention and treatment programs at the national and international levels.

Conclusion

The increased incidence of snakebite and the associated rise in mortality in Sierra Leone demand urgent attention. Without access to appropriate antivenom and improved healthcare response, the lives of thousands of individuals in vulnerable rural communities remain at risk. This call to action urges stakeholders at the national and international levels to prioritize investments in healthcare infrastructure, antivenom distribution, and research to reduce the impact of snakebite envenoming in Sierra Leone. Global initiatives offer valuable models and resources that can be adapted to the local context, ensuring that snakebite envenoming does not continue to be a neglected public health crisis in the country.