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# GLOBAL HEALTH

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## ACCIDENTS CAUSED BY VENOMOUS ANIMALS: THE STORY SYMPTOMS TELL

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**Introduction:** Accidents involving venomous animals are a global and national public health problem and are often neglected, especially when severe complications or deaths occur due to delayed diagnosis and inadequate management.

**Case report:** A 55-year-old White woman was referred to a reference service in a hospital in the interior of São Paulo state in August 2024 after reporting a spider bite on her right thigh while gardening. The arachnid was described as small and grayish. Initially, she had pain, itching, and local swelling, progressing to ecchymosis, swelling of the right lower limb, and calf induration. During hospitalization, she developed confusion, attributed to early-stage Alzheimer's disease. Based on the clinical picture, coagulation disorders (elevated INR and thrombocytopenia), and signs suggestive of envenomation, the case was classified as a severe cutaneous-hemolytic accident caused by Loxosceles spp., and 10 vials of anti-loxoscelic antivenom were administered without complications. However, the ecchymoses progressed to the contralateral limb, lower back, and abdomen, with persistent pain, ongoing right lower-limb edema, and acute kidney dysfunction; laboratory tests showed fibrinogen consumption and incoagulable plasma. Given worsening and the possibility that the initial history was inaccurate – especially considering dementia and residence in a rural area of Botucatu – the team raised the hypothesis of a severe Bothrops (pit viper) envenomation. Twelve vials of anti-bothropic antivenom were infused, with significant clinical improvement: resolution of edema, pain relief, normalization of renal function, and correction of coagulation parameters, followed by discharge without complications.

**Conclusion:** This case reinforces the need for a thorough investigation of venomous animal accidents, valuing clinical, laboratory, and epidemiological aspects for accurate diagnosis and effective treatment. It highlights that an initial error in identifying the causative agent led to administration of an inappropriate antivenom, corrected after a careful subsequent clinical assessment. Proper recognition and management were decisive for the favorable outcome, underscoring the importance of continuous medical training in endemic regions.

**Keywords:** Venom, Snakes, Spiders, Venomous animals.

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## THE CONTRIBUTION OF MARANHÃO TO BRAZIL'S NATIONAL MALARIA ELIMINATION PLAN: ANALYSIS OF EPIDEMIOLOGICAL TRENDS IN THE STATE FROM 2003–2024

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**Introduction/Objectives:** Malaria is an infectious parasitic disease; in Brazil, its main etiologic agents are Plasmodium vivax and Plasmodium falciparum. The disease is concentrated mainly in the Brazilian Amazon region and remains relevant globally. In 2015, Brazil launched the National Program for Malaria Prevention, Control and Elimination (PNCEM), aiming to eliminate malaria by 2035. This study

aimed to assess the reduction in malaria incidence in Maranhão and compare it with the national epidemiological pattern.

**Methods:** Descriptive, ecological, retrospective study with a quantitative approach using secondary data from the SIVEP-Malaria information system (2003–2024). Data were analyzed by percentage change and compared with Brazil using Google Sheets.

**Results:** From 2003 to 2024, Maranhão recorded 84,786 malaria cases, 66.57% autochthonous (56,443), with predominance of P. vivax (79.04%; 67,015). The highest number of cases occurred in 2004 (14,505 positives), and the lowest in 2024 (506 cases). Between 2003 and 2024, Maranhão showed a 95.47% reduction, whereas Brazil showed a 65.53% reduction over the same period. Between 2015 and 2024 (start of the national elimination plan), the reduction was 8.15% in Maranhão and 0.25% nationally. In Brazil, malaria showed a stable pattern from 2020–2024, averaging 139,495.4 cases/-year. In Maranhão, the average was 838.6 cases/year, with a marked reduction between 2023 and 2024 (50.68%). Maranhão's share of Brazil's malaria cases fell from 2.73% in 2003 to 0.36% in 2024. Malaria is endemic and concentrated in the Amazon region, including nine states (Acre, Amazonas, Amapá, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins). In 2003, Brazil launched the National Malaria Control Plan, later replaced in 2015 by the PNCEM.

**Conclusion:** Maranhão showed a substantial reduction in malaria cases, especially compared with national trends; however, levels remain high, and greater effectiveness of public policy programs is needed to achieve elimination.

**Keywords:** Malaria, Public health, Epidemiological surveillance.

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## CLIMATE CHANGE AND SNAKEBITE: WHAT SHOULD WE EXPECT?

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**Introduction:** Accidents involving venomous animals, especially snakes, are an important public health problem, disproportionately affecting vulnerable populations, such as rural communities with limited access to healthcare and antivenom. In 2017, the WHO included snakebite envenoming among Neglected Tropical Diseases. The year 2023 saw intense climate anomalies influenced by El Niño, with prolonged droughts, extreme heat, increased wildfires, and shifts in rainfall patterns. These changes affected ecosystems, prompting wildlife displacement and potentially increasing human-snake encounters.

**Objective:** To analyze the epidemiological profile of snakebite cases in Brazil and assess the increase in 2023 compared with 2022.

**Methods:** Ecological study using DATASUS data. Total snakebite cases in 2022 and 2023 were analyzed by snake type and geographic distribution.

**Results:** In 2022, 24,878 snakebite accidents were recorded, of which 21,636 (87%) were caused by snakes of the genus Bothrops, 2,655 (10.7%) by Crotalus, 379 (1.5%) by Micrurus, and 399 (1.6%) by Lachesis. In 2023, the total number of accidents increased to 25,252, representing an increase of 1.5%. Of these, 21,819 (86.4%) involved Bothrops (+0.8%), 2,655 (10.5%) Crotalus (stable), 379 (1.5%) Micrurus (stable), and 399 (1.6%) Lachesis (stable). The overall increase in cases was more evident in states affected by intense environmental changes, such as wildfires and deforestation.

**Conclusion:** The data indicate an increase in snakebite accidents in 2023, particularly in regions with greater environmental impact. The degradation of natural habitats, associated with climate change, has intensified the displacement of snakes into inhabited areas, increasing the risk of envenomations, especially in rural and peri-urban zones. These findings reinforce the need for ongoing studies to better understand the socio-environmental factors involved, as well as conservation strategies and public awareness to mitigate risks.

**Keywords:** Snakebite, Climate change, Public health.

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## HEALTH SITUATION ANALYSIS OF WATERBORNE AND FOODBORNE DISEASES (DTHA) IN A HEALTH REGION OF THE SEMIARID BACKLANDS OF PERNAMBUCO

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**Introduction:** Waterborne and foodborne diseases (DTHA) persist as a public health problem in Brazil, especially among vulnerable populations, caused by bacteria, viruses, parasites, and chemical substances (SES-DF, 2023).

**Objective:** To analyze the occurrence of DTHA in the Health Region of the Sertão of Pernambuco between 2014 and 2024.

**Methods:** A descriptive ecological study using secondary data from the Computerized Epidemiological Surveillance System for Acute Diarrheal Diseases (SIVEP DDA) and the