

# Anthrax Outbreak Investigation in Sinazongwe District, Southern Province, Zambia, September 2023.

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Anthrax outbreak was confirmed, with consuming beef from cattle that died from unknown causes posing a significant risk. All communities were encouraged to avoid handling or consuming products from dead cattle and to urgently report any suspected cases to local health and veterinary authorities. Multisectoral collaboration and rapid response are important to prevent future outbreaks.

## BACKGROUND

- Anthrax, a zoonotic disease of public health importance has devastating impacts on resources of poor households.
- A total of 26 human anthrax cases were reported in Sinazongwe between 1<sup>st</sup> June and 28<sup>th</sup> July 2023.
- This was the first time Sinazongwe reported an anthrax outbreak.
- This study determined the risk factors for the outbreak and assessed the response at district level.

## METHODS

- Community-based 1:2 matched case-control study
- Controls were matched to cases by sex and age
- Case definition: Residents of Sinazongwe presenting with skin lesions evolving over 1 to 6 days from a papule through a vesicular stage, to a depressed black eschar invariably accompanied by edema that may be mild to extensive, between June to September 2023
- Controls were defined as individuals not presenting with anthrax symptoms of any form residing in the same community matched by sex and age
- Reviewed Facility records and used checklist to assess the district response mechanism
- Descriptive and Geospatial analyses, Conditional logistic Regression
- Matched odds ratios (MORs) were computed to assess the strength of association ( $p < 0.05$ )

## RESULTS CONTINUED

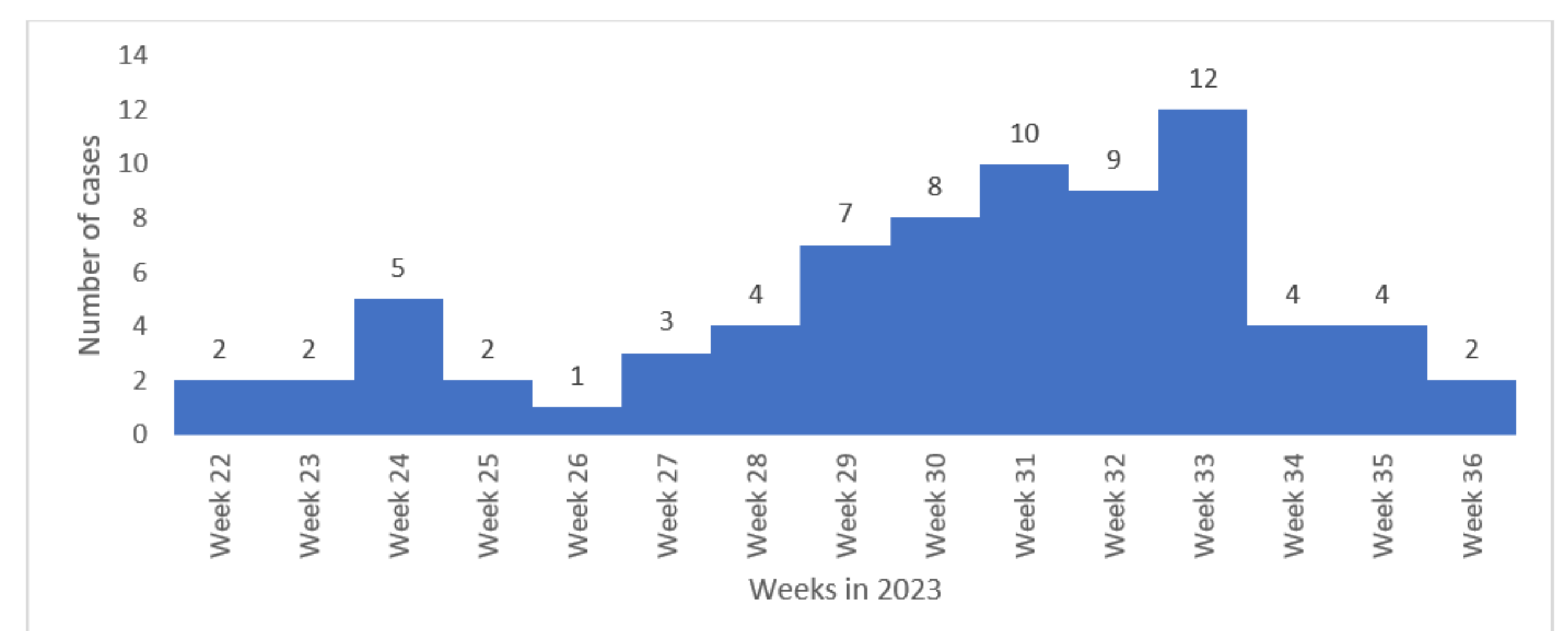


Figure 1: Anthrax Epi-curve, Sinazongwe, 6<sup>th</sup> June – 8<sup>th</sup> September 2023

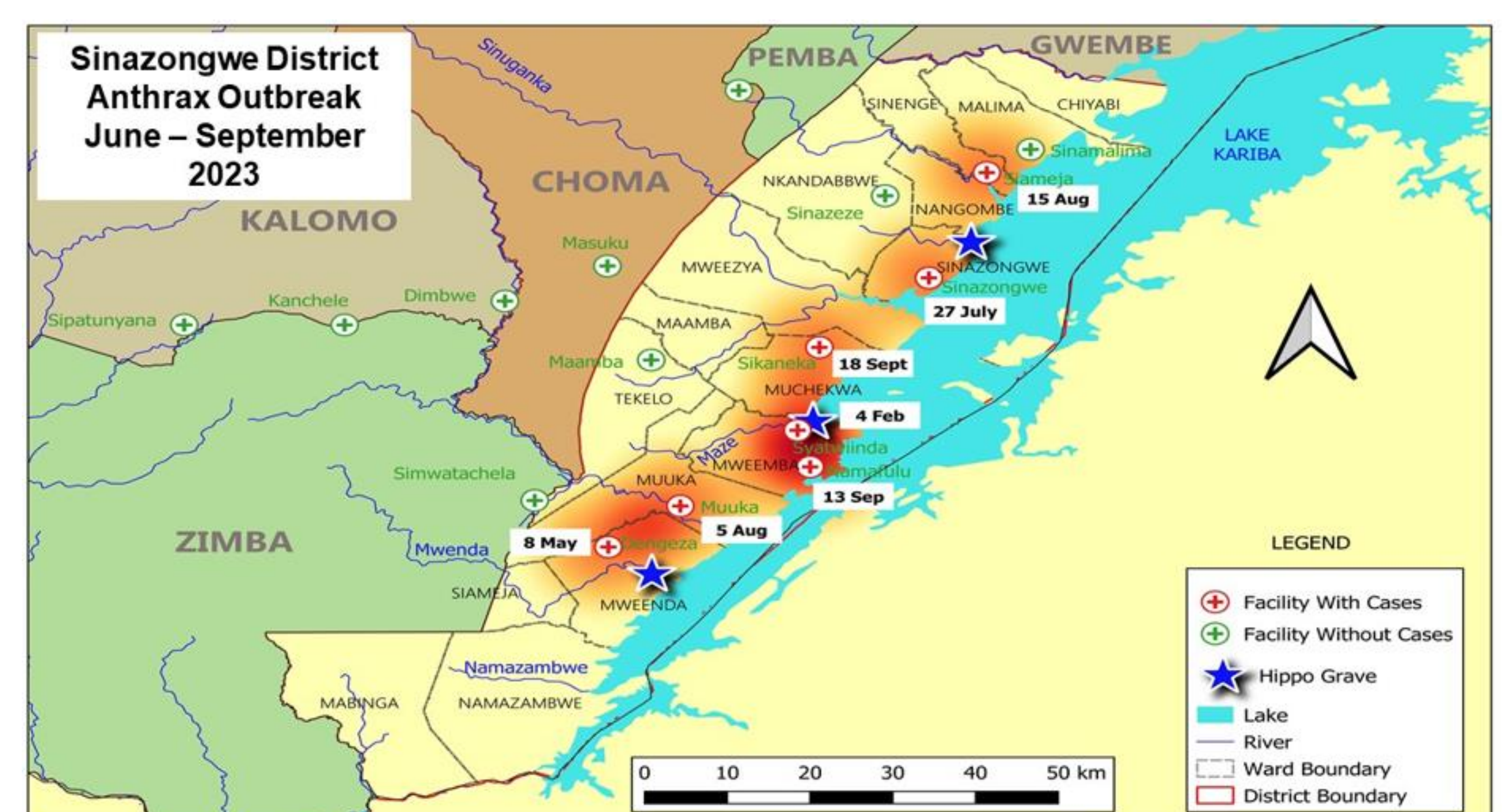


Figure 2: Sinazongwe district anthrax outbreak, June – September 2023

## RESULTS

- A total of 45 cases and 91 controls were examined, and 73% of anthrax cases were male.
- Dengeza catchment area recorded the highest attack rate of 0.78% compared to Siatwiinda with 0.50%, Muuka with 0.15%, Siameja with 0.02% and Sinazongwe with 0.01%.
- Consuming beef from cattle that died from unknown causes, was a significant risk factor for anthrax with a strong association (MOR 16.4)
- The incident management system was not active at the time.

## CONCLUSIONS

- The findings highlight how fundamental community awareness and Multisectoral coordination are to preventing future outbreaks.
- We conducted community awareness on risk factors including contact with cattle that died on their own and consuming contaminated meat and conducted livestock vaccinations.
- We recommend Ministry of Health reorient health workers on risk assessment, anthrax signs, and symptoms to enhance early disease identification; and use of one health approach to outbreak response.

## ADDITIONAL KEY INFORMATION

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Table 1 : Multivariable Analysis

| Variable  | Sex and Age matched |                     |         |
|---|---------------------|---------------------|---------|
|   | OR <sup>1</sup>     | 95% CI <sup>1</sup> | p-value |
| <b>Exposure to Contaminated Animal Products</b> |                     |                     |         |
| No  | —                   | —                   |         |
| Yes   | 2.14                | 0.78, 5.88          | 0.142   |
| <b>Consumed Meat</b>                            |                     |                     |         |
| No  | —                   | —                   |         |
| Yes   | 16.4                | 5.72, 47.0          | <0.001  |

<sup>1</sup> OR = Odds Ratio, CI = Confidence Interval