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Research Article

The Mumps Outbreak Epidemiology in Zambezi Region

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Abstract

Background and aim: Mumps is a vaccine-preventable viral disease characterized by swelling of the salivary glands and potential complications. beginning February 13, 2023, an outbreak of mumps occurred in Zambezi Region, Namibia, and is ongoing. We investigated to describe the epidemiology of the outbreak, actively identify cases, implement health interventions, and inform effective public health strategies.

Material and Methods: A descriptive cross-sectional study was conducted to analyse mumps cases in the Zambezi region. Clinical diagnoses case definition was used. A clinical case was defined as acute onset of gland swelling lasting ≥2 days. Data were collected from health facilities and schools, including demographic information and diagnosis. A line list was generated, and data were analysed descriptively using descriptive model.

Results: A total of 2625 mumps cases were reported in the Zambezi Region, between February 13th, 2023, and October 8th, 2023. Interventions included active case searches, supportive treatment, health education, and advising patients to self-isolate for 7 days. Age group under five years experienced the highest attack rate 3.62%, followed by under 15 years with 2.98% and the least attack rate was observed in 15 years and above with 0.80%. Females experienced slightly higher infection rates at 50.1%. Zambezi region saw a significant number of mumps cases reported in various villages, Chotto led the list with 308 cases, followed by Cowboy with 246 cases. The outbreak displayed progressively increasing peaks in the epidemiological curve, indicating ongoing transmission. No fatalities and complications were reported, $p < 0.01$).

Discussion: The outbreak mainly impacted school-aged children. No deaths or severe cases occurred. The lack of mumps vaccination in the national program might have amplified the outbreak. To address Zambezi's situation, introducing mumps vaccination and including it in surveillance for early detection is crucial. Ongoing case searches and immediate isolation remain essential.

Keywords: mumps; outbreak; epidemiology; vaccination; Zambezi region; Namibia

Introduction

On April 5, 2023, The Senior Programme Officer observed an increase in mumps cases, reported from the health facilities on a weekly basis. The first two suspected mumps cases were recorded in week 7 (13/02/2023 - 19/02/2023), followed by three instances each in weeks 8 and 9. A peak was reached in week 10 (06.03.2023-12.03.2023), when the region reported 27 cases, and week 11 saw 56 cases. Weeks 12 and 13 each had 31 and 51 cases, respectively, reported. The Zambezi region has seen a rise in cases since then. There has been a total of 2625 cases of the mumps reported in Zambezi since February 2023. So yet, there have been no documented fatalities or mortalities. The ages of the cases recorded range from 11 months to 45 years.

The rise in the number of mumps cases prompted the Senior Program officer to call for an emergency meeting on the same date April 5th, 2023. The meeting was attended by the Senior Medical Officer, Environmental Officer, Health Information System officer, Infection Prevention and Control Nurse, and Namibia Field Epidemiologist resident. The meeting's objectives were to discuss the increase in mumps cases, establish a mumps response team, and address the outbreak.

During the meeting a team consisting of the Environmental officer, Senior Program Officer, IPC nurse, HIS officer and Nam FELTP resident was formed to respond to the outbreak. On the same date April 5th, 2023, the team started responding to the outbreak.

Mumps, a short-term illness that primarily affects children and young adults, is caused by a specific paramyxovirus with just one serotype [1]. Human beings are the exclusive known hosts for the mumps virus, and it spreads through direct contact or the inhalation of airborne droplets from infected individuals' upper respiratory tract [2]. Mumps is most commonly seen in children aged 5 to 9 years, although adolescents and adults can also be affected. The disease typically commences with nonspecific symptoms, including muscle pain, headaches, fatigue, and a mild fever, following an incubation period of 2 to 4 weeks. These symptoms are subsequently followed by the swelling of one or both parotid salivary glands, with other salivary glands affected in roughly 10% of cases [3].

Normally, mumps is a mild, self-limiting condition and generally resolves without lasting consequences [1]. However, it can lead to complications like orchitis, oophoritis, mastitis, meningitis, encephalitis, pancreatitis, and even hearing impairment. These complications can occur in the absence of parotitis and are less frequent in vaccinated individuals. Notably, some mumps-related complications are more frequently observed in adults compared to children [4].

Mumps is not a notifiable disease and is not included in any formal surveillance programme. Students in schools, health care workers, international travellers or people living in a community with a mumps outbreak are at high risk of getting mumps. There is no treatment for mumps, Acetaminophen or ibuprofen can ease fever and pain [5].

Vaccination is the best way to prevent mumps and mumps complications. This vaccine is included in the combination measles-mumps-rubella (MMR) and measles-mumps-rubella-varicella (MMRV) vaccines. Two doses of mumps vaccine are 88% (range 32% to 95%) effective at preventing the disease; one dose is 78% (range 49% to 91%) effective [4]. In Namibia the mumps vaccine is not part of the immunisation program yet.

Object of the outbreak response

The aim and objectives of this study was to conduct active case search at sites that have reported mumps cases in Zambezi region, 2023, it is focused on the task to generate a line list of mumps cases in Zambezi region, 2023. It is with final aim to establish responsive health interventions including case management and community education in Zambezi region, 2023.

Materials and Methods

Study Design

A descriptive study of mumps cases in Zambezi region was conducted. All mumps cases included in the study were clinically diagnosed.

Population

The Zambezi Region have a population of 142,373, and constituted of 8 constituencies. The outbreak was declared for the whole region, stemming a population of 142,373. The patients who were diagnosed at the health facilities and the students from 5 schools namely: Naleli Toddler's University, Ngweze Primary School, Alfea Sampofu Primary School, Greenwell Matongo Primary School, and Thobias Hainyeko Primary School who were screened for mumps from the 6th to 14th April 2023.

Data Collection

Mumps cases were identified using a clinical case definition by the health care providers at the health facilities and schools. The outbreak response team lead received an alert from the health facilities about the schools reporting mumps cases, the response team visited the school to conduct screening.

Demographic information including name, age, gender, and diagnosis were collected by the health care providers from the patients at the health facilities and schools, and line lists were generated.

Case definitions

Clinical Case Definition: An illness characterized by acute onset of unilateral or bilateral self-limited swelling of the parotid or other salivary gland(s) lasting at least 2 days, and without other apparent cause, onset after February, 13th, 2023 in Zambezi Region (6).

Clinically compatible illness: An illness clinically compatible with mumps is characterized by: parotitis or other salivary gland swelling, aseptic meningitis, encephalitis, hearing loss, orchitis, oophoritis, mastitis, or pancreatitis, onset after February 13th, 2023 in Zambezi Region (6).

Suspect: Parotitis, acute salivary gland swelling, orchitis, or oophoritis unexplained by another more likely diagnosis, OR

A positive lab result with no mumps clinical symptoms (with or without epidemiological linkage to a confirmed or probable case) (6).

Probable: Acute parotitis or other salivary gland swelling lasting at least 2 days, or orchitis or oophoritis unexplained by another more likely diagnosis, in: A person with a positive test for serum anti-mumps immunoglobulin M (IgM) antibody, OR

A person with epidemiologic linkage to another probable or confirmed case or linkage to a group/community defined by public health during an outbreak of mumps (6).

Confirmed: A positive mumps laboratory confirmation for mumps virus with reverse transcription polymerase chain reaction (RT-PCR) or culture in a patient with an acute illness characterized by any of the following: Acute parotitis or other salivary gland swelling, lasting at least 2 days (6).

Data Analysis

Microsoft excel 97-2003 and SSPS were used to analyse the data, descriptive statistics were used to analyse the demographic characteristics of mumps cases and distribution of cases were presented through graphs, and tables.

Ethical consideration

Permission to conduct the outbreak response was obtained from the Ministry of Health and Social Services, Regional Management team and Regional Surveillance Officer.

Confidentiality was maintained by keeping the data in the laptop which has a password known only by the writer and the names of the patients were not included in the analysis.

Results

Overview of the Outbreak

A total of 2625 mumps cases were reported during this period. The cases consist of both children and adults, with ages ranging from 11 months to 45 years. The attack rate was highest among the under-fives 3.62%, the least attack rate is recorded amongst the age group fifteen and above with 0.80%. No fatalities have been reported to date. Majority who had mumps were females, 1316 (50.1%).

Variable	Parameter	Number of cases	Percentage (%)	Population	Attack rate (%)
Age groups (Years)	Under fives	665	25.3	18359	3.62
	Under fifteen	1712	65.2	57407	2.98
	Fifteen and above	248	9.4	31,097	0.80
Gender	Female	1316	50.1		
	Male	1309	49.9		

Table 1: Sociodemographic characteristics of mumps cases reported in Zambezi region, 13 February to 16 July 2023 (n=2625).

In 2023, the Zambezi region saw a significant number of mumps cases reported in various villages. The top 10 villages with the highest mumps case counts were as follows: Chotto led the list with 308 cases, followed by Cowboy with 246 cases. Macaravani West reported 102 cases, while Dairy had 79 cases, and Linyanti recorded 76 cases. Further down the list, Mission reported 45 cases, Ngweze had 43, Liselo reported 42, and Muyako had 38 cases. Additionally, both Macaravani East and New NHE reported 37 cases each, making it a tie for the 10th position in the list of villages significantly affected by the mumps outbreak in the Zambezi region.

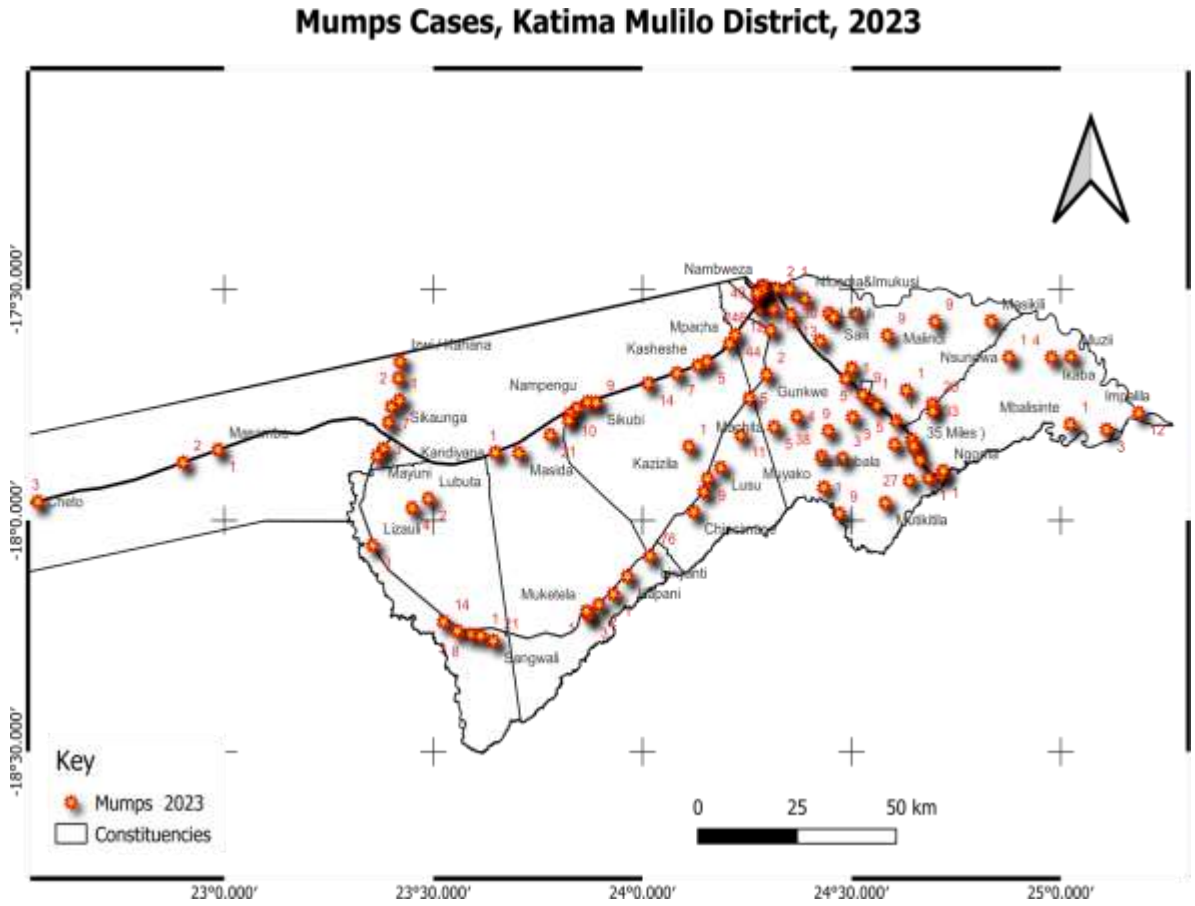

Figure 1: Distributions of Mumps cases per village in Zambezi region, 2023.

Distribution of mumps cases per epidemiological week in Zambezi region, 2023.

The region reported its first cases in week 7 (13/02/23 -19/02/2023) 2 (0.1%), since then the cases started spreading from person to person, the epi curve graph is progressively having taller peaks, starting from week 10 (17/05/23 -23/05/23) to week 28 (10/07/23 -16/07/23). Week 16 (17/05/2023 -23/05/23) reported the highest cases 158 (8.2%), refer to Fig.1. (n=2625)

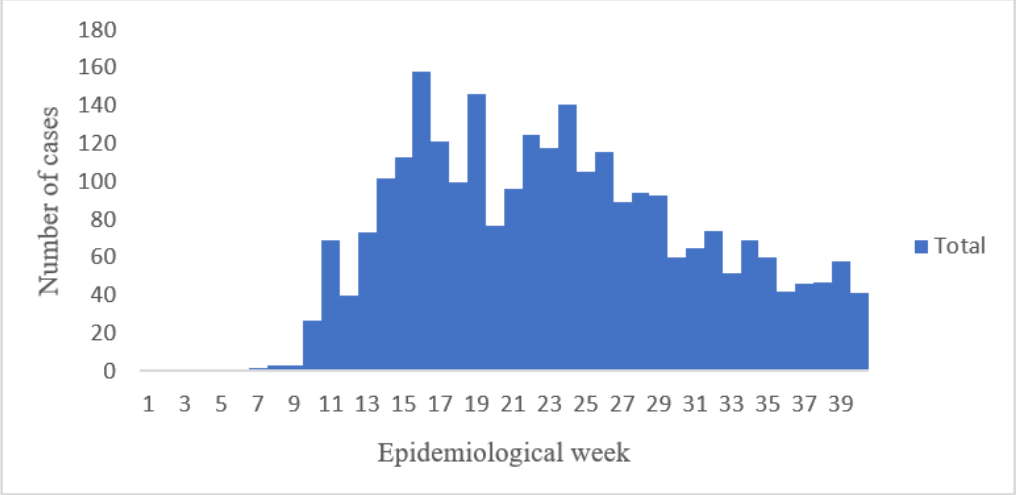

Figure 2: Distribution of mumps cases by epidemiological week in Zambezi region, 2023.

Socio-demographic characteristics of learners who were screened during mumps outbreak response in Zambezi Region, 2023.

The age range of 10 to 14 years exhibited a significant prorpotion of mumps cases, with 51 (20%) cases, and there was a higher proportion of mumps cases among males, with 42(22%) cases. Among the affected individuals, learners at Tobias Hainyeko Primary School were the most impacted, with a notably high proportion of mumps cases, accounting for 29 (36%) cases (see Table 2).

Age (years)	Total Screened	Mumps cases	Percentage (%)
5 - 9	186	33	17
10 - 14	252	51	20
Gender			
Female	249	42	17
Male	189	42	22
School			
Greenwell Matongo Primary School	221	32	14
Alfe Sampofu	40	9	23
Tobias Hainyeko Primary School	80	29	36
Ngweze Primary School	93	14	15
Sampofu Combined School	4	0	0

Table 2: Sociodemographic characteristics of learners who were screened during mumps outbreak response in Zambezi region, 2023 (n=438).

Distribution of diseases/conditions among learners during mumps outbreak response at schools in Zambezi region, 2023.

High proportion 349 (80%) learners were affected with tonsils followed by 84 (19%) who were affected by mumps (see Figure 2).

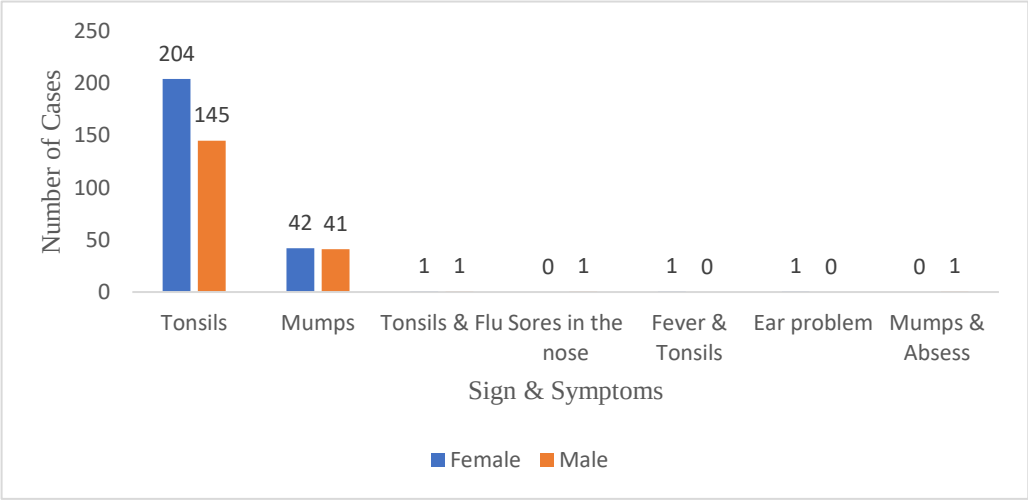

Figure 3: Distribution of diseases/conditions among learners during mumps outbreak response at schools in Zambezi region, 2023 (n=438).

Discussion

A total of 2,625 mumps cases were reported during this period, encompassing both children and adults with ages ranging from 11 months to 45 years. The attack rate was highest among children under five years old, at 3.62%, while the lowest attack rate was observed in individuals aged fifteen and above, with a rate of 0.80%. This contrasts with existing literature, which typically reports mumps cases as frequent among children aged 5-9, though adolescents and adults may also be affected [3]. Literature is inconsistent with the findings of the study which was done in European union, were the highest proportion of mumps cases were observed among those aged five to nine years, increasing to 15 years and above [7]. Importantly, there have been no reported fatalities as of the latest data, and a majority of the mumps cases were females, comprising 50.1% of the total cases.

The outbreak affected various villages in the Zambezi region, with the top 10 villages reporting significant mumps case counts. Among these villages, Chotto had the highest number of cases at 308, followed by Cowboy with 246 cases. The outbreak primarily impacted schools, with many cases occurring among school-going children under five years and under 15 years. This pattern is consistent with the literature, which suggests that students in schools are at risk of contracting mumps [5]. No fatalities and serious complications have been reported to date.

The epidemiological curve demonstrates progressively taller peaks, consistent with the concept in literature that such peaks in an outbreak signify the spread of cases from one person to another [8]. In this outbreak the cases are spreading from one person to another after an incubation period.

Moreover, a high proportion of learners, 80%, were affected by tonsillitis, with 19% affected by mumps. The spread of mumps cases may be associated with specific social settings, particularly schools, where children are in close proximity, sharing food and items. Additionally, the lack of vaccination programs against mumps in Namibia may contribute to the spread of mumps cases.

The mumps outbreak is still ongoing, which pose challenges in terms of disease control especially in school. The school going children must stay at home for 5 or 7 days to prevent the spread of the disease to others, which is leading to missing out on important information that others are been taught.

The disease is also placing a burden on health services resources as it has highlighted the need for robust surveillance systems and public health interventions such as introduction of mumps vaccines. No complications or fatalities have been recorded so far

Limitations

As any other outbreak study this bone faced many limitations, such as methodological and biases mainly. Mumps is not included in the disease surveillance system, information such as cases per health facility is not available in the District Health Information System (DHIS2).

Not much literature has been done on mumps.

Conclusion

This report has examined a recent mumps outbreak in Zambezi region, highlighting its epidemiology, transmission patterns, and impact on public health. By implementing the recommended control measures, especially introduction of mumps vaccines and enhancing surveillance systems, can effectively prevent and manage current and future mumps outbreaks, ultimately protecting the health and well-being of its population.

Recommendations

The republic of Namibia (Family health, National level focal person) should consider proposing the introduction and incorporating the mumps vaccine in the immunization programs and conducting immunization campaigns in the affected communities. The regional, district team and health facilities should continue with surveillance activities, health education and control measures.

Public Health Actions

The outbreak response team together with community health extension workers to strengthen health education in communities as well as continue with awareness through radio talks and community meetings with the headmen. Health care providers to continue with isolation of mumps cases for at least 7 days in either community or healthcare setting. The public to use standard precautions and droplet precautions.

Outreach team to continue with the implementation of mumps active case search in the communities as well as schools within the vicinity visited daily..

References:

1. World Health Organization. Mumps [Internet]. 2016. Available from: https://www.who.int/teams/health-product-policy-and-standards/standards-and-specifications/vaccine-standardization/mumps#:~:text=Mumps is an acute disease,respiratory tract of infected individuals.
2. Prevention MH. (2017). Local Health Department Guidelines for the Epidemiological Investigation and Control of Mumps.
3. California department of health organization. Mumps: Case and Outbreak Investigation. 2022, 3-5.
4. Centre for Disease Control. Mumps.
5. Center for Disease Control. Mumps.
6. Centre for Disease Control. Mumps Case Definition, 2008.
7. Considerations for implementing and adjusting public health and social measures in the context of COVID-19.
8. Interim guidance - 30 March 2023, COVID-19: Critical preparedness, readiness and response.
9. Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA, 800-CDC-INFO (800-232-4636) TTY: (888) 232-6348.

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