

Epidemiological Profile of Confirmed Mpox Cases in Kole Health Zone, Sankuru Province, Democratic Republic of the Congo, January–October 2025

KUMU KATEHE Jean¹, OTSHUDI Junior¹,

OPOLOKO EMBONGO Don Paul² and MAFUTA MUSALU Eric³

¹MD, MPH. School of Public Health, University of Kinshasa, Democratic Republic of Congo

²Supervisor in charge of epidemiological surveillance, Kole Health Zone, Sankuru Health District, Democratic Republic of the Congo.

³MD, MPH, PhD, School of Public Health, University of Kinshasa, Democratic Republic of Congo

Article Info:

Corresponding author:

OTSHUDI W'OTSHUDI Junior,
MD, MPH. School of Public
Health, University of Kinshasa,
Democratic Republic of Congo
juniorotshudi2@gmail.com

DOI:

[Received 01-09-2026,
Accepted 27-10-2026,
Published 31-10-2026]

Publishers Note: Natural Science Association stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Copyright: ©2026 by the author(s). This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 license (unless stated otherwise) permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

<https://creativecommons.org/licenses/by/4.0/>

I. Introduction

Mpox is a zoonotic viral disease caused by the monkeypox virus (MPXV), an enveloped, double-

Abstract

Introduction: Mpox remains a re-emerging public health concern in the Democratic Republic of the Congo (DRC). This study described the epidemiological profile of Mpox cases recorded in Kole Health Zone between January and October 2025.

Methods: This descriptive cross-sectional study included 427 patient records from three Mpox treatment centres (Ingengwa, Kole Yango, and Nkombeswe) in Kole Health Zone. Data were collected through medical record review using KoboCollect and analysed with SPSS version 25.

Results: The median age was 22 years (IQR: 20 years), and 66.0% of patients were male. Children aged 5–9 years represented the largest age group (19.0%). Most patients were single (54.8%) and had secondary education (57.4%); 21.1% were farmers and 11.5% livestock farmers. Consultation occurred more than six days after symptom onset in 58.5% of patients. Reported exposures included direct human-to-human contact (52%), contact with wildlife (35%), and hunting or butchering (12%). Overall, 73.3% of patients were recorded as unvaccinated. Complications were documented in 43.6% of patients. Among confirmed cases followed in the treatment centres, the recorded mortality proportion was 12.2%. Among recovered patients, 69.1% had no follow-up documented.

Conclusion: Mpox cases recorded in Kole Health Zone predominantly involved males, with children aged 5–9 years forming the largest age group. Delayed consultation, low recorded vaccination status, documented complications, and gaps in post-recovery follow-up highlight the need to strengthen surveillance, timely access to care, vaccination documentation, and continuity of care within an integrated One Health approach.

Keywords: Mpox ; epidemiological profile; transmission; complications; vaccination; Kole Health Zone ; Sankuru; Democratic Republic of Congo.

stranded DNA virus belonging to the genus *Orthopoxvirus* and the family *Poxviridae*. The disease commonly presents with fever, headache,

myalgia, lymphadenopathy, and a characteristic skin rash that may affect different parts of the body, including the genital area [1]. The first human case was identified in 1970 in the Democratic Republic of the Congo (DRC), in a nine-month-old boy [2]. Since 2022, Mpox has spread to numerous countries worldwide. Between January 2022 and November 2024, the World Health Organization (WHO) reported 117,663 confirmed cases and 263 deaths across 127 countries, corresponding to an overall case-fatality ratio of 0.2% [3]. In Africa, the epidemic intensified considerably in 2024, with 26,544 reported cases, including 5,732 confirmed cases, and 724 deaths across 15 African Union Member States. Children younger than 15 years accounted for 41% of reported cases, while males represented 63% [4]. In response to this resurgence, the Africa Centres for Disease Control and Prevention (Africa CDC) declared Mpox a Public Health Emergency of Continental Security in August 2024, followed by the WHO declaration of a Public Health Emergency of International Concern [5]. The DRC has been one of the countries most affected by the Mpox epidemic in Africa. In 2024, it accounted for the majority of reported cases and deaths on the continent, with clade I circulating and subclade Ib emerging in certain areas [4,6]. Sankuru Province has also experienced a substantial burden of the disease. Available health data indicate that 2,667 cases and 55 deaths were reported in the province in 2023, followed by 7,451 cases and 151 deaths in 2024. In Kole Health Zone, 459 cases and eight deaths were reported in 2022, 406 cases and six deaths in 2023, and 667 cases and seven deaths in 2024. These figures indicate a persistent public health concern in the area. However, aggregate surveillance data mainly describe the numbers of reported cases and deaths and provide limited information about the sociodemographic and clinical characteristics of affected individuals, their potential exposures, and the circumstances surrounding transmission. In this context,

describing the epidemiological profile of confirmed Mpox cases in Kole Health Zone is important for improving understanding of the local situation and informing context-specific public health interventions. Detailed information on the characteristics of affected individuals, reported exposures, clinical manifestations, and outcomes may help identify priorities for surveillance, prevention, case management, and follow-up. This study therefore aimed to describe the epidemiological profile of confirmed Mpox cases recorded in Kole Health Zone, Sankuru Province, Democratic Republic of the Congo, between January and October 2025.

II. Methods

II.1. Presentation of the environment

The study was conducted in the rural Kole Health Zone (HZ) , located in Sankuru Province, Democratic Republic of Congo. It is one of the 16 health zones of the Sankuru Provincial Health Division. It borders six other health zones: Tshudi Loto, Lodja , Ototo , and Bena. Dibele , Mweka and Dekese , and includes 12 health areas. According to DHIS2 data, the population of the health zone is estimated at 180,886 inhabitants, spread over an area of 9,824 km², representing an average density of 18 inhabitants/km².

II.2. Type of study and duration

This was a descriptive cross-sectional study of Mpox cases recorded in the Kole Health Zone from January 1 to October 31, 2025. This design made it possible to describe the distribution of cases according to their main sociodemographic, clinical, spatiotemporal, vaccination and epidemiological characteristics during the period considered.

II.3. Study population

II.3.1. Statistical units

The statistical unit consisted of an individual with confirmed Mpox who was recorded and managed in one of the three Mpox treatment centres (MTCs) in the Kole Health Zone between January 1 and

October 31, 2025. Men, women, and children who met the study eligibility criteria were considered.

II.3.2. Inclusion and exclusion criteria

II.3.2.1. Inclusion criteria

Individuals were included if they had confirmed Mpox, resided in the Kole Health Zone during the study period, had consulted one of the three Mpox treatment centres, and were registered in the relevant MTC register with a medical record containing sufficient usable information for the study.

II.3.2.2. Exclusion criteria

Individuals were excluded if they had only suspected Mpox without confirmation, were not registered in any of the three MTC registers, had no available medical record, or had records containing incomplete or unusable data that prevented the variables of interest from being analysed.

II.4. Sampling

A non-probability exhaustive sampling method was used in this study. This approach was adopted because the study aimed to include all eligible cases of Mpox recorded during the study period in the three Mpox Treatment Centers (MTCs) of the Kole Health Zone, namely Ingengwa, Kole Yango, and Nkombeswe. Consequently, the sample size was not determined in advance using a statistical sample size calculation, since the intention was to include the entire population of eligible cases available in these centers during the study period rather than to select a representative subset. All individuals who resided in the Kole Health Zone at the time of the study, had consulted one of the three MTCs during the study period, were registered in the relevant center's register, and had complete medical records were included. Individuals who did not meet these requirements were excluded. The sampling process therefore consisted of reviewing the registers and medical records of the three MTCs and including every case that met the eligibility criteria, without random selection or restriction to a predetermined sample size. The final sample size was thus

determined by the total number of eligible cases identified in the three centers during the study period.

II.5. Data Collection Technique

Data were collected through a review of medical records, MTC registers, notification logs, and epidemiological surveillance reports available at the three MTCs. The investigators, selected based on their proficiency with Android smartphones, their ability to read and write in French, their prior experience, and their professional qualifications, received two days of training. A pre-test of the tool was also conducted before the final data collection. Data collection was carried out after obtaining the necessary ethical, administrative, and local approvals.

Data quality control

Quality control was ensured using KoboCollect, thanks to the form's built-in constraints that limited errors and inconsistencies in data entry. Real-time transmission to the server facilitated the verification and correction of anomalies under the investigator's supervision.

II.5. Data Collection Tool

The data were collected using an electronic KoboCollect form comprising four main sections: sociodemographic characteristics, spatiotemporal distribution of cases, modes of transmission and management, and case outcome.

II.6. Data Analysis

The Data downloaded from the server were cleaned and analyzed using SPSS version 25. Data quality and completeness were assessed before analysis, and missing or inconsistent observations were identified from the available records. The normality of quantitative variables was assessed using the Kolmogorov–Smirnov test; non-normally distributed variables were summarized using the median and interquartile range (IQR). Categorical variables were described using frequencies and percentages. As this was a descriptive study intended to provide an overview of Mpox cases in the Kole Health Zone, no inferential statistical tests were performed, and no

statistical associations or risk factors were assessed.

II.7. Study Variables

The variables investigated included sociodemographic characteristics (age, sex, occupation, marital status, educational level, religion, and health district of origin); clinical and epidemiological characteristics (date of symptom onset, clinical manifestations, probable mode of transmission, contact history, vaccination status as recorded in the patient's file, presence and type of complications, and case outcome); and spatiotemporal characteristics (date of consultation, interval between symptom onset and first consultation, location of care, and health district). Data were extracted retrospectively from available medical records and registers of Mpox treatment centers in the Kole Health Zone. Vaccination status was based on the information documented in the patient's file and was not independently verified using vaccination cards or other external sources.

II.8. Operational Definitions

Age was defined as the number of years lived at the time of consultation, and sex was based on the information recorded in the patient's file. Place of residence referred to the health area or village documented in the records. Clinical manifestations comprised the signs and symptoms recorded by healthcare personnel. The probable mode of transmission was determined from available epidemiological information, particularly documented contact history. Vaccination status referred to previous vaccination against smallpox or Mpox, as indicated in the patient's file; therefore, its classification depended on the completeness and accuracy of the available documentation.

Complications were defined as clinical conditions documented in the medical records as complications occurring during the illness. Their classification by type was based on the clinical information available in the records. The interval to healthcare access was defined as the time

between symptom onset and the first medical consultation, provided both dates were available. Delayed consultation and the categories used to classify this interval were determined according to the thresholds adopted from the WHO protocol. Monthly case distribution was based on entries in the registers of the Mpox treatment centers; thus, the month represented the date recorded in these registers rather than necessarily the date of symptom onset. Case outcomes were classified as recovery or death, based on the documented outcome among confirmed cases. Case classification distinguished five categories. An alert case was an individual meeting the criteria for an initial Mpox alert. A suspected case met the applicable clinical and epidemiological criteria. A probable case fulfilled the relevant criteria for probable Mpox without definitive laboratory confirmation. A confirmed case was a suspected case with a positive polymerase chain reaction (PCR) test. A non-case was a suspected case with a negative laboratory test result. Data completeness was assessed during extraction from the treatment-center registers and patient files. The variables available for analysis were determined by the information documented in these sources.

II.9. Ethical considerations

The study was approved by the Ethics Committee of the Kinshasa School of Public Health on September 7, 2025, under reference number ESP/CE/108/2025. Authorization was also obtained from the relevant authorities of the Kole Health Zone. Data were collected exclusively from medical records and patient files, without direct interaction with patients. Confidentiality and data protection were ensured through secure archiving and electronic data entry restricted to a limited number of trained personnel.

3. Results

3.1. Sociodemographic characteristics

A total of 427 Mpox case files were analyzed, representing all available records. The median age

was 22 years (IQR: 20), and the 5–9-year age group was the most represented (19.0%). Males accounted for 66.0% of cases, while 57.4% had completed secondary education and 54.8% were single. Catholics represented 54.8% of individuals, while unemployment (27.6%), school

attendance (22.2%), and farming (21.1%) were the most common occupational categories. These findings describe the sociodemographic profile of suspected and confirmed cases in the Kole Health Zone; however, they do not establish factors associated with Mpox occurrence

Table I. Mpox cases according to socio-demographic characteristics Kole health zone November 2025.

Variable	Number of patients (n=427)	Percentage (%)
Education level		
None	38	8,9
Primary	94	22
Secondary	245	57.4
University	50	11.7
Marital status		
Bachelor	234	54.8
Married / Common-law partner	184	43.1
Widow or widower	9	2.1
Religion		
Catholic	234	54.8
Protestant	123	28.8
Kimbanguist	35	8.2
Muslim woman	35	8.2
Occupation		
Unemployed	118	27.6
Pupil	95	22.2
Farmer (male/female)	90	21.1
Breeder	49	11.5
Official	23	5.4
Merchant	21	4.9
Student	16	3.7
Healthcare professional	15	3.5
Sex		
Male	282	66
Female	145	34
Age range in years		
Median (EQ)	22 (20)	
< 5	17	4
5-9	81	19
10-14	30	7
15-19	49	11.5
20-24	62	14.5

25-29	60	14.1
30-34	57	13.3
35-39	42	9.8
≥ 40	29	6.8

Note: IQR(a): Interquartile space.

3.2. Description of the spatio-temporal distribution of Mpox cases

Table II. Mpox cases according to health areas, period of occurrence, time to consultation and length of hospitalization in the Kole Health Zone , January to October 2025

Variables	Number of patients (n=427)	Percentage (%)
Health area		
AS Nkombeswe	113	26.5
AS Ingengwa	94	22.0
AS Kole Yango	53	12.4
AS Banda	29	6.8
AS Kole Pilote	28	6.6
AS Ishenga	26	6.1
AS Duka	25	5.9
AS Ndjoka	15	3.5
AS Wongo	13	3.0
AS Nienie	12	2.8
AS Okela	10	2.3
AS Shongomboyo	9	2.1
Period of occurrence		
January	59	13.8
February	52	12.2
March	47	11.0
April	27	6.3
May	42	9.8
June	36	8.4
July	33	7.7
August	48	11.2
September	39	9.1
October	44	10.3
Time between clinical manifestation and consultation		
3–4 days	67	15.7
5–6 days	110	25.8
More than 6 days	250	58.5
Length of stay at the CTM		
6–13 days	285	66.7
14–20 days	122	28.6
More than 20 days	20	4.7

Table II presents the distribution of Mpox cases by health area, period of onset, time between the appearance of clinical manifestations and consultation, and length of hospitalization at the Mpox Treatment Center. The Nkombeswe health area had the highest proportion of cases (26.5%), followed by Ingengwa (22.0%) and Kole. Yango (12.4%). Temporally, January had the highest number of cases (59; 13.8%), while April had the fewest (27; 6.3%). The majority of patients (250; 58.5%) sought medical attention more than six days after the onset of clinical symptoms. Regarding hospitalization, 285 cases (66.7%) stayed between 6 and 13 days at the CTM, compared to 28.6% for 14 to 20 days and 4.7% for more than 20 days.

3.3. Description of Mpox cases according to the mode of transmission

Table III. Mpox cases according to diagnostic status and main exposure situations in the Kole Health Zone, January to October 2025

Variables	Category	Number of patients (n=427)	Percentage (%)
Diagnostic status	Suspected case	244	57.1
	Confirmed case	183	42.9
	Total	427	100.0
Contact with a wild animal in the last 30 days	Yes	149	35.0
	No	278	65.0
	Total	427	100.0
Nature of the contact	Direct physical contact	222	52.0
	Sharing objects	205	48.0
	Total	427	100.0
Participation in hunting or butchering animals	Yes	51	12.0
	No	376	88.0
	Total	427	100.0

Table III shows that suspected cases represented 57.1% of all cases, compared to 42.9% of confirmed cases. Regarding exposures, 35.0% of patients reported contact with a wild animal within the 30 days preceding their consultation. Among the reported contact situations, direct physical contact was the most frequent (52.0%), followed by sharing objects (48.0%). Furthermore, 12.0% of cases reported having participated in hunting or butchering activities.

III.4. Description of the management and outcome of Mpox cases

Table IV. Distribution of individuals classified as suspected or confirmed Mpox cases according to clinical manifestations, treatment, vaccination status, psychosocial support, complications, outcomes, and post-treatment follow-up in the Kole Health Zone, January–October 2025

Variables	Categories	n	%
Clinical manifestations (N = 427)			
	Fever, headache, rash, sore throat	107	25.1
	Fever, headache, skin rash	88	20.6
	Fever, headache, rash, sore throat, muscle pain, lymphadenopathy	57	13.3

	Fever, headache, rash, sore throat, muscle pain	82	19.2
	Fever, headache, rash, lymphadenopathy	35	8.2
	Fever, headache, rash, muscle pain	58	13.6
Treatment (N = 427)			
	Antipyretics, antibiotics, and skin care	207	48.4
	Antipyretics, antibiotics, skin care, and eye care	76	17.8
	Antipyretics, antibiotics, skin care, and ENT care	67	15.7
	Antipyretics, antibiotics, skin care, and rehydration	52	12.2
	Antipyretics and antibiotics	25	5.9
Vaccination status (N = 427)			
	Unvaccinated	313	73.3
	Vaccinated	114	26.7
Psychosocial support (N = 427)			
	Yes	248	58.1
	No	179	41.9
Complications (N = 427)			
	Yes	186	43.6
	No	241	56.4
Types of complications (N = 186)			
	ENT and ocular complications	76	40.9
	Skin and ENT complications	35	18.8
	Skin and ocular complications	24	12.9
	Skin, ocular, and ENT complications	18	9.7
	Skin complications	17	9.1
	Maternal-fetal complications	16	8.6
Outcome (N = 427)			
	Recovered	375	87.8
	Death	52	12.2
Post-treatment follow-up among recovered individuals (N = 375)			
	Yes	116	30.9
	No	259	69.1

The table shows that the most frequent clinical manifestation was the combination of fever, headache, rash, and sore throat, reported in 25.1% of individuals, followed by fever, headache, rash, sore throat, and muscle pain (19.2%). Treatment was primarily based on a combination of antipyretics, antibiotics, and skin care (48.4%), followed by antipyretics, antibiotics, skin care, and eye care (17.8%). Most individuals were unvaccinated (73.3%), while 41.9% did not receive psychosocial support during care. Complications were reported in 43.6% of

individuals (186/427); among those with complications, the most frequent category was the combination of ENT and ocular complications (40.9%), followed by skin and ENT complications (18.8%). Regarding outcomes, 87.8% of individuals recovered, whereas 12.2% died. Among the 375 recovered individuals, 30.9% received post-treatment follow-up, while 69.1% did not, indicating a potential gap in continuity of care.

4. Discussion

Main findings

This study described the sociodemographic characteristics, clinical manifestations, management, complications, and outcomes documented among patients managed in three Mpox treatment centres (MTCs) in Kole Health Zone, Democratic Republic of the Congo (DRC), between January and October 2025. The analysis included 427 patient records. The median age was 22 years (IQR = 20), and males accounted for 66.0% of the patients. Secondary education was the most frequently reported educational level (57.4%), while 54.8% of patients were single and 54.8% identified as Catholic. Farmers represented 21.1% of the study population, and 27.6% were unemployed. Complications were recorded in 43.6% of patients. These findings describe the patients represented in the available records and should not be interpreted as estimates of Mpox prevalence in the general population of Kole Health Zone.

Sociodemographic and epidemiological characteristics

The predominance of male patients is consistent with findings reported in several Mpox investigations, although the magnitude of this predominance varies between settings [8,10,11]. Differences in population characteristics, exposure patterns, surveillance systems, and case definitions may contribute to these variations. National and continental surveillance analyses have also demonstrated substantial heterogeneity in the distribution of suspected and confirmed cases [12,14]. Therefore, the male predominance observed in Kole should be interpreted as a characteristic of the patients included in this study rather than evidence that males in the general population were necessarily more susceptible to infection.

The median age of 22 years indicates that adolescents and young adults were represented in the study population. However, children aged 5–9 years formed the largest individual age category,

accounting for 19.0% of patients. This finding suggests that the recorded cases affected both children and adults. Previous investigations have documented differences in age distribution across Mpox outbreaks and geographical settings [3,8,10,16]. Such differences may reflect population structure, exposure patterns, transmission networks, and case-detection practices. The descriptive design of the present study does not allow these explanations to be tested.

The occupational distribution, including farmers (21.1%) and livestock farmers (11.5%), is relevant to the local context. Nevertheless, occupation alone cannot establish the source or route of infection. Although animal-to-human transmission has been described in Mpox epidemiology, human-to-human transmission is also an important route [1,3,9,17]. Consequently, occupational categories should not be interpreted as evidence that infection was acquired through contact with animals unless such exposure was specifically documented.

Distribution of cases and access to care

The proportions of records originating from the three MTCs differed: Nkombeswe accounted for 26.5%, Ingengwa for 22.0%, and Kole Yango for 12.4%. These differences may reflect variations in service attendance, population distribution, accessibility, referral practices, or record completeness. However, without population denominators and information on the completeness of case detection at each centre, these proportions cannot be used to compare the underlying risk of infection between locations.

The temporal distribution of records also varied during the study period, with January accounting for 13.8% of cases. Such monthly differences may reflect changes in transmission, healthcare-seeking behaviour, service availability, or reporting practices. They do not, on their own, establish a seasonal pattern. This interpretation is consistent with broader surveillance analyses showing that reported Mpox trends may be affected by

differences in case ascertainment and laboratory confirmation [12,14]. The temporal findings should therefore be interpreted as the distribution of recorded cases from January to October 2025.

A substantial proportion of patients reportedly consulted more than six days after symptom onset (58.5%). This observation suggests that delayed consultation was common among the recorded patients. Geographical barriers, transport costs, limited awareness, and initial use of alternative care are possible explanations, but they cannot be confirmed unless they were directly assessed. Early consultation is important for clinical assessment, appropriate management, and implementation of infection-prevention measures. Nevertheless, the present study cannot establish that consultation delays caused complications or deaths.

Clinical manifestations and patient management

The most frequently recorded combination of clinical manifestations was fever, headache, skin rash, and sore throat (25.1%), followed by fever, headache, and skin rash (20.6%). Other combinations included muscle pain and lymphadenopathy. These findings illustrate the diversity of clinical presentations documented in the treatment centres. Fever and skin lesions are commonly described in Mpox, although clinical manifestations may vary across patients and outbreaks [1,3,8,9]. Because the study relied on existing medical records, the recorded combinations may also reflect differences in clinical documentation.

The most frequently documented treatment combination involved antipyretics, antibiotics, and skin care, accounting for 207 patients (48.5%). Other combinations included additional eye care, ear, nose and throat (ENT) care, or rehydration. These results describe recorded clinical practices but do not demonstrate the effectiveness of individual treatment combinations. Antibiotic use should not be interpreted as evidence that all patients required antibiotics, since the indication

for each prescription was not necessarily established by this descriptive analysis.

Regarding vaccination, 73.3% of patients were recorded as unvaccinated, compared with 26.7% recorded as vaccinated. These proportions reflect vaccination information available in the patient files and were not independently verified through vaccination cards or external registers. Incomplete documentation or recall may therefore have affected classification. Vaccination is an important component of Mpox prevention, but its impact depends on vaccine availability, uptake, and the epidemiological context [2,7,12].

Psychosocial support was recorded for 58.1% of patients, while 41.9% had no support documented. This finding highlights the importance of recording psychosocial care alongside clinical management. However, absence of documentation does not necessarily mean that support was not provided.

Complications and outcomes

Complications were documented in 186 patients (43.6%). Among these patients, ENT and ocular complications constituted the largest recorded category (40.9%). Other categories included skin and ENT complications, skin and ocular complications, and maternal-fetal complications. These findings indicate that complications were an important feature of the records reviewed. However, the study cannot determine their predictors or establish whether they were related to delayed consultation, underlying conditions, or differences in care.

The outcome analysis concerned confirmed cases followed in the MTCs. Among the records included in this outcome analysis, 375 patients were recorded as recovered and 52 as deceased, corresponding to 87.8% and 12.2%, respectively, if the denominator for this analysis was 427. This proportion must be interpreted specifically as the observed mortality proportion among confirmed cases followed in the participating centres, not as a mortality estimate for all suspected and confirmed cases in Kole Health Zone. Comparisons with

other studies require caution because case definitions, confirmation procedures, disease severity, referral patterns, follow-up, and outcome denominators may differ [10,12,14].

Among the 375 patients recorded as recovered, 259 (69.1%) had no follow-up documented, while 116 (30.9%) had follow-up recorded. The absence of follow-up information limits assessment of longer-term outcomes and possible sequelae. Clear discharge documentation and systematic follow-up may help improve continuity of care and the completeness of outcome data.

Strengths and Limitations

This study provides a description of 427 patient records from three MTCs in Kole Health Zone over a defined ten-month period. It brings together information on sociodemographic characteristics, clinical manifestations, management, complications, and outcomes. Nevertheless, its retrospective design means that the analysis depends on the accuracy and completeness of existing medical records. Missing, inconsistent, or insufficiently detailed information may have affected the classification of symptoms, exposures, vaccination status, complications, and outcomes. Patients who were not registered at the selected centres were not captured, limiting the representativeness of the findings. In addition, the absence of a population denominator prevents estimation of population incidence, while the descriptive design does not permit identification of factors associated with complications or death or support causal conclusions.

Conclusion

The records reviewed in Kole Health Zone between January and October 2025 showed a predominance of male patients, varied clinical presentations, and a substantial proportion of documented complications. Outcomes were assessed among confirmed cases followed in the participating MTCs, and the reported mortality proportion should be interpreted within this

specific group. Strengthening case registration, clinical documentation, vaccination-history recording, outcome verification, and post-recovery follow-up could improve the quality of Mpox surveillance and patient management in this setting.

Acknowledgements

The authors thank the management and healthcare staff of the three Mpox treatment centres in Kole Health Zone for their cooperation and assistance in accessing the medical records used in this study. Their support contributed to the successful completion of this research.

Funding

This study received no specific financial support from public, commercial, or non-profit funding agencies. The research was conducted using the authors' available resources.

Conflict of Interest

The authors declare that they have no competing interests related to this study. No financial or personal relationships influenced the conduct or reporting of the research.

Ethical Considerations

Ethical approval was obtained from the relevant ethics committee before the study was conducted. Administrative authorization was also obtained from the relevant health authorities in Kole Health Zone. Patient confidentiality and data anonymity were maintained throughout data collection, analysis, and reporting.

Authors' Contributions

- Kumu Katehe Jean, as the principal author, led the study design, data collection, data analysis, interpretation of findings, and manuscript drafting.
- Otshudi Junior contributed to data collection, interpretation of results, and critical revision of the manuscript.

- Opoloko Embongo Don Paul contributed to data analysis, interpretation of findings, and manuscript review.
- Mafuta Musalu Eric contributed to scientific supervision and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

AI Use Statement

The authors declare that generative artificial intelligence tools were not used in the conception, design, data analysis, or interpretation of this study. Any AI-assisted tools used were limited to minor language editing and grammar correction. The authors take full responsibility for the scientific content and accuracy of the manuscript.

References

1. Jiang, L., Xu, A., Guan, L., Tang, Y., Chai, G., Feng, J., et al. (2025). A review of Mpox: Biological characteristics, epidemiology, clinical features, diagnosis, treatment, and prevention strategies. *Exploration (Beijing)*, 5(2), 20230112. <https://doi.org/10.1002/EXP.20230112>
2. Jadhav, V., Paul, A., Trivedi, V., Bhatnagar, R., Bhalsinge, R., & Jadhav, S. V. (2025). Global epidemiology, viral evolution, and public health responses: A systematic review on Mpox (1958–2024). *Journal of Global Health*, 15, 04061. <https://doi.org/10.7189/jogh.15.04061>
3. Sharif, N., Sharif, N., Alzahrani, K. J., Halawani, I. F., Alzahrani, F. M., De, I., et al. (2023). Molecular epidemiology, transmission and clinical features of 2022-mpox outbreak: A systematic review. *Health Science Reports*, 6(10), e1603. <https://doi.org/10.1002/hsr2.1603>
4. Kengea, L. A., Ngwakaha, B. I., Bikoki, W. M., Temuangudi, V. N., Nsinga Bungiena, J. C., Kape Kalume, J. J., et al. (2025). Profile of mpox cases identified during surveillance of the Kokolo health zone in Kinshasa (DRC) from August to November 2024. *Médecine Tropicale et Santé Internationale*, 5(1). <https://doi.org/10.48327/mtsi.v5i1.2025.604>
5. Africa Centres for Disease Control and Prevention. (2024, September 13). *Mpox situation in Africa: Outbreak report, 13 September 2024*. Africa CDC.
6. Ministry of Public Health, Hygiene and Prevention, Democratic Republic of the Congo. (2025, January 13). *Weekly situation report No. 54: Epidemiological week 02 data*. Ministry of Public Health, Hygiene and Prevention.
7. Sulaiman, S. K., Isma'il Tsiga-Ahmed, F., Musa, M. S., Makama, B. T., Sulaiman, A. K., & Abdulaziz, T. B. (2024). Global prevalence and correlates of mpox vaccine acceptance and uptake: A systematic review and meta-analysis. *Communications Medicine*, 4, 136. <https://doi.org/10.1038/s43856-024-00564-1>
8. Ramírez-Olivencia, G., Velasco Arribas, M., Vera García, M. M., Casabona, J., Martínez, M. J., Membrillo de Novales, F. J., et al. (2024). Clinical and epidemiological characteristics of the 2022 Mpox outbreak in Spain (CEME-22 Study). *Open Forum Infectious Diseases*, 11(3), ofae105. <https://doi.org/10.1093/ofid/ofae105>
9. Sanyaolu, A., Marinkovic, A., Okorie, C., Prakash, S., Haider, N., Dixon, Y., et al. (2023). Review of the prevalence, diagnostics, and containment measures of the current mpox outbreak. *World Journal of Clinical Cases*, 11(6), 1252–1260. <https://doi.org/10.12998/wjcc.v11.i6.1252>
10. Besombes, C., Mbrenge, F., Malaka, C., Gonofio, E., Schaeffer, L., Selekon, B., et al. (2023). Investigation of a mpox outbreak in Central African Republic, 2021–2022. *One Health*, 16, 100523. <https://doi.org/10.1016/j.onehlt.2023.100523>
11. Ogoina, D., Izibewule, J. H., Ogunleye, A., Ederiane, E., Anebonam, U., Neni, A., et al. (2019). The 2017 human monkeypox

- outbreak in Nigeria—Report of outbreak experience and response in the Niger Delta University Teaching Hospital, Bayelsa State, Nigeria. *PLOS ONE*, 14(4), e0214229. <https://doi.org/10.1371/journal.pone.0214229>
12. Ndembu, N., Folayan, M. O., Komakech, A., Mercy, K., Tessema, S., Mbala-Kingebeni, P., et al. (2025). Evolving epidemiology of Mpox in Africa in 2024. *The New England Journal of Medicine*, 392(7), 666–676. <https://doi.org/10.1056/NEJMoa2411368>
 13. Africa Centres for Disease Control and Prevention. (2024, July 31). *Mpox situation in Africa: Outbreak report, 30 July 2024*. <https://africacdc.org/wp-content/uploads/2024/08/MPox-Situation-in-Africa.pdf>
 14. Malembi, E., Escrig-Sarreta, R., Ntumba, J., Beiras, C. G., Shongo, R., Bengheya, J., et al. (2025). Suspected and confirmed mpox cases in DR Congo: A retrospective analysis of national epidemiological and laboratory surveillance data, 2010–23. *The Lancet*, 405(10476), 408–419. [https://doi.org/10.1016/S0140-6736\(24\)02669-2](https://doi.org/10.1016/S0140-6736(24)02669-2)
 15. Zobel Lekeumo Cheuyem, F., Takpando-legrand, D. R., Achangwa, C., Boukeng, L. B. K., Dabou, S., Mutarambirwa, H. D., et al. (2025). Mpox clinical and epidemiological patterns in the Central African Republic: A systematic review and meta-analysis. *medRxiv*. <https://doi.org/10.1101/2025.07.09.25331215>
 16. Rimoin, A. W., Mulembakani, P. M., Johnston, S. C., Lloyd-Smith, J. O., Kisalu, N. K., Kinkela, T. L., et al. (2010). Major increase in human monkeypox incidence 30 years after smallpox vaccination campaigns cease in the Democratic Republic of Congo. *Proceedings of the National Academy of Sciences of the United States of America*, 107(37), 16262–16267. <https://doi.org/10.1073/pnas.1005769107>
 17. Sklenovská, N., & Van Ranst, M. (2018). Emergence of monkeypox as the most important orthopoxvirus infection in humans. *Frontiers in Public Health*, 6, 241. <https://doi.org/10.3389/fpubh.2018.00241>
 18. Brochero, C. D., Nocua-Báez, L. C., Cortes, J. A., Charniga, K., Buitrago-Lopez, A., & Cucunubá, Z. M. (2025). Decoding mpox: A systematic review and meta-analysis of the transmission and severity parameters of the 2022–2023 global outbreak. *BMJ Global Health*, 10(1), e016906. <https://doi.org/10.1136/bmjgh-2024-016906>