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Dear Reader,

We take great pleasure in welcoming you to Issue 4 Volume 10 of the Uganda Public Health
Bulletin.

We aim to inform the district, national, and global stakeholders on disease outbreak investigations, public health surveillance, and interventions undertaken in detecting, preventing, and responding to public health events in Uganda.

In this issue, we present a variety of articles including: Factors associated with mpox misdiagnosis, Mbarara City, Uganda, October 2024–May 2025; Magnitude and drivers of mpox in Mbarara City, October 2024–May 2025; Factors associated with mpox severity in Mbarara City, October 2024–May 2025 ; Recurrent Crimean Congo Hemorrhagic Fever in Uganda's Cattle Corridor, 2025; Sustained Measles Transmission in Kabulasoke, Uganda: The role of Suboptimal Vaccination, Delayed Detection, and Gender-Based Barriers, March–July 2025; Temporal and Spatial Distribution of Human Brucellosis, Uganda, 2017–2024; Strengthening Management of Non-Conformities in an Accredited Public Health Laboratory in Kampala, Uganda, March – October 2024; Effect of surge team deployment on turnaround time for result receipt during the Mpox outbreak, Mayuge District, Uganda, September – October 2024

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Thank you

Inside this issue:

Factors associated with mpox misdiagnosis, Mbarara City, Uganda, October 2024–May 2025

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Summary

Background: In Uganda, by April 2025, Mbarara City had the highest mpox attack rate (142 per 100,000 population), with patients reporting initial treatment for other infections before mpox diagnosis. We assessed the magnitude, types and factors associated with mpox misdiagnosis in Mbarara City, October 2024–May 2025.
Methods: A suspected mpox case was acute onset of skin rash or genital lesions with ≥2 symptoms: fever ≥38.5°C, headache, general body weakness, myalgia, back pain, genital discharge, lymphadenopathy, and mucosal lesions. A confirmed case was a suspected case with PCR-confirmed mpox. Misdiagnosed case was any mpox case that received a non-mpox diagnosis at first visit to a health facility and later diagnosed with mpox by PCR. We found cases through active house-to-house visits in Nyamityobora Ward, the most affected in Mbarara City. We interviewed cases using a standardized questionnaire, collecting socio-demographics, first health facility visited and diagnosis data. We performed modified Poisson regression to determine factors associated with mpox misdiagnosis**.**
Results: We identified a total of 106 mpox cases; 91% (96/106) sought care at a health facility and 50% (48/96) were misdiagnosed. Of the 96 case-patients, 69% (66) first sought care at private health facilities while 31% (30) sought care at government health facilities. Of the 48 misdiagnoses, 40% (19) were genital-urinary infections, 33% (16) were unspecified infections, 15% (7) were febrile illnesses and 13% (6) were chicken pox. Seeking care from private health facilities (adjusted prevalence ratio [aPR]=2.1, 95%CI:1.1-3.9) was significantly associated with mpox misdiagnosis.
Conclusion: Half of mpox cases were misdiagnosed at first health facility visit, mostly in private health facilities. Training of private health facilities' health workers on mpox detection could improve case identification.

Background

Mpox is a viral disease caused by the monkeypox virus (1). It is transmitted to humans through close contact with an infected person, notably sexual contact, by contact with an infected animal or by materials and surfaces contaminated with the virus (2). Globally, the clinical presentation of mpox since 2022 has differed from past outbreaks, with an increasing number of patients manifesting atypical symptoms like genital lesions, pharyngitis, proctitis and epididymitis with a significant overlap with sexually transmitted infections (3).

Mpox has been frequently misdiagnosed in Uganda, with many cases initially presenting with syndromic diversity ranging from fever, sore throat, headache, confined skin lesions or disseminated rash, genital lesions and discharge (4). These symptoms are similar to those seen in several other infections such as malaria, chicken pox, measles, other skin and genital-urinary infections. This similarity leads to frequent misdiagnoses, delaying proper mpox identification and treatment, driving transmission of mpox within the communities.

By April 2025, Uganda had a total of 5,431 mpox cases and Mbarara City had the highest attack rate of 142 per 100,000 population. Nyamityobora Ward in Mbarara City was the most affected with an attack rate of 50 cases per 10,000 with many patients reporting initial treatment for other infections before mpox diagnosis (5). This pattern highlighted critical gaps in frontline disease recognition, leading to delayed outbreak detection and containment, underestimation of the true disease burden and missed opportunities for contact tracing and prophylaxis. We investigated to determine the scope of mpox misdiagnosis and the associated factors in Nyamityobora Ward during October 2024–May 2025.

Methods

Mbarara City is located in southwestern Uganda, with a population of 325,075 individuals residing in its 6 divisions, 23 wards, 52 cells (6). Nyamityobora Ward is located in the South division of Mbarara City and lies along Mbarara-Masaka highway. It is densely populated and hosts the city market and several entertainment places.

We defined mpox cases as suspected or confirmed cases. A suspect case was defined as acute onset of skin rash or genital lesions with ≥2 of the following: fever

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≥38.5°C, headache, general body weakness, body aches, back pain, genital discharge, lymphadenopathy, mucosal lesions in a resident of Mbarara City from Oct 2024 to May 2025; a confirmed case was defined as RT-PCR-confirmed mpox infection in a patient residing in Mbarara City from October 2024 to May 2025. A misdiagnosed case was defined as any mpox case who received a non-mpox diagnosis at their first visit to a health facility after symptom onset and was later diagnosed with mpox by PCR.

We employed a cross-sectional study design and found cases systematically through active case search by house-to-house visits in Nyamityobora Ward. We interviewed the case-patients using a standardized questionnaire and collected data on socio-demographics, first health facility visited, and first diagnosis received. We performed modified Poisson regression analysis to determine the factors associated with mpox misdiagnosis. Permission to conduct the investigation was obtained from the City Health office, Regional Emergency Operations Center and chairpersons of Nyamityobora cells. A non-research determination was obtained from the office of the Associate Director for Science, Centers for Disease Control and Prevention, Uganda. We obtained verbal consent from participants that were 18 years and above and sought verbal consent from parents or guardians of children below 18 years. To ensure patient protection and confidentiality, patient data were anonymized and stored in a database on a password secured laptop.

Results

Descriptive epidemiology

A total of 106 mpox patients were interviewed. Of the 106 case-patients, 91% (96) had visited a health facility at symptom onset while 9% (10) did not visit a healthy facility. Of those who visited a healthy facility, 50% were misdiagnosed. Of the 96 case-patients, 69% (66) first sought care at private health facilities while 31% (30) sought care at government health facilities. Of the 48 misdiagnosed case-patients, 90% (43) were aged 18 years and above while 10% (5) were aged below 18 years. Males (50%) and females (50%) were equally misdiagnosed. Of the 48 misdiagnoses, 40% (19) were genital-urinary infections, 33% (16) were unspecified infections, 15% (7) were febrile illnesses and 13% (6) were chicken pox. Factors associated with mpox misdiagnosis, Nyamityobora Ward, October 2024–May 2025

At multivariate analysis, case-patients who first sought care at private health facilities were two times more likely to be misdiagnosed [aPR=2.1, 95%CI (1.1-3.9)] compared to those who sought care at government health facilities.

Table 1: Factors associated with mpox misdiagnosis at multivariate analysis in Nyamityobora ward, Mbarara City, October 2024–May 2025

Variable	Proportion		cPR (95%CI)	aPR(95%CI)
	Mpox misdiagnosed	Mpox diagnosed		
Age (Years)				
≥18	43 (90)	46 (96)	Ref	
<18	5 (10)	2 (4)	1.3 (0.59-2.7)	1.5 (0.55-4.1)
Sex				
Female	24 (50)	27 (56)	Ref	
Male	24 (50)	21 (44)	1.13 (0.76-1.7)	1.09 (0.66-1.8)
First health facility visited				
Government	22 (27)	8 (73)	Ref	
Private	28 (58)	38 (42)	2.2 (1.2-4.1)	2.1 (1.1-3.9)

Discussion

The majority of the case-patients (91%) sought care at a health facility at symptom onset, indicating good health seeking behavior. However, half of them were misdiagnosed, suggesting gaps in diagnostic capacity or clinical awareness of the disease (7).

Genital-urinary infections were the most alternative diagnosis for mpox in both males and females and they were only in individuals aged above 18 years. This misdiagnosis is often due to the initial mpox symptoms such as genital lesions, genital rash and discharge that resemble those of other genital-urinary infections like syphilis, gonorrhea, chlamydia and candidiasis. Presentation of genital lesions in adults is an indication of mpox transmission by sexual contact (8).

Case-patients who first sought care at private health facilities were two times more likely to be misdiagnosed compared to those who first sought care at government health facilities. This is likely due to the low suspicion index for mpox since clinicians in private health facilities tend to have limited knowledge of recognition of emerging infectious diseases like mpox (9).

Study limitations: Accuracy of reported diagnosis received at first visit to a health facility and of reported symptoms could have been limited by patient recall bias since by the time of the interview, some patients had already recovered. Recall bias may have led to underreporting of symptoms and misclassification of diagnosis at first health visit, potentially leading to an under estimation of the true extent of symptoms and misdiagnoses.

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Conclusion: Half of mpox cases were misdiagnosed at first health facility visit, mostly in private clinics. Regular training of health workers in private clinics by ministry of healthy focused on the clinical presentation and early recognition of mpox using could increase the suspicion index, improve patient management outcomes and limit transmission.
Public health actions: The investigation team provided health education to the residents of Nyamityobora Ward during the house-to-house active case finding on: causes, transmission and prevention of mpox.
Conflict of Interest: The authors declare no conflict of interest
Author contribution: Aminah Namwabira took lead in conceptualizing the project, data curation, investigation, data analysis and original draft writing. Alex Riolexus Ario acquisitioned the funds. Nasif Matovu, Kyomugisha D. Aman, Vianney John Kigongo, Justine Wobusobozi, Martha Dorcas Nalweyiso, Alupo Anne Loy, Benon Kwesiga and Richard Migisha were involved in designing the methodology, investigation, writing, reviewing and editing the article. Stella Maris Lunkuse, David Muwanguzi, Alfred Wejuli, John Opolot and Alex Riolexus Ario were involved in supervision, visualization, validation and editing the article. All authors read and approved the final draft.
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Magnitude and drivers of mpox in Mbarara City, October 2024–May 2025

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Summary

Background: By April 2025, Mbarara City had the highest mpox national attack rate of 142 cases per 100,000 population. We investigated to determine the scope of mpox, estimate proportion of missed cases in medical records and identify drivers of outbreak transmission in Mbarara City October 2024-May 2025.
Methods: We defined a confirmed case as an RT-PCR-positive patient admitted to Mbarara Regional Referral Hospital (MRRH) while a suspected case was defined as acute onset of skin rash or genital lesions with ≥2 of the following: fever ≥38.5°C, headache, weakness, myalgia, back pain, genital discharge, lymphadenopathy, or mucosal lesions, in a resident of Mbarara City between October 2024 and May 2025. We reviewed records at MRRH to find cases and further conducted active case search through house-to-house interviews in Nyamityobora Ward which was the most affected in Mbarara City. We administered a questionnaire to collect data on demographics, clinical symptoms, and risk factors. We line listed all identified cases and described case-patients by person, place, and time.
Results: We identified 317 records of confirmed mpox cases from Mbarara City admitted at MRRH, of which 175 (55%) were male, and 292 (92%) were aged 15-44 years. The overall attack rate was 12 cases per 10,000 population. Males had a higher attack rate (14/10,000) than females (10/10,000). The active case search in Nyamityobora Ward identified a total of 106 mpox cases which included 91(86%) new cases that were not previously recorded in hospital data. Of these, 96 adult cases (excluding 7 children) reported on exposure history. Sexual contact 63% (60/96) was more common. Fifty-one percent (49/96) of the cases initially sought care at private clinics. Cases appeared to cluster geographically around specific business types, including brothels, bars, guest houses, and betting companies.
Conclusion: The true burden of mpox was underestimated by a factor of at least 2, with private facilities most often the first point of care. Sexual contact was the main driver of the outbreak. We recommend educating private providers on suspect case identification and referral and promoting community-wide awareness on mpox.

Background

Mpox, previously known as monkeypox, is a viral illness caused by the monkeypox virus, a species of the genus *Orthopoxvirus (1)*. It primarily spreads from person to person mainly through close contact with someone who has mpox. It can also be transmitted via contaminated objects, from mother to child during pregnancy or child birth, and from infected animals (1). Symptoms include fever, rash, swollen lymph nodes, and body pain. Severe illness can occur, especially in immunocompromised individual (2).

On July 24, 2024, Uganda confirmed its first cases of mpox reported in Kasese District (3). Mpox spread rapidly to over 115 districts, with transmission in Mbarara confirmed on November 4, 2024.

According to the national situation report of 6th April 2025, Mbarara was ranked third in the number of reported mpox cases (420) outside the Kampala Metropolitan Area (KMA), followed closely by Masaka. Furthermore, the 16th April 2025 situation report indicated that Mbarara had the highest attack rate nationally at 142 cases per 100,000 population, surpassing even Kampala. While multiple investigations have been conducted extensively in the KMA, key epidemiological questions remain unanswered in Mbarara and surrounding areas. Additionally, whereas epi curves in other districts were starting to flatten, that of Mbarara continued to peak, signaling ongoing transmission and potential gaps in outbreak control efforts. We investigated to estimate the mpox magnitude, describe transmission dynamics, and develop actionable recommendations for outbreak control in Mbarara City, October 2024-May 2025.

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Methods

Mbarara City is a major urban center in southwestern Uganda and serves as the administrative and commercial hub of the region. It is supported by a network of public and private health facilities, with Mbarara Regional Referral Hospital (MRRH) functioning as the main referral facility and designated isolation center for suspected and confirmed mpox cases.

MRRH played a central role in case management and coordination of the regional outbreak response. We defined mpox cases as suspected or confirmed cases. A suspected case was defined as acute onset of skin rash or genital lesions with ≥2 of the following: fever ≥38.5°C, headache, general body weakness, myalgia, back pain, genital discharge, lymphadenopathy, mucosal lesions in a resident of Mbarara City from Oct 2024 to May 2025; a confirmed case was defined as RT-PCR-confirmed mpox infection in a resident of Mbarara City from October 2024 to May 2025.

We reviewed records of confirmed cases managed at the MRRH isolation unit between October 3, 2024, and May 9, 2025. We captured data on socio-demographic characteristics, exposure history, clinical symptoms, past medical history, laboratory results, and case outcomes. Using this information, we generated a line list.

We then conducted house-to-house active case finding in Nyamityobora Ward, the most affected in Mbarara City with the help of Village Health Teams (VHTs). We screened residents for symptoms consistent with mpox and interviewed consenting case-patients to obtain additional epidemiological and clinical information. We compared the active case search data with the medical records to determine the proportion of missed cases at MRRH from Nyamityobora Ward, Mbarara City.

We performed descriptive epidemiology on the line-listed case-patients by time, place, person characteristics.

Results

We identified records of 317 confirmed cases from Mbarara City at the isolation unit of MRRH. Of these, 175 (55%) were male, and 292 (92%) were aged 15–44 years. The overall attack rate was 12 cases per 10,000 population. Males were more affected (AR=14 per 10,000) compared to females (AR=10 per 10,000).The outbreak began in Mbarara City North and later spread to Mbarara City South. This graph suggests a propagated outbreak. Both administrative units had continued reporting of cases with Mbarara City South reporting more cases over time. The outbreak peaked in March 2025 and vaccination of high-risk groups commenced on 4th April, 2025 (Figure 1).

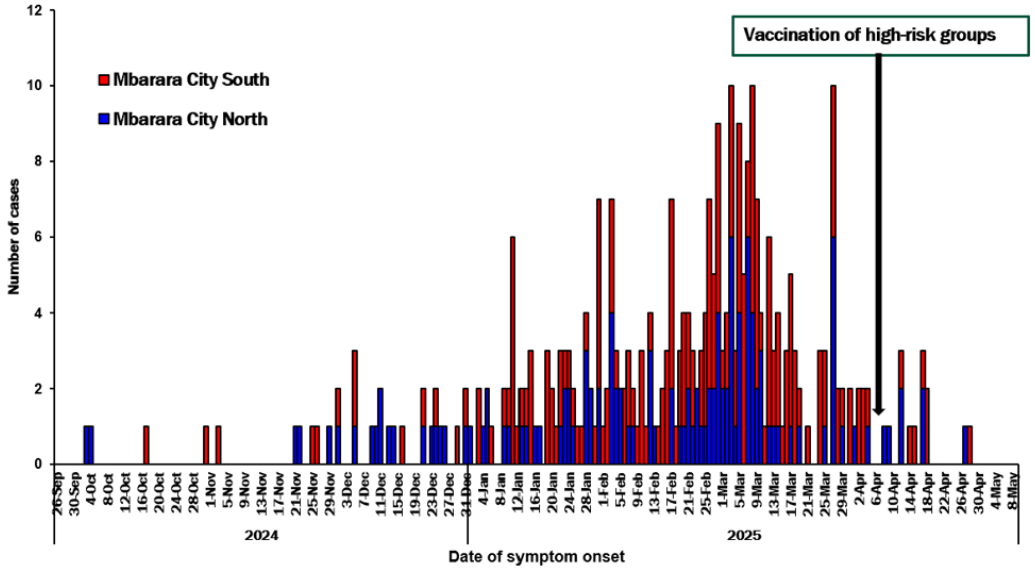

Figure 1: Distribution of mpox cases in Mbarara City, Uganda, October 1, 2024-27 April, 2025

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We identified and interviewed a total of 106 cases from Nyamityobora ward, which was the most affected in Mbarara City South. Half of these were confirmed cases. Of these, 54% (57/106) were female. The majority (85%) of the cases were aged 15-44 years. Fifty-one percent (49/96) of the cases that sought care reported private clinics as the most common first point of care.

The active case search in Nyamityobora Ward identified a total of 106 mpox cases which included 91(86%) new cases that were not previously recorded in hospital data.

Of the 106 cases, 96 adults (7 children excluded) reported exposure history. Among these, sexual contact 63% (60/96) was more common than non-sexual contact. Cases appeared to cluster geographically around brothels, bars, guest houses, and betting companies(Figure 2). The bigger the circle, the higher the number of cases. Notably, Kilembe Cell highlighted in yellow which had none of these businesses, recorded only one case, whereas other cells with these establishments reported at least five cases each.

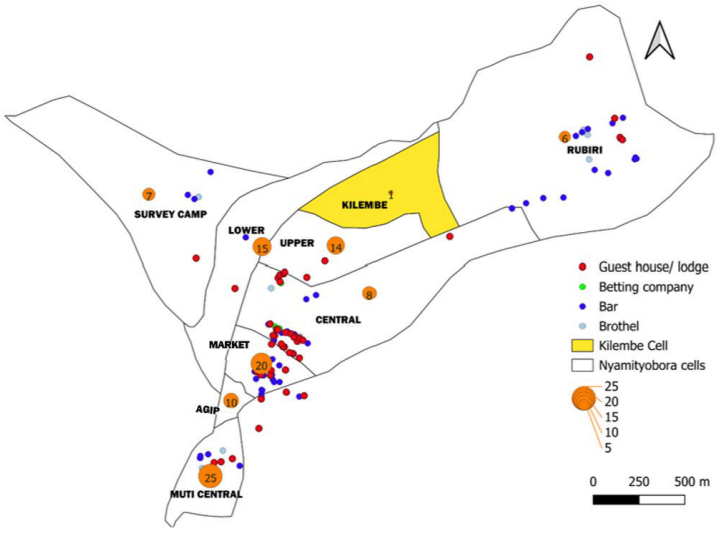

Figure 2: Distribution of specific business types among mpox cases in Nyamityobora Ward, Mbarara City, October 2024–May 2025

Discussion

Our investigation highlights a significant mpox outbreak in Mbarara City, with 317 confirmed cases recorded at the referral hospital. The outbreak predominantly affected males and adults aged 30–44 years, consistent with patterns seen in outbreaks where social and sexual networks drive transmission (4-7). The propagated nature of the outbreak, beginning in Mbarara City North and later spreading to Mbarara City South, suggests ongoing person-to-person transmission. Active case finding in one hotspot ward identified many additional cases that were missing from facility records, underscoring the importance of community-based surveillance to capture the true outbreak magnitude.

The clustering of cases around brothels, bars, guest houses, and betting establishments, along with the predominance of sexual contact as a reported exposure, point to high-risk social and sexual networks as key drivers of transmission patterns that mirror findings in other settings where mpox transmission has been strongly linked to close sexual or intimate contact (8,9). Furthermore, the large proportion of cases missed through routine facility records highlights gaps in surveillance and health-seeking behaviors in high-risk settings.

Study limitations: This investigation depended largely on participants' self-reported information regarding exposures and behaviors. This methodological approach is susceptible to imperfect recall, which may affect the accuracy of exposure timelines. Furthermore, sensitive issues such as sexual practices may be subject to underreporting due to social desirability bias, and the data could not be independently verified. The active case finding for this study was limited to Nyamityobora Ward. While this area was the most affected in Mbarara City, this geographic restriction means the findings may not be fully representative of or applicable to other parts of the city with different social or epidemiological contexts.

Conclusion: The magnitude of mpox in Mbarara City was underestimated, with most of the cases missed in medical records. Private health facilities were the most common first point of care, and sexual contact emerged as the predominant mode of exposure. We recommend community-based active surveillance, providing health education to private health facilities on suspect case identification and referral, and conducting community awareness campaigns to ensure early detection, timely response, and effective control of mpox outbreaks.

Conflict of interest: The authors declared no conflict of interest.

Authors' contribution: All authors contributed to the write-up and review of the bulletin article. VJK drafted the initial version of the article. PA, JW, SN, NM, MN, WN, MDN, ALA, DA, ADK, MM, and AN participated in the data collection and case investigations. FM contributed to the acquisition, analysis and interpretation of data. IK, RM and BK supervised the field data collection and reviewed the draft bulletin article for substantial intellectual content. All authors read and approved the final bulletin article.

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Factors associated with mpox severity in Mbarara City, October 2024–May 2025

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Summary

Background: Mpox, a zoonotic viral disease caused by monkeypox virus was confirmed in Uganda on 24th July, 2024. In October 2024, Mbarara experienced a sustained mpox transmission with Nyamityobora Ward disproportionately burdened by severe cases. We identified factors associated with mpox severity in Nyamityobora Ward, Mbarara City, October 2024 to May 2025 to improve patient outcomes and guide control measures.
Methods: We conducted a cross-sectional study among suspected cases in Nyamityobora Ward during April and May 2025. Suspected cases were defined as sudden onset of skin rash or genital lesions and ≥2 of the following symptoms: fever of 38.5°C, headache, general body weakness, muscle or body aches, back pain, genital discharge, swollen lymph nodes, or mucosal lesions in a person living in Nyamityobora Ward, Mbarara City from October 2024 to May 2025. We interviewed cases through house-to-house visits to collect data on health-seeking behavior, exposure history and severity. Severity was scored using an adapted Mpox Severity Scoring System (MPSS) tool; we dichotomized severity into severe (>20 points) and non-severe (≤20 points) for analysis. We identified factors associated with severity using modified Poisson regression.
Results: We identified 106 suspected mpox cases with a median age of 29 years (range: 0–75 years). Of these, 23 (22%) had HIV co-infection, 28 (26%) reported delayed care-seeking (>5 days from symptom onset), and 20 (19%) were sex workers. Of the 106 suspected cases, 62 (59%) presented with severe disease, 30 (28%) with moderate disease, and 14 (13%) with mild disease. HIV co-infection (aPR=1.8, 95% CI: 1.2-2.7) and delayed care-seeking (>5 days; aPR=1.5, 95% CI: 1.1-2.1) were associated with severe illness.
Conclusion: Severe mpox was associated with HIV co-infection and delayed care-seeking. We recommend targeted screening for mpox among HIV patients and awareness campaigns promoting early care-seeking and the availability of mobile testing units to facilitate early diagnosis.

Background

Uganda confirmed its first mpox cases in Kasese District on July 24, 2024, with transmission reaching Mbarara City by November 4, 2024. By April 16, 2025, Mbarara City had reported 420 confirmed cases, with an attack rate of 142 per 100,000 population, ranking it third among affected areas outside the Kampala Metropolitan Area according to the situation report from Ministry of Health (MoH) dated April 14,2025. Unlike other districts where case numbers declined, Mbarara's epidemic curve continued to rise, indicating sustained community transmission. Mpox is a multisystemic disease affecting several organs of the body and in some cases leading to death. The clinical presentation of the disease differs by the route of exposure, immune status of the host, the strain of the virus and the dose of the virus. Additionally, the disease has variable clinical severity. People living with HIV(PLHIV) especially those with advanced disease, children <5 years of age, and pregnant women are more likely to develop severe disease and have higher case fatality rates. Clade Ib is more likely to cause severe disease compared to clade Ia and II (1). Severe cases may contribute to prolonged viral shedding, potentially amplifying transmission to close contacts (2). These challenges highlight the urgent need for early identification and targeted interventions to mitigate severe outcomes and reduce the public health burden. We determined the prevalence of mpox severity and identified factors associated with severe mpox infection in Nyamityobora Ward, Mbarara City, October 2024–May 2025.

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Methods

Mbarara City is a growing urban and transit hub linking Uganda to Rwanda and the Democratic Republic of Congo, increasing its risk of disease spread. Nyamityobora Ward, in the Southern division, is an urban area with high population mobility due to traders, sex workers, and casual laborers. We defined an mpox suspected case as acute onset of skin rash or genital lesions with at least 2 of the following symptoms: Fever, Headache, general body weakness, Myalgia, Back pain, Genital discharge, Lymphadenopathy and mucosal lesions in a resident of Nyamityobora Ward from October 2024 to May 2025.

We conducted a cross-sectional study applying active case search by movement from house to house in Nyamityobora Ward. Using a case investigation form, we obtained case socio-demographic characteristics, underlying conditions, and health-seeking behavior. To ascertain the degree of severity, we adapted the Mpox Severity Scoring System (MPSS) to construct a tool that would score severity for the sick, recovered and dead mpox cases. The adapted scoring tool scored 1 point per symptom, 0-6 points for pain, 1 point per body part with rash, 4 points for pus discharge, 0-8 points for outcome ranging from recovered, still sick to dead and 1-4 for healthcare utilization that is seeking care, hospitalization and an additional facility visit. The maximum score was 55 points. We scored the cases to categorize them into 3 categories which were: Mild with a score of 0-10 points, Moderate with a score of 11-20 points and Severe with a score greater than 20 points. We then dichotomized the categories into severe for those having points greater than 20 and non-severe for those with points less than 20 points. We used Modified Poisson regression analysis to identify the factors associated with severe mpox.

The Ministry of Health of Uganda gave the directive and gave approval to conduct this study. The Office of the Associate Director for Science at the US Centers for Disease Control and Prevention (CDC) Uganda determined that this research did not involve human subject research and that its primary intent was public health practice or disease control. Verbal informed consent was obtained from participants or, , if the interviewee was a minor, guardians before the start of each interview.

Results

We identified 106 suspected cases, of which one patient died (0.9%, 1/106). All cases (100%, 106/106) reported skin or genital rash. Cases were distributed across all ten cells, with Muti (20%, 21/106), Market and Lower (14%, 15/106) reporting the highest proportions. Of the 56 cases who reported underlying conditions, 41% (23/56) had HIV. The other underlying conditions included hypertension, diabetes, peptic ulcer disease, asthma, and pregnancy. Of the 106 cases, 54% (57/106) were female, with a median age of 29 years (range: 8 months–75 years).

Table : Demographic characteristics of mpox cases in Nyamityobora ward, October 2024-May 2025 (n=106)

Characteristic	Severe (n=62)	Non-Severe (n=44)	Total (n=106)
Sex, n (%)			
Female	33 (53)	24 (55)	57 (54)
Male	29 (47)	20 (46)	49 (46)
Age group (years), n (%)			
<1	0 (0.0)	1 (2.3)	1 (0.9)
1–14	1 (1.6)	5 (11)	6 (5.7)
15–44	55 (89)	36 (82)	91 (86)
≥45	6 (9.7)	2 (4.5)	8 (7.5)
Occupation, n (%)			
Sex worker	9 (15)	11 (25)	20 (19)
Business	15 (24)	10 (23)	25 (24)
Casual labourer	4 (6.5)	2 (4.5)	6 (5.7)
Hotel/restaurant attendant	4 (6.5)	2 (4.5)	6 (5.7)
Others*	30 (48)	19 (43)	49 (46)

**Others in occupation include Bar attendant, Student, Builder, Driver. Farmer, Boda-Boda rider, others, *p-values are from chi-square tests comparing severe vs. non-severe cases.*

Prevalence of mpox severity in Nyamityobora Ward, Mbarara City, October 2024–May 2025

Of 106 cases, 62(59%) were severely ill, 30 (28%) moderately ill, and 14 (13%) with mild illness. Among those severely ill, 33(53%) were female, most 55(89%) were aged 15-4 years followed by ≥45 of age who contributed 6(10%), and 1-14 years of age who contributed 1(2%).

Factors associated with mpox severity in Nyamityobora Ward, Mbarara City, October 2024–May 2025

Individuals with HIV co-infection had an 80% higher prevalence of severe mpox compared to those without HIV. Also to note, delaying care by 5 or more days was associated with a 50% higher prevalence of severe mpox compared to those who sought care earlier.

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Table 2: Factors associated with mpox severity, Nyamityobora Ward, Mbarara City, October 2024–May 2025

Factor		Severe mpox n (%)	Non-severe mpox n (%)	Adjusted PR (95% CI)
HIV co-infection				
	No	43 (69)	40 (91)	**ref**
	Yes	19 (31)	4 (9.1)	1.8 (1.2-2.7)
Delay in seeking care (≥5 days)				
	No	41 (66)	37 (84)	**ref**
	Yes	21 (34)	7 (16)	1.5 (1.1-2.1)

Discussion

Our findings contribute to further characterization of the current mpox pandemic, focusing on severity of the infection. We found a more than half prevalence of severe mpox infection and a low proportion of deaths among cases.

The high prevalence of mpox severity was associated with HIV co-infection and delay in seeking care for 5 or more days. Other studies have found similar findings, with PLHIV more likely to have severe presentations of mpox compared to those without HIV. Case-patients with HIV were also more likely to be hospitalized compared to those without HIV (3,4). Additionally, delayed care-seeking has been linked to worsened outcomes in mpox, as early intervention can reduce viral load and complications, consistent with findings from similar outbreaks where timely treatment improved recovery rates (2).

Study limitations and strengths: We adapted the MPSSS tool since we needed to determine severity for the sick, recovered and dead cases and so could not primarily use the MPSSS tool. There could also have been an overestimation of the scores due to subjective or reported assessment of pain as well as recall bias for those that had recovered way back. Despite the limitations, the study demonstrated consistency in the clinical presentation and outcome of mpox cases with their respective severity scores.

Conclusion: We found a more than half prevalence of severe mpox infection and mpox severity was associated with HIV co-infection and delay in seeking care for 5 or more days. when ill. We recommend targeted screening for mpox disease among HIV patients and sensitization of the community about the advantages of timely seeking of health care.

Conflict of interest: The authors declared no conflict of interest.

Authors' contribution: All authors contributed to the write-up and review of the bulletin article. JW drafted the initial version of the article. JW, SN, AN, PA, and MM participated in the data collection and case investigations. RM, BK, and IK supervised the field data collection and reviewed the draft bulletin article for substantial intellectual content. All authors read and approved the final bulletin article.

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Recurrent Crimean Congo Hemorrhagic Fever in Uganda's Cattle Corridor, 2025

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Summary

Background: Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne zoonosis transmitted mainly by Hyalomma ticks through the livestock-tick-human cycle. Uganda reports sporadic outbreaks, mostly in the cattle corridor. We investigated to determine the magnitude of the outbreak, identify the likely source of infection, and recommend evidence-based control and prevention measures.
Methods: A confirmed case of CCHF was laboratory confirmed using reverse-transcriptase polymerase chain reaction (RT-PCR) between February 15, 2025–March, 2025 in a residence of Kyegegwa District. We conducted record reviews, interviews with patients, relatives, traditional healers, and clinicians to gather data on patients' demographics, symptom onset, and exposure history, and discussions with health and veterinary officials to explore One Health integration in zoonotic disease surveillance and response. Environmental assessments and tick and animal blood sampling were also conducted.
Results: One case was confirmed: a 28-year-old male livestock farmer with direct tick exposure, who sought care at multiple health facilities without suspicion of VHF, resulting in delays of 9 days before detection from symptom onset. Ninety-five ticks were identified as Rhipicephalus appendiculatus; all animal samples tested negative for CCHF virus. Farmers reported inconsistent tick control practices and communal grazing, while coordination between human and animal health sectors was weak.
Conclusion: Delayed detection, inadequate tick-control practices, and a lack of integrated One Health surveillance contributed to CCHF transmission risk. Strengthening integrated One Health surveillance, frontline diagnostic capacity, and promoting effective tick-control practices are critical for early detection and prevention of CCHF and similar zoonotic threats in Uganda.

Introduction

Crimean Congo Hemorrhagic Fever (CCHF) is a tick-borne viral zoonosis caused by the CCHF virus (CCHFv). While found in various Ixodid ticks, Hyalomma species are the primary vectors and reservoirs (1,2). Humans acquire infections through tick bites or direct contact with blood or tissues of infected livestock such as cattle, goats, and sheep, which act as amplifying hosts (1,3). Human-to-human transmission can also occur via exposure to infectious blood or bodily fluids, particularly in healthcare settings with inadequate infection prevention and control (IPC) measures (1,2). Clinically, CCHF presents with a sudden onset of fever, headache, myalgia, general body weakness, abdominal pain, vomiting, and diarrhoea, and may progress to mucosal bleeding, haemorrhage, and multi-organ failure in severe cases. While approximately 88% of infections are asymptomatic, about one in eight develops severe or fatal disease (1).

On March 7, 2025, the Fort Portal Regional Public Health Emergency Operations Centre received an alert from Bujubuli Health Centre IV, Kyegegwa District, of a suspected Viral Haemorrhagic Fever (VHF) case presenting with fever, abdominal pain, general weakness, and profuse bleeding. Laboratory testing confirmed CCHF on March 9, 2025. We investigated to determine the magnitude of the outbreak, identify the likely source of infection, and recommend evidence-based control and prevention measures.

Methods

Outbreak area: The outbreak was reported in Kaziizi village, Kyatega subcounty, Kyegegwa District, located in the South-western part of the country. Animal keeping is one of the main economic activities, and a dense network of livestock trade exists in this area.

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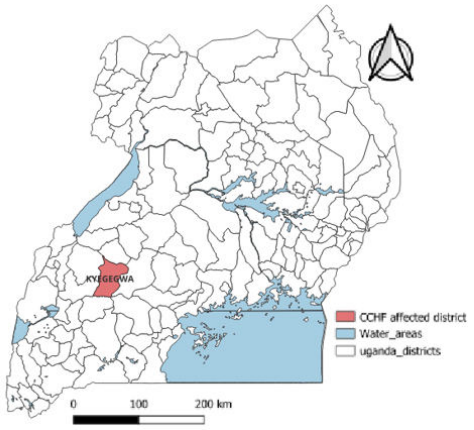

Case definition: We defined a suspected CCHF case as a sudden onset of fever (≥37.5°C) with a negative malaria test and at least 2 or more of any of the following signs and symptoms: general body weakness, headache, muscle pain, nausea, dizziness, blurred vision, vomiting, diarrhea, abdominal pain, joint pain, anorexia and/or unexplained bleeding between February 15, 2025–March, 2025 in a residence of Kyegegwa Districts. A confirmed case of CCHF was laboratory confirmed using RT-PCR at the Uganda Virus Research Institute (UVRI), the national reference laboratory for VHF diagnosis in Uganda.

Field investigation: Using the Ministry of Health VHF case investigation form, we interviewed the case-patient, relatives, traditional healers, and clinicians who attended to the case to gather data on demographics, symptom onset, and exposure history. Medical records were reviewed, and an active community case search was conducted in Kaziizi Village to identify more cases. We conducted two Focused Group Discussions (FGD) in Kaziizi Village, with 12 small-scale and 12 large-scale farmers to assess grazing and tick control practices. Key Informant Interviews (KII) with the District Health Officer, Veterinary Officer, and Entomologist explored One Health integration in zoonotic disease surveillance and response.
Environmental assessment: We conducted an environmental assessment, collected ticks and animal blood samples (from goats and cattle, including those of the index case) for species identification at the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC). Case-patient homes, communal grazing areas, and water points were inspected for possible exposures.

Data analysis: Quantitative data were analysed descriptively as frequencies and percentages. Qualitative data from FGDs and KIIs were analysed using content analysis.

Ethical Considerations: This investigation, part of the public health response to a confirmed outbreak investigation, was classified as non-research and authorized by the MoH, with approvals from district and facility authorities. Informed verbal consent, including for audio recording, was obtained from all participants. Patients' identifiers were removed, and data were securely stored in a password-protected database accessible only to the team. This activity was reviewed by CDC and was conducted consistent with applicable federal law and CDC policy. § §See e.g., 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq.

Results

A 28-year-old male livestock farmer from Kaziizi Village, Kyegegwa District, with no travel history, reported hand-picking and crushing heavily infested ticks on his cattle one week before symptom onset. He developed sudden fever, headache, and weakness on February 28, 2025. He first sought care at a private clinic in Katamba, where malaria RDT was negative, but treated with artemether/lumefantrine. Then he went to a traditional healer on March 5, and he was attended to by 2 people, and on March 6, 2025, his condition worsened with epigastric abdominal pain. He visited a private drug shop in Katamba centre, where typhoid was suspected (untested) and treated, but symptoms persisted. Later that day, he visited another private clinic in Kyegegwa town; an ultrasound showed hepatomegaly and peptic ulcer disease, and he was managed as an outpatient without adequate PPE. On March 7, he presented to Bujubuli Health Centre IV with worsening abdominal pain, weakness, profuse haematemesis, and epistaxis.

He was immediately isolated, and samples tested at UVRI confirmed positive for CCHF on March 9. He was evacuated to Fort Portal Regional Referral Hospital (FPRRH), received supportive care, and was discharged after 14 days following two negative PCR tests.
All 95 (100%) ticks collected were identified as Rhipicephalus appendiculatus.

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Blood from 11 animals tested negative. Shared grazing areas and communal water points were potential hotspots for tick transmission and reinfestation despite farm-level control measures.

Tick control practices and challenges

Farmers in Kaziizi village practiced varied but often ineffective tick control methods. Large-scale farmers sprayed weekly or biweekly, while smallholders sprayed monthly due to financial constraints. Goats and sheep were rarely treated, and improvised methods such as mixing acaricides with motor oil, smearing animals with leaves or cloth soaked in acaricides, or hand-picking ticks were common. Shared grazing areas and water points promoted reinfestation, while acaricide resistance, high costs, and limited veterinary access further hindered effective tick control.

"*I mix acaricide with motor oil so it sticks longer. The shopkeeper said it helps, but I can't afford the full dose every time…" – Farmer, Kaziizi village*

"I use tree leaves to smear the medicine on the cows; it saves me a lot. I also pick the ticks by hand and crush them, because even after spraying, ticks have refused to die…" Small-scale farmer.

Shared grazing lands and water points amplified transmission risks.

"*Our animals go to the forest reserve with everyone else's. That's where they get ticks again, even after spraying. I can't control what other farmers are doing…" – Farmer, Kaziizi village*

One Health approach gaps

Structural gaps hindered coordinated CCHF prevention and response. At the time of the outbreak, there was no functional One Health team, and interdepartmental communication between the human and veterinary sectors was minimal.

The veterinary department did not prioritise CCHF in its routine surveillance, and no dedicated budget or policy supported integrated zoonotic disease control. The absence of a structured One Health framework limited the district's capacity to detect, prevent, and respond effectively to zoonotic outbreaks like CCHF, highlighting the need for multisectoral collaboration.

"*We don't have a functional One Health team, information sharing is minimal, and CCHF is not among the diseases listed for monitoring…" – KII, District Veterinary Officer*

Discussion

This investigation reports a single CCHF case in Kyegegwa District, within Uganda's cattle corridor. Initial misdiagnosis due to nonspecific febrile symptoms reflects low clinical suspicion for VHFs among healthcare workers. The finding highlights persistent gaps in surveillance, vector control, and multisectoral coordination, and underscores the likelihood of undetected CCHF cases in endemic and neighbouring districts (2,4,5).

Tick surveillance identified Rhipicephalus appendiculatus as the predominant species, consistent with its role in CCHF transmission (6). Irregular acaricide use, misuse, and exclusion of small ruminants contribute to persistent tick populations and acaricide resistance, increasing the risk of viral transmission. This has been indicated in other studies (7-9). Shared grazing lands and communal water points further facilitate tick propagation.

The investigation also revealed weaknesses in the operationalisation of the One Health approach. The absence of functional teams, limited intersectoral collaboration, lack of dedicated budget, and guiding policies for coordinated zoonotic disease control. Similar institutional gaps have been observed in sub-Saharan Africa (2,8,10).

Finally, detection of CCHF during Ebola enhanced surveillance underscores the importance of integrated VHF surveillance systems capable of screening for multiple pathogens.

Building healthcare provider capacity through training, continuous medical education, and routine VHF screening in febrile illness algorithms is essential to improve early detection and prevent transmission. Combined with effective tick control and functional One Health frameworks, are critical for CCHF prevention.

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Study limitations: The outbreak magnitude may have been underestimated due to CCHF non-specific clinical presentation, limited diagnostic capacity, and low clinical suspicion. Tick samples could not be tested for CCHF virus due to reagent shortages, limiting confirmation of viral presence.
Conclusion: CCHF continues to recur in Uganda and is likely underreported. Ongoing transmission is driven by poor tick control, limited veterinary services, high acaricide costs, low clinical suspicion, and weak One Health coordination. Prevention efforts should prioritize routine CCHF screening for febrile illness, health worker training, strengthened tick control, including small ruminants and acaricide rotation, and operational district-level One Health systems.
Public health actions: The investigation team provided health education to the residents of Kazi-izi Village during the parents' meeting at the primary school and to the farmers on CCHF transmission and prevention.

Author contributions: ALA led the study conceptualization, data collection, analysis, and article drafting. JVK, WN, AMN, and GT contributed to data collection, investigation, and writing. SE, IK, BK, and RM provided supervision, validation, and article review. All authors read and approved the final manuscript
Conflict of Interest: The authors declare no conflict of interest
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Sustained Measles Transmission in Kabulasoke, Uganda: The role of Suboptimal Vaccination, Delayed Detection, and Gender-Based Barriers, March–July 2025

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Summary

Background: Measles is a highly contagious, vaccine-preventable disease with significant morbidity and mortality, particularly in settings with suboptimal immunization coverage. An outbreak was confirmed on May 27, 2025, in Kabulasoke Subcounty, Gomba District, Uganda. We investigated the outbreak, which spanned from March to July 2025, to determine its magnitude, identify risk factors, assess vaccine coverage and effectiveness, and recommend appropriate control measures.
Methods: The investigation used a mixed-methods approach, including medical record reviews, active case finding, and environmental assessments from March to July, 2025. Cases were classified per WHO definitions: a suspected case involved onset of fever, a maculopapular rash, and ≥1 of cough, coryza, or conjunctivitis in a Kabulasoke resident from March 1 to July 30, 2025; confirmed cases were positive for measles-specific IgM. We computed Attack Rates (AR) and conducted a 1:2 matched case–control study (80 cases, 160 controls) to identify risk factors for measles infection. Vaccine Effectiveness and coverage ware estimated from vaccination data, and surveillance timeliness was assessed using the 7-1-7 framework.
Results: We identified 106 case-patients (5 confirmed), with one suspected death. The overall AR was 24/10,000, peaking in children aged 9–17 months (AR: 130/10,000). Males accounted for 60% (n=64/106) of all cases. Cases were geographically concentrated in Lugaaga Parish, with a notable cluster at Sunrise Infant School. Overall Measles-Rubella (MR) coverage was 72%, and VE was estimated at 60% (aOR=0.4, 95% CI 0.3–0.6). Factors associated with infection included: non-vaccination (aOR=2.5, 95% CI 1.7–3.3); school attendance at Sunrise Infant School (aOR=1.7, 95% CI 1.1–2.7); and contact with a symptomatic person while playing away from home (aOR=2.1, 95% CI 1.2–3.7). Surveillance showed a 33-day delay in detection, far exceeding the 7-day target. In-depth interviews revealed that male-dominated household decisions, mistrust in vaccines, reliance on traditional remedies, and limited healthcare access fueled sustained transmission.
Conclusion: This outbreak highlights the persistent challenges of measles control in low-resource settings, where sociocultural factors, gaps in vaccination coverage, and delayed detection can sustain transmission. Strengthening routine and outreach immunization, implementing school-based preventive measures, fostering culturally sensitive community engagement, and enhancing surveillance timeliness are essential to mitigate future outbreaks and build resilient local health systems.

Background

Measles is a highly contagious, vaccine-preventable viral infection. It is caused by a single-stranded RNA virus, with transmission occurring primarily via respiratory droplets or direct contact. Measles is one of the most transmissible infectious diseases, with a basic reproduction number (R0) of 12–18 in unvaccinated populations. The disease is characterized by a prodrome of high-grade fever, cough, coryza, and conjunctivitis, followed by a maculopapular rash (1-3).
Despite the availability of an effective vaccine, outbreaks continue to occur due to suboptimal vaccination coverage (3,4), with both national and global coverage remaining below the 95% herd immunity threshold (5-7). In Uganda, the Measles-Rubella (MR) vaccine is administered at 9 and 18 months of age. By mid-2025, nearly half of Uganda's districts had reported measles outbreaks. On 27 May 2025, five laboratory-confirmed measles cases were reported from Kabulasoke Subcounty in Gomba District. A National Rapid Response Team (NRRT), supported by the Uganda Public Health Fellowship Program (PHFP), was deployed to investigate and guide control interventions. We determined the magnitude of the outbreak, identified risk factors, assessed vaccine coverage and effectiveness, and recommended evidence-based control measures, March to July, 2025.

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Methods

To investigate the Kabulasoke measles outbreak (March 1–July 30, 2025), a comprehensive approach was used combining descriptive epidemiology and analytic studies. A suspected case was defined as onset of fever, maculopapular rash, plus ≥of cough, coryza, or conjunctivitis, while a confirmed case required measles-specific IgM positivity. Initial methods included reviewing medical records, performing active case finding (line-listing cases and verifying them through facility reviews and community searches), and computing Attack Rates (AR) by age, sex, and parish. To assess risk factors for measles infection, we conducted a 1:2 matched case–control study involving 80 cases and 160 controls in Lugaaga Parish. Data were analysed using conditional logistic regression, and vaccine effectiveness (VE) was calculated as VE= (1 − aOR) × 100%.
Vaccination Coverage (VC) was determined from eligible controls' status, verified via cards, registers, or recall. Finally, environmental and qualitative assessments (observations and key informant interviews) were performed to understand community perceptions and barriers; while surveillance timeliness was evaluated using the WHO 7–1–7 framework. The investigation was conducted as part of the Ministry of Health's response to a public health emergency under the National Rapid Response Team (NRRT). Administrative clearance to conduct the investigation was obtained from the Ministry of Health, and a non-research determination was granted by the U.S. Centers for Disease Control and Prevention (CDC) in compliance with applicable U.S. federal laws. Administrative clearance was additionally obtained from Gomba District Health Authorities. Given the minimal risk involved, verbal informed consent and assent were obtained from all participants prior to interviews. Privacy was ensured during data collection, and all information was treated with strict confidentiality throughout the investigation.

Results

Descriptive epidemiology

We identified a total of 106 case-patients. The highest burden was among children aged 9–17 months (AR 130/10,000). Lugaaga Parish recorded the highest AR (120 per 10,000), followed by Mawuuki (54 per 10,000). The measles outbreak in Kabulasoke Subcounty in 2025 was imported in late February by a primary case returning from Rakai district. It became a propagated outbreak with amplification among school-aged children and their households.

Community awareness triggered detection in April, followed by laboratory confirmation on May 13 and a formal declaration by the Ministry of Health on May 27. The subsequent control measures, including the deployment of the National Rapid Response Team and a supplementary immunization campaign achieving 72% coverage, successfully interrupted transmission by August 30, 2025.

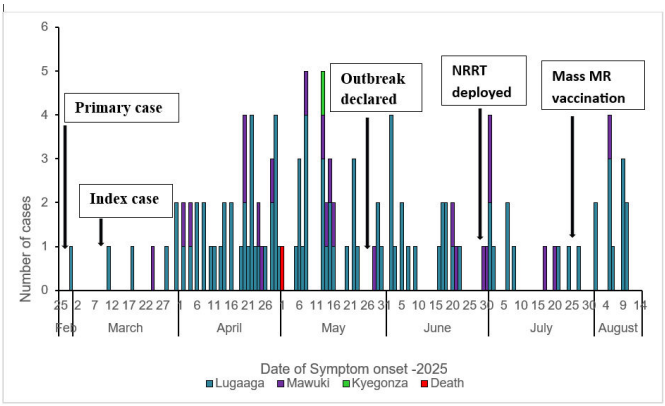

Figure 1: Distribution of measles cases by date of rash onset, Kabulasoke Subcounty, Gomba District, Uganda, March–July 2025

Environmental assessment findings

Environmental assessments revealed limited health infrastructure, poor isolation practices in schools, and weak private sector reporting. Qualitative findings indicated vaccine hesitancy influenced by patriarchal decision-making, fear of side effects, and reliance on traditional remedies such as Citropsis articulata ('Omutulika'). Children frequently mixed in play without restrictions, fostering continuous transmission.

Surveillance Timeliness (7-1-7 metrics) findings

The 7–1–7 assessment revealed a 33-day delay from symptom onset of the index case to official detection, exceeding the WHO target. Delays stemmed from low community awareness, limited clinical suspicion, and weak surveillance capacity at subcounty level.

Risk factors for measles transmission in Kabulasoke Subcounty, Gomba District, Uganda, March–July 2025

Children aged 6 months to 14 years who were unvaccinated, attended school, and engaged in social activities outside the home were hypothesized to likely develop measles during the outbreak. In a matched case–control analysis, children who had received at least one dose of MR vaccine were significantly protected, (adjusted odds ratio [aOR]=0.4, 95% CI: 0.3–0.6) compared to unvaccinated children.

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Attending Infant School X was independently associated with higher risk of being a case compared to attending other schools (aOR=1.7, 95% CI: 1.1–2.7); and exposure to symptomatic children during play was strongly associated with illness (aOR=2.1,95% CI: 1.2–3.7). Similarly, primary play interactions occurring away from home were linked to increased odds of being a case (aOR=1.6, 95% CI: 1.0–2.4) (Table 1).

Vaccine coverage and effectiveness

Only 22% (32/80) of case-patients had received at least one measles-rubella vaccine dose compared to 72% (115/160) of controls, reflecting suboptimal coverage. Vaccine effectiveness was estimated at 60% (aOR = 0.4; 95% CI: 0.27–0.55), demonstrating substantial protection against measles infection in Kabulasoke Subcounty.

Table 1: Risk factors for measles transmission in Kabulasoke Subcounty, Gomba District, Uganda, March–July 2025

Risk factor	Number (%exposed)		cOR (95% CI)	aOR (95% CI)
	Cases n (%)	Controls n (%)		
Vaccination status (≥ 1 MR dose)				
Yes	32 (40)	115 (72)	0.3 (0.2-0.5)	0.4 (0.3-0.6)
No	48 (60)	45 (28)	Ref	Ref
Currently Attending School	50 (63)	73 (46)	1.9 (1.1-3.4)	-
Yes	30 (37)	86 (54)	Ref	
No				
School Attended				
Infant school X	32 (64)	18 (25)	5.2 (2.5-11)	1.7 (1.1-2.7)
Other schools	18 (36)	55 (75)	Ref	Ref
Participated in any social activities prior to symptom onset				
Yes	56 (70)	99 (62)	1.4 (0.8-2.6)	-
No	24 (30)	61 (38)	Ref	
Had contact with symptomatic children during play time				
Yes	61 (76)	84 (53)	2.9 (1.6-5.3)	2.1 (1.2-3.7)
No	19 (24)	76 (47)	Ref	Ref
Location of primary play interaction				
Away from home	54 (68)	82 (51)	1.9 (1.1-3.4)	1.6 (1.0-2.4)
At home	26 (32)	78 (49)	Ref	Ref

Discussion

The measles outbreak in Kabulasoke Subcounty highlights the vulnerability of rural, low-resource settings with suboptimal measles–rubella (MR) vaccination coverage. The outbreak followed a propagated pattern driven by low vaccine uptake, school-based transmission, household exposure, and delayed detection and response, consistent with findings from Uganda and similar sub-Saharan African settings (4,8-11).

Children aged 9–17 months were disproportionately affected, reflecting heightened susceptibility before completion of the two-dose MR schedule, a pattern widely documented in high-transmission contexts (3,10-11). Although vaccination was protective, coverage remained critically low: only 22–35% of case-patients had received at least one MR dose, and estimated population coverage was 72%, far below the ≥95% threshold required for herd immunity. Transmission was amplified in congregate settings, particularly schools, where dense clustering and prolonged contact has been documented to facilitate spread among susceptible children, as well as frequent community social interactions (4,8-11).

Delayed outbreak detection;33 days after symptom onset, exceeded the WHO 7-day benchmark, reflecting low community awareness, limited clinical suspicion, and weak surveillance at the frontline, challenges commonly reported in rural Uganda (2,13-14).

Consistent with immunization studies conducted in sub-Saharan Africa, environmental and qualitative assessments identified several structural and sociocultural barriers, including limited access to public health facilities, reliance on private providers not fully integrated into surveillance systems, patriarchal household decision-making, residual mistrust from previous vaccination experiences, and culturally embedded perceptions of measles as a routine childhood illness managed with traditional remedies. These findings indicate that measles transmission in Kabulasoke Subcounty was sustained not only by gaps in service availability but also by deeply rooted social norms and health-seeking behaviors (13,14).

Study limitations: Incomplete vaccination records and reliance on caregiver recall may have introduced information and recall bias, potentially resulting in misclassification of vaccination status and imprecise estimates of vaccine coverage and effectiveness. Consequently, associations between vaccination and measles infection should be interpreted cautiously. Nevertheless, triangulating epidemiological and qualitative data strengthened understanding of the outbreak's underlying drivers.

Public health actions: The District Health Team was re-oriented on measles case definitions, line-listing, and 7–1–7 response metrics.

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Active case finding was intensified, and community leaders mobilized for vaccination and health education. A mass measles vaccination campaign conducted in July 2025 targeted all children aged 6–59 months, reaching 72% coverage.

Conclusion: The measles outbreak in Kabulasoke Subcounty, imported from the Rakai district, was driven by low measles-rubella vaccination coverage and amplified by school-based transmission and frequent social interactions. The findings illustrate how limited access to health services and vaccine hesitancy shaped by cultural and gender norms can sustain measles transmission in rural settings. Strengthening routine and community-based immunization through expanded outreach in underserved areas, engaging male household decision-makers alongside religious and cultural leaders, and leveraging schools for screening and periodic vaccination may improve coverage and community trust. Similarly, enhancing surveillance sensitivity through continuous training of health workers and Village Health Teams, integrating private healthcare providers into reporting systems, and implementing culturally responsive risk communication could support earlier detection, increase vaccine uptake, and contribute to measles elimination efforts.

Conflict of Interests: The authors declare no conflict of interests

Author Contributions: SN conceptualized and led the investigation. VJK and MN contributed to data collection, while RM supervised the field investigation. SN and VJK conducted data analysis, and SN led the drafting of the bulletin article. VJK, MN, LB and RM contributed to writing and reviewing the bulletin article to ensure scientific rigor and intellectual content. All authors reviewed and approved the final draft for submission.

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Temporal and Spatial Distribution of Human Brucellosis, Uganda, 2017–2024

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Summary

Background: Brucellosis is a highly infectious zoonotic bacterial infection, leading to a chronic illness in humans. Despite its zoonotic and economic importance, limited information on brucellosis continues to hinder timely implementation of effective interventions. We analyzed surveillance data to describe the temporal and spatial distribution of human brucellosis, Uganda, 2017–2024.
Methods: We abstracted surveillance data on reported annual cumulative clinically diagnosed brucellosis cases from the District Health Information Software 2 for the period of 2017–2024. A brucellosis case was acute or insidious onset of fever and ≥ one of the following: night sweats, arthralgia, headache, anorexia, myalgia, weight loss, arthritis, meningitis or focal organ involvement. We calculated annual and median incidence rates, assessed significance using Mann-Kendall trend test.
Results: A total of 1,542,564 cases were reported during 2017–2024 at 90% reporting rate. Overall median incidence rate was 115/100,000 (IQR=88/100,000-194/100,000) with no change in the trend over the years (p =0.10). Brucellosis cases increased significantly in Health Centre III (p=0.019, gradient=1.8). Karamoja Region was the most affected in all the years with a median incidence rate of 733/100,000 (IQR=650/100,000 -854/100,000).
Conclusion: The findings indicate a consistently high burden of reported brucellosis cases over the eight-year period with no significant change in the trend, suggesting stability of the disease during 2017–2024. Only Health Centre III registered an increase in the proportion of brucellosis cases while Karamoja Region was the most affected throughout the study period. Conducting community-based education and behavior change programs could reduce transmission of brucellosis to humans.

Background

Brucellosis is a highly infectious zoonotic bacterial infection caused by several species of the genus Brucella. Brucellosis occurs globally with an estimate 1.6 to 2.1 million new human cases per year and Africa contributes 0.5 million cases annually to the global burden (1). Brucellosis causes a severe debilitating disease in people and a significant economic impact in livestock (2). Brucellosis is primarily transmitted to humans through direct contact with infected animals or consumption of contaminated animal products, including unpasteurized dairy products and uncooked meat (3). Brucellosis is considered an occupational hazard for people who work with animals, including veterinarians, animal owners, herdsmen, abattoir workers, butchers and laboratory personnel, as they handle infected animals, aborted fetuses and placentas (4). Brucellosis is endemic in Uganda, with a national human seroprevalence of 17% (5). Routine analysis of surveillance data for an endemic disease like brucellosis is essential for early detection of outbreaks, identification of high-risk populations, and effective implementation of public health interventions. However, despite its importance, information on temporal trends and spatial distribution of brucellosis remains limited, hindering timely outbreak detection and response. We analyzed surveillance data to describe the temporal and spatial distribution of human brucellosis, Uganda, 2017–2024.

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Methods

We conducted a retrospective descriptive analysis using brucellosis surveillance data from the Ministry of Health (MoH) District Health Information Software 2 (DHIS2).

Data on reported annual cumulative brucellosis cases, reporting health regions, health facility level and reporting rates were extracted from DHIS2 monthly report HMIS 105 for the period of 2017–2024 and managed using Microsoft Excel. As per DHIS2, a brucellosis case was defined as acute or insidious onset of fever and ≥ one of the following: night sweats, arthralgia, headache, anorexia, myalgia, weight loss, arthritis, meningitis or focal organ involvement. We obtained data on mid-year projected populations for 2017–2024 from the Uganda Bureau of Statistics (UBOS).

We calculated the annual incidence rate of brucellosis using the number of reported cases as the numerator and the UBOS mid-year projected population as the denominator. We used Microsoft Excel to generate line graphs showing temporal trends over eight years. Trends were tested for significance using the Mann–Kendall test in R Studio ($p < 0.05$), and the trend slope (gradient) was also obtained in R.

We calculated the annual percentage change in incidence rate as the gradient divided by the median incidence rate, multiplied by 100. The median was used because the data were not normally distributed. Choropleth maps showing regions with the highest annual incidence rates were generated in Quantum Geographic Information System.

The descriptive study was conducted using routine surveillance data collected by Ministry of Health as part of ongoing disease monitoring and control activities. Authorization to access and analyze the data was granted from Ministry of Health. A non-research determination was obtained from the office of the Associate Director for Science, Centers for Disease Control and Prevention, Uganda. Data collected in DHIS2 is aggregate without individual patient data identifiers.

Results

Temporal distribution of human brucellosis, Uganda, 2017–2024

A total of 1,542,564 brucellosis cases were reported for the eight years reviewed. The average reporting rate over the study period was 90%. The highest brucellosis incidence rate (430/100,000) was registered in 2019 while the median incidence rate was 115/100,000 (IQR=88/100,000-194/100,000) with no change in the trend over the years (p =0.10) (Figure 1).

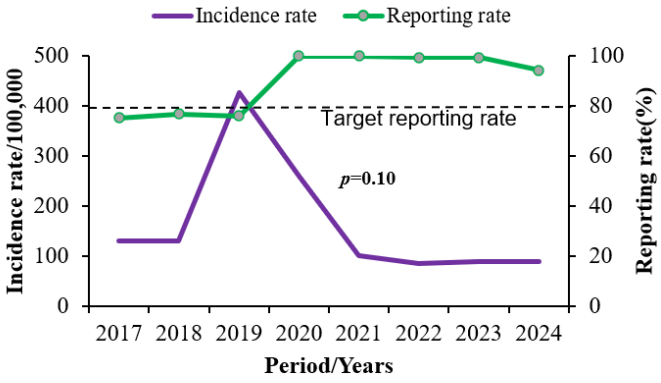

Figure : Temporal distribution of human brucellosis in Uganda, 2017–2024

Trends of human brucellosis by health facility level, Uganda, 2017–2024

The proportion of brucellosis cases increased significantly in Health Centre III (HCIII) (p=0.019, gradient=1.8) from 31% (15,278/48,884) in 2017 to 47% (18,572/39,286) in 2024 (Figure 2).

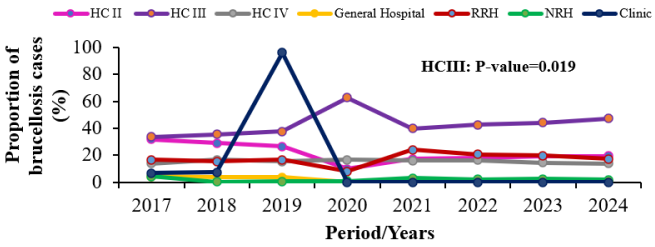

Figure 2: Trends of human brucellosis by health facility level, Uganda, 2017–2024

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Spatial distribution of human brucellosis incidence by regions and districts, Uganda, 2017–2024

Karamoja region consistently had the highest incidence rate throughout 2017 to 2024 with a median incidence rate of 733/100,000 (IQR=650/100,000-854/100,000) (Figure 3).

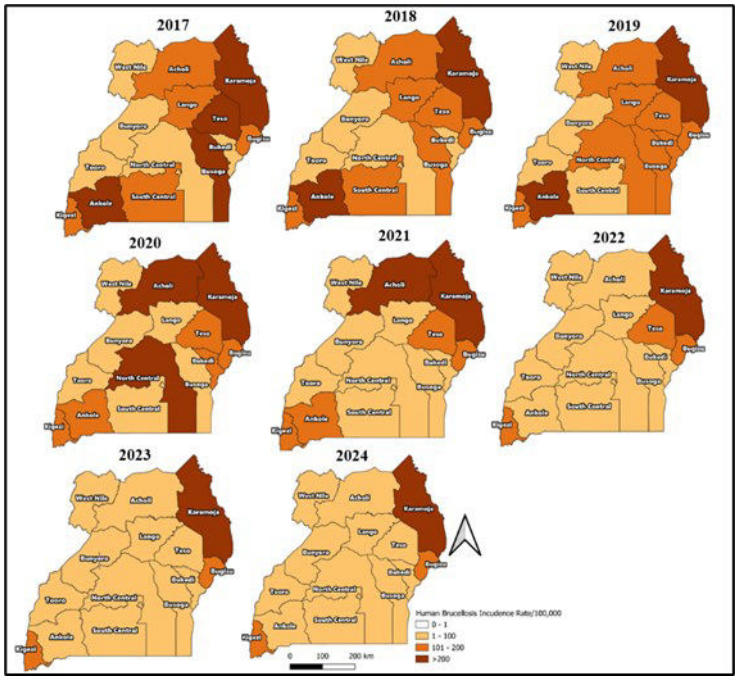

Figure 3: Spatial distribution of human brucellosis incidence by region, Uganda, 2017–2024

Discussion

Over the eight years' period analyzed, a total of 1,542,564 brucellosis cases were reported, at an average reporting rate of 90%, reflecting a substantial public health burden. The annual global incidence of brucellosis estimated by Centers for Disease Control in 2023 was 2.1 million (1). With 1,542,564 cases in eight years, Uganda contributes 9.2% to the total global incidence of reported brucellosis cases every year. This finding indicates a persistently high incidence signifying that brucellosis is a major endemic zoonosis in the country (6).

The proportion of brucellosis cases increased significantly in Health Centre III (HCIII) from 2017 to 2024. Health Centre IIIs have better equipment, supplies, and workforce compared to Health Centre IIs, they are more accessible to rural communities than HCIV, General Hospitals, RRH or NRH and are cheaper compared to clinics (7). This is likely to make Health Centre III a preference as a first point of care for brucellosis patients, reflecting the significant increase in the proportion of cases reported.

Karamoja region consistently had the highest incidence rate of brucellosis throughout 2017 to 2024. Majority of the population in Karamoja region are nomadic pastoralists who live in close contact with livestock and engage in cultural practices such as consumption of unboiled milk, raw meat and raw blood which increase their risk of exposure to brucellosis (8).

Study limitations: We analyzed clinically diagnosed brucellosis cases because of a small number of laboratory-confirmed brucellosis cases in DHIS2. The small number could not allow for meaningful statistical analysis and would lead to non-representative of the true disease burden. Consequently, this study describes the temporal and spatial distribution of reported human brucellosis cases in Uganda and does not estimate the true disease burden.

Conclusion: The findings indicate a consistently high burden of reported brucellosis cases over the eight-year period with no significant change in the trend, suggesting stability of the disease during 2017–2024. Only Health Centre III registered an increase in the proportion of brucellosis cases while Karamoja region persistently had the highest incidence of brucellosis throughout the study period. We recommend conducting community-based education and behavior change programs to reduce the risk of transmission of brucellosis to humans. We further recommend establishing data sharing platforms between Ministry of Health, Ministry of Agriculture, Animal Industry and Fisheries and the local governments to monitor trends and outbreaks in real time.

Conflict of Interest: The authors declare no conflict of interest

Author contribution: Aminah Namwabira took lead in conceptualizing the project, data abstraction, analysis and original draft writing. Justine Wobusobozi, Martha Dorcas Nalweyiso, Benon Kwesiga and Richard Migisha were involved in designing the methodology, reviewing and editing the article. Stella Maris Lunkuse, David Muwanguzi, Alfred Wejuli, John Opolot and Alex Riolexus Ario were involved in supervision, visualization, validation and editing the article. All authors read and approved the final draft.

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Effect of surge team deployment on Turnaround Time for result receipt during the Mpox outbreak, Mayuge District, Uganda, September – October 2024

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Summary

Background: On July 24, 2024, Uganda confirmed two mpox cases in Kasese District. The outbreak quickly spread to other districts including Mayuge. Rapid response teams were deployed to support the response (RRT). Despite interventions by the RRT, the affected districts faced challenges including long Turnaround Time (TAT) for mpox result receipt of over 120 hours instead of the recommended 72 hours. In response, surge teams across the different pillars were deployed to support district response. We describe the improvement of turnaround time (TAT) following the surge team deployment, Mayuge District, September–October 2024.
Methods: Through meetings and brainstorming sessions, we worked with the district and health facility teams to map four health facilities where mpox cases were most likely to be identified. We constituted a district rapid response team and identified factors contributing to long TAT for result receipt, conducted root cause analysis using the 5 -why technique, and implemented interventions in Plan-Do-Check-Act (PDCA) cycles selected based on feasibility and impact to address the root causes. Result receipt TAT was defined as the time from the date of sample collection to the date the results were received in hours. Data was abstracted from the sample referral register and result dispatch system (RDS).
Results: The factors contributing to long mpox TAT for result receipt included inadequate supplies such as mpox request forms, Dacron swabs, viral transport media, and personal protective equipment (PPE)—as well as knowledge gaps in sample collection and handling, including uncertainty about which lesions to sample and how to properly package specimens, and the lack of dedicated sample transport to hub and testing laboratories.
To address these, we trained 33 health workers on Mpox sample collection and packaging, mobilized mpox supplies and activated the emergency sample transport network. Following the interventions, the TAT reduced from 118 hours (24-349 hours) on average to 56 hours (45-66 hours) on average in five weeks.
Conclusion: The surge teams strengthened local laboratory systems by training, supply requisition and activation of the emergency sample transport network which reduced the TAT of mpox in Mayuge District. These interventions were essential for improving turnaround time.

Background

On July 24, 2024, Uganda confirmed two mpox cases in Kasese District (1). This led to activation of the response pillars including the laboratory pillar. According to the World Health Organization emergency response framework, the laboratory pillar works with other pillars to provide diagnostic support to detect and confirm Mpox cases that may arise among all suspects (2). In this response, the laboratory pillar worked with surveillance teams to identify priority areas and populations at risk and conduct investigations as well as support case management teams who care for identified cases. Interventions such as training both physical, and virtual were conducted at national and subnational level, activation of the result dispatch system and preposition of sample collection and management supplies were instituted to ensure rapid identification and control of the outbreak.

Despite the interventions, the outbreak quickly spread to other districts including Mayuge. Following the outbreak in these districts, challenges were reported during the national taskforce meetings from teams on ground responding to the outbreak. Among the challenges specific to the laboratory pillar was long mpox Turnaround Time (TAT) for result receipt. The results were reported to be taking over 120 hours instead of the recommended 72 hours. Being an emerging disease, the Ministry of Health dispatched surge teams across the different pillars to support districts.

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We describe the improvement of mpox turnaround time (TAT) following the surge team deployment, Mayuge District, September–October 2024.

Methods

Study setting and context: Mayuge District was among the mpox hotspot districts in Eastern Uganda with long TAT despite its proximity to the testing laboratories. We specifically focused response improvement in four health facilities that were critical to the Mpox response based on case volume, geographical location, and their capacity to handle Mpox-related activities.

Baseline assessment: We reviewed the referral register and downloaded Mayuge mpox data from the Result Dispatch system (RDS) for the month of August to establish the baseline TAT for the mpox result receipt. We defined TAT for result receipt as the time from the date of sample collection to the date the results were received in hours. This was then compared against the TAT set by the national laboratory pillar which was 72 hours.

Identification of factors contributing to long mpox result receipt turnaround time and root cause analysis

We formed a district rapid response team that included the laboratory managers, one laboratory technician from each facility, hub coordinator, and the district laboratory focal person (DLFP) to lead the TAT improvement initiative. We brainstormed to identify factors contributing to the long TAT. These were listed and those that appeared the most were taken as the factors contributing to the long TAT. Root cause analysis was done using the 5-why technique.

Interventions to improve result receipt turnaround time

Following root cause analysis, interventions were prioritized based on impact and feasibility. Two PDCA cycles were implemented. The first cycle (8th-14 September 2024) involved training of health workers and provision of essential supplies. The second cycle was implemented between 22nd and 28th September 2024 which involved deployment of standby vehicles and motorcycles to pick the samples as and when required.

Intervention monitoring and evaluation and data analysis

To monitor the effect of the interventions, weekly mpox data was downloaded from RDS and abstracted from the referral register at the hub. We then calculated the TAT for each sample and computed the average weekly TAT. This was plotted on a line graph to assess the trends.

Ethical considerations: The Ministry of Health Uganda provided administrative clearance to conduct this work as part of emergency response initiatives. In addition, we received a non-research determination clearance from the US Centers for Disease Prevention and Control (US CDC). This activity was reviewed by the CDC and was conducted consistent with applicable federal law and CDC policy. We sought verbal consent from the district and facility teams that we worked with to identify factors contributing to long TAT and implement interventions.

Results

Baseline mpox result receipt turnaround time, contributing factors, and root causes

Following records review, the baseline TAT for the mpox samples referred from Mayuge through the hub was on average 118 hours. We identified nine factors that contributed to the long TAT and these included inadequate sample collection and packaging materials, unclear roles in sample and result management, poor communication between hub and facilities, limited supervision and accountability, inadequate staffing, absence of emergency protocols, unfavorable weather, knowledge gap in mpox sample collection as the teams did not know the best lesion to swab and the type of swab to be used. Some preferred to prick which was against the guidelines. The facilities also did not have dedicated sample transport means to ship samples from the facilities to the testing laboratories. They relied on the routine sample transport schedule where samples were picked twice or thrice a week. Using the 5-why technique, we identified three root causes for the long TAT, and these were knowledge gap on mpox sample collection and packaging, inadequate supplies and lack of dedicated sample transport for samples to the testing laboratories.

Effect of interventions on long result receipt turnaround time

To address the root causes, we implemented three interventions in two PDCA cycles. In the first PDCA cycle between 8th and14th, September 2024, we trained the health workers and supported requisition for supplies since they were used in the training as well

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We received and prepositioned 200 swabs with Viral Transport Media (VTM), and four booklets of request forms. We trained 33 health workers on Mpox sample collection and packaging. They were trained using both didactic and practical sessions. The staff were trained on mpox sample collection and management, donning and doffing, waste management, sample tracking, requisition of stocked out supplies as well as result management. This reduced the TAT for one week to 32 hours from 117 hours. However, this change was not sustained as the TAT increased to 66 hours. The second PDCA cycle was implemented between 22nd and 28th September 2024. This involved activation of the emergency sample transport network by providing standby vehicles and motorcycles to pick the samples as and when required. This reduced the TAT to 30 hours (Figure 1)

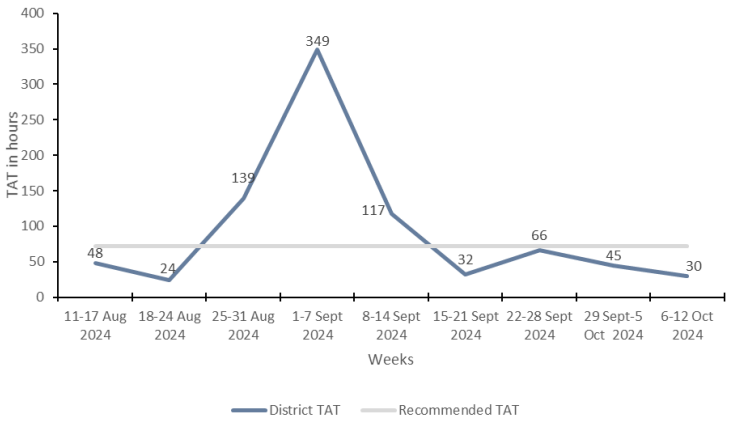

Figure 1: Trend of turnaround time before, and during the deployment in Mayuge District

Discussion

The deployment of surge teams improved mpox result receipt TAT in Mayuge District. The root causes for the long TAT were knowledge gap on mpox sample collection and packaging, inadequate supplies and lack of dedicated sample transport for samples to the testing laboratories. These findings are consistent with the mpox intra action review gaps identified conducted by the Ministry of Health (3). When teams are trained, it boosts their confidence and increases their knowledge on sample and result management hence the reduced TAT. This is in agreement with Kangbai et al., 2025 where capacity building is one of the key recommended interventions in tackling mpox (4).

The activation of the emergency sample transportation system played a crucial role in reducing the turnaround time for Mpox sample testing. Swift transport ensured timely diagnosis and case management, demonstrating the importance of a robust transport network for disease control. This led to the reduction of TAT as samples were transported to the testing laboratories as and when collected. This agrees with the Africa CDC initiative of ensuring samples are timely transported for effective response (5). Continuous monitoring of stock levels, prompt requisition of materials, and collaboration with partners are necessary to maintain an uninterrupted supply chain, especially in high-demand situations which sometimes leads to long TAT as districts and facilities have to borrow from their counterparts. Training and activation of the emergency sample transport network together with ensuring supply availability improved the TAT.

Study limitations: Being an outbreak response, the study period was short (five weeks), making it difficult to assess the sustainability of the interventions. We also did the study in one district which may constrain generalizability. The study focused primarily on turnaround time and did not directly measure the impact of the interventions on the response in general, thereby limiting the ability to establish a direct correlation between TAT and effective surveillance and case management.

Conclusion: Long TAT was caused by inadequate mpox supply availability, knowledge gap in sample collection and management as well as lack of stand by transport for sample transportation to the testing laboratories. The surge teams strengthened local laboratory systems by training, supply requisition and activation of the emergency sample transport network. These interventions improved the turnaround time for mpox testing in Mayuge District.

Conflict of interest: The authors declare that they had no conflict of interest.

Authors contribution: WA designed the study and data analysis with guidance from GS, SN and RK. YK, WO, RI, TR, RN and WA did the data collection. All authors agreed to the submission of the article.

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Strengthening Management of Non-Conformities in an Accredited Public Health Laboratory in Kampala, Uganda, March – October 2024

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Summary

Background: The management of non-conformities (NC) is a core International Organization for Standardization (ISO)15189 requirement for maintaining medical laboratory accreditation because it provides a structured process for identifying, addressing, and preventing deviations, thereby supporting a risk-based quality management system that ensures patient safety, reliable results, and continual improvement. In March 2023, a College of American Pathologist (CAP)-accredited public health laboratory in Uganda showed suboptimal NC management, with an average performance of 38% (48% documentation; 27% investigation/closure), revealing major quality gaps. We set out to identify barriers to optimal NC management and improve the average NC management performance rate to 80% by September 2024.
Method: We conducted two Plan-Do-Check-Act (PDCA) cycles, with performance compared against a 12-month retrospective baseline (January 2023–January 2024) and monitored prospectively on a monthly basis during and after each intervention.". Barriers were identified through brainstorming sessions and prioritized using Pareto analysis. Root causes were determined using the 5-why technique, which identified an unclear job description (JD) for the NC focal person and the lack of a regular review schedule as the primary root causes. Interventions included reviewing and clarifying the NC focal person's JD, and implementing a mandatory biweekly NC review and follow-up schedule.
Results: Following the interventions, the average NC management performance rate increased from 38% to 100%. Both the documentation rate and the investigation/closure rate improved to 80% by October 2024, and successfully exceeding the project's 80% goal while observing its sustainability.
Conclusion: Strengthening roles and introducing biweekly reviews effectively restored the NC management system. To ensure the sustainability of this progress, we recommend the maintenance of regular reviews and the periodic updating of NC management responsibilities.

Background

A core International Organization for Standardization (ISO) 15189 requirements is systematic non-conformity (NC) management, which includes documenting deviations, investigating root causes, implementing corrective actions, and verifying their effectiveness to prevent recurrence (1-4). This requirement is central to accreditation of health laboratories. Accreditation of health laboratories is fundamental for ensuring the accuracy, reliability, and timeliness of patient results and strengthening overall health systems. The College of American Pathologists (CAP) accreditation, guided by international standards like ISO 15 189, validates a laboratory's competence and reinforces a culture of continuous quality improvement (1,2). Effective NC management therefore reinforces continuous quality improvement within the Quality Management System.

The NCs may arise across the pre-analytical, analytical, and post-analytical phases and are commonly detected through internal audits, staff observations, customer complaints, or routine process monitoring (3,4).

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However, many laboratories continue to face persistent challenges in NC management, including weak root cause analysis, delayed implementation of corrective and preventive actions (CAPA), poor documentation practices, and limited staff engagement. These gaps contribute to recurring errors, threaten accreditation status, and compromise the overall quality and reliability of laboratory services (5,6).

In March 2024, an internal review at a CAP-accredited public health laboratory in Kampala, Uganda revealed significant weaknesses in NC management. Of the 31 NCs identified in 2023, only 48% were formally documented and just 27% of those documented had been investigated and closed, resulting in an average performance of 38%. Several undocumented NCs were classified as major, posing direct risks to patient care through delays in turnaround time, repeated QC failures, and equipment breakdowns. These findings highlighted systemic issues within the Quality Management System and underscored the need for targeted intervention. To address these gaps, we initiated a Continuous Quality Improvement (CQI) project aimed at improving NC management performance from 38% to 80% by September 2024.

Method

Setting and context: This CQI project was conducted from March to September 2024 at a CAP-accredited public health laboratory in Kampala, Uganda, operating under ISO 15189 and CAP standards. The project targeted improvement of NC management processes within the laboratory quality management system, including identification, documentation, investigation, corrective action and preventive action (CAPA) implementation, and closure.

Continuous quality improvement approach: The objectives were to identify barriers to optimal NC management and to improve the average NC management performance rate to 80% by September 2024. A multidisciplinary team applied the Plan-Do-Check-Act (PDCA) model to guide iterative improvements. A retrospective review of QMS records (January 2023–January 2024) established baseline performance (38%).

Barriers were identified through brainstorming with 22 laboratory staff and prioritized using Pareto analysis, and root causes were determined using the Five Whys technique.

Iterative improvement cycles: Two PDCA cycles were implemented. Cycle 1 (April–May 2024) clarified the NC focal person's job description, resulting in modest improvement in documentation. Cycle 2 (June–September 2024) introduced mandatory biweekly NC review meetings, leading to substantial and sustained improvements in both documentation and closure. The biweekly review process was institutionalized through an SOP to support sustainability.

Measures and data analysis: Performance was monitored using two indicators: the proportion of documented NCs and the proportion of investigated and closed NCs. An average NC management performance rate was calculated biweekly and displayed on a run chart to assess trends and the impact of each PDCA cycle over time.

Ethical considerations: We sought a non-research determination from the Associate Director for Science of the US Centers for Disease Control and Prevention. This project was classified as a quality improvement initiative as it used only routinely collected, anonymized operational data for analysis. We also sought administrative clearance from the management of the laboratory to conduct the project. This project was conducted consistent with applicable federal law and the US CDC policy. §§See e.g., 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq.

Results

Baseline performance and prioritized barriers

At baseline (January 2023–2024), NC management performance was low. Of the 31 NCs identified, only 48% (15/31) were documented and 27% (4/15) were fully investigated and closed, resulting in an average performance rate of 38% (Figure 1). Four our major barriers to NC management were identified: irregular NC review and follow-up, lack of accessible NC documentation forms, an unclear job description for the NC focal person, and absence of a centralized NC filing system,

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which together accounted for approximately 80% of performance gaps (Figure2). And the main root causes were an unclear job description for the NC focal person and the absence of a structured schedule for routine NC review and follow-up.

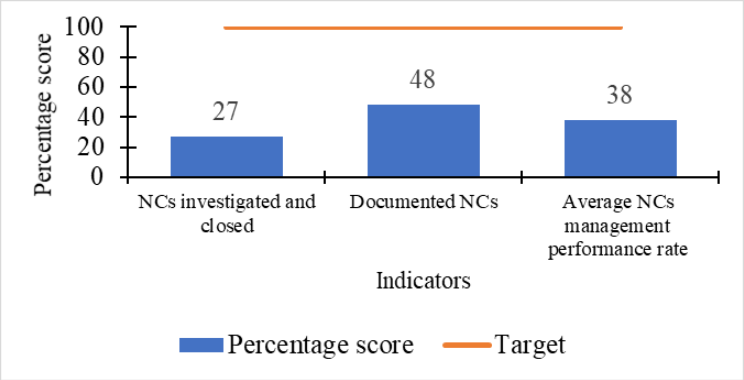

Figure 1: Performance of non-conformity management from January 2023 to January 2024, N=31 non-confimities

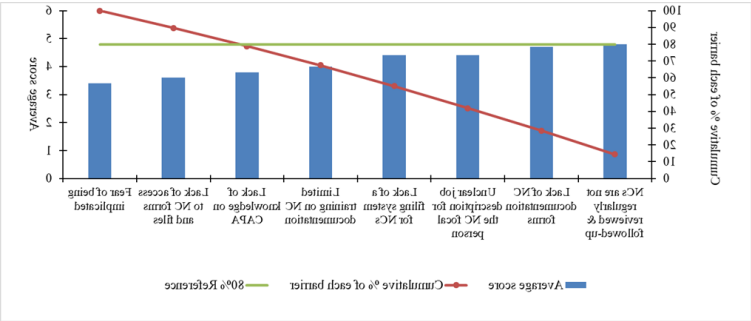

Figure 2: Prioritization of barriers hindering the documentation and investigation of non conformitiess in the laboratory between January 2023 between January 2024

Improvement in Non-conformity management over time

Following implementation of two PDCA cycles, NC management performance improved substantially (Figure 3).

Following the implementation of the two PDCA cycles, the average NC Management Performance Rate improved (Figure 3). After clarification of the NC focal person's job description, the performance rate increased 38% to 65%. A temporary decline to 52% was observed in July, followed by sustained improvement after introduction of mandatory biweekly NC review meetings. The project's 80% target attained in September 2024, and rose to 100% in October 2024.

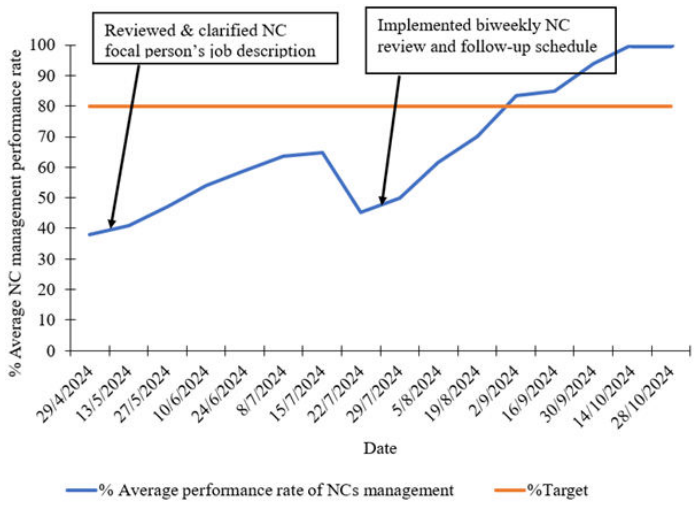

Figure 4: Effect of tested changes on average non-conformity management performance rate (April to October 2024)

Discussion

This CQI project improved NC management performance from 38% to 100%, with documentation and investigation/closure rates exceeding the 80% target. Key contributing factors included clarification of the NC focal person's job description and the introduction of biweekly NC review meetings, which strengthened accountability and alignment with ISO 15189 and CAP requirements, while continuous quality improvement.

Initial improvements were attributable to enhanced NC documentation, whereas sustained performance improvement required structured review mechanisms to ensure timely investigation and closure, reflecting progressive strengthening of the NC management process. These findings are consistent with reports from LMICs, including Strengthening Laboratory Management Toward Accreditation (SLMTA) implementation in Tanzania and Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) experiences in Kenya, where structured CQI approaches have significantly improved laboratory quality management systems (7,8). The PDCA-based framework: defining roles and review schedules (Plan), implementing corrective actions (Do), monitoring performance indicators (Check), and institutionalizing effective practices (Act); is well supported in the literature.

The temporary performance decline observed during implementation mirrors fluctuations reported in other CQI initiatives and highlights the importance of sustained monitoring and reinforcement (9,10).

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Overall, the findings reaffirm that robust documentation systems, clearly defined accountability structures, and routine follow-up are essential for effective NC management and long-term accreditation sustainability in resource-limited settings (1,10).

Study limitations: The evaluation period was relatively short (six months), making it difficult to assess the long-term sustainability of the interventions. The study also relied on routinely collected QMS data and a single-site design, which may constrain generalizability. It also focused primarily on process indicators (proportion of NCs documented, investigated, and closed) and did not directly measure the impact on patient care, thereby limiting the ability to establish a direct correlation between the process improvements and the ultimate quality of laboratory service.

Conclusion: This project showed that a weak NC management system can be fully restored by systematically addressing its root causes. To ensure the sustainability of this progress, we recommend the maintenance of regular reviews and the periodic updating of NC management responsibilities.

Conflict of interest: The authors declare no conflict of interest.

Authors Contribution: RN: conceptualized, designed, and contributed to data analysis; EJN, NR, EN, WS and GN: participated in data collection and cleaning; RN: led the writing of the bulletin; SG, and MP, participated in bulletin writing and review to ensure intellectual content and scientific integrity. All authors read and approved the final bulletin.

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Moving Towards Self-Reliance to Achieve Universal Health Coverage and Health Security in Africa: Outcomes of the Public Health Conference in Africa, 2025

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The 4th International Conference on Public Health in Africa (CPHIA) was held from 22–25 October 2025, at the Durban International Convention Centre in South Africa, under the theme “Moving Towards Self-Reliance to Achieve Universal Health Coverage and Health Security in Africa.” The conference brought together international government ministers, health leaders, scientists, youth, and civil society actors from across the continent and beyond, reflecting Africa’s growing leadership in shaping its own public health agenda.

During the opening ceremony, the Director General of Africa CDC, Dr. Jean Kaseya, emphasized Africa’s determination to chart its own path, noting that the continent is increasingly defining its priorities and solutions. South Africa’s Deputy Health Minister Dr. Joe Phaahla emphasized the importance of healthy equity and policy achieved through African leadership and global solidarity, calling for health systems that are financed, powered and sustained by Africans themselves. The conference was strategically positioned as a precursor to the G20 Health Ministers’ Meeting under South Africa’s presidency, reaffirming Africa’s role in shaping the global health agenda.

The conference programme was anchored around strategic priorities focused on strengthening Africa’s health sovereignty. Discussions emphasized the need for sustainable and innovative financing to build resilient and efficient health systems that are nationally owned. Considerable attention was given to expanding local manufacturing of Vaccines, medicines, and diagnostics as a means of reducing import dependence and strengthening health security. Transforming primary health care was also highlighted, with African-led innovations such as digital health tools, telemedicine, and artificial intelligence showcased as solutions for expanding access and improving quality of care, particularly in underserved communities.

The conference drew nearly 20,000 participants from over 70 countries, featuring multiple plenary discussions, abstract sessions, special sessions, and partner-led side events. These engagements explored cross-cutting themes including climate resilience, One Health approaches, laboratory networks, genomics, governance, sustainable health financing, public health emergency management (PHEM) and pandemic preparedness. A high-level plenary on health sovereignty examined how demand, innovation, regulation, and investment can drive the growth of Africa’s pharmaceutical manufacturing sector.

Health financing emerged as a central concern throughout the conference. Official development assistance for health in Africa has dropped by nearly 70% between 2021 and 2025, while African governments dedicate an average of 6% of their national budgets to health; far below the Abuja Declaration commitment of 15%. Health expenditure accounts for only 1.5% of Gross Domestic Profit (GDP), and out-of-pocket payments by citizens remain high at 37% of total health expenditures, exposing households to financial hardship and limiting access to essential services.

Primary health care (PHC) remains a critical gap with about 400 million people worldwide, lacking access to essential services. The Service Coverage Index for the World Health Organization (WHO) African Region averages 46%, indicating that half of Africans do not receive basic PHC. The WHO recommends that countries allocate 1% of GDP to PHC, yet most African states remain below that threshold.

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Low insurance coverage (often under 10%) compounds inequities, with millions at risk of catastrophic health spending. Limited investment in primary health care, combined with low health insurance coverage, perpetuates inequities and increases the risk of catastrophic health expenditure, particularly among vulnerable populations.

Local manufacturing capacity was identified as both a challenge and an opportunity. Despite consuming about 25% of global vaccine doses, Africa currently produces only 1% of its vaccines locally. Over 95% of medicines and active pharmaceutical ingredients are imported, along with the majority of diagnostics and laboratory reagents.

To address this, continental initiatives led by Africa CDC and the African Union (AU), including the Partnership for African Vaccine Manufacturing (PAVM) and the Platform for Harmonized African Health Products Manufacturing (PHAHM) are working to strengthen regulatory harmonization, expand regional production capacity, and advance the AU goal of producing 60% of Africa's vaccine needs through local production by 2040.

These interconnected priorities framed the conference's emphasis on mobilizing domestic resources, revitalizing PHC and building sustainable manufacturing ecosystems as the foundation of Africa's journey towards health sovereignty.

The conference was concluded on 25 October with the launch of the Durban Promise, a continental call to action outlining commitments to mobilize Africa's wealth and innovation for health, strengthen governance and accountability, reinvest in primary health care and community systems, promote regional solidarity and pooled procurement, build climate-resilient One Health systems, reframe health as a strategic investment, and consolidate Africa's leadership in global health

In the closing plenary, Prof. Olive Shisana, co-chair of CPHIA 2025, noted that health is not charity but a matter of sovereignty, political choice, and economic future. The Durban Promise marked Africa's clear shift from aid dependency towards autonomy and will guide the next phase of Africa CDC's strategic action under the New Public Health Order. In his closing remarks, Dr. Kaseya announced that the next edition of the conference (CPHIA 2026) will be held in Addis Ababa, Ethiopia, to continue advancing African-led public health leadership.

In conclusion, through its rich exchanges and the launch of the Durban Promise, CPHIA 2025 reaffirmed that Africa's path to health self-reliance requires sustainable domestic financing, strong and equitable PHC systems, and robust regional manufacturing capacity. By translating these commitments into national policies and implementation frameworks, countries like Uganda are well-positioned to advance Africa CDC's vision of a continent that is prepared, responsive, and self-reliant in safeguarding public health.

Authors' Contribution: WN conceived, designed, and led the drafting of the article, participated in the conference as a Public Health Emergency Management (PHEM) fellow. SH, WE, and WM provided technical input, coordination, editorial revisions, and were the technical conference organizers at Africa CDC. All authors reviewed and approved the final version.

Acknowledgement: The authors acknowledge the Africa Centers for Disease Control and Prevention (Africa CDC), the Government of South Africa, and AfricaBio's BIO Africa Convention for their support in organizing the Conference of Public Health in Africa, 2025.

Strong public engagement, behaviour change, and community-driven stewardship key in the fight against Antimicrobial Resistance; Recommendations from the Antimicrobial Resistance Conference, 19th-21st, 2025

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The Uganda National Institute of Public Health (UNIPH) was honoured to participate in the 10th National Antimicrobial Resistance (AMR) Conference 2025 at Hotel Africana in Kampala under the theme "Act Now: Protect Our Present, Secure Our Future". The conference was a key part of the World Antimicrobial Awareness Week (WAAW) activities and was organized by the National One Health Platform. The event convened stakeholders from human, animal, and environmental health sectors stakeholders committed to combating antimicrobial AMR to discuss ongoing response efforts and national AMR priorities using a One Health approach.

Fellows from the UNIPH shared findings and recommendations from their studies on how to strengthen AMR surveillance and diagnosis as part of the ongoing efforts to combat AMR. Partners shared their contributions in the ongoing fight against AMR. These included development of frameworks and plans (AMR-NAP II), capacity building in selected facilities, procurement of equipment and supplies as well as community engagement. Presentations indicated that even in resource-limited settings, meaningful advances are possible when science, policy, and community action align. Based on the discussions, continued investment in data systems, laboratory capacity, and human capital will determine how well the country, and the region meet the next phase of the AMR challenge.

The biggest challenge highlighted during the conference was the limited and unpredictable funding landscape. Many sectoral budgets lack specific allocations for AMR-related activities, leaving the implementation of critical interventions dependent on external funding and yet a number of donor-funded projects were coming to an end. It was also noted that coordination across sectors was often inconsistent, and there were still no integrated national performance indicators to track progress.

Among the key recommendations to combat AMR from the grass roots was community engagement and public awareness. While delivering the keynote speech, Dr. David Musoke emphasised the central role of communities in strengthening Uganda's AMR response. He positioned Uganda's AMR burden within the broader global crisis, noting that one in six bacterial infections globally, and one in five infections in Africa, are now resistant to available antibiotics. He stressed that while technical and clinical interventions remain essential, sustainable progress requires strong public engagement, behaviour change, and community-driven stewardship.

To reach these communities, Dr. Kambugu highlighted that there was need to work with health institutions, academic organisations, local government, faith-based groups, and community networks. Creative approaches such as music, dance, and acting highlighting the dangers of antibiotic misuse and encourage responsible behaviour were also emphasized during the conference.

Authors contribution: WA, SG, and RK, conceived and designed the article with input from NE, NR, and KH who also attended the conference. SM was the lead conference organizer with immense support from NC. All authors agreed to the submission of the article.

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World International Health Days, January to March 2026

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Introduction: International public health commemoration days are designed to draw attention to particular illnesses and health challenges, foster public health understanding and encourage behaviors that support good health and wellness. Annually, a wide range of institutions, groups, and communities across the world take part in initiatives and events to mark and advocate for World Health Days.

World Neglected Tropical Diseases Day: 30th January, 2026

Neglected Tropical Diseases Day (NTDs) falling on 30th January each year, is designated to answer the call to unite, act, and eliminate NTDS, building a safer and more resilient world for everyone. Countries are urgued to invest in better tools, systems, approaches, partnerships, champion innovation in daignostics and treatment so that domestically owned and financed NTD programmes are sustainable. This year's theme "Unite.Act.Eliminate" is a consistent call to action from the World Health Organization and parteners empahsizing global collaboration, integrated health strategies, and sustained investment to control and eradicate these devastating diseases, aiming for health equity and achievement of sustainable development goals.

World Tuberculosis Day: 24th March, 2026

World Tuberculosis (TB) day is celebrated every 24th of March. It is on this same day in 1882 that Dr. Robert Kotch made a ground breaking announcement of the discovery of the bacterium that causes tuberculosis disease. This discovery facilitated the development of diagnostic methods and treatments for the devastating disease. This year, under the theme "Unite to End Tuberculosis", the primary goal of the commemoration is to elevate public understanding about the ongoing TB pandemic, emphasizing the need for preventive measures, early diagnosis, and effective treatment. The commemoration also advocates for efforts to end the TB pandemic by 2030.

World Leprosy Day: 25th January, 2026

The World Leprosy Day, which is celebrated on the final Sunday in January of each year, is to take place on 25th January this year. The 2026 theme which is "Leprosy is Curable, the Challenge is Stigma", is a call to action aiming to raise awareness of leprosy, highlight the challenges faced by persons affected by leprosy and inspire collaborative action to eliminate leprosy.

World Cancer Day: 4th February, 2026

World Cancer Day aims to raise public awareness of cancer, promote prevention, early detection, and prompt treatment. Particularly in low- and middle- income countries, the day offers a platform for advancing equitable access to cancer care, reducing risk factors, and strengthening national cancer control programs. The year 2026 is the second year of a three-year (2025–2027) campaign theme "United by Unique", placing people at the center of care and explores new ways of making a difference.