

## Trends in the Reporting of Human Monkeypox in the Province of Tshopo, in Democratic Republic of the Congo

Mande B.G<sup>1</sup>, Mebwa M. F<sup>2</sup>, Baelongandi F<sup>2</sup>, Gembu G.C<sup>3</sup>, Akonda I<sup>4</sup>, Alworong'a O<sup>1</sup>, Ngbonda D.N<sup>1</sup>

1. Department of Pediatrics, Faculty of Medicine and Pharmacy, University of Kisangani, Kisangani, Democratic Republic of the Congo.
2. Health Ministere of Tshopo, Kisangani, Democratic Republic of the Congo
3. Centre pour la Surveillance de la Biodiversité, Kisangani, University of Kisangani, Democratic Republic of the Congo.
4. Health Ministere of Bas-Uélé, Buta, Democratic Republic of the Congo

**Citez cet article :** Mande B.G, Mebwa M. F, Baelongandi F, Gembu G.C, Akonda I, Alworong'a O, Ngbonda D.N. *Trends in the Reporting of Human Monkeypox in the Province of Tshopo, in Democratic Republic of the Congo.* KisMed Mars 2023, Vol 13(1) : 607-610

### RESUME

Nous avons extrait les données sur les cas suspects de monkeypox de la base de données de surveillance épidémiologique de la province de la Tshopo afin de décrire la fréquence, le profil des patients, la létalité et la saisonnalité. Seize zones de santé sur 24 ont rapporté des cas suspects de monkeypox au cours de la période 2018-2021. Les zones de santé de Yalimbongo (28,5%), de Yahuma (18,9%), de Yakusu (13,7%) et d'Opala (11,8%) représentaient 72,9% des cas. Le plus grand nombre de cas a été rapporté en mars, en mai et en novembre. La létalité était élevée (6,2%), surtout chez les enfants de moins de 5 ans. La tendance annuelle était à la hausse : de 108 cas signalés en 2018 à 262 en 2020. La variole du singe ou monkeypox est endémique dans la province de la Tshopo, en particulier dans les zones de santé de Yalimbongo et de Yahuma et sa létalité semble être élevée, surtout chez les enfants. Des études de cohorte avec confirmation virologique sont nécessaires pour identifier l'incidence, les déterminants écologiques, socio-démographiques et cliniques de la létalité réelle et les autres virus posant le problème de diagnostic différentiel.

**Mots clés :** Monkeypox, variole du singe, surveillance épidémiologique, létalité, zones de santé, République Démocratique du Congo

### SUMMARY

We extracted data on suspected monkeypox cases from the Tshopo Province epidemiological surveillance database to describe the frequency, patient profile, case fatality, and seasonality. Sixteen out of 24 health zones reported suspected monkeypox cases from From January 1st 2018 to December 31st 2021. Yalimbongo (28.5%), Yahuma (18.9%) Yakusu (13.7%) and Opala (11.8%) health zones accounted for 72.9% of the cases in the entire province. The highest number of cases was reported in March, May, and November. Case fatality was high (6.2%), especially among children under 5 years of age. The annual trend was rising: from 108 cases reported in 2018 to 262 in 2020. Monkeypox is endemic in Tshopo Province, especially in the Yalimbongo, Yahuma health zones, and its case fatality appears to be high, especially among children. Further cohort studies with virological confirmation are needed to identify the incidence, ecological, socio-demographic and clinical determinants of true lethality and differential diagnosis.

**Key words:** Monkeypox, epidemiological surveillance, case fatality, health zone, Democratic Republic of the Congo

**Auteur correspondant :** Mande B.G, Département de Pédiatrie, faculté de Médecine et pharmacie, Université de Kisangani, RDC E-mail : [gaspard.mande@unikis.ac.cd](mailto:gaspard.mande@unikis.ac.cd)

## INTRODUCTION

From January 1 to July 4, WHO recorded, through reports from 59 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, Europe, and the Pacific, 6027 confirmed cases of Monkeypox, including 3 deaths. (1) This disease is a zoonosis caused by a virus, monkeypox virus, of the family Orthopoxviridae. It is endemic in many sub-Saharan countries and the largest number of cases and the majority of outbreaks have been reported in Democratic Republic of the Congo (DRC) and Nigeria (2).

Since 2001, providers of health centers and general referral hospitals of DRC had to report diseases with epidemic potential, including monkeypox. (3) Epidemics have been most reported in the provinces of Tshuapa and Sankuru. (4) However, other provinces regularly report cases of Monkeypox. (5) This work presents trends in the frequency of suspected monkeypox cases in the different health zones of Tshopo province over the last 4 years, their yearly distribution, and lethality.

## MATERIEL ET METHODES

Tshopo is one of the four provinces resulting from the subdivision of the former Oriental Province, alongside Bas-Uélé, Haut-Uélé, and Ituri provinces. It is located in the North-East of the DRC and is subdivided into 24 health zones: Lubunga, Bafwabogbo, Bafwagbogbo, Bafwasende, Banalia, Basali, Basoko, Bengamisa, Isangi, Lowa, Opala, Opienge, Ubundu, Wanierukula, Yabaondo, Yahisuli, Yahuma, Yakusu, Yaleko, Yalimbongo, Kabondo, Makiso-kisangani, Mangobo, Tshopo. The first is urban-rural and the last four are urban. The rest of the health zones are rural.

Monkeypox is compulsorily reported every week by the health centers of a health zone, within the framework of the epidemiological surveillance in DRC, next to cholera, whooping cough, maternal deaths, bloody diarrhea, dracunculiasis, yellow fever, typhoid fever, acute

respiratory infections, meningitis, malaria, acute flaccid paralysis, rabies, measles, and neonatal tetanus. As of 2021, COVID-19 infection is added to this list. A case of suspected monkeypox is any person in whom an abrupt onset of fever is followed by a vesiculo-pustular rash predominantly on the face, palms, and soles or the presence of at least 5 variola-like skin lesions (5). All these data are sent to the Provincial Division of Health and all provincial divisions send their databases to the National Ministry of Public Health, Hygiene and Prevention. This is passive surveillance, which consists of the systematic and continuous collection, analysis, and interpretation of data on the occurrence of disease and public health events, to take timely and effective action. (6) The data presented in this work were extracted from the epidemiological surveillance database of the Tshopo Province, from January 1, 2018, to December 31, 2021.

## RESULTATS

Sixteen out of 24 health zones reported suspected cases of MPX or 66.7%. Fifteen are rural and one is urban-rural, located in the city of Kisangani. They are represented in (Figure 1).

From the first week of January 2018 to the last week of December 2021, 663 suspected Monkeypox cases were reported of which 243 were less than 59 months old (37%) and 420 were 5 years and older (63%). The annual trend is rising: 108 cases were reported in 2018; 170 in 2019 and 262 in 2020. The overall case fatality was 6.2% (41 cases); 7.4% in children under 5 years (18/243 cases) and 5.5% in older patients (23/420 cases).

Apart from the Yalimbongo (28.5%), Yahuma (18.9%), Yakusu (13.7%), and Opala (11.8%) health zones, the other reported 27.1% of cases: Basoko 6.8%; Yabaondo 5.7%; Banalia 3.5%, Yahisuli 3.3%; Ubundu 2.7%; Isangni 1.5%; Yaleko 1.5%; Basali 0.9%; Bafwabobo 0.3%; Lowa 0.3%, Bafwasende 0.2%, and Lubunga urban-rural health zone 0.5%.

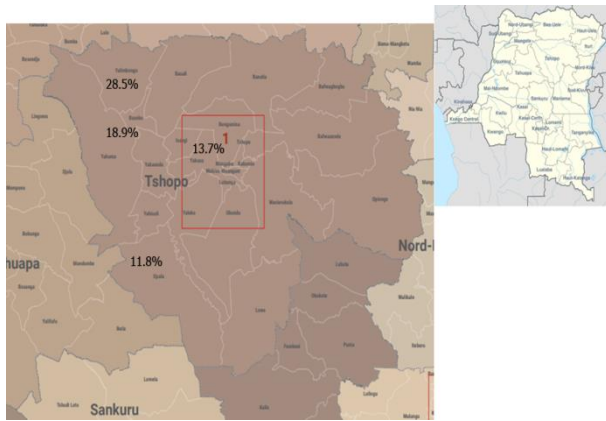


Figure 1 : Proportion of suspected monkeypox cases by health zones in Tshopo Province. Adapted from (7)

The frequency was high during the first, second, and fourth quarters (Figure 2). This corresponds to periods of low rainfall when field activities are more intense and human-animal reservoir contact is closer. Other studies have found similar results. (4)

The case fatality rate was higher than in Nigeria: 2.6% (7 deaths out of 262 suspects) versus 6.2% (41 deaths out of 663 suspects). (9) This study has several limitations. The extent of the disease in the community may be underestimated because these data are from passive surveillance and there was no virological

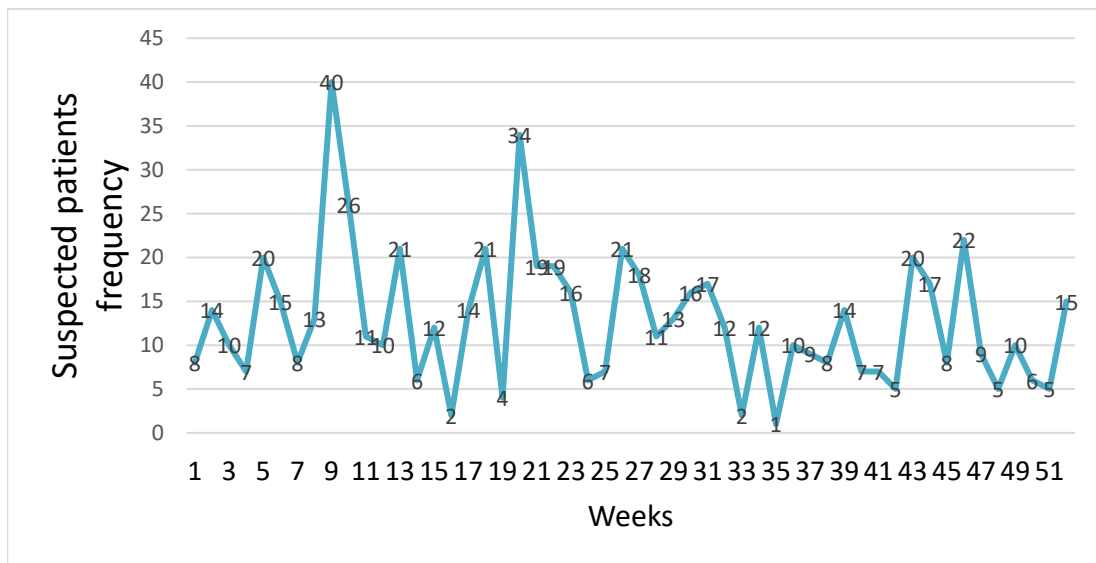


Figure 2: Yearly evolution of suspected cases

The peak of cases was reported during the 9<sup>th</sup> (March), 20<sup>th</sup> (May), and 46<sup>th</sup> week of the year (November).

**DISCUSSIONS**

The predominance of rural health zones in the reporting of suspected monkeypox cases is justified by the epidemiology of this disease: it is endemic in the rural forest regions of the DRC where the population lives, through agropastoral activities, in contact with both wild and domestic animals likely to transmit the disease. The health zones of Yalimbongo, Yahuma, and Opala are respectively adjacent to Aketi, Tshuapa, and Sankuru where many studies have reported cases of monkeypox (Figure 1). (4)(8)

confirmation for all suspected cases. Indeed, many of these suspected cases may be patients with chickenpox or scabies (8) (10). The case fatality may be less than that presented here. Disruptions related to the COVID19 pandemic and local health sector issues have prevented full reporting during 2021.

**CONCLUSION**

Monkeypox is endemic in Tshopo Province, especially in the Yalimbongo, Yahuma, Yakusu and Opala health zones, and its case fatality appears to be high, especially among children. Further cohort studies with virological confirmation are needed to identify the incidence, ecological, socio-demographic and clinical

determinants of true lethality and differential diagnosis.

---

## REFERENCES

---

1. WHO. Multi-country outbreak of monkeypox. 2022.
2. Mauldin MR, McCollum AM, Nakazawa YJ, Mandra A, Whitehouse ER, Davidson W, et al. Exportation of Monkeypox Virus From the African Continent. *J Infect Dis.* 2022 Apr 4;225(8):1367.
3. Hoff NA, Doshi RH, Colwell B, Kebela-Illunga B, Mukadi P, Mossoko M, et al. Evolution of a Disease Surveillance System: An Increase in Reporting of Human Monkeypox Disease in the Democratic Republic of the Congo, 2001–2013. *Int J Trop Dis Heal.* 2017 Jan 10;25(2):1–10.
4. Mandja BAM, Brembilla A, Handschumacher P, Bompangue D, Gonzalez JP, Muyembe JJ, et al. Temporal and Spatial Dynamics of Monkeypox in Democratic Republic of Congo, 2000–2015. *Ecohealth.* 2019 Sep 1;16(3):476–87. Available from: <https://pubmed.ncbi.nlm.nih.gov/31410720/>
5. DRC: Guide de prise en charge des épidémies dans une zone de santé: Monkeypox | medbox.org [Internet]. [cited 2020 Feb 5]. Available from: <https://www.medbox.org/dr-of-the-congo/drc-guide-de-prise-en-charge-des-epidemies-dans-une-zone-de-sante-monkeypox/preview?q=>
6. WHO. Technical Guidelines for Integrated Disease Surveillance and Response in the African Region: Third edition | WHO | Regional Office for Africa [Internet]. 2019 [cited 2022 Aug 4]. Available from: <https://www.afro.who.int/publications/technical-guidelines-integrated-disease-surveillance-and-response-african-region-third>
7. RD Congo: Carte des zones de santé-juillet 2020 | HumanitarianResponse [Internet]. [cited 2022 Nov 1]. Available from: <https://www.humanitarianresponse.info/en/opérations/democratic-republic-congo/infographic/rd-congo-carte-des-zones-de-santé-juillet-2020>
8. Mande G, De Weggheleire A, Brosius I, Liesenborghs L, Bottieau E, Ross N, et al. Enhanced surveillance of monkeypox in Bas-Uélé, Democratic Republic of Congo: the limitations of symptom-based case definitions. *Int J Infect Dis.* 2022;122:647–55. Available from: <https://doi.org/10.1016/j.ijid.2022.06.060>
9. Kabuga AI, El Zowalaty ME. A review of the monkeypox virus and a recent outbreak of skin rash disease in Nigeria. Vol. 91, *Journal of Medical Virology.* John Wiley and Sons Inc.; 2019. p. 533–40.
10. Koley S, Datta J, Shahriar Ahmed SK, Tarafdar D. Scabies involving palms in older children and adults: a changing scenario. *Int J Dermatol.* 2021 May 1;60(5):605–10.

---

**Citez cet article : Mande B.G, Mebwa M. F, Baelongandi F, Gembu G.C, Akonda I, Alworong'a O, Ngbonda D.N. Trends in the Reporting of Human Monkeypox in the Province of Tshopo, in Democratic Republic of the Congo. *KisMed Mars 2023, Vol 13(1) : 607-610***

---