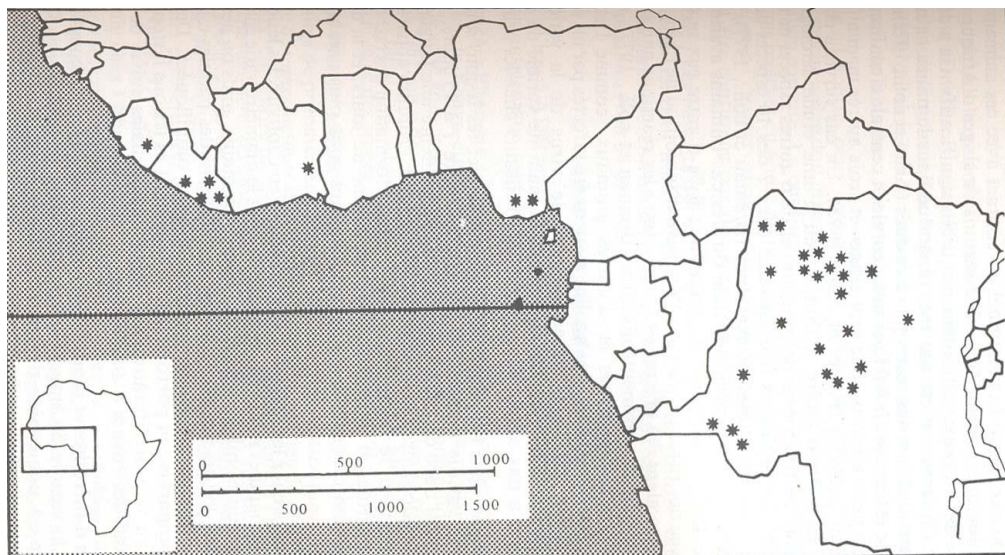


DRC's historic leadership in MPOX Research and Response.

Prof. Jean-Jacques Muyembe Tamfum

Evolution of the number of MPOX cases in Africa (1970 – 1986)



Discovery and Organization of Research

PRIME DE 500 ZAÏRES

PAYEE A LA PERSONNE AYANT DECOUVERT ET NOTIFIE UN CAS DE MONKEYPOX (MALADIE SEMBLABLE A LA VARIOLE) CONFIRME PAR UN LABORATOIRE



NKAMA ITANU 500 Z MBANO TO LIFUTA YA ZAÏRES

EKOPEPAMA NA MOTU OYO AKOMONO MPE AYEBISI BOKONO MOKO MONKEYPOX (BOKONO BOYE BOKOKANI LOKOLA KOKOTO) ENDIMAMI NA LABORATOIRE TO ESIKA EYE BAYEBAKA MAKONO

Fig. 17. Poster publicizing the reward of 500 zaires payable to persons reporting the discovery of a confirmed case of human monkeypox, as used in Zaire, 1981-1986 (courtesy of the World Health Organization).

PAYS ANNEE	CAMEROUN	REP.CENTR. AFRICAINE	COTE D'IVOIRE	LIBERIA	NIGERIA	SIERRA LEONE	RDC	TOTAL
1970	0	0	0	4	0	1	1	6
1971	0	0	1	0	2	0	0	3
1972	0	0	0	0	0	0	5	5
1973	0	0	0	0	0	0	3	3
1974	0	0	0	0	0	0	1	1
1975	0	0	0	0	0	0	3	3
1976	0	0	0	0	0	0	5	5
1977	0	0	0	0	0	0	6	6
1978	0	0	0	0	1	0	12	13
1979	2	0	0	0	0	0	8	10
1980	0	0	0	0	0	0	4	4
1981	0	0	1	0	0	0	7	8
1982	0	0	0	0	0	0	40	40
1983	0	0	0	0	0	0	84	84
1984	0	6	0	0	0	0	86	92
1985	0	0	0	0	0	0	62	62
1986	0	0	0	0	0	1	59	59
TOTAL	2	6	2	4	3	2	386	404

Source : Monographie de Dr Z. JEZEK, K. FENNER 1988

N.B. Superficie totale de la foret humide tropicale de tous ces pays est de 74.7 mille hectares.

La RDC à elle seule représente 56.2 MILLE HECTARES

La RDC a 95,5 % des cas.

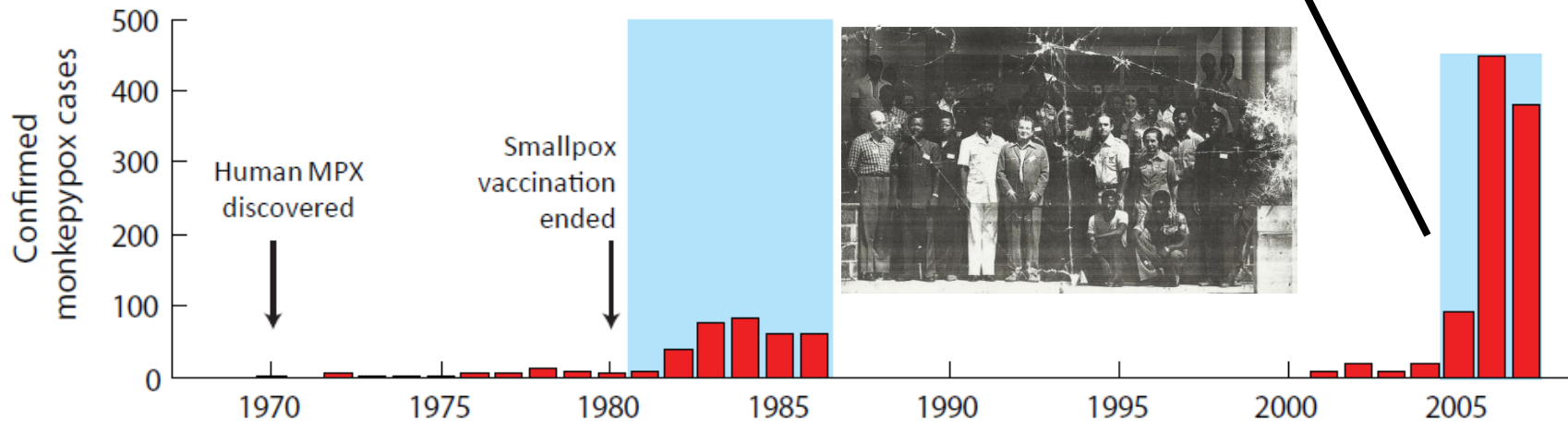
INRB-UCLA EPIDEMIOLOGICAL STUDY

PNAS

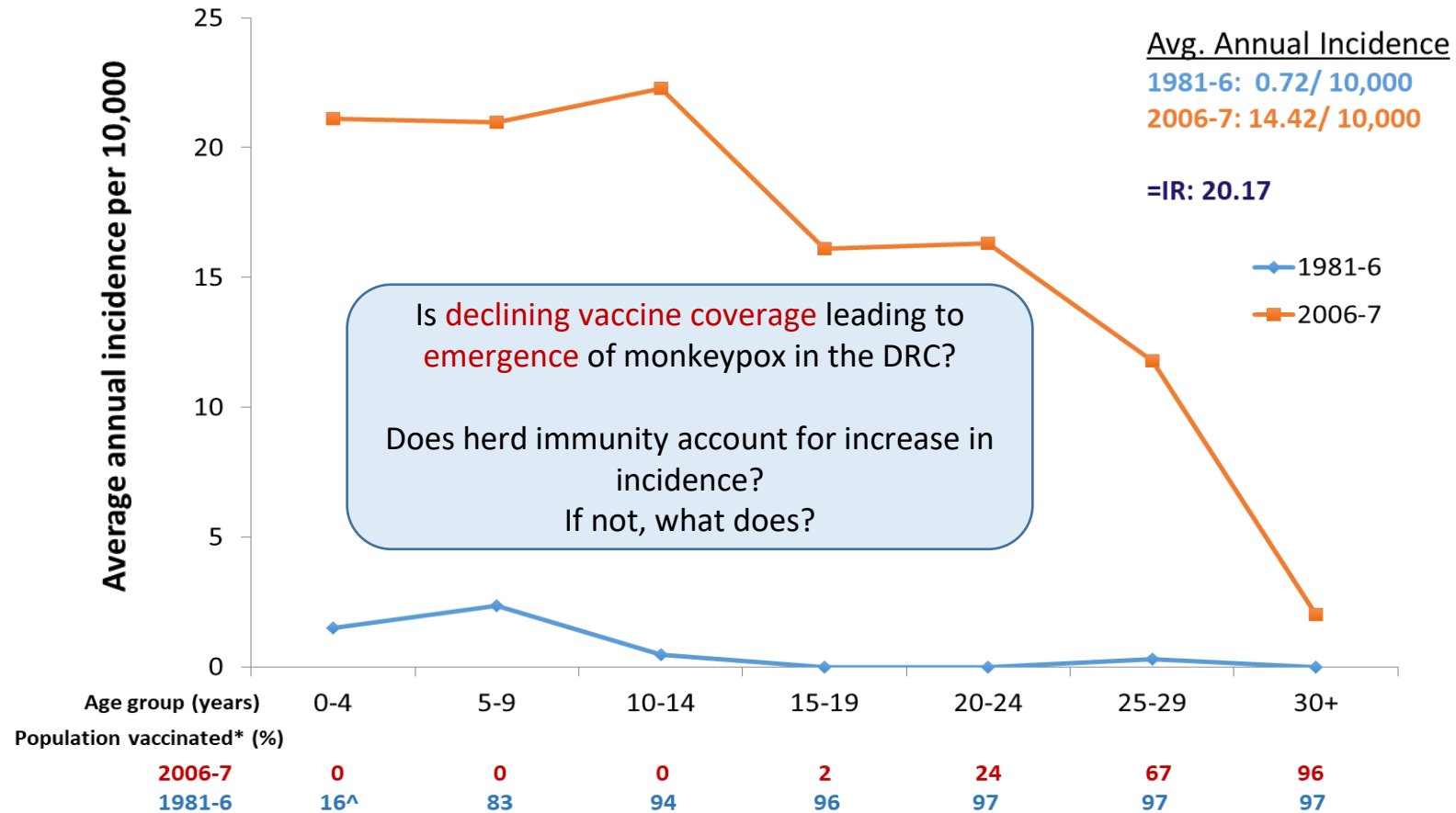
Major increase in human monkeypox incidence 30 years after smallpox vaccination campaigns cease in the Democratic Republic of Congo

Anne W. Rimoin^{a,b,1}, Prime M. Mulembakani^c, Sara C. Johnston^d, James O. Lloyd Smith^{b,e}, Neville K. Kisalu^f, Timothee L. Kinkela^c, Seth Blumberg^{b,e}, Henri A. Thomassen^g, Brian L. Pike^h, Joseph N. Fair^h, Nathan D. Wolfe^h, Robert L. Shongoⁱ, Barney S. Graham^j, Pierre Formenty^k, Emile Okitolonda^c, Lisa E. Hensley^d, Hermann Meyer^l, Linda L. Wright^m, and Jean-Jacques Muyembeⁿ

per capita incidence increased by factor of 20 (95% CI, 14-29) between 1981-86 and 2005-07.



AVERAGE CUMULATIVE INCIDENCE OF HUMAN MPX BY AGE GROUP IN KOLE HEALTH ZONE: 1981-6 VS. 2006-7.



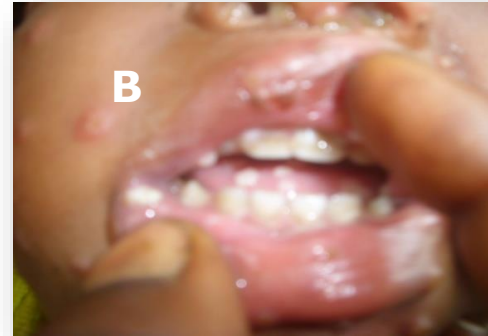
*Proportion of the population vaccinated in 2006-7 and in 1981-6 based on vaccination scar surveys. ^ Vaccination rate steadily declined from 41.0% in 1981 to 4% in 1985.



INRB-USAMRIID:CLINICAL CHARACTERIZATION OF MPX (2007-2011)- SANKURU.



(A) Case of Monkeypox with inguinal lymphadenopathy, (B) rash in the mouth, (C) in the palms of the hands (D) on the soles of the feet



- ❑ **lymphadenopathy**
(>80% of cases): 1 to 2 days before the rash
- ❑ **Skin rash** : Centrifugal distribution, first in the mouth, hands, palms of hands and soles of the feet then generalizes over the whole body

CLINICAL ASPECTS OF MPOX

Severe infection/Child



Severe infection/adult



Benign infection



Subclinical infection



Lymphadenopathie in 90% of cases

OCULAR COMPLICATIONS OF MPOX

Bacterial conjunctivitis



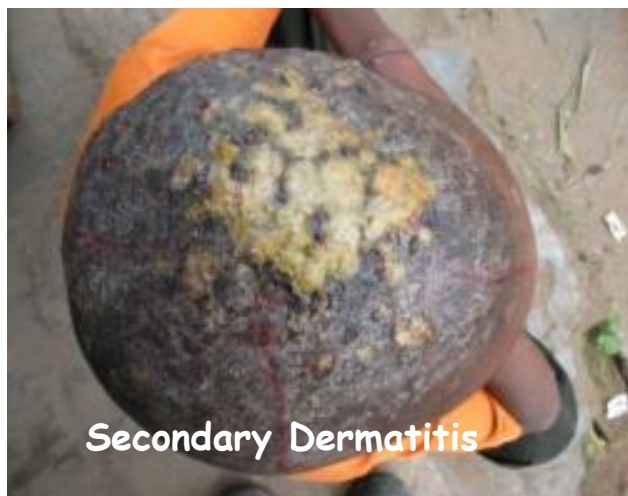
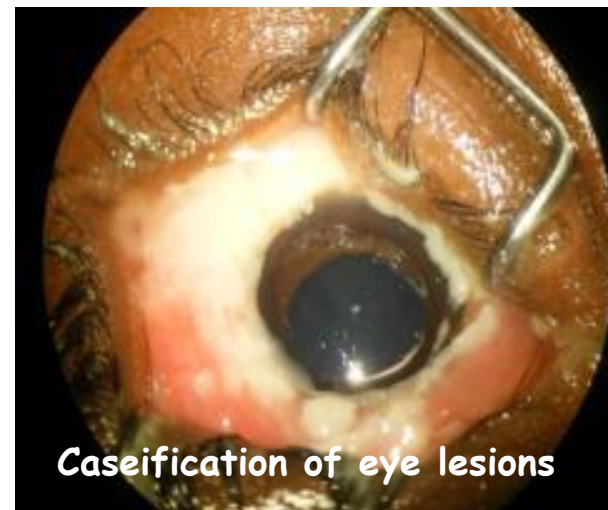
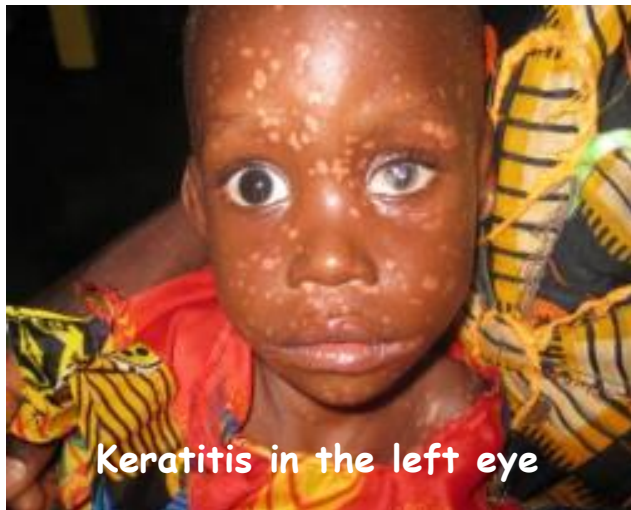
Corneal opacity



MUCOCUTANEOUS COMPLICATIONS OF MPOX



OTHER CLINICAL COMPLICATIONS OF MPOX



The Journal of Infectious Diseases

BRIEF REPORT

Maternal and Fetal Outcomes Among Pregnant Women With Human Monkeypox Infection in the Democratic Republic of Congo

Placide K. Mbala,^{1,2} John W. Huggins,⁴ Therese Riu-Rovira,³ Steve M. Ahuka,¹ Prime Mulembakani,² Anne W. Rimoin,⁵ James W. Martin,⁶ and Jean-Jacques T. Muyembe¹

4 spontaneous abortion among the 5 pregnant women enrolled in the study



#3 Pt 76 Fetus: Right Shoulder/Back - MPX



#4 Pt 76 Fetus: Right Upper Arm - MPX



#9 Pt 76 Fetus: Right Foot - MPX

CLINICAL DIFFERENTIAL DIAGNOSIS

Secondary Syphilis



MPX, Palm lesions



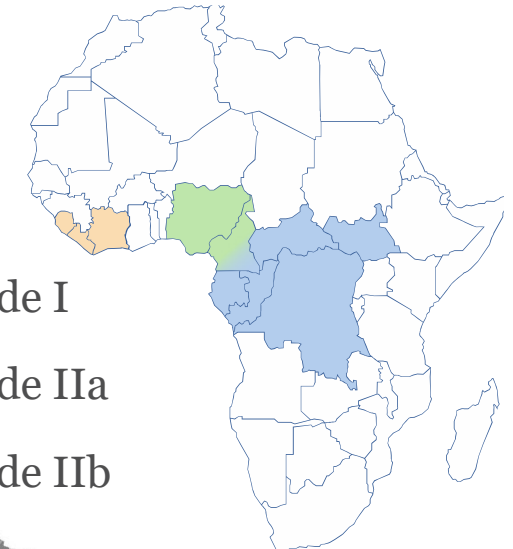
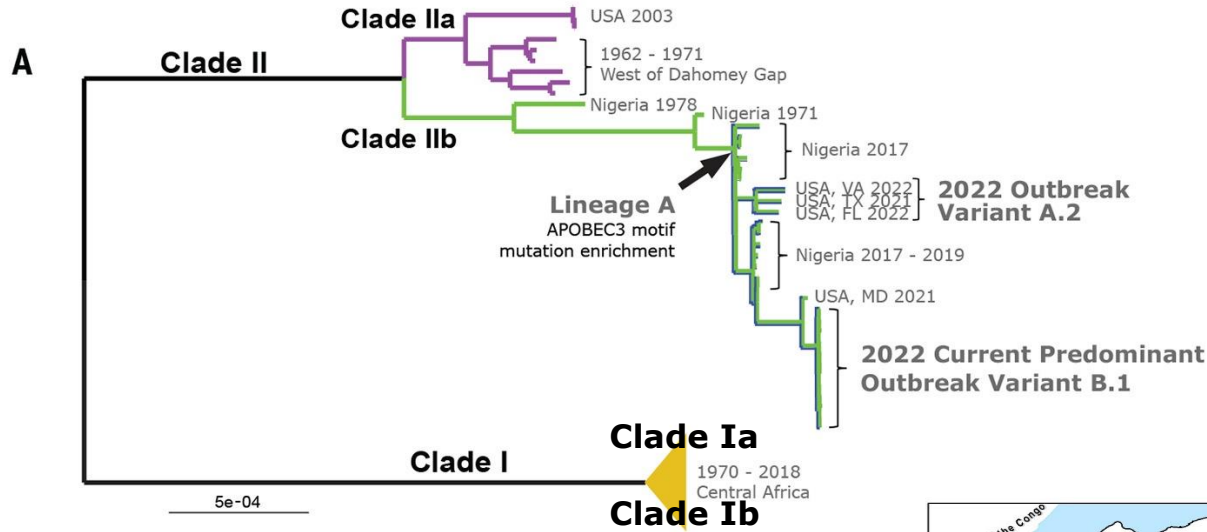
- Convalescent MPX
Residual scars



Severe chickenpox
Residual scars



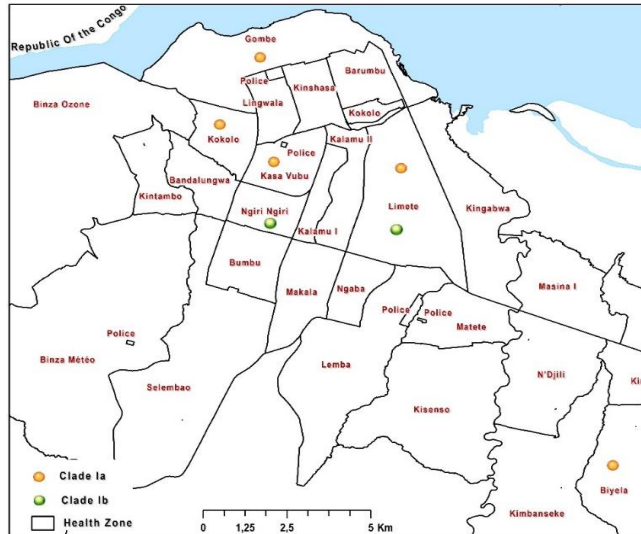
MPOX virus



- Clade I
- Clade IIa
- Clade IIb

Gigante et al. Science 2022

Co-circulation of Clades Ia and Ib MPXV in Kinshasa Province, Democratic Republic of the Congo, August 2024.



DRC: CLADE I

BELGIUM: CLADE II

Ocular involvement

Oral presentation

Swollen lymph nodes

Generalized centrifugal rash

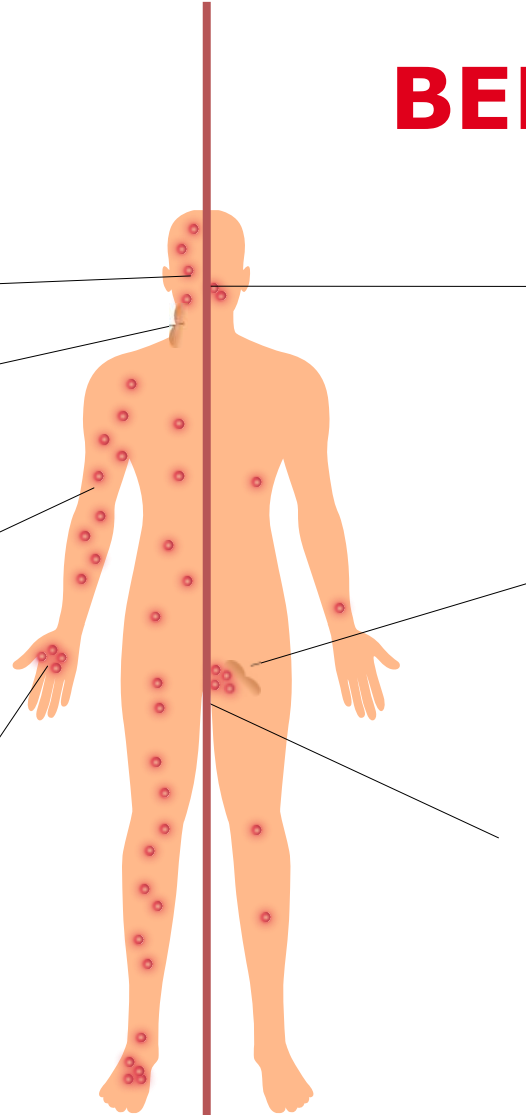
Often localized rash especially in the anogenital region

typically affects palms of hand and soles of feet

proctitis and urethritis

Mortality 1-10%

Mortality << 1%



PREVENTION AND TREATMENT

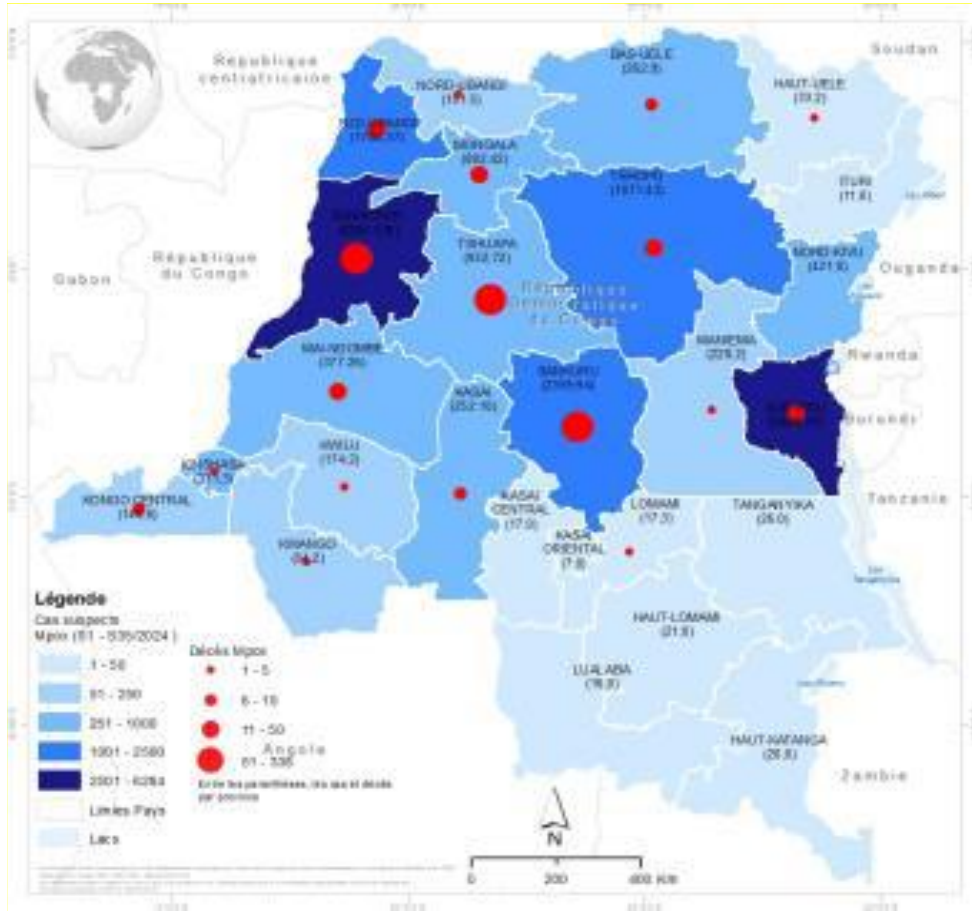
Prevention

- **Vaccines**
- **Jynneos**: a live, non replicating vaccine, produced from the MVA-BN strain (FDA –approved), but not commercially available. Two subcutaneous doses.
- **LC16M8**: a live minimally replicating vaccinia virus (licensed in Japan for Smallpox and Mpox prevention): single dose with bifurcated needle.
- **Key Challenges:**
 - Difficult access to vaccine
 - Insecurity due to armed conflicts in some affected provinces.
 - Logistics

Treatment

- **Therapeutics**
- **Tecovirimat (Siga)**: licensed for MPOX treatment in the USA and **UK**.
 - Previously used to treat patients during the clade IIb multi-country outbreaks in 2022.
- **PALM 007 double-blind, placebo-controlled trial of Tecovirimat** in patients infected with clade 1 MPXV from October 7, 2022 through July 2024. 597 patients underwent randomization to Tecovirimat or placebo. Tecovirimat was safe, but days to lesion resolution did not differ by study arm. Nevertheless, overall mortality in our study was 1,7% in each arm, lower than the 4,6% CFR reported from the national recent epidemiological data.

CURRENT SITUATION OF MPOX IN DRC



3 main Factors for the increase in clade I MPX in DRC.

- Increase of zoonotic transmission : bushmeat as the main source of animal protein in remote areas.
- Increase in the number of orthopox-immune-naïve individuals in DRC.
- Changing epidemiology of MPOX by heterosexual transmission through both Clade Ia and clade Ib.

THANK YOU FOR YOUR ATTENTION