Mpox-related hospitalization and morbidity in people living with HIV and PrEP users: results from the European MASH-1 cohort study

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This work was conducted under the VERDI project, which is funded by the European Union (101045989)

STUDY OBJECTIVE

To investigate the impact of HIV infection on clinical presentation and outcomes in adults with PCR-confirmed mpox, comparing people living with HIV (PLWH) with PrEP users

STUDY DESIGN

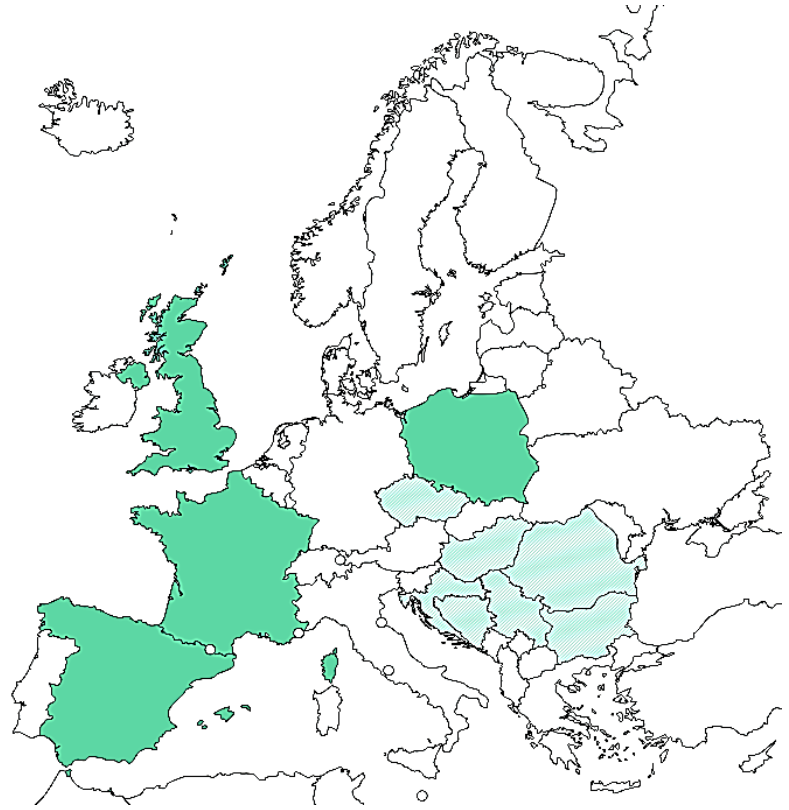
Type:
Retrospective multi-centric cohort study

Inclusion:
PLWH or PrEP users diagnosed with mpox through PCR-confirmed testing between May 2022 and December 2023

Population:
GBMSM and transgender women (≥18 years)

Follow-up:
>90 days post-diagnosis

Target recruitment:
2000 participants with equal PLWH and PrEP user representation



Map showing European countries participating in the data collection for MASH-1

Recruiting sites	Country	Total participants
Hospital Clinic Barcelona	Spain	419
Hospital Vall d'Hebron	Spain	175
Hospital Germans Trias i Pujol	Spain	16
Hospital Clinico San Carlos	Spain	263
Hospital Universitario La Paz	Spain	10
Hôpital Bichat Claude-Bernard	France	180
Hôpital Universitaire Pitié-Salpêtrière	France	80
Chelsea and Westminster Hospital NHS FT	UK	771
ECEE Warsaw *		86

* ECEE Warsaw constitutes a Poland-based Network group that facilitated enrolment from infectious diseases departments based in Central and Eastern European Countries (Czech Republic n=29, Poland n=17, Romania n=14, Serbia n=14, Hungary n=5, Croatia n=3, Bosnia n=2, Bulgaria n=2)

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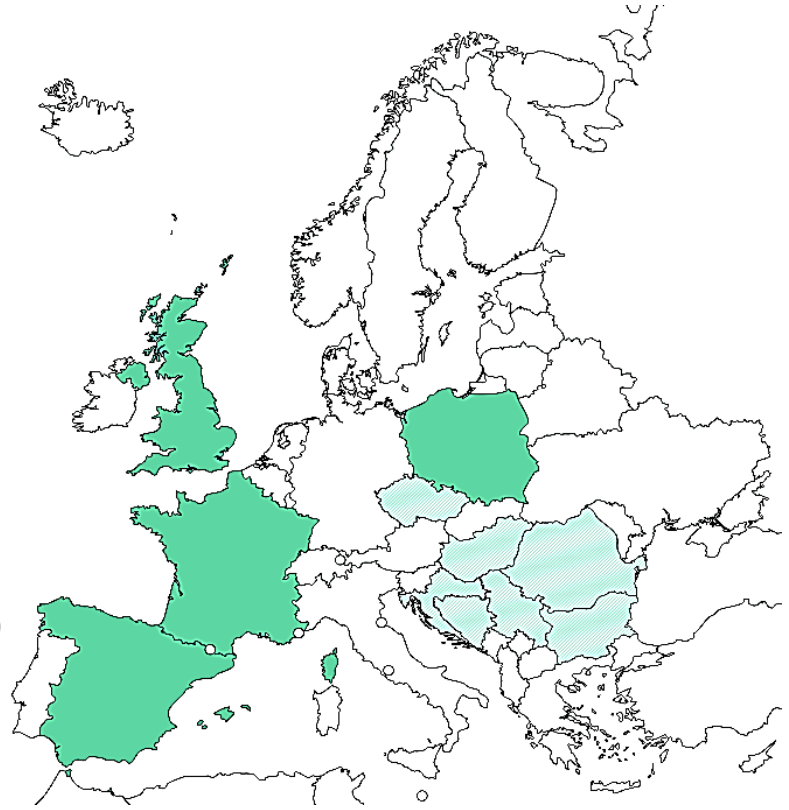
Primary Endpoints

- Clinical complications
- Lesion severity *(def.* >100 skin lesions)
- Hospitalization rate
- Mortality rate

Statistical Analysis

- Chi-square tests (categorical), t-tests (continuous)
- Logistic regression for predictors
- Site-adjusted multivariable models
- Variables with >20% missing data excluded



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Population Characteristics

Mpox Prevalence: 0.3-3.1% across 7 recruiting sites with prevalence data

	Total *(n=2000)*	PLWH *(n=946)*	PrEP users *(n=1054)*	*p*
Mean age, years (SD)	**38** (±9)	**40** (±9)	**37** (±9)	<0.001
GBMSM (%)	**1962** (98)	**922** (97)	**1040** (99)	0.026
Any comorbidity (%)	**204/1940** (11)	**142/923** (15)	**62/1017** (6)	<0.001
Immunosuppressed (%)	**103/1870** (6)	**101/822** (12)	**2/1048** (<1)	<0.001

Time since HIV diagnosis, years (SD)	**9.5** (6.6)
PLWH on ART (%)	**925/945** (98)
CD4 cell count, mean cells/mm^3 (SD)	**677/824** (357)
CD4 cell count <200 cells/mm^3 (%)	**86/824** (10)
HIV RNA <50 copies/mL (%)	**755/846** (89)

Behavioural Characteristics

- Mean 10 sex partners in 90 days pre-diagnosis
- 35% with recent/concurrent STI diagnosis

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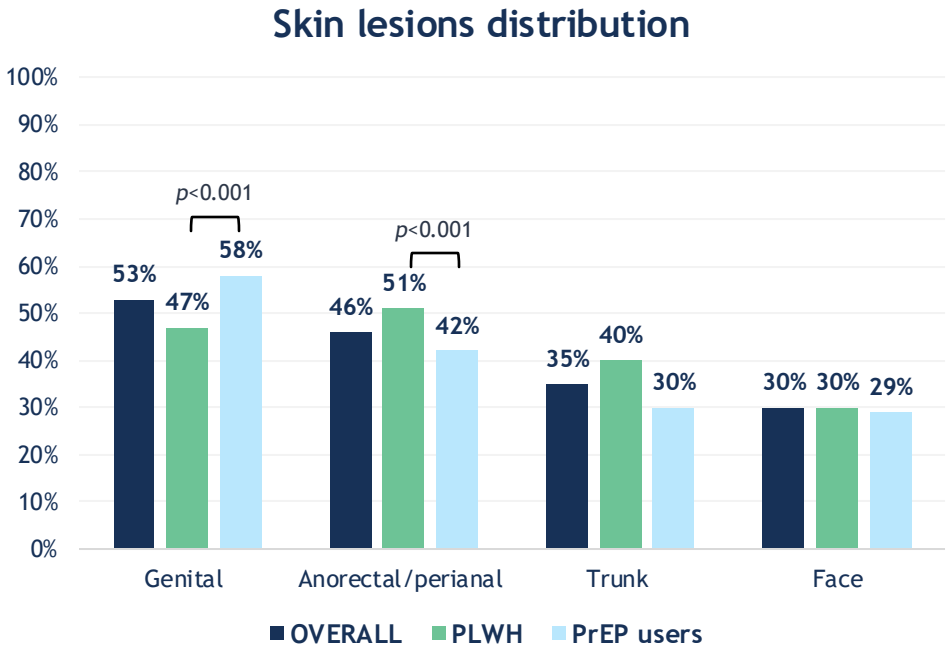
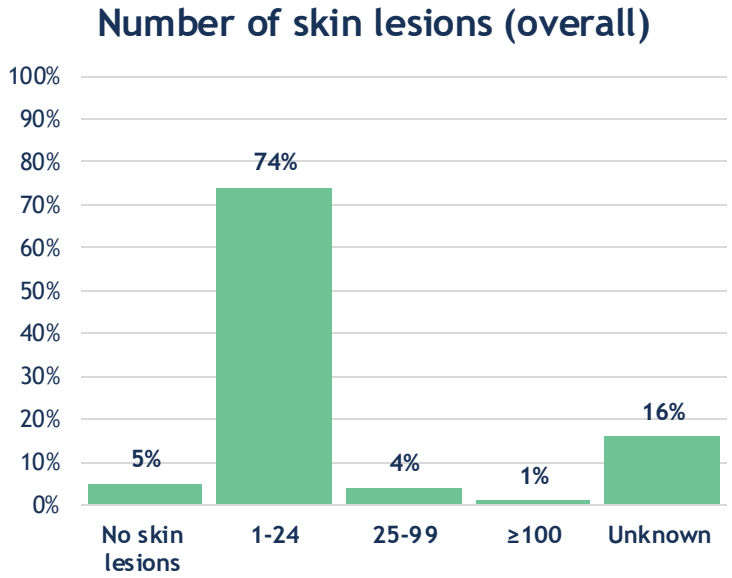
Clinical Presentation (overall)





Time to skin lesions resolution, median: **18 days** (IQR 13-23)

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Primary Outcomes

	Total *(n=1989)*	PLWH *(n=938)*	PrEP users *(n=1051)*	*p*
Clinical complications*	37 %	34 %	40 %	0.005
Hospitalisation°	5 %	6 %	4 %	0.01
Mortality	0 %	-	-	-

° Hospitalisations were all clinically mpox-related

Primary Outcomes

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Clinical complications*	37 %	34 %	40 %	0.005
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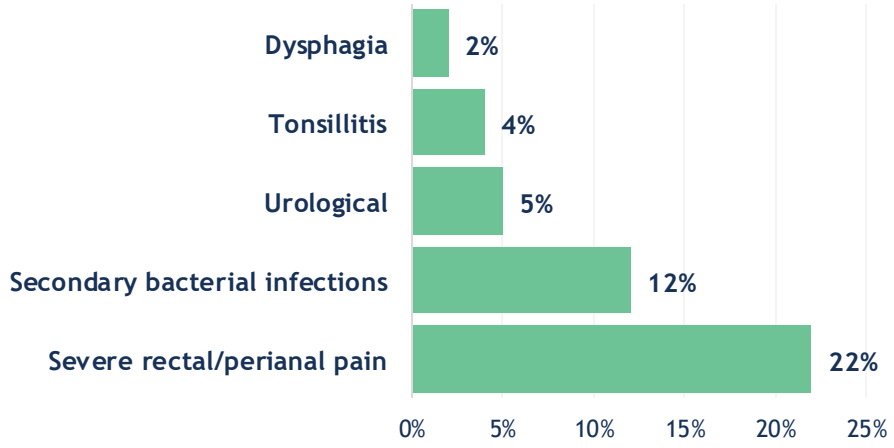
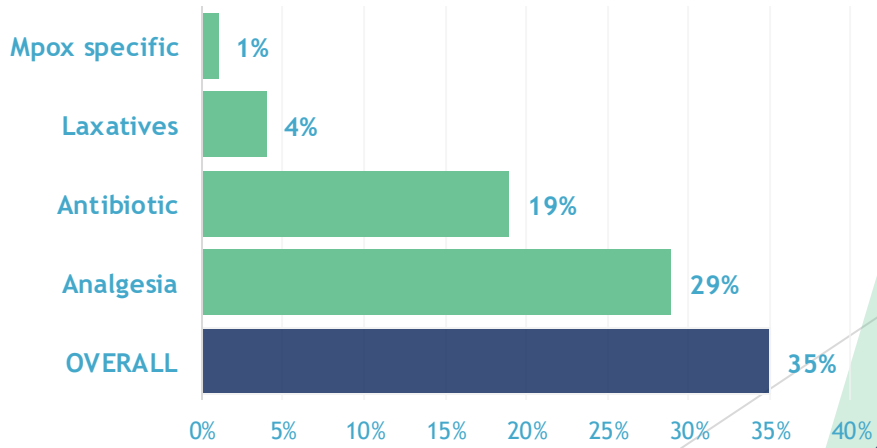
Median hospitalization stay (IQR) : 6 days (3-10)

Clinical complications



Treatments required



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Hospitalisation and predictive factors

Immunosuppression (any cause): **aOR 3.00** (95% CI 1.03-8.78)

… in PLWH

Mental health conditions: **aOR 3.30** (95% CI: 1.01-10.51)

HIV RNA >200 cp/mL: **aOR 1.47** (95% CI: 0.99-2.17) *

ART showed a protective trend: **aOR 0.18** (95% CI: 0.03-1.00) *

Impact of severe immunodeficiency in PLWH (CD4 count <200/mm^3)°:

9-fold increase in hospitalization rates (5/14, 36% vs. 5/115, 4%), *p<0.001*

* both variables probably underpowered due to low number of events
° = recent CD4 count, obtained within 6 months prior mpox diagnosis

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STUDY LIMITATIONS

- Retrospective nature of the study
- **Site heterogeneity** (hospitalization rates ranging 0-44%)
- **Missing data** (13% PLWH did not have CD4 count recorded)
- Clinical management varying across sites

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SUMMARY

- MASH-1 provides the first direct comparison of clinical outcomes between PLWH and PrEP users diagnosed with mpox in Europe
- Mpox presented generally as a mild illness in this European cohort, although complications were common
- Both low CD4 cell-count (<200/mm^3) and immunosuppression (independently of HIV status) strongly predicted hospitalization

Contact:
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SUMMARY

- MASH-1 provides the first direct comparison of clinical outcomes between PLWH and PrEP users diagnosed with mpox in Europe
- Mpox presented generally as a mild illness in this European cohort, although complications were common
- Both low CD4 cell-count (<200/mm^3) and immunosuppression (independently of HIV status) strongly predicted hospitalization

- Immune function and not HIV status itself, drives mpox outcomes
- This should guide resource allocation and public health approaches: target monitoring and vaccination for those severely immunocompromised, not all PLWH

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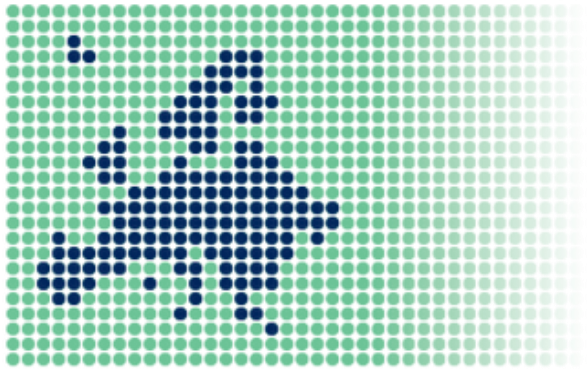
RESEARCH ORGANISATION (KC) LTD



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THANK YOU TO THE CO-AUTHORS:

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Jade Ghosn	Hôpitaux de Paris.Nord-Hôpital Bichat, Université Paris Citié (Paris, France)
Adrián Curran Fábregas	Hospital Universitari Vall d'Hebron (Barcelona, Spain)
Justyna Kowalska	Euroguidelines in Central and Eastern Europe Network Group (Warsaw, Poland)
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