

Fourfold or higher mpox mortality in people living with HIV: a national cohort from Sierra Leone's 2025 outbreak

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Supplementary Table S1. Sensitivity analysis of the HIV–mpox mortality association, restricted to cases linked through direct DHIS2 identifier matching only

Rationale

The primary analysis pooled cases linked through direct DHIS2 identifier matching (n=3,963; 72.8% of all confirmed cases) and probabilistic matching (n=928; 17.1%). Probabilistic matching was performed using name, date of birth, sex, and facility of diagnosis, with manual verification by trained data clerks. Residual false-positive and false-negative matches could nonetheless misclassify HIV exposure. To assess whether residual probabilistic-linkage error materially affected the headline finding, we re-estimated the multivariable logistic regression model, restricting it to cases linked through the direct DHIS2 identifier only.

Methods

The sensitivity analysis used the same model specification as the primary analysis: mpox-attributable death as the outcome, HIV status as the exposure of interest, and age (continuous), sex, and district (16 categories) as covariates. Cases with unknown HIV status (n=551) and cases linked through probabilistic matching (n=928) were excluded.

Results

Model	n (HIV- negative)	n (PLHIV)	Deaths (HIV-negative)	Deaths (PLHIV)	Adjusted OR	95% CI	p-value
Primary model (all documented HIV status)	4,465	426	38	15	3.72	1.98–6.99	<0.001
Sensitivity model (direct DHIS2 identifier match only)	3,614	349	31	12	3.64	1.87–7.07	<0.001

Adjusted for age (continuous), sex, and district of residence (16 categories). PLHIV, people living with HIV; OR, odds ratio; CI, confidence interval.

Interpretation

The sensitivity-analysis effect estimate (aOR 3.64; 95% CI 1.87–7.07) is consistent in direction and approximate magnitude with the primary estimate (aOR 3.72; 95% CI 1.98–6.99). Confidence intervals overlap substantially. This supports the conclusion that residual probabilistic-linkage error did not materially bias the primary HIV–mpox mortality association. Any residual misclassification from probabilistic matching most plausibly biases effect estimates toward the null, implying that the primary estimate is, if anything, a conservative estimate of the true association.