NATIONAL CENTER FOR HIV, VIRAL HEPATITIS, STD, AND TB PREVENTION

CD4 COUNT <350 CELLS/MM^3 INCREASES RISK OF HOSPITALIZATION WITH MPOX IN PWH

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BACKGROUND

- Mpox is typically a self-limited infection; however, HIV-associated immunosuppression increases the risk of severe illness.
- For people with HIV (PWH), correlates of risk for severe illness, such as illness severe enough to warrant hospitalization, have not been well characterized.

METHODS

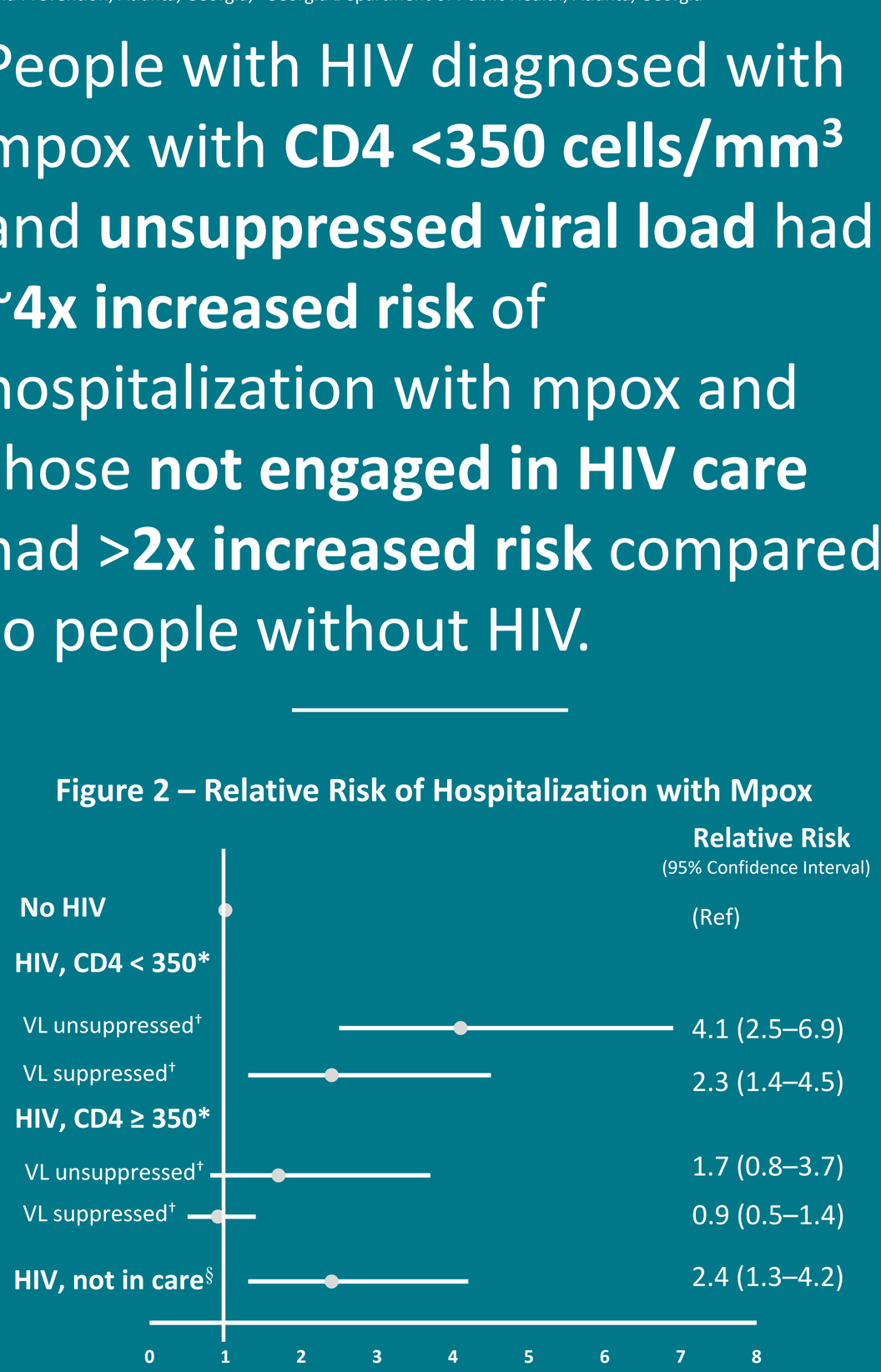
- We characterized the HIV status of all reported cases of mpox in Georgia from 5/31/2022–10/31/2022 by linking surveillance data for mpox cases with HIV surveillance, including HIV laboratory results.
- We analyzed the relationship between HIV laboratory studies and risk of hospitalization using loess regression smoothed plots.
- We used a retrospective cohort design and a modified Poisson regression model with a log-link and robust variance estimates to calculate relative risks (RRs) for hospitalization with mpox based on HIV status.
- Our HIV status variable captured: (1) Most recent CD4 cell count (CD4) in the year prior (<350 and ≥350 cells/mm^3), stratified by viral suppression (HIV viral load [VL] <200 and ≥200 copies/mL) and (2) Evidence of engagement in care defined as any HIV laboratory results (CD4 or VL) in the year prior to mpox onset.

RESULTS

- Among 1,921 mpox cases in Georgia, 1,124 (59%) were among PWH. Of these, 213 (19%) had a CD4 count <350 cells/mm3 and 187 (17%) had an unsuppressed VL in the year prior to mpox.
- 123 persons were reported as hospitalized with mpox:
  - 86 hospitalizations (70%) were among PWH
    - 34 (40%) had CD4 <350 cells/mm^3
    - 26 (30%) had unsuppressed VL
    - 15 (17%) had no evidence of engagement in care
  - Reasons for hospitalization among 101 persons with available data included pain control (45%), breathing problem (16%), and a secondary infection (13%).
- Loess plots indicated PWH had increased risk of hospitalization starting around CD4 <350 cells/mm^3 (Figure 1), with VL showing a trend toward increased risk of hospitalization with higher VL.
- Compared to persons without HIV (Figure 2), PWH with CD4 < 350 cells/mm^3 and unsuppressed VL had increased risk of hospitalization (RR 4.1, 95% Confidence Interval [CI] 2.5–6.1), as did those with CD4 < 350 cells/mm3 and suppressed VL (RR 2.3, 95% CI 1.4–4.5).
- PWH not engaged in HIV care in the year prior to mpox also had increased risk of hospitalization (RR 2.4, 95% CI 1.3–4.2).
- PWH with CD4 ≥ 350 cells/mm^3 with suppressed VL had similar risk of hospitalization to persons without HIV, while those with unsuppressed VL and CD4 ≥350 cells/mm^3 showed a trend toward increased risk.

People with HIV diagnosed with mpox with **CD4 <350 cells/mm^3** and **unsuppressed viral load** had **~4x increased risk** of hospitalization with mpox and those **not engaged in HIV care** had >**2x increased risk** compared to people without HIV.

Figure 2 – Relative Risk of Hospitalization with Mpox



*CD4 count measured in cells/mm^3
† Viral load (VL) suppression defined as <200 copies/mL
§ Engagement in HIV care defined as having at least HIV one laboratory study in 12 months prior to mpox

Figure 1: Risk of mpox hospitalization among persons with HIV in Georgia, USA by HIV laboratory studies*

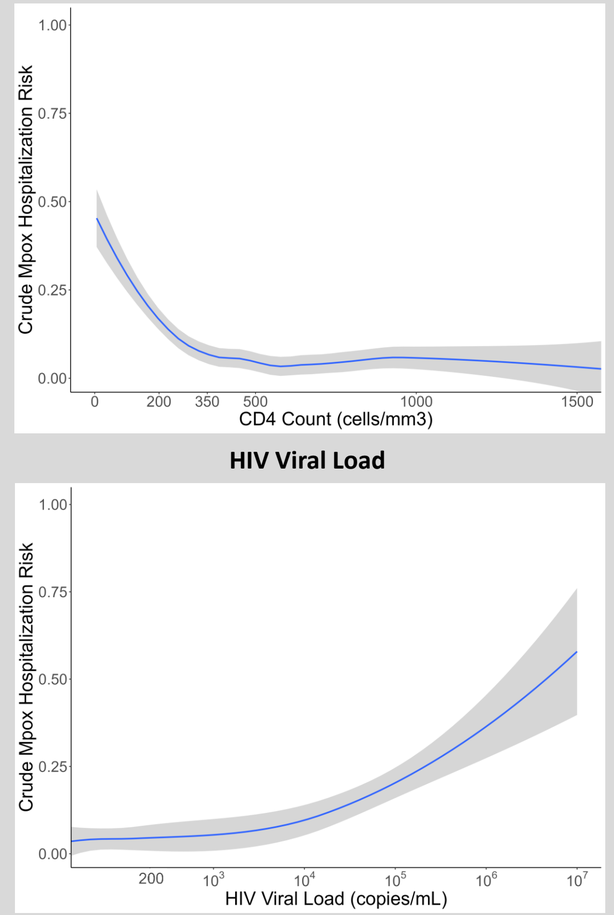


*Figure represents loess smoothed curve of risk of hospitalization with mpox among persons with HIV by laboratory study, shaded area is 95% confidence interval

CONCLUSIONS

- PWH diagnosed with mpox were more likely to be hospitalized with mpox if their most recent CD4 was <350 cells/mm^3 or if they were not engaged in care.
- For PWH diagnosed with mpox who have CD4 <350 cells/mm^3 or who are not engaged in HIV care, clinicians should closely monitor illness and consider early treatment with medical countermeasures such as tecovirimat.

CONTACT INFO

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