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Testing at Sex Work  
Hotspots to Reach  
Adolescent Girls and  
Young Women  
Living With HIV: A  
Cross-sectional  
Study in Mombasa,  
Kenya

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## Venue-Based HIV Testing at Sex Work Hotspots to Reach Adolescent Girls and Young Women Living With HIV: A Cross-sectional Study in Mombasa, Kenya

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**Background:** We estimated the potential number of newly diagnosed HIV infections among adolescent girls and young women (AGYW) using a venue-based approach to HIV testing at sex work hotspots.

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H.M., L.W., and S.M. conceptualized and designed the study and developed the plan of analyses. M.L.B., S.M., H.K.M., and P.B. developed the study tools; M.L.B., P.G., G.M., H.K.M., and P.B. led the hotspot enumeration and Transitions study data collection. F.C. and P.S. led the serological testing and developed the reference testing algorithms. All authors contributed to interpretation of results and manuscript editing. S.M. and H.M. drafted the manuscript. H.M. conducted the analyses with input from L.W. and S.M.

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**Methods:** We used hotspot enumeration and cross-sectional biobehavioral survey data from the 2015 *Transitions Study* of AGYW aged 14–24 years who frequented hotspots in Mombasa, Kenya. We described the HIV cascade among young females who sell sex (YFSS) (N = 408) versus those young females who do not sell sex (YFNS) (N = 891) and triangulated the potential (100% test acceptance and accuracy) and feasible (accounting for test acceptance and sensitivity) number of AGYW that could be newly diagnosed through hotspot-based HIV rapid testing in Mombasa. We identified the profile of AGYW with an HIV in the past year using generalized linear mixed regression models.

**Results:** N = 37365 (10.1%) YFSS and N = 30828 (3.0%) YFNS were living with HIV, of whom 27.0% (N = 10337) and 30.0% (N = 930) were diagnosed and aware (P = 0.79). Rapid test acceptance was 89.3%, and sensitivity was 80.4%. There were an estimated 15835 (range: 12,172–19,097) AGYW at hotspots. The potential and feasible number of new diagnosis was 627 (310–1081), and 450 (223–776), respectively. Thus, hotspot-based testing could feasibly reduce the undiagnosed fraction from 71.6% to 20.2%. The profile of AGYW who recently tested was similar among YFSS and YFNS. YFSS were 2-fold more likely to report a recent HIV test after adjusting for other determinants [odds ratio (95% confidence interval): 2.2 (1.5 to 3.1)].

**Conclusion:** Reaching AGYW through hotspot-based HIV testing could fill gaps left by traditional, clinic-based HIV testing services.

**Key Words:** sex work, adolescent girls and young women, HIV testing, hotspots, HIV cascade

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### INTRODUCTION

Adolescent girls and young women (AGYW) aged 15–24 years face a disproportionate risk of HIV acquisition in sub-Saharan Africa (SSA).<sup>1</sup> In Kenya, AGYW comprise 18.4% of the adult population but acquired 23.7% of new infections in 2017, such that, by 2018, an estimated 2.6% of AGYW in Kenya were living with HIV<sup>2–5</sup>; yet, most infections remain undiagnosed.<sup>4</sup> The most recent data available on AGYW suggest that, in 2012, only 25% of AGYW living with HIV were diagnosed and aware of their HIV status.<sup>4</sup> The consequence of undiagnosed HIV among AGYW

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