Title: Optimizing HIV case finding and linkage to care and treatment among adolescents in western Kenya through a comprehensive case finding intervention package

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Introduction: Low HIV testing uptake among adolescents affects identification of HIV-positive adolescents and their effective linkage to care and treatment services. To address this gap, an innovative package was implemented to improve HIV testing uptake and linkage to care among adolescents aged 10-19 years in Western Kenya.

Methods: This quasi-experimental study used program data at pre- and post-intervention periods to describe effects of an innovative adolescent package at 139 health care facilities (HCFs). The study population was adolescents aged 10-19 years divided into early- and late-age cohorts (10-14 years and 15-19 years). Three types of HCFs were included: hospitals, health centers, and dispensaries. The innovative adolescent package included staff capacity building, program performance monitoring tools, an adolescent-focused HIV risk screening tool and adolescent-friendly HCF hours. Implementation began in July 2016. Data collected included numbers of adolescents tested for HIV, tested HIV-positive, and were linked to care services. Data were analyzed with descriptive statistics. Pre- and post-intervention demographic and testing data were compared using the Poisson mean test, while Chi-square testing was used to compare the linkage to care rates.

Results: Pre-intervention data were collected from January to March 2016, and post-intervention data collected from January to March 2017. During the pre-intervention period, 25,520 adolescents were tested and 198 were HIV-positive (0.8%) compared to 77,644 adolescents tested with 534 being HIV-positive (0.7%) during the post-intervention period (Seroprevalence was unchanged but $p<0.001$ – for absolute numbers tested and testing positive). HIV positivity was highest in TB clinics followed by maternal and child health and in-patient clinics. The HIV positivity was also high in nutrition clinics among younger adolescents. The proportion of HIV-positive adolescents linked to care increased from 61.6% to 94.0% ($p<0.001$). This increase was seen for both males and females, both early and late adolescent cohorts, and in all HCF types (all p-values <0.001).

Conclusion: Implementation of the adolescent service package in western Kenya improved new HIV case identification and linkage to treatment services among adolescents aged 10- 19 years. The package addressed factors associated with increased testing such as staff training, program performance monitoring and provision of adolescent-friendly HCF hours.