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NOTES FROM THE FIELD

Impact of the COVID-19 Pandemic on HIV Testing and Assisted Partner Notification Services, Western Kenya

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The impact of the COVID-19 pandemic will likely be most devastating to people living in resource-constrained settings, including sub-Saharan Africa, where its effects are compounded by high poverty rates, inadequately resourced health systems, and co-occurring HIV epidemics. There is growing concern that COVID-19 will result in services disruptions for HIV testing and treatment, resulting in excess HIV-related deaths and onward transmission.[1] Assisted partner notification services (aPS), or provider notification and HIV testing for sexual partners of persons diagnosed HIV-positive (index clients), is one such program facing negative consequences from the COVID-19 pandemic. World Health Organization issued guidelines in 2016 recommending aPS as a targeted strategy to identify new HIV cases in response to numerous studies demonstrating effectiveness of aPS in reaching partners with high proportions testing HIV positive (30–60%).[2–8] Our team (University of Washington, PATH, and Kenya Ministry of Health) is conducting a large-scale aPS implementation science project in facilities in western Kenya using government-employed healthcare workers who perform aPS as part of routine clinic duties. Implementation began in 2018, and to date, aPS has been integrated into 31 clinics in Homa Bay and Kisumu counties. Overall, 2089 females have tested HIV-positive and 1863 (90%) accepted aPS and provided contact information for their male sexual partners. Of 4636 male partners named, 79% have been successfully traced and accepted HIV testing, 41% of whom were found to be HIV-positive (N = 1512). Although programmatically, aPS is being offered to both male and female index clients as part of routine HIV services, we only collect data on female indexes and their male partners.

On March 13, 2020, the first case of COVID-19 was confirmed in Kenya. In response, national guidelines were enacted to prevent its spread. Clinics and HIV programs were faced with the challenge of balancing the safety of staff with healthcare needs of the community. Here we report the impact of COVID-19 on clinics providing aPS services in western Kenya using programmatic data to assess trends over time and conversations with in-country staff to explore perspectives and challenges associated with aPS provision during COVID-19.

Clinic Operations

In response to COVID-19, Kenya has released technical guidance for health facilities to mitigate disease spread. Clinics have restructured operations to comply with these guidelines. Individuals seeking care are now stopped at the entrance to ensure they have a cloth face-mask prior to entering the clinic. Those without masks can purchase one from nearby vendors. Individuals are asked to wash their hands at a portable handwashing station before proceeding into the clinic. Once inside, a receptionist takes their temperature and asks about travel history and COVID-related symptoms. Individuals are then directed to a waiting bay

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and seated 1.5 m away from other clients. Clinic appointments are spaced out to prevent overcrowding. When meeting with providers, clients are seated 1.5 m away from providers when possible. Portable handwashing equipment, provided by the government and non-governmental organizations (NGO), are located throughout the clinic to ensure multiple handwashing stations.

Clinic staff face several challenges associated with implementing COVID-19 guidelines. Many clinics do not have a sufficient number of N95 face-masks so healthcare workers often use cloth masks. Similarly, hand sanitizer use is recommended between client visits when it is not possible to visit portable hand washing stations (for example when conducting voluntary HIV testing). However, many clinics report shortages of hand sanitizer supply. Smaller capacity clinics do not have sufficiently-sized rooms to maintain 1.5 m of space between providers and clients. Due to nationwide curfew from 7 pm to 5am, clinics have reduced their hours to ensure healthcare workers have sufficient time to travel home before curfew. Further, medical students and volunteer healthcare workers are no longer permitted to support service provision with healthcare staff supervision, so this workload falls on clinic doctors and nurses. Healthcare workers have been increasingly diverted to support pandemic-related service provision, exacerbating the existing critical shortage of providers available for routine health services. These factors have increased patient waiting time and healthcare provider burnout. Finally, there is a lack of COVID-19 testing conducted at clinics, although capacity has significantly expanded since the start of the pandemic.

Patient-level barriers include inability to afford transport to clinics, increasing levels of unemployment, and food insecurity, which have resulted in declines in HIV testing volume. Clinics participating in aPS scale-up report declines in numbers of HIV-positive females enrolled in aPS (index clients) (Fig. 1a). This trend is particularly pronounced in Kisumu County which is more urban than Homa Bay. Clinics in Kisumu experienced a 50% decline in female index enrollment in April compared to January 2020. The majority of patients served by government clinics in western Kenya earn < 10,000 Kenyan shillings ($96 US dollars) per month and COVID-19 has severely impacted their ability earn incomes and care for their families. Due to social distancing guidelines, public transportation in Kenya is operating at 50% capacity, which increases per-person transport costs. Additionally, some individuals are unable to afford cloth masks need to access clinics. Finally, fear of contracting COVID-19 by attending a clinic has reduced client volume. Clinics with suspected COVID-19 case have often experienced a dramatic reduction in number of clients as word spreads through the community about potential COVID-19 exposure at the clinic.

Partner Notification and HIV Testing

Prior to COVID-19, aPS procedures for tracing of HIV-exposed sexual partners began with a phone call to notify individuals of their potential exposure and encourage them to visit the clinic for HIV testing. Those who were reluctant to come to the clinic were offered HIV testing at home or a convenient location in the community. Persons without a valid number (or those unable to be reached via phone) were traced at home by an aPS provider, who made at least three attempts to locate the individual. In the aPS scale-up program, more than half of male partners reached have been tested outside of clinics. With the emergence of COVID-19, community-based HIV testing and home tracing have been halted so aPS providers can only administer HIV testing at clinics. Many partners contacted are hesitant to attend the clinic, citing barriers including lack of transport funds, fear of contracting COVID-19 at the clinics, and inability to afford a cloth mask. Some report a desire to postpone HIV testing until after the pandemic is over. Further, staff are unable to contact approximately 10% of partners who lack valid phone numbers and would have been reached through in-person tracing before the pandemic. Due to these barriers, testing of HIV-exposed partners has decreased, with more dramatic declines observed in Kisumu (41 partners tested in April vs. 81 in January 2020) (Fig. 1b).

HIV Treatment Service Provision

An important objective of the aPS program is to encourage linkage to care and initiation of antiretroviral treatment (ART) for index clients and male partners testing HIV-positive. To date, over 90% of index clients and male partners report being on ART at 6 months after receiving aPS. However, as the number of COVID-19 cases increases, clinics will likely experience reductions in ART initiation and retention. The National AIDS and STIs Control Programme (NASCOP) has recommended providing all persons on ART with a 3–6 months supply of refills to increase patient convenience and reduce clinic volume during COVID-19. Clients attending the clinic for refills can proceed directly to the pharmacy for drug pick-up without seeing a provider. Some clinics have started ART distribution through community-based delivery. While these processes have streamlined ART distribution, it has reduced opportunities for clinical interactions, including adherence counseling and viral load testing. Additionally, turnaround time for receiving viral load results has increased from 1–2 weeks to several months due to

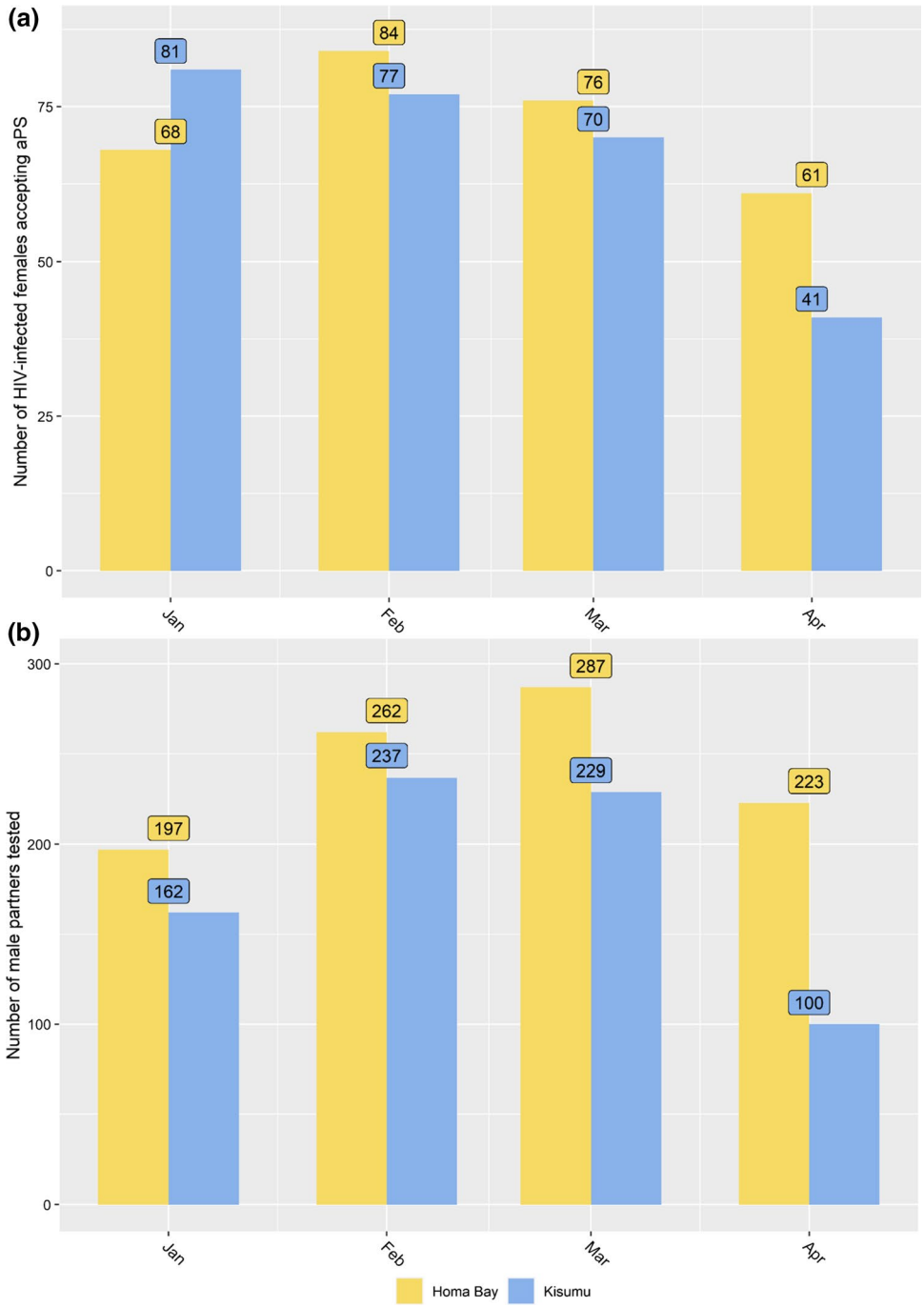

Fig. 1 **a** Number of HIV-infected female index clients accepting aPS per month from January to April 2020. **b** Number of male partners of female index clients reached with HIV testing through aPS per month from January to April 2020

diversions of laboratory resources for COVID-19 testing and prioritization of viral load testing for special populations (e.g. pregnant and breastfeeding women), which may result in delays in identifying persons at risk of ART dropout.

Potential Long-Term Impacts and Suggested Interventions

As countries enact policies to slow the spread of COVID-19, unintended consequences for health systems have been observed, particularly for vulnerable populations including

people living with HIV. In Kenya, barriers across the HIV care cascade have impacted aPS provision and general HIV services. Reductions in clinic volume can result in fewer individuals diagnosed with HIV. This is concerning since identification of index clients through clinic-based testing is the backbone of successful aPS programs as indexes provide information used to trace HIV-exposed partners. In addition, community-based HIV testing strategies have increased testing coverage, particularly among men and those without regular healthcare access.[9] As aPS staff are no longer conducing field tracing and community-based HIV testing, numbers of male partners tested will likely further decline, leading to poorer clinical outcomes and increased transmission. Additionally, reductions in counseling provision could impact initiation and retention on ART. Potential interventions include offering HIVST to indexes to give to their partners, or providing HIVST kits directly to partners who are reluctant to visit the clinic. In accordance with national guidelines, many clinics have started HIV self-test (HIVST) distribution, focusing on partners of pregnant/breastfeeding women, key populations, along with some targeted clinic-based HIVST to reduce patient waiting time. However, HIV testing outcomes and linkage to care following HIVST has been difficult to document, as is common with HIVST strategies [10, 11] . Further, providing transport reimbursements for clinic visits may increase the number of partners reached with testing. As more COVID-19 cases are confirmed in Kenya, health services disruptions will likely become more severe. Continuing to assess the pandemic's impact on health services is crucial to informing strategies to reduce service disruption and maintain the progress made thus far in controlling the HIV epidemic.

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Compliance with Ethical Standards

Conflicts of interest The authors declare that they have no conflicts of interest.

References

1. Jewell B, Mudimu E, Stover J, et al. For the HIV Modelling consortium, Potential effects of disruption to HIV programmes in sub-Saharan Africa caused by COVID-19: results from multiple models. Pre-print. 2020. https://doi.org/10.6084/m9.figshare.12279914.v1.
2. Cherutich P, Golden MR, Wamuti B, Richardson BA, Asbjornsdottir KH, Otieno FA, et al. Assisted partner services for HIV in Kenya: a cluster randomised controlled trial. The lancet HIV. 2017;4(2):e74–e82.
3. Brown LB, Miller WC, Kamanga G, Nyirenda N, Mmodzi P, Pettifor A, et al. (2011) HIV partner notification is effective and feasible in sub-Saharan Africa: opportunities for HIV treatment and prevention. J Acquir Immune Defic Syndr. 1999;56(5):437–42.
4. Mahachi N, Muchedzi A, Tafuma TA, Mawora P, Kariuki L, Semo BW, et al. Sustained high HIV case-finding through index testing and partner notification services: experiences from three provinces in Zimbabwe. Journal of the International AIDS Society. 2019;22(Suppl 3):e25321.
5. Tih PM, Temgbait Chimoun F, Mboh Khan E, Nshom E, Nambu W, Shields R, et al. Assisted HIV partner notification services in resource-limited settings: experiences and achievements from Cameroon. Journal of the International AIDS Society. 2019;22(Suppl 3):e25310.
6. Sharma M, Ying R, Tarr G, Barnabas R. Systematic review and meta-analysis of community and facility-based HIV testing to address linkage to care gaps in sub-Saharan Africa. Nature. 2015;528(7580):S77–85.
7. WHO. Guidelines on HIV self-testing and partner notification. December 2016. Accessed on 5/27/20 from: https://www.who.int/hiv/pub/vct/hiv-self-testing-guidelines/en/
8. Sharma M, Smith JA, Farquhar C, Ying R, Cherutich P, Golden M, et al. Assisted partner notification services are cost-effective for decreasing HIV burden in western Kenya. AIDS (London, England). 2018;32(2):233–41.
9. Sharma M, Barnabas RV, Celum C. Community-based strategies to strengthen men's engagement in the HIV care cascade in sub-Saharan Africa. PLoS medicine. 2017;14(4):e1002262.
10. Masters SH, Agot K, Obonyo B, Napierala Mavedzenge S, Maman S, Thirumurthy H. Promoting Partner Testing and Couples Testing through Secondary Distribution of HIV Self-Tests: A Randomized Clinical Trial. PLoS medicine. 2016;13(11):e1002166.
11. Thirumurthy H, Masters SH, Mavedzenge SN, Maman S, Omanga E, Agot K. Promoting male partner HIV testing and safer sexual decision making through secondary distribution of self-tests by HIV-negative female sex workers and women receiving antenatal and post-partum care in Kenya: a cohort study. The lancet HIV. 2016;3(6):e266–e274274.