Home testing and counselling with linkage to care

Becky L Genberg, Joseph W Hogan and Paula Braitstein

Globally, researchers and programme implementers strive towards the ambitious UNAIDS goal of 90-90-90 by 2020: aiming for 90% of people living with HIV to be diagnosed, 90% of those to receive antiretroviral therapy (ART), and 90% of those to be virally suppressed, ultimately leading to reduced HIV incidence. In *The Lancet HIV*, Roger Ying and colleagues[1] conclude from a mathematical modelling study that home testing and counselling (HTC) every 5 years could lead to reductions in HIV incidence, even without universal treatment.

The 90-90-90 goal emphasises the need for population-based strategies to identify people with HIV and to promote engagement in the HIV care cascade.[2] Monitoring of treatment and support for retention and adherence are required to maximise viral suppression through ongoing engagement in care. Viral suppression confers well known benefits to individuals[3] and to public health through reduced HIV transmission.[4] Clinical trials clearly show that earlier ART initiation is beneficial.[5,6] Taken together, the evidence presents a clear way forward for the most promising route to halting the HIV pandemic: identify incident cases, link them to care, initiate ART as soon as possible, and maximise adherence and retention over time.

To diagnose 90% of HIV-positive people requires diverse approaches for increasing availability, access, and uptake of HIV testing. For strategies to achieve near-universal diagnosis in generalised epidemic settings, they must expand HIV testing beyond facilities and into communities. Though logistically intensive, HTC is feasible, acceptable, and effective at achieving high coverage at the population level.[7] Many programmes in sub-Saharan Africa, including that described by Ying and colleagues, have very high coverage rates.[8] No other testing approach could diagnose 90% of HIV-positive people more comprehensively.

New strategies to link newly diagnosed HIV-positive people to care are necessary.[9] Our work in the Academic Model Providing Access to Healthcare (AMPATH) programme in western Kenya shows high levels of HTC coverage, but suggests linkage rates might be low if not actively facilitated.[10] Ying and colleagues write about an encouraging intervention in a catchment area where HTC had very high coverage and linkage to care was strong because of the geographical proximity of care facilities.[1, 11]

Although frequency of HTC plays a part, the main focus of the analysis by Ying and colleagues is a comparison of ART initiation thresholds under an assumption of high rates of linkage to care. Not surprisingly, the model projects decreased HIV incidence under strategies that initiate ART for more individuals (a graph in the appendix of the Article projects that a test and treat strategy leads to lower HIV prevalence than all other strategies examined).[1]

Cost constraints are an unavoidable reality in low-income and middle-income countries and cost-effectiveness analysis might be necessary when new guidelines have yet to be implemented.[12] However, investigations of long-term benefits of immediate treatment, combined with widespread HTC and linkage to care, could provide the evidence necessary to motivate policy change. Demonstrations of efficacy should be used to provide a rationale for new investments in treatment and infrastructure, ensuring widespread and effective delivery. Modelling HIV transmission presents formidable challenges. Ying and colleagues formulate a comprehensive and carefully constructed model and use state-of-the-art computing methods to generate projections of HIV prevalence and incidence under different policies. At the same time, the degree of model complexity is high relative to the amount of data used to inform the fitting process. Simpler or more parsimonious models, to the extent that they can be calibrated to observed data and reflect relevant sources of uncertainty, might serve to make inferences about comparative effectiveness more transparent and convincing to end-users and policy makers.

Indeed, it might be time to emphasise efficacy over cost-effectiveness, especially when cost-effectiveness can lead to recommendation of strategies with suboptimal efficacy, such as delayed

treatment. Available evidence suggests the need for innovative methods to newly diagnose people with HIV and to promote their engagement in care.

Before the initiation of the US President's Emergency Plan for AIDS Relief (PEPFAR), the HIV pandemic was ravaging sub-Saharan Africa largely because of poor access to treatment. Scientific evidence combined with political willpower led to unprecedented, and possibly unequalled, public health intervention that bent the trajectory of the epidemic. We stand now at another critical juncture, informed by an expanded body of evidence about the timing of ART initiation and the potential of HTC. In many settings, we have the infrastructure for treatment delivery, but we have yet to develop and implement strategies to identify and engage all those who need it. Until we do, we run the risk of failing to capitalise fully on previous accomplishments and the potential of modern ART to halt HIV.

References

1. Ying R, Sharma M, Celum C, et al: Home testing and counselling to reduce HIV incidence in a generalised epidemic setting: a mathematical modelling analysis. Lancet HIV 2016.

2. Gardner EM, McLees MP, Steiner JF, Del Rio C, and Burman WJ: The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. Clin Infect Dis 2011; 52: pp. 793-800.

3. Palella FJ, Delaney KM, Moorman AC, et al: Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. HIV outpatient study investigators. N Engl J Med 1998; 338: pp. 853-860.

4. Cohen MS, and Gay CL: Treatment to prevent transmission of HIV-1. Clin Infect Dis 2010; 50: pp. S85-S95

5. Danel C, Moh R, et al: A trial of early antiretrovirals and isoniazid preventive therapy in africa. N Engl J Med 2015; 373: pp. 808-822

6. Lundgren JD, Babiker AG, et al: Initiation of antiretroviral therapy in early asymptomatic HIV infection. N Engl J Med 2015; 373: pp. 795-807

7. Suthar AB, Ford N, Bachanas PJ, et al: Towards universal voluntary HIV testing and counselling: a systematic review and meta-analysis of community-based approaches. PLoS Med 2013; 10: pp. e1001496

8. Sharma M, Ying R, Tarr G, and 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: pp. S77-S85

9. Govindasamy D, Meghij J, Kebede Negussi E, Clare Baggaley R, Ford N, and Kranzer K: Interventions to improve or facilitate linkage to or retention in pre-ART (HIV) care and initiation of ART in low- and middle-income settings—a systematic review. J Int AIDS Soc 2014; 17: pp. 19032

10. Genberg BL, Naanyu V, Wachira J, et al: Linkage to and engagement in HIV care in western kenya: an observational study using population-based estimates from home-based counselling and testing. Lancet HIV 2015; 2: pp. e20-e26

11. van Rooyen H, Barnabas RV, Baeten JM, et al: High HIV testing uptake and linkage to care in a novel program of home-based HIV counseling and testing with facilitated referral in KwaZulu-natal, south africa. J Acquir Immune Defic Syndr 2013; 64: pp. e1-e8

12. Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV. Geneva: World Health Organization, 2015.