Effect of community-based HIV counselling and testing on HIV incidence

Published Online
April 9, 2014
http://dx.doi.org/10.1016/S2214-109X(14)70204-9

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HIV counselling and testing is the essential first step to accessing HIV care services and is also recognised as an HIV prevention strategy because knowledge of HIV status reduces risky sexual behaviours.[1] A reduction in the number of sexual partners has been reported, but not a significant increase in condom use. This effect seems to be restricted to HIV-positive individuals, and the few studies that have investigated the effect of HIV counselling and testing on HIV incidence have failed to show any effect.[1] Thus, the results from the NIMH Project Accept (HPTN 043) trial[2] are unique and exciting. Community-based provision of HIV counselling and testing was a central element of the multicomponent, multilevel intervention implemented in 48 communities at five sites in four countries during 36 months.

The intervention increased overall HIV testing rates, with a three to ten times increase in the proportion of individuals having a first test and receiving their result during the study compared with the control communities that received HIV counselling and testing services at existing health facilities.[3,4] The increase in proportion of first-time testers was especially pronounced in men and adolescents aged 16–17 years, two groups with the lowest access to and coverage by conventional HIV testing services.[5] High HIV testing rates were sustained during 36 months, setting this intervention apart from traditional one-off community-based HIV testing campaigns.

The intervention resulted in a 14% (95% CI 0·73–1·02) reduction in HIV incidence in intervention compared with control communities, which is in contrast to findings from previous trials,[6,7] a discrepancy for which several possible explanations exist. First, community-based HIV counselling and testing was only one of several components of the intervention, namely community mobilisation and comprehensive support services after testing. Second, the effect of the intervention was measured at a population level. Third, antiretroviral treatment (ART) was easily accessible for HIV-positive individuals.

As reported in other studies, the number of sexual partners and proportion of multiple partnerships decreased in HIV-positive individuals in the intervention compared with the control group, but the intervention did not have a significant effect on sexual behaviour overall. However, with more people learning their HIV status as a result of the intervention, reduction in risk behaviour in HIV-positive individuals might be enough to reduce HIV incidence, despite no population level effect on sexual behaviour.

Viral load suppression with ART results in a significantly reduced risk of HIV transmission to sexual partners,[8] and increased ART uptake as a result of improved HIV counselling and testing coverage could partly explain the reduction in HIV incidence. Unfortunately, rates of ART initiation and retention in HIV care were not presented in this study. The study was done in the context of an ART eligibility threshold of less than 200 CD4 cells per μL. Community-based HIV counselling and testing can diagnose people earlier in their course of HIV infection,[9] and thus most individuals identified as being HIV-positive in the intervention communities would not have been eligible for ART. Additionally, substantial attrition arises between HIV testing and ART initiation.[10] Thus, diagnosis of more individuals with HIV might not necessarily translate into higher ART coverage, reduced population HIV viral load, and lower transmission, especially in the context of an ART eligibility threshold of less than 200 CD4 cells per μL. Therefore, the effect of the intervention is less likely to be explained by increased ART coverage than by increased testing and the consequent modification in risky sexual behaviours in HIV-positive individuals.

The effect of the intervention on HIV incidence was heterogeneous across sites, age, and sex. Overall, HIV incidence was reduced by 0·75 in adults aged 25–32 years, but disappointingly no effect was reported in individuals aged 18–24 years. Most individuals aged 18–24 years at the end of the study were adolescents during the intervention period. The intervention greatly increased testing rates in individuals aged 16–17 years. However, the paucity of age-appropriate interventions to reduce sexual risk behaviours for adolescents and young people might explain the absence of effect.

In recent years, treatment as prevention (which consists of ART initiation after HIV diagnosis irrespective

of CD4 count) has been promoted as a means of reducing HIV incidence through reduction of community HIV viral load.[11] Results of trials investigating this strategy are eagerly awaited, but completion of these will take several years. In the meanwhile, NIMH Project Accept provides evidence that a pragmatic, sustainable community-based HIV counselling and testing programme, paired with community mobilisation and support after testing affects HIV testing rates and, to a lesser extent, HIV incidence. However, open questions need to be addressed, including cost-effectiveness of the intervention, and investigators need to address the heterogeneity of results, which in turn should allow refinement and improvement of the intervention for specific settings and target groups.

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We declare that we have no competing interests.

1 Fonner VA, Denison J, Kennedy CE, O'Reilly K, Sweat M. Voluntary counseling and testing (VCT) for changing HIV-related risk behavior in developing countries. *Cochrane Database Syst Rev* 2012; **9:** CD001224.

2 Coates TJ, Kulich M, Zelaya CE, et al, and the NIMH Project Accept (HPTN 043) study team. Effect of community-based voluntary counselling and testing on HIV incidence and social and behavioural outcomes (NIMH Project Accept; HPTN 043): a cluster-randomised trial. *Lancet Glob Health* 2014; published online April 9. http://dx.doi.org/10.1016/S2214-109X(14)70032-4.

3 Sweat M, Morin S, Celentano D, et al. Community-based intervention to increase HIV testing and case detection in people aged 16-32 years in Tanzania, Zimbabwe, and Thailand (NIMH Project Accept, HPTN 043): a randomised study. *Lancet Infect Dis* 2011; **11:** 525–32.

4 Khumalo-Sakutukwa G, Morin SF, Fritz K, et al. Project Accept (HPTN 043): a community-based intervention to reduce HIV incidence in populations at risk for HIV in sub-Saharan Africa and Thailand. *J Acquir Immune Defic Syndr* 2008; **49:** 422–31.

5 WHO, UNAIDS, Unicef. Global HIV/AIDS response: epidemic update and health sector progress towards Universal Access. Geneva, Switzerland; World Health Organization, 2011. http://whqlibdoc.who.int/publications/2011/9789241502986_eng.pdf (accessed March 17, 2014).

6 Corbett EL, Makamure B, Cheung YB, et al. HIV incidence during a cluster-randomized trial of two strategies providing voluntary counselling and testing at the workplace, Zimbabwe. *AIDS* 2007; **21:** 483–89.

7 Matovu JK, Gray RH, Makumbi F, et al. Voluntary HIV counseling and testing acceptance, sexual risk behavior and HIV incidence in Rakai, Uganda. *AIDS* 2005; **19:** 503–11.

8 Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med* 2011; **365:** 493–505.

9 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:** e1001496.

10 Kranzer K, Govindasamy D, Ford N, Johnston V, Lawn SD. Quantifying and addressing losses along the continuum of care for people living with HIV infection in sub-Saharan Africa: a systematic review. *J Int AIDS Soc* 2012; **15:** 17383.

11 Granich RM, Gilks CF, Dye C, De Cock KM, Williams BG. Universal voluntary HIV testing with immediate antiretroviral therapy as a strategy for elimination of HIV transmission: a mathematical model. *Lancet* 2009; **373:** 48–57.