HIV prevention has entered a new and exciting era. In lieu of discovering an HIV cure or developing an effective vaccine, ‘combination prevention’ is likely to underpin HIV prevention globally over coming decades. Within the combination prevention framework, the concept of treatment as prevention (TasP) is attracting the most enthusiasm.

The basic premise of TasP is that commencing HIV infected people on antiretroviral therapy (ART) as soon as possible after their diagnosis will not only benefit them individually (their HIV will not advance) but will also have a broader public health benefit, by reducing their viral load and thus the risk of ongoing HIV transmission. As evidence for pre-exposure prophylaxis as an effective prevention tool continues to mount, so too does ecological, modelling and randomised control data supporting reduced HIV transmission through TasP. While recognising the importance of such advances it is also important to recognise that the success of these strategies is predicated on a series of assumptions.

The first assumption is that HIV infection is detected early, particularly among people at high risk of transmitting the virus to others. While HIV acquisition occurs as a result of individual risk behaviours, the prevention of onward transmission – whether by moderating risk behaviours or commencing treatment to suppress viral load – can only occur when someone is aware of their own HIV infection. In Australia, men who have sex with men (MSM) are the primary risk population for HIV. A 2009 study in Victoria suggested a high proportion of HIV positive gay men were unaware of their HIV positive status. Therefore, crucial to the success of TasP is encouraging people at risk of HIV to test regularly.

Current guidelines recommend 3–6 monthly testing for ‘high-risk’ MSM. High-risk MSM includes those who report occasions of unprotected anal sex with casual partners within the past six months (this applies to nearly 40% of all MSM responding to routine behavioural surveys in Australia). Despite these guidelines, testing data from clinics indicate that MSM testing practices fall well under the recommended frequency. MSM report multiple structural and social barriers to accessing testing, including having to attend multiple clinic appointments to undergo HIV testing, and repeatedly express preferences for more convenient and immediate forms of testing.

To encourage more frequent HIV testing, Australia has made a number of policy and structural changes to increase testing opportunities and timely diagnosis of HIV to interrupt onward transmission and link those diagnosed into care and treatment. Revisions to the Australian National HIV Testing Policy in 2011 to provide unambiguous support for HIV rapid point-of-care tests (rapid HIV tests) meant that rapid HIV tests can now be used rather than testing being limited to the traditional regime of conventional EIA and a confirmatory western blot. This change resulted in the licensing of the first rapid HIV test in Australia in December 2012 (Figure 1) and the emergence of a range of HIV testing service models.

Internationally, rapid HIV testing models targeting MSM overwhelmingly operate in community settings with testing performed...
by non-clinical or laboratory-trained staff, including peers. These models are highly acceptable to clients and staff, offer significant cost benefits over physician-led models and have attracted high-risk populations to HIV testing. Such services overcome structural barriers to high frequency testing by reducing the number of visits needed for testing, and some of the identified social barriers to HIV testing, such as perceived stigma, past experiences of discrimination and not feeling comfortable disclosing sexual risk practices to medical practitioners. The involvement of peers in the testing process is also likely to reap benefits for primary prevention by facilitating more open disclosure and dialogue around HIV risk and risk reduction counselling in pre- and post-test discussions.

During 2013, three community-based rapid HIV testing services targeting MSM opened in Melbourne, Sydney and Brisbane. While these services were established with strong relationships with clinical and laboratory partners and networks, they are operated by community organisations with testing predominantly delivered by trained peer test facilitators, with the Melbourne site operating as a ‘shop front’ service (Figure 2). Here, community-based testing operates across all levels of combination prevention – strengthening primary prevention through behaviour change and recognition of risk, overcoming structural barriers, and facilitating early diagnosis as the essential first step in biomedical prevention.

As well as the timely testing and diagnosis of HIV, the success of TasP is based on another assumption; that HIV patients commence and remain on treatment to achieve an undetectable viral load, thus rendering them ‘non-infectious’. Currently in Australia there are minimal accurate data on the number of HIV infected patients currently on treatment, how soon after diagnosis they commenced treatment, and if they achieve and maintain an undetectable viral load. Furthermore, little is known about the attitudes of MSM and their understanding regarding undergoing treatment at an earlier stage than would be indicated for their own clinical benefit to reduce their infectiousness to their partners. Another key issue if TasP is to be effective is risk compensation; that is, will gay men have unprotected anal intercourse more frequently in response to early treatment initiation and viral suppression? While evidence thus far about risk compensation is limited, the increased prominence and diffusion of TasP messages has the potential to lead to increased sexual risk-taking that will offset the preventive effects of early ART. Risk compensation is also relevant to our incomplete understanding of the relationship between plasma viral load and HIV transmission. A number of cross sectional studies have recently shown that despite achieving undetectable blood plasma viral loads (i.e. <50 copies/mL) a percentage of people living with HIV ranging from 5% to 25% still have detectable viral loads in genital secretions, including semen and rectal mucosa, indicating ART does not completely suppress HIV. Lastly, others have identified instances where population-level uptake of high levels of testing and treatment have occurred among MSM yet have had little impact of transmission rates. Similar scenarios are being played out in Australia, where we have seen recent increases in testing and increases in the uptake of treatment among people living with HIV. The population-level impact of these changes on indicators of HIV transmission in Australia will need to be carefully monitored.

Despite vastly improved treatment options, HIV remains an incurable chronic disease. As with many other effective prevention strategies there is no silver bullet; disease control or eradication relies on a combination of interventions, not simply treatment.
In the era of TasP it will be essential that we maintain and build upon previously successful programs to reduce HIV transmission and manage HIV infected patients in Australia. As in the past, it will be critical this work is undertaken as a partnership between the affected community, government, researchers and health service providers.

References


Biographies

Associate Professor Mark Stoové is the Head of the HIV Research Group and the Justice Health Research Group at the Centre for Population Health at the Burnet Institute. His research interests focus on innovative epidemiological and public health research and disease surveillance, including prospective observational studies of population at high risk of blood borne viruses and the application of record linkage and bio-behavioural data collection to these study designs.

Dr Alisa Pedrana is an NHMRC early career research fellow at the Centre for Population Health, Burnet Institute and Department of Nutrition, Harvard School of Public Health. She is recognised as one of Australia’s emerging public health researchers, with a significant track record in HIV and sexual health research and epidemiology and the application of information communication technology for health promotion.

Professor Margaret Hellard is the Head of the Centre for Population Health at the Burnet Institute and Head of Hepatitis Services in the Infectious Diseases Unit at The Alfred Hospital. She is one of Australia’s leading infectious diseases epidemiologists; a key focus of her work is understanding and preventing the transmission of HIV in high-risk populations including men who have sex with men.

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