Wednesday 22 July 2015

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Treatment cascades show 90-90-90 goal within reach for some – but Eastern Europe lags behind Africa

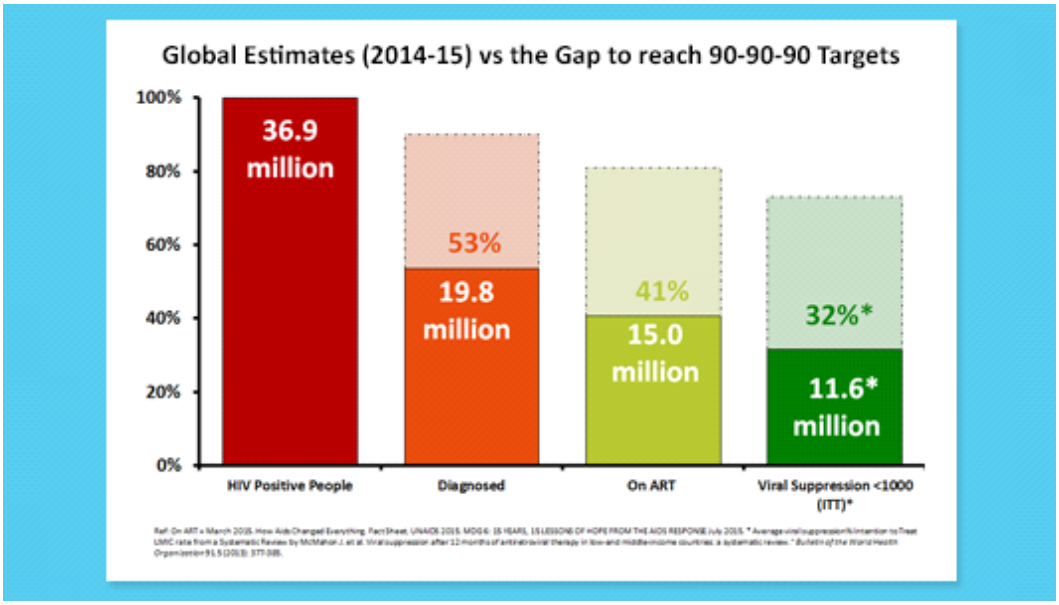

Image from presentation by Jacob Levi, Imperial College London, at IAS 2015.

Global analysis of HIV treatment cascades – the proportions of people diagnosed with HIV, in care, on treatment and virally suppressed – shows that some of the world's richest countries are still far short of achieving the UNAIDS 90-90-90 target. Progress is worst in Eastern Europe.

The findings were presented by Jacob Levi at the Eighth International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention (IAS 2015) in Vancouver – described by numerous speakers this week as the '90-90-90' conference.

The 90-90-90 target set by UNAIDS aims to diagnose 90% of all people with HIV, provide antiretroviral therapy for 90% of those diagnosed, and achieve undetectable HIV RNA for 90% of those on treatment, by 2020. This ambitious target translates into undetectable viral load in 73% of all people living with HIV.

How far are countries from achieving these targets? In some cases fairly close, but in others, the gap is enormous.

Research conducted by a team from Imperial College, London, and the Cantonal Hospital of St. Gallen, Switzerland, updating a previous survey, shows that Switzerland, Australia and the United Kingdom have the highest proportion of people living with HIV with undetectable viral load. In these countries, over 60% of the estimated population of people living with HIV have undetectable viral load, compared with 30% in the United States.

Worldwide, 36.9 million people are estimated to be living with HIV of whom 53% are diagnosed, 13.4 million people short of the 90% target. 41% are on treatment, 14.9 million people short of the target, and 32% are virally suppressed, 15.3 million people short of the target. Approximately 2 million people each year are becoming infected at current rates of transmission.

Breaking this down to look at national treatment cascades, the research group found enormous variations at each stage of the cascade. They sought to identify 'breakpoints' – steps where more than 10% of people were lost.

The proportion of the estimated population of people living with HIV who had been diagnosed varied from 86% in the United States and Australia to 51% in sub-Saharan Africa and 44% in Ukraine. Many countries were identified as having breakpoints in HIV diagnosis, indicating the global importance of improving rates of HIV diagnosis.

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Cash to stay in school doesn't reduce HIV incidence in South African study – but school attendance protected young women against HIV

HPTN 068 study team. Image supplied by Audrey Pettifor.

Education has been shown to have a protective effect against HIV infection in sub-Saharan Africa, especially for young women. Interventions to promote school attendance are being explored in several countries, including the use of cash transfers to encourage school attendance. Two large randomised studies reported results this week at the conference.

A conditional cash transfer to the households of adolescent girls to promote school attendance did not reduce HIV incidence in a randomised study in rural South Africa, Audrey Pettifor of the University of North Carolina reported.

Although receipt of the cash transfer was not associated with reduced HIV incidence, it was associated with a lower rate of unprotected sexual intercourse compared to a control group.

The study also found that dropping out of school, or poor school attendance, was associated with a significantly higher rate of HIV incidence in young women. The finding confirms observations in several African countries which show that education has a protective effect against HIV infection both during the school years and afterwards for young women.

A second study, CAPRISA 007, showed that a conditional cash transfer to young women and men tied to HIV testing, participation in life skills training and academic attainment, reduced the incidence of HSV-2 (herpes simplex virus-2) by 30% but did not have an impact on HIV incidence.

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…but cash incentives do promote uptake of male circumcision and PMTCT services

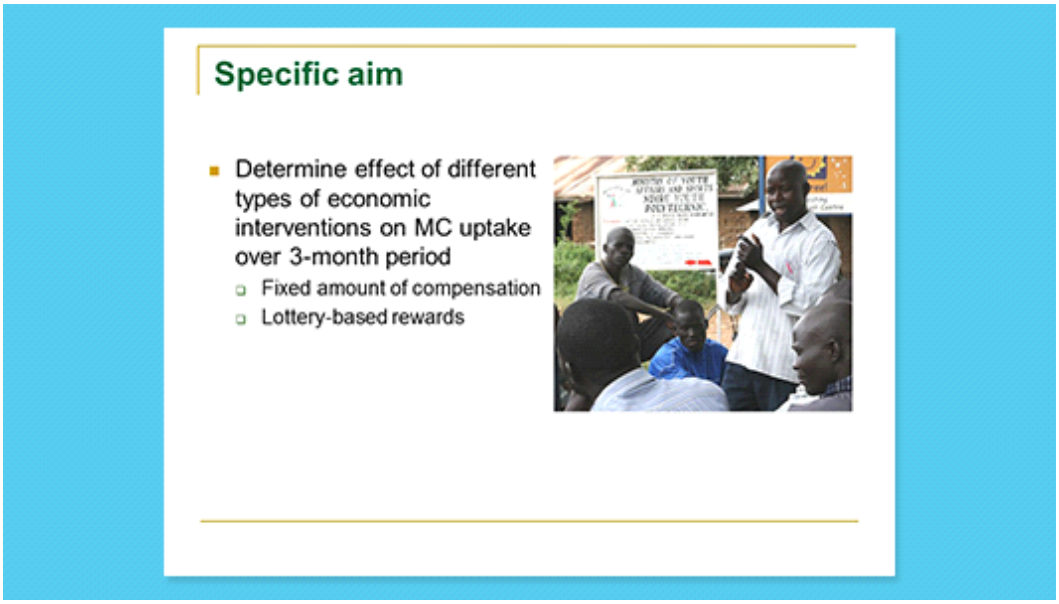

Image from presentation by Harsha Thirumurthy, at IAS 2015.

Cash incentives are also being explored as a means of promoting uptake of prevention services. Cash compensation can improve the uptake of key HIV prevention services in sub-Saharan Africa, results from two randomised studies show.

A randomised trial conducted in Nyanza province, Kenya, showed that offering compensation in the form of food vouchers resulted in a significantly higher uptake of medical male circumcision. A second randomised trial conducted in the Democratic Republic of the Congo showed that providing modest cash incentives significantly increased retention in services for prevention of mother-to-child HIV transmission (PMTCT).

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Pre-exposure prophylaxis (PrEP)

PrEP symposium panel at IAS 2015. Photo by Liz Highleyman, hivandhepatitis.com.

How to take PrEP and what people think about taking PrEP have been the subjects of much discussion at the International AIDS Society conference.

Two large studies, ADAPT (HPTN 067) and Ipergay, have shown that it is possible for people to take intermittent PrEP regimens so that most episodes of sex are covered by PrEP. This should provide protection against infection, but pharmacological information is needed to be confident that people are achieving adequate drug levels of the components of *Truvada* (emtricitabine and tenofovir) when they are actually taking PrEP.

A pharmacological sub-study of the PrEP regimen used in the Ipergay study was presented on Monday. Participants in Ipergay took two doses before sex and two doses after sex. The study indicated that in men who have sex with men (MSM) taking the regimen, emtricitabine begins to provide protection within 30 minutes of dosing but tenofovir takes 24 hours to reach adequate levels in rectal tissue. This means the post-sex doses are especially important in people who use PrEP less than once or twice a week.

Another pharmacological study showed that intermittent dosing may provide less adequate drug levels for protection of women during vaginal sex, because tenofovir took twice as long to reach peak levels in the cervix as in the rectum – and only ever achieved 10% of rectal tissue levels in the cervix.

In terms of protection from transmission via anal intercourse, the researchers calculated that 77% protection against HIV was reached after one dose of tenofovir. This is higher than the 38% suggested by a rectal explant study (using tissue samples in a laboratory), though the lower bound of the confidence interval in this study is 40%. Estimated protection is 89% after two doses, and 98% after three: a previous sub-study of the iPrEx PrEP study concluded that four doses a week would be enough to offer essentially 100% protection from HIV.

What does this tell us about the protectiveness of the Ipergay regimen – and of the intermittent regimens in ADAPT?

Firstly, we still do not know enough about protection in vaginal and cervical tissues to say whether or to what degree intermittent PrEP would be effective for women, or trans* men who have vaginal sex. At present, it is therefore best to recommend daily dosing for vaginal sex.

For anal sex, however, it does look as if significant protection lasts anything up to a week after the previous dose of PrEP, if people have been taking it steadily. It would be rapidly 'topped up' by the emtricitabine within hours of a subsequent double dose as long as the interval was no longer than that. If PrEP *is* taken before sex but after a long time gap, however, the post-sex doses – both of them – are very important to take too.

In this context, it is notable that the Ipergay regimen offers much greater timing flexibility, as the first post-sex dose can be taken any time in the next 24 hours; this is much easier than taking it two hours after sex, something the ADAPT participants found difficult. The reasons whether or not people come forward for PrEP or take it once prescribed are likely to be very mixed, and dependent as much on local political and cultural beliefs as they are on more personal factors

like relationship status.

Related links

Read ‘Intermittent PrEP may be a robust strategy for anal sex – vaginal much less certain’ on aidsmap.com

Read ‘The pros and cons of PrEP: trial volunteers recount their experience of the ADAPT study’ on aidsmap.com

Serosorting and viral load

Image from Opposites Attract study. www.oppositesattract.net.au

‘Serosorting’ refers to the practice of people choosing sexual partners they perceive to have the same HIV status as themselves, or of choosing not to use condoms with such partners. But it is clear that the scenarios are not necessarily as simple as HIV-negative people pairing up with other HIV-negative people, or of HIV-positive people sticking with HIV-positive people.

Gay men may decide which partner takes the receptive (‘bottom’) role dependent on each man’s HIV status. An HIV-negative person may consider that having condomless sex with an HIV-positive person who has an undetectable viral load is safer than doing so with someone who claims to be HIV-negative but last tested a year ago. But engaging in these ‘sero-adaptive’ behaviours depends on individuals’ and communities' level of understanding of HIV transmission factors and can also be limited by HIV stigma.

There is evidence that some groups of Australian and American gay men are considering HIV-positive partners’ undetectable viral load and the time elapsed since an HIV-negative partner last tested when making decisions about using condoms, according to studies presented to the conference.

The findings suggest that as community discussion and awareness about viral load and transmission risks when viral load is undetectable grows, discussion about viral load begins to influence decisions about condom use, and thinking about the HIV status of partners becomes more sophisticated.

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Couples counselling

Image from presentation by Dr Nora Rosenberg, at IAS 2015.

In Malawi, HIV counselling and testing for pregnant women is close to 100%. Although couples counselling and testing is encouraged, male partners rarely come forward and an opportunity for HIV diagnosis is missed.

When couples are counselled and test for HIV together, there are potential benefits. These include having the opportunity to make informed decisions about HIV prevention and reproductive health together, mutual support and improved adherence to treatment. Lack of male involvement is often cited as a barrier to women accessing treatment and care, including prevention of mother-to-child transmission interventions.

Researchers in Lilongwe, Malawi, investigated whether actively contacting male partners of women accessing antenatal care could increase uptake of couples HIV counselling and testing. They tested two options – sending an invitation to male partners; and sending an invitation and following it up with a phone call or home visit.

Both strategies resulted in men coming forward for counselling and testing, with the 'invitation plus tracing' strategy substantially increasing the uptake of couples counselling and testing. Of 126 men who came forward, 47% tested positive for the first time (an additional 25% already knew they had HIV). Dr Rosenberg, presenting the study, suggested that this strategy could have important public health benefits.

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New ARVs: a promising maturation inhibitor could offer a new drug class

Carey Hwang at IAS 2015. Photo by Liz Highleyman, hivandhepatitis.com

Combination antiretroviral therapy (ART) consists of agents that target different steps of the HIV lifecycle, but none of the currently approved drugs inhibit viral assembly, maturation and release from host cells.

The next-generation HIV maturation inhibitor BMS-955176 was well-tolerated and suppressed HIV viral load as well as standard antiretrovirals when used in a combination with atazanavir (*Reyataz*) in a 28-day study, according to late-breaking results presented at the conference.

If further studies confirm its safety and efficacy, BMS-955176 could be the first drug in a new class of antiretrovirals that may offer an important treatment option for people with HIV who have developed extensive resistance to existing drug classes.

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24th International Harm Reduction Conference

The 24th International Harm Reduction Conference will take place in Kuala Lumpur, Malaysia, in October 2015. NAM is the official scientific reporter for the conference.

"The International Harm Reduction Conference is relevant, especially now, for we are at an extremely critical juncture in our collective responses to both the HIV, hepatitis and drug epidemics, at a time when the validity of the international drug policy regime is being questioned like never before." Rick Lines, Executive Director of Harm Reduction International.

Registration is now open and the programme is available on the conference website.

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