Treatment as Prevention

October 2011

This fact sheet provides basic information on "treatment as prevention", one of the options being tested now as part of the effort to identify additional tools to reduce the risk of HIV transmission and infection. Treatment as prevention is part of the ARV-based prevention research agenda, which also includes ARV-based microbicides and pre-exposure prophylaxis (PrEP) for HIV-negative people.

What is meant by ARV treatment as prevention?

"Treatment as prevention" is a term describing the use of antiretroviral drugs that are used to reduce the risk of passing HIV to others. The strategy would function as a secondary benefit of antiretroviral treatment (ART) after its primary purpose of improving an individual's health. The rationale for this approach is that ARVs reduce viral load. Higher viral loads have been linked to increased risk of passing HIV to sexual partners. Treatment as prevention is an emerging area and there are different terms and phrases used to describe different strategies using this approach. These include "test and treat" and "testing and linkage to care plus (TLC-plus)". You may also see a range of acronyms that represent this concept—e.g., TasP, TNT, TLC+ and T4P.

Why is treatment as prevention being evaluated as an HIV prevention strategy?

There are data from observational studies, which have shown that HIV-positive people with low or undetectable viral load levels have reduced risk of transmitting to their partners compared to HIV-positive people with higher viral loads. These observational data provided a rationale for conducting a randomized controlled trial of combination ART as a tool to reduce the risk of transmission between sexual partners. Prevention of vertical transmission programs also recognize the effectiveness of providing combination ART to the pregnant woman, regardless of her CD4 cell count, as a strategy for reducing risk of passing HIV to an infant at birth.

It is important to note that right now, the decision about whether an individual with HIV begins ART is based on several factors, including the treatment guidelines in use wherever he or she lives. These guidelines may use factors like the individual's clinical health, infection with other diseases and opportunistic infections, T-cell count and/or viral load tests (where available) to help an individual make the decision whether to start ART. Except in prevention of vertical transmission programs, ART is not initiated with the primary goal of reducing the HIV-positive person's risk of passing the virus to others.

There is no strong evidence on viral load and reduction in transmission to needle-sharing partners—the data on the effect of treatment as prevention is limited to individuals whose primary risk of HIV is via sexual exposure.

What are the data on treatment as prevention?

There is one ongoing efficacy trial, called HPTN 052, which enrolled 1,763 serodiscordant couples (one HIV-positive and one HIV-negative partner) to look at ARV treatment as prevention in a number of countries. It asks whether initiating treatment in the HIV-positive partner can help reduce the risk of sexual transmission of HIV to the HIV-negative partner and whether the effect is a durable one. It is also looking at the possible benefits of early treatment versus those who delay initiating therapy until it is clinically indicated. All participants in the trial receive a basic prevention package including treatment for sexually transmitted infections, condoms and behavior change counseling.

In May 2011, at a scheduled review of interim data, the trial's independent Data Safety and Monitoring Board (DSMB) found clear evidence that providing immediate ART to the HIV-positive partner reduced the risk of transmitting HIV to their HIV-negative partner by 96 percent. The trial team also noted that those on treatment had a significantly reduced risk of extra-pulmonary TB, an important individual benefit. Based on this indication of benefit, the DSMB recommended that the trial halt randomization and that immediate treatment be offered to all HIV-positive partners. This process is ongoing and all couples will continue to be followed until the protocol-defined end of the trial in 2015.

continued on back

How realistic is the treatment as prevention approach as an HIV prevention tool?
HPTN 052 showed a powerful benefit, however there are many challenges in deploying treatment as a prevention strategy, including current gaps in coverage of ARVs for people who are clinically eligible for them, low rates of HIV testing, challenges to keeping people in care, additional scientific questions about the exact relationship between HIV viral load in the blood and risk of transmission, and the lack of consensus around the best time for individuals to begin treatment. These challenges require additional research as well as policy and community discussions. These discussions and future programmatic decisions require additional data and will inevitably need to balance individual benefits of treatment with possible wider-spread public health benefits of prevention.

What additional data relevant to treatment as prevention can be expected?
The currently enrolling START (Strategic Timing of AntiRetroviral Treatment), which is a randomized study of early versus deferred treatment, is meant to provide guidance on when to start therapy. The results from START are expected in four to five years—the trial is meant to provide definitive data on the effect of early treatment on health outcomes in HIV-positive people (including effect of early treatment on non-AIDS morbidity and mortality).

In addition to the need to evaluate the effect of early treatment on individual-level health outcomes, it is important to consider the feasibility of such an approach and how to ensure future programming could have maximum impact. The HPTN 065 study is looking at feasibility of an expanded community-level test, link-to-care and, for those who need it based on current guidelines, treatment approach for HIV prevention in the US. The three-year study is ongoing in the Bronx, NY, and Washington, DC. The study is designed to determine whether this kind of approach is feasible for wide-scale implementation and public health impact by examining different approaches to testing, prevention for positives, linkage to care, initiation of treatment and increased treatment adherence, all of which are essential to a successful treatment as prevention intervention.

There are a number of other studies gathering data relevant to treatment as prevention, the details of which can be found in the treatment as prevention trials table available at *www.avac.org/treatmentasprevention*.

Other important questions that the current trials relevant to treatment as prevention may not fully address include: Can voluntary HIV testing be expanded? Will there be adverse toxicities or additional resistance issues raised by earlier initiation of treatment? Will individuals continue to have the choice about whether to start ARVs? AVAC will continue to explore these and other issues as the research progresses. Colleagues at the AIDS Foundation of Chicago are leading a collaborative effort to develop and nurture a research-driven, community-led global understanding of the emerging evidence base around the adoption of antiretroviral-based prevention strategies—partners include AIDS United (Washington, DC), NAZ India (Delhi), Desmond Tutu HIV Foundation (Cape Town), RAND Europe, and Bairds CMC. More information is available at *mappingpathways.blogspot.com*.

******

Additional information on treatment as prevention research, where trials are happening and other relevant updates can be found at *www.avac.org/treatmentasprevention*.

Founded in 1995, AVAC is an international, non-profit organization that uses education, policy analysis, advocacy and community mobilization to accelerate the ethical development and eventual global delivery of AIDS vaccines and other new HIV prevention options as part of a comprehensive response to the pandemic. For more information, visit **www.avac.org**.