

## Halting HIV/AIDS epidemics

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In December 2011 Jon Cohen published an article in which he discussed the prospects for halting the epidemic of HIV/AIDS (1). He highlights the important observation that, due to recent evidence on effective interventions to prevent HIV, we have for the first time the means by which to end the AIDS epidemic, provided of course that there's political will and financial support. However, there is a difference between a study showing success and the effect of an intervention in practice. Furthermore, it is a challenge to figure out how best to combine the available interventions. Many mathematical modellers and HIV/AIDS researchers have begun to explore and debate a variety of strategies.

Scientists at SACEMA have been in the forefront of those arguing that the time to end AIDS is now and the way to do this is through the strategic use of potent anti-retroviral therapy (ART). In the article *Imagine a world without AIDS* in the SACEMA Quarterly of March 2012, Brian Williams and Alex Welte outlined the most important issues that need to be explored if *treatment-as-prevention* is to become a reality and if we are to end AIDS. Williams was also interviewed for the article in *Science* where he indicated that SACEMA has examined the effect of combining several proven biomedical interventions on the individual's risk of infection. According to these calculations, if 60% of men in a given population were circumcised and 80% of infected men and women were taking ARVs, the risk of someone becoming infected would drop by 55%. Reducing risk by 85% could, for example, be achieved by putting 90% of infected people on ARVs, 10% on daily PrEP, ensuring that about 80% of men were circumcised and 25% of uninfected women used a vaginal microbicide before and after sex. Since the greatest impact is from the use of

ART it has to be stressed that success would depend on achieving high rates of compliance among those taking ARVs.

Cohen also points out that PEPFAR and other programs have begun to look for smart ways to transfer already allocated funds to support the new opportunities and has turned to modellers to identify the most cost-effective interventions. In that regard, Williams said that male circumcision should be used as widely as possible, as it is very cheap, it is done once, and the effect is life-long. Giving uninfected people ARVs as oral PrEP would be particularly effective and cost-effective among groups at very high risk of infection such as intravenous drug users and commercial sex-workers. But to stop transmission, the core intervention has to be treatment as prevention.

Several large clinical trials are now under way or being planned and should reveal which new prevention strategies best bring down incidence in a population versus simply protecting an individual(3).

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