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Transcriptions – In the Journals – July 2012 – part II

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By Thomas Cousins

HIV Treatment As Prevention

The upcoming International AIDS Conference in Washington DC looks to be dominated by Treatment as Prevention (TasP), and biomedical prevention technologies more broadly, as the next big breakthrough in HIV. At Transcriptions we're starting a series exploring the debate in order build a critical conversation about the way in which biomedical prevention technologies are being conceptualized, operationalized, and rolled out, building on the work of new critical medical anthropologies of "experimentality" in global health – e.g. Nguyen 2009, Petryna 2009, and Fullwiley 2011. In this vein, there's an interesting article by Cohen et al tracing the implications of PEPFAR and WHO recommendations for TasP in light of the findings of HIV Prevention Trials Network study 052.

The timing of the publication of the PLoS Medicine collection of papers on Treatment as Prevention from the HIV Modelling Consortium could not be more significant, and we do well to take note of their arguments and implications.

In November 2011 the HIV Modelling Consortium held a meeting in South Africa to focus on the cross-cutting issues of the impact of new scientific findings about HIV treatment preventing new infections. The group considered the feasibility of interventions, potential epidemiological impact, affordability, and new scientific observational studies and community trials. The nine reviews and one research article which comprise this collection arose from that meeting and provide insights into the factors which will support evidence-based decision-making in HIV prevention, with a focus on the use of antiretroviral treatment to prevent HIV transmission.

(See http://www.ploscollections.org/TasP2012

As I mentioned in Part I, the economic evaluation of TasP as a viable possibility is as central to the discussions as biological, social, or ethical debates. The folding together of assumptions, methods, and standards of evidence across these domains clearly deserves much greater critical attention and conversation. Mayer-Rath and Over provide an overview of

alternative methods of modeling cost over several decades of TasP, and suggest an approach that takes into account the effects of scale (population and temporal) that previous methods of evaluating ART costs have not considered.

Delva et al thus argue for "optimizing" the impact of expanded HIV Treatment Programmes – TasP's *prevention-bang-for-population-buck* problem having to be delineated from ART's focus on therapeutic benefit for patients. They conclude that "In re-evaluating the allocation of ART in light of the new data about ART preventing transmission, the goal should be to create policies that maximise epidemiological and clinical benefit while still being feasible, affordable, acceptable, and equitable".

Bärnighausen et al argue that economic evaluations of TasP should not be based on current methods for evaluating ART because the projected impact of TasP will not follow conventional trajectories of behavior change or health systems impacts for a number of reasons, both social (by which they mean behavioural) and biological (the disease itself will change as a result of TasP). They put forward three elements that should be taken into account, which are definitely worth checking out.

Cohen et al worry that early infection might compromise Treatment-as-Prevention Strategies, and the article includes two opposing viewpoints (from clinical and epidemiological perspectives).

The importance of mathematical modeling to TasP is at the very centre of the debates. Eaton et al provide a systematic comparison of the mathematical models of the potential impact of ART on HIV incidence in South Africa in order to determine the extent to which models agree about the epidemiological impact of expanded ART.

Boily et al consider various approaches to the design, conduct, and analysis of cluster randomized controlled trials (C-RCTs) of combination HIV prevention packages. They argue that the 2-3 year duration of a C-RCT may make it difficult to understand the full implications of TasP for population health, pharmacological effects and for the disease itself. They conclude that "the innovative use of mathematical modelling to conduct interim analyses, when interim HIV incidence data are not available, [will] allow the ongoing trials to be modified or adapted to reduce the likelihood of inconclusive outcomes". For critics of TasP modeling techniques, the validation of projections based on further modeling and not empirical observations will only make for further trouble.

In this vein, the difficulty of "ecological observation" in TasP models make for interesting methodological questions across the social sciences. Smith et al's paper examines the strengths and weaknesses of ecological

analyses, seeking to “aid understanding of the findings from these studies to inform future policy decisions regarding the use of ART for HIV prevention”. Also worth checking out.

Similarly, the question of the “real world” effects of TasP are becoming the crucial point of concern for proponents. Wilson’s article on the limits for TasP of inferring from “natural experiments” in first world settings to third world settings thus makes for interesting reading.

On the other hand, Delva et al’s discussion of “principles of good HIV epidemiology modeling”, shows how background assumptions, values, and expectations of the modelers themselves make a crucial difference to the projections of the efficacy of TasP.

A series of recent New England Journal of Medicine articles showing the effectiveness of the new drug Truvada as a medication for pre-exposure prophylaxis, another important treatment-based prevention technology that has been generating a great detail of attention, should also be compulsory reading for social scientists and activists as they engage the upcoming political circus in Washington DC. They include the trial results on heterosexual transmission, transmission for African women, heterosexual transmission in Botswana, and a discussion by physicians of a number treatment possibilities for specific cases. The recent article in the Atlantic discussing Truvada is helpful as a good summary of recent findings.

BREAKING NEWS: July 17 2012: Based on the results of these and other PrEP trials, the FDA yesterday approved use of Truvada as a prophylactic for HIV. This is big news as it is the first drug that has been approved to reduce the risk of HIV infection in uninfected individuals. It remains to be seen what effects this will have on its uptake and sexual practices.

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