

# MAPPING PATHWAYS

# Developing the evidence base for biomedical prevention strategies

## BACKGROUND

The world has made great progress in containing HIV since the epidemic peaked in the late 1990s. But there are still more than 2 million new infections a year. The current toolkit of prevention options is clearly not sufficient: a broader portfolio of approaches, or pathways, to prevention is needed. Recent trial data shows great promise in four antiretroviral (ARV) prevention strategies:

- Testing, Linkage to Care Plus Treatment (TLC+): earlier treatment for HIV-positive people
- Pre-exposure prophylaxis (PrEP): providing HIV-negative people with ARVs to prevent HIV
- Vaginal and rectal microbicides: topical applications for HIV-negative people to prevent HIV
- Post-exposure prophylaxis (PEP): providing ARVs to HIV-negative people with a potential recent exposure to HIV.

Though ARV-based prevention strategies show promise, they raise complex challenges, including access, cost, behavioral impacts, and drug resistance. The broader empirical evidence base for approval and implementation is still under development.

Mapping Pathways is a unique, community-led, study which is providing a multi-layered (scientific and stakeholder-based) synthesis of the evidence base for ARV-based prevention strategies which tackle the HIV epidemic.

## METHODS

Mapping Pathways used four multimodal, complementary methodologies to develop a comprehensive understanding of the evidence base, focusing on India, South Africa, and the United States. A (1) structured literature review and (2) Delphi 'ExpertLens' on key faultlines provided a foundation for (3) semi-structured interviews with 'grass tops' policy perspectives and (4) 'grass roots' opinions from an online community survey.

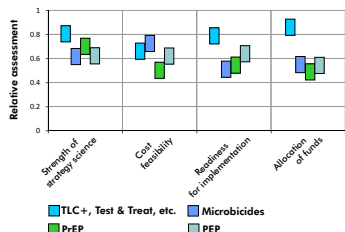
Such an adaptive approach to policy development, where "grassstops" stakeholders and experts and "grassroots" communities are engaged in reflexive and iterative exchanges of knowledge about the evidence needed for policy development, is a methodological innovation in itself.

## RESULTS

**1.** The literature review retrieved 5,811 articles: 302 selected abstracts were mapped and 100 articles analysed for efficacy, cost-effectiveness, indirect outcomes, and epidemiological impact data. Twenty-one clinical trials were reviewed, 31 modelling and cost studies (of which 9 examined cost-effectiveness and 14 looked at epidemiological modelling) and 30 cross-sectional, longitudinal, or other intervention studies. We observe gaps in the empirical evidence base and argue it is still under development in critical areas (see Poster MOPE 591).

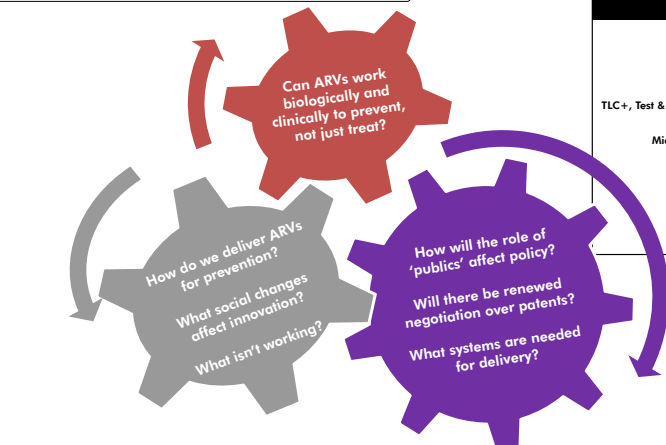
**2.** Thirty-two HIV/AIDS experts participated in a RAND-developed, online Delphi-based discussion called ExpertLens. Views were solicited on a range of topics, including the comparative strengths of the strategies. Experts generally thought TLC+ had the strongest evidence, was most ready for implementation, and most deserving of funds. Agreement varied on these comparative strengths, though, and consensus only emerged for the TLC+ strategy in three areas: strength of the science, readiness for implementation, and allocation of funds (see Poster MOPE 591 for more information).

### ExpertLens comparative assessment of biomedical prevention strategies



"In an Indian culture that still struggles to accept condoms, it would be difficult to get the general population to accept PrEP. While risk categories based on global norms are feasible to define and accept, it will be hard for an individual to accept that he or she is 'high-risk' and should take this treatment." (Indian stakeholder discussing PrEP)

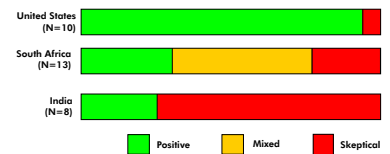
"The only way there will be more of a chance of them ever being taken up by communities is if they are marketed as a sex toy or lubricant. If you call them microbicides, you'll sell 3 in 20 years; if you call them applicators, you'll sell 3 in 20 years... they now need to be handed over to a marketing company to consider how to advertise them as a sex toy." (South African stakeholder discussing microbicides)



**3.** Forty-three stakeholders (India – 9; South Africa – 13; United States – 19, plus two small focus groups in the US) were interviewed across the three countries in order to understand the decisionmaking needs of "grassstops" policy experts. The disciplines represented by the stakeholders varied considerably and were not mutually exclusive, but could generally be distilled into one of five categories: clinical, advocacy, research/academician, political, or administrative.

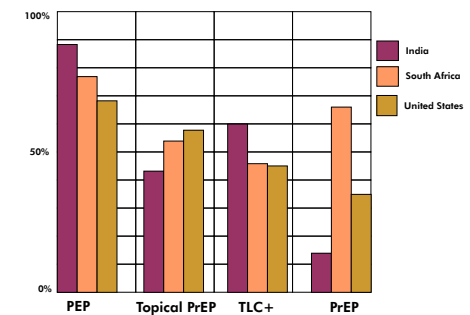
Even when looking at the exact same data, stakeholders in India, South Africa, and the United States often came to very different conclusions about the implications of the findings and their relevance for HIV prevention and treatment policies in their countries.

### Do HPTN 052 trial findings support changing treatment guidelines?

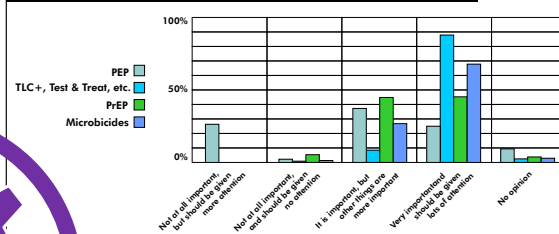


When looking across all strategies, stakeholders in each country had very different views about which would be most appropriate for their country. There is a wide divergence in views about whether scientific data alone is necessary but not sufficient to bring about policy change. This range highlights the importance of context in decisionmaking. Additional nuances were collected through qualitative analysis of responses. Discussions and decisions are taking place, but expert stakeholders need more information, particularly to help contextualise the scientific data.

### Percent of positive/mixed stakeholder review responses by biomedical prevention strategy and country



### Relative importance of biomedical prevention strategies from all survey respondents



**4.** 1069 respondents participated in the survey: 47.7% (USA), 32.3% (South African), and 9.4% (India). A majority of the respondents were male (53%), and 59% identified themselves as straight/heterosexual, 29.7% as gay, and 6% as bisexual. Though country-specific demographics of participants varied, the majority were activists/advocates, worked for AIDS service organisations/NGOs, were doctors, and/or were people living with HIV/AIDS. The majority of participants felt that TLC+ was the most important strategy, followed by microbicides.

## CONCLUSIONS

Findings underscore broad, often divergent views regarding the viability of ARV-based prevention, with TLC+ garnering the most optimism. However, Mapping Pathways findings provide empirical support for the argument that an adaptive approach to policy development is required. This will enable understanding of the scientific data behind the strategies (the physical technologies in red, on the left), but also knowing what 'social technologies' (in grey) are needed to shape their implementation in culturally appropriate ways. An important series of questions are raised about the systems in which these strategies might be introduced (in purple), and the pathways needed to guide them.

Mapping Pathways has six partner organisations: AIDS Foundation of Chicago, AIDS United, Baird's CMC, Desmond Tutu HIV Foundation, Naz India and RAND. Mapping Pathways is funded by an initial grant from Merck & Co., as well as an additional NIH 'Be the Generation Bridge' grant for dissemination and community engagement activities.