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HIV prevention resources: time to move toward affordability

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Evidence confirms the extraordinary progress in realising the individual and public health benefits of antiretroviral therapy.^{1,2} Governments worldwide have committed to a UN strategy pledging to end the HIV epidemic by 2030.³ The intensive treatment-as-prevention response will require equally strong coordination with robust behavioral and biomedical prevention strategies, such as condom promotion programming, voluntary medical male circumcision, and pre-exposure antiretroviral prophylaxis (PrEP).^{4,5}

Achieving 2030 global targets will require unprecedented investment to drive continued progress. Recent estimates suggest that a one-third increase (to US\$26.2 billion) in domestic and international HIV-related investments must be disbursed by 2020 to meet these targets.⁶ Yet global economic realities prompt concern. Donor HIV-related disbursements declined by 13% between 2014 and 2015 to \$7.5 billion,⁷ falling well short of the international HIV investments required for achieving 2030 targets.⁶ Ultimately, international HIV assistance is highly uncertain, making the implementation of HIV prevention strategies that are both efficient and affordable especially critical.

In *The Lancet HIV*, Ide Cremin and colleagues⁸ contribute evidence on an optimal portfolio of combination HIV prevention strategies, including PrEP, in Nairobi, Kenya (population 3.9 million, adult HIV prevalence 8.6%⁹). This study comes at a time when UNAIDS is calling for a quarter of all HIV-related investments to be allocated toward HIV prevention efforts.¹⁰ The study estimates HIV infections averted and total economic costs for permutations of five interventions (ie, earlier antiretroviral initiation, improved antiretroviral retention, male circumcision, condom promotion, targeted PrEP) that could be implemented in Nairobi, explicitly considering female sex workers, male sex workers, and MSM. The authors report that an optimum prevention portfolio for Nairobi, which claims male sex worker and MSM sub-epidemics within declining overall HIV prevalence, should focus first on condom promotion in these two key populations, followed by broadly improved antiretroviral retention, earlier antiretroviral initiation, male circumcision, and targeted PrEP, as the remaining budget allows. PrEP prioritised for male sex workers averts HIV infections at a spending level similar to funding earlier antiretroviral initiation in the broader Nairobi population; however, PrEP prioritised for female sex workers and MSM enters the portfolio at much higher spending levels.

Cremin and colleagues' study importantly considers not only the value of interventions but also their affordability. The authors select five interventions that are appropriate for Nairobi and cost-effective,^{11,12} either in the broader population (eg, condom promotion) or in key populations (eg, PrEP). Cost-effectiveness, a measure of health value for money, expresses how much health is gained for each additional dollar spent and serves as one of many important inputs into a decision maker's choice to fund, or not, a particular intervention. Cost-effectiveness analysis does not, however, explicitly quantify budget impact or affordability of a particular intervention. Therefore, if a decision maker has a fixed HIV prevention budget, similar to the city of Nairobi in the current analysis, the addition of a new, more costly intervention (eg, PrEP for key populations) to a prevention portfolio might be cost-effective (ie, a good value for money) compared with the next least costly alternative. However, the new intervention might not be affordable at scale within the existing budget.

Cremin and colleagues notably rely on local epidemiological, cost, and budget data, when available, to inform their approach and findings. Previous studies have shown that local epidemiological data are appropriate for use in mathematical models that inform programmatic planning.¹³ The study similarly relies on local epidemiological data from Nairobi and is poised to incorporate data from a forthcoming PrEP demonstration project as it becomes available. Use of observational data is essential for improving and updating knowledge about intervention effectiveness in the real world. The study also highlights the importance not only of relying on local cost data but also, as importantly, putting findings in the context of local HIV budgets. As decision makers increasingly rely on economic analysis to inform the implementation or prioritisation of HIV-related interventions, cost-effectiveness and affordability studies should leverage local economic data, including existing budgets.

Expectations for global HIV achievements are steadily increasing; yet, the international HIV assistance required to support this progress remains uncertain. As the world plans its response, it is time to get real and move beyond cost-effectiveness to also include affordability.

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References

1. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *New Engl J Med*. 2011; 365:493–505. [PubMed: 21767103]
2. UNAIDS. 90-90-90: on the right track towards the global target. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS (UNAIDS); 2016.
3. UN. Transforming our world: the 2030 Agenda for Sustainable Development. New York, NY: United Nations; 2015. Report no: A/RES/70/1
4. Dehne KL, Dallabetta G, Wilson D, et al. HIV Prevention 2020: a framework for delivery and a call for action. *Lancet HIV*. 2016; 3:e323–32. [PubMed: 27365207]

5. Krishnaratne S, Hensen B, Cordes J, Enstone J, Hargreaves JR. Interventions to strengthen the HIV prevention cascade: a systematic review of reviews. *Lancet HIV*. 2016; 3:e307–17. [PubMed: 27365205]
6. UNAIDS. Fast-track update on investments needed in the AIDS response. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS (UNAIDS); 2016. Report no: JC2842/E
7. Kates, J., Wexler, A., Lief, E. Financing the response to HIV in low- and middle-income countries: international assistance from donor governments in 2015. Menlo Park, CA: The Henry J. Kaiser Family Foundation, Joint United Nations Programme on HIV/AIDS (UNAIDS); 2016. Report no: 7347-12
8. Cremin I, McKinnon L, Kimani J, et al. PrEP for key populations in combination HIV prevention in Nairobi: a mathematical modelling analysis study. *Lancet HIV*. 2017 A: editor will complete details when known.
9. National AIDS Control Council of Kenya. [accessed Dec 20, 2016] Kenya AIDS Response Progress Report. 2014. http://www.unaids.org/sites/default/files/country/documents/KEN_narrative_report_2014.pdf
10. UNAIDS. Invest in HIV Prevention. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS (UNAIDS); 2015.
11. Galarraga O, Colchero MA, Wamai RG, Bertozzi SM. HIV prevention cost-effectiveness: a systematic review. *BMC Public Health*. 2009; 9(suppl 1):S5. [PubMed: 19922689]
12. Schackman BR, Eggman AA. Cost-effectiveness of pre-exposure prophylaxis for HIV: a review. *Curr Opin HIV AIDS*. 2012; 7:587–92. [PubMed: 23076124]
13. Kimmel AD, Fitzgerald DW, Pape JW, Schackman BR. Performance of a mathematical model to forecast lives saved from HIV treatment expansion in resource-limited settings. *Med Decis Making*. 2015; 35:230–42. [PubMed: 25331914]