



HIV prevention cascades: Progress towards a single unifying framework that can replicate the success of treatment and care cascades

R. Schaefer, E. Fearon, S. Gregson, J. R. Hargreaves

Contact: r.schaefer@ic.ac.uk



BACKGROUND

- Many countries **off track to meet targets in reducing HIV incidence** (1); **limited use** of prevention methods (2); **low funding** for prevention (3) ► need for **novel approaches** to strengthen HIV prevention programmes (4)
- **HIV prevention cascades**: Assist in planning, monitoring, and delivery of HIV prevention programmes similar to HIV treatment cascades (5,6).
- Help programme planners, policymakers, and funders understand where there are **gaps in primary prevention**, by identifying and measuring the steps required to achieve effective use of prevention methods.
- Valid standardised **generic formulations of HIV prevention cascades** needed for comparisons between methods and settings, and over time.
- Lack of a **unifying framework** for HIV prevention cascade

OBJECTIVE AND APPROACH

- This project is part of an investment by the **Bill & Melinda Gates Foundation** aimed at developing a unifying HIV prevention cascade framework.
- A **series of meetings and seminars** was conducted to establish goals of HIV prevention cascades, review prevention cascade models, and develop new models of cascades.
 - Prevention cascade frameworks were **applied to existing datasets** to understand gaps in data currently collected.
 - A **stakeholders meeting and workshop** were held in Harare, Zimbabwe, with policy-makers, non-governmental organisations, programme planners, and international and local researchers to consult on the utility and functions of HIV prevention cascades and develop models for prevention cascades.

OUTCOMES OF CONSULTATIONS

Different functions of HIV prevention cascades

- **Routine monitoring** of progress with use of prevention methods
- **Advocacy** for improved prioritisation and increased funding
- Simple cascade formulations needed ('90-90-90')
- **Programme evaluation** to identify gaps in prevention and selecting appropriate interventions to address these
- More comprehensive formulations
- **Tension between different functions** requiring simpler or more complex cascade formulations

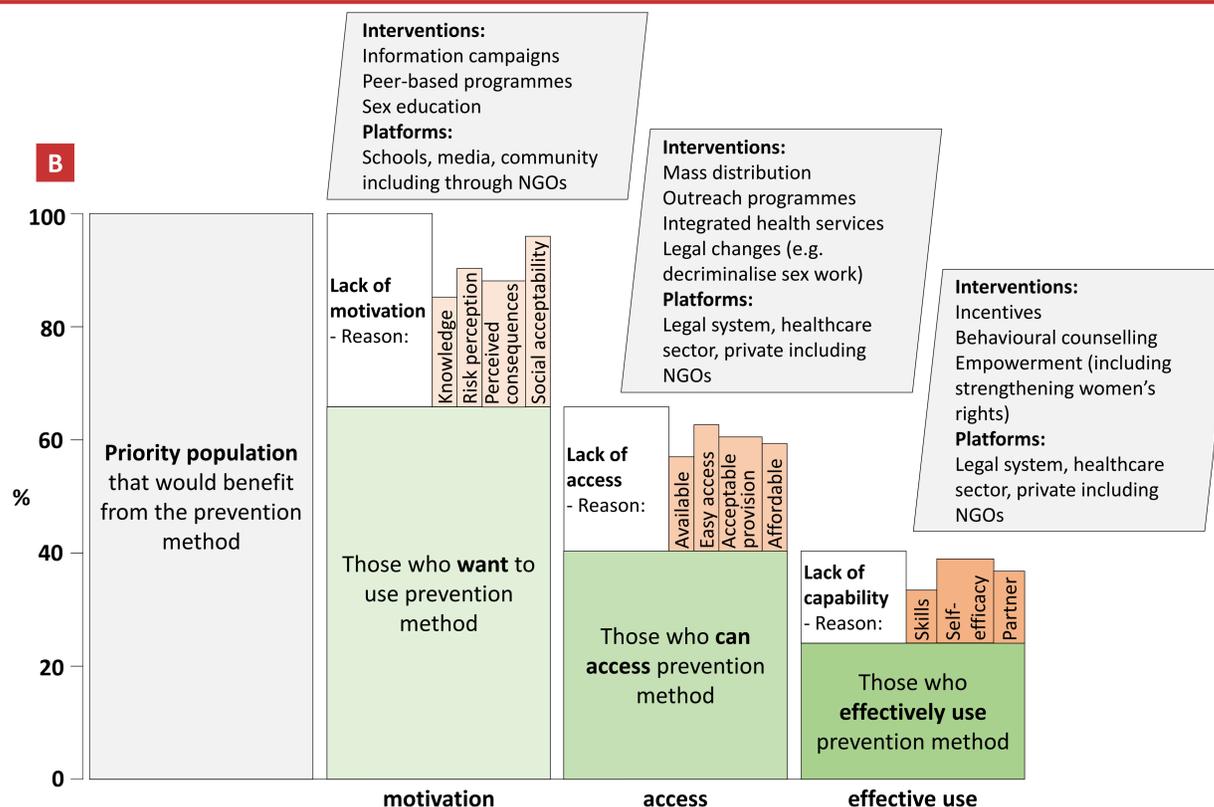
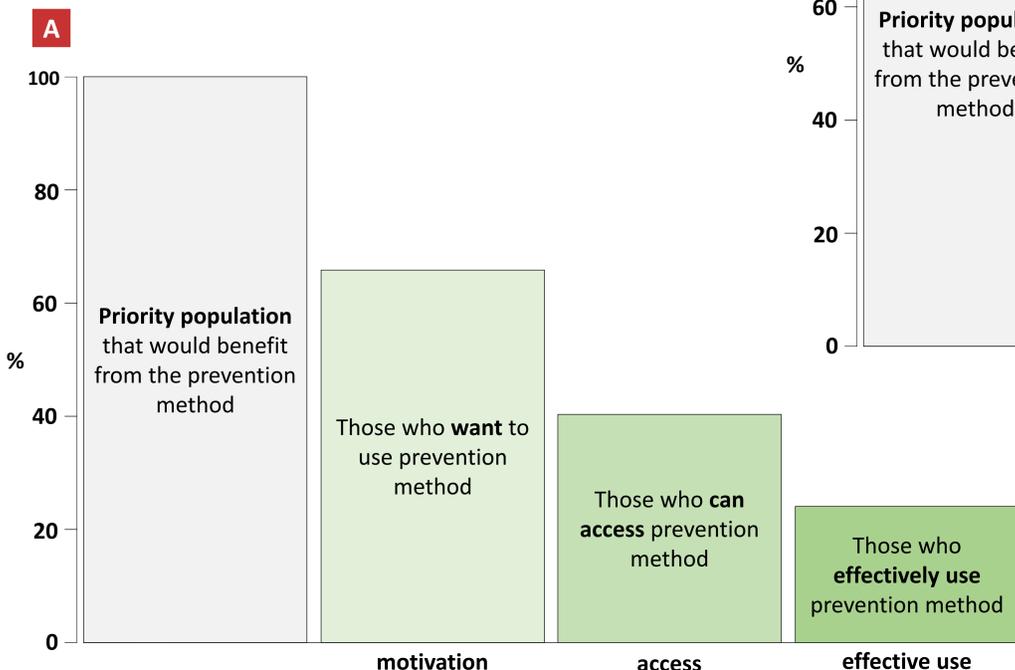
Limitations in current formulations for HIV prevention cascades

- Proposed HIV prevention cascades formulations focus on particular prevention methods/populations (7), artificially differentiate the user/provider perspectives of users (5), or focus on interventions to address gaps (6).
- **Too complex** for routine monitoring and advocacy; required data often unavailable on a local level. **Comparisons are difficult** and **lack of consensus** impedes widespread use of prevention cascades.
- Further **simplification and standardisation** ► cascades should be adaptable across populations, prevention tools, and programmes

A UNIFYING FRAMEWORK FOR HIV PREVENTION CASCADES

A generic HIV prevention cascade

- Three key domains: **motivation** for using a prevention method, **access** to this method, and **effective use** in a **priority population** that could benefit from using a prevention method (Figure A).
- Cascades should be measured in priority groups (**user-centric**), as is done in treatment cascades.
- Estimating population-level impact (HIV infections averted) is not a function of the cascade itself ► would limit use of prevention cascades



A comprehensive HIV prevention cascade framework

- **Characterisation of cascade gaps** across lack of motivation, access, or effective use ► more comprehensive framework (Figure B).
- Particularly important for reasons underlying lack of effective use as often motivation and access do not represent strong barriers.
- Reasons ► identifying appropriate **responses and platforms for interventions**.
- Links between cascade steps, reasons for gaps, and interventions ► avoid excessive focus on single cascade steps and provide a **unifying framework** that **supports all functions** of the cascade.

MEASUREMENT

- Simple three-step core HIV prevention cascade, but complex concepts. **Single measures** needed for the cascade to be a pragmatic tool.
- Indicators for each cascade step could be measured in **large-scale surveys** like Demographic and Health Surveys.
- Measurements could also be used for **combination prevention cascades**, reflecting that individuals do not need to use all prevention methods and that use of one method may influence use of another.

MOVING FORWARD

- Proposed HIV prevention cascade need to be piloted. **Methods for measuring** the core three-step cascade must be developed and validated.
- **Guidelines** are needed on how to incorporate it into national and international programmes, including **targets for the major cascade steps**.
- HIV treatment cascade has shown how a unifying framework can become a driving force for programmes and policy ► a unifying HIV prevention cascade framework has similar potential to **boost prevention efforts**.

ACKNOWLEDGEMENTS

We would like to thank everyone who participated in any meeting of the HIV prevention cascade and the stakeholder consultation meeting and workshop on HIV prevention cascade in Harare, Zimbabwe (31 July – 2 August). The discussions of these meetings formed the basis for this work. Special thanks goes to all members of the London HIV Prevention Cascade Working Group. This project was supported by the Bill and Melinda Gates Foundation; R. Schaefer is supported by the Wellcome Trust.

REFERENCES

- 1) UNAIDS. HIV Prevention 2020 Road Map - Accelerating HIV prevention to reduce new infections by 75%. Geneva: UNAIDS; 2017.
- 2) UNAIDS. Prevention Gap Report. Geneva: UNAIDS; 2016.
- 3) UNAIDS. Invest in HIV Prevention: A Quarter for HIV Prevention. Geneva: UNAIDS; 2015.
- 4) Isbell MT, Kilonzo N, Mugurungi O, Bekker L-G. We neglect primary HIV prevention at our peril. *Lancet HIV* 2016; 3(7):e284-e5.
- 5) Garnett GP et al. Providing a conceptual framework for HIV prevention cascades and assessing feasibility of empirical measurement with data from east Zimbabwe: a case study. *Lancet HIV* 2016;3(7):e297-e306.
- 6) Hargreaves JR, Delany-Morettwe S, Hallett TB, Johnson S, Kapiga S, Bhattacharjee P, et al. The HIV prevention cascade: integrating theories of epidemiological, behavioural, and social science into programme design and monitoring. *Lancet HIV* 2016; 3(7):e318-e22.
- 7) Kelley CF, Kahle E, Siegler A, Sanchez T, Del Rio C, Sullivan PS, et al. Applying a PrEP Continuum of Care for Men Who Have Sex With Men in Atlanta, Georgia. *Clinical Infectious Diseases* 2015; 61(10):1590-7.