

## SUPPLEMENT ARTICLE


# AQ1 Evaluating the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe programme, what's worked and what more needs to be done?

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This paper is a commentary framing a series of papers on the evaluation of several aspects of the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) programme. The paper highlights the scope and challenges with evaluating a large, complex and ambitious programme like DREAMS. Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.


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In 2015, 25% of all new HIV infections occurring in sub-Saharan Africa were occurring among adolescent girls and young women (AGYW) [1]. Although they make up just 17% of the population, they account for 74% of new HIV infections among adolescents, with nearly 1000 AGYW infected every day across the region [2] . This heightened risk has been recognised for many years [3,4], as have many of the risk and protective factors operating at multiple levels [5]. Comprehensive HIV prevention strategies that address these have long been recognised as central to epidemic control [6] but despite this few truly comprehensive, multisectoral programmes had been implemented and none at scale. In 2014, the Presidents Emergency Fund for AIDS Relief (PEFAR) and partners announced its flagship Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) partnership – an ambitious programme, which aimed to reduce HIV incidence among AGYW in the region.

DREAMS is a significant financial and technical investment, which aims to deliver a package of

evidence-based interventions to comprehensively address AGYW's structural, behavioural and biological vulnerability to HIV. How the different DREAMS components are delivered and to whom has evolved over time guided by multiple sources of data as described here by Toiv *et al.* [7] Given the multiple pathways to HIV vulnerability, **which are driven by both the broader epidemiologic context and the specific vulnerabilities relating to individual, partner, family or community circumstances,**  the implementation of DREAMS has been designed to 'layer' a package of interventions addressing the specific social, structural and individual barriers to HIV prevention for each individual enrolled and has been targeted to geographic locations where there is evidence of highest HIV risk. The aim is for all those enrolled in DREAMS to receive a minimum 'primary package' of age-appropriate services, with a range of 'secondary package' interventions offered according to need (and programme priorities). An earlier collection of papers delved into the DREAMS core package, the context of HIV risk for AGYW and the characteristics of male partners of AGYW

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and presented early lessons from DREAMS implementation [8].

The rapid scale up and complexity of interventions implemented in diverse real-world settings has required innovative approaches to evaluation. The breadth and diversity of the intervention package delivered cannot be encompassed using a single evaluation lens. The pre-specified risk differentiated geographic targeting, which precluded randomisation of districts for example, has made comparison of outcomes and inferring causal inference between DREAMS and non-DREAMS geographies problematic. Further, the impact of other simultaneously implemented non-DREAMS interventions often provided at different levels of intensities across DREAMS and non-DREAMS settings adds a further complexity to robust evaluation design and attribution of any changes due to the DREAMS programme.

The papers presented here detail a variety of implementation research studies using innovative methodologies to evaluate and understand different aspects of programme implementation and impact from awareness of the DREAMS programme, relative uptake of different components of the package, and its impact on sexual risk pathways, modelled HIV incidence and cost.

An important aspect of DREAMS programming and arguably one of the simpler outcomes to measure was the expansion of access to oral PrEP for AGYW. Patel *et al.* tracked routine PEPFAR indicators to demonstrate improvements in access from 2017 to 2020 and reports a doubling of countries offering PrEP particularly amongst AGYW and that absolute numbers of AGYW offered, initiating and receiving PrEP has increased. This certainly represents progress however a great deal still needs to be done to optimize access, ensure that coverage includes those who are most vulnerable, and to support effective use and continuation which remain challenging for AGYW.

Awareness and coverage of DREAMS has been addressed by Gourlay *et al.* highlighting better knowledge of DREAMS amongst beneficiaries over time but also the challenges of achieving optimal layering of services, with some services better accessed than others. In some settings, even uptake of the complete primary package of services (those that all enrolees should receive) remained low.

The overarching aim of DREAMS is to reduce HIV incidence among AGYW and several of the papers presented here sought to explore whether this was achieved either by directly measuring incidence or through modelling. Shamanesh *et al.* conducted a population based prospective cohort study nested within a large demographic surveillance site in Kwa Zulu Natal

South Africa, assessing rates of HIV and HSV-2 acquisition among those exposed and not exposed to DREAMS. They found no association of DREAMS exposure over two years on risk of acquisition or transmission of HIV although were able to show that geographic location and age were associated. Saul *et al.* utilized geospatial modelling to predict declines in HIV diagnoses among antenatal women in sub-national units (SNUs) where DREAMS was implemented and those where it was not. Declines in the rate of new diagnoses were seen in all SNUs but with somewhat higher declines in SNUs where DREAMS had been implemented and implemented more intensively. They conclude that DREAMS implementation may have contributed to this more accelerated decline.

Floyd *et al.* assessed DREAMS impact on mediating risk outcomes including HIV testing, condomless sex, lifetime partners and transactional sex, as well as awareness of HIV prevention services. The authors found variable changes in three different settings from no change in one setting and reductions in different risk behaviours in other settings.

Mathur *et al.* examined the combinations of program components influence HIV-related outcomes. The authors show that different combinations of individual- and structural-level DREAMS interventions impacted AGYW's vulnerability to HIV infection through diverse pathways including reducing rates of transactional sex and experience of violence and increasing reported condom use. The impact on these intermediate outcomes varied by the age of DREAMS enrolees and by geographic location highlighting the importance of appropriately tailored layering and services.

An important component of DREAMS is reducing risk of HIV acquisition from male partners, which requires better understanding of male risk and how they access HIV prevention and treatment services. Gottert *et al.* explored HIV risk in male partners of AGYW and their use of services. They reported that while most men said they were eager to receive information and access comprehensive services fewer than 15% of men reported being reached by such programming. Important was that it was men with higher risk profiles that were reached, but 15% is still likely suboptimal.

Pulerwitz *et al.* described high rates of often multiple adverse events (and especially violence) experienced by men in childhood and as adults, with a dose-response relationship associated with depression and anxiety as well as likelihood of reporting perpetration of intimate partner violence and HIV risk behaviours. This paper highlights the likely importance of interventions spanning the lifecourse and the need for sustained programming that integrates comprehensive interventions for children, families and communities. Making communities safe

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spaces for all will be central to a successful HIV response among AGYW.

Implementing this ambitious, comprehensive programme raises questions about affordability and scale, yet there is limited data on the costs of such intervention packages. Okal *et al.* assessed start-up and early implementation costs for the DREAMS package in two wards in Kenya. They found the unit cost of delivery was higher in periurban than urban areas (USD 129 to deliver the package compared with USD67) with costs of building and utilities being a cost driver.

DREAMS has been the largest global initiative to date to comprehensively address HIV prevention for adolescent girls and young women. The vision has been bold, perhaps for the first time attempting to address the full range of structural, behavioural and biomedical drivers of HIV incidence amongst AGYW at scale. Scale up was rapid and across sites there was, as to be expected, considerable learning by doing. These papers illustrate that even after a short period of time, DREAMS has likely had an impact on some mediators of change, but to date there is only weak evidence of impact on HIV incidence. Importantly there are some signs of dose response. As the programme evolves ongoing evaluation will be important. The need to address structural drivers of HIV among both men and AGYW is a critical part of the programme, but these changes often require time to occur.

Improving the health and wellbeing of adolescents and young people in east and southern Africa more broadly is important beyond HIV. Uptake of sexual and reproductive health services by adolescents in sub-Saharan Africa is poor; over 80% of sexually active 15–19-year-olds do not report using contraception, with high rates of unintended pregnancies reported [9]. Additionally, many chronic non-communicable diseases have their origins in childhood and adolescence and there is increasing recognition of the need to optimise preventive behaviours and health seeking early to prevent adult morbidity and reduce the influence of early life risk factors and lay the foundation for healthy adulthood. As for other HIV initiatives it is likely that the impact of DREAMS will ripple beyond its effect on HIV. Finally, there is a demographic transition underway in east and Southern

Africa; currently 40% of the population is below age 15. If HIV incidence in AGYW remains the same as it is now the absolute numbers of infected adults will double in the next ten years with all that that implies. Continued investment is required to ensure that positive changes that have occurred to date are sustained and act as a foundation for further impact. In parallel, improving coverage of comprehensive programming for men at risk is also needed.

## Acknowledgements

### Conflicts of interest

There are no conflicts of interest.

### Uncited references

[1,2].



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