Reappraising Risk: Using a Population Intervention platform to evaluate the impact of DREAMS among adolescent girls and young women in rural KwaZulu-Natal

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abstract #14 and #57

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Overview

• Background
• Research questions
• Context and setting
• Reappraising risk (abstract #14)
• DREAMS impact evaluation (abstract #57)
• Recommendations
Background

• High burden of HIV in South Africa
  • 6.3 million living with HIV and 300,000 new infections every year

• Adolescent girls and young women (AGYW) most at risk
  • uMkhanyakude - Incidence in girls aged 15-29 was 5.8% (CI=5.1-6.6%) per annum (2011-2015)
  • uMkhanyakude - Incidence in women aged 20-24 was 9.5% (CI=8.2-11.0%) per annum (2011-2015)

• Incidence in men is also high
  • uMkhanyakude incidence in men aged 20-24 years was 4.2% (CI=3.7-4.8%) per annum (2011-2015)
  • uMkhanyakude incidence in men aged 25-29 years it was 6.4% (CI=4.7-8.6%) per annum (2011-2015)

• Structural, behavioral and biological interventions shown to be effective

• Determined Resilient Empowered AIDS free, Mentored and Safe (DREAMS)
  • Aim to combine and “layer” these interventions systematically to reduce HIV incidence by 40% in this age group
DREAMS in uMkhanyakude

**Society**
- Social asset building (ASPIRES and ensuring existing social protection is accessed)
- School interventions (Vhutshilo)
- Gender-based violence intervention (stepping stones and SASA)
- Family interventions
- Community mobilisation

**Family/community**
- Condom promotion and provision

**Male sexual partners**
- SRH services
- VMMC
- Post violence care

**Adolescent girl & young woman**
- HTC
- HIV treatment
- PrEP for sex workers
Research questions

Is scale up and layering of a multi-level structural individual and biological interventions feasible?

Will it reduce HIV incidence in adolescent girls and young women by 40%?

What is the effect of the girl focused intervention on men and the wider community?
Context
Population Platform: where is it?

- Umkhanyakude
  - Pop: 626,000
- Hlabisa sub-district
  - Pop: 250,000

Locations:
- Durban
- Somkhele
Recent trends in sexual risk behaviours and HIV knowledge among adolescents and young adults in rural KwaZulu-Natal

Before DREAMS
Methods – annual individual surveillance surveys

- Responses weighted by sex/age/location strata (rural vs urban) for each year to adjust for survey non-participation
- Used generalized additive models to estimate trends
- Overall trends stratified by sex, and age groups 16-19y and 20-24y
- Trends were examined by:
  - Orphanhood status (UNICEF definitions)
  - Co-residency with parents
  - Recent migration status
  - In/out of school
- Regression analyses investigate association between outcomes and these predictors (2011-2015)
- Ethics from UKZN, LSHTM and Southampton BREC
20% of 15-19
70% of 20-24 year olds ever pregnant

<table>
<thead>
<tr>
<th>Age group</th>
<th>Know HIV status</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>20%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>35%</td>
<td>70%</td>
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</table>
Summary findings for vulnerable groups

• Out of school
  • Women 16-19 and 20-24 more likely to report sexual risk
  • Men 16-19 and 20-24 more likely to report sexual debut and father a child
  • Men aged 16-19 and both age groups of women were more likely to have HIV

• Recent migration
  • Women aged 16-19 associated with sexual risk, ever pregnant and HIV
  • Men 16-19 and 20-24 more likely to report ever having sex

• Orphan-hood status
  • Not associated with sexual risk
  • Associated with greater odds of HIV infection

• Parent co-residency
  • Not associated with different sexual risk or HIV status
DREAMS impact evaluation

Aims:

To measure impact of combined DREAMS package on HIV incidence in AGYW and their male partners

To identify pathways for DREAMS effect on health, education and social well-being of AGYW

To understand the process of DREAMS scale up
DREAMS Theory of Change

**DREAMS core activities** (delivery & reach)

- **Adolescent girls / YW**
  - Adolescent-friendly SRH services
  - Condom promotion
  - Contraceptive mix
  - HTC & linkage into care or prevention cascades
  - PrEP
  - Safe Spaces programming
  - Post-violence care

- **Their families**
  - Education subsidies
  - Cash transfers & financial literacy
  - Socio-economic support
  - Parenting & caregiver programmes
  - Violence reduction

- **Their partners**
  - HTC
  - ART
  - Condoms
  - VMMC
  - Violence prevention
  - Gender norms education

- **Their communities**
  - School- & community-based:
    - HIV prevention
    - Violence prevention
    - Gender education
    - Parent/caregiver programs
    - Community norms/perception

**Mediators of change**

- **Determined**
- **Resilient**
- **Empowered**
- **Mentored**
- **Safe**

**Outcomes**

- **Social protection**
  - Stay in school
  - Support themselves financially
  - Delay marriage
  - Reduced violence

- **Biological protection from HIV**
  - Aware of HIV status
  - PEP
  - Use of PrEP
  - ART (esp for male partners)
  - Male circumcision
  - Reduction in STI

**Impact on HIV incidence**

- Fewer new cases of HIV among AGYW

**Safer sexual relationships**

- **AGYW**
  - Delaying sexual debut
  - Fewer sexual partners (in lifetime & last 12 months)
  - Partners with low HIV risk
  - Less transactional sex
  - Use of condoms
  - Delay first pregnancy
  - Less age-disparity betw/ partners

- **Male partners**
  - Fewer sexual partners (in lifetime & last 12 months)
  - Use of condoms
  - Less age-disparity betw/ partners
  - Fewer concurrent sexual partners
Leverage existing population intervention platform in uMkhanyakude

**Historical trends, pre-DREAMS**

- Ongoing demographic/behavior surveys
- Ongoing HIV serological surveys

**Roll-out of DREAMS**

- New DREAMS module (2016-2018)

**Post-DREAMS follow-up**

- New nested DREAMS study with AGYW (2016-2018)

**Incidence 15-19 year old girls 5% and 20-24 women 9%**

New enhanced DREAMS study with qualitative and process evaluation methods
Population Intervention Platform linking exposure to outcome

Linkage based on Individual Identity
South African civil identity number, probability matching

- DREAMS implement partners
- Department of Education
- Department of Welfare

Population Platform
90,000 residents
(> 6000 15-24 AGYW)

- Electronic Record Systems
- Routine Laboratory Data
- Administrative Data

Tier.Net (2004 onwards)
39,000 patients
1.2 million treatment visits

ACHIS (2010 onwards)
29,000 patients
34,000 admissions

NHLS (2004 onwards)
240,000 CD4s
130,000 Viral loads
30,000 Liver & renal function tests

Cost

### Social science component

<table>
<thead>
<tr>
<th>What is the ...</th>
<th>Population platform</th>
<th>Qualitative cohort of 20 AGYW &amp; ABYM</th>
<th>Focus Group Discussions (n=20)</th>
<th>Rapid mapping (12-15 days per area)</th>
<th>KII (n=40)</th>
<th>Observe DREAMS (n=40)</th>
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<tbody>
<tr>
<td>Coverage &amp; reach of DREAMS?</td>
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<td>experience of DREAMS, those it targets, those who deliver it and the community</td>
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<td>Facilitator and barrier to DREAMS?</td>
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<tr>
<td>How is DREAMS influenced by context?</td>
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In summary the components of the evaluation

Enhanced population platform, N= 10,000 (resident 15-24)

Phylogenetics

Nested cohort n=800 (12-22 year olds)

Community Experience

Process Evaluate

HIV incidence reduce 25% and 40%

HIV viral load

ART

Biological

Behavioural

Social protection

Community strength

HIV test

Mediate outcomes

In summary the components of the evaluation
Take Away Messages and Recommendations

• HIV incidence high among AGYW and young men despite an apparent decline in sexual risk.

• HIV testing and contraception use in 15-24 year olds remains sub-optimal, despite increasing awareness of antiretroviral treatment.

• AGYW are having sex with men who are only a few years older, the majority of whom do not know their HIV status and do not reside locally.

• AHRI Population Intervention Platform (PIP) allows us to link exposure to interventions e.g. the cascade of HIV care and contraception with outcomes, e.g. HIV incidence and pregnancy at a population level.

• This PIP provides an opportunity to measure exposure to DREAMS, inform innovations in scale-up, and evaluate the impact of layering multi-level interventions on HIV incidence.
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