Structural factors and the HIV prevention and treatment cascades: where are we?

Sinead Delany-Moretlwe & James Hargreaves
On behalf on
The STRIVE Biomedical Working Group
Structure of talk

Introduction: STRIVE in the time of cascades

Biomedical HIV prevention tools can’t do it on their own

Structural factors can be addressed within programmatic time frames with evidence-based interventions

Innovative new studies are needed to understand and respond to structural barriers to HIV prevention

Discussion
Introduction: STRIVE in the time of cascades

There is an unmet need for HIV prevention, both through primary prevention and treatment-as-prevention, particularly in key populations.

HIV prevention has been dominated by behaviour change, but structural factors have acted as a barrier. Recent advances in knowledge about biomedical prevention offers real promise for reducing HIV incidence at a population-level – if sufficient coverage achieved.
Achieving TasP coverage: The treatment cascade
Achieving prevention coverage: The prevention cascade

Garnett, Lancet HIV 2016
STRIVE BMWG questions

Will structural factors act as barriers to the success of biomedical prevention tools, and if so how, why and among who?

Can programmes address structural factors in order to optimise the impact of biomedical HIV prevention?
Message 1

Biomedical HIV prevention tools can’t do it on their own

- The inverse equity hypothesis
- STRIVE review
The inverse equity hypothesis

“New interventions will initially reach those of higher socioeconomic status and only later affect the poor.”
## Tanzania

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Interaction terms year-education p=0.07, from Hargreaves and Howe AIDS (2010)
Figure 1. Changes in HIV Prevalence among men and women aged 15-24 years with different levels of educational attainment between earlier (2003-5) and later (2008-12) nationally-representative population-based surveys in seven sub-Saharan African countries.

Hargreaves et al PLOS One (2016)
STRIVE review of reviews
Selection of factors

• Gender inequality and violence,
• Alcohol use
• Stigma,
• Poverty or socio-economic status, and
Methods

- Systematic scoping review of the literature to map existing understanding of the potential for selected factors to act as a barrier.
- Prioritized systematic reviews i.e. review of reviews.
- Search strategies were conducted using MeSH terms and keyword searches specific to the cascade.
- Two key databases were searched: Pubmed/MEDLINE and ISI Web of Science.
- Titles, abstracts, and full texts of published reviews were screened for inclusion by two reviewers.
- Assessed the type and direction of the evidence for each of the four outcomes based on study design and direction of reported findings.
Violence and fear of violence limits the success of HIV treatment cascade

HIV testing and linkage to care

Gender inequality undermines women's decision making autonomy about HIV testing. 
*Musheke, 2013*

Fear of partner violence prevented some women from accessing testing, but other studies showed no difference in uptake or access by IPV status. One study suggested that IPV motivates HIV testing. 
*Kouyoumdjian, 2013*

Fear of violence prevented disclosure. 
*Kouyoumdjian, 2013*

ART initiation

- IPV was associated with inability to access care and treatment, although one outlier did not show an association. 
*Kouyoumdjian, 2013*

- IPV was associated with lower ‘current ART use’ among women in meta-analysis. 
*Hatcher, 2015*

- Women were reluctant to, or did not include at all, their male partners in PMTCT services due to fear of violence. 
*Morfaw, 2013*

Adherence and Retention in care

- IPV reduced odds of women adhering to ART by half. 
*Hatcher, 2015*

- Partner abuse associated with poor medication adherence leading to poor treatment outcomes (VL, CD4+). 
*Pantalone, 2014*

- IPV associated with treatment discontinuation in two studies. 
*Kouyoumdjian, 2013*

- Some evidence for increased loss to follow up. 
*Hatcher, 2015*

Limited data for PrEP but emerging evidence for similar patterns.
## Socio-economic status

### HIV testing and linkage to care
- Transport costs, distance to health facility, food shortage, patient-related time constraints were the main reported economic barriers to linkage to care. 
  
  - Obermeyer, 2007
- Unstable housing associated with poor health service utilisation. 
  
  - Leaver, 2007

### ART initiation
- Influenced by travel time/distance, lack of consistency and coordination across services, and the limited involvement of the community in the programme planning process. 
  

### Adherence and retention in care
- Housing instability was a significant predictor of non-adherence to HAART. 
  
  - Leaver, 2007
- Transport costs and distance impeded continuity in HIV care. 
  
  - Govindasamy, 2012
- Food insecurity is an important barrier to ART adherence and provision of food can improve adherence. 
  
  - de Pee, 2014, Singer, 2015
Stigma

Consistent findings that stigma is a barrier to

- **Access and uptake of testing and linkage to care** *Obermeyer, 2007; Mahajan, 2008; Ferguson, 2012; Musheke, 2013; Levy, 2014; Posse 2008*

- **Adherence and retention in care** *Mahajan, 2008; Katz, 2013; Colombini, 2014*
  - No reviews showing impact on clinical outcomes apart from PMTCT *Mahajan, 2008; Hlarlaithe, 2014;*

- Less but emerging evidence of ART stigma associated with poor PrEP adherence in placebo-controlled trials
- Mediated largely through fear of disclosure of status
Alcohol

Testing and linkage to care
• Evidence on the impact of alcohol use and HIV service utilization was variable  
  Azar, 2010
• Alcohol use negatively affects all steps of the treatment cascade.  
  Vagenas, 2015

ART initiation and use
• Strong and consistent evidence that alcohol use undermines adherence and treatment outcomes.  
• Worse outcomes with non-communicable co-morbidities  
  Grodensky, 2012

Limited evidence for effects on ART-based prevention
Conclusions

• Evidence that each of these structural factors influence elements or all of the cascade
• In some cases the evidence is mixed – related to definition of the structural factor
• Evidence more limited for prevention interventions e.g. PMTCT, PrEP, PEP – but emerging and similar trends
• Evidence for impact on clinical/population-level impacts if limited – where it exists, outcomes are poorer
Implications

• In designing ART-based prevention interventions, need to identify evidence-based interventions that address these structural factors.

• Test combination interventions to optimise ART benefits in populations at risk – key is an understanding of those factors that are most influential.
Message 2

Structural factors can be addressed within programmatic time frames with evidence-based interventions

- Examples from the literature
- The Prevention Cascade
Prevention of violence against women and girls: what does the evidence say?

Mary Ellsberg, Diana J Arango, Matthew Morton, Floriza Gennari, Sveinung Kiplesund, Manuel Contreras, Charlotte Watts

Low-middle income countries

- Men and boys social norms programming
- Economic empowerment & income supplements
- One stop crisis centres
- Women's police stations
- ICT services
- Social marketing campaigns
- Alternative rites of passage
- Home visitation/health worker outreach
- Infrastructure/transport

- Conflicting
- Ineffective
- Insufficient evidence
- Promising

- Awareness-raising campaigns
- Retraining for traditional exercisers
- Personnel training
- Community mobilization
- Empowerment training for women and girls
- Group training for women and men
- Economic empowerment & income supplements + gender equality training
South Africa: Microfinance combined with Gender training (IMAGE) improved range of indicators

**Economic indicators**
- Food security
- Household assets
- Improvements to home
- Ability to pay back debt
- Savings group membership
- Basic needs
- Bank account
- Perceived household economic well-being
- No begging in past month

**Empowerment indicators**
- Self confidence
- Financial confidence
- Challenges gender norms
- Supportive partner relationship
- Autonomy in decision making
- Perceived contribution to household
- Greater social network membership
- Greater sense of community support
- Greater solidarity in a crisis

**Violence**
- Attitudes condoning IPV
- Past year experience of controlling behaviour
- Past year experience of violence

**HIV**
- Household communication
- Collective action
- Condom use with non-spousal partners

*Source: Kim, Watts et al 2008 WHO Bulletin*
Considerable progress made over the last decade.

- The number, geography and complexity of interventions have notably expanded.
- Studies that showed reductions of HIV-related stigma were of high quality
  - 90% reported reductions in stigma
  - 75% used 2+ strategies

Current evidence is strongest for interventions with:

- students, health care workers, and community members; and
- interventions using structural and counseling-based
“Best buy” policy interventions to reduce alcohol-related harm (WHO)

- Regulate production, wholesaling and serving of alcoholic beverages that places reasonable limitations on the distribution of alcohol and the operation of alcohol outlets in accordance with cultural norms (WHO, 2009)
- Reduce the impact of marketing, particularly on young people and adolescents, is an important consideration in reducing harmful use of alcohol.
- Use pricing policies to reduce underage drinking, to halt progression towards drinking large volumes of alcohol and/or episodes of heavy drinking, and to influence consumers’ preferences.
Mapping interventions to the prevention cascade
**Figure: Targets for prevention programmes along the HIV prevention cascade**
Prevention targets with some examples of interventions, platforms for delivery, and policies.

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**The HIV prevention cascade: integrating theories of epidemiological, behavioural, and social science into programme design and monitoring**

James R Hargreaves, Sinead Delany-Moretlwe, Timothy B Hallett, Saul Johnson, Saidi Kapiga, Parinita Bhattarcharjee, Gina Dallabetta, Geoff P Garnett
Figure 3. Mapping the evidence for the HIV prevention cascade: a systematic review of reviews

“Direct mechanisms”: 29 Reviews (98 primary studies [34 RCTs])
Prevention products: PreP (6), Condoms (4), VMMC (64), STI reduction (7), Microbicides (12), Vaccines (5)
Prevention behaviours: abstinence, sero-sorting (not included in this review)

“Demand” focused interventions: 40 Reviews (108 primary studies [24 RCTs])
IEC approaches (54); Peer-based approaches (54)

“Supply” interventions: 12 Reviews (35 primary studies [6 RCTs])
Mass Condom Distribution and associated policies (20); Needle / Syringe programmes and associated policies (6); Health system policies: Integration of family planning and HIV (6); STI Control (3)

“Use” interventions: 16 Reviews (51 primary studies [26 RCTs])
Counselling approaches (40); Social determinants approaches: cash transfers (3); microfinance (8)
<table>
<thead>
<tr>
<th>Demand-side interventions</th>
<th>Incidence</th>
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<th>Condom use</th>
<th>HIV testing</th>
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Consistently showed effectiveness | A1 | B1 | C1 |
Largely, but not consistently, showed effectiveness | A2 | B2 | C2 |
Mixture of beneficial and ineffective or harmful results | A3 | B3 | C3 |
Consistent ineffective or harmful results | A4 | B4 | C4 |
Message 3

Innovative new studies are needed to understand and respond to structural barriers to HIV prevention

- Stigma and TasP
- EMPOWER
HIV stigma: negative stereotypes, leading to a separation of “us” from “them” and status loss.

Attitudes and behaviours of community members and health workers are determinants of stigma experienced by PLHIV and other vulnerable groups.

Experienced and internalised stigma are negative outcomes, human rights infringements and can lead to poor mental health.

Stigma can act as a barrier to HIV prevention, testing, linkage to care and adherence.
Stigma and Universal Test and Treat hypotheses

Universal Test and Treat may change levels of HIV-related stigma

HIV-related stigma may undermine the effectiveness of Universal Test and Treat

Universal Test and Treat may change the forms of HIV-related stigma
The Community

People living with HIV

Vulnerable populations

Health workers
Measuring stigma

Harmonised consensus items – STRIVE measurement brief (Stangl et al)
Parallel approach
  – Eg “Talk badly”
Theory and data informed approach to item grouping
Initial Findings from HPTN071 (PopART)

Stigma in the Health Facility
- Space is important
- HCWs LWH

Stigma in the community
- Vulnerable groups and PLHIV

Stigma and uptake of the testing and treatment interventions
- Home-based testing
- Early ART

From Hargreaves et al, Reported at IAS Paris 2016
## Stigma prevalence in PLHIV (n=3859)

<table>
<thead>
<tr>
<th>HIV stigma outcomes</th>
<th>Total</th>
<th>South Africa (n=1704)</th>
<th>Zambia (n=2155)</th>
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<tr>
<td><strong>Current internalised stigma</strong></td>
<td>868</td>
<td>310 (18.2%)</td>
<td>558 (25.9%)</td>
<td>&lt;0.001</td>
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<tr>
<td><strong>Experienced any stigma in past year</strong></td>
<td>853</td>
<td>320 (18.8%)</td>
<td>533 (24.7%)</td>
<td>&lt;0.001</td>
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<td>Responding Once, A few times or Often to any of 5 items</td>
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<tr>
<td><strong>Experienced health setting stigma in past year</strong></td>
<td>280</td>
<td>148 (8.7%)</td>
<td>132 (6.1%)</td>
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<tr>
<td>Responding Once, A few times or Often to any of 3 items</td>
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<tr>
<td><strong>Any stigma last year</strong></td>
<td>1371</td>
<td>503 (29.5%)</td>
<td>868 (40.3%)</td>
<td>&lt;0.001</td>
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<tr>
<td>Yes to current internalised stigma, experienced any or health setting stigma in last year</td>
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From Hargreaves et al AIDS 2018
Primary Objectives:
To evaluate the feasibility, acceptability and safety of:
- integrating screening and linkage-to-care for GBV and stigma within HIV counselling and testing for AGYW, and
- supporting PrEP acceptance, effective use (adherence) and retention in care through adherence clubs that include a four-session empowerment curriculum, compared to counselling and SMS support alone, in HIV negative AGYW

Population: 600 sexually-active HIV-negative AGYW 16-24 yrs in Johannesburg, South Africa and Mwanza, Tanzania

Completed follow-up mid-Feb 2018; anticipated results mid-2018

STRIVE partners: Wits RHI, MITU, ICRW, LSHTM
**Study Design**

**HCT+ GBV screening**
- AGYW age 16-24 years
- HIV positive and/or risk of immediate harm - refer
- Enrol HIV negative

**Accept oral PrEP** (N=500)

**Decline oral PrEP**

**Standard of Care**
- N=250
  - Empowerment clubs + standard adherence support (N=250)

**Randomisation**
- Standard of Care
- Empowerment clubs + standard adherence support
HCT+ GBV screening
AGYW age 16-24 years

HIV positive and/or risk of immediate harm - refer

Enrol HIV negative

Accept oral PrEP
N=500

Decline oral PrEP

Standard of Care
N=250

Empowerment clubs + standard adherence support
N=250

Empowerment clubs + standard adherence support

Study Design (cont.)

Randomisation

Stakeholder engagement and community dialogues

Adherence club
Discussion

- Biomedical interventions will not achieve the ambitious targets to end AIDS without addressing structural factors that shape HIV risk and undermine uptake and effective use.
- Structural factors can be addressed within programmatic time frames with evidence-based interventions.
- We must now integrate strategies to address structural factors within HIV biomedical prevention and evaluate at scale.
Acknowledgements

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Saidi Kapiga
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