EHPSA programme
HIV impact evaluations co-financed and implemented by The World Bank

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Importance of Adolescents in Southern Africa: Opportunity of the Demographic Dividend

Source: 2017 World Bank report: Forever young
A demographic window of opportunity is opening for Southern Africa

1950-2003
(1988-2028)
(1995-2030)
(1996-2030)
(1998-2034)
(2004-2044)
(2005-2052)
(2020-2065)
(2025-2065)
(2038-2082)
(2040-2086)
(2041-2086)
(2063-2100*)
The World Bank and Health Impact Evaluations

- Emphasize more practical, policy oriented evaluations
- Evaluation of real life, government-driven implementation: research team with funding for the evaluation parts only
- Increasing focus on evaluating “how to”
- Big data analytics – important future feature to improve impact evaluation design and outcomes
- Focus on the continuum from routine data analysis, big data analytics, modelling, quasi-experimental impact evaluations and randomized control trials
Continuum of evidence

Rapid management analysis and “best” estimate in 3 months

Intermediate “big data” analysis with proximate indicators in 1 year

Rigorous prospective evaluation in 2 years
EHPSA co-financed impact evaluations

- Have immediate ‘describable’ application
- Are as real-world as possible – we invite messiness
- Government involvement, with preferably a Government-implemented intervention, within the broader context of health system strengthening and UHC

**Malawi:** Incentivized demand creation strategies to remove barriers to voluntary medical male circumcision (VMMC)

**South Africa:** Strategies to enhance linkage and adherence to ART and retention in care within the ambit of the country’s national chronic disease adherence programme

**Swaziland:** Incentives to enhance HIV prevention among adolescent girls & young women

**Zimbabwe:** Efficiency gains through HIV-SRH serv
3 types of vouchers

1. Incentivising primary and secondary schools: Collective (in kind) incentive based on a stipulated number of in-school (students) young men voluntarily undergoing VMMC at their District Hospital

2. Incentivising school-based mothers’ groups: School-based Mothers’ Groups in the same intervention schools receive a separate collective (in kind) incentive based on a stipulated number of out-of-school young men voluntarily undergoing VMMC at their District Hospital

3. Incentivising students, young men and their caregivers: School heads and Mothers’ Groups distribute transport vouchers for round-trip transportation to the District Hospital for procedures and two follow-ups
## Individual voucher redemption rates

<table>
<thead>
<tr>
<th></th>
<th>Rumphi</th>
<th>Mchinji</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMMC Procedure</td>
<td>51%</td>
<td>62%</td>
</tr>
<tr>
<td>Guardian of VMMC client for VMMC Procedure</td>
<td>51%</td>
<td>58%</td>
</tr>
<tr>
<td>Student follow up Voucher</td>
<td>47%</td>
<td>51%</td>
</tr>
<tr>
<td>Guardian for Student follow ups Voucher</td>
<td>49%</td>
<td>48%</td>
</tr>
<tr>
<td>Friends of Student Voucher for VMMC Procedure</td>
<td>28%</td>
<td>32%</td>
</tr>
<tr>
<td>Guardians of friends Student Voucher for VMMC Procedure</td>
<td>29%</td>
<td>31%</td>
</tr>
<tr>
<td>Friends of Student follow up Voucher</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>Guardians of Friends of Student follow up Voucher</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>26%</td>
<td>40%</td>
</tr>
</tbody>
</table>
Incentives significantly increased VMMC uptake among in-school and out-of-school boys and young men (10 – 34) in Malawi.

**Vouchers Incentives** significantly increased the odds of getting circumcised in Mchinji or Rumphi by 7.32 times.

**TOTAL circumcisions with vouchers:** 2,214 | **Total circumcisions:** 2,241

**Study Districts**

**Rumphi**
- School boys incentivised: 210
- Mother group: 648
- Total circumcisions: 858
- No vouchers: 10

**Mchinji**
- School boys incentivised: 488
- Mother group: 868
- Total circumcisions: 1,356
- No vouchers: 17

In Rumphi, the intervention led to an additional 16.05 male circumcisions per 1,000 adult males.

In Mchinji, the intervention led to an additional 9.15 male circumcisions per 1,000 adult males.
Circumcision rate, by month, for Rumphi and its synthetic control.
Circumcision rate, by month, for Mchinji and its synthetic control
Improving adherence to HIV treatment in South Africa
First, big data analytics to identify areas of poor service delivery
Can a smartphone-enabled app support linkage to care of HIV clients?

Findings from the Smart Linkage to Care RCT in South Africa
Design: Multi-center Randomised Controlled Trial

Test whether routine linkage to HIV care is improved by providing HIV+ clients with a smartphone-enabled app when compared to standard of care

• 2 arms: Smartphone app vs. Standard of care
• 5 medium-to-large HCT/ART sites in central Johannesburg
  o Hillbrow CHC, Helen Joseph, Yeoville, Jeppe, 80 Albert St.
• Primary endpoint: Linkage to care
  o Evidence of HIV-related lab test 2 weeks – 8 months after baseline CD4 test (VL, CD4, creatinine)
Phone ownership in target population of new HIV cases
- HIV+, ≥18 years, non-pregnant
- Literate, resident in area
- Photocard for ID purposes
- Phone ownership and type

Trial eligibility
- Android phone with data
- Consenting for trial participation

App effectiveness
- Linkage to care, indicated by VL, CD4 of creatinine result
CD4 and Viral Load results

**CD4 Results**
(The higher the better)

Click here for more info about CD4 count...

No results yet.
Please check back later.

**Viral Load Results**
(The lower the better)

Click here for more info about Viral Load...

No results yet.
Please check back later.

click on a result to learn more about the result

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**CD4 count of 500 or lower**

You should start antiretrovirals (ARVs) when you have a CD4 count of 500 or below, even if you are feeling well. ARVs will help to keep you healthy. Go back to your clinic and speak to your nurse or doctor so they can start you on ARV medication.

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**Viral Load (VL) higher than 1,000**

This is a sign that your treatment is not controlling the HIV virus in your blood. The most common reason for the treatment not working is if the ARVs are not taken correctly. Inform your nurse, doctor or counsellor about your high viral load result. Your doctor will then decide if you need more blood tests or different ARVs. Sometimes the virus develops resistance, which means the virus continues to multiply despite you taking your ARVs correctly. The higher the viral load, the more the virus will destroy your soldier cells (CD4 cells) and you will be more likely to become ill.

To prevent the virus becoming resistant to your ARVs, you need to take your medication every day and at the same time.
Focus on VL/CD4 explanations

**What is a Viral Load?**

Viral load is the amount of HIV viruses in the blood. This is measured by a blood test in a laboratory. The goal of taking your antiretrovirals (ARVs) is to reduce the amount of HIV virus in your blood. If there are so few viruses that the viral load test cannot measure it, it is known as undetectable viral load. Low level of HIV virus in the blood stops HIV from destroying your CD4 soldier cells. This does not mean that you are cured of the HIV virus. The virus remains in your body lifelong.

For the treatment to control the HIV virus, you must keep the amount of ARV in your blood high. Keep the level of ARV in your blood high by taking the treatment daily as directed by your nurse or doctor.
Implementation lessons

Smartphone brands and models:
- High diversity and dynamism, consumers quickly react to market offerings
- About 40% of this urban population had no smartphone

Operating systems:
- Multitude of OSs (Android, Windows, Blackberry OS, iOS,… and versions (Android KitKat, Lollipop, Marsh-mallow…)
- Prototype research app may first only work on a few phone types

Data:
- Although >50% used data-based communication systems (WhatsApp, Facebook, Twitter…) many did not have data on recruitment day

Trial eligibility:
- Heavily impacted by majority not having newer-version Android phone, not currently having data, not carrying identity books

Matching of lab data to patient clinic data:
- Automatic linkage impaired by lack of use of unique patient ID
Enrolment cascade of trial

1. Reviewed 4,562 new HIV cases at 5 clinics for trial inclusion
2. Lack of photo ID excluded 2,381 candidates
3. Another 368 ineligible for literacy level, age and other reasons
4. Assessed phone type of 3,175 reporting “access to phone”
5. Only 24% of them had suitable Android phone
6. Randomised 353 HIV patients of 4,562 reviewed (7.7%)
EFFECTIVENESS RESULTS

Linkage to Care overall
(2 week – 8 months window, regardless of trial arm)

Only 48% of the 353 trial participants linked to HIV care

- 52% of males
- 46% of females
- 45% of 18-30 year olds
- 51% of >30 year olds
Intention to treat analysis (as randomised)

→ Statistically significant benefit in younger HIV patients
As-treated analysis

Excludes a few patients in control arm who erroneously received notification by SMS

→ Benefit in younger HIV patients maintained and higher
CONCLUSIONS

• **Promising linkage to care** results in younger HIV patients
• **App uptake** of those randomised to the intervention arm suggests that HIV clients are keen to digitally access personal health information, possibly based on experiences of hard-to-obtain lab test results and perceived disconnect from the health care providers
• **Routine data systems** can only talk to each other if patients have unique ID
• **Smartphone-based communication** must be part of the mix of delivery solutions for differentiated HIV care, but with low smartphone coverage especially in low-income, unemployed and low education strata, other mHealth and patient communication strategies remain key for implementation science research and programmatic scale-up
Also, prospective impact evaluation to improve service delivery in chronic disease adherence

**Use of standard DOH monitoring tools varies across the 24 facilities**
- PHC tick or daily clinic register: 92% of facilities
- Chronic patient record: 38% of facilities
- TB monitoring tools partially used
  - TB register & sputum register: 83%
  - TB screening tool: 38%
    (Baseline assessment 2015)

**Large diversity in retention rates and viral load results across facilities**
- Proportion of clients with a viral load test in last 12 months varied greatly across facilities: 40%–90% variation
- Rate of suppression among those with viral load result varied by location
  - **Lowest**: North West Province (67% suppressed)
  - **Highest**: KwaZulu-Natal (86% suppressed)
    (Tier.Net data extract)

**Recorded co-morbidities in chronic clients low but screening inadequate**
- Of 360 surveyed ART clients, 13% had one recorded co-morbidity (diabetes, hypertension, TB), and 1% had two
- Of the 246 HIV negative chronic clients, 73%, had a hypertension diagnosis, and 22% had hypertension and diabetes
  (Chronic clients file review)

**Some facilities provide adherence support similar to models proposed in new strategy**
- 54% of the facilities provide counselling for ART patients with unsuppressed viral load tests
- 42% of the facilities have adherence clubs
  (Baseline assessment 2015)
- **Most active**: KwaZulu-Natal Province
  (facility average 4.7/6)
- **Least active**: Gauteng Province and Limpopo Province
  (facility average <2/6)

**Facilities have started using non-standard registers to cater for their recording needs in HIV care**
- Tracing register: 50%
- Adherence club register: 25%
  (Baseline assessment 2015)

Source: Co PIs from NDOH, World Bank and Boston University, 2016. Full reports available on World Bank Open Knowledge Repository
Impact Evaluation of Implementation of Chronic Disease Adherence Guidelines

• **Cluster randomized design with matched pairs**
  • Based on VLD/VLS analyses, DOH chose clinics & randomly allocated to control, intervention

• **Components of the evaluation**
  • Evaluation to assess impact of 5 minimum package interventions using routine data
  • Mixed methods study to understand implementation from patients & providers perspectives
  • Estimate patient burden and describe cascade of care for TB, hypertension and diabetes patients
  • Estimate the cost of the interventions (USAID/INROADS) for cost effectiveness analyses
Incentives to Improve HIV Prevention Outcomes amongst Adolescent Girls and Young Women in Swaziland
First, modelling: Impact of cash transfers as one of the high impact interventions in Swaziland

Swaziland | Impact evaluation of incentives for HIV prevention among young women and girls

Impact evaluation asks whether conditional raffle incentives and cash transfers to households of girls and young women aged 14–22 reduce their HIV incidence.

HIV incidence in Swaziland picks up at 20–24

Just half of eligible Swazis attend secondary school (2014)

- 97.7% Primary school net attendance ratio
- 92.9% Children reaching last grade of primary
- 90.9% Primary completion rate
- 50.4% Secondary school net attendance ratio

Proportion of girls/young women 15–24 engaging in intergenerational sex (10 years or older) MVCS

- 2010: 14%
- 2014: 15%
- 2007: 7%

Completed enrolment of 4402 girls from 293 enumerator areas into the study (2183 respondents are out of school)

All behavioural and biological (HIV, trichomonas and syphilis) baseline data collected

HIV prevalence in out of school girls from preliminary analysis is approximately 3 times higher than that of in-school girls.
Midline Data Analysis completed

- Study implementation period extended by one year
- Informed consent from 3898 participants to continue with the study for one more year
- Final results by June 2019
Incentives have led to participants practicing safer sex in the highest risk group.

Percentage of AGYW Using Condoms Every Time Having Sex by Number of Partners and Study Arm

- Series2
- Series3
- Series4
- Series5