CONTROLLING THE HIV EPIDEMIC WITH ANTIRETROVIRALS

Having the Courage of Our Convictions

1-2 October 2015 • Paris
Community-Based TasP Trials: Updates and Projected Contributions

Reaching the 90-90-90 target: Lessons from HPTN 071 (PopART)

Sarah Fidler
Cascade of Care: Sub-Saharan Africa

HIV test +ve in past 12 m
Link into care and identify CD4 count
Retention in care until ART eligibility
ART initiation
Virological suppression

1-47%¹ 59%² 46%² 68%² 85% at 6 months³
86% at 18 months⁴
80% at 5 years⁵

Caution:
Estimates from a meta-analysis of studies or studies which examined individual stages in the cascade. Extrapolation to obtain an overall proportion could lead to inaccuracies.

1. UNAIDS report on the global AIDS epidemic 2013
2. Rosen & Fox 2011
3. De Luca et al 2011
4. Elul et al, 2013
5. De Beaudrap, 2012
What research do we need?

- **Implementation science**
  - Learning by doing
  - Practical experience and data from UTT programmes on the ground
  - Demonstration projects
  - Routine programme monitoring (data improvement)

- **Randomised trials**
  - Rigorous data on impact on HIV incidence at population level
  - Direct comparison of benefits and harms
  - Evidence-based data on cost-effectiveness
### 3 arm cluster-randomised trial with 21 communities

**Arm A**
- Full PopART intervention
- including immediate ART irrespective of CD4 count

**Arm B**
- PopART intervention except
  - ART initiation according to current national guidelines

**Arm C**
- Standard of care at current service provision levels including
  - ART initiation according to current national guidelines

7 communities per arm (N=21)

- **2,500 random sample from each community**
  - 12 in Zambia
  - 9 in S. Africa

**Population Cohort**
- N = 52,500

**Primary outcome:**
- HIV incidence at 36 months

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**PopART intervention package**

- Annual rounds of Home Based Voluntary HIV Testing by Community HIV-care Providers (CHiPs)
- Health promotion, Active Referral and/or Retention in Care support by CHiPs for the following:
  - Voluntary Medical Male Circumcision (VMMC) for HIV negative men
  - Prevention of Mother to Child Transmission (PMCT) for HIV positive women
  - HIV treatment and care for all HIV positive individuals
  - Promotion of sexual health and TB services
  - Condom provision
- ART irrespective of CD4-count or immune-status provided at the local health centre in Arm A
Questions from HPTN 071 (PopART)

- Can the 90-90-90 targets be achieved?
- What coverage was achieved by PopART intervention during the first annual round?
- How much closer did we get to the 90-90-90 targets as a result of the intervention?
- What were the main challenges during the first round?
- Using CHiPs data from the four Arm A communities in Zambia to address these questions
Getting to the first 90% uptake of HIV testing across entire community
## Home-based HIV testing: Coverage

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Proportion (95% CI)</th>
<th>Number offered HBT</th>
<th>Number accepting HBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>2009</td>
<td>97.57 (96.85, 98.19)</td>
<td>2033</td>
<td>1984</td>
</tr>
<tr>
<td>Kimaiyo</td>
<td>2010</td>
<td>89.02 (88.83, 89.21)</td>
<td>101167</td>
<td>90062</td>
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<td>Malawi</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Helleringer</td>
<td>2009</td>
<td>77.86 (74.82, 80.75)</td>
<td>751</td>
<td>585</td>
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<tr>
<td>Angotti 1</td>
<td>2009</td>
<td>79.08 (77.75, 80.39)</td>
<td>3659</td>
<td>2894</td>
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<tr>
<td>Angotti 2</td>
<td>2009</td>
<td>79.44 (78.07, 80.77)</td>
<td>3459</td>
<td>2748</td>
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<tr>
<td>Molesworth</td>
<td>2010</td>
<td>64.04 (63.31, 64.76)</td>
<td>16894</td>
<td>10819</td>
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<tr>
<td>Choko</td>
<td>2011</td>
<td>91.48 (87.41, 94.81)</td>
<td>216</td>
<td>198</td>
</tr>
<tr>
<td>Kranzer</td>
<td>2008</td>
<td>70.48 (68.49, 72.44)</td>
<td>2047</td>
<td>1443</td>
</tr>
<tr>
<td>South Africa</td>
<td></td>
<td></td>
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<tr>
<td>Shisana</td>
<td>2004</td>
<td>88.72 (88.10, 89.34)</td>
<td>9963</td>
<td>8840</td>
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<tr>
<td>Welz 2</td>
<td>2007</td>
<td>60.14 (56.95, 63.29)</td>
<td>916</td>
<td>551</td>
</tr>
<tr>
<td>Welz 1</td>
<td>2007</td>
<td>58.14 (57.45, 58.83)</td>
<td>19867</td>
<td>11551</td>
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<tr>
<td>Maheswaran</td>
<td>2012</td>
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<td>1726</td>
<td>1585</td>
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<tr>
<td>Uganda</td>
<td></td>
<td></td>
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<tr>
<td>Matovu</td>
<td>2002</td>
<td>89.50 (88.94, 90.05)</td>
<td>11709</td>
<td>10480</td>
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<tr>
<td>Were</td>
<td>2003</td>
<td>99.54 (99.28, 99.74)</td>
<td>3338</td>
<td>3323</td>
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<tr>
<td>Wolff</td>
<td>2005</td>
<td>67.74 (65.43, 70.02)</td>
<td>1591</td>
<td>1078</td>
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<tr>
<td>Were</td>
<td>2006</td>
<td>98.93 (98.47, 99.30)</td>
<td>2373</td>
<td>2348</td>
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<tr>
<td>Menzies</td>
<td>2009</td>
<td>99.72 (99.67, 99.76)</td>
<td>49470</td>
<td>49331</td>
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<tr>
<td>Turkwesigye</td>
<td>2010</td>
<td>93.67 (93.58, 93.76)</td>
<td>282857</td>
<td>264966</td>
</tr>
<tr>
<td>Lugada</td>
<td>2010</td>
<td>88.99 (88.09, 89.80)</td>
<td>4798</td>
<td>4270</td>
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<tr>
<td>Sekandi</td>
<td>2011</td>
<td>69.35 (65.57, 73.01)</td>
<td>588</td>
<td>408</td>
</tr>
<tr>
<td>Zambia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michelo</td>
<td>2006</td>
<td>90.22 (89.42, 91.00)</td>
<td>5445</td>
<td>4913</td>
</tr>
</tbody>
</table>

Overall (I-squared = 100.0%, p = 0.000)  
83.25 (80.42, 86.08)

Note: Weights are from random effects analysis

21 studies (N offered = 524,867)

Sabapathy et al, 2012
The PopART Intervention Package

- Universal voluntary HIV testing delivered annually through door-to-door, home-based testing by Community HIV Prevention (CHiPS) teams

= CHiPs deliver testing, counselling, linkage to care and treatment support in the community
Estimated uptake of testing in those consenting

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre CHiPs</td>
<td>Post CHiPs</td>
</tr>
<tr>
<td>Knows HIV status</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Known HIV-positive</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>On ART</td>
<td>65%</td>
<td>92%</td>
</tr>
<tr>
<td>Men</td>
<td>4,304</td>
<td>8,977</td>
</tr>
<tr>
<td>Women</td>
<td>3,894</td>
<td>8,244</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Knows HIV status</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Known HIV-positive</td>
<td>92%</td>
<td>67%</td>
</tr>
<tr>
<td>On ART</td>
<td>49%</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td>8,244</td>
<td>8,244</td>
</tr>
</tbody>
</table>
90-90: Estimated uptake in total adult population

Men

Estimated total HIV-positive: 6,037
Known HIV-positive: 4,790
Known HIV-positive on ART: 2,626

Women

Estimated total HIV-positive: 10,497
Known HIV-positive: 9,126
Known HIV-positive on ART: 6,493
Getting to the second 90% uptake of ART for across entire community of people living with HIV within a community
Cascade of care from enumeration through ART initiation: First round

### Men
- **56,821** enumerated
- **42,728** consented (75%)
- **34,406** know HIV status (81%)
- **3,894** HIV-positive (11%)
- **1,935** referred to HIV care
  [among those never previously registered for HIV care, 1,829/ 1,857 (98%) referred]

### Women
- **59,275** enumerated
- **52,964** consented (89%)
- **44,832** know HIV status (85%)
- **8,244** HIV-positive (18%)
- **3,936** referred to HIV care
  [among those never previously registered for HIV care, 3,657/ 3,689 (99%) referred]

**Overall Progress**
- **43%** initiated ART within 6 months
  (estimated from ‘survival’ analysis)
- **60%** initiated ART within 12 months
  (estimated from ‘survival’ analysis)
- **42%** initiated ART within 6 months
  (estimated from ‘survival’ analysis)
- **60%** initiated ART within 12 months
  (estimated from ‘survival’ analysis)
Time from referral to linkage to care and ART initiation: First round

PopART target is 80% ART initiation after 3 months
90-90: Estimated uptake in those consenting

- Men:
  - Knows HIV status: 100% (Pre CHiPs 65%, Post CHiPs 56%)
  - Known HIV-positive: 100% (Pre CHiPs 47%, Post CHiPs 49%)
  - On ART: 90% (Pre CHiPs 53%, Post CHiPs 49%)

- Women:
  - Knows HIV status: 100% (Pre CHiPs 67%, Post CHiPs 56%)
  - Known HIV-positive: 100% (Pre CHiPs 49%, Post CHiPs 49%)
  - On ART: 92% (Pre CHiPs 53%, Post CHiPs 49%)

Approximately 4,304 men and 8,977 women were assessed for Pre CHiPs, while 3,894 men and 8,244 women were assessed for Post CHiPs.
90-90: Estimated uptake in total adult population
INNOVATIONS TO ENHANCE COVERAGE

HIV Testing

Self testing
Opt out testing in clinics
Work place testing
Out of hours HH visits
Weekend HH visits
Male campaigns
Targeted adolescent programs

ART initiation

 Expedite ART “readiness” visits
 Community ART delivery for stable patients
 Possible HH ART delivery for stable patients by CHiPs teams
Limitations

• Estimates based on adults who are enumerated and consent to intervention
• These represent approximately 72% of men and 85% of women in these communities
• Assumptions needed to estimate knowledge of HIV+ status and proportion on ART in total adult population
• In longer term will have data on uptake from Population Cohort (random sample of adults in population)
Conclusions

- Substantial increase in uptake during first annual round
- Knowledge of HIV+ status close to 90% target in women and around 80% in men
- Proportion of known HIV+ on ART 65% and increasing
- Main challenges during first round
  - Uptake of intervention and testing among men
  - Rapid linkage to HIV care and ART initiation
- These will be prioritised during second round – CHiPs approach allows for continuous improvement in uptake
- Data on the third 90 - retention and viral suppression – next year!
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  – The International Initiative for Impact Evaluation (3ie) with support from the Bill & Melinda Gates Foundation
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Dr. Sarah Fidler
Dr. Helen Ayles
Dr. Nulda Beyers

Government Agencies:

PEPFAR Implementing Partners:
Assumptions made to estimate overall knowledge of HIV status and on ART

- HIV prevalence in those who “do not know status” after CHiPs visit same as in those who accept HCT
- Among those consenting to intervention, all HIV+ who knew their status self-reported this to the CHiP
- HIV prevalence in those not consenting to intervention same as in those consenting
- Proportion of HIV+ who knew their status same in those not consenting as in those consenting (at time of CHiP visit)
- Proportion of known HIV+ on ART same in those not consenting as in those consenting (at time of CHiP visit)
What difference did we make? First round

<table>
<thead>
<tr>
<th></th>
<th>Pre- or Post-Round 1 CHiP visit</th>
<th>Men</th>
<th></th>
<th>Women</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n/ N</td>
<td>%</td>
<td>n/ N</td>
<td>%</td>
</tr>
<tr>
<td>(1) Knows HIV status /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all who consented</td>
<td>Pre</td>
<td>8,106 / 42,728</td>
<td>19%</td>
<td>13,943 / 52,964</td>
<td>26%</td>
</tr>
<tr>
<td>(2) Known HIV-positive /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all who consented</td>
<td>Pre</td>
<td>2,272 / 42,728</td>
<td>5.3%</td>
<td>5,035 / 52,964</td>
<td>9.5%</td>
</tr>
<tr>
<td>(3) In HIV care /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all known HIV-positive</td>
<td>Pre</td>
<td>2,015 / 3,894</td>
<td>52%</td>
<td>4,520 / 8,244</td>
<td>55%</td>
</tr>
<tr>
<td>(4) On ART /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all known HIV-positive who were still resident March 31 2015</td>
<td>Pre</td>
<td>1,826 / 3,894</td>
<td>47%</td>
<td>4,070 / 8,244</td>
<td>49%</td>
</tr>
</tbody>
</table>
121,698 HH members enumerated in Zambia

101,578 (83.5%), HH members consented

7,732 (7.6%) self-report HIV-positive
- 5,308 (68.7%) women
- 2,424 (31.3%) men

93,846 (92.4%) eligible for HCT
- 27,017 (29%) declined HCT
- 66,829 (71%) accepted HCT
  - 5,108 (7.6%) HIV-positive
    - 3,393 (66.4%) women
    - 1,715 (33.6%) men
  - 61,721 (92.4%) HIV-negative