Same-Day Antiretroviral Therapy Initiation
How Do We Get There?
Should We Go There?

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Disclosures

• No disclosures or conflicts of interest
“Test and Treat” vs “Same-day Treatment”

• Test and Treat, Treatment as Prevention (TasP), Fast Track initiatives, 90-90-90:
  • Universal testing followed by universal treatment
  • Strategy to improve health and end HIV
  • Taking universal treatment to population scale

• Same-day Treatment:
  • Compress the time from diagnosis to treatment
  • Process redesign to treat people faster; less about scale
Early steps in the continuum of care

Test positive
- Screen test positive
- Confirm HIV

Link to care
- Get to Treatment site
- Financial eligibility for care
- Pre-care (labs, counseling etc.)

Start ART
- Clinician visit (prescribe ART)
- ART dispensed

Days:
- Test positive: 0 - (5) - 14
- Link to care: 0 - (14) - 30
- Start ART: 0 - (14) - 60

Total: 0 - (57) - 194 days!

Should we try for 0?
Early treatment is beneficial: START and TEMPRANO

INSIGHT START Study Group, N Engl J Med. 2015 Aug 27;373(9):795-807

TEMPRANO ANRS 12136 Study Group, N Engl J Med. 2015 Aug 27;373(9):808-22
Clinical data

• Early treatment is beneficial: START, TEMPRANO:
  • Better on ART than off no matter the CD4 cell count

• Difference slow to emerge, so weeks or couple months at the beginning should not make a clinical difference

• Clinical trials, even strategy trials, are not the same as routine care (clinic selection, patient selection, support of research staff)

• If there is a clinical benefit from starting a few weeks or months earlier, it could be offset by any harms from same-day treatment

• On the other hand, if too many people lost in the pre-ART phase who would have stayed engaged if they were treated, there could be substantial benefit to same-day treatment
Why treat same day?

• Better clinical outcomes due to less time off ART
• Engage people in care with ART before LTFU so less LTFU
• Shorter time to treatment means less anxiety, more trust
• Treatment as prevention (HPTN 052)
Why treat same day? Why not?

- Better clinical outcomes due to less time off ART
- Engage people in care with ART before LTFU so less LTFU
- Shorter time to treatment means less anxiety, more trust
- Treatment as prevention (HPTN 052)
- Might treat with the wrong ART (NNRTI, Hepatitis B, renal insufficiency)
- Don’t want to miss TB or other OI that require deferral of ART
- Less time to address barriers to ART and adherence
- LTFU pre-ART doesn’t risk resistance; LTFU after ART does
- Adds logistical complexity (paying for ART, appointment scheduling)
The evidence

• Two trials randomized at individual level
  • RapIT in South Africa (Sydney Rosen)
  • Same Day ART study in Haiti (Serena Koenig)

• One trial randomized at clinic level
  • START-ART in Uganda (Elvin Geng)

• One non-randomized study in US
  • RAPID protocol in San Francisco (Chris Pilcher)
RESEARCH ARTICLE

Initiating Antiretroviral Therapy for HIV at a Patient’s First Clinic Visit: The RapIT Randomized Controlled Trial

Sydney Rosen1,2 *, Mhairi Maskew2, Matthew P. Fox2,3, Cynthia Nyoni2, Constance Mongwenyana2, Given Malete2, Ian Sanne2, Dorah Bokaba4, Celeste Sauls2, Julia Rohr1, Lawrence Long2

1 Department of Global Health, Boston University School of Public Health, Boston, Massachusetts, United States of America, 2 Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, 3 Department of Epidemiology, Boston University School of Public Health, Boston, Massachusetts, United States of America, 4 Health Department, City of Johannesburg, Johannesburg, South Africa

PLOS Medicine | DOI:10.1371/journal.pmed.1002015 May 10, 2016
RapIT

Fig 1. Standard initiation of treatment and rapid initiation procedures and visit schedule.

Rosen S, RapIT, PLOS Medicine, 2016
RapIT: ART was quickly started

Fig 3. Time to ART initiation, by study arm. Cumulative incidence of ART initiation in each study arm, by number of days since study enrollment.
### RapIT: Outcomes

**Rosen S, RapiT, PLOS Medicine, 2016**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Standard arm (%)</th>
<th>Rapid arm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiated (\leq 90) d and suppressed by 10 mo (primary outcome)</td>
<td>96 (51%)</td>
<td>119 (64%)</td>
</tr>
</tbody>
</table>

Of those not initiated \(\leq 90\) d and suppressed by 10 mo:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Standard arm (%)</th>
<th>Rapid arm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not initiated</td>
<td>54 (28%)</td>
<td>5 (3%)</td>
</tr>
<tr>
<td>Initiated but not suppressed</td>
<td>40 (21%)</td>
<td>63 (34%)</td>
</tr>
</tbody>
</table>

Of those initiated but not suppressed:

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<tr>
<th>Outcome</th>
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<th>Rapid arm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained, unsuppressed viral load test reported</td>
<td>11 (6%)</td>
<td>17 (9%)</td>
</tr>
<tr>
<td>Retained, no viral load test reported</td>
<td>14 (7%)</td>
<td>16 (9%)</td>
</tr>
<tr>
<td>Transferred to another clinic</td>
<td>1 (1%)</td>
<td>6 (3%)</td>
</tr>
<tr>
<td>Died</td>
<td>3 (2%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>11 (6%)</td>
<td>24 (13%)</td>
</tr>
</tbody>
</table>

Initiated \(\leq 90\) d:

<table>
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<th>Outcome</th>
<th>Standard arm (%)</th>
<th>Rapid arm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiated (\leq 90) d and retained at 10 mo (secondary outcome)</td>
<td>136 (72%)</td>
<td>182 (97%)</td>
</tr>
</tbody>
</table>

Of those not initiated \(\leq 90\) d and retained at 10 mo:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Standard arm (%)</th>
<th>Rapid arm (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiated but not retained</td>
<td>15 (8%)</td>
<td>31 (17%)</td>
</tr>
<tr>
<td>Not initiated</td>
<td>54 (28%)</td>
<td>5 (3%)</td>
</tr>
</tbody>
</table>

- +13% VL <400
- +13% VL >400
- +25% on ART
- +17% retained

T. P. Giordano

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Rosen S, RapiT, PLOS Medicine, 2016
RapIT

• NB:
  • High acceptance rate (>80%)
  • Two sites in study (one public clinic, one hospital clinic)
  • 47% were enrolled at visit to get their CD4 cell results, so had already partly linked to care; 41% enrolled on day of diagnosis
  • All physically at the clinic at recruitment
  • Overall, more suppressed, more retained, but more on ART failed, too
Same Day ART

Superior Outcomes with Same-Day HIV Testing and ART Initiation

Serena Koenig, MD, MPH
GHESKIO, Haiti
Brigham and Women’s Hospital, USA

Slide: Koenig S, WEAE0202, AIDS 2016, Durban, SA
Same Day ART

Schedule of Visits

• Standard group
  – Days 7, 14, and 21: Physician/social worker visits
  – Day 21: ART initiation
  – Week 5: Physician/social worker visits

• Same-day ART group
  – Day 1: Counseling and ART initiation
  – Days 3, 10, and 17: Physician/social worker visits
  – Day 24: Physician visit

• Only difference was timing of ART initiation
Same Day ART

Standard vs. Same-day ART

- Completed CD4 count: Standard (285) vs. Same Day (Test/Treat) (279)
- Initiated ART: 100% vs. 92%
- Alive and in Care at 12 months: 71% vs. 80%
- Alive with undetectable VL: 50% vs. 61%

#AIDS2016 | @AIDS_conference

Slide: Koenig S, WEAE0202, AIDS 2016, Durban, SA
Same Day ART

- NB:
  - Truly enrolled and treated on day of diagnosis
  - Just changed time of initiation of ART to before rather than after the “pre-ART” care
  - Not yet published (abstract and oral presentation)
  - Single site (center of excellence and research)
  - All physically at the clinic at recruitment
  - No data on starts who were LTFU or not suppressed (39% in Same Day vs 42% in Standard)
  - Overall, more suppressed, more retained, better survival
START-ART

Effects of a multicomponent intervention to streamline initiation of antiretroviral therapy in Africa: a stepped-wedge cluster-randomised trial

Gideon Amanyire, Fred C Semita, Jennifer Namusoby, Richard Katuramu, Letitia Kampire, Jeanna Wallenta, Edwin Charlebois, Carol Cramlin, James Kahn, Wei Chang, David Glidden, Moses Kamya, Diane Havlir, Elvin Geng

- MD champion to change culture with didactic session, coaching
- Relax treatment supporter requirements
- Assess readiness rather than assume non-readiness (rather than 3 pre-ART visits to prepare patient)
- PIMA rapid CD4 cell count machine (rather than overnight processing)
- Feedback every 6 months comparing clinics on ART initiation rates
- 20 clinics in Uganda
START-ART: Intervention

- 2x ART starts by 14 d
- VS at 1 year:
  - Weighted proportion for missing data 66% vs 58% (p=.2)
  - Inverse probability weighting for missing data 85% vs 75% (p=.02)
- No difference in mortality (<5%)
- No difference in retention in care

Amanyire G, START-ART, Lancet HIV, 2016, e539-48
START-ART

• NB:
  • True system change: implemented clinic-wide
  • Large study with consistent effects
  • Radically revised pre-ART care (eliminated pre-ART visits and treatment supporter requirements)
  • Proves rapid treatment is implementable and sustainable
  • All patients physically at the clinic at recruitment
  • No data on starts who were LTFU
  • Overall, more suppressed, same retained, same survival
The Effect of Same-Day Observed Initiation of Antiretroviral Therapy on HIV Viral Load and Treatment Outcomes in a US Public Health Setting

Christopher D. Pilcher, MD,* Clarissa Ospina-Norvell, FN-P,* Aditi Dasgupta, BS,† Diane Jones, RN,* Wendy Hartogensis, PhD,* Sandra Torres, MSW,* Fabiola Calderon, MSW,* Erin Demicco, MPH,* Elvin Geng, MD,* Monica Gandhi, MD,* Diane V. Havlir, MD,* and Hiroyu Hatano, MD*

(J Acquir Immune Defic Syndr 2017;74:44–51)
RAPID

• Designed for persons with acute or recent HIV; later expanded

• No changes at testing sites; all intervention at clinic

• Intervention:
  • Taxi vouchers if needed
  • Same-day clinician, support services, and lab appointment (3-4 hours)
  • Rapid financial assistance to provide emergency drug assistance
  • 5-day starter pack, if needed
  • DOT of first dose
  • RN telephone f/u 1-7 days

Pilcher C, RAPID, JAIDS, 2017, 74:44-51
<table>
<thead>
<tr>
<th>Group</th>
<th>RAPID</th>
<th>Non-RAPID</th>
<th>Universal ART Era</th>
<th>CD4-Guided Era</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients for whom ART recommended</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>CD4 &lt; 500</td>
</tr>
<tr>
<td>Received intervention</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>N</td>
<td>39</td>
<td>47</td>
<td>69</td>
<td>25</td>
</tr>
<tr>
<td>Mean (range) time in days from referral to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic intake visit</td>
<td>1 (0–5)</td>
<td>10 (7–17)</td>
<td>13 (7–26)</td>
<td>9 (2–44)</td>
</tr>
<tr>
<td>Primary provider visit</td>
<td>14 (3–30)</td>
<td>26 (13–105)</td>
<td>31 (17–60)</td>
<td>30 (7–65)</td>
</tr>
<tr>
<td>ART prescription</td>
<td>1 (0–7)</td>
<td>22 (14–48)</td>
<td>37 (26–148)</td>
<td>128 (39–520)</td>
</tr>
<tr>
<td>Viral suppression &lt;200 copies per milliliter</td>
<td>56 (40–87)</td>
<td>79 (53–174)</td>
<td>132 (91–210)</td>
<td>218 (116–777)</td>
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<tr>
<td>Time in days from diagnosis to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referral to the clinic</td>
<td>6 (2–11)</td>
<td>11 (3–104)</td>
<td>14 (4–48)</td>
<td>33 (4–120)</td>
</tr>
<tr>
<td>Viral suppression &lt;200 copies per milliliter</td>
<td>65 (52–119)</td>
<td>170 (79–363)</td>
<td>190 (113–302)</td>
<td>580 (138–971)</td>
</tr>
</tbody>
</table>
RAPID

• NB:
  • First study to make provisions for people diagnosed at different location, but don’t know how many refused referral
  • No safety or resistance issues identified (90% INSTI-based ART)
  • Small study, non-randomized, single center, limited follow-up
  • No data on starts who were LTFU (10% of RAPID patients) or VS at 12 m
  • Overall, more suppressed and shorter time to suppression
Evidence summary

• 3 large randomized studies in different contexts with fairly consistent results: more suppression, same or better retention in care, same or better survival
  • Pre-ART care can be dramatically simplified
  • Even easier if CD4 count not needed

• Long-term safety and outcomes are not known
  • Concern about the strategy with NNRTI-based ART

• Promising but very limited data in high resource countries

• Emerging data for starting ART outside the HIV treatment clinic (Glass, abstract 201, Lesotho)
The impact of Universal Test and Treat on HIV incidence in a rural South African population

Dabis, ANRS 12249
AIDS 2016, Durban

Control

- Men, Linkage to Care: 93.4%
- Women, Linkage to Care: 46.0%
- Men, ART initiation: 93.6%
- Women, ART initiation: \( = 40.2\% \)

Intervention

- Men, Linkage to Care: 92.3%
- Women, Linkage to Care: 49.2%
- Men, ART initiation: 93.4%
- Women, ART initiation: \( = 42.4\% \)

Fig. 1. Time from referral to linkage to care and ART initiation during the first annual round of the PopART intervention. Survival curves showing cumulative proportions linking to care or initiating ART following referral by community HIV-care providers. ART, antiretroviral therapy.
Positive predictive value, 4\textsuperscript{th} generation HIV test

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<th>Total</th>
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<td>Pos</td>
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<td>Specificity: 99.5%</td>
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<td>17989</td>
</tr>
<tr>
<td>Undx HIV: 18%</td>
<td>Neg</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>18000</td>
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Houston: 2.5M people, 25000 PLWH + 18\% Undx = 4500 Undx (0.18\% of 2.5M)

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Same-day ART initiation

(Universal) testing in treating clinic

Screen test positive
Confirm HIV
Get to Treatment site
Financial eligibility for care
Pre-care (labs, counseling etc.)
Clinician visit (prescribe ART)
ART dispensed

Same-day initiation of ART

Link!

(Universal) testing in home, community, non-treating clinic

Got to Treatment site

Financial eligibility for care
Pre-care (labs, counseling etc.)
Clinician visit (prescribe ART)
ART dispensed

Starter packs? Community treatment?

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Same-day ART initiation

• Should we go there?
  • Start ART first HIV clinician visit: strong RCT data (START and TEMPRANO) and short-term data (RapIT, START-ART)
  • Start ART first linkage to HIV clinic: strong short-term data in low-resource settings
  • Start ART at HIV diagnosis if outside HIV clinic (e.g., starter packs): emerging data
  • No long-term data, no resistance data, no cost data

• How do we get there?
  • System redesign and removing barriers
  • Capacity for drop-ins
  • Financial eligibility if no universal health care
  • Same day ART if no current funding for drugs
  • Ensure access to long-term supply of ART
  • When to start relative to screening vs confirmed diagnosis
  • Protocols to change ART if laboratory results dictate

• Excellent area for implementation research
Thank you!

• Acknowledgements:
  • K. Rivet Amico, University of Michigan
  • Jeff Cully, Baylor College of Medicine
  • Charles King, Housing Works, NYC
  • Michael Mugavero, University of Alabama at Birmingham
  • April Petit, Vanderbilt University
  • Chris Pilcher, UCSF
  • Robert Remien, Columbia University
  • Thomas Street Health Center

• Funding
  • NIH, HRSA, CDC, VA, and local funding
  • Facilities and resources at Baylor College of Medicine, Harris Health System, and Michael E. DeBakey VA Medical Center, Houston
  • Views are the author’s and not necessarily the views of the VA, CDC, NIH, HRSA
Early treatment is beneficial: START
Early treatment is beneficial: TEMPRANO


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<td>Pos</td>
<td>1799</td>
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<tr>
<td>Undx HIV: 1.8%</td>
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<td>1</td>
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<td>Total</td>
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<td>1800</td>
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<td>Total</td>
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</tbody>
</table>
The challenges

• Randomized studies all started with participants who were already in the treating clinic (initiated linkage); RAPID in San Francisco provided transportation assistance for people outside the treating clinic.

• Diagnoses outside the treating clinic (e.g., home-based testing in Test and Treat studies): not aware of data.
RAPID
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>RAPID, N = 39</th>
<th>Non-RAPID, N = 47</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean (range)</td>
<td>31.6 (21-47)</td>
<td>34.8 (19-68)</td>
<td>0.14</td>
</tr>
<tr>
<td>Race/ethnicity, n (%)</td>
<td></td>
<td></td>
<td>0.034</td>
</tr>
<tr>
<td>Black</td>
<td>2 (5.1)</td>
<td>12 (25.5)</td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>18 (46.2)</td>
<td>15 (31.9)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>16 (41.0)</td>
<td>13 (27.7)</td>
<td></td>
</tr>
<tr>
<td>Asian-Pacific Islander</td>
<td>3 (7.7)</td>
<td>7 (14.9)</td>
<td></td>
</tr>
<tr>
<td><strong>Sex, n (%)</strong></td>
<td></td>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td>Male</td>
<td>39 (100.0)</td>
<td>44 (93.6)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0 (0.0)</td>
<td>3 (6.4)</td>
<td></td>
</tr>
<tr>
<td><strong>Mental health, n (%)</strong></td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td>Major disorder present</td>
<td>21 (53.9)</td>
<td>15 (31.9)</td>
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</tr>
<tr>
<td>Housing, n (%)</td>
<td></td>
<td></td>
<td>0.97</td>
</tr>
<tr>
<td>Stably housed</td>
<td>25 (64.1)</td>
<td>31 (66.0)</td>
<td></td>
</tr>
<tr>
<td>Homeless</td>
<td>11 (28.2)</td>
<td>13 (27.7)</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>3 (7.7)</td>
<td>3 (6.4)</td>
<td></td>
</tr>
<tr>
<td><strong>Illicit substance use, n (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any reported</td>
<td>18 (46.2)</td>
<td>18 (38.3)</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Clinical characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline CD4 cell count,* mean (range)</td>
<td>474 (3 to 1391)</td>
<td>417 (11 to 1194)</td>
<td>0.38</td>
</tr>
<tr>
<td>Baseline HIV RNA viral load,* mean (range)</td>
<td>4.89 (2.76 to 6.61)</td>
<td>4.49 (1.60 to 6.08)</td>
<td>0.082</td>
</tr>
<tr>
<td>Acute or recent HIV infection, n (%)</td>
<td>83/32 (25.0)</td>
<td>2/32 (6.5)</td>
<td>0.004</td>
</tr>
<tr>
<td>Recent (Ab negative within 6 mos)</td>
<td>24/32 (75.0)</td>
<td>9/32 (28.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Transmitted resistance, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genotype obtained</td>
<td>32/39 (82.1)</td>
<td>43/47 (91.5)</td>
<td>0.21</td>
</tr>
<tr>
<td>Any†</td>
<td>8/32 (25.0)</td>
<td>18/43 (41.9)</td>
<td>0.13</td>
</tr>
<tr>
<td>Major NNRTI-R†</td>
<td>7/32 (21.9)</td>
<td>11/43 (25.6)</td>
<td>0.71</td>
</tr>
<tr>
<td>Major PI-R†</td>
<td>13/2 (3.3)</td>
<td>2/34 (4.7)</td>
<td>0.99</td>
</tr>
<tr>
<td>Major NRTI-R†</td>
<td>0 (0)</td>
<td>1/43 (2.3)</td>
<td>0.99</td>
</tr>
<tr>
<td>ART initiated, n (%)</td>
<td>39/39 (100)</td>
<td>38/47 (80.9)</td>
<td>0.003</td>
</tr>
<tr>
<td>INSTI use†</td>
<td>35/39 (89.7)</td>
<td>32/38 (84.2)</td>
<td>0.47</td>
</tr>
<tr>
<td>PI use†</td>
<td>5/39 (12.8)</td>
<td>5/38 (12.3)</td>
<td>0.97</td>
</tr>
<tr>
<td>NNRTI use†</td>
<td>0/39 (0)</td>
<td>3/38 (7.9)</td>
<td>0.12</td>
</tr>
</tbody>
</table>

*Baseline CD4 T cell count unit: cells/μl.
†Baseline HIV RNA viral load unit: log10 copies/ml.
‡Acute HIV infection status was defined by having a negative or indeterminate antibody test for HIV on the date of an initial positive test. Recent HIV infection status was defined by <6 months between diagnosis and prior negative HIV test result, which was known for only n = 46/65 patients (64.4%) and among that overall group the proportion with acute or recent infection was 13/30 patients (43.3%). If known at the time of referral this was one indication for RAPID program enrollment.
¶Presence of any RT or protease mutations consistent with transmitted drug resistance determined using current Stanford surveillance definitions. Major mutations conferring clinically significant resistance to one or more current Stanford clinical resistance definitions: There were 14 K103N, 323T, 1 V106A NNRTI mutations observed; only 2 major PI mutations (1 Y123K, 1 I108M); and one vira with M184V. No K65R or T215FY mutations were observed and no 2 class resistant viruses were seen. Integrase resistance testing was not clinically available and was not performed.
#ART initiation documented at any time up to the time of maximum follow-up in June 2015 (at least 6 months after referral of the last patient included in the analysis).

INSTI, integrase strand transfer inhibitor; PI, protease inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor. Regimens followed current guidelines. The most common regimen initiated in RAPID patients was tenofovir (tenofovir disoproxil fumarate) plus delavirdine (12 patients) or nevirapine (6 patients) plus delavirdine (8 patients). In 25 patients, others included abacavir (abacavir lamivudine or abacavir lamivudine plus delavirdine) in 7 patients; tenofovir plus darunavir plus ritonavir (4 patients); tenofovir plus efavirenz (1 patient) and atazanavir (atazanavir plus ritonavir plus delavirdine) in 1 patient.
Same Day ART

Screening and Enrollment

- 1255 patients with CD4 count ≤500 cells/mm$^3$ evaluated by HIV clinic physician on day of HIV testing; 434 had WHO Stage 3 or 4 disease or CXR consistent with TB
- 821 patients referred to study team on day of HIV testing
  - 51 excluded for Stage 3 or 4 disease or prior ART
  - 1 refused
  - 7 failed ART readiness questionnaire
- 762 enrolled/randomized
  - 51 transferred and excluded
- April 2016 DSMB recommended publication due to superior results with same-day ART
- Analysis includes 564 enrolled by Feb 2015
The impact of Universal Test and Treat on HIV incidence in a rural South African population

François DABIS
for the ANRS 12249 TasP study team

21st IAC, FRAC0105LB, Durban, SA 2016
Trial procedures

Homestead identification (GPS)

Homestead visit every 6 months
1. Head of household verbal consent
2. Registration of individuals

Homestead procedures
1. Household assets questionnaire
2. Individual questionnaire
3. DBS sample, rapid HIV testing
4. TasP card

TasP clinic
- One per cluster (45 min walk max)
- HIV care and treatment according to arm
- Study questionnaires

Dabis, ANRS 12249 TasP, 21st IAC, FRAC0105LB, Durban, SA 2016

HIV +
Referral to TasP clinics
Repeat HIV test 6 mths later
HIV -
## Trial process indicators

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact</strong> rate per survey round (range)</td>
<td>61% – 84%</td>
<td>66% – 90%</td>
</tr>
<tr>
<td><strong>HIV ascertainment</strong> rate per survey round (range)</td>
<td>70% – 83%</td>
<td>77% – 88%</td>
</tr>
<tr>
<td><strong>Entry into care</strong> among individuals not in care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 3 months</td>
<td>28%</td>
<td>29%</td>
</tr>
<tr>
<td>Within 6 months</td>
<td>36%</td>
<td>37%</td>
</tr>
<tr>
<td>Within 12 months</td>
<td><strong>47%</strong></td>
<td><strong>47%</strong></td>
</tr>
</tbody>
</table>

Dabis, ANRS 12249 TasP, 21st IAC, FRAC0105LB, Durban, SA 2016
ANRS 12249 TasP - Estimated cascade of care

**UNAIDS target**
- Diagnosed: 90.0%
- On treatment: 90.0%
- Virally suppressed: 90.0%
- Total: 72.9%

**TasP trial (1st January 2016)**

**Control**
- Diagnosed: 93.4%
- On treatment: 46.0%
- Virally suppressed: 93.6%
- Total: 40.2%

**Intervention**
- Diagnosed: 92.3%
- On treatment: 49.2%
- Virally suppressed: 93.4%
- Total: 42.4%

Dabis, ANRS 12249 TasP, 21st IAC, FRAC0105LB, Durban, SA 2016
A universal testing and treatment intervention to improve HIV control: One-year results from intervention communities in Zambia in the HPTN 071 (PopART) cluster-randomised trial

- PopART:
  - Universal home-based testing
  - Linkage to care in community
  - Universal ART
A universal testing and treatment intervention to improve HIV control: One-year results from intervention communities in Zambia in the HPTN 071 (PopART) cluster-randomised trial

Richard Hayes¹*, Sian Floyd¹, Ab Schaap¹,², Kwame Shanaube³, Peter Bock³, Kalpana Sabapathy⁴, Sam Griffith⁶, Deborah Donnell⁵, Estelle Piwowar-Manning⁵, Wafaa El-Sadr⁷, Nulda Beyers³, Helen Ayles⁸, Sarah Fidler⁹, for the HPTN 071 (PopART) Study Team¹¹

PLOS Medicine | https://doi.org/10.1371/journal.pmed.1002292 May 2, 2017

- PopART:
- Slow “linkage to care” but that needs to be unpacked
• TasP is limited by linkage to care
• Rapid treatment may promote linkage to care
• Protocols merging rapid treatment with universal testing and treatment may have potential to reach 90-90-90 targets
• Such protocols would have countless moving parts and complexity
Clinical Data

• Early treatment is beneficial: START, International: CD4 guided therapy trial, proves that clinically, better on ART than off no matter the CD4 cell count.

• Study was huge and clinical difference small, so weeks or months should not make a clinical difference.

• Clinical trial, even strategy trials, are not the same as routine care.

• Test and treat: take START to routine care, i.e., treat everyone. Doesn’t necessarily work better: ANRS study in Kwa Zulu Natal. Promise of treatment alone is not enough.

• Linkage to care was weak link: gap between testing and treatment (Rosen data).

• Same day ART: start treatment at first clinic visit: Koenig trial in Haiti.

• Rapid treatment: accelerate time to first clinic visit: San Francisco.
## Table 2. Time to Achievement of Clinical Milestones Among Newly Diagnosed Patients Referred to the San Francisco General Hospital HIV Clinic

<table>
<thead>
<tr>
<th>Group</th>
<th>RAPID</th>
<th>Non-RAPID</th>
<th>Universal ART Era</th>
<th>CD4-Guided Era</th>
<th>Between-Group Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients for whom ART recommended</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>CD4 &lt; 500</td>
<td></td>
</tr>
<tr>
<td>Received intervention</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>39</td>
<td>47</td>
<td>69</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Mean (range) time in days from referral to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic intake visit</td>
<td>1 (0–5)</td>
<td>10 (7–17)</td>
<td>13 (7–26)</td>
<td>9 (2–44)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Primary provider visit</td>
<td>14 (3–10)</td>
<td>26 (13–105)</td>
<td>31 (17–60)</td>
<td>30 (7–65)</td>
<td>0.13</td>
</tr>
<tr>
<td>ART prescription</td>
<td>1 (0–7)</td>
<td>22 (14–48)</td>
<td>37 (26–148)</td>
<td>128 (39–520)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Viral suppression &lt;200 copies per milliliter</td>
<td>56 (40–87)</td>
<td>79 (53–174)</td>
<td>132 (91–210)</td>
<td>218 (116–777)</td>
<td>0.009</td>
</tr>
<tr>
<td>Time in days from diagnosis to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referral to the clinic</td>
<td>6 (2–11)</td>
<td>11 (3–104)</td>
<td>14 (4–48)</td>
<td>33 (4–120)</td>
<td>0.004</td>
</tr>
<tr>
<td>Viral suppression &lt;200 copies per milliliter</td>
<td>65 (52–119)</td>
<td>170 (79–363)</td>
<td>190 (113–302)</td>
<td>580 (138–971)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*P-values shown did not consider loss to follow-up as a competing risk (see text).

Outcomes are compared between patients who were offered the RAPID intervention and those who were not offered the intervention but who received an otherwise similar standard of care, either during the same time frame (the "non-RAPID" comparison group) or under evolving treatment guidelines during the years before the RAPID program.