Test and Treat -
One component of Florida’s plan to eliminate HIV transmission and reduce HIV related deaths

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Florida’s Plan to Eliminate HIV Transmission and Reduce HIV-related Deaths

Four Key Components

1. Test and treat
2. Antiretroviral pre-exposure prophylaxis (PrEP) and non-occupational post-exposure prophylaxis (nPEP)
3. Routine HIV and STI screening in healthcare settings/targeted testing in non-healthcare settings
4. Community outreach and messaging
Test and Treat

Rationale for Selection

SFGH Rapid Program

Florida’s Test and Treat Program
Montaner Mathematical Modeling

• Providing cART to everyone worldwide infected with HIV
  • HIV prevalence could be reduced 70-fold, from 7 cases/1000 people to 0.1 cases per 1000, by 2050
  • Average cost of $7 billion/year

“the status quo is no longer acceptable if we hope to control the continued growth of the HIV global pandemic”

Montaner, JSG et al. The case for expanding access to highly active antiretroviral therapy to curb the growth of the HIV epidemic. Lancet 368: 531-536, 2006
HPTN 052 Study

• Multinational; enrolled 1736 serodiscordant couples; CD4 between 350-550 cells/mm³; randomized 50:50 immediate cART or delay until CD4 < 250 cells/mm³

• Study stopped 4 years early by DSMB
  • 28 infections in the negative partner where the HIV positive partner not on cART was clearly the source and only 1 infection of the HIV negative partner in the group on cART
    • A 96% risk reduction
  • Health advantage was seen as well in the patients started on cART
    • 3 TB infections in those started early on cART & 17 in the delayed cART group

British Columbia, Canada

• cART expansion between 1996-2012:
  • AIDS incidence ↓ from 6.9 to 1.4/100,000 (80% ↓, p = 0.0330)
  • HIV-related mortality ↓ from 6.5 to 1.3/100,000 (80% ↓, p = 0.0115)
  • New HIV dx ↓ from 702 to 238 cases (66% ↓, p = 0.0004)
  • Estimated ↓ in HIV incident cases from 632 to 368 cases per year (42% ↓, p = 0.0003)

• “changes in HIV/AIDS morbidity, mortality and transmission, took place against a background of persistently high rates of genital chlamydia and genital gonorrhea, infectious syphilis”

Panel's Recommendations for Initiating Antiretroviral Therapy in Treatment-Naive Patients

- Antiretroviral therapy (ART) is recommended for all HIV-infected individuals, regardless of CD4 T lymphocyte cell count, to reduce the morbidity and mortality associated with HIV infection (AI).
- ART is also recommended for HIV-infected individuals to prevent HIV transmission (AI).
- When initiating ART, it is important to educate patients regarding the benefits and considerations regarding ART, and to address strategies to optimize adherence. On a case-by-case basis, ART may be deferred because of clinical and/or psychosocial factors, but therapy should be initiated as soon as possible.

Rating of Recommendations: A = Strong; B = Moderate; C = Optional
Rating of Evidence: I = Data from randomized controlled trials; II = Data from well-designed nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion

Guideline change
Jan 2016

START and TEMPRANO trials demonstrated approximately 50% reduction in morbidity & mortality when cART initiated at > 500 cells/mm³
Providing same day, observed ART to newly diagnosed HIV+ outpatients is associated with improved virologic suppression

- Christopher D. Pilcher, Hiroyu H. Hatano, Aditi Dasgupta, Diane Jones, Sandra Torres, Fabiola Calderon, Erin Demicco, Wendy Hartogensis, Clarissa Ospina-Norvell, Elvin Geng, Monica Gandhi, Diane Havlir

- University of California, San Francisco
- San Francisco General Hospital
Rapid Initiation of ART

• Delivering ART as early as possible after diagnosis:
  • improves morbidity and mortality in all stages of infection
  • reduces transmission
  • in acute HIV infection: limits reservoirs and hyper-infectivity

Can ART be begun at the moment of diagnosis?
## Milestones of care:
**San Francisco General Hospital**

<table>
<thead>
<tr>
<th>HIV+ Diagnosis</th>
<th>1st Clinic Visit</th>
<th>1st PCP Visit</th>
<th>ART Prescribed</th>
<th>Viral load suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Disclosure</td>
<td>• Registered</td>
<td>• Medical evaluation</td>
<td>• ART taken</td>
<td>• Adherence</td>
</tr>
<tr>
<td>• Referral</td>
<td>• Insured</td>
<td>• ART criteria met</td>
<td></td>
<td>• Retention</td>
</tr>
<tr>
<td>• Scheduling</td>
<td>• Housing/SU/MH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Labs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Time from diagnosis**
Milestones of care: SFGH, 2006-2013

- **Referral**
- **1st Clinic Visit**
- **1st PCP Visit**
- **ART Prescribed**
- **Viral load suppressed**

**2006-2009**
- CD4-guided ART
  - Referral: 132 days
  - 1st Clinic Visit: 37 days
  - 1st PCP Visit: 128 days
  - ART Prescribed: 218 days

**2010-2013**
- Universal ART
  - Referral: 37 days
  - 1st Clinic Visit: 132 days
  - 1st PCP Visit: 180 days
  - ART Prescribed: 218 days
  - Viral load suppressed: 240 days

Days since Referral
The SFGH RAPID Model

HIV+ Diagnosis
• Disclosure
• Referral
• Scheduling

1st Clinic Visit
• Registered
• Insured
• Housing/SU/MH
• Counseling
• Labs

1st PCP Visit
• Medical evaluation
• ART criteria met

ART start
• Pills taken

Viral load suppressed
• VL monitoring
• Adherence
• Retention

RAPID visit: ART start
• Disclosure, counseling
• Registration
• Insurance
• Housing/SU/MH
• Labs
• Counseling
• Medical eval

PCP Visits
• VL monitoring
• ART management
• Adherence
• Retention
• Overall feasibility of a health systems intervention for same-day outpatient ART for newly diagnosed HIV infection
• Deployed in context of extensive existing services for navigation, linkage and retention
• Initially targeted to new patients with acute HIV infection (HIV Ab – within 6 months)
• Extended in 2014 to include active 0I, CD4<200
RAPID
Intervention Components

• Facilitation of same day appointments
• Flexible scheduling for providers (on-call back-up)
• ART regimens pre-approved for use prior to genotyping or lab testing
• Available as 5 day starter packs
• Accelerated process for health insurance initiation
• Recommendation for 1st dose to be taken observed in the clinic
RAPID Evaluation Objectives

• Acceptability:
  • Acceptance of same day ART, overall ART uptake
  • Transfer of care, provider switches

• Safety
  • Excess ART modifications
  • ART toxicity

• Potential impact:
  • Time-to-virologic suppression <200 copies/mL
<table>
<thead>
<tr>
<th>Indicator</th>
<th>RAPID Cohort (n=39)</th>
<th>Universal ART (n=47)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age: mean(range)</td>
<td>32 (21-47)</td>
<td>35 (19-68)</td>
<td>NS</td>
</tr>
<tr>
<td>Male: n (%)</td>
<td>39 100%</td>
<td>43 92%</td>
<td>NS</td>
</tr>
<tr>
<td>Non-white ethnicity</td>
<td>23 59%</td>
<td>34 71%</td>
<td>NS</td>
</tr>
<tr>
<td>Homeless</td>
<td>11 28%</td>
<td>13 25%</td>
<td>NS</td>
</tr>
<tr>
<td>Uninsured</td>
<td>39 100%</td>
<td>47 100%</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Staging</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute (Ab- &lt;6m)</td>
<td>21/30 70%</td>
<td>8/31 26%</td>
<td>0.001</td>
</tr>
<tr>
<td>Log\textsubscript{10}VL</td>
<td>4.9 (2.8-6.6)</td>
<td>4.5 (1.6-6.1)</td>
<td>NS</td>
</tr>
<tr>
<td>CD4 mean (range)</td>
<td>474 (3-1391)</td>
<td>417 (11-1194)</td>
<td>NS</td>
</tr>
</tbody>
</table>
# RAPID Era 2013-4: Transmitted Resistance and Drug Regimens

<table>
<thead>
<tr>
<th>Indicator</th>
<th>RAPID (n=39)</th>
<th>Universal ART (n=47)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmitted resistance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>8/32 25%</td>
<td>18/43 42%</td>
<td>NS</td>
</tr>
<tr>
<td>Major NNRTI-R</td>
<td>7 22%</td>
<td>11 26%</td>
<td>NS</td>
</tr>
<tr>
<td>Major PI-R</td>
<td>1 3%</td>
<td>2 5%</td>
<td>NS</td>
</tr>
<tr>
<td>Major NRTI-R</td>
<td>0 0%</td>
<td>1 2%</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Regimen</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INI-based</td>
<td>35 90%</td>
<td>31 83%</td>
<td>NS</td>
</tr>
<tr>
<td>PI-based</td>
<td>4 10%</td>
<td>5 10%</td>
<td>NS</td>
</tr>
</tbody>
</table>
Uptake of Same-day ART

Days after ART offer/clinician visit

% on ART

- 0 days: 90%
- 1 day: 95%
- 7 days: 90%
- 30 days: 95%

RAPID

Universal
### RAPID Program Era 2013-4: Acceptability and Safety

<table>
<thead>
<tr>
<th>Indicator</th>
<th>RAPID (n=39)</th>
<th>Universal (n=47)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acceptability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall ART uptake</td>
<td>39 (100%)</td>
<td>40 (85%)</td>
<td>NS</td>
</tr>
<tr>
<td>Engaged in care (appt &lt;6 mos)</td>
<td>35 (90%)</td>
<td>40 (85%)</td>
<td>NS</td>
</tr>
<tr>
<td>Transferred care</td>
<td>8 (21%)</td>
<td>11 (23%)</td>
<td>NS</td>
</tr>
<tr>
<td>Provider switched</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART simplification</td>
<td>10 (26%)</td>
<td>0 (0%)</td>
<td>0.001</td>
</tr>
<tr>
<td>ART Toxicity</td>
<td>2 (5%)</td>
<td>0 (0%)</td>
<td>NS</td>
</tr>
<tr>
<td>Genotype-driven modification</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>NS</td>
</tr>
</tbody>
</table>

*all outcomes determined as of last follow up (up to 18 months post referral)*
Time to VL suppression by ART
Initiation Strategy: SFGH 2006-2014

- RAPID
- Universal ART
- CD4-guided ART

Proportion <200 copies

56d, 4.2 mos

RAPID vs. universal ART
P<0.001
Engagement Timeline, SFGH

CD4-guided (2006-9)

- Referral
- 1st Clinic Visit
- 1st PCP Visit
- ART Prescribed
- Viral load suppressed

Universal (2010-3)

- Referral
- 1st Clinic Visit
- 1st PCP Visit
- ART Prescribed
- Viral load suppressed

RAPID

- Referral
- 1st Clinic Visit
- ART Prescribed
- Viral load suppressed

CD4-guided (2006-9):
- 37
- 132

Universal (2010-3):
- 37
- 132

RAPID:
- 1
- 56
Conclusions

• It was feasible to implement same-day ART initiation for outpatients with newly diagnosed HIV in a well resourced, public health clinic setting.
• Same day ART was highly acceptable to both patients and providers
• Same day ART was associated with improved rates of virologic suppression
• No excess toxicity or other adverse effects of starting ART immediately at the first visit were seen
• Expansion of the RAPID model citywide in 2015
RAPID
Antiretroviral Regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truvada + Dolutegravir</td>
<td>26</td>
<td>(67%)</td>
</tr>
<tr>
<td>STRIBILD</td>
<td>7</td>
<td>(18%)</td>
</tr>
<tr>
<td>Truvada + Darunavir/r</td>
<td>4</td>
<td>(10%)</td>
</tr>
<tr>
<td>Truvada + Raltegravir</td>
<td>1</td>
<td>(2%)</td>
</tr>
<tr>
<td>Triumeq</td>
<td>1</td>
<td>(2%)</td>
</tr>
</tbody>
</table>
Florida Test and Treat Program
Florida’s Test and Treat Initiative

• 1st phase launch in EMA’s and CHD clinics that have an on-site HIV care and treatment program
  • All CHD’s welcome to participate (Family Planning; STD)

• 2nd phase expansion to CHD contracted community HIV clinics

• Test and Treat guidance available to all clinics

• Goal – reduce time from HIV diagnosis or returning to care to initiation of cART and achievement of an undetectable HIV viral load
INTRODUCTION
Test and Treat (T&T) is a clinical program providing immediate linkage to HIV care and initiation of antiretroviral therapy (ART) at the time of HIV diagnosis and/or at the time of returning to care after a gap in services. The program benefits the patient’s health and the community by providing initial antiretroviral therapy while working through the issues of eligibility and linkage to ongoing HIV care.

PURPOSE OF THIS GUIDANCE
To provide the medical and public health rationale for T&T.
To serve as a practical guide for the medical, counseling and care planning components of the statewide program.

RATIONALE FOR TEST AND TREAT PROGRAM FOR ART INITIATION
The HIV DHHS Guidelines currently recommend universal ART for all people living with HIV regardless of CD4 count. Increasing data show a medical benefit to the patient when immediate ART is initiated, particularly during acute/early HIV infection. There is also a community-level public health benefit of reduced HIV transmission. Many patients report that the decision to start ART and the rapid achievement of viral suppression provide them with the first experience of empowerment to live successfully with HIV.

ELIGIBILITY FOR Test and Treat
Newly diagnosed HIV patients defined as:
- Acute Infection: antibody (-)/RNA (+).
- Recent Infection: antibody (+) with last documented antibody (-) within prior 6 months.
- Chronic Infection: antibody positive with no prior HIV test result or last documented antibody (-) > 6 months ago (inclusive of patients lost to follow-up and returning to care).
- No available clinical trial to which the patient can be enrolled, or patient declines clinical trial enrollment.
Seek → Test → Treat → Retain

Day 1
(or within 2-3 days)
New HIV+ diagnosis or chronic HIV infection including returning to care

Same day
- Medical/psychosocial evaluation
- Start ART
- Eligibility assessment
- Obtain baseline labs
- Counseling
- Linkage to HIV primary care

5-7 Days Later Follow-up with HIV primary care
- Review baseline Labs
- Adjust ART as needed/indicated
Medical Evaluation

HIV history: An HIV risk/prevention history will be taken and recorded, including:

- Date of last negative HIV test and prior HIV tests/results
- PrEP use
- PEP use
- Sexual practices and serostatus of partners, if known
- Harm reduction/Risk reduction identification and discussion
- Attitudes/beliefs related to HIV and cART
Medical History

A quick medical history will be taken, particularly since patients will be started on ART before most laboratory test results have returned:

- Co-morbidities (especially renal/liver problems)
- Medications
- Drug allergies
- Review of systems (to alert for the presence of opportunistic infections (OIs) or HIV seroconversion symptoms)
Florida’s Test and Treat Initiative cART

Discussion of medication options (30 day starter packs):

• Dolutegravir + tenofovir alafenamide/emtricitabine (Tivicay®/Descovy®)

• darunavir/cobicistat + tenofovir alafenamide/emtricitabine (Prezcobix®/Descovy®)

• Elvitegravir + tenofovir alafenamide + emtricitabine + cobicistat (Genvoya®)

Assess Readiness to accept treatment

Lab → case management/education → follow-up
# Laboratory Monitoring Schedule for HIV-Infected Patients Before and After Initiation of Antiretroviral Therapy

<table>
<thead>
<tr>
<th>Laboratory Test</th>
<th>Timepoint/Frequency of Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Entry into Care</td>
</tr>
<tr>
<td>HIV Serology</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>CD4 Count</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV Viral Load</td>
<td>✓</td>
</tr>
<tr>
<td>Resistance Testing</td>
<td>✓</td>
</tr>
<tr>
<td>HLA-B*5701 Testing</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropism Testing</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents*
Laboratory Monitoring Schedule for HIV-Infected Patients Before and After Initiation of Antiretroviral Therapya (cont’d)

<table>
<thead>
<tr>
<th>Laboratory Test</th>
<th>Timepoint/Frequency of Testing</th>
<th>If ART Initiation is Delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Entry into Care</td>
<td>ART Initiation or Modification</td>
</tr>
<tr>
<td>Hepatitis B Serologya,b</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Hepatitis C Antibody Test (if positive, confirm with HCV RNA test)</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Basic Chemistryd</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>ALT, AST, T. bilirubin</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>CBC with Differential</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Fasting Lipid Profiled</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Fasting Glucose or Hemoglobin A1C</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Urinalysisf</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Pregnancy Test</td>
<td>√</td>
<td>In women with child-bearing potential</td>
</tr>
</tbody>
</table>

Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents
Dates for the following milestones are collected (they need not occur in order):

- First positive diagnostic test (last negative HIV test)
- Test result disclosure
- Clinic contact/referral
- First clinic visit
- First clinic medical provider visit
- First cART prescription date (after diagnosis of infection)
- First viral load & date and date of suppression <200 cells/mm$^3$
- Linkage to primary HIV care
- Engagement in care – in care at 6-12 months is documented

Modifiable at the local level – please discuss with HIV/AIDS Section Medical Team first
Discussion