Adherence and Retention in Care

Carlos del Rio, MD

Emory Center for AIDS Research
In order for a person to benefit from HIV treatment success it is necessary to:

- Diagnose their HIV infection
- Link infected individuals to outpatient care
- Start antiretroviral therapy
- Have patients adhere to therapy
- Retain patients in care

Emphasis should be placed on “adherence” to care and not just medications.
“Significant barriers impede the efficient movement of a patient infected with HIV from diagnosis to care...As with voluntary testing, a public health–systems research agenda will be needed to define efficient and effective means of entering and retaining patients in care.”
Ideal vs. poor engagement in HIV care

Unaware of diagnosis

- Aware of diagnosis
- Aware of diagnosis, not linked to care

Linked to HIV care

- Receiving other medical care but not HIV care

Retained in HIV care

- Linked to HIV care, lost to follow-up

Fully engaged in HIV care

- In and out of HIV care

Spectrum of Engagement in Care

ART adherent
Undetectable viral load
The “Three Biggest” HIV Problems in the US

• Delays in testing

• Delays in Care

• Early drop out

Engagement in HIV care and Treatment in the US

- Approximately 75% link within 6-12 months of diagnosis
- Approximately 50% not engaged in regular HIV care
- Approximately 25% of ART eligible not on ART
- Approximately 20% don’t know that they are infected
- Approximately 80% Undetectable (UDVL)

Gardner et al. CID 2011
HIV Care/Prevention Continuum

McNairy & El-Sadr. The HIV Care Continuum: no partial credit given. AIDS 2012; 26: 1735
Cascade of Care: Mozambique

23,430 Tested for HIV

7,005 Tested HIV positive (30%)

3,956 Enrolled HIV care <30 days (57%)

3,046 CD4 test, 30 days after enrollment (77%)

1,506 Eligible for ART Initiation (49%)

471 Initiated ART <90 days after CD4 test (31%)

317 Adherent to ART for 6 months (83%)

3,049 (43%) not enrolled in care

910 (23%) No CD4 test drawn

1,035 (69%) did not initiate ART

65 (14%) LTFU after ART

4.5% of those tested HIV+ are suppressed

Micek et al. JAIDS 2009
Late diagnosis and late presentation: CD4+ Count at Entry into Care -- HOPS

Buchacz et al, AIDS Research and Treatment 2012
CD4+ Count at Presentation
NA-ACCORD

- 44,491 from 1997-2007
- Proportion with CD4+ > 350 cell/mm$^3$: 38% in 1997 and 46% in 2007
- Median CD4+ cell count increase from 256 cell/mm$^3$ in 1997 to 317 cell/mm$^3$ in 2007.

Althoff et al. CID 2010
% of patients with baseline CD4 <200, selected countries

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Year</th>
<th>% of Patients with Late HIV Diagnosis (CD4&lt;200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andean</td>
<td>Bolivia</td>
<td>Prodi JP 2008</td>
<td>50%</td>
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<tr>
<td>Caribbean</td>
<td>Peru</td>
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<td>Venezuela</td>
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<td>Barbados</td>
<td>30%</td>
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<td>Caribbean</td>
<td>Cuba</td>
<td>22%</td>
<td></td>
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<td>Caribbean</td>
<td>Haiti</td>
<td>40%</td>
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<tr>
<td>Caribbean</td>
<td>Trinidad &amp; Tobago</td>
<td>55%</td>
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<td>Caribbean</td>
<td>Costa Rica</td>
<td>55%</td>
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<td>Honduras</td>
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<td>Meso America</td>
<td>Argentina</td>
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<tr>
<td>Southern Cone and Brazil</td>
<td>Brasil</td>
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<td>Southern Cone and Brazil</td>
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<tr>
<td>Southern Cone and Brazil</td>
<td>Uruguay</td>
<td>45%</td>
<td></td>
</tr>
</tbody>
</table>

Mónica Alonso González, HIV & STI Regional Project: Panamerican Health Organization, April 2012
What are the consequences of starting late?

**Short Term**
- Higher risk of mortality in the 1st year
  - ART CC and ART LINC, Lancet 2006; 367: 817–24
- Reduced chance of viral suppression
- Increased risk of hospitalization
  - Sabin CA, AIDS 2004; 18:2145–2151
- More potential drug-drug interaction
  - Rockstroh JK, Antivir. Ther 2010.15 (S1), 25-30
- More likely to have IRIS

**Long Term**
- Increased risk of non-AIDS events
  - Reekie, AIDS. 2011;25(18):2259-68
- Increased risk of neurocognitive impairment
  - Ellis RJ, AIDS 2011;25(14):1747-51
- Potentially increased risk of HIV transmission
- Higher direct cost of care

Definitions

- **Linkage to care** is the process of engaging newly diagnosed HIV-infected persons into HIV primary care.
- **Entry into care** after HIV diagnosis, defined as a visit with an HIV care provider authorized to prescribe ART.
- **Retention in care** is attending required provider visits for primary HIV care.
- **Engagement in care** embodies the distinct but interrelated process of linkage and retention in care.
Delayed linkage and poor retention are associated with:

• Delayed receipt of antiretrovirals
  – Immune damage
• Higher rate of virologic failure
  – HIV transmission
• Increased morbidity and mortality
  – More hospitalizations
  – More ED visits
Failure to be linked to care: Magnitude of the Problem

- HCSUS: 1/3 to 2/3 of persons with HIV in US are not in regular care, half of whom know they have HIV
- CDC: 17-40% of PLWHA who know status are not in regular care
- ARTAS: 40% of patients newly diagnosed did not see provider within 6 months
- CDC: Of those who knew they had HIV, only 69% were linked to care, and only 59% were retained in care

Linkage To HIV Care: Timing

• Mean time from diagnosis to first HIV primary care visit = 2.5 years for 203 HIV outpatients in Boston¹
• Median delay from diagnosis to entering primary care was 6 months in North Carolina study²
• HCSUS (long-term nationwide study): 1 in 3 people were delayed more than 3 months before getting first HIV care³


- Increase linkage to care within 3 months of Dx from 65% to 85%
- Increase HIV serostatus awareness from 79% to 90%
- Increase RW clients in continuous care from 73% to 80%
- Increase proportion of HIV Dx’d persons with undetectable VL by 20%
Delay to treatment is more common in:

- African Americans\(^1,2\)
- Women (especially with children at home)\(^1-3,5\)
- Uninsured\(^2\)
- Immigrants\(^4\)
- Less well educated\(^2\)
- Injection drug users\(^2\)

Linking to Care – Challenges

- Providing newly diagnosed patients with timely appointments with HIV care providers upon diagnosis
- Resources for short-term case manager/system navigators to support follow up for patients who need it
- Capacity of care system to meet demand for HIV care
- Complexity of patients lives, including many with serious co-morbid conditions

ARTAS

- CDC sponsored multicenter controlled intervention study to evaluate a brief linkage intervention to improve linkage to care after diagnosis.
  - Empowerment & self efficacy
  - Asks clients to identify internal strengths & assets
  - Up to 5 CM contacts allowed in 90 days
Summary

• ARTAS results at 6 months suggest linkage to care can be increased from 60% to 80%.
• Results at 6–12 months suggest linkage to care can be increased from 50% to 64%.
• Clients recruited within 180 days from HIV diagnosis more likely overall to enter care.
• Older clients, those with much outside help and non-crack users more likely overall to enter care.
ARTAS: Strengths-Based Case Management and Retention in HIV Care

- 6-Months:
  - Case Management: 78
  - Passive Referral: 64

- 12-Months:
  - Case Management: 60
  - Passive Referral: 49
ARTAS II

- Effectiveness study to see if the ARTAS linkage to care intervention could be implemented effectively in “real world” settings
- Results: 79% entered HIV medical care within 6 month of diagnosis
- On average, the amount of time needed to link clients to HIV care was relatively moderate
  - Median # CM sessions per client = 2
  - Median time spent per client = 5.8 hrs
- The ARTAS intervention is now a “best practice”
Engagement in care is associated with decreased sexual risk behaviors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proportion (% of patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprotected vaginal or anal intercourse with HIV-negative or unknown status partner within the previous month</td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>84/305 (27.5)</td>
</tr>
<tr>
<td>6-Month follow-up</td>
<td>31/258 (12.0)</td>
</tr>
<tr>
<td>12-Month follow-up</td>
<td>36/254 (14.2)</td>
</tr>
<tr>
<td>Receipt of medical care for HIV infection at least 3 times within 6-month period</td>
<td></td>
</tr>
<tr>
<td>Period between baseline and 6-month follow-up</td>
<td>139/258 (53.9)</td>
</tr>
<tr>
<td>Period between 6-month and 12-month follow-up</td>
<td>116/254 (45.7)</td>
</tr>
</tbody>
</table>

*Clinical Infectious Diseases* 2008; 47:577–84
Using surveillance data to monitor entry into care of newly diagnosed HIV-infected persons: San Francisco, 2006–2007
Nicola M Zetola¹,³, Kyle Bernstein²,³, Katherine Ahrens²,³, Julia L Marcus²,³, Susan Philip²,³, Giuliano Nieri²,³, Diane Jones⁴,³, C Bradley Hare⁴,³, Ling Hsu²,³, Susan Scheer²,³ and Jeffrey D Klausner*¹,²,³

- SFDPH: Enhanced surveillance for entry to care
  - Self report, clinic record, CD4/VL (not ED or hospital)
- New Dx at STD clinic, county hospital, 13 CBC
- Among 160 pts, entry to care in 79% (n=126):
  - 63% (n=101) by self or clinic report (all had CD4/VL)
  - Additional 25 pts identified by CD4/VL test
- 69% entered care w/in 3 months

Zetola et al. *BMC Public Health* 2009;9
Initiation of ART in San Francisco

- SF department of health recommended initiation of ART upon HIV diagnosis in 2010
- SF residents >13 years of age 2004-2010
- Among those initiated ART CD4 > 350 cells/mm$^3$: median CD4 at ART initiation increased from **365 to 504** cells/mm$^3$
- Proportion initiating ART at CD4+ > 350 cells/mm$^3$ increase from **48%** in 2004 to **92%** in 2010

Truong et al. CROI 2012

Susan Scheer¹, Priscilla Lee Chu¹, Eric Vittinghoff², Grant N. Colfax¹,² and Moupali Das¹,²,³
1. San Francisco Department of Public Health 2. University of California, San Francisco 3. Presenting Author

FIGURE 1: MEDIAN TIME IN MONTHS FROM HIV DIAGNOSIS TO VIROLOGIC SUPPRESSION AMONG PERSONS DIAGNOSED WITH HIV, 2004-2010, SAN FRANCISCO

<table>
<thead>
<tr>
<th>Year of Diagnosis</th>
<th># of Subjects</th>
<th>Median Time to Virologic Suppression (in Months)</th>
<th>Confidence Interval (in Months)</th>
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<tbody>
<tr>
<td>2004</td>
<td>728</td>
<td>32</td>
<td>28-35</td>
</tr>
<tr>
<td>2005</td>
<td>628</td>
<td>26</td>
<td>22-31</td>
</tr>
<tr>
<td>2006</td>
<td>579</td>
<td>19</td>
<td>16-24</td>
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<td>2007</td>
<td>577</td>
<td>16</td>
<td>14-19</td>
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<td>2008</td>
<td>527</td>
<td>13</td>
<td>10-15</td>
</tr>
<tr>
<td>2009</td>
<td>496</td>
<td>10</td>
<td>8-11</td>
</tr>
<tr>
<td>2010</td>
<td>646</td>
<td>* Median time to suppression was undefined for 2010 (the K-M curve does not cross 50%)</td>
<td></td>
</tr>
</tbody>
</table>

*p < .0001

CROI 2012; Abst # 1071
Factors Associated with Initiation of ART at Higher CD4+ cell counts- San Francisco

<table>
<thead>
<tr>
<th>At CD4&gt;500 cells/mm³</th>
<th>P value</th>
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</thead>
<tbody>
<tr>
<td>White</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MSM</td>
<td>0.003</td>
</tr>
<tr>
<td>Non poor</td>
<td>0.005</td>
</tr>
<tr>
<td>Diagnosed by private provider</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At CD4&gt;350 cells/mm³</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Older</td>
<td>&lt;0.001</td>
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<tr>
<td>White</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MSM</td>
<td>0.012</td>
</tr>
<tr>
<td>Non-poor</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Truong et al. CROI 2012
Retention in outpatient care
Impact

• Poor retention in care
  – Less likely to get HAART
  – Higher rates of HAART failure
  • Worse retention in care associated with increased HIV transmission behavior
  – More hospitalizations
  – Worse survival

Early retention in care

- The first year in outpatient HIV medical care is a dynamic, formative & vulnerable time
- Poor early retention in care associated with:
  - Delayed / failed antiretroviral therapy (ART) receipt
  - Delayed time to VL suppression and greater cumulative HIV burden
  - Increased sexual risk transmission behaviors
  - Increased risk of long-term adverse clinical events
  - Worse ART adherence, CD4 & VL response and increased long-term mortality following ART start

Early Retention in HIV Care, Missed Clinic Visits, and Viral Load Suppression

- 676 patients initiating first HIV care at 2 sites, 2007-2010
- 63% achieved VL<50 copies/mL in a median 308 days
- Patients with more “no show” visits experienced delayed VL suppression (HR=0.83 per “no show” visit, 95% CI= 0.76-0.91)
- Visit non-adherence was independently associated with greater cumulative VL burden ($\log_{10} VCY$) during the first two years in care (Beta coefficient=0.11 per 10% visit non-adherence, 95% CI=0.04-0.17)

Mugavero et. al. JAIDS. 2012; 59 (1): 86 - 93
Measuring Retention in Care

• There is no “gold standard”
• Five commonly used measures are:
  – Missed visits
  – Appointment adherence
  – Visit constancy
  – Gaps in care
  – HRSA performance measure for retention in care

Mugavero ML, et al. *AIDS Patient Care and STD*, 2010
SPNS Outreach Intervention

- Baseline engagement predicts subsequent engagement, though not completely

- Factors associated with retention at 12 month follow-up (adjusted for race and last CD4)
  - Discontinued drug use, decreased structural barriers, decreased unmet needs, and stable beliefs about HIV

Proportion in continuous care
(2 or more visits in preceding 12 months)
At least 3 month apart
20% have NEVER seen an HIV primary care provider

73% are currently NOT on HIV medications

42% have NOT seen an HIV primary care provider in the past 12 months

50% have NOT seen an HIV primary care provider in the past 6 months
Substance Use Interferes With Participation in HIV Care Through Multiple Pathways

• Substance users with HIV/AIDS are:
  – Less likely to initiate or access HIV-related medical treatment
  – More likely to utilize ED services for care
  – Have greater problems with early retention in care
  – More likely to be non-adherent to PCP prophylaxis medications

• Early identification and referral for substance use treatment may be particularly important for successful substance use and HIV management
The Urgency Of Providing Comprehensive And Integrated Treatment For Substance Abusers With HIV

Poor access to effective substance abuse treatment is a major factor fueling HIV transmission.
Contingency Management

- The systematic reinforcement of desired behaviors and the withholding of reinforcement or punishment of undesired behaviors
- Effective strategy in the treatment of alcohol and other substance use disorders
- Has also been found to be useful in cocaine addiction
- Used in other chronic conditions
Challenges: Patient & Provider Level

- Patient level changes
  - Changing behavior, similar to medication adherence
  - Improving trust, communication, stigma
  - Removing structural barriers and unmet need (transportation, housing, child care, financial)
  - Reducing substance use
Challenges: Patient & Provider Level

- Provider and system level changes
  - Provider communication and decision-making style
  - Appointment scheduling systems (open access?)
  - Extended clinic hours
  - Accurate contact information
  - De-fragmenting health insurance and health care system
  - Reorganizing for decades of HIV care
  - Staffing and resources required
Re-engagement in care

- Less well studied than linkage & retention
- Typical focus: patients w/ prior HIV care LTFU
- HRSA SPNS Outreach Initiative
  - 10 demonstration projects featuring pt navigation
  - Loss to care: mental illness, SA, unstable housing
- Other priority populations for re-engagement
  - Recently incarcerated
  - Recently hospitalized

Adherence to ART

“Medications do not work in patients who do not take them.”

C. Everett Koop, MD
Former Surgeon General
Doctors Withhold H.I.V. Pill Regimen From Some

Failure to Follow Rigid Schedule Could Hurt Others, They Fear

BY DEBORAH SONTAG and LYNDA RICHARDSON

Tyeisha Ross, an 18-year-old who has H.I.V., is street smart but childishly innocent. She does not understand the full import of the virus that she carries, believing that it requires only a "minor adjustment," in her everyday life. So she often misses doctor's appointments and fails to take medications.

Through her Medicaid coverage, Ms. Ross, who lives in the Bronx, can afford the costly new drugs that might halt her progress toward AIDS. But her doctor will not prescribe them to her. She does not think that Ms. Ross can handle a complex drug-taking regimen, in which missing doses could have serious consequences, making her virus resistant to future treatment.

"I don't trust her ability to stick to a schedule," said Dr. Jeanne Carey, a physician at Beth Israel Medical Center's H.I.V. clinic in Manhattan.

With the early successes of drug cocktails built on a new class of drugs called protease inhibitors, national concern has focused on whether their high cost puts them out of the reach of many AIDS patients. But in New York State, which has the most comprehensive drug assistance program in the nation, everyone is covered for the new AIDS drugs.

But not everyone can get them. And cost is not the deciding factor; doctors are. Since the exact regimen to which a patient must adhere is determined by their doctor, the patient's reaction to medications may be the deciding factor.

Eddie Ramos, a counselor to the homeless, says some H.I.V.-infected addicts cannot keep to the pattern of pill-taking he follows himself.
[In sub-Saharan Africa]….the potential short term gains from reducing individual morbidity and mortality may be far outweighed by the potential for the long term spread of drug resistance…. In Africa, a higher proportion of patients are likely to fall into the category of potential poor adherers unless resource intensive adherence programmes are available.
Africans Outdo U.S. Patients In Following AIDS Therapy

By DONALD G. McNEIL Jr.

Contradicting long-held prejudices that have clouded the campaign to bring AIDS drugs to millions of people in Africa, evidence is emerging that AIDS patients there are better at following their pill regimens than Americans are.

Some doctors, politicians and pharmaceutical executives have argued that it is unsafe to send millions of doses of antiretroviral drugs to Africa, for fear that incomplete pill-taking will spread the mutation of drug-resistant strains that could spread around the world.

The danger already exists: nearly 10 percent of all new H.I.V. infections in Europe are resistant to at least one drug.

For Africa, the issue is particularly touchy because it is laced with racism. In 2001, for example, there was an outcry when the director of the United States Agency for International Development said that AIDS drugs "wouldn't work" in Africa because many Africans don't use clocks and "don't know what Western time is."

Now surveys done in Botswana, Uganda, Senegal and South Africa have found that on average, AIDS patients take about 90 percent of their medicine. The average figure in the United States is 70 percent, and it is worse among subgroups like the homeless and drug abusers.

Compliance has become easier because drugmakers from India and elsewhere are beginning to make triple-therapy cocktails that come in as few as two pills a day. (These are not available in the United States yet because of patent problems — no Western company makes all three drugs for an ideal cocktail.)

After nearly a decade of watching Africans die because AIDS drugs cost $10,000 or more a year per patient, rich nations began pledging aid after generic competition in 2001 drove prices down to about $300 a year. Last week the World Trade Organization agreed to alter its rules to give poor nations more access to life-saving medicines.

But as with any epidemic moving...
• Adherence is a key factor in determining viral suppression and thus the success of ART.
• The initial literature on adherence suggested the need for > 95% adherence.
  – Paterson DL. Ann Intern Med 2000
• Subsequent studies using more potent regimen suggested lower levels of adherence also lead to viral suppression.
ART Adherence Predicts VL Response in a Linear Dose-Response Fashion

• Because HIV treatment is a lifelong endeavor and because increasingly many patients will initiate therapy when they are otherwise in good health and feeling well, adherence poses a special challenge.
Adherence Declines over Time

• What happens to adherence over time?
  – Adherence declines over time independent of patient characteristics....it’s the important phenomenon of treatment fatigue.

  – Every study that has looked at this issue has found the same thing. The real challenge to treatment success is not initial adherence, it is actually long term adherence.
Measuring adherence

• Difficult to do in clinical practice and no perfect method.

• Direct methods:
  – Therapeutic drug monitoring

• Indirect methods:
  – Pill counts, pharmacy records, electronic drug monitoring, self reported adherence questionnaires

• Self reported adherence correlates well with viral suppression and this it is widely accepted as a simple measure of adherence.
Barriers to adherence

• Regimen characteristics
  – Pill burden
  – Dosing frequency
  – Side effects

• Social and psychological factors
  – Homelessness
  – Depression

• Patient characteristics
  – Youth
  – Low literacy
  – Substance abuse
Individualizing treatment to improve adherence

- Negotiation of a treatment regimen/plan that the patient can commit to
- Establishing a trust relationship
- Maintaining good communication
Interventions to improve adherence

- A meta-analysis of 24 randomized trials of interventions to improve antiretroviral therapy adherence suggested that most interventions increase adherence as measured by the ability to achieve an undetectable viral load but it is unclear which is the most efficacious intervention.

Pill box organizers improve adherence and reduce viral load
ML Petersen et al Clin Infect Dis. 2007 Oct 1;45(7):908-15

• 4% better adherence
• 1.9 odds better viral suppression
• $5.00/pill box: extremely cost-effective intervention
• Should be standard-of-care
Directly Observed Antiretroviral Therapy

• Not effective for “all-comers”
• Effective in active drug users and methadone maintenance
• Does not last beyond intervention
• Exit strategy and relapse remain a challenge
Real-time Adherence Monitoring

Haberer et al AIDS and Behavior 2010

Wisepill Adherence Monitor
www.wisepill.com
Expanding the Spectrum of Adherence: 
appointment adherence

A Social Model of Adherence for sub-Saharan Africa
Ware et al PLoS Medicine 2009

Improving Health

Resource Scarcity

Social Capital

Adherence fulfills responsibility to helpers and preserve relationships as a resource

Relationships as resources to overcome economic obstacles to adherence

Resource Scarcity
New Guidelines

Clinical Guidelines

Guidelines for Improving Entry Into and Retention in Care and Antiretroviral Adherence for Persons With HIV: Evidence-Based Recommendations From an International Association of Physicians in AIDS Care Panel

Melanie A. Thompson, MD; Michael J. Mugavero, MD, MHSc; K. Rivet Amico, PhD; Victoria A. Cargill, MD, MSCE; Larry W. Chang, MD, MPH; Robert Gross, MD, MSCE; Catherine Orrell, MBChB, MSc, MMed; Frederick L. Altice, MD; David R. Bangsberg, MD, MPH; John G. Bartlett, MD; Curt G. Beckwith, MD; Nadia Dowshen, MD; Christopher M. Gordon, PhD; Tim Horn, MS; Princy Kumar, MD; James D. Scott, PharmD, MEd; Michael J. Stirratt, PhD; Robert H. Remien, PhD; Jane M. Simoni, PhD; and Jean B. Nachega, MD, PhD, MPH
Recommendations for entry into and retention in HIV care

• Systematic monitoring of successful entry into HIV care is recommended for all individuals diagnosed with HIV (II A).
• Brief, strengths-based case management for individuals with a new HIV diagnosis is recommended (II B).
• Intensive outreach for individuals not engaged in medical care within 6 months of a new HIV diagnosis may be considered (III C).
• Use of peer or paraprofessional patient navigators may be considered (III C).
Recommendations for monitoring adherence to ART

• Self reported adherence should be obtained routinely in all patients (II A).
• Pharmacy refill data are recommended for adherence monitoring when medication refills are not automatically sent to patients (II B).
• Drug concentration measurements in biological samples are not routinely recommended (III C).
• Pill counts performed by staff are not routinely recommended (III C).
• EDM’s are not routinely recommended for clinical use (IC)
Recommendations for improving adherence to ART

• Among regimens of similar efficacy and tolerability, once-daily regimens are recommended for treatment naïve patients beginning ART (II B).

• Among regimens of equal efficacy and safety, fixed-dose combinations are recommended to decrease pill burden (III B).

• Reminder devices and use of communication technologies with an interactive component are recommended (I B).

• Education and counseling using specific adherence-related tools is recommended (IA).

• Providing one-on-one adherence support to patients through one or more adherence (II A).
Conclusions

• Engagement in HIV care is increasingly recognized as a critical step in patient outcomes
• Linkage and retention are interrelated but distinct process
• Early missed visits can identify patients at high risk of poor outcomes
• Adherence to clinic appointments like adherence to medications correlates with viral suppression.
• Just like we have gotten used to discuss medication adherence with our patients we need also to discuss “clinic adherence”
Conclusions

• Multiple factors contribute to poor adherence in HIV+ patients, including patient- and disease/regimen-related issues

• Critical for providers to establish a trusting relationship and maintain open communication with patients in order to ascertain treatment readiness and ensure long-term adherence

• Some interventions have shown success in improving adherence: treatment of depression, psychosocial approaches, reducing pill burden, use of technology.

• Adherence is not static over time and tends to decrease so it is important to reinforce at every visit.
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- Wendy Armstrong, MD
- Vincent Marconi, MD

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  - NIH/NIDA & NIAID
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