Promoting Adherence to Antiretroviral Therapy

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Learning Objectives

At the conclusion of this presentation participants should be able to:

1. Communicate the role of medication adherence in obtaining successful outcomes of antiretroviral therapy to individuals with HIV in your practice setting.

2. Utilize interventions to enhance adherence to antiretroviral therapy.
This presentation will not discuss any non-FDA-approved or investigational uses of any products/devices.
ARS Question
History of Medication Adherence

• 1949: First study of adherence in *JAMA*
  - Recognized non adherence as pervasive and costly
  - \( \frac{1}{2} \) patient did not accrue treatment benefits due to non adherence

• 1970: National Heart, Lung and blood Institute funded grants to address non adherence in hypertension
  - No single intervention or optimal assessment strategy emerged

• 1995: Re-emergence of adherence attention with introduction of combination antiretroviral therapy (ART)
  - Initial concerns over transmission of drug resistant HIV strains
Adherence to Antiretrovirals (ART)

• Is adherence important?
  - How much?

• Can adherence be measured?
  - Are patients adherent?
  - Why not?

• What can be done to improve adherence?
ARS Question
Effect of adherence on HIV Viral Load (VL)

% patient with HIV Viral Load undetectable

Adherence Quartiles (%)

Self Report
MEMS

Arnsten et al, CID 2001:33
Effect of adherence on HIV Viral Load (VL)

- 931 patients
- Measured adherence by MPR
  - 531 optimal (>95%)
  - 306 suboptimal (80-94%)
  - 76 poor (< 80%)
- Adjusted relative risk for virologic failure:
  - 1.3 Suboptimal
  - 1.7 Poor

Self-Administered vs Directly Observed Therapy During Incarceration

N = 50 in each group

p < 0.01

Fischl et al 8th CROI, 2001 abstract 528
Incidence and Risk of Emergence of Drug-Resistance Mutations in Initial Therapy

- Drug-resistance mutations detected in 25% of subjects
  - Lamivudine resistance: 68.5%
  - NNRTI resistance: 40.3%
  - Other NRTI resistance: 32.9%
  - PI resistance: 22.8%
- Median time to detection of drug resistance: 8.2 months

<table>
<thead>
<tr>
<th></th>
<th>Univariate Analysis</th>
<th>Multivariate Analysis</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>HR (95% CI)</td>
<td>P Value</td>
</tr>
<tr>
<td>Baseline HIV-1 RNA*</td>
<td>1.85 (1.51-2.26)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Baseline CD4+ cell count†</td>
<td>1.11 (1.05-1.18)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Adherence (based on refill %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 80% - &lt; 90%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>□ ≥ 95% + 2 plasma drug conc &lt; steady-state trough conc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Intravenous drug use</td>
<td>1.41 (1.11-1.79)</td>
<td>.005</td>
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*HR per log increment † HR per 100 cells/mm³ decrement

Incidence and Risk of Emergence of Drug-Resistance Mutations in Initial Therapy

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http://clinicaloptions.com/hiv
Adherence and AIDS-Free Survival

10% Adherence difference = 21% reduction in risk of AIDS

Proportion AIDS-Free

$P = .0012$

Months from entry

Adherence
- 90–100%
- 50–89%
- 0–49%

Bangsberg D, et al. AIDS. 2001:15:1181
Benefits of consistent adherence

- 98 patients interviewed
- 58% classified as consistent adherers (CA)
- Consistent adherence is associated with better outcomes including
  - improved quality of life
  - higher CD4 counts
  - lower health care costs.

<table>
<thead>
<tr>
<th>CA vs non-CA</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better physical function</td>
<td>0.001</td>
</tr>
<tr>
<td>Better general health</td>
<td>0.009</td>
</tr>
<tr>
<td>Increased vitality</td>
<td>0.016</td>
</tr>
<tr>
<td>Better social functioning</td>
<td>0.001</td>
</tr>
<tr>
<td>Mental health</td>
<td>0.023</td>
</tr>
<tr>
<td>Higher CD4 cell</td>
<td>0.028</td>
</tr>
</tbody>
</table>
Effects of ART adherence

Adherence strongly correlated with

• Viral suppression
• Reduced rates of resistance
• Increased survival
• Improved quality of life
What Degree of Adherence is Needed? Data From Unboosted PIs

Adherence to a PI-containing regimen correlates with HIV RNA response at 3 months.

NNRTI Regimens May Be More Forgiving of Suboptimal Adherence

- **109 indigent patients in San Francisco**
  - 56 unboosted PI

Bangsberg DR et al. 12th CROI, 2005; abstract 616
NNRTI Regimens May Be More Forgiving of Suboptimal Adherence

- 109 indigent patients in San Francisco
  - 56 unboosted PI, 53 NNRTI regimen

Bangsberg DR et al. 12th CROI, 2005; abstract 616
Estimated risk of resistance by level of adherence and drug class

Bansberg DA et al, J Antimicrob Chemother 2004(53)
Development of Post-NVP Resistance Mutations

- K103N found in 16 (40%) of 40 women with previously undetectable levels
- Y18C found in 5 (11%) of 46 women with previously undetectable levels
- K103N appears to emerge readily and decay slowly, outlasting Y181C

<table>
<thead>
<tr>
<th>NVP Resistance Mutation</th>
<th>Mean Post-NVP ΔCT, Cycles</th>
<th>Mean Post-NVP ΔΔCT, Cycles</th>
<th>Mean Weeks Since NVP</th>
<th>Mean Post-NVP VL, copies/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>K103N</td>
<td>8.9*</td>
<td>-6.0</td>
<td>15.81</td>
<td>52,625</td>
</tr>
<tr>
<td>Y181C</td>
<td>6.7*</td>
<td>-5.8</td>
<td>8.00</td>
<td>121,800</td>
</tr>
</tbody>
</table>

ΔCT, different in amplification cycles at threshold; ΔΔCT, change between pre-, post-NVP ΔCT values; VL, viral load*P < .0001 compared with pre-NVP ΔCT

Mellors et al, Abstracts 11th CROI
ARS Question
Provider Estimate vs. Three 3-Day Patient Report Compared to Pill Count

\[ n=45 \]

Provider Estimate and Pill Count Adherence

Patient Report and Pill Count Adherence

Provider Estimate
\[ R^2 = 0.26 \]

Patient Report
\[ R^2 = 0.72 \]

Bangsberg et al JAIDS 2001:26:435
Measuring adherence

• Biologic markers
  - Drug levels: Limited usefulness due to variability, confounders
  - Surrogate markers: Limited usefulness due to lack of specificity

• Pill counts
  - Advantage: easy, low cost
  - Disadvantage: time consuming, possible “pill dumping”

• Electronic monitoring
  - Advantage: Objective data
  - Disadvantage: Expensive, “pocket dosing”, “curiosity opening”

• Patient self report

• Pharmacy refill records
Measurement of Adherence: Self Report

- Advantages
  - Low cost, minimal participant burden, ease of administration, flexibility, ability to yield specific data (timing, food requirements)

- Disadvantages
  - Recall bias, inaccurate memory, potential social desirability bias
  - Overestimates adherence by as much as 20%
  - Report of suboptimal adherence strong indicator of non adherence

- Format
  - simple
  - nonjudgmental
  - structured format
  - normalizes less than perfect adherence
  - minimizes socially desired responses
Self Report Techniques

- Interview
- Diaries
- Short time frame recall
  - 3 to 7 or more days
- Visual analog scales
- Validated questionnaires
  - Patient Medication Adherence Questionnaire
  - CASE report
Helpful Adherence Interview Questions

• How do you feel things are going with your adherence to your medications?

• Tell me a little about how you are fitting your medications into your day.

• Is anything making it hard for you to take your pills?

• What keeps you from taking your medicine?

• When did you last get your medications refilled?

• Who in your life helps you to remember your pills?

• A lot of my patients find sticking to a schedule really hard and sometimes miss doses; does that ever happen to you?
Not Helpful Adherence Interview Questions

- You're taking your pills, aren't you?
- You haven't missed any, have you?
- Everything is going great, right? Missed no doses?
- I will be really disappointed if you aren't taking these medications right -- any problems?
- I thought we discussed this last time. Why are you unable to do this right?
- You are taking these correctly, right?
- This looks really easy to me -- what's the problem here?
- Come on, it can’t be that bad, can it?
Center for Adherence Support Evaluation (CASE) Index

- Mannheimer et al, AIDS Care 2006 Oct 18(7)
  - Strongly related to 3 day adherence data (p < 0.001)
  - Superior to 3 day adherence data on outcomes
    - VL decline (p < 0.05)
    - VL <400 (p < 0.05)
  - CD4 response
    - CASE index > 10 + 98 cells
    - CASE index <= 10 + 41 cells
Center for Adherence Support Evaluation (CASE) Index

1. How often do you feel that you have difficulty taking your HIV medications on time? By ‘on time’ we mean no more than two hours before or two hours after the time your doctor told you to take it.

   (4) Never  (3) Rarely  (2) Most of the time  (1) All of the time

2. On average, how many days per week would you say that you missed at least one dose of your HIV medications?

   (1) Everyday  (2) 4-6 days/week  (3) 2-3 days/week  (4) Once a week  
   (5) Less than once a week  (6) Never

3. When was the last time you missed at least one dose of your HIV medications?

   (1) Within the past week  (2) 1-2 weeks ago  (3) 3-4 weeks ago  
   (4) Between 1 and 3 months ago  (5) More than 3 months ago  (6) Never

INDEX SCORE: _________

>10 = good adherence  ≤10 = poor adherence
Measuring Adherence
Pharmacy Refill Records

- 1632 patients in United Kingdom
- 376 episodes of viral load rebounds (<200 copies/ml)

Source: HIV Med © 2010 Blackwell Publishing
Medication Possession Ratio: days supply of meds ÷ total days X 100

- KW
- Rx: AZV/r, TDF, FTC
- Refill dates:
  - 5-14-09
  - 6-10-09
  - 7-9-09
  - 8-8-09
  - 9-9-09
- MPR = 120 ÷ 116 = 103%
- VL 9-19-09: <50 copies

- LT
- Rx: AZV/r, TDF, FTC
- Refill dates:
  - 9-3-09
  - 10-13-09
  - 11-10-09
  - 1-10-10
- MPR = 90 ÷ 129 = 69%
- HIV VL 1-11-10: 257,000
Factors associated with poor adherence

Characteristics of patient

Characteristics of the regimen
## Effect of literacy on adherence

- 204 patients in Chicago and Shreveport
- Literacy assessed with Rapid Estimate of Adult Literacy in Medicine (REALM)
  - Results:
    - Low (6 grade or below)
    - Marginal (7-8\textsuperscript{th} grade)
    - Adequate (9\textsuperscript{th} grade or higher)
- Adherence measured
  - Patient Medication Adherence Questionnaire (PMAQ)
  - Self report

### Adjusted Odds for Non-Adherence

<table>
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<tr>
<th>Literacy Level</th>
<th>AOR</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Marginal</td>
<td>2.1</td>
<td>0.8-5.5</td>
</tr>
<tr>
<td>Low</td>
<td>3.3</td>
<td>1.3-8.7</td>
</tr>
</tbody>
</table>
Effect of aging and neurocognition on adherence

- 431 patients on antiretroviral therapy
- Neurocognitive testing results correlated with adherence
  - Adherence measured by (MEMS caps) and self report
- No correlation for subjects <50 years
- Significant correlation for subject >50
  - Executive functioning
  - Motor functioning
  - Processing speed

Ettenofer et al, Am J Geriatr Psychiatry 2009 April 17(4)
Effect of depression on adherence

- Evaluation of 3359 patients on HAART from 2 large HMOs
  - 42% depressed
  - 15% on SSRI
- Adherence measure by pharmacy refill records

Results:
- ↓ odds of achieving 90% adherence
  - OR 0.81 (0.70 – 0.98) p=0.03
- ↓ odds of achieving viral load <500
  - OR 0.77 (0.62 – 0.95) p=0.02
CD4 over 12 months -19 for depressed patient vs +19 for non depressed

Horbert et al. JAIDS 2008; 47(3)
Effect of treatment for depression on adherence

- Evaluation of cognitive behavioral therapy (CBT) to reduce depression and enhance medication adherence
- Two arms/45 patients/crossover design
  - single session adherence intervention
  - single session adherence intervention plus 10-12 sessions of CBT
- Adherence measured by MEMS
- Significant better adherence in CBT group
  - Average increase in adherence 25.35% (from 62.26% to 87.61%)

Safren et al, Health Psychol. Jan 2009 (1) 1-10
Effects of incident depression on adherence

- Cohort of 225 patients
- Depression screened at 4 study visits
- Incident depression defined as 2 visits with negative screening followed by 2 visits with positive screening (n = 22)
- Adherence measured
  - Suboptimal > 5 % missed over last 7 days

Kacanek et al, JAIDS 53(2) 2010
Effect of housing and social supports on adherence

- Prospective cohort study in methadone program
- 103 patients
- ART adherence measured by MEMS caps
- Social and behavioral characteristics evaluated

### Factors affecting adherence

<table>
<thead>
<tr>
<th>Factor</th>
<th>Adherence rate with vs without</th>
<th>P value</th>
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<tbody>
<tr>
<td>Long term housing</td>
<td>75% vs 42%</td>
<td>0.003</td>
</tr>
<tr>
<td>Living with partner</td>
<td>73% vs 46%</td>
<td>0.04</td>
</tr>
<tr>
<td>HIV support group</td>
<td>84% vs 54%</td>
<td>0.006</td>
</tr>
<tr>
<td>2 or more side effects</td>
<td>81% vs 45%</td>
<td>0.009</td>
</tr>
<tr>
<td>Active crack cocaine use</td>
<td>29% vs 72%</td>
<td>0.005</td>
</tr>
<tr>
<td>Active heroin use</td>
<td>40% vs 70%</td>
<td>0.04</td>
</tr>
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</table>

Berg et al, J Gen Intern Med 2004
Effect of substance use on adherence

- 150 HIV infected persons
  - 102 positive urinalysis for recent illicit drug use
- Medication adherence measured over 6 months
  - MEME caps

Hinkin et al; AIDS and Behavior 2007 11(2)
Effect of Alcohol Consumption on Medication Adherence

- **Samet et al 2004**
  - 267 HIV infected persons with history of alcohol problems
  - Alcohol consumption most significant predictor of non-adherence

- **Cooke et al 2001**
  - % of patients taking medications off schedule

- **Parsons et al 2008**
  - 272 HI positive persons with alcohol problem
  - 9 times higher odds of medication non-adherence on days drank; each drink increasing odds by 20%
Effect of stigma on adherence

- 204 pts in Chicago and Shreveport
- Adherence measured
  - Patient Medication Adherence Questionnaire (PMAQ)
- 3 questions addressing stigma
  - “I am embarrassed to get my medications from a drug store.”
  - “I don’t want people to see me take my HIV medications.”
  - “Taking my medications reminds me that I have HIV.”
- Respond in three point scale
  - A=Agree, not sure, disagree

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<th>Stigma Concern</th>
<th>AOR</th>
<th>95%CI</th>
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<tr>
<td>Low</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>1.9</td>
<td>0.8-4.5</td>
</tr>
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<td>High</td>
<td>3.7</td>
<td>1.5-9.1</td>
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Effect of Health Beliefs on Adherence

- Interviewed 214 men and reported agreement with 9 conspiracy beliefs
- Adherence measured by MEMS for next month
- Reduced adherence when treatment conspiracy belief present

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<th>HIV Conspiracy Belief</th>
<th>% Agree (Strongly or Slightly)</th>
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<tr>
<td>HIV is a manmade virus*</td>
<td>44</td>
</tr>
<tr>
<td>AIDS was produced in a government laboratory*</td>
<td>35</td>
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<td>There is a cure for AIDS, but it is being withheld from the poor*</td>
<td>33</td>
</tr>
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<td>AIDS is a form of genocide, or planned destruction, against Blacks*</td>
<td>31</td>
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<tr>
<td>AIDS was created by the government to control the Black population*</td>
<td>31</td>
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<tr>
<td>HIV was created and spread by the CIA*</td>
<td>21</td>
</tr>
<tr>
<td>People who take the new medications for HIV are human guinea pigs for the government†</td>
<td>22</td>
</tr>
<tr>
<td>The medicine that doctors prescribe to treat HIV is poison†</td>
<td>17</td>
</tr>
<tr>
<td>The medication used to treat HIV causes people to get AIDS‡</td>
<td>7</td>
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*Genocidal-related conspiracy belief.
†Treatment-related conspiracy belief.
‡Dropped from scale, as suggested by exploratory factor analysis.

Bogart et al, JAIDS 53(5) 2010
Effect of Weekends on Adherence

- In hypertension higher number of doses missed on weekends
- Observations cohort 116 HIV patients
  - Adherence measured with electronic monitoring
  - Weekday adherence 95.3%; weekend adherence 93.2% (p 0.012)
# Factors associated with poor adherence

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<th>Characteristics of the regimen</th>
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<td>- homelessness</td>
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<td>• Stigma</td>
<td></td>
</tr>
<tr>
<td>• Health Beliefs</td>
<td></td>
</tr>
<tr>
<td>• Difficulty with medication taking</td>
<td></td>
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<tr>
<td>- trouble swallowing pills</td>
<td></td>
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<tr>
<td>- daily schedule issues</td>
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Review of dose regimens and adherence rates in HIV therapy based on 85 trials

Adherence rate based on # dosing times/day

- Once: 79
- Twice: 69
- Three: 65
- Four: 51
Effect of once vs twice daily regimen on adherence

• 44 patients taking once daily regimen
  - efavirenz, didanosine, lamivudine
• 43 patient taking twice daily
  - efavirenz, zidovudine, lamivudine
• Adherence measured by MEMS
• Better overall adherence in once daily arm
  - $p = 0.0327$

Cooper et al, JAIDS 53(3) 2010
Effect of regimen complexity on adherence

- Meta-analysis of 11 randomized controlled trials
  - 3029 Total subjects
- Better adherence with once daily regimen
  - + 2.9%, CI 1.0-4.8%
  - p = 0.003

Parienti JJ, Clinical Infectious Disease 2009 48(4)
Factors perceived by patients to impact their ability to adhere
Adverse Drug Reactions of ART

- Italian Cohort of Antiretroviral Naïve Pts (ICONA, 2000)
- 862 ART naïve patients
- 83.4% received 2 NRTIs and 1 PI
- 9.6% received four or more drugs
- 3.8% received 2 NRTIs + NNRTI
- 312 patient discontinued by week 12
  - 58% toxicity
  - 20% poor adherence
  - 14% virologic failure

reason patients d/c'd ART (%)

- toxicity
- adherence
- failure

58
20
14

Patients reporting 100% adherence over time

- Mannerherimer et al. (2000)
- 96 patients in 2 ongoing randomized trials
- completed 8 months of follow-up
Patients reporting 100% adherence over time

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Patients reporting 100% adherence over time

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![Graph showing adherence over time: 70% at 1 month, 63% at 4 months, and 58% at 8 months.](image-url)
Effect of Physician-Patient Relationship on Medication Adherence

Multivariable Relationship of Physician-Patient Quality with Adherence

<table>
<thead>
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<th>Physician-Patient Relationship Quality Measure</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>P value</th>
</tr>
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<tr>
<td>General communication</td>
<td>1.15</td>
<td>1.07 to 1.23</td>
<td>0.001</td>
</tr>
<tr>
<td>HIV specific information</td>
<td>1.09</td>
<td>1.01 to 1.16</td>
<td>0.02</td>
</tr>
<tr>
<td>Participatory decision making</td>
<td>1.07</td>
<td>0.99 to 1.15</td>
<td>0.12</td>
</tr>
<tr>
<td>Overall physician satisfaction</td>
<td>1.14</td>
<td>1.04 to 1.25</td>
<td>0.004</td>
</tr>
<tr>
<td>Willingness to recommend physician</td>
<td>1.09</td>
<td>1.02 to 1.15</td>
<td>0.009</td>
</tr>
<tr>
<td>Physician trust</td>
<td>1.10</td>
<td>1.01 to 1.21</td>
<td>0.03</td>
</tr>
<tr>
<td>Adherence dialogue</td>
<td>1.20</td>
<td>1.10 to 1.30</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Schneider, J, et al; J Gen Intern Med 2004(19)
Factors associated with poor adherence

**Characteristics of patient**
- Low level of literacy
- Age related challenges
- Psychosocial issues
  - untreated mental illness
  - homelessness
  - low social support
  - stressful life events
- Active substance use
- Stigma
- Health Beliefs
- Difficulty with medication taking
  - trouble swallowing pills
  - daily schedule issues

**Characteristics of the regimen**
- Complex regimen
  - pill burden
  - dosing frequency
  - food requirements
- Adverse drug effects
- Treatment fatigue
- Lower strength of provider/patient relationship
ARS Question
Effect of Directly Observed Therapy (DOT)

- Meta analysis of 12 studies
- End point virologic suppression
- No benefit overall
- May be benefit in selected groups
  - Homeless
  - Substance users

Ford et al, Lancet 2009
Interventions to improve adherence

Establish readiness to start ART

• Identify potential barriers
  - Psychosocial issues
  - Active substance use/risk of relapse
  - Low literacy level
  - Lack of disclosure
  - Health beliefs/skepticism about ART
  - Lack of prescription drug coverage/co pays
  - Busy daily schedule/travel away from home
  - Poor social supports

• Provide resources
  - Referral for case management
  - Referrals for mental health/substance abuse treatment
  - Resources to obtain prescription drug coverage
  - Referral to support groups
  - Pill boxes, reminder devices
Social Barriers:
Maslow’s Hierarchy of Needs

- **Physiological**
  - breathing, food, water, sex, sleep, homeostasis, excretion

- **Safety**
  - security of: body, employment, resources, morality, the family, health, property

- **Love/belonging**
  - friendship, family, sexual intimacy

- **Esteem**
  - self-esteem, confidence, achievement, respect of others, respect by others

- **Self-actualization**
  - morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts
## Transtheoretical Model of Change

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Adherence Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-contemplation</td>
<td>Not considering change; feeling no control; in denial</td>
<td>- initial HIV education&lt;br&gt;- assist patient in identifying goals&lt;br&gt;- develop discrepancy between desired health and lack of ART&lt;br&gt;- explore medical doubts</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Acknowledges concern but is ambivalent about change</td>
<td>- begin to consider meds&lt;br&gt;- consider mock medicine trial&lt;br&gt;- explore patient’s support network&lt;br&gt;- referral to support groups</td>
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<tr>
<td>Preparation</td>
<td>Committed to/planning change in near future</td>
<td>- assess for potential barriers&lt;br&gt;- identify temptations to skip</td>
</tr>
<tr>
<td>Action</td>
<td>Taking steps to change</td>
<td>- select regimen&lt;br&gt;- provide reminder devices, written instructions</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Maintaining new behavior over time</td>
<td>- monitor for side effects&lt;br&gt;- ongoing monitoring</td>
</tr>
</tbody>
</table>
Interventions to improve adherence

Select appropriate ART regimen
- Establish relationship of trust
- Involve patient in selection
  - Include patient’s support system
- Educate
  - Factual information
    - Drug names/administration schedule
      - Proximal cue for action
    - Storage/food requirements
    - Potential side effects/side effect management
    - Use written instructions
    - Contingency plans for potential missed doses
  - Conceptual information
    - HIV basics
    - Expected benefits of therapy
      - Identify patient’s goals of therapy
    - Consequence of non adherence
Motivation includes subjective norms, behavioral intentions, and attitudes
Motivational Interviewing

• Express Empathy
• Develop Discrepancy
  - how patients want their life to be vs. how it is
  - values vs. behavior
• Role with Resistance
  - reluctance to change is normal, not pathologic
• Support Self Efficacy
  - embrace client autonomy
  - help clients move toward change successfully and with confidence.

Interventions to improve adherence

Ongoing monitoring

- Utilize a multidisciplinary team approach
- Provide accessible team
  - Consider home visits
- Encourage goal making
  - Establish link between adherence and goal achievement
  - Identify “salient pro”
- Measure adherence regularly
- Identify reason for non adherence
- Develop management plan that address reason and reassess