UPDATES OF HIV TREATMENTS & PRACTICE: HOW TO IMPROVE ADHERENCE

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PREVALENCE
Estimated number of people living with HIV globally, 1990–2007

Number of people living with HIV

Year


Millions

0 10 20 30 40

This bar indicates the range
### Global summary of the AIDS epidemic 2014

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of people living with HIV in 2014</strong></td>
<td><strong>36.9 million</strong></td>
<td><strong>34.3 million – 41.4 million</strong></td>
</tr>
<tr>
<td>Adults</td>
<td><strong>34.3 million</strong></td>
<td><strong>31.8 million – 38.5 million</strong></td>
</tr>
<tr>
<td>Women</td>
<td><strong>17.4 million</strong></td>
<td><strong>16.1 million – 20.0 million</strong></td>
</tr>
<tr>
<td>Children (&lt;15 years)</td>
<td><strong>2.6 million</strong></td>
<td><strong>2.4 million – 2.8 million</strong></td>
</tr>
</tbody>
</table>

| **People newly infected with HIV in 2014** | **2.0 million** | **1.9 million – 2.2 million** |
| Adults                                | **1.8 million** | **1.7 million – 2.0 million** |
| Children (<15 years)                  | **220 000**     | **190 000 – 260 000**       |

| **AIDS deaths in 2014**                | **1.2 million** | **980 000 – 1.6 million** |
| Adults                                | **1.0 million** | **890 000 – 1.3 million** |
| Children (<15 years)                  | **150 000**     | **140 000 – 170 000**      |
In Malaysia
PLHIV IN MALAYSIA

SURVEILLANCE DATA BASED ON NOTIFICATION

HIV cases: 91,362
AIDS cases: 16,532
Deaths: 14,298
PLHIV: 77,064
Age

The chart shows the percentage of cases by age group from 1990 to 2012. The age groups are:
- <13 years
- 13-29 years
- 30-49 years
- ≥50 years
- Indeterminate

The data indicates a decrease in cases among younger age groups and an increase in cases among older age groups over the years.
Mode of transmission

Percentage of HIV cases

IDU  Sexual
Gender

![Graph showing reported HIV cases and gender-specific rates from 1986 to 2012. The graph displays the number of cases and rates for both males and females over the years.]
HIV
Human Immunodeficiency virus

Family: Retroviridae

Viral envelope is composed of bilayer lipid membrane

- Susceptible to heat (temperature) and chemical
HIV transmission

Sexual
- Rectal > Vaginal > Oral
- Male to male > male to female > female to male
- Risk: 0.04 – 3%

Blood & blood product
- Needle sharing in IDU: 0.67%

Maternal to child (vertical): 25 - 30%

Artificial insemination, tissue/organ transplantation
What is CD4

- Your immune system contains different types of cells that help protect the body from infection - CD4 or T-cells.
- HIV attacks these types of cells and uses them to make more copies of HIV.
- HIV weakens the immune system, making it unable to protect the body from illness and infection.
What is Viral Load

- HIV viral load is an important measurement of the amount of active HIV in the blood of someone who is HIV positive.

- The HIV viral load is used as a measurement of how active your HIV disease is and also indicates if your medication regimen is working.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>Asymptomatic, generalized lymphadenopathy</td>
</tr>
<tr>
<td>Stage II</td>
<td>Weight loss &lt;10%, prurigo, fungal nail infection, herpes zoster, recurrent URTIs</td>
</tr>
<tr>
<td>Stage III</td>
<td>Weight loss &gt; 10%, chronic diarrhea or fever, oral candidiasis/Hairy Leukoplakia, pulmonary TB, severe bacterial infections</td>
</tr>
<tr>
<td>Stage IV</td>
<td>AIDS-defining illnesses:</td>
</tr>
<tr>
<td></td>
<td>e.g. HIV wasting syndrome, PCP, brain toxoplasmosis, candida oesophagitis, extra-pulmonary TB, CMV retinitis, Kaposi’s sarcoma, non-Hodgkins lymphoma and/or performance score 4: bedridden &gt;50% of the day during the last month</td>
</tr>
</tbody>
</table>
CD4 CELL COUNT

Seroconversion

Early (CD4>500)

Intermediate CD4 <500>200

Advanced CD4<200

- PGL
- Candida vaginitis

- Oral thrush
- Herpes zoster

- ITP
- Anemia
- CIN

- PTB
- Recurrent pneumonia
- Kaposi Sarcoma
- Systemic Non Hodgkin's lymphoma

- PCP
- Histoplasmosis
- Cryptosporidiosis
- Disseminated Herpes
- Oesophageal candidiasis

- Extrapulmonary TB
- Miliary TB

- Toxoplasmosis
- Cryptococosis

- MAC
- CMV
SYMPTOMATIC HIV INFECTION
(ARC, Clinical category B)

- Oral thrush
- Oral hairy leukoplakia
- Recurrent herpes zoster
- Constitutional symptoms
- Peripheral neuropathy
- ITP
- Self limited Diarrhoea
- Bacterial pneumonia
AIDS- defining Illness (ADI)

- Candidiasis: oesophagus, trachea, lungs
- Cervical ca., invasive
- Coccidioidomycosis, extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis: diarrhoea > 1 month
- CMV: except liver, spleen & lymph nodes
- Herpes simplex: ulcer > 1 month, lung, oesophagus
- Histoplasmosis: extrapulmonary
- HIV dementia
- HIV wasting (wt. loss > 10 %)
- Isosporosis, diarrhoea > 1 mth
- Kaposi’s sarcoma
- Lymphoma, non-Hodgkins
- My. avium, disseminated
- My. tuberculosis
- Nocardiosis
- PCP
- PML
- Pneumonia, recurrent, bacterial
- Salmonella septicaemis, non-typhoid, recurrent
- Strongyloidosis, extraintestinal
- Toxoplasmosis, internal organ
Window period

The "window period" is the time it takes for a person who has been infected with HIV to react to the virus by creating HIV antibodies. This is called seroconversion.

It is also the period during which antibodies cannot be detected

(HIV Antibody test is negative in people already infected with HIV)

Can be up to six months but a person with HIV is infectious from EARLY STAGE.

• Status can only be detected by HIV DNA testing (viral load)
“Window Period”

- HIV antibodies
- CD4 counts
- Detected Antibody level

Window period

Weeks - months
What does one need to know about HIV?

HIV is no longer a ‘death sentence’

• Diabetes mellitus can be a useful analogy
• Chronic, incurable disease
• Not immediately fatal
• Eventually requires medications in most cases
• Can usually be controlled with careful adherence, management, and follow-up
WHEN TO START HAART?
Initiation of ART: Key Considerations

- Symptoms & opportunistic infections
- CD4 count
- ? HIV viral load
- Anticipated adherence - patient ‘readiness’
Goals of Therapy

Eradication of HIV? CURE?

- Not possible with currently available antiretroviral medications.
Aim/goals of HIV therapy

- The primary goal is to prevent HIV-related morbidity and mortality
- Suppress HIV viral load to undetectable
- Restore and/or preserve immunologic function
- Prevent HIV transmission
- Improvement in quality of life

Tx is lifelong – need to decide the right time to start
Natural progression of CD4 cells and HIV Viral load in the absence of HIV treatment
Antiretroviral Therapy: Optimal Response

Viral Load
CD4 Count

ART Initiated

Viral Load (copies/mL)

CD4 count (cells/mm$^3$)

Time (months)

Antiretroviral Therapy: Optimal Response

Viral Load
CD4 Count

Time (months)
# When to start

<table>
<thead>
<tr>
<th>Clinical Category</th>
<th>CD4 Count</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptomatic</strong></td>
<td>Any value</td>
<td>Treat</td>
</tr>
<tr>
<td>- AIDS defining illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Severe Symptoms *</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asymptomatic</strong></td>
<td>&lt; 200/mm³</td>
<td>Treat</td>
</tr>
<tr>
<td><strong>Asymptomatic</strong></td>
<td>&gt;200 but &lt; 500/mm³</td>
<td>Treatment recommended</td>
</tr>
</tbody>
</table>

* Examples include but not limited to:
  - Candidiasis, vulvovaginal: persistent > 1 month, poorly responsive to treatment
  - Candidiasis, Oropharyngeal
  - Herpes Zoster: more than 1 episode, or involving more than 1 dermatome
  - Cervical dysplasia, severe or Carcinoma in situ
  - Constitutional symptoms e.g., fever (> 38.5oC) or diarrhoea more than 1 month

MOH guidelines 2004
HAART

- Highly Active Antiretroviral Therapy
- Combination of 3 types of drugs
## Current ARV medications

<table>
<thead>
<tr>
<th>NRTI</th>
<th>NNRTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abacavir (ABC)</td>
<td>Delavirdine (DLV)</td>
</tr>
<tr>
<td>Didanosine (DDI)</td>
<td>Efavirenz (EFV)</td>
</tr>
<tr>
<td>Emtricitabine (FTC)</td>
<td>Etravirine (ETR)</td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td>Nevirapine (NVP)</td>
</tr>
<tr>
<td>Tenofovir (TDF)</td>
<td>Rilpivirine</td>
</tr>
<tr>
<td>Zidovudine (ZDV)</td>
<td></td>
</tr>
<tr>
<td>Stavudine (d4T)</td>
<td></td>
</tr>
</tbody>
</table>
### Current ARV medications (cont.)

<table>
<thead>
<tr>
<th>Protease Inhibitor</th>
<th>Fusion Inhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atazanavir (ATV)</td>
<td></td>
</tr>
<tr>
<td>Darunavir (DRV)</td>
<td>Enfuvirtide (ENF,T-20)</td>
</tr>
<tr>
<td>Fosamprenavir (FPV)</td>
<td></td>
</tr>
<tr>
<td>Indinavir (IDV)</td>
<td>CCR5 Antagonist</td>
</tr>
<tr>
<td>Lopinavir (LPV)</td>
<td>Maraviroc (MVC)</td>
</tr>
<tr>
<td>Ritonavir (RTV)</td>
<td></td>
</tr>
<tr>
<td>Saquinavir (SQV)</td>
<td>Integrase Inhibitor</td>
</tr>
<tr>
<td>Tipranavir (TPV)</td>
<td>- Raltegravir (RAL)</td>
</tr>
<tr>
<td>Nelfinavir (NFV)</td>
<td>- Elvitegavir</td>
</tr>
<tr>
<td>Saquinavir (SQV)</td>
<td>- Dolutegravir</td>
</tr>
</tbody>
</table>
Combination of HIV Drugs

1. Zidavudine + Lamivudine
2. Abacavir + Lamivudine
3. Abacavir + Dolutegravir + Lamivudine
4. Abacavir + Lamivudine + Zidovudine
5. Efavirenz + Emtricitabine + Tenofovir
6. Emtricitabine + Tenofovir
7. Lamivudine + Nevirapine + Stavudine
8. Lamivudine + Tenofovir
9. Lopinavir + Ritonavir
HIV treatment – how does it work?

• HIV – difficult to treat

• Resistance can develop if drugs are not strong enough or if does are missed

  • **Highly Active AntiRetroviral Therapy (HAART)**
  • Antiretrovirals (ARV’s)
    - Antiretroviral Therapy (ART)
      3 different types of drug
  • Combination AntiRetroviral Therapy (cART)
    the virus
  • Anti HIV drugs

BUT HOW DO THEY WORK?!
How do HIV drugs work?

HIV reproduces in the CD4 cells through a series of stages.

HIV drugs work by interfering with these stages:

1. **Fusion /Entry Inhibitors**
   - Stop HIV getting in to the cell

2. **Nukes and non nukes**
   - Stop one of the main ways HIV reproduces inside the cell

3. **Integrase Inhibitors**
   - Stop HIV being integrated in to the cells genetic material

4. **Protease Inhibitors**
   - Stop new HIV being cut into smaller proteins
How do HIV drugs work?

- None of the current drugs are strong enough to fight HIV on their own

- Using 3 or more drugs together to treat HIV suppresses the virus to very low levels and reduces the risk of resistance

- Most guidelines including EACS recommend first line treatment is a combination of:

  2 nukes combined with EITHER a non-nuke OR a PI (preferably a PI boosted with ritonavir)
Antiretroviral agents in Malaysia

NRTI
AZT, 3TC, d4T, ddI,

NNRTI
Nevirapine, Efavirenz

Protease Inhibitors
Indinavir, Ritonavir, Kaletra
Current Approach to HAART in Malaysia

Starting regimen: 2 NRTI + 1 NNRTI

AZT or d4T + 3TC + Nevirapine or Efavirenz

ddi and protease inhibitors (PI) used as 2\textsuperscript{nd} line drugs
CUMMULATIVE ON HAART AS 31 DEC 2012

39,000 Adult Eligible for ARV in 2012

15,028 on ARV in 2012
Problems with ART

- There are reservoir sites for HIV
- ART cannot penetrate into some areas
- We cannot eradicate the virus completely - -> weigh up health benefits with commencing life long treatment

So...when to start?
TO START HAART TREATMENT
MOH ARV treatment policy

Free HAART provided for:

- All children
- Those infected via blood / blood products
- HCWs infected through occupational exposure
- All pregnant women 1st detected +ve during ANC (after Sept 2000)
- Government servants
When to start ART?

- ART is always recommended if the CD4 cell count is <350 cells/mL
- AIDS diagnosis
- HIV related co-morbidity i.e. HIV associated kidney disease or HIV associated neurocognitive impairment
- Non-AIDS-defining malignancies requiring immunosuppressive radiotherapy or chemotherapy
When to start ART (cont.)

Co-infection

- HBV if the CD4 cell count is <500 cells/mL

- HCV if the CD4 cell count is <500 cells/mL

- HBV if the CD4 cell count is >500 cells/mL and treatment of hepatitis B is indicated
When to start ART (cont.)

- Patients presenting with AIDS or a major infection
- Treatment of primary HIV infection
- Treatment to reduce transmission
### HIV prevention based on ARV drugs

<table>
<thead>
<tr>
<th>Oral pre-exposure prophylaxis</th>
<th>Serodiscordant couples</th>
<th>Daily oral PrEP (either TDF or TDF + FTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men &amp; transgender women</td>
<td>Daily oral PrEP (Specifically TDF + FTC)</td>
<td></td>
</tr>
<tr>
<td>ART for prevention among serodiscordant couples</td>
<td>PHLIV in serodiscordant couples who start ART for their own health, ART is also recommended to reduce HIV transmission to the uninfected partner HIV-positive partners with a CD4 count ≥ 350 cells/mm³</td>
<td></td>
</tr>
</tbody>
</table>
# When to start ART in people living with HIV

| Adults and adolescents (≥ 10 years) | Initiate ART if CD4 cell ≥ 500 cells/mm³  
• As a priority:  
• * Severe/advanced HIV (WHO clinical stage 3 or 4) or  
  * CD4 count ≤ 350 cells/mm³ |
|-----------------------------------|----------------------------------------------------------------------------------|
| Infatns < 1 year old              | Regardless of WHO clinical stage and CD4  
* Active TB disease  
* HBV co-infection with severe chronic liver disease  
* Pregnant and breastfeeding women with HIV  
* HIV-positive individual in a serodiscordant partnership (to reduce HIV transmission risk) |
| In all, Regardless of WHO clinical stage and CD4 cell count. |
Why to initiate early ART

- Reduces risk of progression to AIDS and/or death, TB, non-AIDS-defining illness & increased the likelihood of immune recovery

- Reduces sexual transmission in HIV-serodiscordant couples

- More convenient & less toxic regimens widely available
Why to initiate early ART (cont.)

- Cost & epidemiological benefits

- The increased cost of earlier ART would be partly offset by subsequent reduced costs (such as decreased hospitalization & increased productivity) & preventing new HIV infections.
Why to initiate early ART (cont.)

- The 2010 WHO PMTCT guidelines recommended

- lifelong ART for women eligible for treatment (CD4 ≤ 350 @ presence of WHO clinical stage 3@4 disease)
If not eligible for treatment

- **Option A**
  - AZT for mother during pregnancy,
  - Single-dose NVP+AZT+3TC for mother at delivery & continued for a week postpartum

- **Option B**
  - Triple ARV drugs for the mother during pregnancy & throughout breastfeeding
Benefits

- Ease of implementation & harmonized regimens
- Increased coverage of ART & acceptability
- Vertical transmission benefit
- Maternal health benefit
Benefit (cont.)

- Avoid stopping & starting drugs with repeat pregnancies
- Early protection against MTCT in future pregnancies
- Reduce the risk of HIV transmission to HIV-serodiscordant partner
Priority to severe or advanced HIV disease & CD4 ≤ 350

- ART at any CD4 count in PLHIV
- * Active TB disease
- * HIV-positive partners in sero-discordant couples
  * Pregnant and breastfeeding women
  * Children younger than five years of age
What ART to start

- Once daily regimens comprising a non thymidine NRTI backbone (TDF+FTC @ TDF+3TC) & one NNRTI (EFV) as the preferred choices in adults, adolescents & children > 3 years
What ART to start (cont.)

<table>
<thead>
<tr>
<th>First line ART regimens for adults</th>
<th>First line ART = two (NRTIs) + (NNARTI) TDF+3TC(or FTC)+ EFV(fixed dose combination)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If TDF+3TC(or FTC) + EFV is contraindicated/not Available, options are…</td>
</tr>
<tr>
<td></td>
<td>* AZT + 3TC + EFV</td>
</tr>
<tr>
<td></td>
<td>* AZT + 3TC + NVP</td>
</tr>
<tr>
<td></td>
<td>* TDF + 3TC (or FTC) + NVP</td>
</tr>
<tr>
<td></td>
<td>Countries should discontinue d4T use in first-line regimens because of its well-recognized metabolic toxicities</td>
</tr>
</tbody>
</table>

Countries should discontinue d4T use in first-line regimens because of its well-recognized metabolic toxicities.
First-line ART (cont.)

- Because of the risk of toxicity of NVP among pregnant women for PMTCT
- Preferred NNRTI regimens were
  - AZT+3TC+EFV or TDF+3TC(or FTC)+EFV
- Alternative regimens were
  - AZT+3TC+LPV/r (or ABC)
- Although TDF & EFV were recommended, there were limited safety data on their use during pregnancy & breastfeeding
# First-line ART...

<table>
<thead>
<tr>
<th>First-line ART</th>
<th>Preferred first-line regimens</th>
<th>Alternative first-line regimens</th>
</tr>
</thead>
</table>
| Adults (including pregnant & breastfeeding women & adults with TB & HBV coinfection) | TDF + 3TC (or FTC) + EFV | AZT + 3TC + EFV  
AZT + 3TC + NVP  
TDF + 3TC (or FTC) + NVP |
| Adolescents | TDF + 3TC (or FTC) + EFV | AZT + 3TC + EFV  
AZT + 3TC + NVP  
TDF + 3TC (or FTC) + NVP  
ABC+3TC+EFV(or NVP) |
First-line ART (cont.)

- People receiving NVP discontinue because of adverse events

- With EFV no increased risk of birth defects compared with other ARV drugs during the first trimester of pregnancy
First-line ART

- TDF/FTC or TDF/3TC are the preferred NRTI backbone for
  - HIV + HBV
  - HIV with TB
  - Pregnant women
First-line ART (cont.)

- EFV is the preferred NNRTI for
  * HIV & TB (pharmacological compatibility with TB drugs
  * HIV + HBV coinfection (less risk of hepatic toxicity)
  * Pregnant women including first trimester
### WHO definitions of clinical, immunological & virological failure

#### Immunological failure

<table>
<thead>
<tr>
<th>Failure</th>
<th>Definition</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &amp; adolescents</td>
<td>New or recurrent clinical event indicating severe immunodeficiency (WHO clinical stage 4 condition) after 6 months of effective treatment</td>
<td>Differentiate from IRIS</td>
</tr>
<tr>
<td>CD4 counts falls to baseline (or below) or persistent CD4 &lt; 100</td>
<td></td>
<td>Without concomitant or recent</td>
</tr>
<tr>
<td>Children &lt; 5 years</td>
<td>Persistent CD4 &lt; 200 or &lt; 10%, &gt; 5 years Persistent CD4 &lt; 100</td>
<td>Infection to cause a transient fall in CD4</td>
</tr>
</tbody>
</table>
### WHO definitions of clinical, immunological & virological failure (cont.)

<table>
<thead>
<tr>
<th>Failure</th>
<th>Definition</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virological failure</td>
<td>Plasma VL &gt;1000 based on two consecutive VL measurements after 3 months with adherence support</td>
<td>Must be on ART for at least 6 months before declaring failure</td>
</tr>
</tbody>
</table>
Adverse Effect of ARV
Side effects

Efavirenz: CNS effects, sleep disturbance, abnormal dreams, rash
Atazanavir: Jaundice, increased bilirubin
Abacavir: Hypersensitivity reaction
Nevirapine: Stevens Johnson syndrome, liver toxicity
Kaletra: Diarrhoea
Zidovudine: anemia
ART resistance

- Resistance occurs with poor adherence
- Mutations during replication of the virus can allow to multiply while on ART
- Resistant drugs lead to viral load failure
- Resistance testing
ADHERENCE
Adherence vs Compliance

**Adherence:** the act or quality of sticking to something, steady devotion; act of adhering

- Acceptance of an active role in one’s own health care

**Compliance:** The act of conforming, or yielding

- Lack of sharing in the decision made between provider and client
Consequences of poor adherence

- Incomplete viral suppression
- Continued destruction of immune system
- Disease progression
- Emergence of resistant strains
- Limited future options
Why is Adherence Important

- ARV medication adherence is critically important to:
  * Achieve viral suppression
  * Avoid viral resistance
  * Prevent recurrence of OIs

A patient’s best chance of ART success is to remain on their first-line regimen of ART.
Multidisciplinary approach

Adherence message for the patient

- Doctors
- Nurses
- Pharmacist
- Counsellor
Pharmacist Role in ongoing adherence

- Acknowledge you understand it’s difficult
- Confirm understanding of their regimen
- Assess adherence
- Find out reasons for missed doses
- Ask about side effects
- Offer suggestions to overcome obstacles
Adherence – what to consider?

• Ready for treatment?

• Discuss:
  - goals and demands of treatment
  - potential side effects
  - dosing schedule
  - strategies for coping
Missed Doses & Development of Drug Resistance

- Drugs are prescribed at doses that will maintain an effective level of drug in the bloodstream.
- Dose is missed, taken late or with the wrong type of food: drug level in blood ↓
- While levels are low, resistant viruses will reproduce easily.
- Resistant viruses gain a foothold before persons begins taking drug consistently again.
Adherence to Medication

- The accepted definition of successful adherence for most chronic diseases is > 80% of pills taken

- This standard does not apply to HIV disease & ART

- Greater than 95% is the goal for ART
Benefits of Adherence

- Through adherence, patients & providers can:
  * Prevent opportunistic Infections
  * Diagnose complication early
  * Improve outcomes of treatment & care
  * Delay emergence of drug resistance
  * Develop a positive patient-provider relationship
Non-Adherence Factors

- Non-adherence is correlated with:
  - * Unstable emotional life or psychiatric illness
  - * Inability to fit the medication schedule into a daily routine
  - * Missed clinic appointments
  - * Poor cliician-patient relationship
  - * Alcohol & drug abuse
Non-Adherence Factors (Cont.)

- Lack of patient education
- Side effects
- Domestic violence
- High pill burden
- Cultural & religious beliefs
- Stigma
5 Types of Non-adherers

1. Consistent Underdoser
   * Regularly neglects to take one of the prescribed doses, such as the midday dose
   * Regularly takes only some of the prescribed medications

2. Consistent Overdoser
   * Regularly takes a drug more often or in larger doses than is prescribed
5 Types of Non-adherers (2)

3. Random Doser
   * Takes the medications when she or he thinks of it.

4. Abrupt Overdoser
   * Does not take medications properly & then takes an overdose prior to a clinic visit
   * Doubles up for missed doses
5. Tourist (takes “drug holidays”)  
   * Abruptly stops all medications for a few days or weeks  
   * Takes one day off per week
Adherence to Care

- Assessment of adherence to care requires a functioning, integrated administrative infrastructure
- Adherence-to-care issues are most effectively addressed when coordinated by a designated person
- Regular & organized interdisciplinary communication is an important adherence-to-care component- different members of the care team have different “pieces of the puzzle”
Assessing Adherence

- Health-care providers cannot accurately discern which patients will adhere
- Providers must formally assess adherence
- An interdisciplinary assessment approach is most successful
- Intensive assessment should be conducted during ARV initiation
- Assessment is a continual process that must be revisited during every patient interaction
Assessing Adherence (2)

- Assessment requires a supportive & nonjudgmental approach
- Acknowledge that medication adherence is difficult
- Assess missed doses
- Assess barriers to adherence & support strategies
Assessing Adherence (3)

Examples of questions to assess missed doses:

* “Many patients taking these medications find it difficult from time to time. What has your experience been?”
* “How many doses have you missed in the past day? The past week? The past month?”
* “In an average week, how often do you miss your medications? How often are you late?”
Assessing Adherence (4)

- Examples of questions to assess barriers to support strategies:
  - “When is it most difficult to remember your medications?”
  - “It’s not easy to take medicine every day. What things help you to take your pills?”
  - “What kinds of problems make it hard to take your pills?”
Assessing Adherence (5)

- Do not assume “once adherent, always adherent”
- Many things can change over time
  * Patients may tire of taking medications – pill fatigue
  * Family structure may change causing new adherence challenges
- After clinical improvement occurs, patients may assume they no longer need medications
Barriers to Adherence

- Cultural beliefs or fears about medication
- Secrecy & stigma surrounding HIV diagnosis
- Side effects
- Difficult swallowing medicines
Barriers to Adherence (2)

- Inadequate understanding of medicine regimen
- Competing priorities: work, child care, food access
- Forgetfulness or lack of support to remember
- Travel or being away from home
Promoting Adherence

- Care setting:
  - Welcoming & comfortable environment
  - Accessible, with co-located services
  - Convenient hours for work, child care
  - Reimbursement for transportation costs
  - Child care or facilities at clinic
Promoting Adherence (2)

- Communication:
  - Ask patients to restate information given
  - Practice active listening
  - Ask open-ended questions to facilitate patient sharing
  - Show concern & respect
  - Be non-judgmental
Promoting Adherence (3)

- Confidentiality:
  - * Explain to all patients upon enrollment
  - * Assure that HIV status will not be disclosed without consent
  - * Counsel about the importance of discretion regarding other patients
Promoting Adherence (4)

- Outreach & Follow-up:
  * Develop processes to contact patients
  * Plan to address missed appointments
  * Consistently obtain specific patient contact information
  * Document patient’s preferred contact method
Adherence Readiness Prior to ARV Initiation

- ARV initiation is rarely a medical emergency
- Adherence counseling & preparedness must precede ARV therapy
- Patients should demonstrate adherence to care
  - * Does the patient keep clinic appointment reliably?
  - * Practice with OI prophylaxis
- Ideally, patients should identify an “adherence buddy” for ongoing support
Strategies to Promote Medication Adherence

- Prescribing Medications:
  - * Personalized medication regimen for patient’s lifestyle
  - * Detailed instructions on how to take medications, including timing, food restrictions, drug interactions
  - * Instructions on how to identify & handle adverse effects
Strategies to Promote Medication Adherence (2)

* Streamlined regimens minimizing the number of pills & doses per day
* Pill boxes
Strategies to Promote Medication Adherence (3)

- Access to Medication:
  - Ensure easy access to uninterrupted medication supply (avoids “stock outs”)
  - Ensure that patients understand where, when & how to obtain medications
  - Provide on-site pharmacies where possible
  - Assist patients in safeguarding medications
Strategies to Promote Medication Adherence (4)

- Counseling & Support:
  - * Peer support groups
  - * Patient education & counseling
  - * Identify barriers to adherence & provide individualized interventions
  - * Modified directly observed therapy either in the home by a community based medication partner or at the clinic
Strategies to Promote Medication Adherence (5)

- Counseling & Support (cont):
  - Medication reminders linked to daily activities, timers, beepers, alarm clocks
  - Medication partners or “buddies”
  - Tips on how to remember medications, including daily cues, reminders, partners
ART Counseling

- Team approach, including physician, nurse, pharmacist, laboratory technician & counselor
- The team provides information to each other to improve quality of care
- Team ensures confidentiality
- Involve family members & other care providers
Objectives of ART Counseling

- Provide information & help patients:
  * Make decisions about ART
  * Cope with therapy
  * Protect others & maintain positive sexual behavior changes
Counseling Patients Before ART

- Ensure patients received pre- & post-test counseling
- Issues to discuss:
  * Financial
  * Adherence
  * Emotional support
  * Information about therapy
  * Disclosure
Counseling Patients Before ART (2)

- Issues to discuss (cont.):
  * Specific ART drug information
  * Drug adherence
  * Coping with response to ART
  * Sexual behavior change
Key Points

- Adherence to care & /or treatment is critical for continued viral suppression & improvement in immune function
- Serious potential consequences can result from non-adherence
- > 95% adherence is necessary to achieve < 20 % failure rate
Key Points (2)

- Benefits of adherence to care include prevention of OI, early diagnosis of complications, & development of positive patient-provider relationships.
- Antiretroviral (ARV) regimens are complex, may have major side effect & may pose difficulty with adherence.
Patient/family education & involvement are critical for successful treatment of HIV infection.

Physicians should promote & encourage disclosure of HIV status to a patient’s trusted family member and/or friend to help promote successful adherence.
Key Points (4)

- A therapeutic alliance between the provider & the patient can promote optimal adherence to both HIV care & ARV regimens
- Adherence CAN be improved
THANK YOU