Advisory to Trainer

- National ART regimens keep updating as new scientific evidence comes to light. Please check with your Regional Coordinator and give the correct information in case the slides do not reflect current recommendations.
Basics of Antiretroviral Therapy
National AIDS Control Organisation
Session Objectives

- Describe the progression of HIV infection to AIDS and the WHO clinical staging
- Explain about ART, its benefits, side-effects and limitations
- Describe the effects of ARV drugs in relation to the HIV life cycle in the body
- Identify the reasons for treatment failure and need of ‘switch’ and ‘substitution’ of treatment
- Assess and evaluate these issues jointly with clients
Stages of progression of HIV to AIDS

- Primary HIV infection
- Asymptomatic HIV
- Symptomatic HIV
- Advanced HIV
Stages of progression of HIV to AIDS:

1. Primary HIV infection
2. Asymptomatic HIV
3. Symptomatic HIV
4. Advanced HIV
Initiation of ART

- Done at Nodal ART Centre based on CD4 count and WHO Clinical Staging.

<table>
<thead>
<tr>
<th>WHO Clinical Stage</th>
<th>CD4 Count (Cells/mm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Start if CD4 count &lt;350</td>
</tr>
<tr>
<td>II.</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>Start irrespective of CD4 count</td>
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<tr>
<td>IV.</td>
<td>Start irrespective of CD4 count</td>
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</tbody>
</table>
Anti Retroviral Therapy

- Includes drugs which act at various stages of HIV life cycle by interrupting HIV multiplication.
- Delays the progression of HIV disease by:
  - Reducing viral load
  - Improving CD4 count
- Prolongs life and improves its quality.
Antiretroviral Drugs

Three groups

Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

Protease Inhibitors (PIs)
Understanding HIV Cycle and Drug Action

HIV virus enters the bloodstream and binds to the surface of the CD4 cells.

The viral genetic material (RNA) is injected into the CD4 cell.

The RNA material is converted to DNA, using the enzyme Reverse Transcriptase.

The viral DNA enters the nucleus of the CD4 cell and integrates with CD4 DNA, using the enzyme Integrase.

Fusion Inhibitors (NNRTI)

Integrase Inhibitors (NNRTI)

NNRTI and NRTI
The integrated DNA is decoded to form multiple copies of the viral RNA and are released in the cytoplasm of the CD4 cell.

These multiple viral RNA copies are translated to form the chains of proteins.

The enzyme **Protease** cleaves these protein units.

The functional HIV proteins are assembled and the HIV virions bud from the cell surface and infect other cells.
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

- Zidovudine (AZT/ZDV)
- Stavudine (d4t)
- Lamivudine (3TC)
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

- Nevirapine (NVP)
- Efavirenz (EFV)
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

Protease Inhibitors (PIs)

Lopinavir/Ritonavir (LPV)
National First-Line ART Regimen

- Is a combination of drugs that will be used in a client who has never taken ARV drugs before.
Examples of First-Line Regimens

Presently there are 4 First-line regimens and 4 alternate first line regimens available.
## When to initiate ART

<table>
<thead>
<tr>
<th></th>
<th>Clinical Stage 1</th>
<th>Clinical Stage 2</th>
<th>Clinical Stage 3</th>
<th>Clinical Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regular Clients</strong></td>
<td>Treat if CD4 is less than 350</td>
<td>Treat if CD4 is less than 350</td>
<td>Treat irrespective of CD4 count</td>
<td>Treat irrespective of CD4 count</td>
</tr>
<tr>
<td><strong>Clients with Tuberculosis</strong></td>
<td>Start after 2 weeks of initiation of Anti-tuberculosis treatment (ATT) irrespective of CD4 count</td>
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</tr>
<tr>
<td><strong>Pregnant Women</strong></td>
<td>Treat if CD4 is less than 350</td>
<td>Treat if CD4 is less than 350</td>
<td>Treat irrespective of CD4 count</td>
<td>Treat irrespective of CD4 count</td>
</tr>
</tbody>
</table>
Adherence is Important

- Taking ART regularly ensures adequate concentration.
- Missing ART will make it ineffective against HIV.
- May Result in Resistance and Treatment Failure.
Treatment Failure

- Medicine no longer works: Health deteriorates day by day.
Factors contributing to treatment failure

- Lack of treatment adherence
- Suboptimal ARV regimen
- Suboptimal drug level
- Side-effects and drug toxicity
- High cost and drug stock-outs
Factors contributing to treatment failure

- Lack of Treatment Adherence
- Suboptimal ARV regimen
- Suboptimal drug level
- Side-effects and drug toxicity
- High cost and drug stock-outs
Second-line regimen

- **Limitations** of second-line treatment
  - More pills
  - More side-effects
  - More costly than first line
  - Presently no third line available
Benefits of ART

Benefits to Client

Benefits to Country

Benefits of ART

Benefits to Family

Benefits to community
Side-effects of ARV

- Headache
- Dry mouth
- Diarrhoea
- Skin rashes
- Hair loss
- Anaemia
- Dizziness
- Feeling tired and sad
- Unusual or bad dreams
- Nausea and vomiting
- Tingling or pain in hands or feet
Other side-effects

Yellow Eyes (Hepatitis)

Lipoatrophy

Lipohypertrophy

Buffalo hump
Counsellor Role: Basic education

- Side-effects of the drugs
- When to get medical attention (before side-effect goes on for too long or becomes severe).
- Some mild side-effects can be managed at home.

**Client should not stop taking medication!**
**or skip!**
**or reduce doses!**
Remember

- ART is **not a cure for AIDS**.
- ART is to be taken **life-long**.
- HIV can **still be transmitted to others**, even when the PLHIV is healthy and taking his/her medication regularly.
- Lastly, remember to convey **a sense of hope**
Carousel Activity

- Ask relevant questions
- Identify the possible causes of the side effects
- Discuss management of the side effect
- Suggest a suitable course of action.
  - Counsel for early identification of side effects that needs urgent medical care
  - Refer to the physician, if needed
Carousel Activity Debriefing

- Was the exercise helpful in preparing you to work with LAC clients?
- What were some of the key points that you covered when you were a counsellor?