

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.



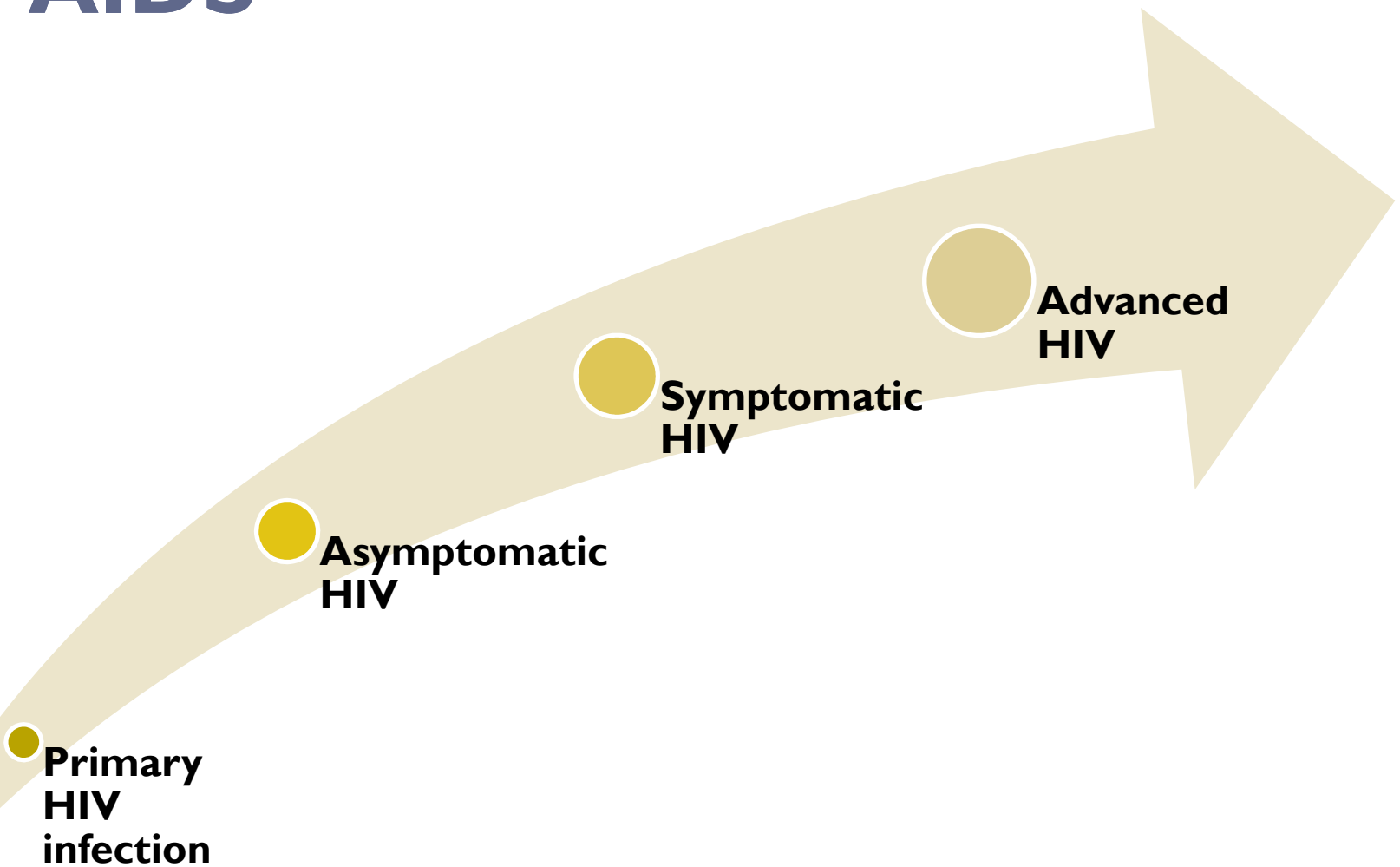
Basics of Antiretroviral Therapy

National AIDS Control Organisation

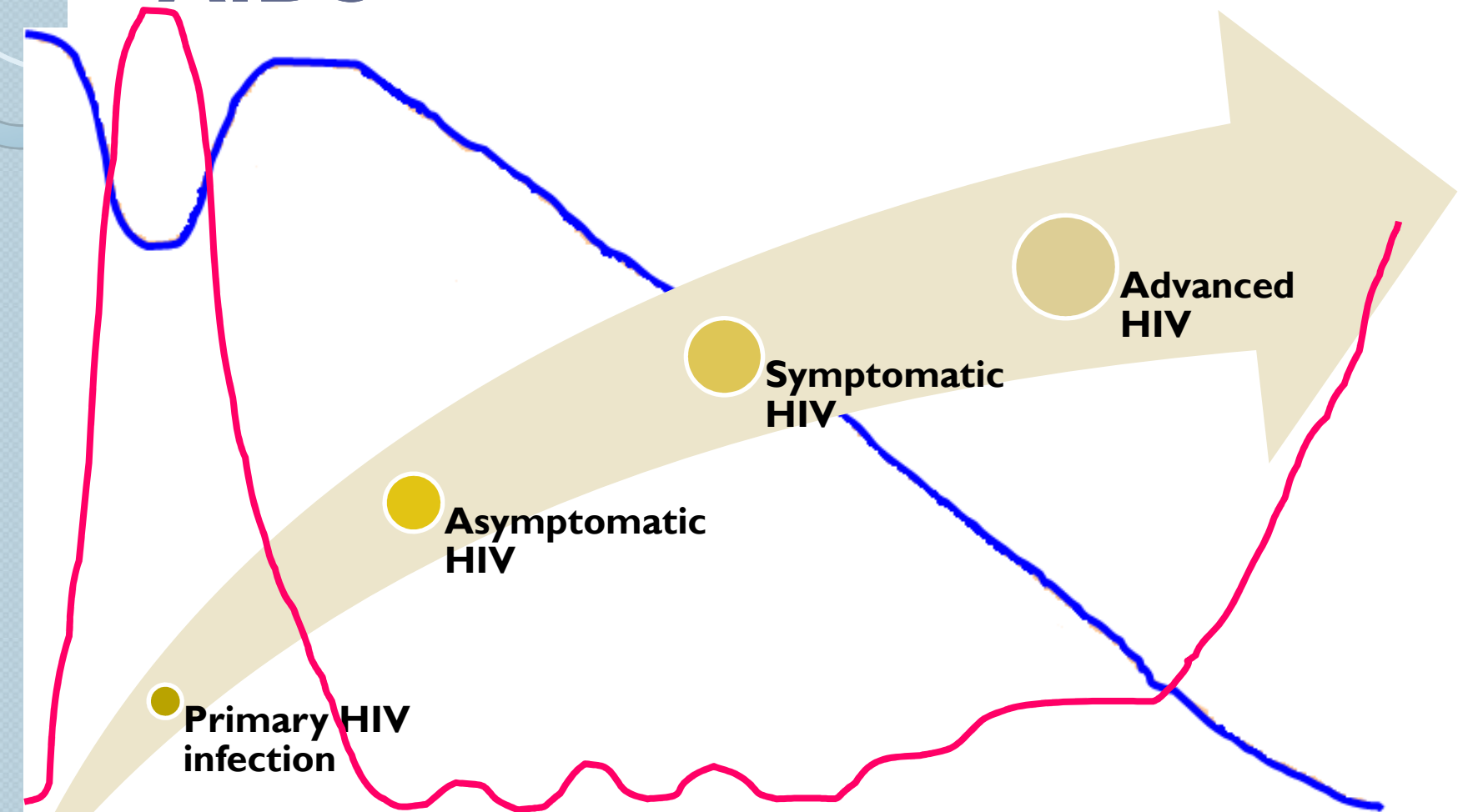
Session Objectives

- 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



Stages of progression of HIV to AIDS



Initiation of ART

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

WHO Clinical Stage	CD4 Count (Cells/mm ³)
I.	Start if CD4 count <350
II.	
III.	Start irrespective of CD4 count
IV.	Start irrespective of CD4 count

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
(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.

Fusion Inhibitors (NNRTI)

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

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

NNRTI and NRTI

Integrase Inhibitors (NNRTI)

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

Understanding HIV Cycle and Drug Action (Continued)

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.

Protease inhibitors (PIs)

The functional HIV proteins are assembled and the HIV virions bud from the cell surface and infects other cells.

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

NNRTIs

*Nucleoside Reverse
Transcriptase Inhibitors
(NRTIs)*

PIs

- Zidovudine (AZT/ZDV)
- Stavudine (d4t)
- Lamivudine (3TC)

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

NRTIs

*Non-Nucleoside Reverse
Transcriptase Inhibitors
(NNRTIs)*

- Nevirapine (NVP)
- Efavirenz (EFV)

PIs

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

NNRTIs

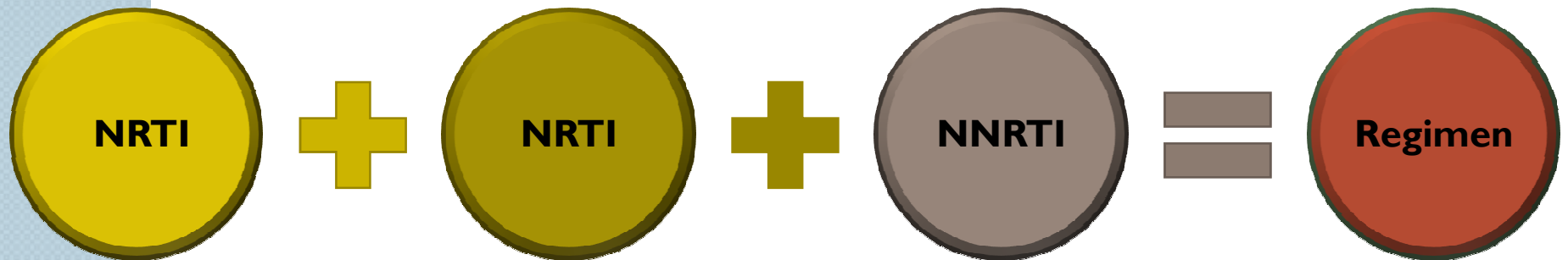
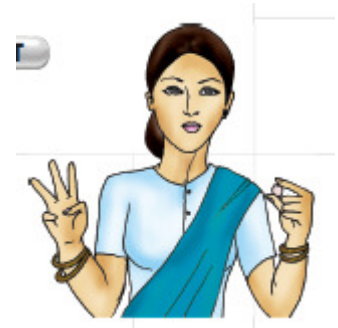
Protease Inhibitors (PIs)

➤ Lopinavir/Ritonavir (LPV)

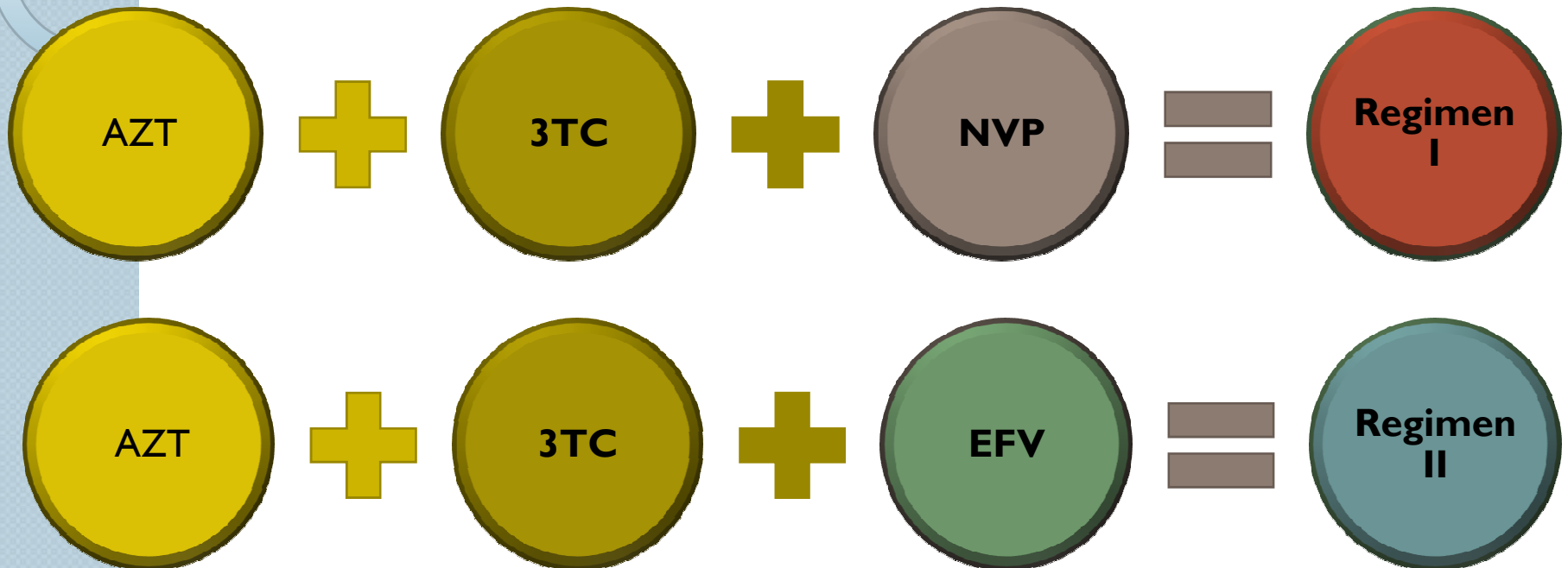
NRTIs

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



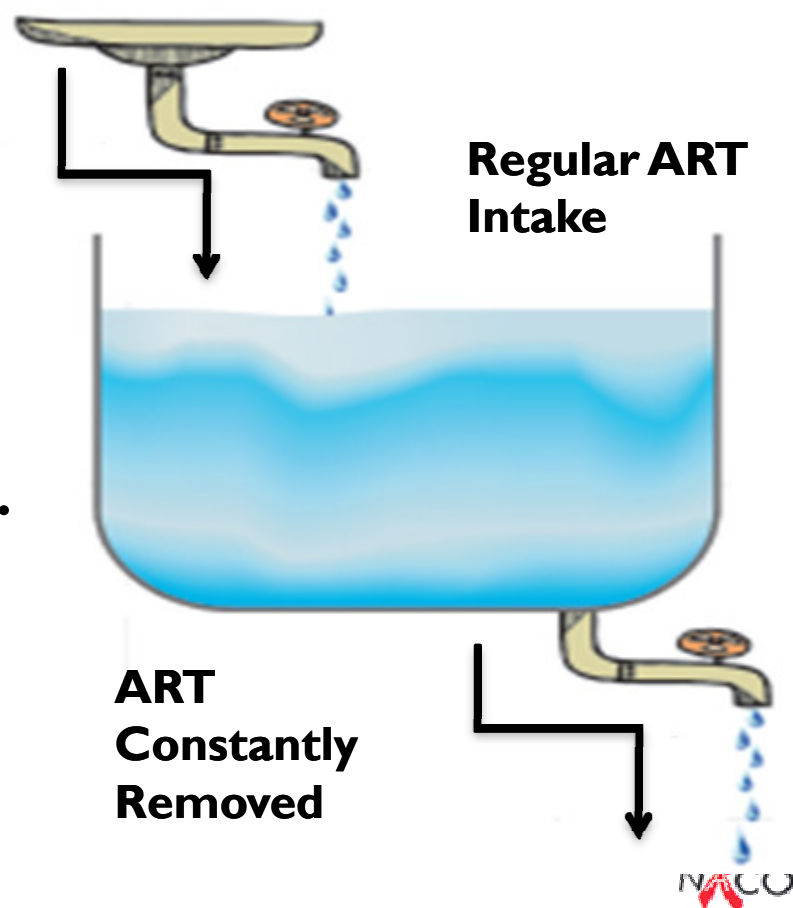
Presently there are 4 First-line regimens and 4 alternate first line regimens available.

When to initiate ART

	Clinical Stage 1	Clinical Stage 2	Clinical Stage 3	Clinical Stage 4
Regular Clients	Treat if CD4 is less than 350	Treat if CD4 is less than 350	Treat irrespective of CD4 count	Treat irrespective of CD4 count
Clients with Tuberculosis	Start after 2 weeks of initiation of Anti-tuberculosis treatment (ATT) irrespective of CD4 count	Start after 2 weeks of initiation of Anti-tuberculosis treatment (ATT) irrespective of CD4 count	Start after 2 weeks of initiation of Anti-tuberculosis treatment (ATT) irrespective of CD4 count	Start after 2 weeks of initiation of Anti-tuberculosis treatment (ATT) irrespective of CD4 count
Pregnant Women	Treat if CD4 is less than 350	Treat if CD4 is less than 350	Treat irrespective of CD4 count	Treat irrespective of CD4 count

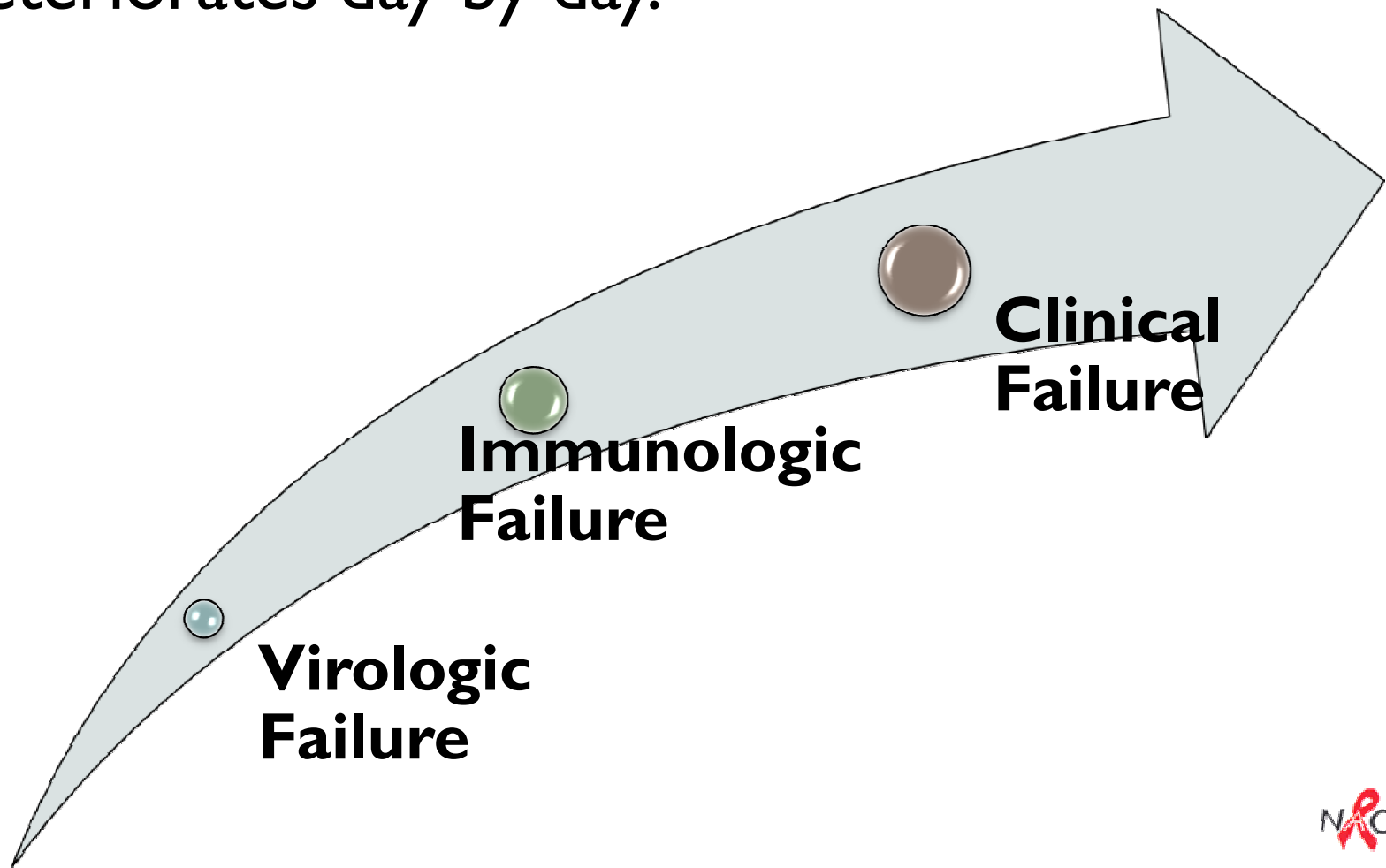
Adherence is Important

- 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

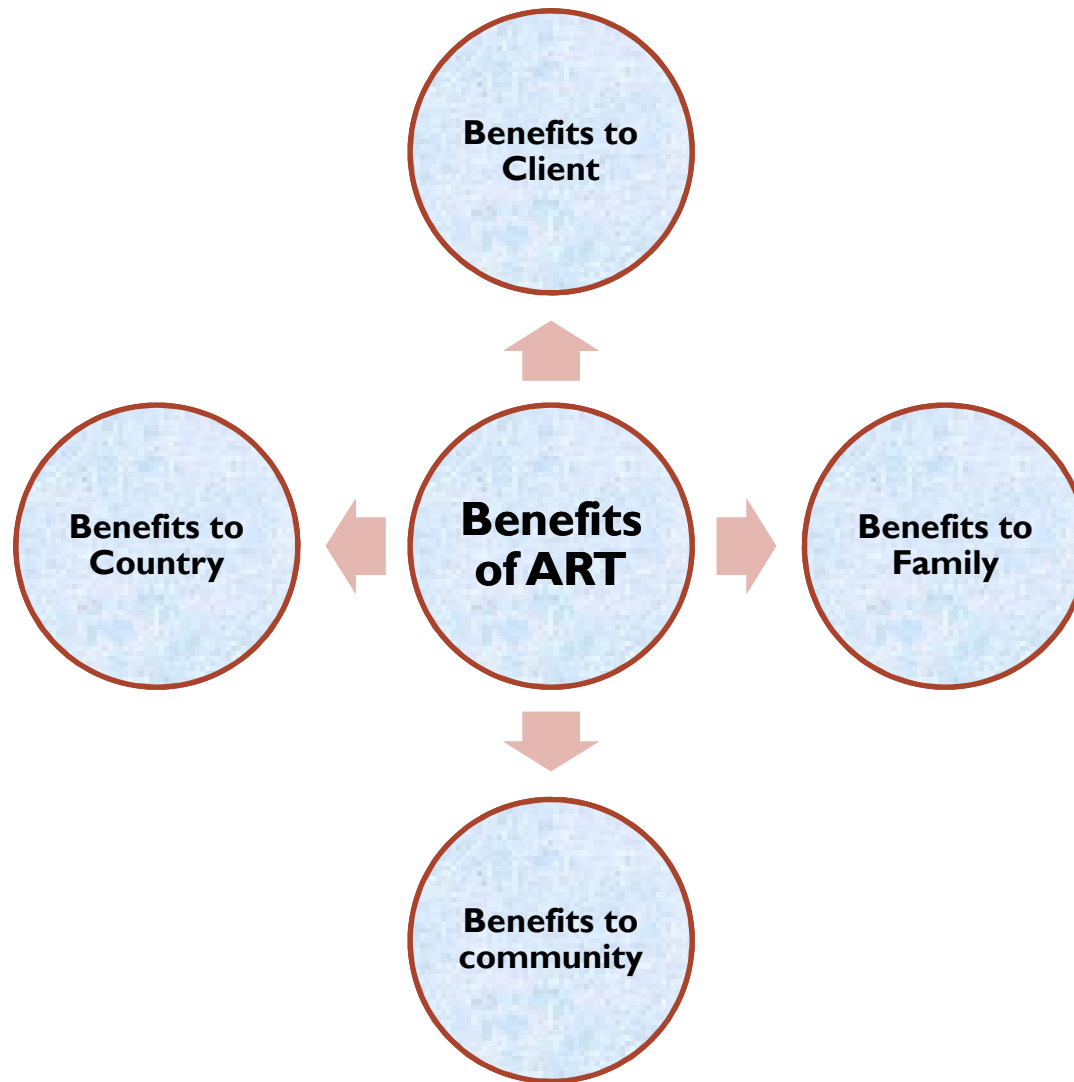
Factors contributing to treatment failure

- Lack of Treatment Adherence
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- Suboptimal drug level
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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



Side-effects of ARV

Headache

Dry mouth

Diarrhoea

Skin rashes

Hair loss

Tingling or pain
in hands or
feet

Anaemia

Dizziness

Feeling tired
and sad

Unusual or bad
dreams

Nausea and
vomitting

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?