Pediatrics in Myanmar

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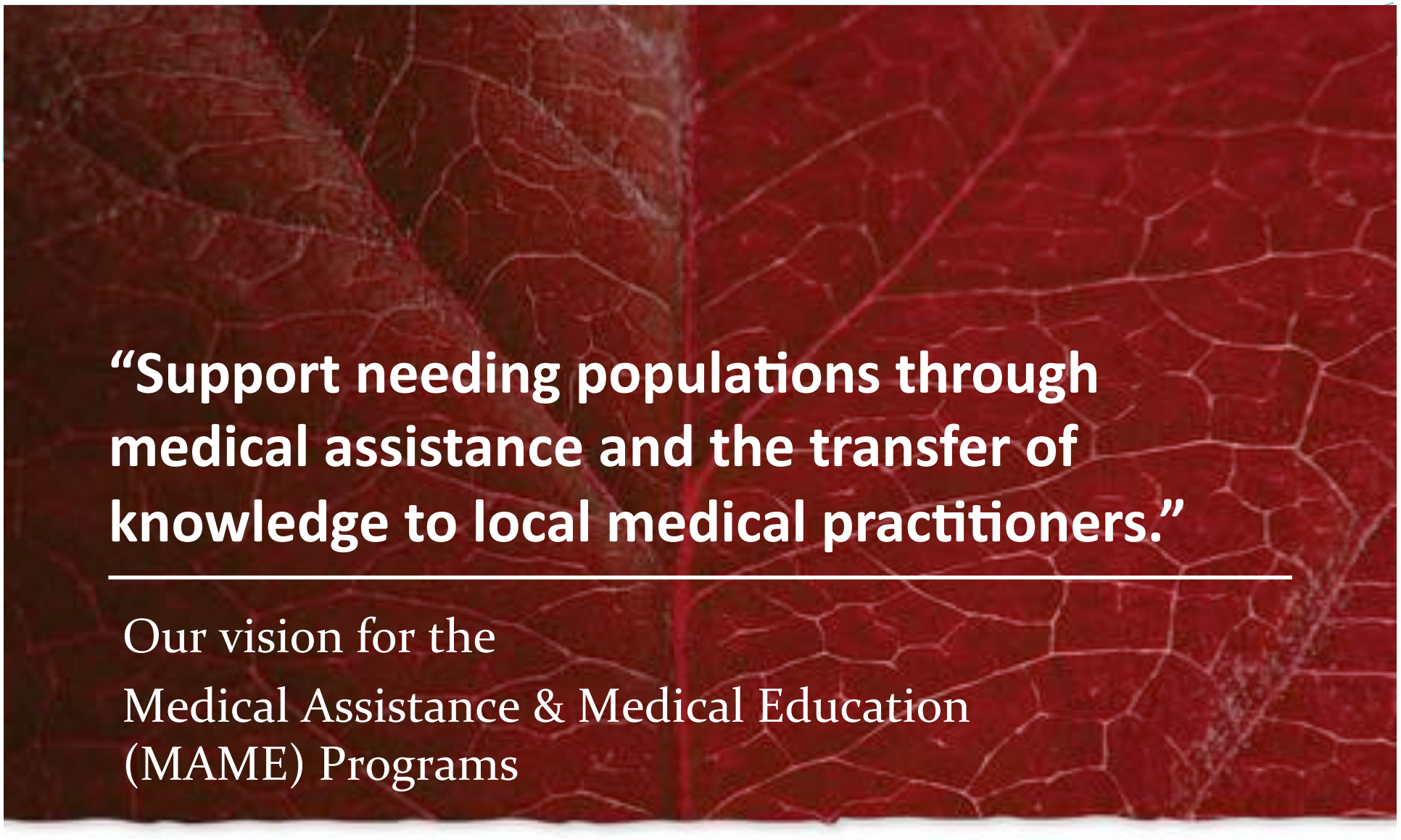
GreenShoots FOUNDATION



GreenShoots
FOUNDATION

IHC (Mnadalay Children hospital)

- Started in August 2005, same place with adult OPD
- NAP and great partner UNION as PPP
- In 2012 - move to 300 bedded Children Hospital, separate with adult OPD
- Starting from March 2014 – moved to 550 bedded Children Hospital.

- OPD Day - Monday and Wednesday Evening
- Average 30 patients /OPD day
- At least 3 Pediatricians and 3 Coordinators attend the OPD
- ART and OI Drugs dispensation is handled by pharmacists and nurses


NAP/DOH/IUATLD (UNION)

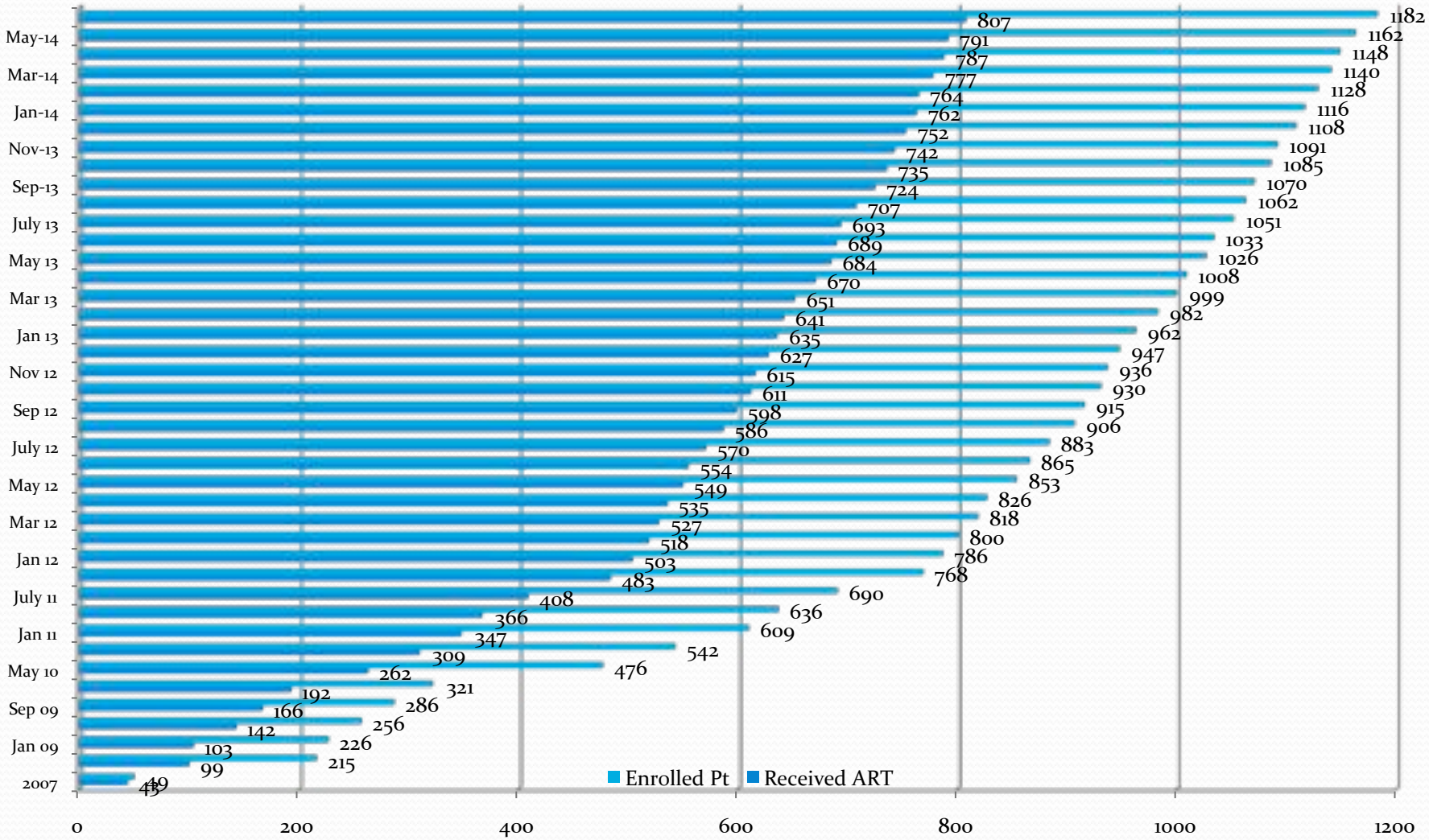

CHILDREN HOSPITAL


Pediatrics ICU and
Pediatrics OT

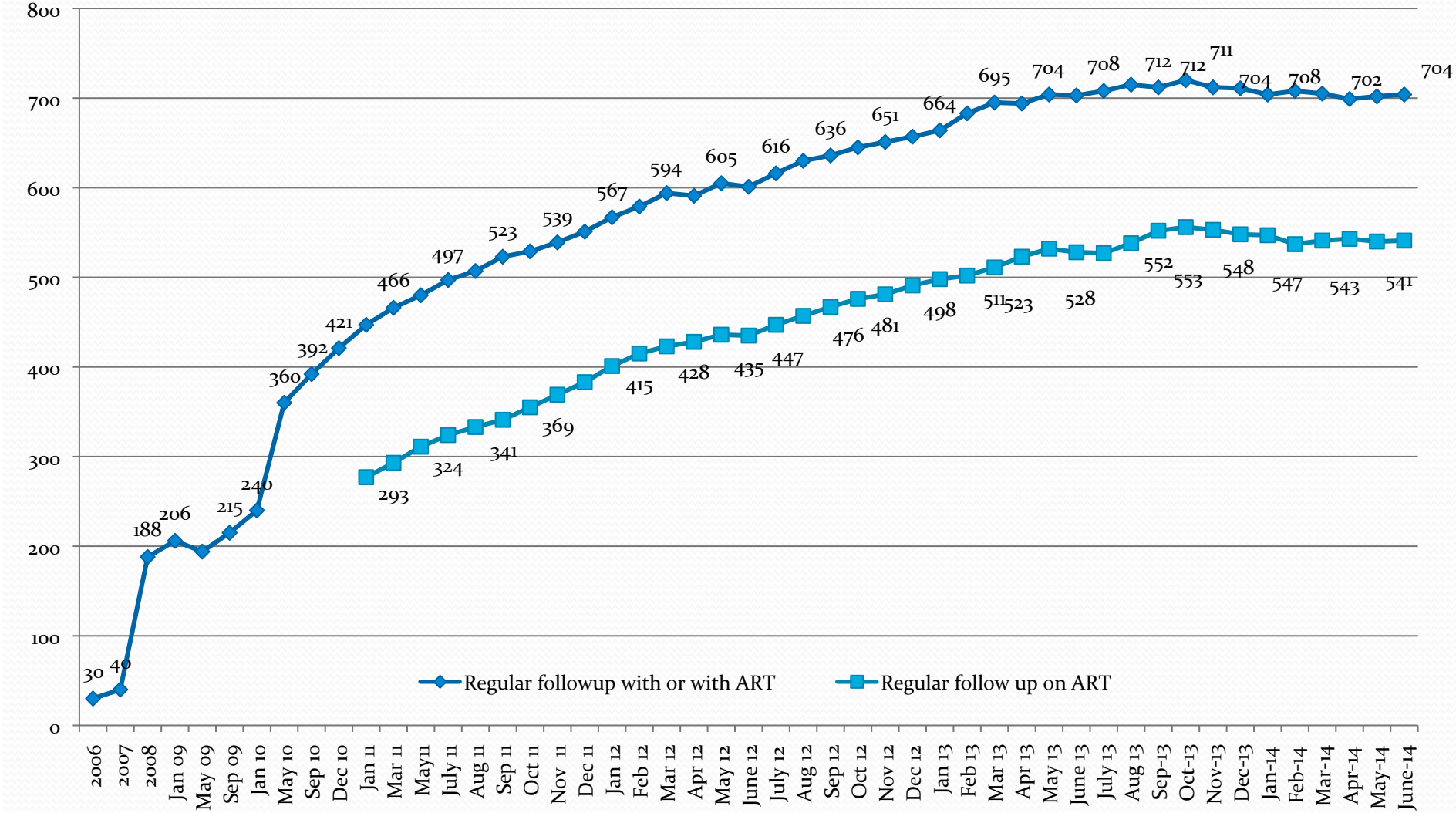

HIV CARE
CLINIC


NAP/DOPYUATED (UMCN)
HC CLINIC

Total enrolled patients in **MCH**(2007 - June,2014)



Total patients on regular follow up **MCH** (June, 2014)



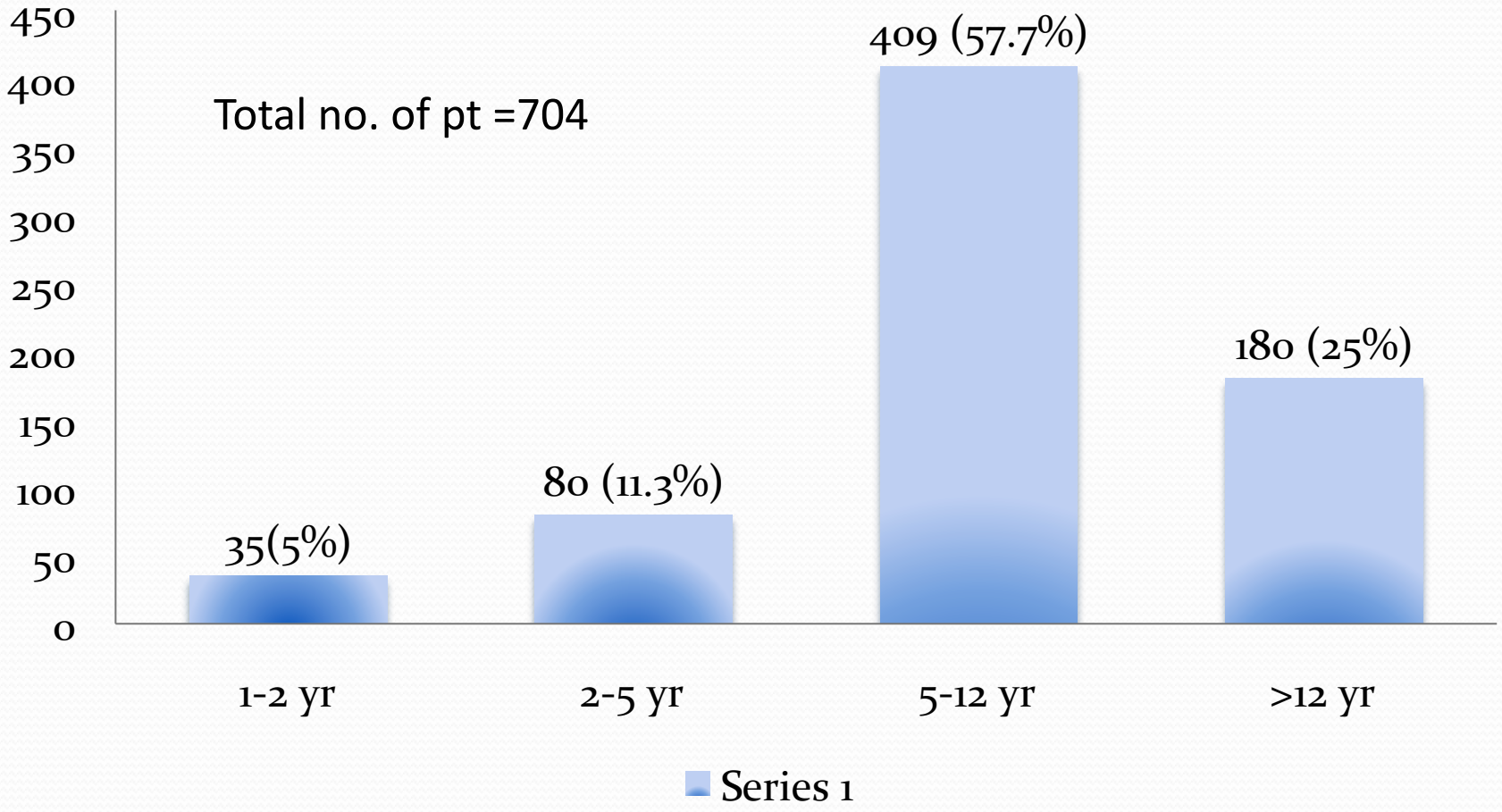
Outcome of **MCH** (2007 -june,2014) Regardless of ART Status

- Total Patients (Total enrolled+ Transferred In) = 1182
- Transfer Out = 189
- Death = 131
- Defaulted = 179
- Discharged = 13
- Active Follow up = 704

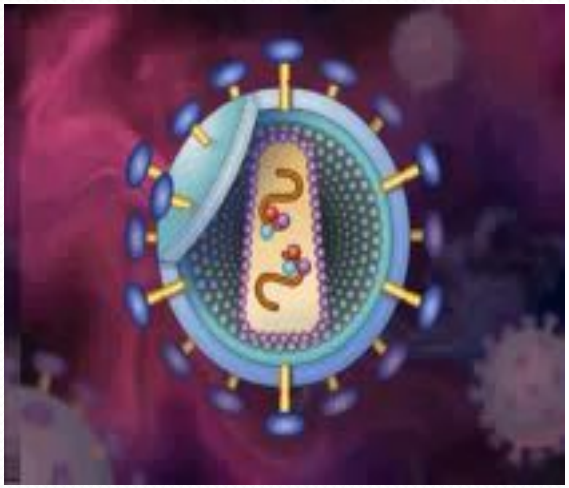
- Retention in Care = 75 %
- % of Death among Total patient = ~10%
- % of Defaulter among Total patient = ~15%

  (among ART patient = 5.8%)
- Average Enrolment = 12/month
- Average ART initiation = 9/month

Age Distribution among patients attending IHC program of 550 bedded Children Hospital (June/2014)



2014 (January to December)



- New enrolled patient -145 children
- New ART initiation – 115 children
- Among 145 new patient 15 children were coinfected with TB at initial presentation and provide Anti –TB treatment first (10.3%)

ZERO

Pediatrics HIV/AIDS Care and Management

- PMCT
- Antiretroviral therapy in children
- Management of OI
- HIV/ TB coinfection in children
- Challenges

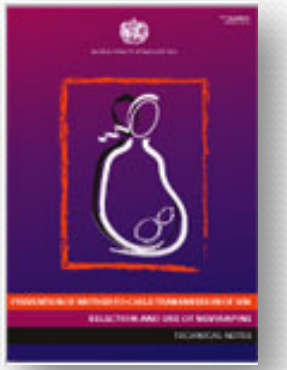
Milestones (PMCT)

- Initiated as Pilot project in 2001 as community based approach
- Expanding yearly and as of (2013) :
  - community based in (256) townships
  - hospital based in (38) hospitals
  - Strategic shift and refocusing
  - **Now , mainly Township based**

What's your zero?

Getting to Zero New Infection!!!

Evolution of WHO 2013 PMTCT ARV Recommendations



2001

2004

2006

2010

Launch July 2013

PMTCT	4 weeks AZT; AZT+ 3TC, or SD NVP	AZT from 28 wks + SD NVP	AZT from 28wks + sdNVP +AZT/ 3TC 7days	**Option A** (AZT +infant NVP) **Option B** (triple ARVs)	**Option B or B +** Moving to ART for all PW/BF
ART	No recommendation	CD4 <200	CD4 <200	CD4 ≤350	CD4 ≤500

Move towards: more effective ARV drugs, extending coverage throughout MTCT risk period, and ART for the mother's health

PMCT

- ***Following Option B is norm in Myanmar***

  ARV prophylaxis for pregnant women who do not need treatment for their own health
- CD4 more then 500/cmm and WHO stage 1 or 2
- When to start ARV prophylaxis:
  - As early as 14 weeks of pregnancy
  - *Prophylaxis regimens for the mother: TDF+3TC (FTC) + EFV or alternate first line*
  - ***Option B***: - continue ARV till 1 week after cessation of breast feeding

PMCT

- *Option B plus*: Do not stop ARV to mother.
- *Option B plus can be considered*
  - Areas with high prevalence of HIV
  - Remote areas, hard to reach areas
  - Availability of ART center (as ART initiation will happen at ART centers)
  - Depending on patients' choice, consent, ability for regular follow up and adherence counseling.

PMCT

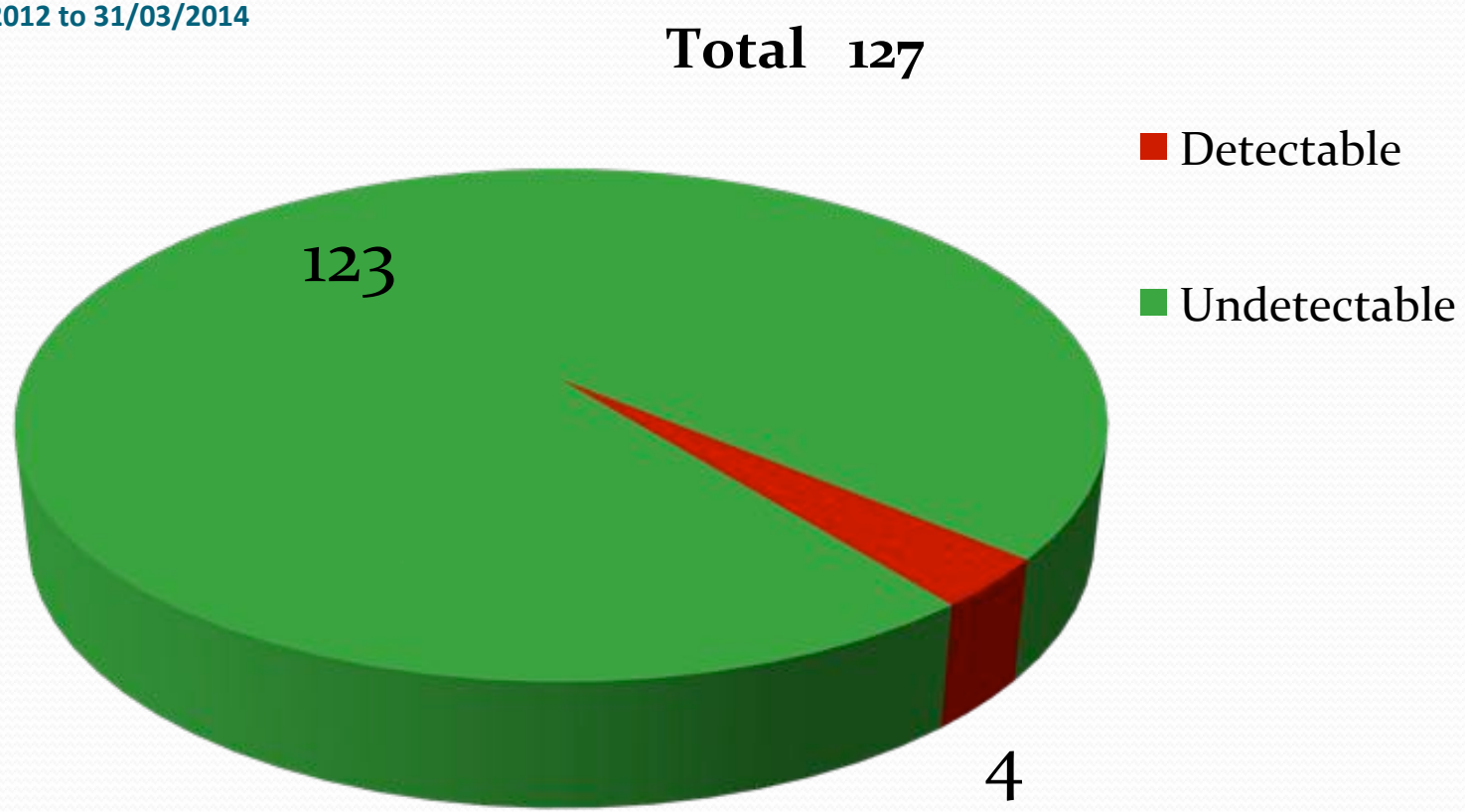
- ***Mode of delivery***
- NSVD (VL <1000cp/ml at the time of delivery)or ELSCS
- ***Infant feeding mode***
- *Breast feeding or formula feeding*
- *Avoid mixed feeding*

- ***Prophylaxis regimens for exposed infants***
- All infants regardless of infant feeding mode – oral NVP for 6 weeks

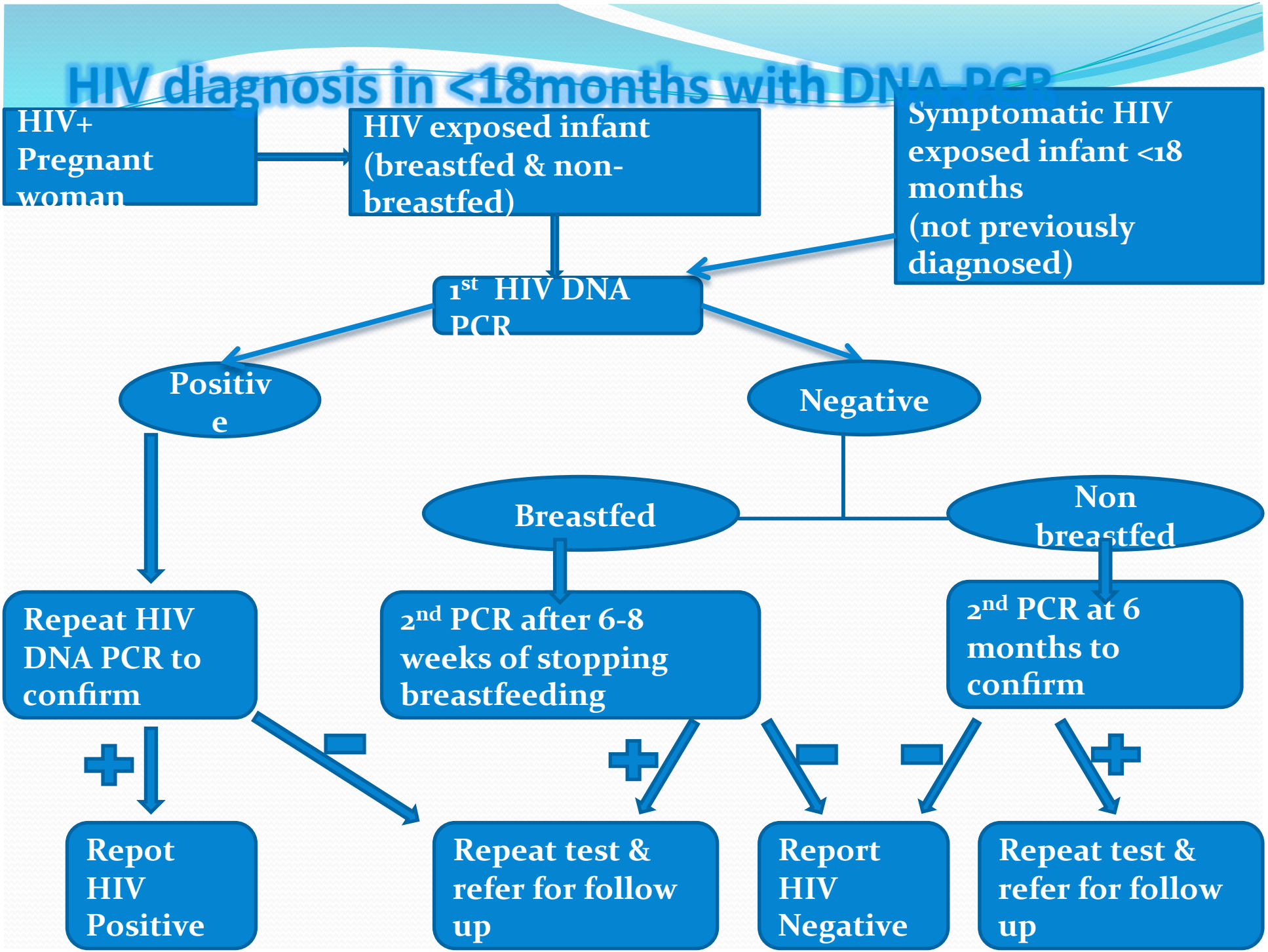
Early Infant Diagnosis (EID)

HIVDNA PCR (DBS)

15/02/2012 to 31/03/2014



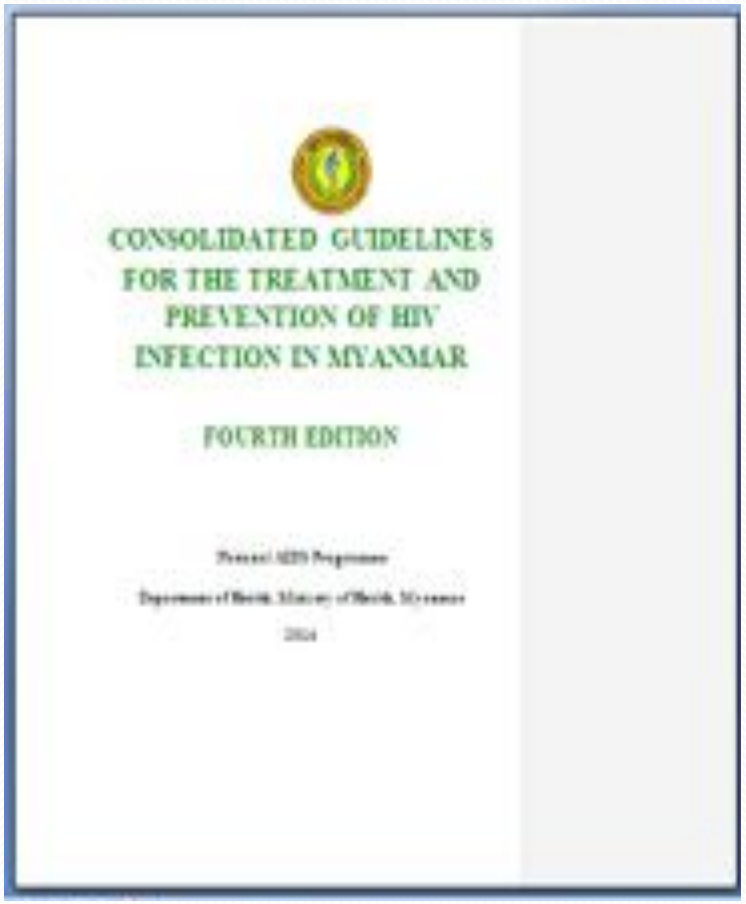
HIV diagnosis in <18months with DNA-PCR




ART IN CHILDREN


3rd edition of guideline (2010)

4th edition of guideline (2013)



When to start

AGE GROUP	2010 RECOMMENDATIONS
<1 YEARS	**Treat ALL** Strong recommendation, moderate-quality evidence
1-2 YEARS	**Treat ALL** Conditional recommendation, very-low-quality evidence
2-5 YEARS	**Initiate ART with CD4 count ⩽750 cells/mm3 or <25%,** irrespective of WHO clinical stage
≥5 YEARS	**Initiate ART with CD4 count ⩽350 cells/mm3 (<u>As in adults</u>),** irrespective of WHO clinical stage AND WHO clinical stage 3 or 4

AGE GROUP	2013 RECOMMENDATIONS
< 1 YEAR	Treat ALL Strong recommendation, moderate-quality evidence
1-5 YEARS	Treat ALL Conditional recommendation, very-low-quality evidence Priority: <u>children < 2 years or WHO stage 3-4 or CD4 count ≤ 750 cells/mm3 or < 25%</u>
≥5 YEARS	CD4 ≤ 500 cells/mm3 Conditional recommendation, very-low-quality evidence CD4 ≤350 cells/mm³ as a priority (<u>As in Adults</u>) Strong recommendation, moderate-quality evidence

WHAT ART REGIMEN TO START

NRTI	PI	NNRTI	Fusion inhibitors	Entry inhibitors	INSTI
Zidovudine	Saquinavir	Nevirapine	Enfuvirtide	Maraviroc	Raltegravir
Didanosine	Ritonavir	Delavirdine			
Stavudine	Indinavir	Efavirenz			
Lamivudine	Nelfinavir	Etravirine			
Abacavir	Lopinavir/r	Rilpivirine			
Tenofovir	Atazanavir				
Emtricitabine	Fosamprenavir				
	Tipranavir				
	Darunavir				

What ART to start: age < 3 years

Age group	Prior exposure to PMTCT ARV's	2010 recommendations	2013 recommendations
<12 months	Exposed	LPV/r + 2 NRTIs	**LPV/r plus 2 NRTIs** If LPV/r not available, NVP-based Plus **NRTI backbone:** •AZT or ABC + 3TC •(d4T+3TC*)
	Not Exposed	NVP + 2 NRTIs •AZT + 3TC •ABC + 3TC •d4T + 3TC	
	Exposure unknown		
12 to <36 months	Regardless of exposure		

- When HIV RNA monitoring is available, consider to substitute LPV/r with NNRTI after virological suppression is sustained (conditional, low quality)

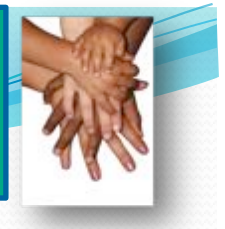
World Health Organization

Table 7.10 Summary of first-line ART regimens for children younger than three years

Preferred regimens	ABC[a] or AZT + 3TC + LPV/r[b]
Alternative regimens	ABC[a] or AZT + 3TC + NVP[c]
Special circumstances[e]	d4T[d] + 3TC + LPV/r
	d4T[d] + 3TC + NVP

- Special circumstances may include situations where preferred or alternative regimens may not be available or suitable because of significant toxicities.

What to start in ≥ 3 years



Age group	2010 recommendations	Age group	2013 recommendations	
3-19 years	NVP or EFV plus 2 NRTIs in preferential order: AZT + 3TC ABC + 3TC d4T + 3TC TDF + FTC + EFV to be used as preferred regimen if HIV/HBV coinfection and >12 years and > 35 Kg	3-10 years (Including > 10 yrs who weighing <35kg)	NNRTI	<u>EFV is preferred</u> NVP as alternative
			2NRTIs	In preferential order: ABC + 3TC AZT or TDF + 3TC or FTC
		10-19 years (weighing ≥35 kg) (align with adults)	NNRTI	<u>EFV is preferred</u> NVP as alternative
			2NRTIs	In preferential order: TDF + FTC or 3TC ABC + 3TC AZT + 3TC

World Health Organization

Table 7.11 Summary of recommended first-line ART regimens for children and adolescents

	Children 3 years to less than 10 years and adolescents <35 kg	Adolescents (10 to 19 years) ≥35 kg
Preferred	ABC[a] + 3TC + EFV	TDF + 3TC (or FTC) + EFV[a]
Alternatives	ABC + 3TC + NVP AZT + 3TC + EFV AZT + 3TC + NVP TDF + 3TC (or FTC) + EFV TDF + 3TC (or FTC) + NVP	AZT + 3TC + EFV AZT + 3TC + NVP TDF + 3TC (or FTC) + NVP
Special circumstances[c]	d4T[b] + 3TC + EFV d4T[b] + 3TC + NVP	ABC + 3TC + EFV ABC + 3TC + NVP

Laboratory monitoring before and after initiating ART

Before initiation of ART

- Baseline investigation
- Hemogram
- LFT
- Creatinine
- RBS
- HBs Ag
- Anti-HCV
- CD4 count
- TB screening

After initiation of ART

- Hemogram ,LFT,Creatinine
- CD4 3- 6 monthly
- Viral Load only in cases of immunologica failure patient

We Need Virological Monitoring

- VIROLOGICAL FAILURE
- IMMUNOLOGICAL FAILURE
- CLINICAL FAILURE

WHAT ART TO SWITCH TO

Second line ART regimen

Table 7.21 Summary of recommended first- and second-line ART regimens for children (including adolescents)

	Children	First-line ART regimen	Second-line ART regimen
LPV/r-based first-line regimen	Younger than 3 years	ABC + 3TC + LPV/r	No change[a]
		AZT + 3TC + LPV/r	
	3 years and older	ABC + 3TC + LPV/r	AZT + 3TC + EFV
		AZT + 3TC + LPV/r	ABC or TDF[b] + 3TC + EFV
NNRTI-based first-line regimen	All ages	ABC + 3TC + EFV (or NVP)	AZT + 3TC + LPV/r[c]
		TDF[b] + 3TC (or FTC) + EFV (or NVP)	
		AZT + 3TC + EFV (or NVP)	ABC or TDF + 3TC[c] (or FTC) + LPV/r[c]

[a] No change is recommended unless in the presence of advanced clinical disease progression or lack of adherence specifically because of poor palatability of LPV/r. In this case, switching to a second-line NVP-based regimen should be considered. Based on the recent approval of the use of EFV in children less than 3 years, an EFV-based regimen could be considered as an alternative. However, more data are needed to inform how best to use EFV in this population.

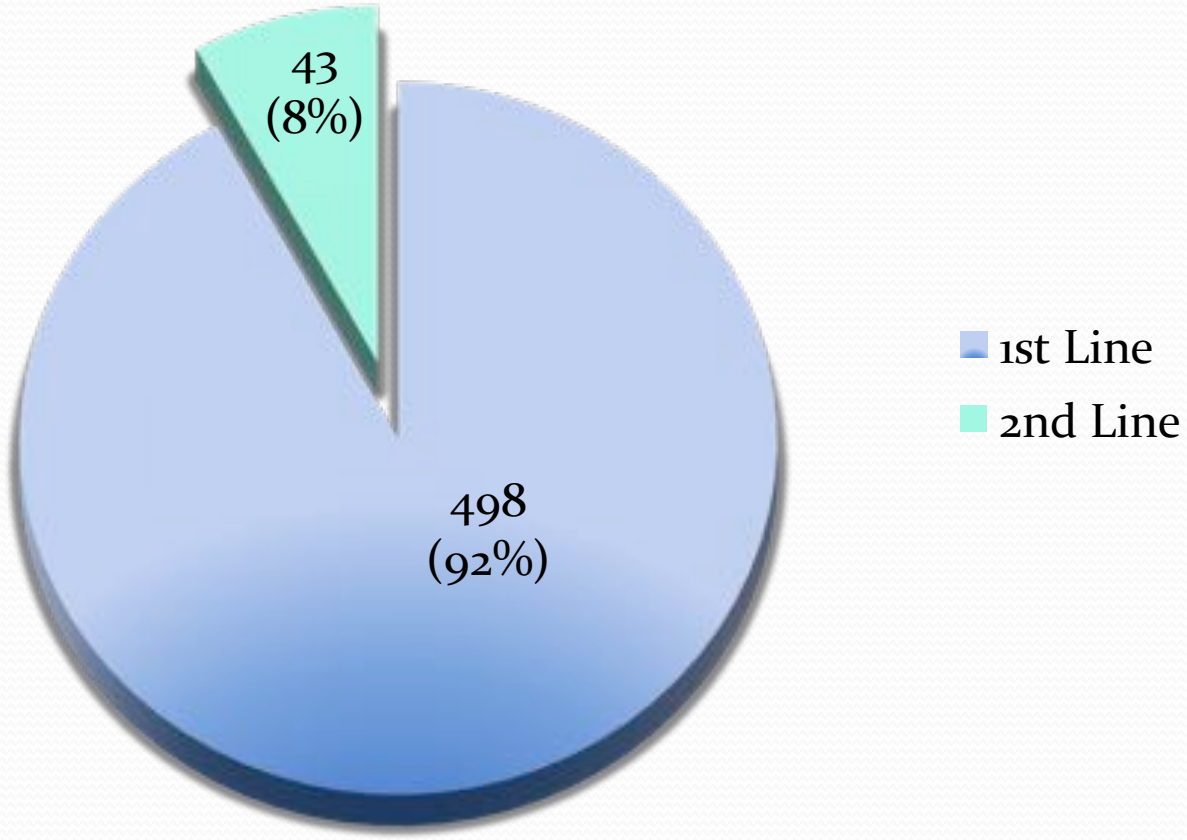
[b] TDF may only be given to children >2 years.

[c] ATV/r can be used as an alternative to LPV/r in children older than 6 years.

Table 7.17 Summary of preferred second-line ARV regimens for adults, adolescents, pregnant women and children

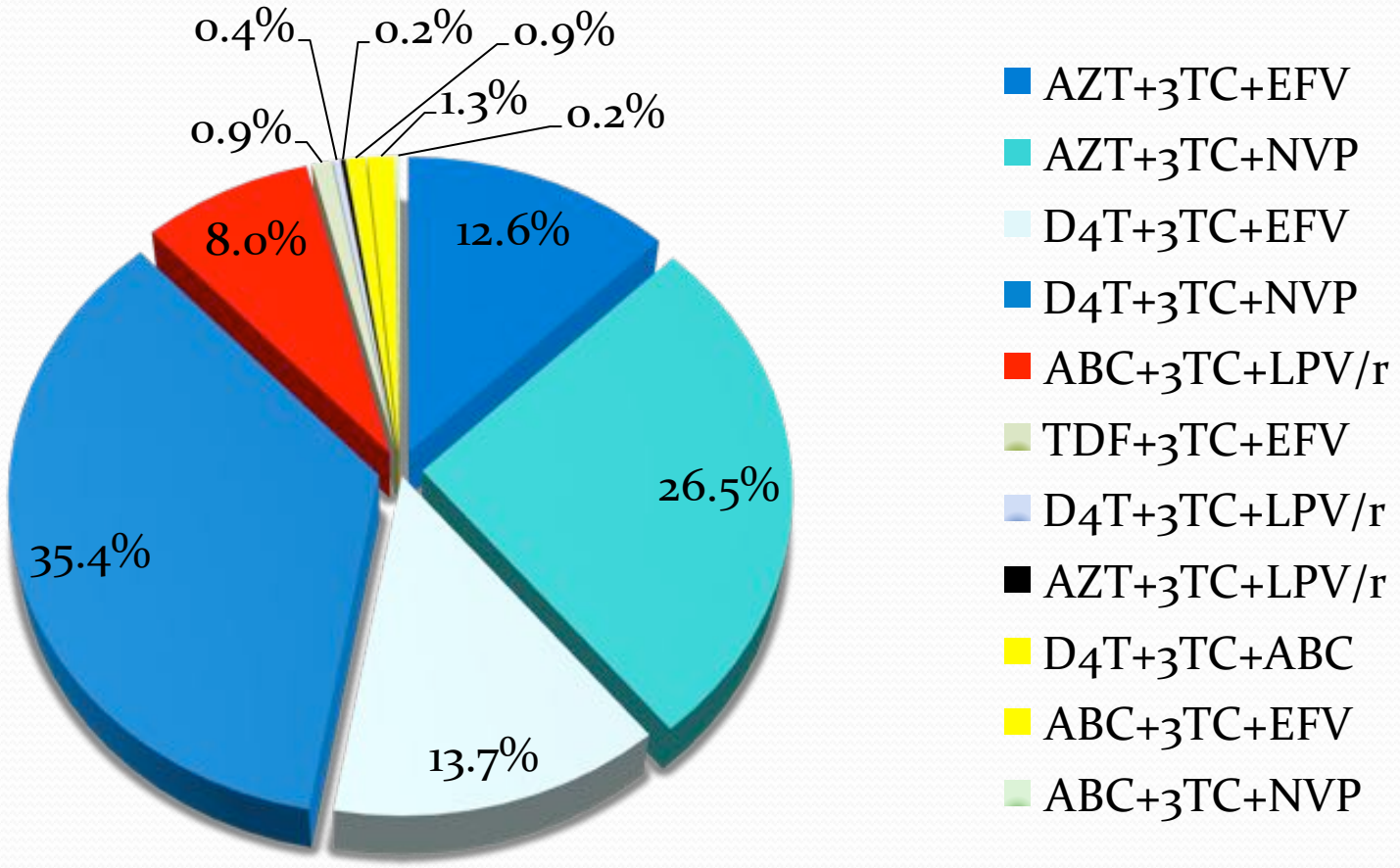
Second-line ART			Preferred regimens	Alternative regimens
Children	If a NNRTI-based first-line regimen was used		ABC + 3TC + LPV/r[b]	ABC + 3TC + LPV/r[b] TDF + 3TC (or FTC) + LPV/r[b]
	If a PI-based first-line regimen was used	<3 years	No change from first-line regimen in use[c]	AZT (or ABC) + 3TC + NVP
		3 years to less than 10 years	AZT (or ABC) + 3TC + EFV	ABC (or TDF) + 3TC + NVP

1st Treatment @ 2nd line Treatment



Patient Chart According to Regimen

MCH, OPD / Period – June/2014



Challenges in ART regime

d4T be phased out

- Still used D4T is because of the problem of Anemia (late stage, severe OI, Malnutririon ,malaria)
- the duration of therapy with this drug should be limited to the shortest time possible.
- ABC
- Not provide HLA B5701 screening before initiation

Challenges in ART regime

TDF

- Limited pediatric experience
- Potential for bone and renal toxicity; bone toxicity appears to be more frequent in younger children.
- Numerous drug-drug interactions with other ARV agents including LPV/r, ATV, and TPV

OI and Management

CPT –Cotrimoxazole prophylaxis therapy

- For PCP and toxoplasmosis infection and bacteria infection and malaria
- Give to all HIV exposed babies starting at 4-6 weeks after birth
- <1 year
- 1-5 year WHO stage 2,3,4
- >5 year WHO stage 3,4 or CD4<350 cells /mm3

Challenges in Investigation and management of OI

- Limitation in diagnosis of OI
- Management of OI – limitation in available drugs

  for OI management

Challenges in Investigation and management of OI

Lab diagnosis of tuberculosis and M. avian complex disease in HIV positive patients

Tuberculosis

- Sputum or gastric lavage for AFB
- Culture
- Gene expert
- CXR- atypical

Challenges in Investigation and management of OI

- MAC

Microscopy – The presumptive diagnosis of MAC infection can be made quickly by demonstration of AFB in smears from tissue e.g. skin, bone marrow, lymph node, liver biopsy or buffy coat of blood in patients suggestive of MAC infection.

Definite diagnosis still requires culture confirmation.

Culture – Isolation of MAC from blood or bone marrow cultures takes 2-6 weeks.

CMV retinitis

- CMV retinitis is the most common opportunistic ocular infection in patients with AIDS
- Progressive if left untreated
- Potentially blinding disease
- Asymptomatic – light flashing, floater, visual field loss

** limitation in treatment ,out of reach of treatment for CMV retinitis**

- ** can save the life, but unfortunately cannot save the vision and more burden with preexisting HIV**

HIV and TB

- Acute respiratory symptoms - differential diagnosis of acute bacteria pneumonia ,PCP and evaluate for
- Coinfection with TB
- Chronic respiratory symptoms-Bronchiectasis and lung abscess
- Miliary TB
- TB meningitis
- TB effusion
- TB abdomen
- Spine involvement

- TB treatment regime for children with HIV
- Suspected or confirmed pulmonary TB and peripheral lymphadenopathy- 2 HRZE/4HR
- Suspected or confirmed TB meningitis or osteoarticular -2 HRZE/10HR

Challenges in TB @ HIV

- TB is one of the most common opportunistic infections affecting children with HIV.
- Drug Interactions between anti-TB and ARV rifampicin and LPV/r or NVP

co-treatment in children under three years is challenging

Challenges in TB @ HIV

- Triple NRTI (AZT + 3TC + ABC)
- Substitute NVP for LPV/r, ensuring that dose is 200 mg/m2
- Continue LPV/r; consider adding RTV to achieve the full therapeutic dosed 1:1

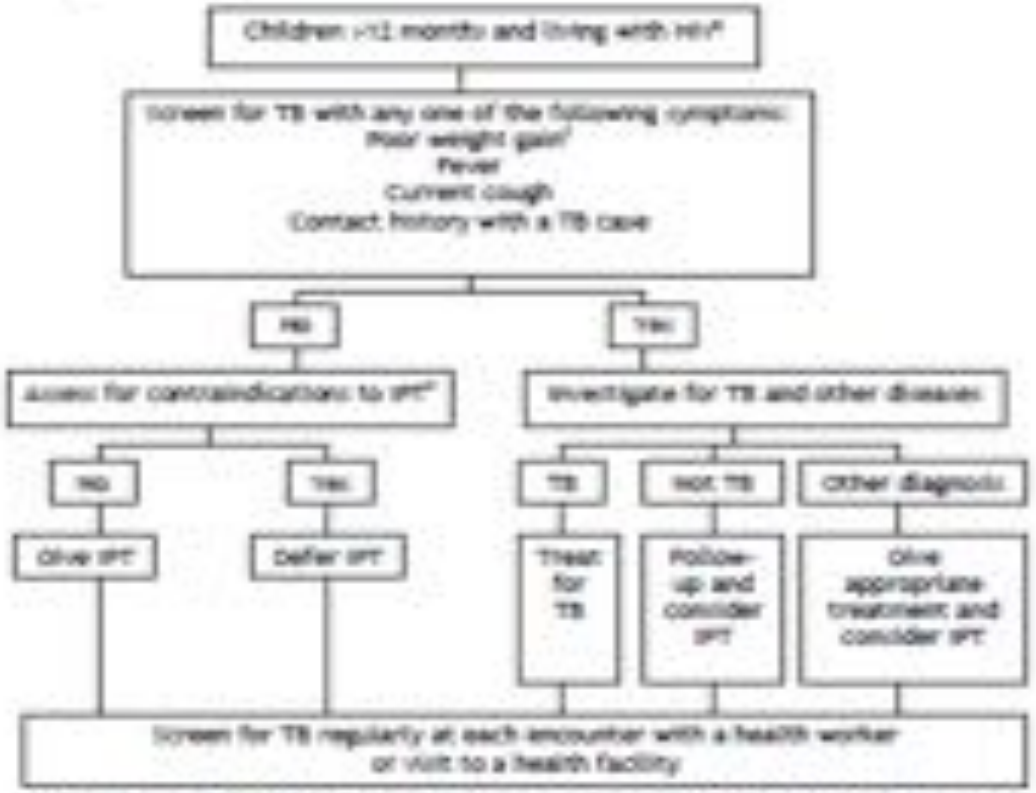
IPT –Isoniazid Prophylatic Therapy

Children living with HIV who are more than 12 months of age who do not have poor weight gain ,fever or current cough and have no contact with a TB case are unlikely to have active TB and should receive six months of IPT (10 mg/kg/day)

IPT –Isoniazid Prophylatic Therapy

In children living with HIV who are less than 12 months of age, only those who have contact with a TB case and who are evaluated for TB (using investigations) should receive six months of IPT if the evaluation shows no TB disease

Figure 2: Algorithm for TB screening in children more than one year of age and living with HIV



*All children and infants less than one year of age should be provided with IPT if they have a history of household contact with a TB case.

†Poor weight gain is defined as reported weight loss or confirmed weight loss (>5%) since the last visit or growth curve flattening or very low weight (weight for age <-3z score) or underweight (weight for age <-2z score).

‡Contraindications include: active acute or chronic hepatitis, symptoms of peripheral neuropathy, prior IPT and prior TB treatment.

case

- 9 months old boy was admitted for fever with severe respiratory distress
- History of hospitalization for 2 times at district hospital for similar problems
- Born by NSVD at home and give Breast feeding up to now
- Her mother is 25 years and it is her 2nd marriage
- 1st husband die due to ? HIV and 2 years later she got married again
- She never done VCCT & HIV testing

Case

- She has a problem of chronic cough with sputum production and L.O.A and L.O.W 2 months after delivery but took no treatment
- On examination
- GC- 1ll ,weight < 3rd centile
- Oral thrush +
- fast breathing + CI+ periphery cyanosis+
- Anemic
- Lungs- VBS with course cerpitations
- Huge hepatosplenomegaly and generalised lymphadenopathy

Case

- Very severe Pneumonia with PEM ? Bacteria ? PCP ? TB pneumonia

  Investigations

- HIV ab test – mother + baby +
- CP--- Anemia
- CXR --- TB infection ,PCP
- T test negative
- ESR- 90

Case

- Blood culture- *Klebsiella pneumoniae*
- Contact tracing mother– Sputum for AFB ++
- CXR (mother) – TB
- CD 4 <15 %
- Viral load (baby)- 867,000 cp/ml

Case

- **Treatments**
- I /V Antibiotics
- Anti –TB -2HRZE/4HR
- Oral high dose cotrimoxazole 4 times/day
- Oral prednisolone
- Blood transfusion
- Nutritional support
- Nystatin for oral candiasis
- ART – ABC/D4T/3TC (3 weeks after anti-TB)


Psychosocial
Support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Care for Positive Children

Promotion of Adherence


DISCLOSURE

Next Challenging Issues For The Grown-Up HIV-Infected Children

- Transitional care
- Adolescent problems
- Lifelong adherence
- Peer acceptance
- Future education and career
- Making own family

THANK YOU VERY MUCH

Thank you

For further information please contact :

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