Treatment Outcomes of the Modified Directly Observed Therapy (MDOT) Program of Infected Children Receiving HAART

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Cambodian MDOT Study

Objective: To evaluate the method of modified directly observed therapy (MDOT) at National Pediatric Hospital in Phnom Penh, Cambodia

Cohort: 26 ARV therapy naïve HIV+ children

Observation schedule:

Month 1	5 days/week	1 of 2 doses observed
Month 2	3 days/week	1 of 2 doses observed
Month 3	2 days/week	1 of 2 doses observed
After Month 3	visits tapered to 1 day/week, 2 times/month, then 1 time/month	

Introduction and Background

- Adherence to HIV medication has been identifies as a critical element to successful outcomes.
- Treatment failure has been associated with decreased adherence to the drug regimen.
- DOT is a strategy to improve adherence in marginalized population.
- DOT programs for TB have improved cure rates in a wide range of settings.

Introduction and Background (cont.)

TB treatment program in NPH :

- Provides a minimum of 1wk.of inpatient anti. TB drug to children with active TB.
- Caregivers/children come for a week supply of medication and adherence education.
- After one month the visits decrease in frequency upon the clinical improvement and adequate adherence.

Should MDOT be applied to HIV infected children in our poor setting?

- The primary goal would be to increase adherence to HIV therapy.
- Learning from some successful programs and our existing program, we propose a pilot study on the feasibility of a MDOT-HAART program in children in NPH.

STUDY METHODS

Study Population: 26 HIV- infected children.

- ***Inclusion criteria:***
  - Under 15 years ; naïve to ART
  - Meet the clinical & immunologic criteria for ART of NPH Guidelines.
  - Meet the social criteria: live with family; not live>20km from NPH; Biological mother must be linked to medical care for HIV. Accepted the informed consent.
- ***Exclusion criteria:***
  - Acute severe infections.
  - Congenital conditions with prevent the ability to take medication.

Baseline characteristics

Status of parents	Number (%)
Two parents alive	13 (50%)
Lost one parent	9 (34.6)
Lost two parents	4 (15.4)

Baseline characteristics
CDC stage & HBV

CDC category A	2 (7.7%)
CDC category B	21 (80.8%)
CDC category C	3 (11.5)
HBsAg+	2 (7.7)

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Baseline Cohort Summary

Gender	Age (yrs)	%CD4	CD4/CD8	Viral Load
Male 13				
Female 13	1.1 – 12	1 – 19	0.02 – 0.51	1.5×10^4 - 5.2×10^6
	(5.5)	(4.5)	(0.13)	7.5×10^5

ARV Regiment

- Started ART in August 2004

- 3TC + d4T + NVP
  - 3TC 150mg and Syrup 10mg/mL
  - d4T 15mg, d4T 20mg (Capsule)
  - NVP200mg and Syrup 10mg/mL

- Then switch NVP to EFV:

  (3TC + d4T + EFV) for 5 children


14 8 2004


14 8 2004

Preparing ARV for the child


22 10 2004


14 8 2004

Cambodian MDOT Study

Gender	Age (yrs)	%CD4	CD4/CD8	Viral Load
Baseline				
Male 13 Female 13	1.1 – 12	1 – 19	0.02 – 0.51	$1.5x10^4$ - $5.2x10^6$
	(5.5)	(4.5)	(0.13)	$7.5x10^5$
6 Months				
Male 12 Female 11	1.6 – 11.5	5 – 30	0.12 – 0.99	<400 - $1.5x10^5$
(3 died)	(5.5)	(15.6)	(0.3)	<400
				87% <400
12 Months				
Male 12 Female 11	2.1 – 12	8 – 32	0.12 – 1.13	<50 - $9.3x10^4$
(3 died)	(6)	(20)	(0.49)	60
				83% <400 35% < 50
18 Months				
Male 12 Female 11	2.6 – 12.5	10 – 36	0.22 – 1.28	<50 - $5.9x10^4$
(3 died)	(6.5)	(23)	(0.51)	<50
				87% <400 52% < 50

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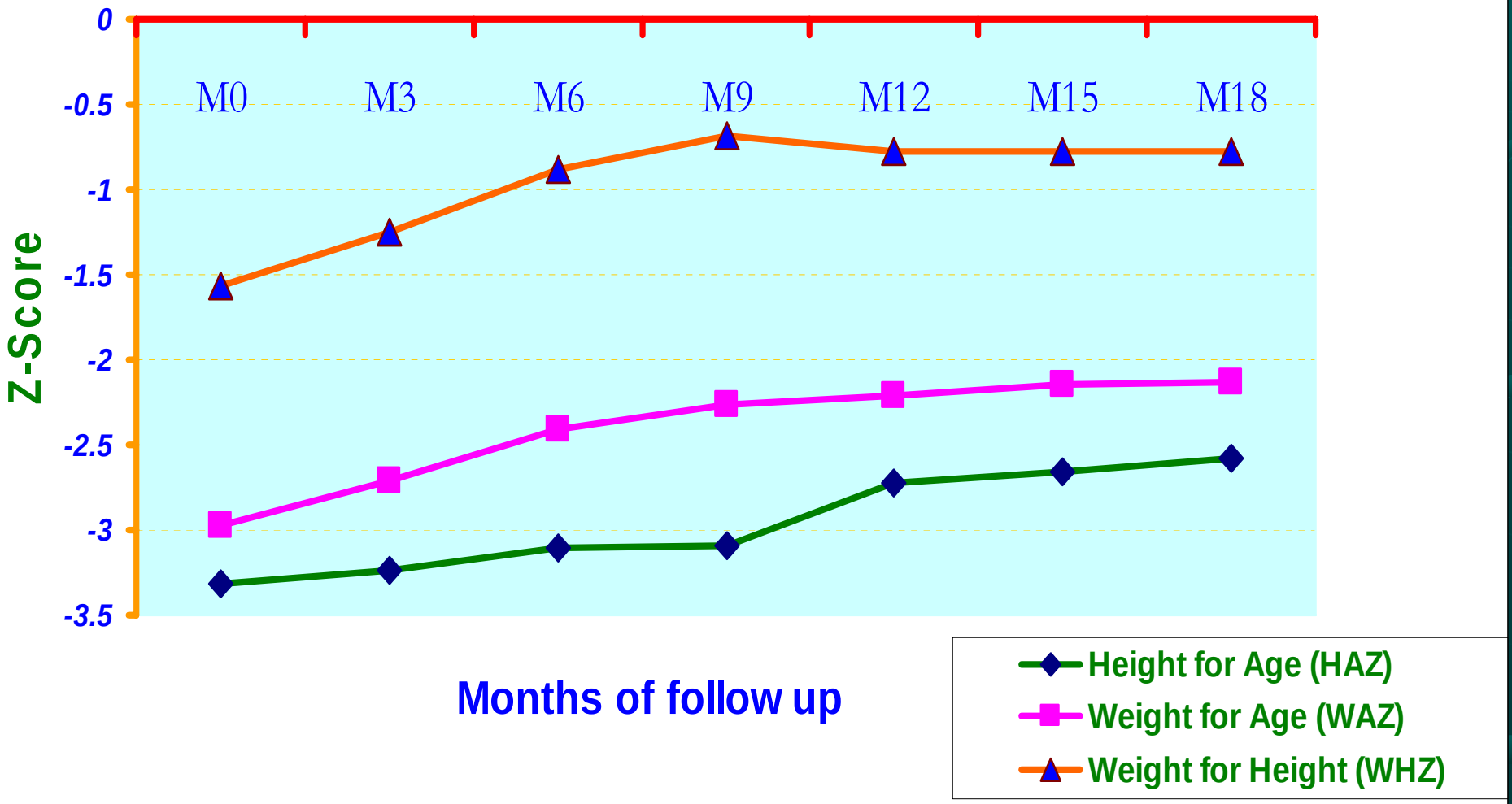
Baseline Cohort Summary

Gender	Age (yrs)	%CD4	CD4/CD8	Viral Load
Male 13 Female 13	1.1 – 12	1 – 19	0.02 – 0.51	1.5×10^4 - 5.2×10^6
	(5.5)	(4.5)	(0.13)	7.5×10^5

6 Months Cohort Summary

Gender	Age (yrs)	%CD4	CD4/CD8	Viral Load
Male 12 Female 11	1.6 – 11.5	5 – 30	0.12 – 0.99	<400 - 1.5×10^5
(3 died)	(5.5)	(15.6)	(0.3)	<400
				87% <400

Response in Z-score over 18 months (n=23)



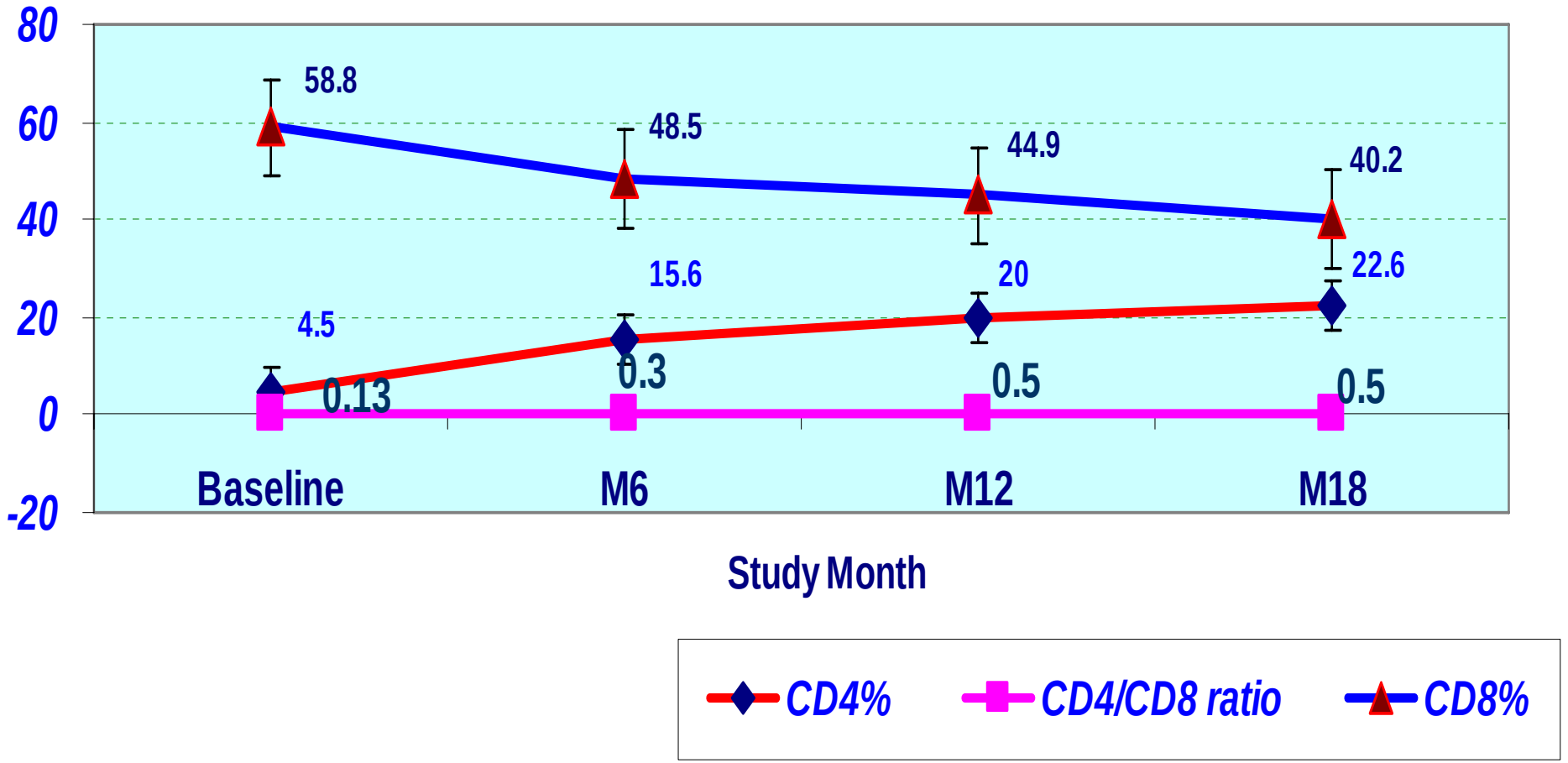
Adherence assessment

- Pill count:
- Measurement of ARV syrup
- Self report

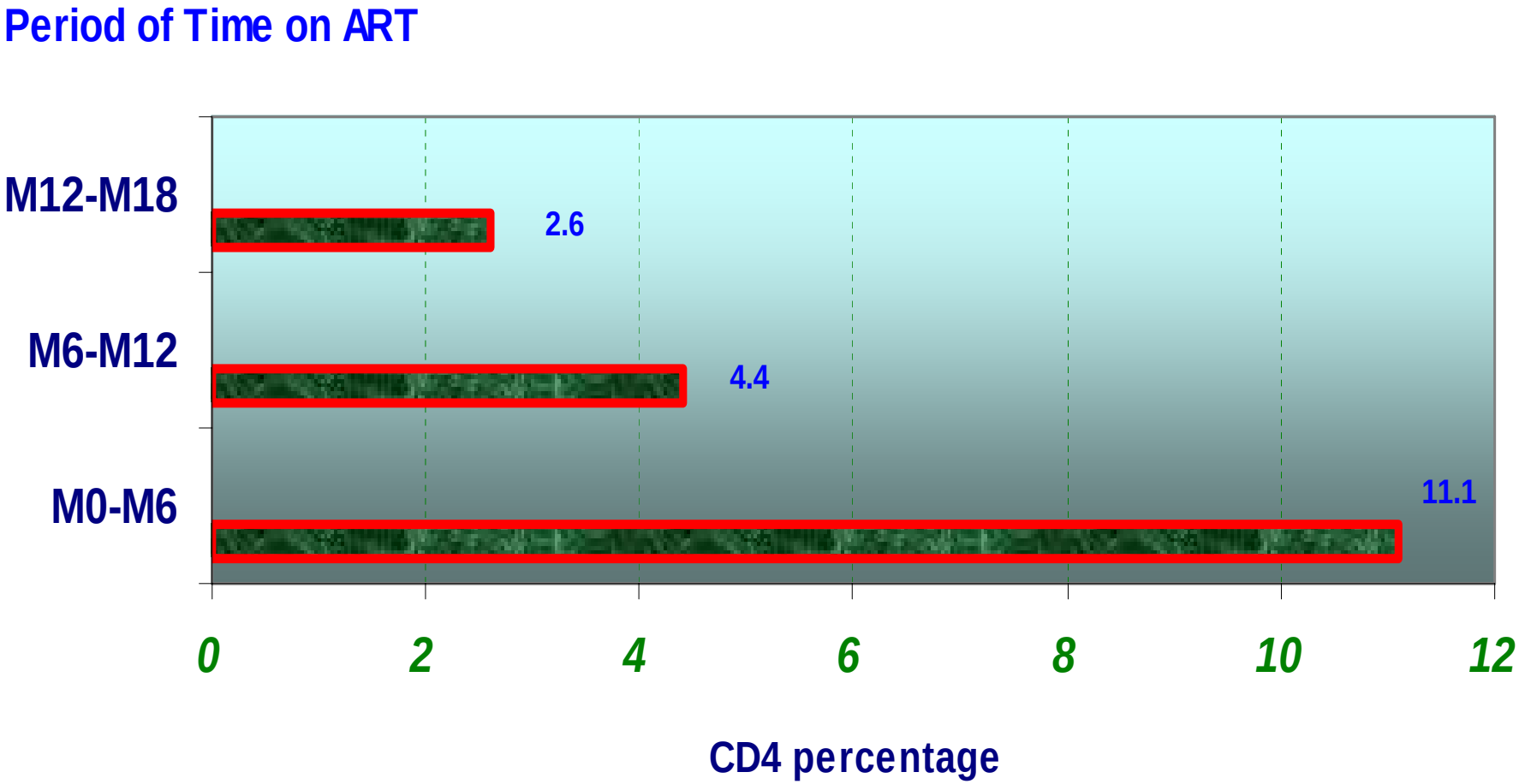
- **Result:** A few participants missed one or two doses in the self administration phases.
- **Conclusion:** Good adherence (all most 100%)

Response through 18 month

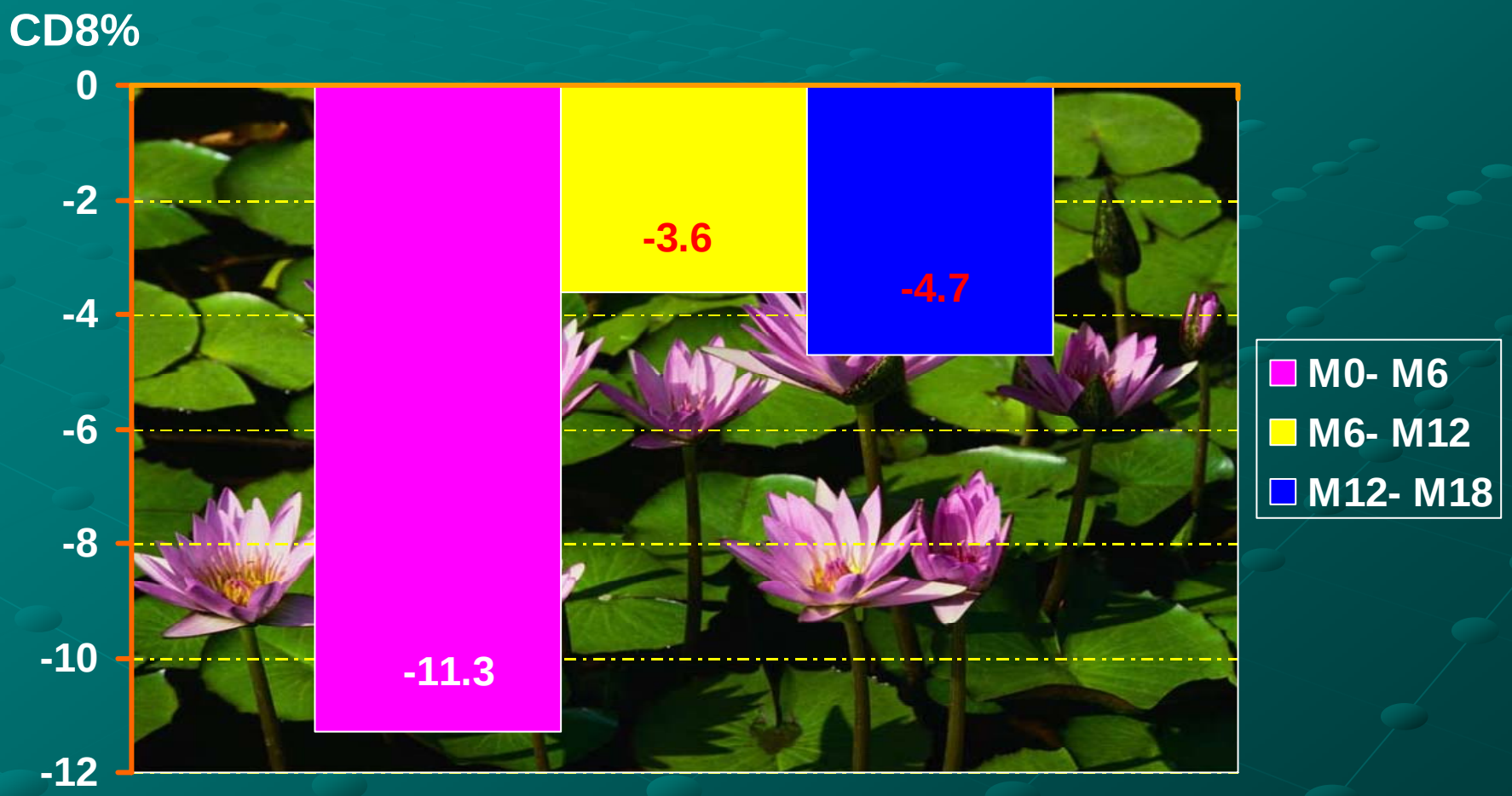
Median of CD4 & CD8 percentage and CD4/CD8 ratio



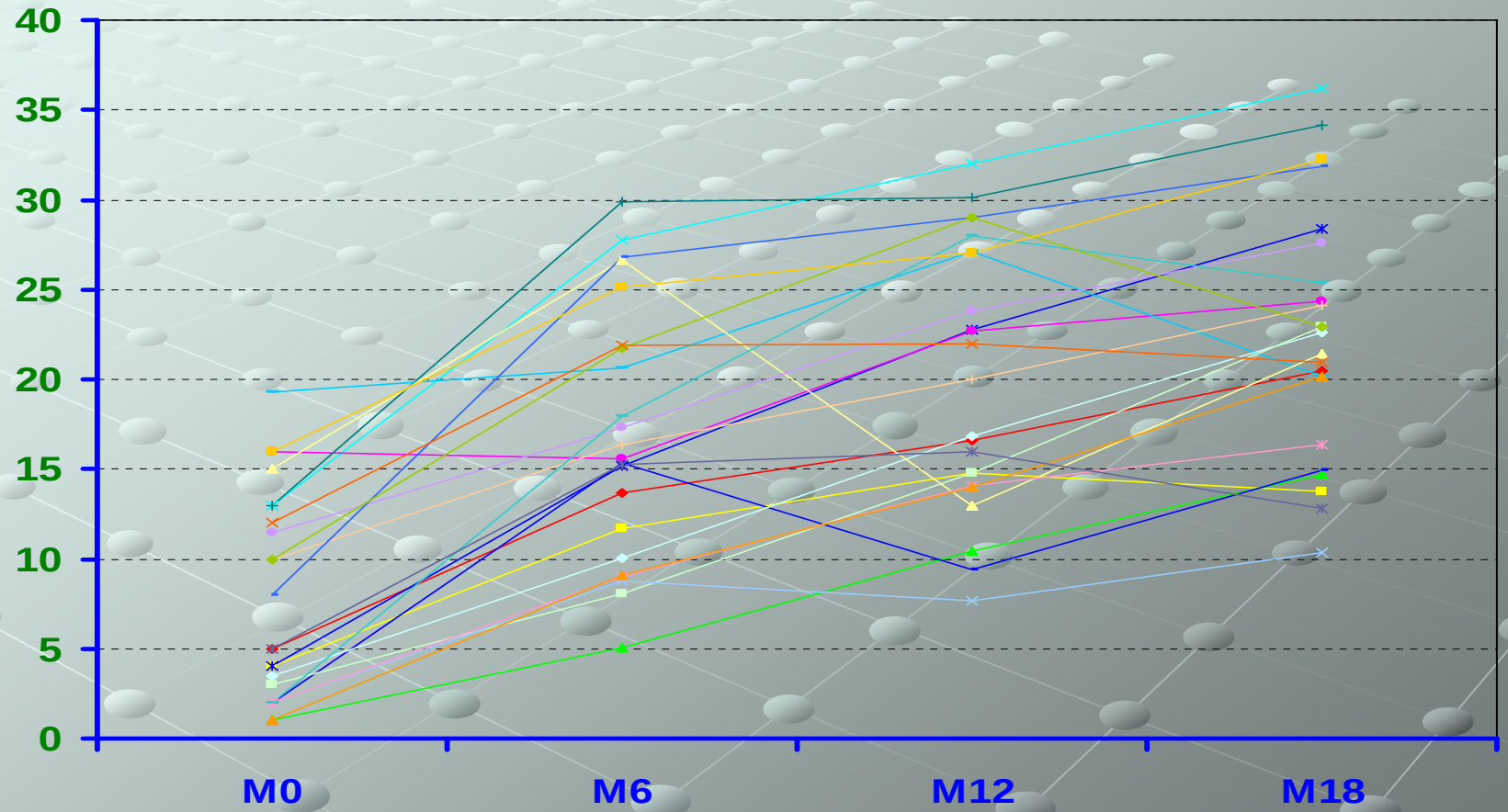
Increase of CD4 percentage during ART



Decrease of CD8 percentage



Changes in CD4 percentage (by individual)

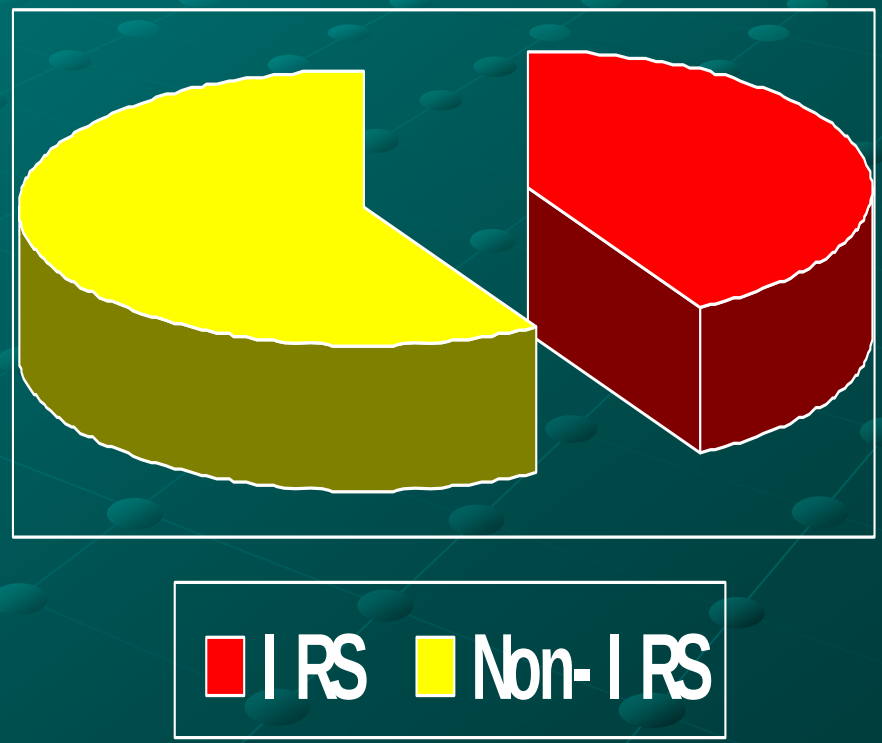


Immune Reconstitution Syndrome

- Total: 5 (19.2%)
- Timing: 45 days
- 3 had CD4=1%
- 2 had CD4=2%
- TB-IRS: (1: Pleurisy; 1: Pulmonary; 1:Lymphadenopathy; 2: TB/MAC?)
- 3 died: Mean duration of 79 days after ART

Risk factor for IRS CD4<5%

IRS	Non-IRS
5 (41.7%)	7 (58.3%)

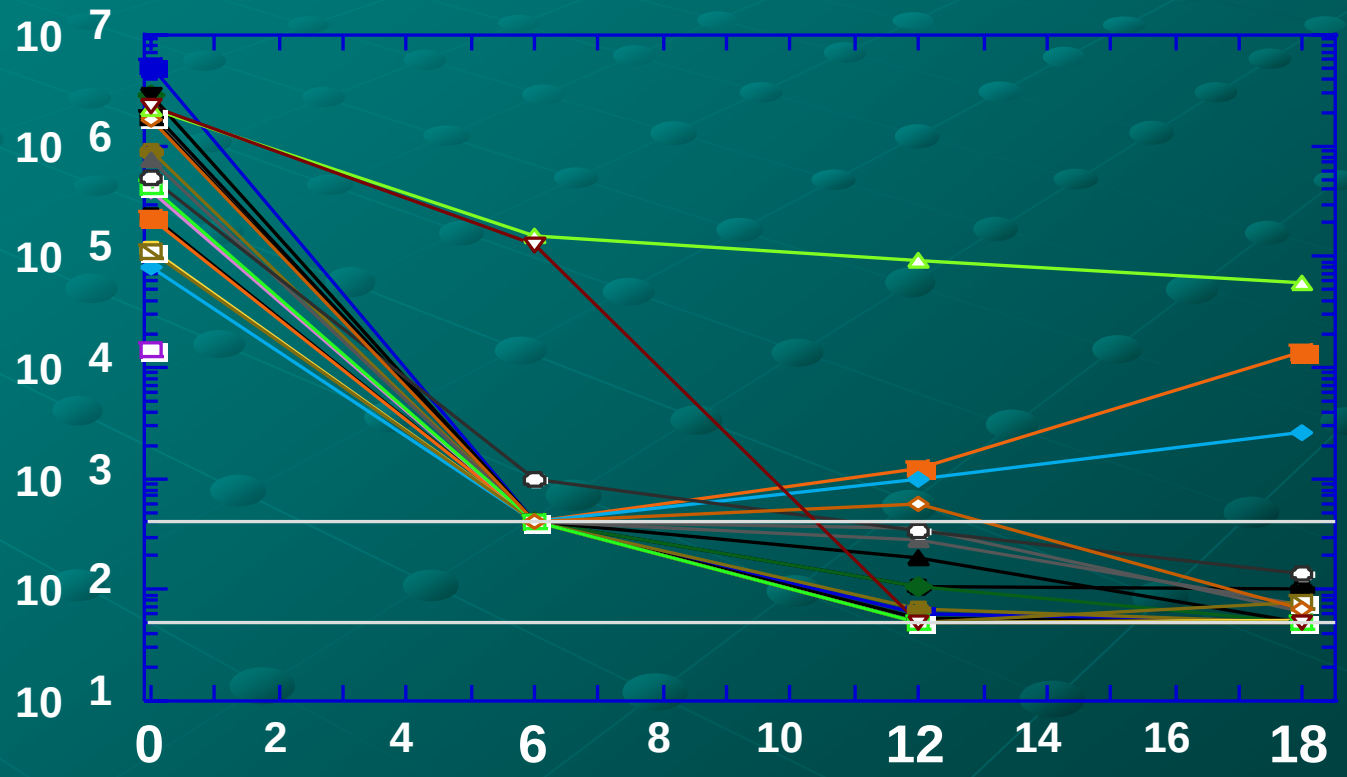


CD4:2%; IRS-TB

MDOT 28; CD4 2%

Plasma Viral Load (copies/ml)

Response through 18 months



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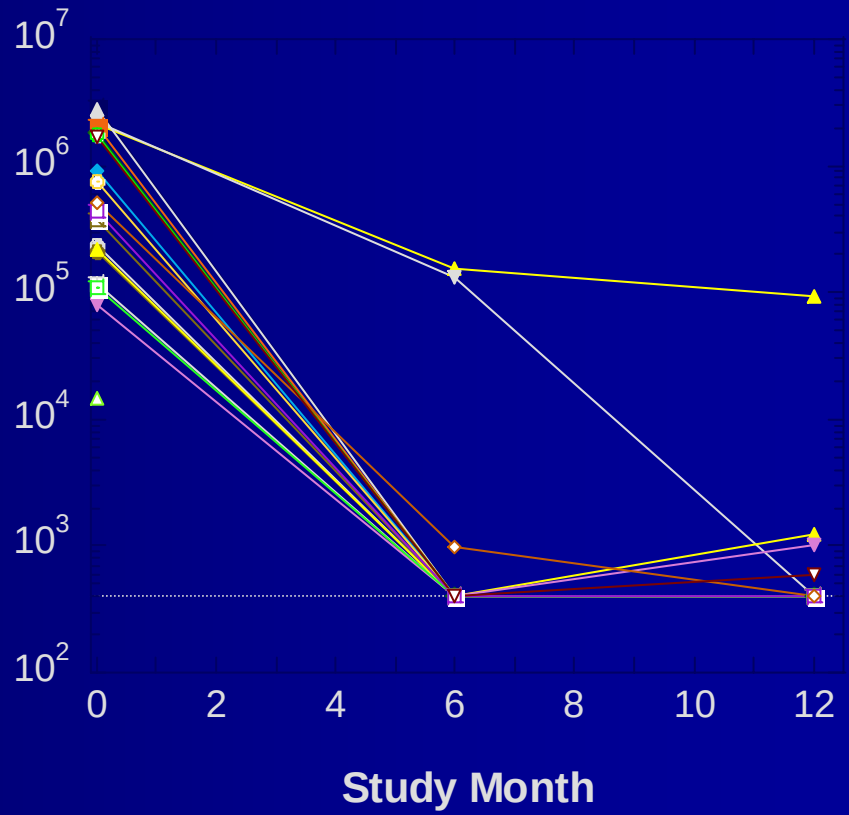
Response at 12 months

Viral Load

log decrease 1.4 – 4.9 (3.9)

Number <400 19 (83%)

Number <50 8 (35%)



Cambodian MDOT Study

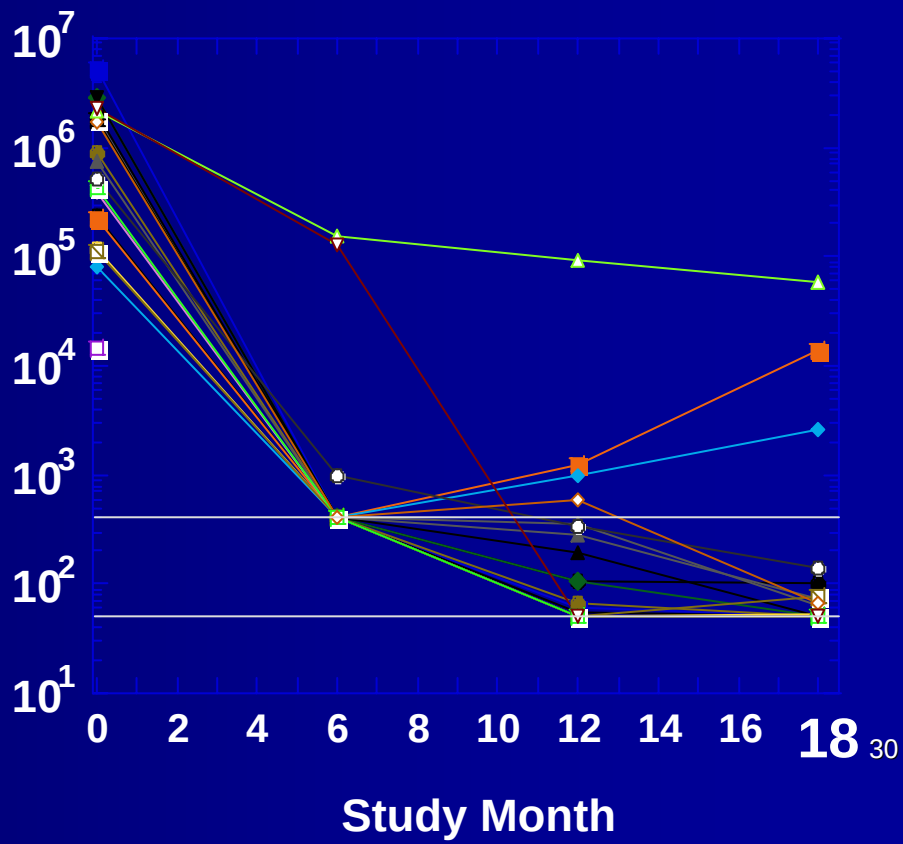
Response at 18 months

Viral Load

log decrease 1.2 – 5.0 (4.1)

Number <400 20 (87%)

Number <50 12 (52%)



Conclusion

- Good adherence (appears to be a feasible strategy to optimize medication adherence).
- Good clinical, immunological and virological outcomes.
- Burden of IRS, very low CD4% (<5%)

AKNOWLEDGEMENT

- All children and caregivers in the study
- NPH Team, Cambodia
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Thank you