



INSTITUT PASTEUR
DU CAMBODGE

Early diagnosis of HIV infection in infants

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Diagnosis of HIV infection in infants born from HIV infected mothers in Cambodia

Without HIV viral load:

Pediatrician had to wait till the age of 18 months to do serological test
50% of babies infected by their mothers will die before the age of two years
If not diagnosed and treated.

Most of them (80%) dying during the first months of life

With HIV viral load:

Diagnose as soon as possible in order to treat as soon as possible*

National recommendations (Nov 07):

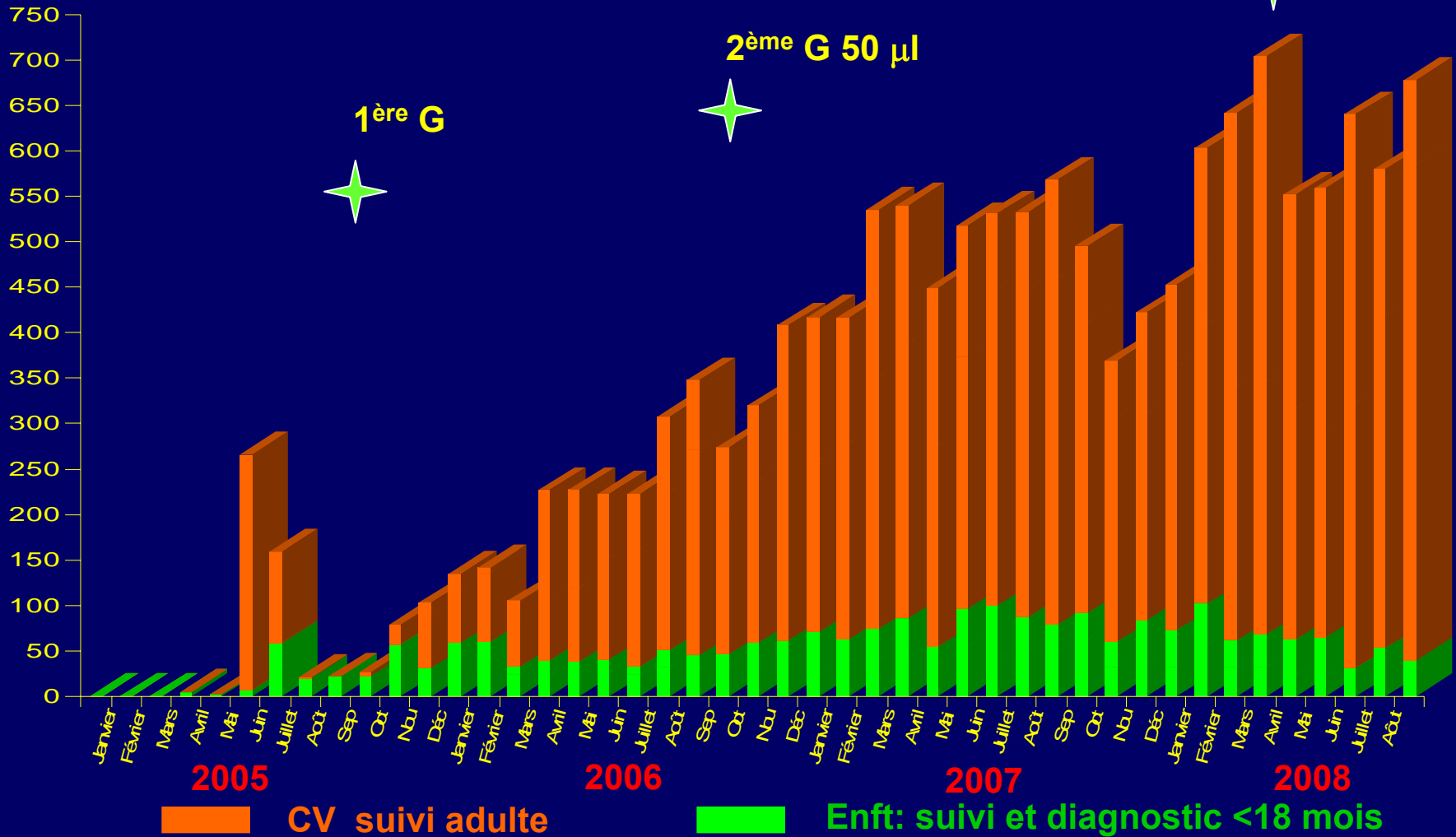
First screening at 6 weeks of age when Viral load (« PCR ») is available.

New WHO recommendations (Apr 08):

For babies born to HIV positive mothers: Perform diagnosis as soon as possible
Access to ARV for all babies diagnosed HIV infected during his first year of life.

Result : Global Activity at IPC (May 2005- Aug 2008)

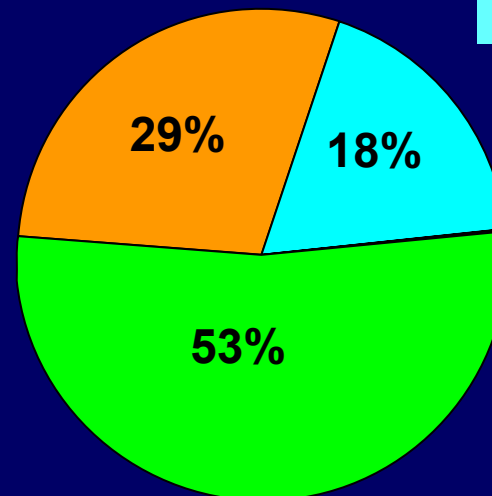
Nb of VL/month



12025 (82%) + 2667 (18%) = 14692 VL

Applications

- Follow-up the patients with cohort
- ARV naive
 - Project FSP ARV
 - Project ANRS 12 134
- Under ARV
 - the 1st line
 - MSF F 24/48 month
 - MSF B 12 mois/24 month
 - Esther 18 mois/36 month
 - the 2nd line
 - Esther/MSF/MDM/...
- Clinical Trial
 - Camelia (ANRS#1295)
 - TemAA (ANRS#12109)
- Physiopathologiques studies :
 - Capri NK (ANRS#12153)
 - Capri T (ANRS#12164)



VL Enft <18 mois

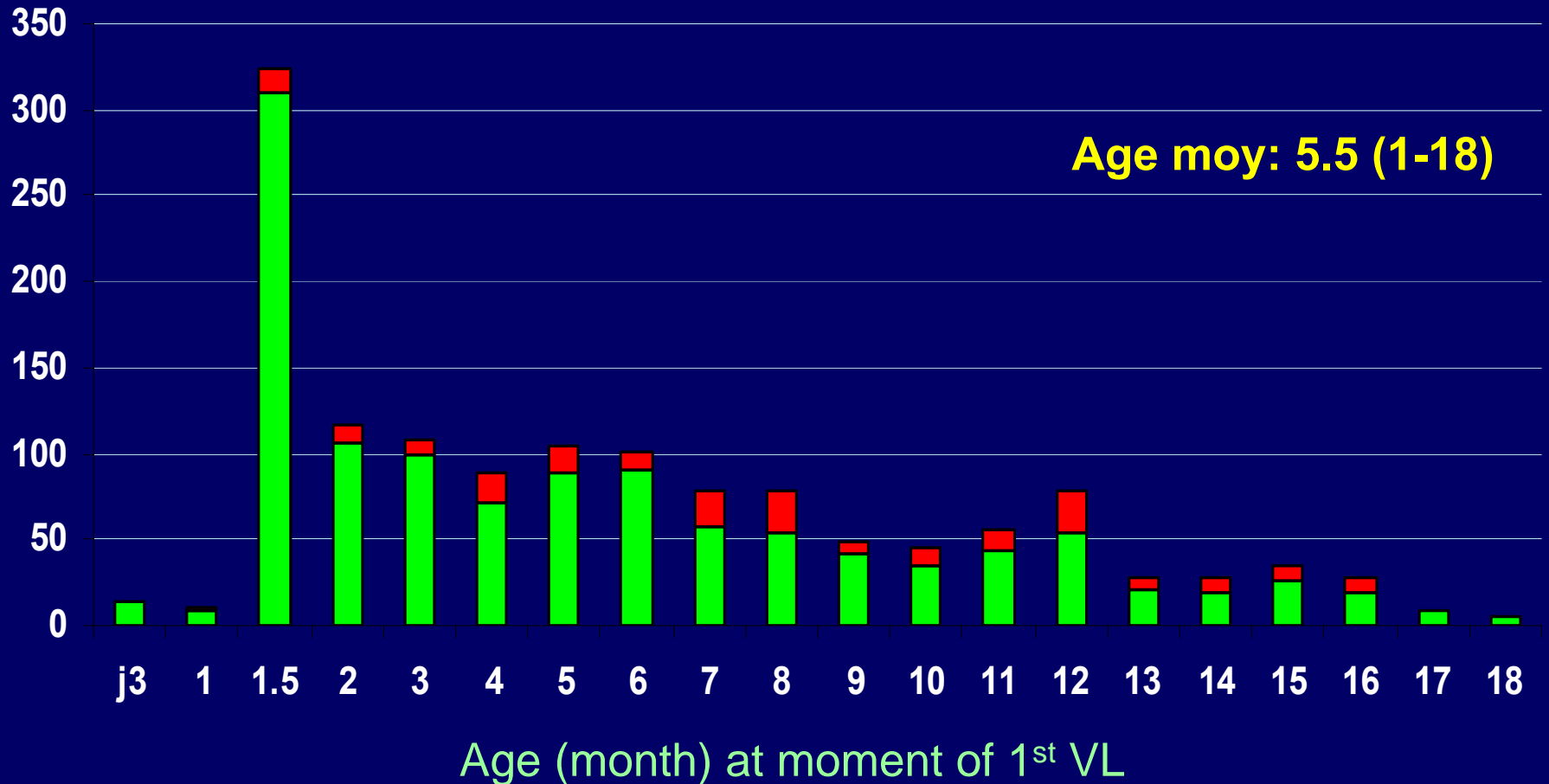
Adults (routine)

Between May 2005 to August 2008 :
1831 babies screened for early diagnosis: 284 ARN VIH pos

Nb babies

4.5%

Age moy: 5.5 (1-18)



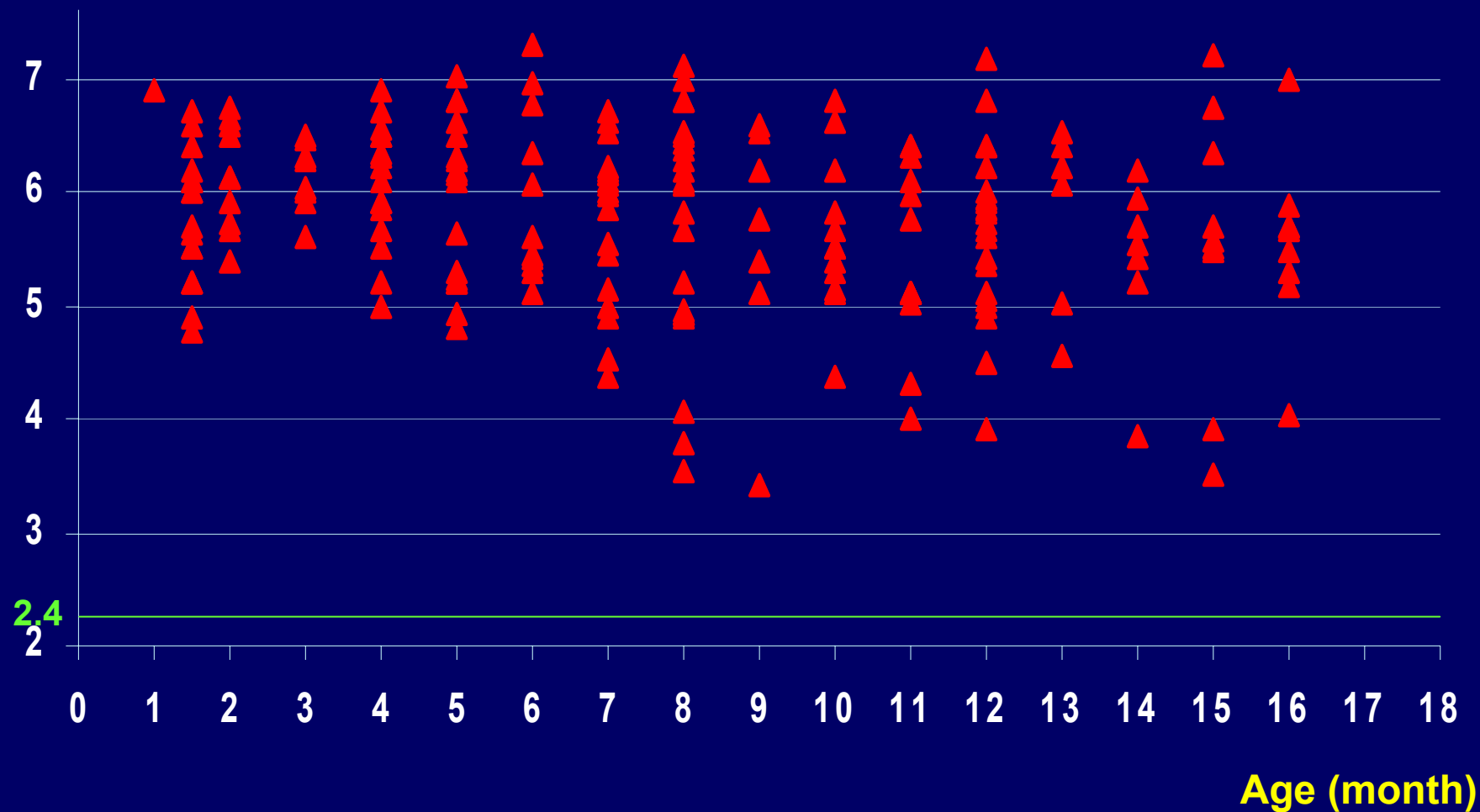
VL < 250 cp/ml

VL > 250 cp/ml

Early diagnosis : Value of VL at the moment of screening

VL Log₁₀

VL moy : 6.2 (3.8-8.6)



Follow-up of virology of the babies ARN+

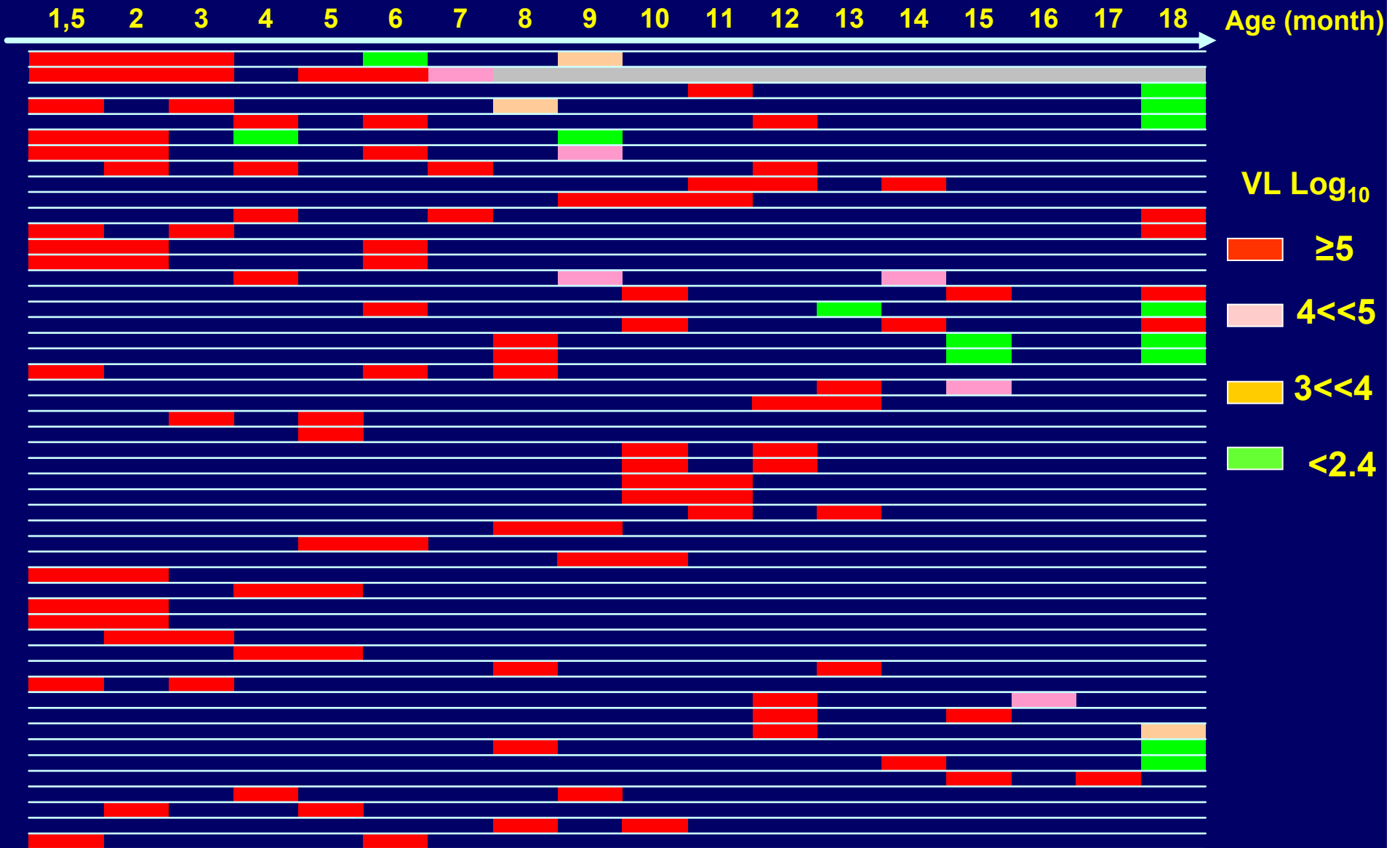
1831 babies (< 18 month diagnostic) (F/M= 0.94)

284 (15.5%) HIV RNA positive at the screening:

- 207 have only once VL(ARV, die...)

- N= 77 babies « follow-up »
 - 2 VL : 50
 - 3 VL : 13
 - 4 VL : 6
 - 5 VL : 4
 - 6 VL : 2
 - 7 VL : 2

BB ARN+ have at less 2 VL (n=77)



1st conclusions

Early diagnosis is remain limited

- Price (VL ARN : 28SUD)
- Remounted province Hospital (Transport, sample...)

Objectif

Increasing access to diagnosis and further reduce its cost

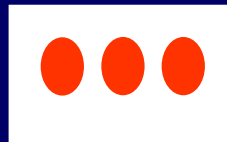
Approche

PCR ADN quali/quantitative by Real time PCR DNA on DBS (Dried Blood Spot)

PCR ADN qualitative by Real time PCR on DBS Approach Dried Blood Spot



50 μ l



3MM



Extraction Chelex100

5 μ l

(Kit DNA of ANRS)

50°C 2'

95°C 10'

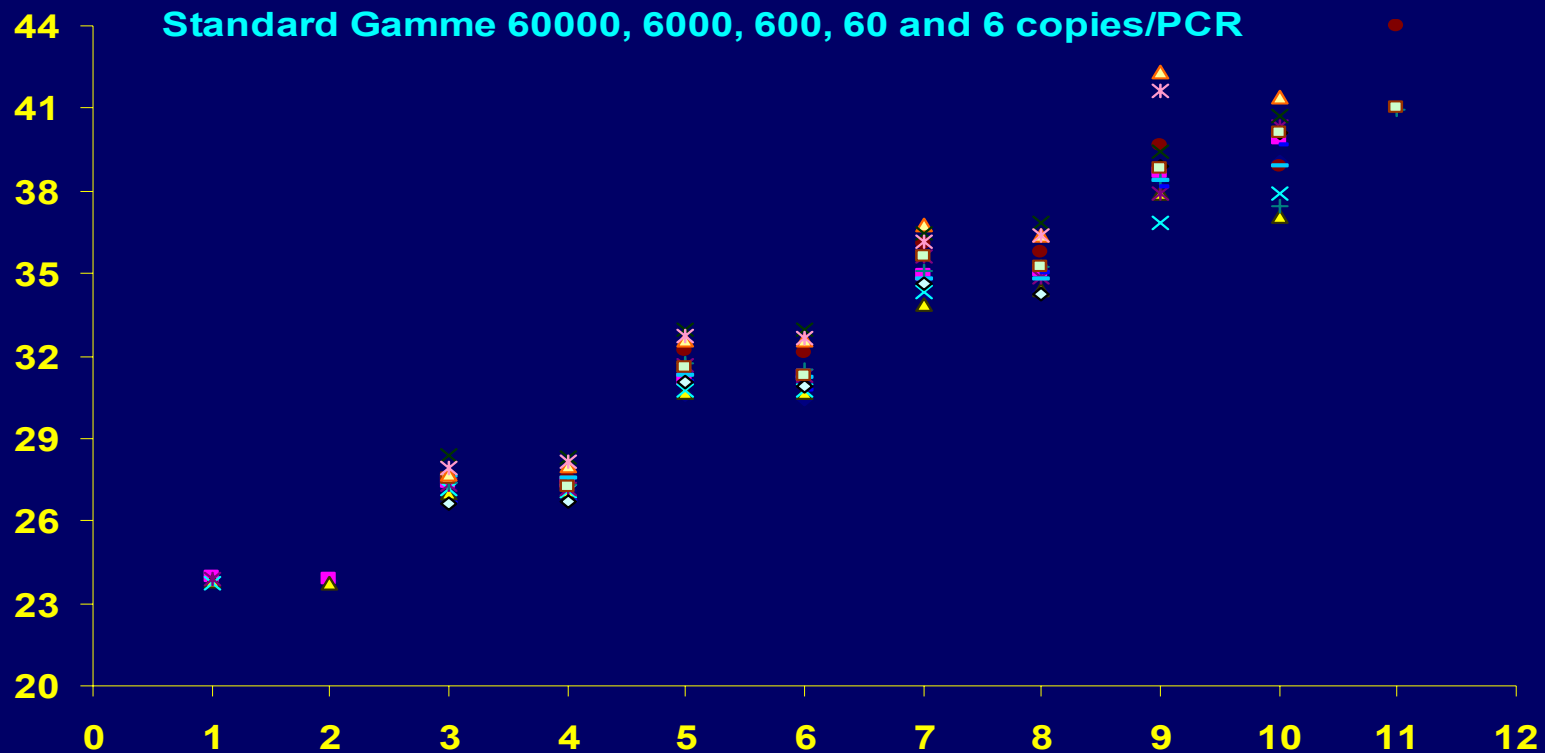
95°C 15''

60°C 1'

55 cycles

The real time PCR DNA on DBS Implementation and Validation in Cambodia

➤ Internal Quality Controls:

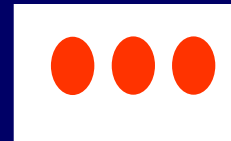


➤ External Quality Controls: CDC(USA) satisfy in July 2008

VL ARN vs. VL ADN

(Heel, DBS 3MM, Chelex100, Kit ADN ANRS) at **W6**

273 babies at W6 : DBS + 1 tube EDTA



3MM

Real time DNA PCR (Kit ADN ANRS)

ADN - ADN +



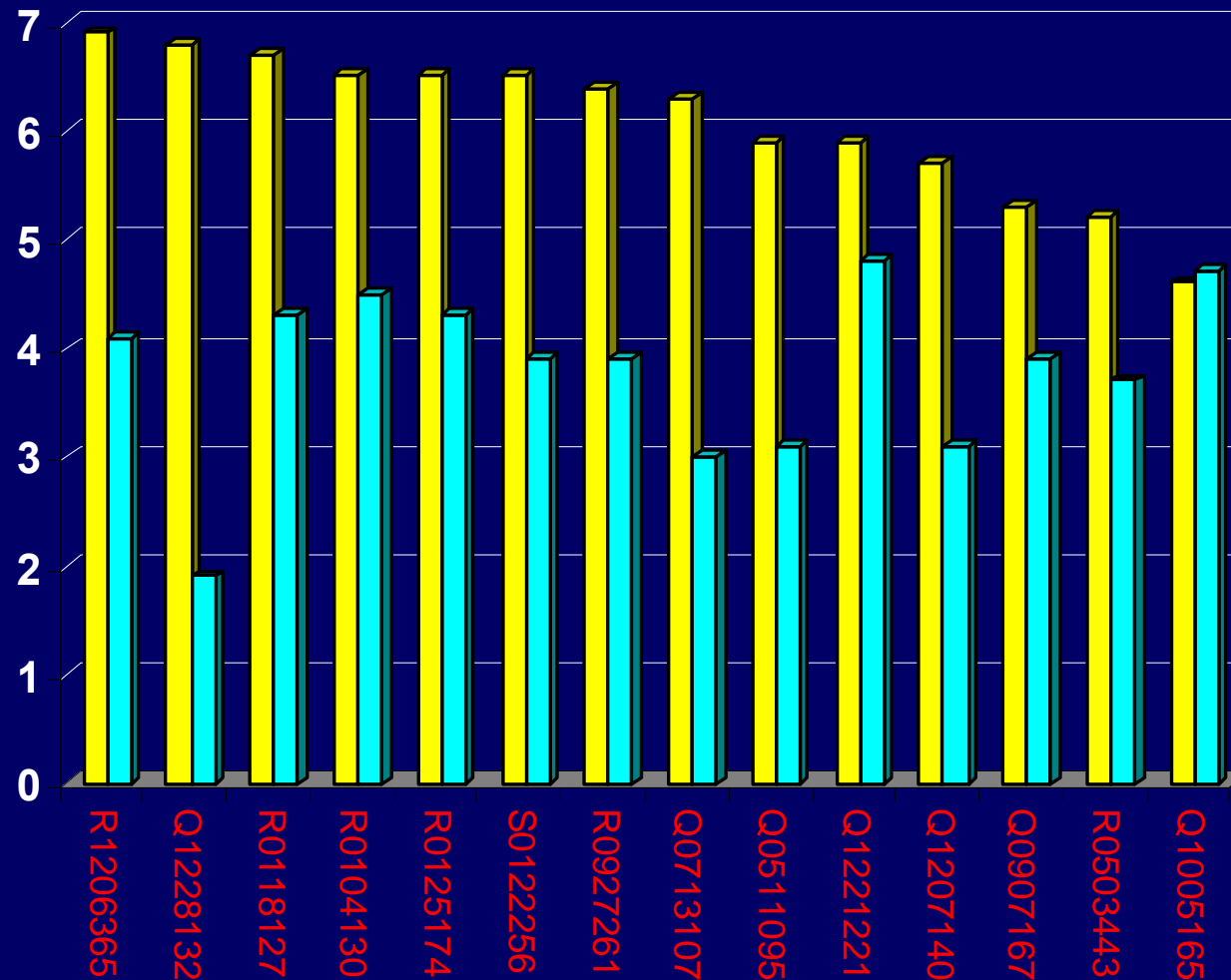
Qiagen
Extraction
ARN

Real time RT PCR
(Kit ARN G2 ANRS)

	ADN -	ADN +	
ARN -	259	0	259
ARN +	0	14	14

Concordance = 100%

VL ARN and VL ADN of the 14 BB screening VIH+ at W6



CO = 250 cp/ml of plasma

CO = 300 cp/ml of blood

Conclusion

- **The early diagnosis of HIV infection is now available by using HIV DNA real time PCR**
- **The results within 10 days**
- **Concordant 100% with HIV RNA plasmatic Viral load results**
- **The cost (8 USD) even lower, remains too expensive (VL RNA 28USD)**

Acknowledgement

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