15ème ICASA

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Summary Report

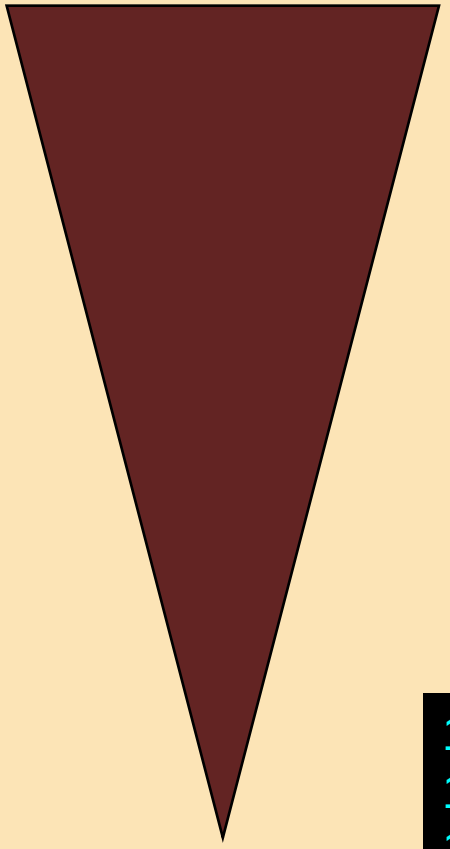
Track A: Biology and pathogenesis of HIV

Dakar, Sénégal

du 3 au 7 Décembre 2008

Who were the rapporteurs at what we asked to do?

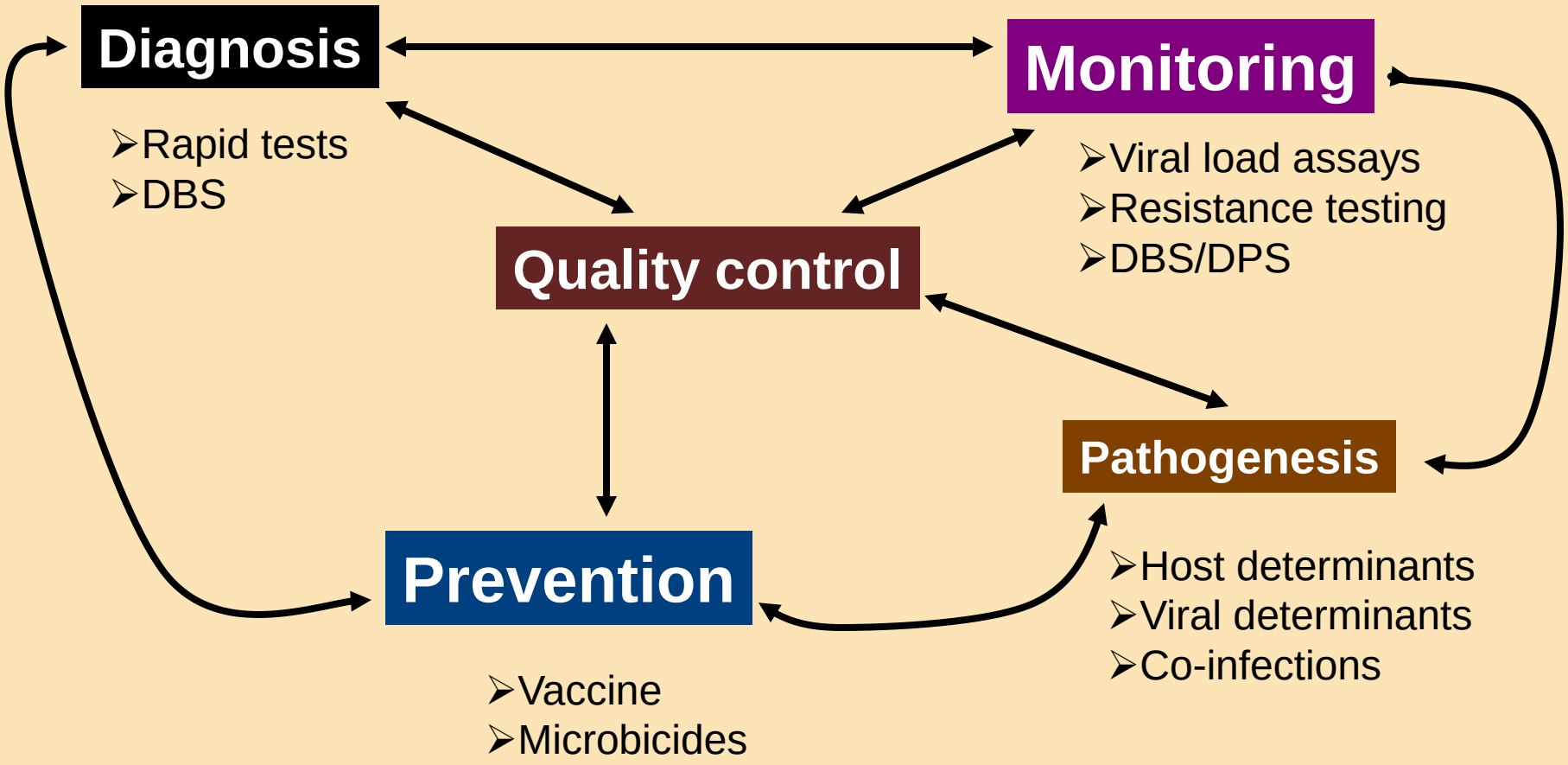
- The rapporteurs
  - H. Diop Ndiaye
  - T.A. Diallo
  - Khady Kébé
  - A. Bei
  - M. Camara
  - M.F. Diallo
  - A.S. Ouédraogo
  - M. Mboup
  - A. Touré
  - F.R. Niama
  - B. Fall
  - K. Dramane
  - A. Ayouba



14 sessions
#70 presentations
#750 minutes

1 session
1 presentation
10 minutes

Track 'A, concerns



What did we learn on HIV diagnosis?

- National HIV testing algorithm should be systematically validated locally before release, and re-evaluated regularly
- Indeterminate results remain a problem during HIV diagnosis
- Several rapid tests for HIV diagnosis are quite blind towards HIV-1 group O, while some gave false HIV-2 profile

25 years after HIV was discovered, its diagnosis still remains a concern in many African settings

Imagine, we did the right diagnosis, is it then easier to monitor? (1)

- There are several systems for viral load quantification: they are not equivalent

- To make viral load available to remote settings, DBS are good alternatives: but the reliability of the results depends on different parameters

But

- **With the good methods in the right conditions, good correlations and sensitivities were observed between DBS and plasma viral load values**

Primary and secondary HIV Drug resistance

- Primary drug resistance
  - The genetic barrier to anti Integrase is equivalent in CRF02_AG and B subtypes for major DR, but higher in CRF02_AG for 3 minor DRM.
  - Low (<5%) in most of the settings, but Yaoundé (moderate)
    - Needs of regular evaluation
- Drug resistance in patients on HAART
  - Is the K65R preferentially selected in patients on HAART infected by a subtype C virus? Seems yes.
  - HIV-2 infected patients
  - Compartmentalization of viral isolates between plasma and breast milk. Highly sensitive detection of K103N mutation by an allele specific PCR
  - In Ndjamena, Chad, high rate of treatment failure at M6 of treatment: 53%. Problems of adherence
  - In Yaoundé, Cameroon, evalaution of the national ARV program in patients at M12 and 24. At M12, 4.4% DRM and M24, 16.6% DRM.
    - Need to reinforce training of physicians in Chad and to reinforce counselling on adherence between M12 and 24 in Cameroon

Prevention
1. vaccines

- Our attempts for a protective HIV vaccine have failed. Why?
  - Wrong concept (CTL)?
  - Inappropriate product?
    - But hope remains: thyphoid vaccine development has necessitated 106 years of investigation.
- Successful yellow fever vaccination of HIV+ patients.
  - Negative correlation between VL and YF immune response
  - Higher Ab titers in caucasian compared to African

Prevention
2. Microbicides

- Seminal fluid HIV is opsonized → its properties are different from that of “naked” virus
  - A series of molecules were tested in vitro, showing weak or no inhibition of HIV-1 transepithelial passage, without opsonization. Opsonization of the virus improved inhibition.
- A new compound, a terpene derivative (C14) was shown efficient and non toxic when used as microbicide in preventing transepithelial passage of HIV

Pathogenesis

- The role of viral type or phenotype
  - HIV-2 is less pathogenic than HIV-1. Why?
    - Less fitted?
    - HIV-2 Induces less immune activation
    - HIV-2 induces more robust adaptive a innate immune response
    - HIV-2 is a good model of human LTNP to AIDS
- The role of co-infections
  - Interferes with treatment (e.g.lamuvidine or TDF in HIV/HBV co-infections, IRIS syndrome in HIV/TB co-infections), on disease evolution (e.g. HIV/HCV co-infections)
  - Interferes with morbi-mortality
    - HCV
    - malaria

In summary:
The 'D' factor of Track A

HIV

HIV-2
Groups: A, B,…F

HIV-1
Groups:M, N, O
Subtypes: A…K
CRF: 01-44

R5, X4, R5X4

Impact on:
Diagnosis,
Monitoring,
Prevention
vaccine development
Microbicides

Necessity of quality control, quality assurance and co-ordination

Future directions

- To policy makers:
  - Please take scientific evidence into consideration before you decide (e.g. to change algorithms, to change recommendations)
- To the scientific community
  - Please oppose to the viral diversity the diversity of our knwoledge

- What is urgent?
- An effective HIV vaccine.
  - We should promise not to give up
  - We should promise to change our minds and to define new routes
- More trials on microbicides with new molecules or combination of molecules