



# Toward the complete eradication of Mother-to-Child transmission of HIV at Saint Camille Medical Centre (SCMC) in Burkina Faso.

Simpore J<sup>1,2,3</sup>, Pietra V<sup>1,4</sup>, Pignatelli S<sup>1</sup>, Karou D<sup>1,2</sup>,  
Nadembega WMC<sup>1,2</sup>, Ilboudo D<sup>1,2</sup>, Ceccherini-Silberstein F<sup>3</sup>,  
Ghilat-Avoid-Belem WN<sup>1</sup>, Bellocchi MC<sup>5</sup>, Saleri N<sup>4</sup>, Sanou MJ<sup>6</sup>,  
Ouedraogo CM<sup>7</sup>, Nikiema JB<sup>2</sup>, Colizzi V<sup>3</sup>, CF Perno CP<sup>3,5</sup>,  
Castelli F<sup>4</sup>, Musumeci S<sup>8</sup> \*

<sup>1</sup>Saint Camille Medical Centre - Ouagadougou - and Solidarity Reception Centre of Ouagadougou, Burkina Faso, 01 BP 364 Ouagadougou 01 Burkina Faso ; <sup>2</sup>University of Ouagadougou, 03 BP 7021 Ouagadougou 03, Burkina Faso; <sup>3</sup>University of Rome "Tor Vergata", Via Montpellier 1, 00133 Rome, Italy; <sup>4</sup>Institute for Infectious and Tropical Diseases, University of Brescia and Spedali Civili, Brescia, Italy ; <sup>5</sup>National Institute for Infectious Diseases "L Spallanzani", Via Portuense 292, 00149 Rome; Italy; <sup>6</sup>Ministry of Health, Burkina Faso; <sup>7</sup>District Sanitaire de Bogodogo, Ouagadougou (direi di mettere anche per lui Ministry of Health); <sup>8</sup>Department of Pharmacology, Gynecology and Obstetrics, Pediatrics, University of Sassari and Institute of Biomolecular Chemistry, National Research Council (CNR), Li Punti (SS), Italy.

# Objectives

**The present research was aimed:**

- i) to prevent the HIV mother-to-child transmission;
- ii) to use RT-PCR in order to detect, sixth months after birth, infected children;
- iii) to test the antiretroviral resistance of both children and mothers in order to offer them a suitable therapy

## Subjects

From May 1, 2004 to April 26, 2007, at the Saint Camille Medical Centre, 6227 pregnant women with less than 32 weeks of amenorrhea and 15 to 44 years old, average age of  $27.3 \pm 5.2$ , received a counseling course and accepted voluntarily the mother-to-child transmission prevention protocol that envisages:

# Methods

- i) Voluntary Counselling and HIV Testing for all pregnant women;
- ii) Antiretroviral therapy (HAART) for HIV positive pregnant women, who fulfil WHO criteria for treatment and monoprophylaxis with Nevirapine (NVP) for HIV positive pregnant women not fulfilling these criteria;
- iii) Monoprophylaxis with NVP (or AZT in HIV 1 and HIV 2 coinfections), either artificial milk feeding or short breast-feeding and RT-PCR test for all children;
- iv) finally, pol gene sequencing and identifications of antiretroviral resistance among HIV positive mothers and children.

## Results (1)

The HIV test allow us to identify 421/6227 HIV seropositive women: 97.37% HIV-1, 1.81% HIV-2 and 0.82% HIV-1/2, all from Ouagadougou.

The RT-PCR test allowed us to detect 23/406 (5.66%) HIV infected children: 0/109 (0%) from mothers under HAART (therapy) and 23/297(7.74%) from mothers under monoprophylaxis with NVP or AZT.

## Results (2)

Phylogenetic studies showed high predominance of recombinant HIV-1 strains: CRF06\_cpx (55.17%), CRF02\_AG (31.03%), A1 (6.89%), G (3.44%) and CRF09\_cpx (3.44%).

Several RT mutations have been found in these samples: RT NNRTI Y18CY; R211K, V35T, V21I and K12E mutation. We also found major and minor PR mutations: V8IV, M36I, K20I, L63LP, I13V, K14R, H69K and L89M.



## **Discussion & Conclusion**

The prevention by Nevirapine single-dose reduced significantly HIV mother-to-child transmission.

Nevertheless, it caused many mutations and resistances to antiretroviral drugs.

The antiretroviral therapy protocol, together with the artificial-feeding, could be the ideal strategy since it results, as demonstrated by the present study, in 0% of mother-to-child HIV transmission.



## Future & Perspectives

Considering the efficacy of our protocol for prevention of HIV mother to child transmission at the **Saint Camille Medical Centre**, this protocol could be adopted by Ministry for Health in all the Medical Centres of Burkina Faso.

We are also in progress with a preventive/therapeutic vaccine which should be able to block mother-to-child transmission of HIV during the labour and postpartum breast-feeding time.

Thank you!!!