

# SATuRN: Preliminary report 2011

Southern Africa Treatment and Resistance Network

## HIV-1 drug resistance at antiretroviral treatment initiation in children previously exposed to single-dose nevirapine

**Objective:** To describe the prevalence of HIV-1 drug resistance mutations at the time of treatment initiation in a large cohort of HIV-infected children previously exposed to single dose nevirapine (sdNVP) for prevention of transmission.

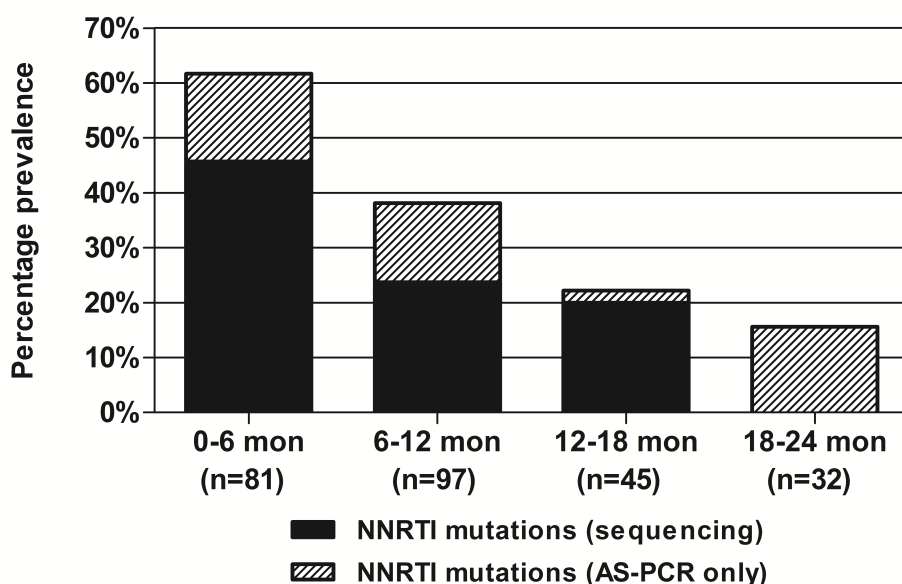
**Design:** Drug resistance mutations were measured pre-treatment in 255 infants and young children under 2 years of age in South Africa exposed to sdNVP and initiating ritonavir-boosted lopinavir-based therapy. Those who achieved viral suppression were randomized to either continue the primary regimen or to switch to a nevirapine-based regimen. Pre-treatment samples were tested using population sequencing and real time allele-specific PCR (AS-PCR) to detect Y181C and K103N minority variants. Those with confirmed viremia >1000 copies/ml by 52 weeks post-randomization in the switch group were defined as having viral failure.

**Results:** Non-nucleoside reverse transcriptase inhibitor (NNRTI) mutations, predominantly Y181C, were detected by either method in 62% of infants less than 6 months of age, in 39% of children 6-12 months of age, 22% 12-18 months, and 16% 18-24 months ( $p < 0.0001$ ). NNRTI mutations detected by genotyping, but not K103N or Y181C mutations detected only by AS-PCR, were associated with viral failure in the switch group.

**Conclusions:** The prevalence of mutations known to compromise primary NNRTI-based therapy is high in sdNVP-exposed children, supporting current guidelines recommending use of PI-based regimens for young children. Standard genotyping is adequate to identify children who could benefit from switching to NNRTI-based therapy

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**Figure: Overall prevalence of NNRTI mutations among 255 sdNVP-exposed children initiating antiretroviral therapy.** Data show the prevalence of NNRTI mutations by genotyping (black bars) plus the additional prevalence when including samples that were only identified using the Y181C or the K103N AS-PCR (grey bars). Samples classified as indeterminate by Y181C AS-PCR were excluded .

## References:

Coovadia A, Abrams EJ, Stehlau R, Meyers T, Martens L, Sherman G, Hunt G, Hu C-C, Tsai W-Y, Morris L and Kuhn L. Re-use of nevirapine in exposed HIV-infected children after Protease Inhibitor-based viral suppression. *JAMA* 2010, 304(10):1082-1090

Taylor BS, Hunt G, Abrams E, Coovadia A, Meyers T, Sherman G, Strehlau R, Morris L and Kuhn L. Rapid development of antiretroviral drug resistance mutations in HIV-infected children initiating protease inhibitor-based therapy less than 2 years of age in South Africa. *AIDS Res Hum Retroviruses* 2011, 27: in press

Hunt GM, Coovadia A, Abrams EJ, Sherman G, Meyers T, Morris L and Kuhn L. HIV drug resistance at antiretroviral treatment initiation in children previously exposed to single-dose nevirapine. *AIDS* 2010, in press