



## HIV Care & PMTCT in Resource-Limited Settings

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### prepared by the Bordeaux Working Group

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**Number of citations selected for this issue: 28**

**Citation format** (by alphabetical order of the authors): Author(s). **Title**. Source. **Abstr.** (Authors' abstract) or **Notes** (prepared by the Bordeaux Working Group) **Author address**, if available, **Subject Headings**

**Subject headings / Subheadings indexing the selected references (by alphabetical order)**

Adults / Women	Eastern Europe	Infant feeding / Breastfeeding	Prevention of Mother-To-Child Transmission (PMTCT) / AntiRetroViral (ARV)	Treatment impact and response
Children	Gynæcology	Infections (Others) / Prophylaxis	Prevention of sexual transmission	Treatment monitoring
Clinical manifestations (Others)	Hepatitis B infection (HBV)	Low Income Countries (LICs) / Africa, Asia, Carribean, South America	Randomized Controlled Trial (RCT)	Treatment programme
Comprehensive care	Hepatitis C infection (HCV)	Mother-To-Child Transmission (MTCT)	Termination of pregnancy / Abortion	Tuberculosis (TB) / Prophylaxis
Conference summary	Highly Active AntiRetroviral Treatment (HAART)	Natural history	Treatment adherence	Viral resistance
Contraception	Industrialized countries	Obstetrics	Treatment complications	Voluntary Counselling and Testing (VCT)

Ananworanich J, Moor Z, Siangphoe U, Chan J, Cardiello P, Duncombe C, Phanuphak P, Ruxrungtham K, Lange J, Cooper DA. **Incidence and risk factors for rash in Thai patients randomized to regimens with nevirapine, efavirenz or both drugs.** AIDS 2005;19(2):185-192.

**Abstr.** Objective: To determine the incidence and risk factors for rash in Thai patients taking four different non-nucleoside reverse transcriptase inhibitor (NNRTI)-based regimens. Methods: HIV-positive, anti retroviral-naive patients enrolled in the 2NN study in Thailand and followed for at least 1 week were included. Patients were randomized to efavirenz (EFV) 600 mg once daily (OD) versus nevirapine (NVP) 200 mg twice daily (BD) versus NVP 400 mg OD versus NVP 400 mg OD + EFV 800 mg OD with stavudine/lamivudine. Results: Of 202 patients, 95 (47%) and 69 (34.2%) developed a rash from all reasons and from NNRTI, respectively. For NNRTI-related rash the incidences were EFV (20%), NVP BD (21%), NVP OD (38%) and NVP + EFV (67%). The proportions of patients with grade 1, 11 and III within the four treatment arms are as follows: EFV, 4.3, 13 and 2.9%; NVP BD, 2.3, 15.9 and 2.3%; NVP OD, 12.8, 19.1 and 6.41%; and NVP + EFV, 11.9, 47.6 and 7.1%. Multivariate analyses showed females with CD4 cell count  $\geq 250 \times 10^6$  cells/l, high body mass index  $\geq 21.3$  kg/m<sup>2</sup>, and a rise in CD4 ( $\geq 53 \times 10^6$  cells/l) and alanine aminotransferase (ALT) ( $\geq 34$  U/l) at week 4 to be risk factors for rash. Conclusions: Thai patients had a high incidence of NNRTI-related rash when treated with NVP + EFV or NVP OD. NVP if used BD had the same rash incidence as EFV for rash of all grades. Females, and persons with earlier HIV disease or with a large rise in CD4+ cell count after starting therapy are at greater risk for NNRTI-related rash.

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**Adults, Clinical manifestations (Others), LICs / Asia, Treatment complications**

Bani Sadr F, Palmer P, Scieux C, Molina JM. **Ninety-six-week efficacy of combination therapy with lamivudine and tenofovir in patients coinfecting with HIV-1 and wild-type hepatitis B virus.** Clinical Infectious Diseases 2004;39(7):1062-1064.

**Abstr.** We describe 6 patients who were coinfecting with human immunodeficiency virus (HIV) type 1 and wild-type hepatitis B virus (HBV), in whom complete and sustained antiviral activity against wild-type HBV strains was attained during 96 weeks of combination therapy with lamivudine and tenofovir. The use of combination therapy with lamivudine and tenofovir for the treatment of HBV infection is very promising in the treatment of HIV/HBV coinfection.

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**Adults, Hepatitis B infection (HBV), Industrialized countries**

Breton G, Duval X, Estellat C, Poalletti X, Bonnet D, Mvondo DM, Longuet P, Leport C, Vilde JL. **Determinants of immune reconstitution inflammatory syndrome in HIV type 1-infected patients with tuberculosis after initiation of antiretroviral therapy.** Clinical Infectious Diseases 2004;39(11):1709-1712.

**Abstr.** Immune reconstitution inflammatory syndrome (IRIS) occurred in 16 of 37 antiretroviral-naive patients who were treated subsequently for tuberculosis and human immunodeficiency virus (HIV) type 1 infection. IRIS was related to increases in the CD4 cell percentage and in the ratio of CD4 cells to CD8 cells after 1 month of antiretroviral therapy and to dissemination of tuberculosis. These results have implications for the diagnosis of IRIS and the understanding of its pathogenesis.

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**Adults, Clinical manifestations (Others), Industrialized countries, TB / Prophylaxis**

Burnett RJ, Francois G, Kew MC, Leroux Roels G, Meheus A, Hoosen AA, Mphahlele MJ. **Hepatitis B virus and human immunodeficiency virus co-infection in sub-Saharan Africa: a call for further investigation [Review].** Liver International 2005;25(2):201-213.

**Abstr.** A growing body of evidence indicates that human immunodeficiency virus (HIV)-positive individuals are more likely to be infected with hepatitis B virus (HBV) than HIV-negative individuals, possibly as a result of shared risk factors. There is also evidence that HIV-positive individuals who are subsequently infected with HBV are more likely to become HBV chronic carriers, have a high HBV replication rate, and remain hepatitis B antigen positive for a much longer period. In addition, it is evident that immunosuppression brought about by HIV infection may cause reactivation or reinfection in those previously exposed to HBV. Furthermore, HIV infection exacerbates liver disease in HBV co-infected individuals, and there is an even greater risk of liver disease when HIV and HBV co-infected patients are treated with highly active anti-retroviral therapy (HAART). Complicating matters further, there have been several reports linking HIV infection to 'sero-silent' HBV infections, which presents serious problems for diagnosis, prevention, and control. In sub-Saharan Africa, where both HIV and HBV are endemic, little is known about the burden of co-infection and the interaction between

these two viruses. This paper reviews studies that have investigated HIV and HBV co-infection in sub-Saharan Africa, against a backdrop of what is currently known about the interactions between these two viruses.

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**Adults, Hepatitis B infection (HBV), LICs / Africa**

Cressey TR, Jourdain G, Lallemand MJ, Kunkeaw S, Jackson JB, Musoke P, Capparelli E, Mirochnick M. **Persistence of nevirapine exposure during the postpartum period after intrapartum single-dose nevirapine in addition to zidovudine prophylaxis for the prevention of mother-to-child transmission of HIV-1.** Journal of Acquired Immune Deficiency Syndromes 2005;38(3):283-288.

**Abstr.** Objective: To determine nevirapine (NVP) plasma levels during the postpartum period after a single intrapartum NVP dose for the prevention of mother-to-child transmission. Methods: Plasma samples at delivery and during days 8 to 45 postpartum were obtained from HIV-infected Thai women who received an intrapartum NVP dose in the Perinatal HIV Prevention Clinical Trial-2 (PHPT-2) for the prevention of perinatal HIV transmission. These data were combined with NVP concentration data from 2 phase I studies of NVP for a population analysis. Results: The median NVP level fell to 68 ng/mL (range: <50-228, n = 43) 8 to 14 days after dosing and to 51 ng/mL (range: <50-166, n = 25) between 15 and 21 days. During the second and third weeks postpartum, NVP levels were below the limit of quantitation in 23% and 44% of samples, respectively. Between 21 and 45 days, no sample had a quantifiable NVP concentration. A simulation derived from the population analysis predicts that NVP concentration falls to less than 10 ng/mL in 5% of women by 11 days, in 50% of women by 17.5 days, and in 95% of women by 28 days. Conclusions: Significant NVP concentrations remained for up to 20 days in these Thai women. To ensure that coverage is maintained until NVP concentrations fall to nonsuppressive levels, 1 month of additional antiretroviral treatment after delivery should be considered to prevent the emergence of resistant viruses.

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**Adults / Women, LICs / Asia, PMTCT / ARV, Treatment impact and response**

Dabis F, Bequet L, Ekouevi DK, Viho I, Rouet F, Horo A, Sakarovitch C, Becquet R, Fassinou P, Dequae-Merchadou L, Wellfens-Ekra C, Rouzioux C, Leroy V, ANRS 1201/1202 DITRAME PLUS Study Group. **Field efficacy of zidovudine, lamivudine and single-dose nevirapine to prevent peripartum HIV transmission.** AIDS 2005;19(3):309-318.

**Abstr.** Objectives: In Africa, single-dose nevirapine (NVPsd), short regimens of zidovudine (ZDV) or ZDV + lamivudine (3TC) are recommended to prevent peripartum mother-to-child HIV transmission (PMTCT). We evaluated the 6-week field efficacy of two more PMTCT drug combinations. Design: An open-label intervention cohort in Abidjan. Methods: In 2001-2002, consenting women started oral ZDV 300 mg twice daily (bid) at  $\geq$  36 weeks of gestation, with 600 mg of ZDV + 200 mg NVPsd orally at beginning of labour. In 2002-2003, the antepartum regimen at  $\geq$  32 weeks comprised ZDV as previously + 3TC 150 mg bid; the labour dose comprised ZDV + NVPsd as previously + 300 mg 3TC orally. Neonates received ZDV syrup (2 mg/kg per 6 h) for 7 days + NVPsd syrup (2 mg/kg) on day 2 in both periods. Each woman was assisted to either use breast milk substitutes or breastfeed exclusively. Paediatric HIV infection was diagnosed by plasma HIV RNA viral load at 4 weeks, confirmed at 6 weeks. The reference group was a cohort receiving a short regimen of ZDV  $\geq$  36-38 weeks in 1995-2000 in the same population. Results: A total of 1144 HIV-infected pregnant women were included: 351 with ZDV, 420 with ZDV + NVPsd and 373 with ZDV + 3TC + NVPsd; 1010 livebirths were eligible for analysis; 79 children were HIV-infected peripartum. Six-week transmission probability was 6.5% [95% confidence interval (CI), 3.9-9.1 %] with ZDV + NVPsd, a 72% reduction compared with ZDV alone (95% CI, 52-88%; P = 0.0002 adjusted on maternal CD4, clinical stage and breastfeeding). It was 4.7% (95% CI, 2.4-7.0%) with ZDV + 3TC + NVPsd (P = 0.34 compared with ZDV + NVPsd). Conclusions: A short-course of ZDV + NVPsd prevents most peripartum HIV transmission in Africa. This regimen could be added to international guidelines.

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**Adults / Women, Children, LICs / Africa, PMTCT / ARV,**

Duncombe C, Kerr SJ, Ruxrungtham K, Dore GJ, Law MG, Emery S, Lange JA, Phanuphak P, Cooper DA. **HIV disease progression in a patient cohort treated via a clinical research network in a resource limited setting.** AIDS 2005;19(2):169-178.

**Abstr.** Objective: To examine HIV disease progression in a cohort of adult patients treated with antiretroviral therapy (ART) via a clinical research network in Thailand. Design, setting, participants and intervention: A cohort of 417 patients enrolled in a series of randomized ART trials, between 1996 and December 2002. Main outcome measures: Progression to combined endpoint of AIDS defining illness or death according to baseline

characteristics, ART used, immunological and virological responses to initial 6 months of ART. Results: During 1677 person years of follow-up, 29 of 417 patients progressed; tuberculosis was the most common event defining progression (14 of 29 events). The rates of progression to combined endpoint or death alone were 1.7 [95% confidence interval (CI), 1.1-2.4] and 0.7 (95% CI, 0.3-1.3) per 10 person years respectively. Compared to patients with baseline CD4 cell counts  $\geq 350 \times 10^6/l$ , the adjusted hazard ratio (HR) for progression was 3.67 (95% CI, 1.31-10.27) for patients with  $< 200 \times 10^6$  cells/l. Responses to 6 months of therapy were the strongest predictors of disease progression; compared to patients with undetectable viral load at 6 months, HR for progression was 4.95 (95% CI, 2.14-11.46) for viral load  $> 4 \log_{10}$ . Compared to patients with a 6-month CD4 cell count  $\geq 350 \times 10^6/l$ , HR for progression was 5.22 (95% CI, 1.90-14.37) for patients with  $< 200 \times 10^6$  cells/l. Conclusions: HIV-infected patients in Thailand who had access to ART, appropriate care, CD4 cell and viral load monitoring facilities via a clinical research network had progression rates comparable to those in developed countries. In this setting, ART initiation could generally be delayed until the CD4 cell count approaches  $200 \times 10^6/l$ .

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**Adults, HAART, LICs / Asia, Treatment impact and response**

European Collaborative Study. **Mother-to-child transmission of HIV infection in the era of highly active antiretroviral therapy.** Clinical Infectious Diseases 2005;40(3):458-465.

*See also editorial commentary Luzuriaga K*

**Abstr.** Background. Very low rates of mother-to-child transmission (MTCT) of human immunodeficiency virus (HIV) are achievable with use of highly active antiretroviral therapy (HAART). We examine risk factors for MTCT in the HAART era and describe infants who were vertically infected, despite exposure to prophylactic MTCT interventions. Methods. Of the 4525 mother-child pairs in this prospective cohort study, 1983 were enrolled during the period of January 1997 through May 2004. Factors examined included use of antiretroviral therapy during pregnancy, maternal CD4 cell count and HIV RNA level, mode of delivery, and gestational age in logistic regression analysis. Results. Receipt of antenatal antiretroviral therapy increased from 5% at the start of the HAART era to 92% in 2001 - 2003. The overall MTCT rate in this period was 2.87% (95% confidence interval [CI], 2.11% - 3.81%), but it was 0.99% (95% CI, 0.32% - 2.30%) during 2001 - 2003. In logistic regression analysis that included 885 mother-child pairs, MTCT risk was associated with high maternal viral load (adjusted odds ratio [AOR], 12.1;) and elective Caesarean section (AOR, 0.33;). Detection of maternal HIV RNA was significantly  $P = .003$  associated with antenatal use of antiretroviral therapy, CD4 cell count, and mode of delivery. Among 560 women with undetectable HIV RNA levels, elective Caesarean section was associated with a 90% reduction in MTCT risk (odds ratio, 0.10; 95% CI, 0.03 - 0.33), compared with vaginal delivery or emergency Caesarean section. Conclusions. Our results suggest that offering an elective Caesarean section delivery to all HIV-infected women, even in areas where HAART is available, is appropriate clinical management, especially for persons with detectable viral loads. Our results also suggest that previously identified risk factors remain important.

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**Children, HAART, Industrialized countries, PMTCT / ARV**

Fawzi W, Msamanga G. **Micronutrients and adverse pregnancy outcomes in the context of HIV infection [Review].** Nutrition Reviews 2004;62 (7) Part 1:269-275.

**Abstr.** HIV infection is a global public health problem, particularly in Africa. Concurrently, micronutrient deficiencies and adverse pregnancy outcomes are prevalent in the same settings. Supplements containing B complex and vitamins C and E were efficacious in reducing adverse pregnancy outcomes, including fetal loss, low birth weight, and prematurity among HIV-infected women; the generalizability of this finding to uninfected women is being examined. There is little encouragement from published studies to provide prenatal vitamin A supplements in HIV infection, particularly in light of significantly higher risk of mother-to-child transmission observed in one trial. The efficacy and safety of prenatal zinc and selenium supplements on these outcomes need to be examined in randomized trials.

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**Adults / Women, LICs / Africa, Obstetrics, PMTCT**

Faye A, Le Chenadec M, Dollfus C, Thuret I, Douard D, Firtion G, Lachassinne E, Levine M, Nicolas J, Monpoux F, Tricoire J, Rouzioux C, Tardieu M, Mayaux MJ, Blanche P. **Early versus deferred antiretroviral multidrug therapy in infants infected with HIV type 1.** Clinical Infectious Diseases 2004;39(11):1692-1698.

**Abstr.** Background. The clinical impact of early antiretroviral multidrug therapy on the risk of early-onset severe human immunodeficiency virus (HIV) disease has not been evaluated on a large scale. Methods. We evaluated the risk of early-onset events associated with acquired immunodeficiency syndrome (AIDS), particularly the risk

of encephalopathy, among infants in the French Perinatal Cohort, according to whether antiretroviral multidrug therapy was initiated before or after the age of 6 months. Results. Of 83 HIV-infected infants born in 1996 (when HAART became available) or later, 40 received early treatment on or before the age of 6 months, and 43 received deferred multidrug therapy after the age of 6 months. In the group that received early multidrug therapy, no child developed an opportunistic infection or an encephalopathy during the first 24 months of life. In the deferred multidrug therapy group, 6 infants presented with a total of 7 AIDS-associated events ( ), 3 of which were encephalopathies ( ). The small number of Pp. 01 Pp. 08 events prevented the identification of clinical and biological markers that accurately predict progression of early-onset severe HIV disease. Conclusion. In this observational study, infants who received multidrug therapy before 6 months of age did not have the early-onset severe form of childhood HIV disease. Further studies are needed to find accurate early markers of disease progression in this age group.

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**Children, HAART, Industrialized countries, Treatment impact and response**

Grimwade K, Sturm AW, Nunn AJ, Mbatha D, Zungu D, Gilks CF. **Effectiveness of cotrimoxazole prophylaxis on mortality in adults with tuberculosis in rural South Africa.** AIDS 2005;19(2):163-168.

**Abstr.** Background: Adults with dual tuberculosis (TB) and HIV infection have a poor outcome. Studies in West Africa suggest that cotrimoxazole prophylaxis may reduce this mortality. Objective: To evaluate the effectiveness of cotrimoxazole in reducing mortality in adults with active TB, irrespective of HIV status, in a high prevalence setting. Design: Cohort study using historical controls. Methods: Adults treated for TB between 1998 and 2000 were traced and vital status at 6 months ascertained (2004: control group). All adults starting treatment for TB between June 2001 and June 2002 were offered cotrimoxazole prophylaxis 960 mg once daily for 6 months during TB treatment irrespective of HIV status (1321: intervention group). Mortality, adverse reactions and adherence were compared between intervention and control groups. Results: HIV seroprevalence in patients with TB at the start of the intervention was estimated to be 18%. Mortality at 6 months was 29% lower in the group given cotrimoxazole than in the control group. The number needed to treat to prevent one death during the period of TB treatment was 24. The benefit was seen across all types of TB but was only evident in new patients; patients being retreated had similar outcomes in both groups. Adverse events were infrequent and minor, with only two participants having treatment stopped for this reason. Conclusion: Cotrimoxazole prophylaxis for all adults with TB, irrespective of HIV status, in an area of high HIV seroprevalence may be a feasible, safe and effective way to reduce mortality for the duration of treatment.

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**Adults, LICs / Africa, Infections (Others) / Prophylaxis, TB / Prophylaxis, Treatment programme**

Hansmann A, van der Loeff MFS, Kaye S, Awasana AA, Sarge Njie R, D OD, Ariyoshi K, Alabi A, Milligan P, Whittle HC. **Baseline plasma viral load and CD4 cell percentage predict survival in HIV-1- and HIV-2-infected women in a community-based cohort in the Gambia.** Journal of Acquired Immune Deficiency Syndromes 2005;38(3):335-341.

**Abstr.** Objectives: To estimate and compare the all-cause mortality rates among HIV-1-infected, HIV-2-infected, and uninfected women and to assess the predictive value of baseline Plasma viral load (PVL) and CD4 cell percentage (CD4%) for mortality. Design: Cohort study. Methods: At presentation to antenatal clinics in The Gambia in 1993-1995, pregnant women were screened for antibodies to HIV-1 and HIV-2. Seropositive subjects and a similar number of seronegative controls were enrolled, and baseline PVL and CD4% were measured. Participants were visited regularly by field-workers until 18 months after delivery and again 4-7 years later. Results: Thirty-two of 101 women infected with HIV-1, 23 of 243 infected with HIV-2, and 9 of 468 seronegative women died during a median follow-up of 6.9 years. The mortality rate was 56 deaths per 1000 person years of observation (pyo) for HIV-1-infected, 16 deaths per 1000 pyo for HIV-2-infected, and 3.1 deaths per 1000 pyo for HIV-uninfected women. After 8 years of follow-up, >50% of HIV-1 infected women were still alive. In multivariate analysis, a 1-log increase of HIV-1 PVL was associated with a 1.8-fold higher rate of mortality (95% confidence interval [CI], 0.9-3.4). In HIV-2 infection, women with a high PVL (>10,000 copies/mL) had an 8.7-fold (95% CI, 2.8-28) higher rate of mortality than did those with a low PVL (<1000 copies/mL). A 10% decrease in CD4% was associated with higher mortality rates among HIV-1-infected (1.6-fold; 95% CI, 1.1-2.3) and HIV-2-infected (1.5-fold; 95% CI, 1.0-2.3) subjects. Discussion: Survival of HIV-1-

infected women in The Gambia is similar to that in industrialized countries before the introduction of antiretroviral treatment. Survival of HIV-2-infected women is much better. However, women with high PVLs die as quickly as their HIV-1-infected counterparts.

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**Adults / Women, LICs / Africa, Natural history**

Kabugo C, Bahendeka S, Mwebaze R, Malamba S, Katuntu D, Downing R, Mermin J, Weidle PJ. **Long-term experience providing antiretroviral drugs in a fee-for-service HIV clinic in Uganda - Evidence of extended virologic and CD4+ cell count responses.** Journal of Acquired Immune Deficiency Syndromes 2005;38(5):578-583.

**Abstr.** Objective: To describe the long-term experience of providing antiretroviral (ARV) therapy, including CD4(+) cell count and virologic response, at St. Francis Hospital, Nsambya, Uganda. Methods: The HIV clinic established in 1998 is a fee-for-service model where patients pay for ARVs. The care of patients who started ARVs from August 1, 1998 until October 31, 2000 was evaluated through December 31, 2002. Data were collected at the HIV clinic on standardized clinical forms. These patients had free CD4(+) cell count and viral load testing performed at times determined by the physician. All persons who had  $\geq 1$  CD4(+) cell count or viral load done  $\geq 90$  days after starting therapy were evaluated. Results: Three hundred twenty-one patients (49% women, 66% ARV naive, median age = 38 years, median CD4(+) cell count = 79 cells/mm<sup>3</sup>, and median viral load = 249,489 copies/mL) attended the HIV clinic. Two hundred sixty-three (82%) patients returned at least once after the initial visit, of whom 54 (21%) had an interruption in therapy for > 1 year. One hundred thirty-five patients were in care in 2002, 69 were known to have died (9 of whom died in 2002), and 68 were lost to follow-up. The probability of remaining alive and in care at 1 year was 0.56 (95% confidence interval [CI]: 0.50-0.61), 0.46 (95% CI: 0.41-0.51) at 2 years, 0.40 (95% CI: 0.34-0.45) at 3 years, and 0.35 (95% CI: 0.29-0.41) at 4 years. In an on-treatment analysis, the median CD4(+) cell count increase during year 1 was +55 cells/mm<sup>3</sup>, +112 Cells/mm<sup>3</sup> during year 2, +142 cells/mm<sup>3</sup> during year 3, and + 131 cells/mm<sup>3</sup> during year 4, The median log viral load change from baseline during year 1 was -1.4 copies/mL, -1.32 copies/mL during year 2, -1.9 copies/mL during year 3, and -1.51 copies/mL during year 4. Conclusions: This fee-for-service HIV clinic providing ARV treatment has successfully operated and managed patients for more than 4 years. Those who survived and remained on therapy derived long-term virologic and immunologic responses to ARV drugs in a manner similar to that observed in industrialized countries. Strategies to reduce the financial burden and other barriers to uninterrupted care as well as incentives to increase such practice models should be further explored in the African context.

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**Adults, LICs / Africa, Treatment programme**

Kilewo C, Karlsson K, Swai A, Massawe A, Lyamuya E, Mhalu F, Biberfeld G. **Mortality during the first 24 months after delivery in relation to CD4 T-lymphocyte levels and viral load in a cohort of breast-feeding HIV-1-infected women in Dar es Salaam, Tanzania.** Journal of Acquired Immune Deficiency Syndromes 2005;38(5):598-602.

**Abstr.** The objective of this study was to analyze the mortality during the first 24 months after delivery in relation to CD4 T-lymphocyte levels and viral load at enrollment (36 weeks of gestation) in a cohort of HIV-1-seropositive breast-feeding women at the Dar es Salaam site of the multicenter Petra trial (a mother-to-child HIV-1 transmission intervention trial using antiretroviral therapy). Antiretroviral treatment was not available in this setting apart from the short treatment given within the trial around delivery to prevent mother-to-child transmission of HIV T-lymphocyte subsets were determined by flow cytometry. Plasma HIV-1 RNA was quantified by the Amplicor HIV-1 RNA Monitor v 1.5 assay. Mortality after delivery was analyzed using the life-table technique and Cox regression. The analysis included 266 mothers. The CD4 cell counts at enrollment were < 200 cells/mm<sup>3</sup> in 14.5% of the mothers. The viral load at enrollment was > 100,000 RNA copies/mL in 3.6% of the mothers. The mortality 24 months after delivery was 6.7% (95% CI = 3.1-10.1%). The mortality 24 months after delivery was 29.9% (95% CI = 13.1-46.9%) for mothers with < 200 CD4 cells/mm<sup>3</sup> at enrollment, 3.3% (95% CI = 0-6.6%) for mothers with 200-499 CD4 cells/mm<sup>3</sup>, 2.9% (95% CI = 0-7.1%) for mothers with > 500 CD4 cells/mm<sup>3</sup> (P = 0.0000), 15.0% (95% CI = 6.6-23.4%) for mothers with viral load > 100,000 copies/mL at enrollment, and 2.8% (95% CI = 0-5.6%) for mothers with viral load < 100,000 copies/mL (P = 0.0000). In the multivariate analysis CD4 cell counts and viral load were both independent risk factors for mortality (P < 0.001 and P = 0.004, respectively). In conclusion, the mortality was high among women with severe immunosuppression or high viral load at enrollment, but not in the rest of the women. CD4 lymphocyte count in late pregnancy was a better predictor of death within 2 years than was viral load. The results support the World Health Organization recommendation to initiate antiretroviral treatment in resource-limited settings in

HIV-1-infected adults with CD4 cell counts < 200/mm<sup>3</sup> and show that this is appropriate also among perinatal women.

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**Adults / Women, Infant feeding / Breastfeeding, LICs / Africa, Natural history, PMTCT / ARV**

Koletar SL, Williams PL, Wu JL, McCutchan JA, Cohn SE, Murphy RL, Lederman HM, Currier JS. **Long-term follow-up of HIV-infected individuals who have significant increases in CD4(+) cell counts during antiretroviral therapy.** *Clinical Infectious Diseases* 2004;39(10):1500-1506.

**Abstr.** Background. Descriptions of the durability and consequences of immune reconstitution in patients who start highly active antiretroviral therapy (HAART) while severely immunosuppressed are limited. Methods. Patients with previous CD4(+) cell counts < 50 cells/mm<sup>3</sup>, all of whom had HAART-induced increases in CD4(+) cell counts of 1100 cells/mm<sup>3</sup> on 2 separate occasions (measured sequentially at least 4 weeks apart), were enrolled in a prospective trial and observed every 16-32 weeks. Evaluations included assessments for new opportunistic complications, virologic (human immunodeficiency virus [HIV] RNA load) and immunologic (CD4(+) cell count) responses, or death. Results. The median follow-up duration for 612 subjects was 184 weeks (range, 8-216 weeks). The rate of increase in CD4(+) cell counts was similar to 5.9 cells/mm<sup>3</sup> every 8 weeks, with the degree of increase associated with the baseline HIV RNA load (< 500 vs. greater than or equal to 500 copies/mL). Subsequent measurements of virologic suppression based on HIV RNA levels were also associated with predicted CD4(+) cell responses. Thirty-three AIDS-defining illnesses were reported (1.75 events per 100 person-years of follow-up); > 40% (14 cases) occurred with higher than expected CD4(+) cell counts. Conclusions. CD4(+) cell count increases are related to virological control, with continuing increases seen in individuals who are immunosuppressed. Opportunistic illnesses and/or complications are infrequent but can occur at any time, even in patients who maintained an elevated CD4(+) cell count.

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**Adults, HAART, Industrialized countries, Treatment impact and response**

Leon A, Martinez E, Mallolas J, Laguno M, Blanco JL, Pumarola T, Gatell JM. **Early virological failure in treatment-naive HIV-infected adults receiving didanosine and tenofovir plus efavirenz or nevirapine.** *AIDS* 2005;19(2):213-215.

**Abstr.** A 50% rate of early virological failure associated with the selection of resistance mutations was seen in a group of 14 antiretroviral-naive adults who initiated highly active antiretroviral therapy with tenofovir and didanosine plus efavirenz or nevirapine. At month 6, the mutations detected were K65R, L74V, L100I, K103N/R/T, Y181C and G190E/Q/S. These results argue against the use of tenofovir plus didanosine in HIV-infected antiretroviral-naive adults even when the third drug is a non-nucleoside reverse transcriptase inhibitor.

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**Adults, HAART, Industrialized countries, Viral resistance**

Luzuriaga K, Sullivan JL. **Prevention of mother-to-child transmission of HIV infection [Editorial Commentary].** *Clinical Infectious Diseases* 2005;40(3):466-467.

**Introduction.** Study confirm that maternal viral load is the key risk factor for mother-to-child transmission of HIV and that the suppression of viral replication through administration of potent combinations of antiretroviral drugs markedly reduces the risk of mother-to-child transmission. In HAART recipients, the only other intervention that significantly reduced mother-to-child transmission of HIV was elective Caesarean section delivery. Although the European Collaborative Study article suggests that elective Caesarean section delivery and receipt of combination antiretroviral therapy may reduce mother-to-child transmission rates more than combination antiretroviral therapy alone, many physicians in the developed world will likely balance the potential risks of the procedure with its potential benefits and reserve this mode of delivery for those women with detectable viral loads (i.e., 150 copies/mL). These are remarkable achievements that should make all persons who work to eradicate mother-to-child transmission of HIV proud. But what do these results mean for the developing world? In 2003, an estimated 2.0 million children were born to HIV-infected pregnant women in resource-poor settings, and ~700,000 children were infected (<http://www.unaids.org>). This represents almost 2000 new infections per day, 190% of which currently occur in sub-Saharan Africa, where 150% of these infected infants will die by their second birthday.

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**Children, HAART, Industrialized countries, PMTCT**

Minga AK, Huët C, Dohoun L, Abo Y, Bonard D, Gourvellec G, Coulibaly A, Konate S, Dabis F, Salamon R. **Behavior assessment of blood donors facing the risk of HIV infection, Abidjan, Cote D'Ivoire, 2001-2002.** Journal of Acquired Immune Deficiency Syndromes 2005;38(5):618-621.

**Abstr.** Despite precautions taken to guarantee blood safety, in the National Blood Transfusion Center (CNTS) of Abidjan, about 30 regular blood donors are detected with HIV seroconversion each year, two-thirds of them men. A survey through face-to-face interviews was carried out at the CNTS of Abidjan from September 2001 to March 2002 among HIV-positive and HIV-negative regular blood donors, informed about their serologic status. HIV-negative regular blood donors informed about their serologic status since a median time of 67 months (n = 50) disclosed more risky behaviors Such as multiple sexual partners (68%) than HIV-positive blood donors informed about their status (n = 112) since a median time of 35 months (41%) (P < 0.001). Condoms were systematically used by 17% of HIV-negative blood donors and 55% of HIV-positive blood donors (P < 0.001). Enhanced counseling and awareness could reduce in the future the number of cases of seroconversion among regular blood donors and improve their subsequent behavior. Blood donors who have unprotected sex with partners of unknown HIV serologic status and especially with casual partners are strongly exposed to HIV transmission and should be discouraged to continue giving blood, after adequate counseling.

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**Adults, LICs / Africa, VCT**

Molina JM, Journot V, Morand Joubert L, Yeni P, Rozenbaum W, Rancinan C, Fournier S, Morlat P, Palmer P, Dupont B, Goujard C, Dellamonica P, Collin F, Poizot Martin I, Chêne G. **Simplification therapy with once-daily emtricitabine, didanosine, and efavirenz in HIV-1-infected adults with viral suppression receiving a protease inhibitor-based regimen: A randomized trial.** Journal of Infectious Diseases 2005;191(6):830-839.

**Abstr.** Background. We assessed a once-daily combination to simplify therapy in patients infected with human immunodeficiency virus type 1 (HIV-1). Methods. A total of 355 adults with plasma HIV-1 RNA levels <400 copies/mL were randomly assigned to either switch to once-daily emtricitabine, didanosine, and efavirenz (n = 178) or maintain their protease inhibitor (PI) - based regimens (n = 177). The primary end point was sustained suppression of plasma HIV-1 RNA levels to <400 copies/mL. Results. At week 48, the proportion of patients meeting the end point was 87.6% in the PI group and 90.5% in the once-daily group, with a treatment difference of - 2.9% (upper bound of the 1-tailed 95% confidence interval, 2.6%). The proportion of patients with HIV-1 RNA levels < 50 copies/mL was higher in the once-daily group (87%) than in the PI group (79%) (P < .05). Resistance mutations to efavirenz and emtricitabine were detected in all patients in the once-daily group who experienced virologic failure while receiving study medication. The proportion of patients discontinuing study medication because of adverse events was similar between the once-daily group (9%) and the PI group (10%) (P = .8). Conclusions. Substituting a convenient once-daily combination of emtricitabine, didanosine, and efavirenz for a PI-based regimen was well tolerated and associated with sustained virologic suppression.

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**Adults, HAART, Industrialized countries, Treatment adherence, Treatment impact and response**

Newell ML. **Routine provision of nevirapine to women of unknown serostatus: at best a temporary solution to prevent MTCT [Commentary].** Bulletin of the World Health Organization 2005;83(3):228-229.

**Texte intégral:** <http://www.who.int/bulletin/volumes/83/3/224.pdf>

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**Adults / Women, PMTCT / ARV, LICs**

Ronald AR, Sande MA. **HIV/AIDS care in Africa today [Editorial Commentary].** Clinical Infectious Diseases 2005;40(7):1045-1048.

**Introduction.** Light is appearing at the end of the proverbial tunnel throughout the regions of sub-Saharan Africa that are currently being decimated by AIDS. A remarkable congruence of 3 major streams of endeavor portends the success of our shared efforts to limit the ravages of HIV infection and begin winning the war against AIDS on several fronts. The first endeavor is to ensure that the incredible, indescribable plight of individuals dying of AIDS is being heard by individuals, organizations, and governments around the world. AIDS-associated tragedies, such as the 8000 deaths that occur each day, the fact that a new child is orphaned every 14 s, and the collapsing of economies, have raised the topic of AIDS to the forefront of the global conscience. As a result, the world is rolling up its sleeves and is beginning to respond. The "3 by 5" initiatives of the World Health Organization have set forth the goal that 3 million HIV-infected individuals in developing countries will be receiving antiretroviral treatment by 31 December 2005. A second endeavor is the opportunity to make a difference for sick, frequently impoverished patients with AIDS who are awaiting death. Although, in

the West, we have only prescribed antiretrovirals effectively since 1996, we already know that the vast majority of HIV-infected individuals -presumably, almost 90% of such individuals -can remain well and can fulfill their desires and responsibilities within the home, workplace, and community for at least 5 years thanks to these complex but life-sustaining regimens. The world has found multiple ways to bring the cost of antiretrovirals into a reasonable price range. Finally, a third endeavor, which is equally important but is readily forgotten, is the success story that has unfolded in Uganda, where the prevalence and incidence of HIV infection have been dramatically reduced. This endeavor provides hope that, collectively, individuals and societies can change behaviors, reduce risks, and alter transmission dynamics so that, even in the absence of an AIDS vaccine, marked reductions in the global incidence of HIV infection will occur within the next 5 years.

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#### **LICs / Africa, Treatment programme**

Sanne I, Mommeja Marin H, Hinkle J, Bartlett JA, Lederman MM, Maartens G, Wakeford C, Shaw A, Quinn J, Gish RG, Rousseau F. **Severe hepatotoxicity associated with nevirapine use in HIV-infected subjects.** Journal of Infectious Diseases 2005;191(6):825-829.

**Abstr.** Human immunodeficiency virus (HIV) - infected South African patients (n = 468) received blinded lamivudine or emtricitabine stavudine, and either nevirapine or efavirenz ( based on screening viral load). Baseline characteristics were analyzed in univariate and multivariate regression, to identify risk factors for hepatotoxicity ( grade 3 or greater increase in serum aminotransferase levels). The occurrence of early hepatotoxicity was 17% in the nevirapine group and 0% in the efavirenz group and was balanced between the lamivudine and emtricitabine arms. Two subjects died of hepatic failure. Independent risk factors were body-mass index (BMI) < 18.5, female sex, serum albumin level < 35 g/L, mean corpuscular volume >85 fL, plasma HIV-1 RNA load <20,000 copies/mL, aspartate aminotransferase level <75 IU/L, and lactate dehydrogenase level < 164 IU/L. The use of nevirapine in female patients with a low BMI should be discouraged.

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#### **Adults, Clinical manifestations (Others), HAART, Treatment complications**

Sherman GG, Stevens G, Jones SA, Horsfield P, Stevens WS. **Dried blood spots improve access to HIV diagnosis and care for infants in low-resource settings.** Journal of Acquired Immune Deficiency Syndromes 2005;38(5):615-617.

**Abstr.** Effective health care delivery to the majority of perinatally exposed infants worldwide, including those enrolled in prevention of mother-to-child transmission programs, is hampered by lack of access to an HIV diagnosis in infancy. Dried blood spot collection from young infants for centralized HIV polymerase chain reaction (PCR) testing is attainable in low-resource settings, provided PCR methodology suitable for routine laboratory service is available. The accuracy of the Roche Amplicor HIV-1 DNA test version 1.5 (Branchburg, NJ) performed on dried blood spots collected prospectively on ordinary Whatman filter paper from a cohort of 300 6-week-old infants born to HIV-infected women in Johannesburg, South Africa, was assessed. Anonymous analysis of the blood spots using a unique DNA extraction procedure was performed in a routine diagnostic laboratory and the results compared with HIV DNA and RNA PCR liquid blood tests at age 6 weeks, and the HIV status of the infant. Dried blood spots were available for 288 infants (96%) of whom 25 (8.7%) were HIV infected. The Roche Amplicor assay yielded a sensitivity of 100% and a specificity of 99.6%. HIV DNA PCR tests on dried blood spots have the potential to improve health care delivery to HIV-affected children in low-resource settings right now.

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#### **Children, Comprehensive care, LICs / Africa, PMTCT**

Sint TT, Dabis FO, Kamenga C, Shaffer N, de Zoysa IF. **Should nevirapine be used to prevent mother-to-child transmission of HIV among women of unknown serostatus?** Bulletin of the World Health Organization 2005;83(3):224-228.

*See also commentary Newell ML*

**Abstr.** At present, HIV testing and counselling during pregnancy represent the key entry point for women to learn their serostatus and for them to access, if they are HIV-positive, specific interventions to reduce mother-to-child transmission (MTCT) of HIV. However, the provision and uptake of testing and counselling services are inadequate, and many pregnant women in countries most affected by the HIV/AIDS epidemic remain unaware of their HIV status. The offer of single-dose nevirapine prophylaxis to women whose HIV status is unknown at the time of delivery has been proposed to circumvent these problems in high-prevalence settings. The potential advantages and disadvantages of three different programme approaches are considered: targeted programmes in which antiretroviral drugs are offered only to women who are known to be HIV-positive; combined programmes

in which nevirapine prophylaxis is offered to women whose serostatus remains unknown at the time of delivery despite targeted programme inputs; and universal nevirapine prophylaxis programmes in which HIV testing and counselling are not available and all pregnant women, regardless of their serostatus, are offered nevirapine prophylaxis.

**Texte intégral:** <http://www.who.int/bulletin/volumes/83/3/224.pdf>

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**Adults / Women, PMTCT / ARV, LICs**

Soriano V, Puoti M, Bonacini M, Brook G, Cargnel A, Rockstroh J, Thio C, Benhamou Y. **Care of patients with chronic hepatitis B and HIV co-infection: recommendations from an HIV-HBV International Panel [Review]**. *AIDS* 2005;19(3):221-240.

**Introduction.** Liver disease caused by chronic hepatitis B virus (HBV) infection is currently an important cause of morbidity and mortality among HIV-infected patients in the western world, where classical opportunistic complications of severe immunodeficiency have declined dramatically as a result of the widespread use of potent antiretroviral therapies. Over the past few years, several consensus reports have addressed the issue of viral hepatitis and HIV co-infection. However, as a result of the larger impact of hepatitis C virus (HCV), they have focused mainly on HIV and HCV co-infection, whereas only a few reports have devoted particular attention to hepatitis B. There are several reasons to highlight HBV in HIV-positive individuals.

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**Adults, Industrialized countries, Hepatitis B infection (HBV), Treatment monitoring**

Tuomala RK, Watts DH, Li D, Vajaranant M, Pitt J, Hammill H, Landesman S, Zorrilla C, Thompson B. **Improved obstetric outcomes and few maternal toxicities are associated with antiretroviral therapy, including highly active antiretroviral therapy during pregnancy.** *Journal of Acquired Immune Deficiency Syndromes* 2005;38(4):449-473.

**Abstr.** Data from 2543 HIV-infected women were analyzed to correlate antiretroviral therapy (ART) used during pregnancy with maternal and pregnancy outcomes. ART was analyzed according to class of agents used and according to monotherapy versus combination ART containing neither protease inhibitors (PIs) nor nonnucleoside reverse transcriptase inhibitors versus highly active ART. Timing of ART was classified according to early (recorded at or before 25-week gestation study visit) and late (recorded at 32-week gestation or delivery visit) use. Maternal outcomes assessed included hematologic, gastrointestinal, neurologic, renal, and dermatologic complications; gestational diabetes; lactic acidosis; and death. Adverse pregnancy outcomes assessed included hypertensive complications; pre-term labor or rupture of membranes; preterm delivery (PTD); low birth weight; and stillbirth. Logistic regression analyses controlling for multiple covariates revealed ART to be independently associated with few maternal complications: ART use was associated with anemia (odds ratio [OR] = 1.6, 95% confidence interval [CI]: 1.1-2.4), and late use of ART was associated with gestational diabetes (OR = 3.5, 95% CI: 1.2-10.1). Logistic regression analyses revealed an increase in PTD at < 37 weeks for 10 women with late use of ART not containing zidovudine (ZDV, OR = 7.9, 95% CI: 1.4-44.6) and a decrease in adverse pregnancy outcomes as follows: late use of ART containing ZDV was associated with decreased risk for stillbirth and PTD at < 37 weeks (OR = 0.06, 95% CI: 0.02-0.18; OR = 0.5, 95% CI: 0.3-0.8, respectively), and ART containing nucleoside reverse transcriptase inhibitors but not ZDV during early and late pregnancy was associated with decreased risk for PTD at < 32 weeks (OR = 0.3, 95% CI: 0.2-0.7). Benefits of ART continue to outweigh observed risks.

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**Adults / Women, Clinical manifestations (Others), HAART, Industrialized countries, Obstetrics, PMTCT / ARV**

Watensky RP, Weinstein MC, Kimmel AD, Seage GR, Losina E, Sax PE, Zhang H, Smith HE, Freedberg KA, Paltiel AD. **Routine human immunodeficiency virus testing: An economic evaluation of current guidelines.** *American Journal of Medicine* 2005;118(3):292-300.

**Abstr.** BACKGROUND: The Centers for Disease Control and Prevention guidelines recommend human immunodeficiency virus (HIV) counseling, testing, and referral for all patients in hospitals with an HIV prevalence of  $\geq 1\%$ . The 1% screening threshold has not been critically examined since HIV became effectively treatable in 1995. Our objective was to evaluate the clinical effect and cost-effectiveness of current guidelines and of alternate HIV prevalence thresholds. METHODS: We performed a cost-effectiveness analysis using a computer simulation model of HIV screening and disease as applied to inpatients in U.S. hospitals. RESULTS: At an undiagnosed inpatient HIV prevalence of 1% and an overall participation rate of 33%, HIV screening increased mean quality-adjusted life expectancy by 6.13 years per 1000 inpatients, with a cost-

effectiveness ratio of \$35 400 per quality-adjusted life-year (QALY) gained. Expansion of screening to settings with a prevalence as low as 0.1% increased the ratio to \$64 500 per QALY gained. Increasing counseling and testing costs from \$53 to \$103 per person still yielded a cost-effectiveness ratio below \$100 000 per QALY gained at a prevalence of undiagnosed infection of 0.1%. **CONCLUSION:** Routine inpatient HIV screening programs are not only cost-effective but would likely remain so at a prevalence of undiagnosed HIV infection 10 times lower than recommended thresholds. The current HIV counseling, testing, and referral guidelines should now be implemented nationwide as a way of linking infected patients to life-sustaining care.

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#### **Industrialized countries, VCT**

Wester CW, Bussmann H, Avalos A, Ndwapi N, Gaolathe T, Cardiello P, Bussmann C, Moffat H, Mazonde P, Marlink RG. **Establishment of a public antiretroviral treatment clinic for adults in urban Botswana: Lessons learned.** *Clinical Infectious Diseases* 2005;40(7):1041-1044.

*See editorial commentary Ronald AR*

**Abstr.** Countries in sub-Saharan Africa are under significant pressure to open large-scale, public antiretroviral treatment clinics. Many lessons have been learned in Botswana, where the first public antiretroviral treatment clinic in Africa was established. The availability of core, well-trained medical staff will be the primary factor that limits a rapid scale-up of antiretroviral treatment programs.

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#### **LICs / Africa, Treatment programme**