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# HIV Care & PMTCT in Resource-Limited Settings

prepared by the Bordeaux Working Group

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Number of citations selected for this issue: **13**

**Citation format** (by alphabetical order of the authors):

Author(s). Title. Source. **Abstr.** (Authors' text) or **Introduction** (Authors' text) or **Selection** (Selected sections of the paper) or **Notes** or **Abstr. Edited** (Written by the Bordeaux Working Group). **Author Address**, if available, **Free Full Text**, if available

Bastard M, Koita Fall MB, Laniece I, Taverne B, Desclaux A, Ecochard R, Sow PS, Delaporte E, Etard JF. **Revisiting long-term adherence to HAART in Senegal using latent class analysis.** *J Acquir Immune Defic Syndr* 2011 Epub.

**Abstr.** BACKGROUND: Adherence is one of the main predictors of antiretroviral treatment success. A governmental initiative was launched in 1998 for HIV-infected patients in Senegal to provide access to highly active antiretroviral therapy (HAART). METHODS: Between August 1998 and April 2002, 404 adult patients were enrolled. Adherence measurements, defined as pills taken/pills prescribed, were assessed between November 1999 and April 2009 using a pill count along with a questionnaire for 330 patients. Predictors of adherence were explored through a random-intercept Tobit model and a latent class analysis (LCA) was performed to identify adherence trajectories. We also carried out a survival analysis taking into account gender and latent adherence classes. RESULTS: Median treatment duration was 91 months [IQR 84-101]. On average, adherence declined by 7% every year, was 30% lower for patients taking indinavir and 12% higher for those receiving cotrimoxazole prophylaxis. Based on the predicted probability of having an adherence  $\geq 95\%$ , LCA revealed three adherence behaviours and a better adherence for women. A quarter of patients had a high adherence trajectory over time and half had an intermediate one. Male gender and low adherence behaviour over time were independently associated with a higher mortality rate. CONCLUSIONS: This study shows that an overall good adherence can be obtained in the long-term in Senegal. LCA suggests a better adherence for women and points out a large sub-sample of patients with intermediate level of adherence behaviour at risk for developing resistance to antiretroviral drugs. This study warrants further research into gender issues.

**Address:** Hospices Civils de Lyon, Service de Biostatistique, Lyon, F-69003, France.

CROI. **Daily reports of the 18th Conference on Retroviruses and Opportunistic Infections.** 2011 Boston.

**Free Full Text:** <http://www.aidsmap.com/CROI2011/News-from-CROI-2011/page/1628183>

Fatti G, Grimwood A, Bock P. **Better antiretroviral therapy outcomes at primary healthcare facilities: an evaluation of three tiers of ART services in four South African provinces.** *PLoS One* 2010;5(9):e12888.

**Abstr.** BACKGROUND: There are conflicting reports of antiretroviral therapy (ART) effectiveness comparisons between primary healthcare (PHC) facilities and hospitals in low-income settings. This comparison has not been evaluated on a broad scale in South Africa. METHODOLOGY/PRINCIPAL FINDINGS: A retrospective cohort study was conducted including ART-naive adults from 59 facilities in four provinces in South Africa, enrolled between 2004 and 2007. Kaplan-Meier estimates, competing-risks Cox regression, generalised estimating equation population-averaged models and logistic regression were used to compare death, loss to follow-up (LTFU) and virological suppression (VS) between PHC, district and regional hospitals. 29 203 adults from 47 PHC facilities, nine district hospitals and three regional hospitals were included. Patients at PHC facilities had more advanced WHO stage disease when starting ART. Retention in care was 80.1% (95% CI: 79.3%-80.8%), 71.5% (95% CI: 69.1%-73.8%) and 68.7% (95% CI: 67.0%-69.7%) at PHC, district and regional hospitals respectively, after 24 months of treatment ( $P < 0.0001$ ). In adjusted regression analyses, LTFU was independently increased at regional hospitals (aHR 2.19; 95% CI: 1.94-2.47) and mortality was independently elevated at district hospitals (aHR 1.60; 95% CI: 1.30-1.99) compared to PHC facilities after 12 months of ART. District and regional hospital patients had independently reduced probabilities of VS, aOR

0.76 (95% CI: 0.59-0.97) and 0.64 (95% CI: 0.56-0.75) respectively compared to PHC facilities over 24 months of treatment. CONCLUSIONS/SIGNIFICANCE: ART outcomes were superior at PHC facilities, despite PHC patients having more advanced clinical stage disease when starting ART, suggesting that ART can be adequately provided at this level and supporting the South African government's call for rapid up-scaling of ART at the primary level of care. Further prospective research is required to determine the degree to which outcome differences are attributable to either facility level characteristics or patient co-morbidity at hospital level.

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Johri M, Ako-Arrey D. **The cost-effectiveness of preventing mother-to-child transmission of HIV in low- and middle-income countries: systematic review**. *Cost Eff Resour Alloc* 2011;9(1):3.

**Abstr.** ABSTRACT: BACKGROUND: Although highly effective prevention interventions exist, the epidemic of paediatric HIV continues to challenge control efforts in resource-limited settings. We reviewed the cost-effectiveness of interventions to prevent mother-to-child transmission (MTCT) of HIV in low- and middle-income countries (LMICs). This article presents syntheses of evidence on the costs, effects and cost-effectiveness of HIV MTCT strategies for LMICs from the published literature and evaluates their implications for policy and future research. METHODS: Candidate studies were identified through a comprehensive database search including PubMed, Embase, Cochrane Library, and EconLit restricted by language (English or French), date (January 1st, 1994 to January 17th, 2011) and article type (original research). Articles reporting full economic evaluations of interventions to prevent or reduce HIV MTCT were eligible for inclusion. We searched article bibliographies to identify additional studies. Two authors independently assessed eligibility and extracted data from studies retained for review. Study quality was appraised using a modified BMJ checklist for economic evaluations. Data were synthesised in narrative form. RESULTS: We identified 19 articles published in 9 journals from 1996 to 2010, 16 concerning sub-Saharan Africa. Collectively, the articles suggest that interventions to prevent paediatric infections are cost-effective in a variety of LMIC settings as measured against accepted international benchmarks. In concentrated epidemics where HIV prevalence in the general population is very low, MTCT strategies based on universal testing of pregnant women may not compare well against cost-effectiveness benchmarks, or may satisfy formal criteria for cost-effectiveness but offer a low relative value as compared to competing interventions to improve population health. Conclusions and Recommendations Interventions to prevent HIV MTCT are compelling on economic grounds in many resource-limited settings and should remain at the forefront of global HIV prevention efforts. Future cost-effectiveness analyses can help to ensure that pMTCT interventions for LMICs reach their full potential by focussing on unanswered questions in four areas: local assessment of rapidly evolving HIV MTCT options; strategies to improve coverage and reach underserved populations; evaluation of a more comprehensive set of MTCT approaches including primary HIV prevention and reproductive counselling; integration of HIV MTCT and other sexual and reproductive health services.

Klausner JD, Serenata C, O'Bra H, Mattson CL, Brown J, Wilson M, Mbengashe T, Goldman TM. **Scale-up and continuation of antiretroviral therapy in South african treatment programs, 2005-2009.** *J Acquir Immune Defic Syndr* 2011;56(3):292-5.

**Abstr.** BACKGROUND: South Africa has the greatest burden of HIV-infection in the world with about 5.2 million HIV-infected adults. In 2003, the South African Government launched a comprehensive HIV and AIDS care treatment program supported by the United States in 2004 through the President's Emergency Plan for AIDS Relief (PEPFAR). METHODS: To describe the scale-up and continuation of antiretroviral therapy in South African Government and PEPFAR-supported sites in South Africa, we conducted a retrospective analysis of routinely collected program reporting data, 2005-2009. RESULTS: From 2005 through 2009, the average rate of persons initiated on antiretroviral therapy in PEPFAR-supported South African Government treatment programs increased nearly four-fold from 6,327 a month in 2005-2006 to 24,622 a month in 2008-2009 resulting in an increase from 33,543 patients on continued treatment in April-June 2005 to 631,985 patients in July-September 2009. Of those 631,985 patients receiving treatment, 65% were women. Men were more likely to be lost to follow-up (9.2% vs. 7.8%, PR 1.18, 95% CI 1.17-1.19) and more likely to die (5.6% vs. 4.1%, PR 1.36, 95% CI 1.35-1.37) than women. CONCLUSIONS: Scale-up and continuation of antiretroviral therapy in South Africa has been a remarkable medical accomplishment. Because more women receive and continue treatment, more efforts are needed to treat and retain men.

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Middelkoop K, Bekker LG, Myer L, Johnson LF, Kloos M, Morrow C, Wood R. **Antiretroviral Therapy and TB Notification Rates in a High HIV Prevalence South African Community.** *J Acquir Immune Defic Syndr* 2011;56(3):263-269.

**Abstr.** BACKGROUND: Antiretroviral therapy (ART) has been proposed as an intervention for reducing tuberculosis (TB) burdens in areas with high HIV prevalence. However, little data is available on the impact of ART on population-level TB. METHODS: Trends in adult TB case fatality and notifications were assessed before and during increasing ART coverage in a well-defined periurban community, from 1997 to 2008. Mean changes in TB rates were measured using linear autoregression models. ART coverage increased from 1% in 2003 to 5%, 13%, and 21% of HIV-infected population in 2004, 2005, and 2008, respectively. RESULTS: From 1997 to end of 2004 TB notification rates increased by an average of 187 cases/100,000/year ( $P < 0.001$ ), reaching a peak of 2536/100,000 in 2005. From 2005 to 2008, TB notification rates declined by approximately 202 cases/100,000/year ( $P < 0.001$ ). TB rates were initially stable in HIV-uninfected individuals, but declined moderately from 2005. TB rates declined in HIV-infected adults from 6513/100,000 in 2005 to 4741/100,000 in 2008. The predominant decline in TB notifications occurred among HIV-infected patients receiving ART (1156 cases/100,000/year) and was less marked in those not receiving ART (416cases/100,000/year). Similarly, TB case fatality was constant for HIV-uninfected individuals, but declined in HIV-infected individuals from 23% in 2002 to 8% in 2008 ( $P = 0.01$ ). CONCLUSIONS: In this community heavily affected by both HIV and TB epidemics, rapid and high ART coverage was associated with significant reductions in TB notifications and TB-associated case fatality.

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Taphod TA, IeDea Southern Africa Paediatric Group TI. **A biregional survey and review of first-line treatment failure and second-line paediatric antiretroviral access and use in Asia and Southern Africa.** J Int AIDS Soc 2011;14(1):7.

**Abstr.** BACKGROUND: To better understand the need for paediatric second-line antiretroviral therapy (ART), an ART management survey and a cross-sectional analysis of second-line ART use were conducted in the TREAT Asia Paediatric HIV Observational Database and the IeDEA Southern Africa (International Epidemiologic Databases to Evaluate AIDS) regional cohorts. METHODS: Surveys were conducted in April 2009. Analysis data from the Asia cohort were collected in March 2009 from 12 centres in Cambodia, India, Indonesia, Malaysia, and Thailand. Data from the IeDEA Southern Africa cohort were finalized in February 2008 from 10 centres in Malawi, Mozambique, South Africa and Zimbabwe. RESULTS: Survey responses reflected inter-regional variations in drug access and national guidelines. A total of 1301 children in the TREAT Asia and 4561 children in the IeDEA Southern Africa cohorts met inclusion criteria for the cross-sectional analysis. Ten percent of Asian and 3.3% of African children were on second-line ART at the time of data transfer. Median age (interquartile range) in months at second-line initiation was 120 (78-145) months in the Asian cohort and 66 (29-112) months in the southern African cohort. Regimens varied, and the then current World Health Organization-recommended nucleoside reverse transcriptase combination of abacavir and didanosine was used in less than 5% of children in each region. CONCLUSIONS: In order to provide life-long ART for children, better use of current first-line regimens and broader access to heat-stable, paediatric second-line and salvage formulations are needed. There will be limited benefit to earlier diagnosis of treatment failure unless providers and patients have access to appropriate drugs for children to switch to.

Taylor-Smith K, Zachariah R, Manzi M, Kizito W, Vandembulcke A, Dunkley S, von Rege D, Reid T, Arnould L, Suleh A, Harries AD. **Demographic characteristics and opportunistic diseases associated with attrition during preparation for antiretroviral therapy in primary health centres in Kibera, Kenya.** Trop Med Int Health 2011 Epub.

**Abstr.** Using routine data from HIV-positive adult patients eligible for antiretroviral therapy (ART), we report on routinely collected demographic characteristics and opportunistic diseases associated with pre-ART attrition (deaths and loss to follow-up). Among 2471 ART eligible patients, enrolled between January 2005 and November 2008, 446(18%) were lost to attrition pre-ART. Adjusted risk factors significantly associated with pre-ART attrition included age <35 years (Odds Ratio, OR 1.4, 95% Confidence Interval, CI 1.1-1.8), severe malnutrition (OR 1.5, 95% CI 1.1-2.0), active pulmonary tuberculosis (OR 1.6, 95% CI 1.1-2.4), severe bacterial infections including severe bacterial pneumonia (OR 1.9, 95% CI 1.2-2.8) and prolonged unexplained fever (>1 month), (OR 2.6, 95% CI 1.3-5.2). This study highlights a number of clinical markers associated with pre-ART attrition that could serve as 'pointers' or screening tools to identify patients who merit fast-tracking onto ART and/or closer clinical attention and follow-up.

**Address:** Medecins sans Frontieres, Medical Department (Operational Research), Brussels.

World Health Organisation. **Summary report from the Global Price Reporting Mechanism on antiretroviral medicines. Transaction prices for antiretroviral medicines and HIV diagnostics from 2008 to October 2010.** Geneva: World Health Organisation; 2011.

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World Health Organisation. **HIV self-testing among health workers. A review of the literature and discussion of current practices, issues and options for increasing access to HIV testing in sub-Saharan Africa.** Geneva: World Health Organisation; 2011.

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World Health Organisation. **Guide for monitoring and evaluating national HIV testing and counselling (HTC) programmes. Field-test version.** Geneva: World Health Organisation; 2011.

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