

USAID'S INFANT & YOUNG CHILD NUTRITION PROJECT

Selected Abstracts on HIV and Infant Feeding from the XVIII International AIDS Conference

JULY 18–23, 2010
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Photos: PATH/Evelyn Hockstein, PATH/Jay Ward, and Richard Lord

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IYCN is implemented by PATH in collaboration with CARE;
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Acknowledgments

Thank you to everyone who contributed to the development of *Selected Abstracts on HIV and Infant Feeding from the XVIII International AIDS Conference*. Peggy Koniz-Boohr, Senior Program Officer, Nutrition and Behavior Change Communication, PATH, and Kiersten Israel-Ballard, Technical Officer, PATH, initiated the project, selected search criteria, reviewed abstracts, and edited the compilation. Jay Ward, Communications Assistant, Infant & Young Child Nutrition Project, assembled the collection and compiled the abstracts. Anwar Singletary, Senior Library Associate, researched relevant abstracts and provided support in compiling the document.

The International AIDS Society is the source of the abstracts, together with the abstracts' authors.

Introduction

From July 18 through 23, 2010, more than 19,000 delegates gathered in Vienna, Austria, for the XVIII International AIDS Conference (AIDS 2010). The conference accepted 6,238 abstracts covering all aspects of HIV and AIDS. This report is a compilation of the abstracts related to HIV and infant feeding, organized by theme.

The compilation was developed following the example of a 2004 report by the University Research Co., LLC, Quality Assurance Project and the Academy for Educational Development LINKAGES Project from the XV International AIDS Conference in Bangkok, Thailand. *Selected Abstracts on HIV and Infant Feeding from the XV International AIDS Conference, Bangkok, Thailand* was developed for the United States Agency for International Development (USAID) MTCT (Mother-to-Child Transmission) Partners Working Group to facilitate a review of the most recent research on HIV and infant feeding. Similarly, this report was designed to capture the emerging research in the field of HIV and infant feeding that was presented at AIDS 2010.

USAID's Infant & Young Child Nutrition (IYCN) Project and PATH developed a list of key HIV and infant feeding search terms in order to retrieve a collection of all related abstracts. Each abstract was reviewed by editors at the IYCN Project and PATH for relevance and assigned to the most appropriate theme. The selected abstracts include oral presentations, poster exhibitions, poster discussions, and CD-ROM and electronic poster publications.

The final collection of 72 abstracts is organized into the following themes:

- ARVs and postnatal transmission
- Barriers and facilitators of PMTCT services
- Community-level PMTCT support
- Early infant diagnostics
- Health outcomes: nutritional status, morbidity, and disease
- HIV and infant feeding counseling
- HIV-free survival
- Infant feeding practices, options, and dilemmas
- Knowledge, attitudes, and practices of mothers and communities
- Male involvement
- PMTCT service delivery
- Program scale-up
- Replacement feeding and infant formula
- WHO revised guidelines: scale-up and implementation

This unique collection offers an overview of the current research presented on infant and young child feeding and HIV at the conference and can be used to identify trends and themes within the field. However, due to the subjective process of selecting abstracts and assigning themes, we encourage readers to seek further information on the XVIII International AIDS Conference website, www.AIDS2010.org. The website provides a full list of all abstract titles presented at

the conference and full abstracts and presentations for plenary sessions, satellite sessions, oral presentations, workshops, and more.

Please share this compilation with your colleagues and contact info@iycn.org with any comments or feedback.

About the Infant & Young Child Nutrition Project

The Infant & Young Child Nutrition (IYCN) Project is the flagship project on infant and young child nutrition of the United States Agency for International Development. Begun in 2006, the five-year project aims to improve nutrition for mothers, infants, and young children and prevent the transmission of HIV to infants and children. IYCN builds on 25 years of USAID leadership in maternal, infant, and young child nutrition. Our focus is on proven interventions that are effective during pregnancy through the first two years of life.

For more information, please visit www.iycn.org.

About PATH

PATH creates sustainable, culturally relevant solutions that enable communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, we help provide appropriate health technologies and vital strategies that change the way people think and act. Our work improves global health and well-being.

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ARVs and postnatal transmission

Early impact of extended prophylaxis with nevirapine on HIV acquisition among infants in Rural Rakai, Uganda

Joseph Kagaayi, Ronald Gray, Veronica Ddungu, Mariam Nabwire, Darix Ssebagala, Anthony Ndyanabo, Fredrick Makumbi, Adrian Musiige, Godfrey Kigozi, Valeria Kiggundu, David Serwadda, and Maria Wawer

Background: WHO recommends use of extended infant prophylaxis with nevirapine (NVP) as one strategy for the prevention of breast milk mother-to-child (p-MTCT) HIV transmission. We evaluated the impact of extended NVP prophylaxis for p-MTCT at six weeks of age using data from the Rakai Health Sciences Program, Uganda.

Methods: We compared the proportion of infant HIV acquisition at six weeks of life among breastfeeding mothers who were not on ART during pregnancy/lactation for three time periods: 2002/mid-2007 when mothers and infants only received single-dose NVP (sdNVP), mid-2007/mid-2008 when mothers received zidovudine (AZT) starting at 28 weeks of pregnancy and sdNVP for mother and baby, and mid-2008/2009 when mothers and infants received the mid-2007/2008 regimen plus infant prophylaxis with NVP during lactation. Chi-square tests for trend was used to compare proportion of infants with HIV-infection over the three periods.

Results: Excluding mothers who were on ART, 164 mother-infant pairs were seen in 2002/mid-2007 period, 38 in the mid-2007-2008 period, and 82 in the 2009-2010 period. The six-week infant infection rates were 11.0% (18/164) in 2002/mid-2007, 2.63% (1/38) in mid-2007/2008 period and 1.2% (1/82) in the mid-2008/2009 period (P- for trend=0.005).

Conclusion: Extended infant prophylaxis with NVP reduced infant HIV acquisition. Scale-up of extended NVP prophylaxis has the potential to substantially reduce perinatal and breast milk HIV transmission.

Abstract number: MOPE0279

Feasibility of implementing combination regimens for prevention MTCT in India

Ananta Basudev Sahu, Research Scholar, Chuck Hoblitzelle, Vinay Kulkarni, T. J. Padmaja, Prashanth Hegde, Medisetti Sowjanya, G. R. Ravi Kumar, Gvn Geetha, A. Parimala, K. P. Devraj, and Sai Subhasree Raghavan

Issues: Annually 72,900 HIV infected women become pregnant in India and without interventions 21,870 children will be born with HIV. Current national policy recommends single dose nevirapine for PMTCT and there is no published data on feasibility and effectiveness of use of combination regimens in India. Elizabeth Glaser Pediatric AIDS Foundation's (EGPAF) PMTCT program in India assessed the feasibility of implementing combination ARV prophylaxis and treatment regimens for reduction of vertical transmission.

Description: EGPAF has been implementing PMTCT program in India since 2002 primarily in the private sector, through seven NGO and one university partner in four high prevalence states (Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu) at 113 facilities. The program components include pre and post test counseling, HIV testing as per national guidelines, ARV prophylaxis and infant feeding counseling as per WHO guidelines, ARV treatment and early infant diagnosis as per national guidelines and comprehensive HIV care for the mother and baby until 18 months.

Lessons learned: A total of 4049 HIV infected women were reached with comprehensive PMTCT services from 2002 to September 2009. During the period January-September of 2009, 557 women were identified as HIV positive and 11% of those opted to terminate the pregnancy. Among those women who opted to continue pregnancy, 15% initiated ARV for their own health, 53% received combination regimens as per WHO guidelines and 17% received single dose nevirapine alone. Among those infants who received prophylaxis, 75% of them received single dose nevirapine plus AZT and 25% received only single dose nevirapine. Among infants tested, 4.8% were found to be infected.

Next steps: Implementation of combination ARV prophylaxis and treatment regimens for PMTCT is feasible; and if expanded at the national level both in public and private sectors, India can reduce rate of vertical transmission.

Abstract number: CDC0560

Impact of triple-antiretroviral (ARV) prophylaxis during pregnancy and breastfeeding compared with short-ARV prophylaxis to prevent mother-to-child transmission of HIV-1 (MTCT) on maternal disease progression: the Kesho Bora randomized controlled trial in Burkina Faso (Bobo Dioulasso), Kenya (Mombasa, Nairobi) and South Africa (Durban, Somkhele), trial registration number ISRCTN71468401

Tim Farley

Background: Triple-ARV prophylaxis during pregnancy and breastfeeding is effective in reducing MTCT with no short-term safety concerns. However, concerns remain regarding stopping prophylaxis at end of breastfeeding since ARV treatment interruptions have adverse effects on health and survival.

Methods: HIV-1-infected pregnant women with CD4 200-500 cells/mL were randomized at 28-36 weeks pregnancy to start triple-ARV prophylaxis (AZT+3TC+LPV/r to 6.5 months post-delivery or breastfeeding cessation if earlier) or short-ARV prophylaxis (AZT through delivery plus single-dose NVP). HIV disease progression to Stage 4 or CD4< 200 was monitored to 18-24 months following delivery.

Results: 793 women (386 triple-ARV, 407 short-ARV) had ≥ 1 visit after stopping ARV prophylaxis, of whom 98 progressed and 40 were censored because of treatment initiation before reaching the disease progression endpoint (20 triple-ARV, 20 short-ARV). Median duration of triple-ARV prophylaxis was 23 (inter-quartile range 13-34) weeks. Cumulative rates of disease progression 18 months after delivery were lower (logrank $P=0.004$) in women who received triple-ARV than short-ARV prophylaxis (Table - rate (standard error) [number endpoints]). However, considering time since stopping ARV prophylaxis rather than time since delivery, there was no difference between arms. [tab_01] In women with CD4< 350 at randomization, 21.3% had progressed 18 months after stopping ARV prophylaxis compared with 2.4% in women with CD4 \geq 350 ($P< 0.001$).

Conclusions: Stopping triple-ARV prophylaxis at end of breastfeeding is not associated with faster disease progression. While triple-ARV prophylaxis may delay disease progression for 6-12 months post-delivery, progression rates 18 months after stopping were similar. Given the high progression rate in women with CD4< 350, rapid access to treatment should be prioritized for this group.

Abstract number: THLBB105

Maternal plasma viral load during pregnancy predicts HIV-1-specific IFN- gamma responses in HIV-1-exposed, uninfected infants

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Background: Infants exposed to maternal HIV-1 provide an opportunity to assess potential correlates of induction of HIV-1-specific IFN- gamma responses.

Methods: As part of a phase II clinical trial in Kenya, HIV-1-positive women who planned to breastfeed their infants were randomized to short-course zidovudine plus single-dose nevirapine (ZDV/NVP) or HAART (ZDV/3TC/NVP) during pregnancy. Infant ex vivo HIV-1 gag-stimulated Elispot assays were conducted at 1, 3, 6, 9, and 12 months in HIV-1-uninfected infants using fresh PBMCs. Correlates of infant HIV-1-specific IFN- gamma responses (summed HIV-1-specific spot forming units (SFU)) were determined using generalized estimating equations with a Poisson link.

Results: Of 47 mothers of infants who remained HIV-1-uninfected at 12 months of age (23 ZDV/NVP, 24 HAART), median baseline log₁₀ plasma viral load (VL) prior to antiretrovirals was 4.57 and 4.81, and log₁₀ breastmilk VL at < 48 hours of delivery was 2.10 and 1.71 in the ZDV/NVP and HAART arm, respectively. Median breastfeeding duration was 181 days and did not differ by randomization arm. Among the 47 infants 21 (45%) had at least one positive HIV-1-specific response, and prevalence of positive responses and median HIV-1-specific SFU responses did not differ between randomization arms (Figure 1). Among all infants HIV-1-specific IFN- gamma responses were significantly associated with baseline maternal plasma VL, increasing by 0.34 log₁₀ HIV-1-specific SFU per log₁₀ increase in VL (p=0.012).

Conclusions: HIV-1-specific IFN- gamma responses in HIV-1-exposed, uninfected infants were associated with baseline maternal viral levels, suggesting that dose of infant exposure to maternal virus during pregnancy influences induction of infant HIV-1-specific responses.

Abstract number: THPE0025

Pregnancy in HIV vertically-infected adolescents: a new generation of HIV-exposed infants

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Background: As vertically infected individuals reaches childbearing age a new generation of HIV exposed infants demands attention.

Methods: Chart review of pregnancies in vertically infected girls for data before and during pregnancy, delivery and infant outcomes.

Results: Fifteen pregnancies in eleven HIV vertically infected adolescents from 2002 to 2009. Median age of HIV diagnosis was 10.1 years [IQR: 6.4-12.8]. Six grandmothers are still alive, one had received ARV during gestation. Girls started sexual life at median age of 15 years [IQR: 14-15]; median age at the time of first pregnancy was 16.9 years [IQR: 15.7-18.0]. At pregnancy diagnosis 8/15 (53.3%) were CDC C; have been followed for median 8.4 years [IQR: 6.2-10.6] and had used median 2 ARV regimens [IQR: 1-4]. Fourteen (93.3%) received ARV during pregnancy; median CD4 during pregnancy was 394 [IQR: 213-494] cells/mm³ and median viral load was 4,800 copies/ml [IQR: 502-16,000]; 54% (6/11) had undetectable viral load near delivery. Three girls had HPV infection, 2 had bacterial vaginosis and 1 vaginal candidiasis. All patients delivered by elective c-section. One newborn had severe perinatal anoxia. Median birth weight was 2,650 g [IQR: 2,430-3,250], median length was 47.3 cm [IQR: 46.3-49] and median gestational age, 38 weeks [IQR: 37-39]. All newborn received ZVD for 6 weeks of life and no one was breastfed. Twelve (80%) infants were considered HIV-uninfected, and three are still under investigation.

Conclusions: This group of adolescents under ARV for years has satisfactory reproductive health, and sexual behavior similar to that of HIV-uninfected adolescents. Since this is an experimented ARV population, new drugs may be necessary for adequate viral suppression to avoid MTCT. Follow-up of this third generation of HIV-exposed infants needs to be addressed within HIV adolescent care.

Abstract number: WEPE0455

Rates of mother to child transmission of HIV infection in Lagos, Nigeria

Chika Onwuamah, A. N. David, Olumuyiwa Salu, Azuka Okwurawe, Rosemary Audu, Oliver Ezechi, C. V. Gab-Okafor, E. O. Somefun, O. D. Oladele, R. A. Adu, D. I. Onwujekwe, and O. E. Idigbe

Background: The effectiveness of antiretroviral drugs for PMTCT has been well documented. In non-breastfed infants, the use of highly active antiretroviral therapy (HAART) has reduced the rate of perinatal HIV-1 transmission to less than 2%. The MTCT rate of the PMTCT programme in NIMR HAART clinic was evaluated over a 2 year period.

Methods: This is a retrospective review of 1315 HIV-1 DNA PCR tests performed for 844 infants seen at the HIV-exposed paediatric clinic (2008-2009). The clinic attends to babies whose mothers received PMTCT interventions (group 1) as well as those whose mothers had no PMTCT intervention (group 2). The tests were performed using whole blood specimens and the Roche Amplicor HIV-1 DNA test (v1.5).

Results: Of the 844 infants, 49.4% were females while 76.1% belonged to group 1. There were 8 sets of twins. The median age (weeks) at first testing was 7.0 (0.29-84.0), with median age for the group 1 babies of 6.0wks being significantly lower than 16.0wks for group 2 babies ($p=0.000$). Of the 844 infants, 772 (91.5%) were HIV negative. MTCT rate over the two years was 2.3% for group1 compared to 28.2% for group2. The MTCT rates for 2008 and 2009 were 3.1% and 1.8% respectively for group 1 compared to 27.7% and 28.7% for group 2 ($p=0.000$; $p=0.000$). The 8 sets of twins were all concordant HIV negative and part of group 1. The odds of a child being HIV negative after the PMTCT programme increased from 11.7 (2008) to 21.7 (2009). Of the 840 mothers 76.0% had received PMTCT interventions. The numbers of group 2 mothers decreased from 28.4% (2008) to 20.7% (2009).

Conclusions: The low MTCT rates in this review show that PMTCT interventions are effective. More efforts should be devoted to ensuring more HIV positive pregnant women have access to this programme.

Abstract number: CDC0545

Barriers and facilitators of PMTCT services

Cui Bono? ART and PMTCT access and equity for rural women and children in South Africa

Court Sprague and Vivian Black

Background: HIV, a major factor affecting women's health in sub-Saharan Africa, is responsible for almost 40% of deaths in pregnant women in South Africa. The challenge for women's health and development is to ensure timely access to antiretroviral therapy (ART) for their own health, while preventing HIV in their children (through PMTCT). By 2007, only 57% of pregnant women with HIV were able to access such services through the public health system. If current trends continue, MDGs 4, 5 and 6 will remain out of reach. This research investigated the primary set of barriers rural and urban women face in accessing ART-PMTCT: with attention to key equity considerations in maternal-child HIV service delivery.

Methods: In-depth interviews were undertaken in two provinces with 83 HIV-positive women and 32 female caregivers of HIV-positive children. Study permission was granted from four facilities; two provincial departments of health; Witwatersrand and Walter Sisulu universities.

Results: Rural pregnant women were less likely to access timely HIV testing, counselling and ART-PMTCT interventions than their urban counterparts. There were fewer ART-accredited sites in the Eastern Cape; with fewer facilities offering paediatric PCR testing, diagnosis and care. Rural women faced greater obstacles in accessing the range of maternal-child HIV services due to: greater fragmentation of services; higher costs of transport; fewer numbers of health personnel to provide testing and counselling, particularly counselling on infant feeding. The knowledge base of rural health personnel vis-à-vis PMTCT-ART was lower; and rural women received less psycho-social support.

Conclusions: HIV services exacerbate underlying inequities in healthcare, with rural women and their children failing to benefit optimally from ART-PMTCT interventions. Recommendations include delivering ART through primary healthcare clinics closer to women's homes; improving the distribution, knowledge and training of staff dedicated to HIV services; strengthening patient-provider communication and trust; building capacity for collecting, reporting on, and utilizing equity indicators.

Abstract number: TUPE0982

Factors affecting PMTCT service uptake and delivery in Taita district, Kenya

Jeannette-Abena-Cecilia, MD, MPH and Ulate-Thomas-Mutau

Issues: In 2008, HIV prevalence in Taita District, Kenya was 5.8%; with 10% of new infections through mother-to-child transmission. The Prevention of Mother-to-child Transmission (PMTCT) Kira Chasimwa Project in Taita sought to identify sociocultural and programmatic factors linked to service uptake and delivery.

Description: An operations research process was conducted in 2009 to analyze the decision-making process surrounding pregnancy, childbirth, infant feeding and service utilization. A randomized household survey of 655 women from 12 sub-districts was conducted: 535 (81.5%) were mothers of at least one child under five and 120 (18.3%) were PMTCT clients. In addition, key informant interviews and focus group discussions were conducted with men, women, support groups, health facility staff, District Health Management Team and community leaders.

Lessons learned: HIV related stigma and fear of disclosure hinders health-seeking behaviours. Women fear rejection and being abandoned. Only 19.3% of HIV+ women belonged to a support group. Only 24% of HIV+ mothers were accompanied by their partner, and only 9.5% of couples were tested together. Lack of training in male and couples counseling was identified as a major gap. Cultural expectations related to home delivery and lack of overnight staff inhibit maternity service uptake; 45.4% of respondents delivered their last child at home. Although 97.5% of respondents attended an antenatal clinic (ANC) at least once, only 48% attended 4 visits, due to economic factors and a perception that the ANC added 'no extra value', Home-based care providers played an important role in program up take and breast-feeding, but 30.6% of PMTCT clients reported mixed feeding.

Next steps: Continued partnership with government and community stakeholders to: Continued integration of PMTCT and primary care services, Strengthen male involvement, Build the capacity of community groups and ANC services to implement Operational Research recommendations.

Abstract number: THPE0603

Health system weaknesses restrict access to ART and PMTCT for women and children in South Africa

Court Sprague, Matthew F. Chersich V, and Vivian Black

Background: Despite freely-available prevention and treatment initiatives in the public health sector, HIV remains the leading cause of death in South African women and children, and prevalence in pregnant women is an estimated 30%. Using qualitative methodologies, we investigated pregnant and postnatal women's experiences of accessing ART and PMTCT at four facilities in Eastern Cape and Gauteng.

Methods: In-depth interviews with 83 HIV-positive women and 38 key informants were undertaken, with permission from Witwatersrand and Walter Sisulu universities, and provincial health departments.

Results: Research identified considerable weaknesses within operational service delivery, including: missed opportunities for testing in antenatal care due to test kit shortages; insufficient staff assigned to HIV services; late payment of lay counsellors with consequent absenteeism; and delayed transcription of CD4 results into patient files (delaying ART initiation). By contrast, individual factors undermining access encompassed transport costs; psychosocial concerns: fear of positive test result, partner's reaction, and stigma.

Conclusions: A single system- or individual-level delay reduced the likelihood of women accessing ART or PMTCT. These delays, when concurrent, often signalled wholesale denial of prevention and treatment. This research illuminates how health systems themselves serve as a social determinant of health, with health personnel acting—or failing to act—as vital connectors to testing and counselling; or as providers of support and strategies for adherence, disclosure and formula feeding. Such interventions are necessary against the backdrop of dominant sociocultural norms concerning infant feeding and entrenched HIV stigma. Too frequently, health personnel missed service delivery opportunities due to absenteeism or burnout. Recommendations from this study include: ensuring autonomy over resources at lower levels; linking performance management to facility-wide human resource interventions; developing accountability systems; improving HIV services in labour wards; ensuring quality HIV and infant feeding counselling; formal monitoring and evaluation for performance management; and, robust systems for data collection and utilization.

Abstract number: WEPE0746

Impact of GIP ESTHER support on the development of program for the prevention of mother to child transmission of HIV (PMTCT) in the urban municipality of Ouagadougou, Burkina Faso

Sawadogo Anthym, Issoufou Tiendrbogo, Der Eric Somda, and Fati Tinkodogo

Background: In 2007 an evaluation of the PMTCT decentralized strategy in 11 organizations' area of the urban municipality of Ouagadougou has shown shortcomings in terms of counseling/testing and the support for women and infants in the following areas: Qualified staff; ARV management; reagents and consumables; intra and inter-areas communication; reference and counter-reference; collection and analysis of data. GIP ESTHER provided a technical and financial support to organizations to help improve this strategy implementation within the 11 organizations concerned. GIP ESTHER supported the staff training, distributed milk, drugs nutritional foods, enhanced the collaboration between the organizations themselves, and also with health groupings. A new assessment was conducted in 2008 to assess the impact of this support.

Methods: This is a descriptive cross-sectional evaluation of 11 PMTCT sites in the following areas: human resources, equipment and materials, counseling and testing, IEC materials and data collection. The survey was done by direct observation and document analysis.

Results: The results show a better integration and quality of the PMTCT, a capacity building of staff, an improvement of screening acceptance rate (52% to 76%); nearly all parents are happy and see in this support a way out to infected and affected children's welfare; 80% of HIV positive women see their dreams to become a mother come true thanks to GIP ESTHER support; a development of references towards consulting centers.

Conclusions: GIP ESTHER support had a positive impact on the acceptance of testing and the support of the couple mother and child before, during and after delivery. Emphasis should be placed in future on the strengthening of the long-term follow-up of HIV positive women and their children.

Abstract number: TUPE0931

Investigating factors hindering progress in the prevention of vertical HIV transmission in Soweto, South Africa

Angela Cescon, Fatima Laher, Erica Lazarus, Angela Kaida, Matamela Makongoza, Robert S. Hogg, Christine N. Soon, Cari L. Miller, and Glenda Gray

Background: The scale-up of South African public sector prevention of mother-to-child transmission (PMTCT) to a dual AZT/NVP regimen in 2008 led to significant reductions in vertical HIV transmission, yet incident paediatric infections continue. The objective of this study was to identify reasons for these incident cases in the era of free PMTCT access in South Africa.

Methods: This qualitative-quantitative study was conducted at the Perinatal HIV Research Unit in Soweto from June-August, 2009. Birthmothers of known HIV-infected infants born on or after December 1, 2008 were eligible. All participants completed an interviewer-administered questionnaire which collected information regarding demographics, obstetric history, antenatal care, HIV and CD4 testing, type/duration of PMTCT regimens for mother and infant, delivery, and feeding. Women also participated in a focus group (n=10) or semi-structured interview (n=35).

Results: Participants (n=45) had a mean age of 28.7 years (SD=5.4) and mean parity of 2.4 (SD=1.1). The mean gestational age of infants at birth was 8.5 months (SD=0.7) and mean birth weight 2.7 kg (SD=0.7). Thirty-eight mothers (84%) reported exclusive formula feeding, 1 (2%) exclusive breastfeeding, and 6 (13%) mixed-feeding. Through triangulation of quantitative and qualitative data, 28 mother-infant pairs (62%) were determined to have received no or inadequate PMTCT [i.e., prenatal ARVs for < 2 months, improper length of infant AZT prophylaxis, and/or AZT prescription for HAART-qualifying (CD4 count < 200 cells/ml) mothers]. Multiple reasons were identified, including: preterm delivery (46%), prescription errors for infant (36%) and/or mother (21%), no or late attendance to antenatal care (21%), treatment refusal (18%), and treatment delays (14%).

Conclusions: While improved PMTCT regimens are available in South Africa, a variety of individual, social, and structural factors hinder progress in ensuring access to and uptake of prevention services. These data will be used to improve the operation and promotion of PMTCT services for pregnant women in Soweto.

Abstract number: WEPE0805

Prevention of mother to child transmission (PMTCT) in rural Lesotho: a cornerstone for reducing pediatric HIV/AIDS in resource-limited settings

Appolinaire Tiam, Leopold Buhendwa, Anthony Isavwa, Makaria Reynolds, and Mafusi Mokone

Issues: PMTCT is the key to halting pediatric HIV in Africa. In Lesotho, the prevalence of HIV infection among pregnant women attending antenatal clinics is 25.7%, among the highest in the world (UNAIDS 2008). The Elizabeth Glaser Pediatric AIDS Foundation team supports 104 PMTCT sites in Lesotho and began supporting the rural Khabo Health Centre in January 2008. A study of program implementation at the Khabo Health Center shows that PMTCT programs can be extremely effective at reducing pediatric HIV/AIDS in resource-limited settings.

Description: Between January and August 2008, EGPAF followed a cohort of pregnant women ages 15-44 at Khabo Health Centre. Support groups were organized for positive women to increase community support, and access to maternal, infant and child health services. Data were collected through medical record review.

Lessons learned: 235 women received ANC care, opt out HIV testing where 49(20.9%) tested HIV positive. Of the HIV positive women, 57.1% received AZT prophylaxis with the minimum package, 24.5% began HAART, 14.3% had no record of their treatment regimen, and 4.1% defaulted from care. During the period, 18 male and 12 female were born to HIV-positive mothers at Khabo while 19 mothers delivered in other health facilities. Of these, 80% mothers received AZT prophylaxis, 3.3% received HAART and 16.7% had no record of regimen given. For the infants, 93.3% received sdNVP and AZT, while 6.7% had no record of treatment. Among the HIV-exposed infants, 76.7% were exclusively breast fed while 23.3% were exclusively formula fed. DNA-PCR results at 6 weeks post delivery showed that 30/30 (100%) of children born to positive mothers were HIV-negative. Our results show that effective PMTCT is feasible in resource limited settings with excellent results. These results can be ascribed to good community follow up integrated into routine clinical services.

Next steps: Scale up this approach of comprehensive care.

Abstract number: CDC0540

Routine HIV testing and counselling and access to prevention of mother-to-child transmission services: experiences of HIV-positive women in Kawempe division, Kampala district, Uganda

Richard Hasunira, Kenneth Mwehonge, Lillian Mujuni, Beatrice Were, and Christine Munduru

Background: The Uganda Ministry of Health introduced routine testing and counselling (RTC) for expectant mothers seeking antenatal care (ANC) services in order to increase opportunities for early HIV diagnosis and access to treatment and prevention of mother-to-child HIV transmission (PMTCT) services. Kawempe, whose HIV prevalence (11.8%) is higher than the average rates for the country (6.4%) and Kampala (8%), experiences low service uptake, particularly of testing and institutional deliveries. This study assessed the impact of the RTC policy on access to PMTCT and other reproductive health services by HIV-positive women in Kawempe division.

Methods: The experiences of HIV-positive women with RTC and PMTCT were captured from 11 focus group discussions; personal interviews with 11 HIV-positive ANC/RTC clients; and key informant interviews with service providers and programme managers.

Results: + RTC has generally increased uptake of PMTCT services and women understanding of re-infection/transmission messages; free access to male condoms, septrin and basic care kits; drugs and test kits; and staff motivation.+ There were gaps in family planning services; group health talks; awareness and respect of the right to consent/decline a test; confidentiality; disclosure and safer sex negotiation; women access to ART; facility-level stigma; infrastructure; postpartum services; infant feeding messaging; and family support.

Conclusions: Many RTC/PMTCT clients have chosen not to disclose, and those who have done so have suffered verbal abuse, psychological and physical violence, divorce and/or abandonment. This has undermined service utilisation. The RTC policy needs male involvement, service integration, and more investment in infrastructure and staffing.

Abstract number: CDE1272

Stigma as an important barrier to universal access to PMTCT: model projections

Charlotte Watts, Cathy Zimmerman, Laura Nyblade, and Traci Eckhaus

Background: Uptake and adherence to PMTCT programmes remains a challenge in many settings. Fear of HIV-related stigma has been documented as a barrier for women accessing and adhering to PMTCT. To quantify its potential influence, we developed a model to estimate the impact of stigma on PMTCT programmes and vertical transmission.

Methods: A detailed literature review on stigma and potential impact on PMTCT was conducted. A spreadsheet model was developed, incorporating inputs on the proportion of women completing different steps in the PMTCT cascade. Analyses compared the number of infant infections occurring for different assumptions about the levels of stigma ('none', 'low', 'medium', 'high'), and its impact on uptake and adherence to testing, medication and exclusive breastfeeding. Calculations were repeated for different assumptions about the underlying strength of the health system (stronger, weaker), and HIV prevalence (5%, 10%, 15%).

Results: Our modelling suggests that effective stigma reduction programs could have important impacts on vertical transmission. In settings with strong PMTCT services and high levels of stigma, a large percentage (55%) of vertical infections could be due to stigma. In settings with less strong programmes, a third of vertical transmission may be due to stigma.

Conclusions: Although large gains in PMTCT service delivery have been achieved, there remain many challenges. Greater attention needs to be paid to the social factors that limit women's ability to access services and adhere to feeding guidelines. Although exploratory, our analyses suggest that reductions in HIV-related stigma could help reduce vertical HIV transmission.

Abstract number: MOPE0282

Stigma-reduction: an essential component for effective and efficient health systems? Model projections for PMTCT

Charlotte Watts, Cathy Zimmerman, Laura Nyblade, and Traci Eckhaus

Background: Stigma adversely affects people living with HIV and HIV programmes. Yet, investment in stigma reduction remains limited. To quantify stigma's potential influence, we developed a model to estimate the impact of stigma on PMTCT programmes and explore what levels of resource investment may be cost-effective.

Methods: Literature review on stigma's impact on PMTCT. A spreadsheet model incorporating inputs on proportion of women testing and adhering to medication and exclusive feeding. Analyses compared number of infant infections occurring under different levels of stigma ('none', 'low', 'medium', 'high'). Calculations were repeated for different assumptions about the underlying strength of the health system (stronger, weaker), and HIV prevalence (5%, 10%, 15%).

Results: In settings with strong PMTCT services and high levels of stigma, a large percentage (55%) of MTCT could be due to stigma. In settings with weaker programmes, one third of MTCT may be due to stigma. Using a conservative threshold of USD\$1,000 per HIV infection averted, if stigma prevention reduced transmission by 9% to 16%, investments in stigma reduction between \$1 and \$8 per woman attending ANC services would be cost-effective.

Conclusions: Large gains in PMTCT service delivery have been achieved; however greater attention needs to be paid to social factors that limit women's ability to access services and adhere to feeding guidelines. Exploratory analyses suggest that reductions in HIV-related stigma could reduce MTCT and may potentially be cost-effective. Investment is needed to fund expansion and evaluation of stigma reduction programmes.

Abstract number: THPE0853

Women's perception of facility delivery, antiretroviral drug use and exclusive breastfeeding

John Kinuthia, James Kiarie, Peris Kibera, Carey Farquhar, and Grace John-Stewart

Background: In sub-Saharan Africa where most pediatric HIV infections occur, many mothers do not deliver at health facilities, remain unconvinced about the practicality of exclusively breastfeeding for the first 6 months and may have concerns about prolonged use of antiretroviral drugs among breastfeeding HIV uninfected infants. To effectively promote these practices which can decrease risk of infant HIV infection, it is important to determine factors that discourage their use.

Methods: We conducted six focus group discussions with mothers 6 weeks after delivery at six maternal-and-child health clinics in Nairobi and Western Kenya. Each group had 8-11 participants. Topics covered included hospital delivery, breastfeeding practices, and antiretroviral drug use. Two researchers analyzed the data through a process of line by line coding.

Results: While mothers appreciated the superior medical care available at health facilities especially if complications occurred, they viewed providers as hostile, abusive or indifferent. This was contrasted with the warm, friendly and personalized care provided by traditional birth attendants. Distance and cost of transportation or maternity services were viewed as obstacles that could be overcome if a facility delivery was desired. Mothers perceived breast milk alone to be inadequate in ensuring satisfactory infant nutrition and growth during the first 6 months. They reported infants cried excessively, were thirsty, constipated and had inadequate weight gain if not given supplemental feeds and water. In discussions regarding antiretroviral drug use during breastfeeding, mothers stated their preference would be to take the drugs themselves rather than to give to their infants.

Conclusions: Our findings indicate that service-oriented factors are more of a barrier to facility delivery than structural factors such as distance or cost. Additionally, it is critical to directly address misconceptions about exclusive breastfeeding and concerns about infant antiretroviral drug use in order to promote their use and enhance adherence.

Abstract number: MOPE0275

Community-level PMTCT support

Evaluation of a community-based prevention of mother to child transmission (PMTCT) programme in a slum area of Kampala, Uganda

Dovicah Navubya, Agnes Kakanwage, Alfred Okirya, Sheila Kalenge, Stella Alamo, Rhona Hogg, and Rose Nazziwa

Background: With no intervention, it is estimated that in areas where replacement feeding is not safe or affordable, 20-45% of babies born to HIV-positive mothers will develop the virus (WHO 2006). The Prevention of Mother to Child Transmission (PMTCT) Programme recommended by the World Health Organisation aims to reduce this rate. Reach Out Mbuya is a faith-based NGO offering a holistic, community based and nurse-led model of care including medical, social, emotional and spiritual support to 3,300 people living with HIV/AIDS and their families, in a slum area of Kampala. The PMTCT Programme at Reach Out is provided by nurses, with specially trained mother-to-mother community health workers, who are themselves HIV positive, monitoring and supporting families enrolled in the programme. The programme cares for women and their families from early pregnancy until the child is 18 months old.

Aims: The aims of the study were to gather information from women enrolled in the PMTCT programme about their knowledge of mother-to-child transmission of the HIV virus, the effectiveness of the PMTCT programme and also their experience of the programme at Reach Out.

Methods: 198 women completed a questionnaire which was administered by a research assistant. Questions were translated into the participants' local language if they were not fluent in English.

Results: Findings of particular note are: 26% of participants believed that transmission of the virus is inevitable 79% of women attended without their partner, but 91% of these women would have preferred the support of their partner at their Programme visits.

Conclusions: Education among all women of child-bearing age and their partners about the effectiveness of the PMTCT programme is required to increase awareness among men and women. Further research is required to determine the barriers to male involvement in the PMTCT programme and ways of addressing these.

Abstract number: CDD0975

Supporting prevention of mother to child transmission services through a community network of mother-to-mother support: the experience of a community-based and nurse-led HIV/AIDS initiative in Kampala, Uganda

Agnes Nakanwagi, Rose Ochen, Dovicah Navubya, Keziah Namugera, Rhona Hogg, Agnes Anyaiti, and Stella Alamo

Issues: Prevention of Mother to Child Transmission (PMTCT) is a priority in controlling the spread of HIV, particularly in developing countries.

Description: Reach Out is a faith based community organization caring for 3,300 people living with HIV/AIDS (PLHA) and their families in a slum area of Kampala, Uganda. The clinical care is nurse led, supported by a network of Community Adherence and Treatment Support Workers (CATTs), who are clients trained to support and monitor fellow client by home visits. Reach Out started offering the PMTCT programme in 2004 and in 2006 started training women who had undergone the PMTCT programme at Reach Out to work as Mother-to-Mother supporters (M2Ms). These specialized CATTs provide education and support to those currently enrolled in the programme, which provides care and support to families during pregnancy and until the child is 18 months old. The model aims to increase uptake of PMTCT services, empower women and de-stigmatize HIV/AIDS within communities. M2M supporters encourage women to adhere to the antiretroviral therapy regime required to prevent transmission. They also help women to make an informed choice about infant feeding and to follow the guidelines for minimizing the risks of transmission during breastfeeding.

Lessons learned: Involving M2M supporters in the PMTCT programme has decreased the transmission rate. In the first year of this support being offered, the rate of transmission decreased from 33% to 7%, and has remained at about this level, with the last year showing a further decrease to 1.8%.

Next steps: A recent evaluation showed that only 21% of mothers were supported through the PMTCT programme by their partners but that 91% of these unsupported mothers would like their partners to be involved in the programme. M2M supporters will play a key role in identifying barriers to male involvement and developing ways to address these.

Abstract number: THPE0672

Targeted community HCT outreach to improve PMTCT uptake in Nigeria

Ador John Uniga, Paul Waibale, Nwokedi Ndulue, Emmanuel Ojonide Abbah, and Charity Obiakalusi

Issues: There are several challenges that hinder uptake of Prevention of Mother To Child Transmission (PMTCT) of HIV infection in resource constraint settings, one of which is the location of health facilities far away from the communities. This study describes how pregnant women were counseled and tested for HIV and those found positive linked to assess PMTCT.

Description: The PROACT project of management sciences for health, with support from USAID, provides comprehensive HIV/AIDS services in rural hospitals in Niger and Kogi States of Nigeria. PMTCT/HIV counseling and testing (HCT) counselors earlier trained by the project were recruited and mobilized. Twelve groups, each comprising four counselors, conducted advocacy visits to the rural chiefs and elders. Once collaboration was obtained, a town crier was chosen from the target community to announce the date, health facility, and time for the outreach. Primary/maternity health care facilities for delivery of health information were feeder sites linked to MSH-supported HIV/AIDS comprehensive care and treatment sites. On the day of the activity, a group of pregnant women were educated about prenatal care and information on PMTCT with the option to opt out of testing in line with the Nigerian national HCT/ PMTCT protocol. Three weeks prior to this activity, the number of women tested for HIV was 1159, with 26 HIV positive pregnant women detected. Within 3 weeks of targeted community activity, a total of 4,842 pregnant women received counseling and testing (417% increase) from 172 communities, out of which 105 were HIV positive.

Lessons learned: Targeted community HCT outreaches can increase access to PMTCT for pregnant women living in hard to reach communities. A 4-fold increase HCT figures for HIV positive pregnant women was observed in this study.

Next steps: We recommend this approach as a strategy for scaling up PMTCT uptake.

Abstract number: CDE1003

Early infant diagnosis

Human immunodeficiency virus type 1 early detection by using dried whole blood spot among vertically exposed infants in Bobo Dioulasso, Burkina Faso

Sandrine Estelle Gampini, Dramane Kania, Thorose Kagono, Alidou Zango, Aline Ouoba, and Diane Valoa

Background: In sub-Saharan Africa where HIV infected infants is more important, dried blood spot (DBS) can be a reliable diagnosis tool of pediatric HIV-1 infection in order to provide early ARV treatments.

Methods: From November 2009 to January 2010, dried blood spots were obtained by heel, finger or great toe stick from babies born to HIV-1-positive mothers followed up at the national program of Prevention of Mother to Child Transmission. All of those DBS were realized in peripheral antenatal clinics of Bobo-Dioulasso where they have been stored at room temperature in individual Ziplock plastic with desiccant sachet at least 2 weeks before shipped to the Virology Laboratory of Centre Muraz for routine molecular diagnosis. HIV-1 RNA extraction/quantification on DBS specimens was performed as follows: (i) with two spots (50 ml each), HIV-1 RNA was extracted with the Biomerieux method (NucliSENS MiniMAG procedure); (ii) HIV-1 RNA detection/quantification was performed using the Generic HIV-1 Viral Load assay (Biocentric, Bandol, France). The prevalence rate of HIV-1 transmission was evaluated.

Results: A total of 67 specimens collected, 9 (13%) was detected viral load. 32 infants had less 6 months, 21[6-12 months] and 14 [12-17 months]. The means duration of DBS storage at room temperature was 23 days. From 32 women treated with ARV during pregnancy, 3 babies were infected by HIV-1 (9.4%). Seven mother and baby couples were not received no ARV treatment and no prophylaxis treatment. Of them 1 infant has been infected (14.3%). Forty-eight mothers used breastfeeding, 12 mixed feeding and 6 artificial feeding with respectively 8%, 25% and 17% of HIV-1 infected infants.

Conclusions: In our context, the prevalent rate of HIV-1 infection among exposed children is high due to breastfeeding and mixed feeding practices and lack implementation of PMTCT program.

Abstract number: MOPE0006

Using Swaziland's national early infant diagnosis database to inform PMTCT program interventions

Michelle R. Adler, Maaya Sundaram, Bhekhe Lukhele, Joris Vandelanotte, Caspian Chouraya, and Fabian Mwanyumba

Background: Swaziland's 42% antenatal care prevalence puts 13,750 infants at risk of vertical transmission annually. In 2007, Swaziland began early infant diagnosis (EID) and scaled-up prevention of mother-to-child transmission (PMTCT) with short-course AZT and antiretroviral therapy (ART). We used EID program data to evaluate current PMTCT activities as a means of guiding intervention prioritization.

Methods: A national EID database for dried blood spot (DBS) samples contains demographic, PMTCT, and infant feeding information obtained from lab request forms as well as HIV DNA PCR test results. We analyzed these data to calculate receipt of appropriate PMTCT regimen, to compare effectiveness of PMTCT regimens among tested children, and to determine the correlation between breastfeeding and infant outcomes.

Results: Between September 2008 and August 2009, 8769 children < 18 months old were tested by DBS, 11.7% of whom were HIV-infected. 50.1% of ART-eligible (CD4 <= 350) and 89.4% of ART-ineligible mothers received the appropriate regimen (ART and AZT, respectively). Infants whose mothers received the most efficacious regimen for which they were eligible were less likely to be HIV infected than those whose mothers received suboptimal regimens ($p < 0.001$ for ART-eligible, $p = 0.008$ for ART-ineligible). Of the 3463 (39.5%) infants < 8w old, 8.5% were infected. While no correlation existed between feeding choice and HIV outcome in children < 8 weeks, the two were correlated for children < 18 months (breastfed=11.7% and non-breastfed=8.8%, $p = 0.004$).

Conclusions: Despite its limitations, the national EID database is an effective tool for monitoring and evaluating PMTCT trends. Many infant HIV infections could be averted by programmatic interventions focusing on provision of appropriate regimens, especially ART. The difference in HIV outcome between breastfed and non-breastfed children beyond 8 weeks of age suggests a key role for extended NVP prophylaxis in Swaziland.

Abstract number: THPE0416

Health outcomes: nutritional status, morbidity, and disease

Assessment of infant feeding practices using ICFI and its association with nutritional status among HIV-exposed infants in Rwanda

Jeanine Condo, Josephine Kayumba, Nancy Mock, Anastasia Gage, Ted Greiner, Janet Rice, Cornelia Van Zyl, Martha Mukaminega, Patricia Mukandagano, and Sowaf Ubarijoro

Background: Poor infant feeding practices are common in Africa, resulting in physical and intellectual developmental impairments. Good feeding practices are crucial, especially in the first year. HIV/AIDS has worsened the clinical and nutritional status of both mothers and their children, exacerbating high rates of malnutrition.

Methods: A prospective study of 485 HIV-exposed infants aged 6-15 months investigated the association between infant feeding practices and nutritional status. An infant and child feeding index (ICFI) was created to summarize feeding practices of HIV-exposed infants during transition period. The index reflects both quality and quantity of infant feeding, including food frequency, dietary diversity, meal frequency and source of milk. Data analysis used a cross-sectional time series model to assess the relation between ICFI and nutritional status. The assignment of anthropometric Z-scores was based on the newly updated WHO WHZ, WAZ and HAZ standards. Three measurements were taken: baseline (June 2008); two months later (August 2008); and 5 months after baseline (October 2008).

Results: At baseline 43% of infants were stunted, 8% were wasted and 23% were low in weight for their age ($Z < -2$ in all cases). Specific HIV symptoms, including mouth sores, were seen in 9% of the surveyed infants. At baseline, 5% of mothers reported still breastfeeding. The mean ICFI (\pm SD) was 8.04 (\pm 2.0). ICFI was positively associated with WLZ and WAZ. None of the anthropometric indices was associated with feeding practices that took place early in infancy such as exclusive breastfeeding, breast feeding initiation within 1 hour after birth.

Conclusions and recommendations: Despite the complexity of complementary feeding in the area of HIV, ICFI can be considered a useful tool for monitoring nutrition status at individual patient and health facility levels. This study confirms concerns about the association between poor nutritional status and inappropriate feeding practices among HIV-exposed infants.

Abstract number: THPE0811

The association between infant morbidities, HIV status, and growth failure during the first 12 months of life in Nigerian children born to HIV-infected women

Man Charurat, Prosanta Mondal, Pam Datong, Bitrus Matawal, Buki Inyang, Edwina Mang, William Blattner, and Alash'le Abimiku

Background: Studies investigating growth in infants born to HIV-infected women are limited. We sought to characterize the predictors of infant growth for HIV-infected and HIV exposed but uninfected infants.

Methods: Using data from 379 infants (51 HIV-infected and 328 HIV exposed but uninfected) and their HIV-infected mothers, z-scores in weight-for-age (WAZ), weight-for-length (WLZ), body mass index (BMI), length-for-age (LAZ), and head circumference (HC) were determined at birth and at 1, 2, 3, 6, and 12 months of age. Longitudinal changes in z-scores over age were examined by HIV infection status, co-morbidities, maternal age, maternal HIV disease status, and other covariates using mixed effects models.

Results: WAZ, WLZ, BMI, and HC increased from birth to 3 months but decreased significantly thereafter. Infant HIV infection was strongly associated with significant deterioration in WAZ, LAZ, BMI, HC but not WLZ. Among HIV exposed but uninfected infants, those with repeated diarrhea episodes had significantly lower WAZ (-0.47), WLZ (-0.61), and BMI (-0.85). Mixed fed infants had consistently lower WAZ and BMI compared to exclusively breastfed infants or formula-fed infants. Pre-term infants and those with birthweight were also associated with lower z-scores. At all time-points, infants whose mothers had lower than primary level education (vs. graduates), 15-19 years of age (vs. 30+), and had viral load at delivery >100,000 copies/ml (vs. \leq 100,000) were more likely to have lower z-scores. Maternal viral load at delivery was a strong predictor of infant growth. In multivariate analyses controlling for infant HIV infection, the strongest predictors of growth were birthweight, episodes of diarrhea, maternal age and education.

Conclusions: Our findings on the negative effect of diarrhea episodes and mix feeding on infant growth support the recommendation of exclusive breastfeeding for HIV-infected mothers. In addition, infant HIV infection, maternal age, education, and viral load are important predictors of early infant growth.

Abstract number: TUPE0303

Clinic features of severe malnourished children with and without HIV infection

Dominicus Husada, Dewi Astarsari, Nur Aisyah Widjaja, Dwiyanti Puspitasari, Siti Nurul Hidajati, Roedi Irawan, Boerhan Hidajat, Ismoedijanto Moedjito, and Parwati S. Basuki

Background: There are many similarities in the clinical features of severely malnourished children with and without HIV infection. It is important to identify the differences between HIV infected and uninfected children in order to improve case management.

Objective: To compare the clinical features of severely malnourished children with and without human immunodeficiency virus (HIV) infection in Dr. Soetomo Hospital, Surabaya.

Methods: A case control study was conducted in the pediatric wards of dr. Soetomo hospital since January 2004-July 2009. The severely malnourished children (presence of IBW < 70%) with the age < 60 months old were studied.

Results: Among 33 children, 11 (33.3%) were HIV infected and 22(66.7%) were not. The median age of these children was 3 months (interquartile range 0-6 months), and no difference was observed in the HIV status with regard to gender or age. The children showed a high prevalence of feeding difficulties and diarrhea (75.8% and 69.7%) with no significant difference with regard to the HIV status (HIV-positive versus HIV-negative children). However, the HIV-positive children were more likely to have persistent diarrhea (OR 26.667,95%CI,3.726-190.858), oral thrush (OR 17.500,95%CI,2.609-117.371), adenopathy (OR 1.571, 95%CI,1.005-2.456) and liver enlargement (OR 7.875,95% CI,1.531-40.514) than the HIV-uninfected severe malnourished children.

Conclusion: The severe malnourished children with positive HIV infection in Dr. Soetomo Hospital were more likely to have persistent diarrhea, oral thrush, adenopathy and liver enlargement.

Abstract number: CDB0044

Neutropenia, anemia and skin-rash among HIV exposed infants receiving nevirapine and cotrimoxazole compared to cotrimoxazole prophylaxis alone

Jim Aizire, Mary Glenn Fowler, Jing Wang, Elizabeth Brown, Shetty Avinash, Lynda Stranix-Chibanda, Moreen Kamateeka, Anthony Mwatha, Steven Bolton, Philippa Musoke, and Hoosen Coovadia

Background: In December 2009, WHO issued Rapid-Advice for HIV-exposed/uninfected (HIV-EU) infants to receive daily nevirapine (NVP) prophylaxis from birth until one week after all exposure to breastmilk is stopped. Given that HIV-EU infants receive cotrimoxazole (CTX) prophylaxis from 6 weeks of age, there is concern of potential increased hematologic toxicities with prolonged exposure to both drugs.

Methods: 046 protocol, version2.0, was a phase III, randomized, placebo-controlled trial assessing efficacy and safety of daily NVP prophylaxis given to breastfeeding infants from birth to 6months. In addition, all infants received standard-of-care single-dose NVP (SDNVP) at birth, +/-1week zidovudine; and daily CTX prophylaxis starting at 6weeks. Eligible Ugandan and Zimbabwean HIV-infected pregnant women were recruited after 28 weeks gestation; mother/infant pairs followed through 18 months. Infant assessments were done at birth;2,4,6,and 8weeks; and 3,4,5,6,9,12,and 18months.The DAIDS Toxicity Tables 2004, and a supplemental Cutaneous/Skin-Rash Table were used for severity grade assessment of Adverse Events. A Cox model (time to first event after 6 weeks) was used.

Results: There was a sharp decrease in absolute neutrophil counts at 6-8 weeks of age. The proportions of infants with at least one episode through follow-up of neutropenia(grade \geq 3); anemia(grade \geq 3); and skin-rash(grade \geq 2B)for the NVP/CTX versus CTX arms were: 29% vs41% (p=0.073); 26% vs12% (p=0.014) and 2% vs1% (p=0.596) respectively. After 6 weeks, time to event was similar in NVP/CTX versus CTX arm: neutropenia(grade \geq 3), [Hazard ratio (HR) = 0.92, 95% Confidence Interval (CI):0.53-1.59)]; anemia(grade \geq 3), HR=2.29, 95% CI: 0.95-5.54; skin-rash(grade \geq 2), HR=1.01,95% CI:0.41-2.47.

Conclusions: Using US based Toxicity Tables; severe neutropenia and anemia were relatively common among these African HIV-EU infants. However, extended NVP prophylaxis among infants receiving prolonged CTX prophylaxis did not appear to increase the risk of toxicities.

Abstract number: MOPE0281

Nutritional status among children aged 9-24 born from known HIV status mothers in the National PMTCT Program in Rwanda: a national representative household survey

Jeanine Condo, Placidie Mugwaneza, Alexandre Lyambabaje, and Landry Tsague

Background: Despite the high rate of breastfeeding in Rwanda (97%), appropriate feeding is still lacking among childbearing women. In addition, one third (31%) of all children during the transition period do not receive appropriate complementary foods during the last past 5 years (RDHS, 2005), resulting in high rate of malnutrition among under five children. HIV/AIDS has worsened the clinical and nutritional status of children in rural setting areas where women face difficulties in choosing appropriate feeding practices.

Methods: A cross-sectional household survey at national level was used with a stratified, two-stage cluster sampling to select at first level health facilities and at a second level HIV infected (HIV+) and HIV non infected mothers. Height and weight of children at household level were measured using stadiometers, weight using digital scales. The assignment of anthropometric Z-scores was based on the newly updated WHO standard.

Results: 22% of the 2,642 sample infants were exclusively breastfed up to six months. Forty eight percent (48%) of all children were stunted, 8% were wasted and 15% were low in weight for age. The median (standard deviation) Z scores for length for age, weight for length, and weight for age were -1.9 ('1.5), 0.4 ('1.6), and -0.66 ('1.3) respectively. However, stunting was high among HIV infected children (73%) compared to non HIV-infected (47%). Child's HIV status is the main predictor of malnutrition even after controlling for mothers and their infants' feeding options, ARVs treatment, place of delivery and number of ANC (OR=3, 95% CI [1.2, 5.7]).

Conclusions: The current study showed that malnutrition rate among HIV+ children is high compared to non-HIV infected children. There is a need to emphasize infant feeding practices and key messages in general population and in particular among HIV+ women in addition to a regular, oriented and tight follow up for adopted feeding option.

Abstract number: CDC0568

Predictors of growth in HIV-1-exposed-uninfected infants in Kenya

Christine McGrath, Ruth Nduati, Dorothy Mbori-Ngacha, Barbra Richardson, and Grace John-Stewart

Background: Growth in HIV-1-exposed-uninfected infants may be compromised by maternal illness and feeding modality.

Methods: Growth analyses were conducted using data from a previously conducted clinical trial of HIV-1-infected women randomized to breast (BF) or formula feed (FF). Multivariate linear mixed effects models were used to determine the cofactors and rate of change for WHO weight-for-age (WAZ), weight-for-height (WHZ), and height-for-age (HAZ) Z-scores in HIV-1-uninfected infants.

Results: Among 290 HIV-1-uninfected infants, 129 (44%) were in the BF and 161 (56%) in the FF arm. Despite being HIV-1-uninfected and having normal birth weights, by 2-years of age, 15% of children were underweight, 11% had wasting and 25% had stunting. The median 2-year WAZ, WHZ, and HAZ were -1.14 (IQR -1.71, -0.36), -1.42 (IQR -2.24, -0.61), and -0.47 (IQR -1.30, 0.23), respectively. The rate of change in growth velocity did not differ based on feeding arm (WAZ, $p=0.50$; WHZ, $p=0.76$; HAZ, $p=0.36$). Infant hospitalization < 3 months of age was associated with long-term decline in WAZ, WHZ, and HAZ (WAZ, $p=0.002$; WHZ, $p=0.01$; HAZ, $p=0.02$). There was a trend among mothers with higher HIV-1 viral load to have infants with greater declines in WAZ and HAZ (WAZ, $p=0.08$; HAZ, $p=0.14$) while infants with higher birthweight had a lower rate of decline in WAZ ($p=0.02$).

Conclusions: Despite being HIV-1-uninfected, growth declined during 2-year follow-up. Growth decline was associated with early hospitalization and maternal HIV-1 levels but did not differ by feeding modality. HIV-1-exposed-uninfected infants are at risk for growth compromise, and may benefit from nutritional interventions.

Abstract number: TUPE0300

HIV and infant feeding counseling

The challenges of infant feeding for HIV positive women in South Africa

Court Sprague, Vivian Black, and Francois Venter

Background: In South Africa, development gains for women and children won over two decades are now being reversed, largely due to HIV/AIDS. HIV in children is fully preventable with PMTCT interventions. However, postnatal mother-to-child transmission may be occurring in up to 50% of national cases, signaling a need for new approaches on infant feeding.

Methods: Qualitative research methods encompassed: semi-structured interviews with 83 women; 37 caregivers of children with HIV; 19 health personnel; and reviews of patients' files. Research was undertaken in four public health facilities in one rural and one urban location. Study approval was granted by the facilities, provincial health departments and Witwatersrand University.

Results: Across the four facilities, one of the weakest aspects of the PMTCT programme was in guiding mothers on infant feeding. Women struggled to make feeding choices that matched their socioeconomic contexts and accepted cultural norms (where formula feeding may be stigmatized). Many women—whether urban or rural—were practicing mixed feeding. Across the board, women received poor counselling and support on infant feeding options. Health staff did not provide 'choices'. Rather, they steered women towards their own preference, resulting in over 95% of women in one facility choosing to formula feed when they had no access to safe water. In the other rural facilities, often, no counselling was received at all.

Conclusions: National guidelines on infant feeding are overly complex, with health personnel failing to provide sufficient information and support to mothers across facilities. The practice of mixed feeding reflects the poor counselling received by women during antenatal care and labour, and, consequently, a poor understanding of feeding options and risks. Recommendations encompass: quality (simplified yet rigorous, regular) re-training of health personnel on infant feeding; checklists; public health messaging in facilities and communities; managers to take responsibility for ensuring supervision and oversight; and performance review.

Abstract number: MOPE0815

Efficacy of ART/prophylactic regimen and concerted infant feeding counselling in preventing HIV transmission from mothers to newborns in Pakistan

Shazra Abbas, PPTCT & Pediatric AIDS Specialist, Bettina Schunter, Hassan Zaheer Abbas, Ghazala Mahmud, Naveeda Shabbir, and Fozia Rafique

Background: Pakistan's Prevention of Parent to Child Transmission (PPTCT) program started in March 2007 with six PPTCT centres currently operational across the country. All centres provide antiretroviral (ARV) prophylaxis or therapy (ART) and concerted exclusive infant feeding counselling. The objective of this study was to assess efficacy of ART regimens and infant feeding counselling in preventing mother-to-child HIV transmission.

Method: During March 2007-Dec 2009, forty two HIV positive pregnant women were referred to PPTCT centres. They were given ARV prophylaxis if CD4>350mm (zidovudine from 28 week gestation, zidovudine+ lamivudine+ nevirapine during labour, zidovudine+ lamivudine, one week postpartum) or ART if CD4< 350mm and all were provided infant feeding counselling. All infants were given ARV prophylaxis after birth. Outcomes in terms of pregnancy complications, mode of delivery and peri-natal transmission of HIV were measured.

Results: Out of forty two women registered, thirty one delivered at term (74%), four had miscarriages (10%) while seven (17%) had ongoing pregnancies. ARV prophylaxis was given to twenty three (55%) while ART to nineteen (45%) women. Out of 31 deliveries, fifteen (48%) delivered vaginally; sixteen (52%) had caesarean sections; two opted for exclusive breast feeding and twenty nine women (94%) chose formula feeding (FF) after it was determined that a FF option was affordable, feasible, acceptable, safe and sustainable (AFASS). Counselling for adherence to an exclusive IF option was provided to all women for six months. Out of twenty six babies tested so far with HIV PCR at 6-8 weeks, twenty five (96%) were found HIV negative while one (4%) HIV positive.

Conclusion: An appropriate ARV or ART regimen coupled with the application of AFASS and concerted infant feeding counselling are effective tools in preventing mother to child HIV transmission.

Abstract number: MOPE0256

Facilitative quality improvement approach and its role in HIV counseling

Samuel Isiko and Josephine Birungi Gonahasa

Issues: The AIDS Support Organization [TASO] developed a Management Information System [MIS] and guidelines in 1996 to support quality management of the services provided at its service Centers. A 2008 review of performance by TASO staff in Tororo revealed that the quality of services provided was low and this led to the design of this quality improvement approach.

Description: A pilot Facilitative Quality Improvement (FQI) Approach aimed at improving quality of services was conducted in TASO Tororo for a period of five days. This included re-orientation of service providers on quality improvement guidelines and standards for quality improvement, supporting service providers identify quality gaps/issues and building capacity of leadership to use systems. It also involved in a planning meeting between the facilitating teams and supervisors, data reviews, review of files by service providers, group discussions, and presentation on quality and cost implication. Repeated assessments are done monthly to illustrate the trend of change in quality.

Lessons learned: Results of a three month assessment revealed an increasing trend of quality in information given to clients during counseling from 10% to 24% in January and March respectively. Uptake of prevention devices increased from 34% in January to 65% in March and 85% in January to 100% in March for Family Planning and condoms for sexually active discordant couples, respectively. Pregnant clients counseled for infant feeding increased from 13% in January to 48% in March. The level of commitment of service providers towards quality improvement was high due to their participation in the process. Capacity building of service providers in quality improvement and cost analysis uplifted their level of commitment.

Next steps: To apply FQI approaches to improving quality of services, leadership and building capacities of service providers to use MIS is very instrumental in quality improvement. This approach has proven successful in improving quality of services.

Abstract number: TUPE0824

Maturation of the prevention of mother-to-child transmission (PMTCT) programme in Northern Tanzania

Eli Fjeld, Ingunn Marie Stadskleiv Engebretsen, Marina Manuela de Paoli, Rachel Manongi, and Thorkild Tylleskar

Background: The PMTCT programme was introduced in Tanzania in 2000. Since then, it has expanded country wide and been scaled-up. The aim of the present study was: (1) to assess the programme after the implementation of an opt-out strategy; (2) to explore the postnatal mothers' knowledge on PMTCT; and (3) to assess the quality of the counselling given.

Methods: This study was conducted in 2007-2008 in rural and urban areas of Moshi, Kilimanjaro region, Tanzania. Mixed methods were used. In the quantitative part we interviewed 446 mothers coming for immunisation with their four weeks old infants at five reproductive and child health clinics. The urban clinics included in the study had on average implemented the programme two years earlier than the rural clinics included. We also conducted 12 in-depth interviews with mothers and nurses, four focus group discussions with mothers and four observations of mothers receiving counselling were carried out.

Results: Nearly all mothers, 417/428 (97%), were offered HIV testing: all who were offered accepted. Compared to previous studies in the area, the PMTCT knowledge had increased and the counsellors had improved confidence in their own counselling. However, the counselling was still hasty with little room for clarifications and the infant feeding counselling was often insufficient or missing. Finally, there were large differences in PMTCT knowledge between mothers attending the rural and urban antenatal clinics; the urban attendees tended to be more knowledgeable.

Conclusions: Testing for HIV at the antenatal clinic as part of the PMTCT programme has increased. The counselling, in particular the infant feeding counselling, was sub-optimal due to time and resource constraints. We interpret the knowledge gap between the urban and rural antenatal attendees caused by differences in programme maturation. In comparison with earlier studies from this region, the PMTCT programme has matured considerably and performs far better today.

Abstract number: MOPE0235

Practices of offering a child prechewed or orally prewarmed food: the NISDI perinatal (LILAC) cohort in Latin America

Aditya Gaur, Laura Freimanis-Hance, Kenneth Dominguez, Charles Mitchell, Jacqueline Menezes, Marisa Mussi-Pinhata, Mario Peixoto, Jorge Alarcon, Debora Coelho, and Jennifer Read

Background: Mother-to-child transmission of HIV has been associated with prechewing of an infant's food by an HIV-infected caregiver. We assessed awareness of prechewing and orally prewarming food before offering it to an infant amongst HIV-infected pregnant women and clinical site investigators in Latin America.

Methods: HIV-infected pregnant women at 12 sites in Argentina, Brazil, and Peru, followed as part of a prospective cohort study [the NISDI Perinatal (LILAC) cohort], were administered a screening survey during pregnancy about knowledge and practice of prechewing and prewarming of infant foods, and cautioned against these feeding practices. Survey responses were tabulated, and stratified by country. In addition, NISDI investigators were surveyed regarding their knowledge of these practices.

Results: All 401 women enrolled in the cohort during 2008-2009 were interviewed during pregnancy. 32% had heard about prechewing (51% from Argentina, 29% from Brazil, 36% from Peru), 21% reported knowing someone who prechewed for infants, and 4% reported prechewing in the past. Respondents reported having heard about prewarming of food (17%), knowing someone who did this for infants (12%), and having practiced it in the past (3%). Respondents who reported knowing someone who prechewed food were 12 times more likely to also know someone who prewarmed food. Prior to learning of the study results, few site investigators reported their patients would be aware of these feeding practices (prechewing:1; prewarming:2).

Conclusions: The practice of prechewing food, a risk factor for HIV transmission, is not uncommon in Latin America. Although less prevalent than prechewing, prewarming of food may share the same risk as prechewing in exposing the child to blood from an HIV-infected adult. Infant caregivers who are HIV-infected should be routinely cautioned against these practices. Site investigator responses underscore that healthcare providers could be missing information about cultural practices which patients may not report unless specifically asked.

Abstract number: MOPE0229

Using population-based surveys to assess programmatic outcomes for the prevention of mother-to-child transmission of HIV: infant feeding practices among HIV-infected mothers in Southern sub-Saharan Africa

Kiersten Blair Johnson and Peter Ghys

Background: The transmission of HIV infection from mother to child through breastfeeding remains a significant concern, particularly in countries with generalized epidemics. Given the importance of optimal infant and young child feeding practices to increasing the probability of HIV-free child survival among HIV-exposed infants, it is of interest to assess current infant feeding practices among HIV-infected mothers, particularly in countries where the burden of HIV infection is greatest. In countries with sufficient data, such a description could also serve to evaluate the performance of national PMTCT programmatic efforts around counseling for and support of optimal infant feeding practices.

Methods: Using bivariate and multivariate analytical approaches, we analyze Demographic and Health Surveys data from Zambia 2007, Swaziland 2006-07, Zimbabwe 2005-06 and Lesotho 2004. These countries were selected both because the risk of MTCT is high in these countries, and because the data from these surveys are sufficient to support the analysis.

Results: Preliminary results indicate that in countries that had begun rolling out PMTCT programs that included feeding counseling, HIV-positive women presumed to have known their serostatus at the time of their child's birth were more likely to avoid the practice of mixed feeding (providing a combination of breastmilk and complementary feeds). Conversely, in countries where programmatic intervention was limited to HIV testing and counseling, HIV-positive women were more likely to provide mixed feeds to their infants.

Conclusions: The results suggest that infant feeding counseling as part of a comprehensive package of PMTCT service provision does have an association in the expected direction on women's feeding practices; however, the size of the effect leaves room for improvement. Translating current feeding recommendations into counseling protocols that are well-understood by providers and women alike, especially regarding optimal feeding of infants 6 months and older, is an essential step for improving infant feeding practices among HIV-infected mothers.

Abstract number: CDC0506

HIV-free survival

Are all exposed babies really linked to care? A retrospective cohort analysis from Mumbai

Arpita Paul, Shantaram Kudalkar, Tushar Rane, and Amol Palkar

Background: Although several studies reveal the proportion of HIV positive children linked to paediatric HIV care, little is known about the vast majority of exposed babies lying beneath the tip of iceberg who remain untraced and undetected. In resource constrained setting as ours, detection of HIV infection in children occurs at 18 months.

Methods: A retrospective cohort study was carried out among babies born between 2005-2007 to positive mothers enrolled in PPTCT programme in Mumbai, to understand their follow up, survival rate and HIV prevalence at 18 months and to analyze differentials influencing the HIV infection rates. HIV positive mothers who delivered a live baby were included in the study. Information regarding address, antiretroviral prophylaxis and infant feeding were obtained from records at PPTCT centres. Positive mothers and their babies were traced at 18 months for HIV testing with the help of outreach workers working in the field of PPTCT.

Results: A total of 1601 live births to positive mothers were identified. 507 (31.7%) babies were traceable out of whom, 413 (81.4%) babies were found to be alive at 18 months (77.9%-84.66%, 95% CI). Of 413 babies, 384 (92.9%) babies accepted HIV testing and the mean HIV positivity among them was 10.7% (7.8%-14.0%, 95% CI). 314 mother baby pairs received single dose nevirapine and HIV positivity in this group was 10.6% (8.8%-12.2%, 95% CI) as compared to zero positivity among mothers on multidrug therapy. HIV positivity among breast fed babies was statistically significantly more than on replacement feeding.

Conclusions: There is substantial loss to follow up of HIV exposed babies at 18 months with a sizeable proportion of deaths occurring before being diagnosed. Major efforts directed at earlier HIV diagnosis and strengthening follow up are urgently needed. Replacement feeding and multidrug therapy have significantly influenced positivity.

Abstract number: MOPE0264

Improving child health and HIV-free survival: a review of current research on risks and benefits of infant feeding options for HIV-positive moms

Altrena Mukuria, Tom Schaetzel, Christine Demmelmaier, and Louise Kuhn

Background: International guidelines for uninfected populations have recommended exclusive breastfeeding to six months with continued breastfeeding to two years. Yet over the past ten years, many HIV-positive mothers have avoided breastfeeding or shortened their usual duration. We reviewed evidence concerning the effect of breastfeeding avoidance and early cessation on infant/child mortality and HIV-free survival in developing countries.

Methods: We conducted a literature review by performing PubMed and MEDLINE searches and reviewing citations in publications and international conference abstracts. Search terms included: infant feeding and HIV, exclusive breastfeeding, and formula feeding.

Results: Evidence from several sources indicates that breastfeeding avoidance increases infant/child mortality without benefits for HIV-free survival. Increases in mortality range from six-fold increases in program settings to two-fold increases in clinical trials. Clinical trials indicate that although breastfeeding avoidance reduces HIV transmission, HIV-free survival is not improved due to this increased mortality. A trial of early cessation of breastfeeding revealed similar results of higher mortality and no benefit for HIV-free survival. In comparison with historical controls, cessation around six months was associated with increased mortality (two studies stopped early due to the pronounced effect). Secondary analysis from one trial of early cessation showed a three-fold increase in risk of death compared to breastfeeding to >18 months.

Conclusions: While avoidance and early cessation of breastfeeding reduce HIV transmission, programmatic and clinical trial evidence suggests that they also increase child morbidity and mortality thus providing no net benefit for HIV-free survival. These data were useful in guiding new WHO guidelines that recommend continued breastfeeding for all HIV-positive mothers to 12 months in combination with HAART if CD4 counts < 350 cells/mm³ and HAART or infant prophylaxis if CD4 counts are higher. The magnitude of increase of mortality associated with avoidance and early cessation of breastfeeding indicate that continued breastfeeding is safer even when HAART is unavailable.

Abstract number: MOPE0817

Pediatric HIV-free survival following PMTCT programs in rural Malawi

Justin Mandala, Eddie Kavalo, Tiwonge Mfunne, Chiho Suzuki, Rebecca Dirks, Maureen Richardson, and Claudes Kamenga

Background: Prevention of mother-to-child transmission of HIV (PMTCT) programs routinely monitor provision of services. However, assessing the impact of these programs on pediatric HIV-free survival is strongly needed. Using routine PMTCT program data, this review measured HIV-free survival among children born to HIV-positive mothers who were provided with antiretroviral prophylaxis.

Methods: We analyzed service data for a 3 year period (2007-2009) from registers of antenatal clinics (ANC) and home visits among 15 health facilities in rural Malawi. From the ANC register we selected all pregnant women that tested HIV-positive and were dispensed with ARV prophylaxis and whose home visit information was available. The data was matched to each woman's corresponding ANC data from the home visits register including (1) child life status, (2) breastfeeding information, and (3) child HIV-testing status. Analysis was performed using SPSS 15.0 for Windows.

Results: 438 HIV-positive women were dispensed with ARV prophylaxis, delivered live babies, and had follow-up information available; of those, 38 were documented as loss to follow-up. Of the remaining 400 mother-baby pairs, 33 children were never tested, 49 were documented deceased, 318 tested for HIV. The median age at the time of testing was 15 + months; 274 children tested negative; 21 tested positive at age ≥ 15 months, and 23 tested HIV-positive at age < 15 months (thus could not be confirmed HIV-infected). Overall 99% of children were documented as ever having been breastfed and 63% for > 6 months.

Conclusions: The 15 + months HIV-free survival among children born to HIV-positive mothers who were provided with ARV prophylaxis was 74.6%. This proportion is encouraging compared to a 55% HIV-free survival rate that would be expected without PMTCT intervention in a context of prolonged breastfeeding. This finding should be cautioned, as this data review had some limitations that the presentation will discuss.

Abstract number: CDC0541

Prevention of mother-to-child transmission of HIV (PMTCT) in central Haiti: HIV-free survival at 18 months of age in a cohort of HIV-exposed infants enrolled in the Partners In Health Zanmi Lasante (PIH/ZL) program

Louise Ivers, Sasha Appleton, Kimberly Cullen, Gregory Jerome, Bingxia Wang, and Mary Smith Fawzi

Background: PIH/ZL has one of the longest track records of providing care for PMTCT in the developing world, initiating services in 1995 after AZT was known to reduce vertical transmission of HIV. PIH/ZL offers comprehensive care, including ART during pregnancy, AZT and cotrimoxazole for the infant after birth, and free infant formula accompanied with community health worker support to ensure safe feeding practices.

Methods: An observational study was performed, examining HIV transmission, death, and HIV-free survival at 18 months among infants enrolled in the PIH/ZL PMTCT program. Among 351 pregnant women/infants who came to receive care at PIH/ZL, 91 presented after delivery and 260 presented during or prior to delivery. Twins were excluded from the analysis resulting in an effective sample size of n=254.

Results: Among HIV-exposed infants in the PIH/ZL program, 91% of infants at 18 months survived and were free from HIV infection, 3.5% were HIV-positive, and 6.7% had died at 18 months. For those mothers who had exclusively bottle fed, transmission of HIV was 3.2%. Protective factors for HIV-free survival included exclusive bottle feeding and longer duration of ART during pregnancy (starting at 4 weeks before delivery or earlier).

Conclusions: Although this population was in a severe resource-poor setting, with only 52% having an improved water source and 41% having an improved latrine, the rate of mortality at 18 months was much lower than Haiti overall. This finding may be related to the additional support that women received through the community health worker (accompagnateur) program at PIH/ZL, which offered support for directly observed therapy of ART during pregnancy and safe bottle feeding after delivery. The results also demonstrate that a key bottleneck to program success is the problem of identifying HIV-positive pregnant women before delivery and earlier in their pregnancy to prevent HIV transmission among their infant.

Abstract number: CDC0549

Relationship of exclusive breastfeeding to infections and growth of Tanzanian children born to HIV-infected women

Ramadhani Mwiru, Donna Spiegelman, Christopher Duggan, Karen Peterson, Enju Liu, Gernard Msamanga, Said Aboud, and Wafaie Fawzi

Background: Exclusive breastfeeding has been associated with fewer episodes of respiratory and diarrheal diseases and better growth among children. Few studies have examined whether such benefits are observed among children born to HIV-infected women.

Methods: We prospectively determined the incidence of respiratory, diarrhea and growth morbidities during the first two years of life among children born to HIV-1 infected women in Tanzania. Generalized estimating equations for binary outcomes were used to estimate the relative risks and 95% confidence intervals for morbidity episodes. We used Cox proportional hazards models to estimate the incidence rate ratios of growth morbidities.

Results: 666 children were followed for two years. Exclusive breastfeeding was associated with 51% reduction in risk of cough [RR, 0.49 (95% CI, 0.41-0.60, $P < 0.0001$)], 56% reduction in risk of cough and fever [RR, 0.44 (95% CI, 0.32-0.60, $P < 0.0001$)], 69% reduction in risk of cough and difficulty breathing or chest retraction or refusal to feed [RR, 0.31 (95% CI, 0.18-0.55, $P < 0.0001$)], 71% reduction in risk of acute diarrhea [RR, 0.29 (95% CI, 0.19-0.44, $P < 0.0001$)], 71% reduction in risk of watery diarrhea [RR, 0.29 (95% CI, 0.15-0.59, $P = 0.0005$)], 70% reduction in risk of dysentery [RR, 0.30 (95% CI, 0.18-0.52, $P < 0.0001$)], 51% reduction in risk of fever [RR, 0.49 (95% CI, 0.39-0.64, $P < 0.0001$)] and lower risk of outpatient visit [RR, 0.43 (95% CI, 0.32-0.57, $P < 0.0001$)] during the first six months of life but had no effect in the 6-24 months of life. Exclusive breastfeeding did not significantly reduce the risks of nutritional morbidities during the first two years of life.

Conclusions: Exclusive breastfeeding is strongly associated with reductions in the risk of respiratory and diarrhea morbidities during the first six months of life among children born to HIV-infected women.

Abstract number: MOPE0107

Infant feeding practices, options, and dilemmas

Acceptability of a modified nipple shield device to reduce breast milk transmission of HIV in developing countries: a qualitative study

Kiersten Israel-Ballard, Catherine Hart, Flo Thungu, Carol Joanis, Mary Lynn Baniecki, and David Sokal

Background: In low-resource settings, breastfeeding saves babies lives, yet can be a source of HIV transmission. Family Health International (FHI) is developing a modified Nipple Shield Device (NSD) using low-cost, disposable non-woven textile disks containing a virucidal agent. This study evaluated the acceptability of using FHI's NSD to make breastfeeding safer in low-resource settings by reducing mother-to-child transmission of HIV. Current approaches rely on anti-retroviral drugs.

Methods: Qualitative data collection occurred in Nairobi and Kenya's Western Province from July to November 2009. Eleven focus group discussions were held with HIV-positive mothers (n=69), grandmothers (n=16), and fathers (n=18). In addition, ten in-depth individual interviews were conducted with nutritionists, nurses, and coordinators of prevention services for maternal to child HIV transmission. NSD prototypes and replaceable disks were used to facilitate discussions. Discussions with respondents included HIV and infant feeding, HIV-stigma, cultural beliefs about breastfeeding, how the NSD would work, and potential acceptability and introduction issues for the NSD. We analyzed the content of the discussion transcripts.

Results: Respondents felt the NSD concept was promising. They said they would have confidence to use it if results of research studies demonstrated that it prevented HIV transmission, and led to its promotion by public health authorities. Assuming it was shown effective, respondents identified the following major challenges for using the NSD: HIV-related stigma; cost of and access to replacement disks; and keeping the NSD clean to make sure that it was safe to use.

Conclusions: These data suggest that the NSD could be an acceptable approach to reduce transmission of HIV through breastfeeding in developing countries. Further laboratory and animal research is needed to determine whether the NSD could be as effective as anti-retroviral drugs. A further acceptability assessment would be needed prior to introduction to ensure that socioeconomic challenges are adequately addressed.

Abstract number: MOPE0231

Evaluating the implementation of flash-heating breast milk as part of the Infant and Young Child Feeding Program (IYCFP) in Rwanda

Diane Gashumba, Kiersten Israel-Ballard, Athena Pantazis, Cornelia Van Zyl, Patricia Mukandagano, Josephine Kayumba, and Alphonsine Nyirahabineza

Issue: Infant feeding remains a problem for women with HIV as they must balance the risks of HIV infection with the risks of malnutrition particularly during the transition period when an infant's need for complementary food can necessitate mixed feeding if replacement food is unavailable. The IYCFP was designed under the 2006 WHO recommendations for HIV-positive mothers to exclusively breastfeed for six months unless replacement feeding is acceptable, feasible, affordable, sustainable and safe. Revised WHO recommendations state that heat-treating breast milk can be used as an interim strategy during times of difficulty. Flash-heating (FH) is a simple method for home pasteurization shown to be safe, acceptable and feasible.

Description: This program is implemented at 184 sites, with fortified complementary food provided to 5,308 HIV-exposed children age 6-18 months. Enrolled women receive food aid and counseling on infant feeding, including instruction on FH. Follow-up occurs during subsequent routine clinic visits where data is collected on infant feeding choices, including FH uptake.

Lessons learned: All 5,308 women are reported to have received comprehensive infant feeding counseling, including discussion of FH. Group demonstrations have been held at four clinics, with 163 women in attendance, the majority of whom expressed that they felt FH could be an acceptable and feasible choice for them. Within the program 72 women are reported to be FHing). Among mothers who wanted to FH but did not, cultural issues and family pressure were listed as barriers. Several mothers who practiced FH visited other clinics to provide support to mothers there.

Next steps: FH can be implemented within a large-scale IYCFP, with many mothers choosing to practice FH and doing so successfully. Counseling and support for mothers choosing FH to help address challenges around stigma and disclosure, and materials, such as clean glass jars, should help more women successfully FH.

Abstract number: CDE1281

Feeding choices of HIV positive and HIV negative mothers in KwaZulu-Natal, South Africa: 2009

Sifiso Phakathi, Christiane Horwood, Lyn Haskins, Kerry Vermaak, and Nigel Rollins

Background: The United Nations Millennium Development Goal for child survival requires countries to reduce child mortality by two-thirds before 2015, but, in South Africa child mortality is increasing, mainly due to paediatric AIDS. Mother-to-child transmission of HIV during breastfeeding accounts for many infant infections annually, but replacement feeding is associated with increased mortality from malnutrition, diarrhea and pneumonia. Guidelines for prevention of mother-to-child transmission recommend using AFASS (affordable, feasible, accessible, safe and sustainable) criteria to guide feeding choices. This study describes mothers' feeding choices in light of AFASS criteria.

Methods: Interviews were conducted with mothers attending 347 primary health immunization clinics in 6 districts of KwaZulu-Natal, between May 2008 and April 2009. This analysis describes mothers bringing babies aged 4-8 weeks.

Results: Of 7806 mothers, 3119 (40.0%) reported themselves HIV positive, of whom 1853 (59.4%) reported formula feeding, 1095 (35.1%) exclusive breast feeding, and 92(2.9%) mixed feeding. Among 4687 negative mothers, 666 (14.2%) reported formula feeding, 2879 (61.4%) breast feeding, and 1035 (22.0%) mixed feeding. Of HIV positive mothers choosing to formula feed, 421/1853(22.7%) had piped water inside their homes versus 190/1095(17.4%) who chose to breastfeed. 159/1853(8.6%) formula feeding mothers accessed water from rivers versus 123/1095 (11.2%) who chose to breastfeed. 432/1853(23.3%) of formula feeding mothers had a flush toilet at home versus 190/1095 (17.4%) breastfeeding mothers and 1165/1853 (62.9%) had pit latrines, compared to 753/1095 (68.8%) breastfeeding mothers. Of 666 HIV negative mothers who reported formula feeding, 195(29.2%) had piped water and 193(28.9%) had flush toilets.

Conclusion: Unsafe feeding practices are widespread among HIV positive women, with most choosing to formula feed their infants, even when this is not feasible or safe in their home situation. Mixed feeding is uncommon among HIV positive women who breastfeed showing some uptake of counseling messages. Clearer infant feeding guidelines are required.

Abstract number: MOPE0266

Knowledge, attitudes, and practices of mothers and communities

Challenges in implementation of recommended feeding options among HIV-positive mothers in Northern Uganda

Diana Sera, Luigi Cicci, Andrew Ocerro, Bazil Musana, and Med Makumbi

Issues: Infant feeding is a crucial factor in determining growth and development of a child. But the risk of HIV transmission during breastfeeding poses a dilemma for infant feeding, particularly in northern Uganda a region where the HIV prevalence of 8.2% is higher than the national average. The Ministry of Health's policy document outlines recommendations on infant feeding for HIV-exposed babies. However, little is known about mothers' perceptions and challenges in implementing them.

Description: Northern Uganda Malaria AIDS Tuberculosis Program (NUMAT) is a USAID-funded program improving uptake and utilization of PMTCT services in the region. Among other activities, NUMAT facilitated the creation of Family Support Groups (FSGs) attached to PMTCT facilities. FSGs, among other things, assist HIV-positive mothers in making informed decision about infant feeding options. NUMAT organized Focus Group Discussions (FGDs) in 6 health facilities to collect pregnant mothers' experiences about this issue.

Lessons learned: 45 PMTCT mothers whose babies were older than six months participated. Mothers' knowledge about feeding options was adequate and they recognized the role of the FSG in providing useful information. Majority of those who chose exclusive breast-feeding (EBF) felt it was a better nutritional option for their babies; some did it for cultural motives and others for financial reasons. But they also mentioned exhaustion and breast sores as challenges. Mothers who chose replacement feeding or mixed feeding reported loss of breast-milk and disease occurrence to have determined their choice. Some discussants reported some pressure from communities and families to choose EBF, while most of them found replacement feeding feasible and acceptable but hardly affordable. Eventually, one third of mothers practiced a mixed feeding approach.

Next steps: Despite recommended feeding options, a remarkable proportion of mothers still practices mixed feeding that is associated with higher HIV transmission. Alternative PMTCT strategies should be sought to address this common situation.

Abstract number: MOPE0228

Infant feeding practices of HIV positive mothers and challenges that they experience at Gert Sibande, Mpumalanga, South Africa

Rendani Ladzani, Karl Peltzer, and Motlatso Gladys Mlambo

Background: Infant feeding practices, particularly mixed feeding, contributes to mother to child transmission of HIV. The aim of this study was to assess knowledge, infant feeding practices and attitudes of HIV positive women with infants between ages 3 to 6 months who have attended prevention of mother to child transmission (PMTCT) of HIV services at Gert Sibande.

Methods: A cross-sectional study was conducted on 815 HIV positive mothers at postnatal clinics of Gert Sibande. Trained field workers at health facilities collected data, using structured questionnaires. HIV infected women who were 18 years of age and older with an infant of 3-6 months were eligible for the study.

Results: The mean age of participants was 27.7 years (SD 6.4). Seventy-one percent knew that HIV could be transmitted during pregnancy and 78.7% knew it could be transmitted during delivery. Seventy-eight percent agreed that HIV could be transmitted by breast feeding. Half (50.6%) were exclusively formula feeding, 35.6% breastfed exclusively and 12.4% reported mixed feeding. In multivariate analysis, having a vaginal delivery, fewer antenatal care visits, infant hospital admissions, male involvement and currently pregnant were associated with mixed feeding. Being older, delivering a baby at a health care facility and knowing the HIV status of the infant, higher knowledge on HIV transmission through breast feeding, and being on ART were associated with formula feeding.

Conclusions: The PMTCT programme is having a positive impact in disseminating information to women. A significant percentage of mothers opted to breastfeed. Infant testing, follow up, social and emotional support needs attention.

Abstract number: MOPE0813

Knowledge on mother to child transmission (MTCT) and prevention of mother to child transmission (PMTCT) of HIV among newly registered antenatal mothers in Medical Officer of Health (MOH) area in Ragama, Sri Lanka 2008-2009

Himali Priyantha Perera, Chandrika Wickramasooria, Kottegodage Priyantha Julion Perera, and A. Pathmeshwaran

Background: To describe knowledge on MTCT and PMTCT among newly registered antenatal mothers in MOH area Ragama.

Methods: A descriptive cross sectional Newly registered 400 antenatal mothers attending 4 clinics, between 1st of September 2008-28th of February 2009 Used Interviewer administered questionnaire in a consecutive manner Data were entered into SPSS 16 and analysis was done using same version. Analysis included the tabulation of frequencies, percentages, and cross tabulations of variables of interest.

Results: The mean age of mothers was 27.7 (SD= 4.9) years.36.3% had education of 6-10 years. 33% had completed ordinary level examination. 46.3% had a total family monthly income between US\$100-200. 16.3% reported a total monthly family income below US\$100. 7% had an income between US\$300-400. 97.5% mothers had heard about HIV.55% of mothers knew that a woman with HIV can get pregnant, 26.3% of mothers did not know that. 18.8% did not answer. 88.3% knew that HIV virus is transmitted from mother to the child. 1.5% thought it did not transmit from mother to child. 10.3% did not answer.55.8% knew the virus is transmitted antenatally, 10% knew that transmission occurs during delivery. Only 5.5% knew about the transmission via breast feeding. 46.5% thought that MTCT cannot be preventable. 14.3% mothers thought it is preventable. Only 6% knew MTCT is reduced by treating the infected mother, 2.5% knew transmission can be reduced by avoiding breast feeding. 1.7% knew caesarean section will reduce transmission. There were statistically significant association between education and knowledge on MTCT ($\chi^2=0.125$; $p < 0.001$) and family monthly income and knowledge on PMTCT. ($\chi^2=19.6$; $p < 0.001$).

Conclusions: Study group consist of mix population in suburban area of Sri Lanka. Majority knew that MTCT of HIV. Overall knowledge on MTCT was poor. This was more obvious towards mode of transmission and on specific interventions of PMTCT.

Abstract number: CDC0554

Mitigation of early childhood HIV infections in low income countries: knowledge and practices

Fred Cornelius Werikhe, Kyamakya Moses Bwambale, and Francis Exavious Ssebiryo

Background: Mother-to-child transmission (MTCT) is the primary cause of paediatric HIV infection and accounts for 1,914 paediatric infections in sub-Saharan Africa. MTCT mainly occurs at delivery through the mixing of blood fluids of an HIV positive mother and the newly born child and unsupervised deliveries are associated with the highest risk of MTCT. HIV/AIDS in pregnancy is detected through VCT and ANC visits and treatment for mitigation and prevention of MTCT is achieved through use of Anti-Retroviral Treatment (ART).

Methods: The study was designed to establish appropriate strategies for mitigation of MTCT of HIV/AIDS by increasing access and utilization of HIV testing, care and support services, and ART to mitigate the paediatric infections. The study was carried out in a peri-urban setting among 66,425 respondents aged 15 years and above. Descriptive and linear regression analysis were used to establish knowledge and PMTCT, HIV prevention in pregnancy and decision making, and establishing ways of reaching mothers and adolescents in relation to HIV prevention, treatment of STIs and FP.

Results: ANC attendance was 66% and VCT was provided to these expectant mothers. Over six in ten women were knowledgeable of ARVs, nevirapine and exclusive breastfeeding in PMTCT of HIV. Though familiarity with HIV transmission through sexual networks was inadequate (25%), it was universal (92%) for other unsafe-sexual practices and blood transfusion at 92%, and 88% for MTCT through breastfeeding. In pregnancy, HIV/AIDS contributes 10% maternal illnesses. Over 72% of the women had supervised deliveries and decision making in seeking for HIV/AIDS care was mainly a couple consensus (43%). Anxiety for knowing serostatus limited HIV/AIDS care seeking.

Conclusions: PMTCT interventions need to be community based to enable more women utilise the services, and efficient and safe interventions aimed at PMTCT of HIV transmission through breast milk in resource constrained settings are urgently needed.

Abstract number: CDC0538

Male involvement

Comparison of four church-based PPTCT programmes in DR Congo, Nigeria and Zambia: strategies to enhance male HIV testing in antenatal care

Ginwell Yooma and David Deakin

Issues: Despite marked improvement in rates of antenatal testing of mothers in DR Congo, Nigeria and Zambia, participation by men has remained lamentably low. Male involvement in testing is important to detect discordant couples and enable both parents to understand and comply with preventive measures during pregnancy and infant feeding. Strategies other than simple invitations to enhance male antenatal testing need to be developed.

Description: Tearfund supports church based PPTCT programmes in DR Congo (1), Nigeria (2) and Zambia (1). In 2008 these programmes developed and introduced different strategies to increase antenatal testing of men and recorded uptake of testing in their antenatal registers for the first 6 months of 2009.

Lessons learned: A rural programme in DR Congo and an urban programme in Nigeria invited men to be tested for HIV by letter delivered by the pregnant partner but failed to engage more than 3% and 9% of men respectively. The second program in Nigeria sent cards and SMS text messages inviting partners to a general discussion about antenatal care of mother and child. This provided an opportunity for couple testing and incentives such as T-shirts and achieved 56% uptake of testing by men. The rural program in Zambia used a participatory toolkit developed by Tearfund partners about the importance of male involvement in PPTCT. They sensitised the community including TBAs using church-based networks and achieved 46% uptake of testing by partners of antenatal women.

Next steps: In most African countries where stigma against male testing is strong, relatively high levels can be achieved if innovative services are provided. As a result of this work new comprehensive father focused programmes are being introduced in church based programmes supported by Tearfund in 10 African countries.

Abstract number: MOPE0707

Husbands making a difference: mobilizing against paediatric HIV

Martin Mary Falana

Issues: Most women are powerless. Even when they are sensitized on knowing their HIV status in several sessions during their Antenatal clinics, they still cannot make decisions on what to do without the prior authority of their husbands. They cannot negotiate for safer sex. They cannot determine when not to get pregnant. These were observed in some of our rural community sensitisation programmes.

Description: Kids & Teens Resource Centre (K&TRC) designed a one day HIV & AIDS Sensitization Programme targeting husbands of women of reproductive age attending ante-natal clinics in 16 centres in Akure South Local Government, Nigeria. The aim is to reduce transmission to children during pregnancy and after, while breastfeeding. A curriculum was developed to accommodate basic information on HIV, how it can be transmitted, how it cannot be contracted, and importance of knowing one's HIV status, prevention of unborn children, safe delivery options, breastfeeding options and management of opportunistic infections. The programme is highly educative. They were also provided with little refreshment because of the long time involved in covering the sessions in one day. They were also given the opportunity to know their HIV status free of charge during the programme.

Lessons learned: Participatory methodologies and energizers really helped in making the men understand the issues of gender. 1,216 men reached. Husbands now accepting condoms use when spacing their children. Free HIV Counselling & Testing increased uptake of HIV tests in the communities with large number of men queuing to know their status. Men only club was established to increase access to comprehensive HIV services and continuum of care.

Next steps: Expansion of programs to other local government areas of the state. Use of members of established men only clubs as model to motivate other men in other communities. Organising of annual community awards for men who care.

Abstract number: CDC0539

Improvement of PMTCT through male involvement: experience from Mtwango Health Centre in Iringa rural district, Tanzania

Nassor Kikumbih, Witness Motta, Feddy Mwanga, Angela Ramadhani, Richard Killian, and Paul Perchal

Issues: Male involvement remains low in the reproductive health services in Tanzania including PMTCT, and yet men play a decisive role in family matters. This situation exacerbates difficulties around disclosure of HIV testing results, and partner support for accessing PMTCT services; including women adherence to ARV prophylaxis and infant feeding recommendations. Thus, improving male involvement and couples HIV counseling/testing during antenatal care (ANC) is crucial for sound PMTCT program impact. EngenderHealth through ACQUIRE Tanzania Project (ATP we piloted the male involvement strategy at Mtwango Health Center, Iringa region.

Description: Village authorities surrounding Mtwango Health Center which included religious leaders, village administration, and primary school teachers were given sensitization skills to promote male involvement. Afterwards, they held community meetings narrating male involvement as a government by law that requires males to escort their partners at ANC clinics. Partner invitation letters were given to all pregnant women who tested for HIV at ANC and L&D. At the clinics, posters were insisting first priority to be given to serve males who are accompanied with their wives. Out of 408 women who were given invitation letters, 407 (99.7%) came along with their partners and accepted for HIV testing the same day. Of these, 12% (49) were found HIV positive; hence referred to the nearby CTC.

Lessons learned: Community involvement has a role to play in increasing male involvement. ATP used multiple strategies to involve males into PMTCT clinics. We have learned that men can positively respond to participate in the PMTCT program if they are involved from the beginning of the program; otherwise they feel marginalized by inadequate access to information.

Next steps: ATP will encourage RCH clinics with male Nurses to provide health information as men prefer to receive health information from fellow men.

Abstract number: MOPE0252

Male involvement in prevention of mother-to-child transmission (PMTCT) programmes in Northern Tanzania

Eli Fjeld, Karen Marie Moland, Thorkild Tylleskar, Marina Manuela de Paoli, Rachel Manongi, and Ingunn Marie Stadskleiv Engebretsen

Background: The aim of this study was to explore the male partners': (1) involvement in the PMTCT programme and; (2) potential influence on the mothers' utilisation of the programme.

Methods: This study was conducted in 2007-2008 in Moshi, the Kilimanjaro region, Tanzania, eight years after the first introduction of the PMTCT programme in this area. We utilised mixed methods. In the quantitative part we interviewed 446 mothers coming for immunisation with their four weeks old infants at five reproductive and child health clinics. Additionally we conducted five focus group discussions with fathers and four with mothers. We also carried out 19 in-depth interviews: eleven with health personnel and four with families where wife and husband were interviewed separately.

Results: Every mother, 417/417, who was offered testing at the antenatal clinic accepted. All fathers, 327/327, who were asked, agreed that their partner were tested. The fathers had a positive attitude towards testing for HIV in general, but were reluctant to test at the antenatal clinic themselves due to the following: (1) perceived stigma; (2) unnecessary; (3) female arena; and (4) female responsibility. Women commonly expressed lack of power to make their partner go for HIV testing and to protect themselves from HIV. Condoms continued be associated with extramarital affairs, and were by most men not considered acceptable within a marital union. Further, the fathers would not accept early weaning or not breastfeeding without been given a reasonable explanation.

Conclusions: The male partners in this study were supportive of their wives' participation in the PMTCT programme, but continued to resist couple counselling and testing in the antenatal clinic, and condom use during pregnancy and the breastfeeding period. Male involvement is a prerequisite for successful prevention of MTCT and renewed efforts to make PMTCT services family friendly are urgently needed.

Abstract number: MOPE0236

PMTCT service delivery

How are HIV services integrated into postnatal care in Kenya?

Charlotte Warren, Charity Ndwiga, and Erick Oweya

Background: In Kenya, although many women test for HIV during pregnancy, more than half deliver at home and few receive postnatal care. Therefore providing continuity of care to new mothers and infants, especially those living with HIV, is problematic. An assessment of the use and existing quality of postnatal services was conducted to inform the design of an integrated package of postnatal and HIV care.

Methods: An assessment was conducted in twelve MCH clinics in Eastern Province, Kenya. Midwifery researchers observed 223 client-provider interactions at the routine 6 week postnatal visit to assess providers' compliance with 46 indicators of quality of postnatal care, including HIV services. Observers did not participate in the interaction but noted all actions on a checklist. Data were analysed using STATA. Summary scores were calculated by aggregating groups of indicators representing eight elements of PNC services: rapport; history taking; infant care; postpartum family planning; HIV/STI risk assessment; HIV counselling and testing; information on condoms; and referral to other services.

Results: Less than half of the providers built rapport with the client (greeted client; used client's name; ensured privacy and confidentiality). Although 48% of providers initiated discussion on infant feeding less than half emphasised exclusive breast feeding. Fewer than 25% of postpartum women received counselling on return to fertility and 60% were not counselled on family planning at all. Although 33% of women were asked about their HIV status, those that knew their status were more likely to be re-tested. Few providers gave information on condoms or referred clients for additional services. The mean indicator score measuring the extent of the provision of integrated PNC-HIV before introducing a strengthened package was 12/46.

Conclusions: The existing quality of comprehensive postnatal care is weak. Nevertheless there are opportunities for further integration of HIV services into postnatal care.

Abstract number: CDE0996

A novel system to link and track HIV-positive mothers and their exposed infants and allow real-time program monitoring in resource-deprived settings

Andrew Edmonds, Deidre Thompson, Francois Kitenge, and Frieda Behets

Issues: In sub-Saharan Africa, women identified as HIV+ during antenatal care are often referred for HIV care/treatment services. Challenges include suboptimal uptake, linkages, laboratory, and follow-up services. Linking HIV-exposed infant information to care/treatment of HIV+ mothers is crucial for accurate and timely infant care and to evaluate PMTCT service delivery and program effectiveness. In Kinshasa, DRC, where uptake of referral for HIV care/treatment by pregnant women is 35%, we implemented a simple system to track, relate, and report information collected between maternal care in PMTCT settings and determination of infant HIV status.

Description: The system builds upon an existing clinical data spreadsheet. The identification number of each pregnant woman is automatically listed in a separate mother-infant linking module. Maternal variables tracked include pregnancy outcome, initiation date and regimen of ART or prophylaxis, CD4 count, clinical stage, and estimated delivery date. Infant variables include date of birth/outcome, prophylactic regimen, HIV test results and turnaround times, breastfeeding status, and initiation of cotrimoxazole and ART. Automated tools prompt for follow-up appointments. A bar graph displays results across the care cascade, depicting final HIV outcomes and numbers of infants appropriately started on cotrimoxazole and ART.

Lessons learned: The system was successfully applied in a resource-deprived setting and revealed implementation.

Issues: among 560 HIV-exposed infants, 53% were untested in the first six months, 45% lacked a final HIV result, 12% did not initiate cotrimoxazole, and 54% did not initiate ART if positive. We estimated HIV transmission risk by maternal PMTCT regimen (ART, single-dose nevirapine, none) and discussed factors influencing transmission estimates. The system led to improved patient care and follow-up, and is critical for effective linkages in referral settings.

Next steps: The system will be used for further program improvements through target setting, and real-time monitoring of PMTCT delivery and care of infants and mothers.

Abstract number: CDE1065

Missed opportunities on HIV maternal to child transmission prevention in Rio de Janeiro, Brazil

Carla Sepulveda, Thalita Abreu, Ricardo Hugo Oliveira, Lucia Evangelista, Ana Cristina Frota, Ellen Costa Santos, Pamella Vianna de Souza Costa, Ana Luiza Favila, Susie Andries Nogueira, and Cristina Barroso Hofer

Background: In 1996, the Program for HIV Maternal to Child Transmission Prevention (MCTP) was launched in Rio de Janeiro. Its recommendations include that all pregnant women have HIV test offered, if infected they start antiretroviral therapy (ART), use IV zidovudine (ZDV) during labor and the infant receive oral ZDV for 6 weeks. Despite of it all, Instituto de Puericultura e Pediatria Martagão Gesteira (IPPMG) HIV Clinic, a pediatric state reference center, is still receiving a considerable number of HIV-infected infants and children. The aim of this study is to evaluate the HIV MCTP main gaps in Rio de Janeiro.

Methods: This is a case control study of the prospectively collected data from prenatal care of all HIV vertically exposed and infected children born from 1996 to 2007, followed at IPPMG. HIV vertically infected children were defined as cases and the non-infected, but HIV vertically exposed children as controls. Bivariate analysis were performed with Student T and Chi-square tests. Variables with p-value < 0.15 were inserted in a logistic regression analysis, and period of birth 1996-2000 or 2001-2007 was forced in the model.

Results: 185 cases and 822 controls were followed. The variables independently associated with HIV vertical infection were younger maternal age (OR=0.79, 95%CI= 0.78-0.87, per year), use of ART during pregnancy (OR=0.16, 95%CI= 0.05-0.57), and breastfeeding (OR=12.15, 95%CI= 4.20-35.14).

Conclusions: Factors associated with a best prenatal care (use of ART), as well as perinatal care (avoid breastfeeding) must be improved in Rio de Janeiro, even adjusting for year of birth. Even adjusting for several prenatal and perinatal care factors, younger maternal age was a risk for HIV vertical transmission, and must be studied with other maternal characteristics.

Abstract number: CDC0432

Operational performance of PMTCT services among pregnant women in Mwanza City, Tanzania

Rebecca Balira, Kokulengya Jackson, David C. Mabey, Helen Weiss, David A. Ross, and Deborah Watson-Jones

Background: With opt-out HIV testing in antenatal care, HIV testing and PMTCT coverage are increasing, but not all HIV-positive women and infants successfully receive ARVs for PMTCT and adhere to infant feeding recommendations. We studied the proportion of pregnant women who received various PMTCT services during antenatal care and after delivery.

Methods: A cross-sectional study was conducted among all pregnant women admitted for delivery at the two largest hospitals in Mwanza city during one month in 2008. In addition, over a five months period all HIV-positive women who delivered at the two sites and who were eligible for the study were followed for four months post-delivery to collect data on infant-feeding practices.

Results: In total, 903 (79%) pregnant women who delivered in hospital were offered an HIV test for PMTCT and 877 (97%) reported receiving their HIV test results. Overall 403 HIV positive women were recruited into the cohort. Of these, 60% were newly diagnosed as HIV-positive at the ANC, 17% were diagnosed at delivery, while 23% had been diagnosed previously. 76% of the 356 women who were diagnosed before delivery received ARV medication and 73% reported using the medication as required. Among HIV-positive women who had live-births, 65% reported that their infants received ARV for PMTCT before discharge and 52% reported that they had received infant feeding counselling. During the monthly post-partum follow up, 44%, 44%, 43% and 41% of women reported never used mixed feeding at 1st, 2nd, 3rd and 4th visit respectively. Overall 41% of HIV-positive women who were tested before delivery successfully completed all the recommended steps in PMTCT programme.

Conclusions: While VCT uptake is high for pregnant women attending ANC and who deliver in hospital, efforts need to be targeted at supporting HIV-positive women through all subsequent steps in PMTCT interventions.

Abstract number: CDE1004

PMTCT activities in Armenia

Samvel Grigoryan, Arshak Papoyan, and Eduard Hovhannisyan

Issues: PMTCT provision in Armenia is one of the priorities of the National AIDS Programme in the country. PMTCT services for recent years have been provided by GFATM support.

Description: Before launching of the National AIDS Programme only 3 HIV counseling and testing (CT) sites provided their services in Armenia, none of them were functioning at antenatal clinics. By the end of 2009, there were 155 CT sites functioning countrywide, including 79—at antenatal clinics. As a result, the number of pregnant women who underwent HIV testing has been sharply increased in recent years. Thus, if in 2004 total of 3,219 pregnant women were tested for HIV (37,520 births), in 2009 this number was increased up to 40,679. The specificity of provision of CTs services in Armenia is that these services are mainly integrated into existing health care system.

Lessons learned: HIV detection was improved among pregnant women (38 HIV cases were registered among pregnant women in 2005-2009), which allowed providing mother-to-child HIV transmission prevention, including ARV prophylaxis, cesarean section and ARV syrups and formula provision to infants. 3 of the 38 HIV-positive pregnant women decided to abort their pregnancies, 3 are receiving ARV prophylaxis, 32 have been provided with ARV prophylaxis. 32 infants were born to HIV-positive women by the end of 2009, of whom 15 were tested for HIV for making final diagnosis. 17 infants have not been tested for HIV yet, they are under follow up. One of the tested infants was diagnosed with HIV.

Next steps: Efforts should be made to ensure universal access to HIV prevention, treatment, care and support, including PMTCT. Advocacy should be carried out to provide sustainable financing of PMTCT activities.

Abstract number: CDC0565

PMTCT services and interventions—coverage and utilization: a cohort analysis in Gujarat, India

Urvish Joshi, Sudeshna Bhojiya, Amim Kadri, and Pradeepkumar Gupta

Background: MTCT is the largest source of HIV in children. Vertical transmission risk reduces from 33% to 3% with effective PMTCT interventions. NACP III has got an objective of testing all pregnant women for earliest linkage with PMTCT. Study was carried out to find out PMTCT service coverage, drop-outs, interventions efficacy with other determinants.

Methods: ANCs registered and tested for HIV at clinics are given pre and post-test counseling at ICTCs. HIV+ ANCs are additionally linked to other services and followed-up for institutional delivery, intrapartum sdNVP, infant nutrition and testing. HIV+ ANCs and their exposed children since inception of services in 2005 and subsequently delivered till June 2008 in Gujarat's category A, B districts constituted the study cohort.

Results: 259622 pregnant women registered, 72.1% were counseled pre-test, 83.4% of them were tested, 74.4% received post-test counseling. 541 ANCs were detected HIV+. 45.5% of them delivered institutionally, 12.8% were unregistered. 12.1% were caesarian section and 66% delivered vaginally. 96.8% were live births, sdNVP was given to 92.13% mother-baby pairs. 35% children could be traced till 18 months, 89% were alive. 90% of them were tested, 3 were found HIV+. 3 were tested HIV+ of 9 children not receiving sdNVP-MBPair. 2 HIV+ children were delivered vaginally, 2 received mixed feeding, 2 children's mothers were not on ART antepartum despite of recommendation.

Conclusions: To improve access, reduce drop-outs, PMTCT services should be provided to all ANCs with HIV counseling first and then medical consultation. To encourage institutional deliveries, EDD-based tracking, post-test counseling must be ensured. Postnatal counseling should not be neglected. Nil seropositivity in all exposed children receiving MB pair shows the regime efficacy. When it's pursued as present study, other factors also become pertinent. Simple intervention strategies like sdNVP can go a long way in reducing vertical transmission in developing countries.

Abstract number: CDC0531

Post-exposure prophylaxis of breastfeeding HIV-exposed infants with antiretroviral drugs to age 14 weeks: updated efficacy results of the PEPI-Malawi trial

Taha Taha, Newton Kumwenda, Donald Hoover, Qing Li, Linda Mipando, Kondwani Nkanaunena, Fatima Zulu, Linly Seyama, Michael Thigpen, Allan Taylor, Mary Glenn Fowler, and Lynne Mofenson

Background: PEPI-Malawi results through August 2007 demonstrated 14 weeks of infant post-exposure prophylaxis is safe and reduces postnatal transmission by ~50% at 9 months (primary endpoint). This analysis updates and extends efficacy estimates through age 24 months when study ended in September 2009.

Methods: Infants of breastfeeding HIV-infected women were randomized at birth to: (A) single-dose nevirapine (NVP)+1 week zidovudine (ZDV) (control); (B) control+extended daily NVP (ExtNVP) through 14 weeks; (C) control+extended daily NVP+ZDV (ExtNVP/ZDV) through 14 weeks. Kaplan-Meier analyses estimated rates of HIV infection, death and HIV infection or death. Rates at 14 weeks, 9 months and 24 months are presented.

Results: This analysis includes 3,121 infants uninfected at birth: 1002 control, 1069 ExtNVP, and 1050 ExtNVP/ZDV. By 14 weeks, HIV infection rates were 8.4% (95%CI 6.8-10.4) in control, 2.5% (95%CI 1.7-3.7) in ExtNVP, and 2.5% (95%CI 1.7-3.7) in ExtNVP/ZDV. Table shows rates at 9 and 24 months. [tab_01]

Conclusions: Final results confirm that 14 weeks of daily infant antiretroviral reduce postnatal HIV infection by 70% at 14 weeks and results in an absolute reduction in infection of ~4-5% at age 9 and 24 months compared to control. Continued transmission after prophylaxis stops suggests prolonged infant prophylaxis is needed.

Abstract number: THPE0161

Prevention of mother-to-child transmission of HIV infection (PMTCT) at the Botswana-Baylor Children's Clinical Centre of Excellence (BBCCOE) in Gaborone, Botswana: 2009 cohort

Michael Tolle, Andres Gomila, Tafireyi Marukutira, Vincent Mabikwa, and Gabriel Anabwani

Background: The United Nations has called for universal PMTCT coverage ($\geq 80\%$) and an HIV-free generation by 2015. Botswana has achieved this target, and has seen a substantial reduction in the number of new infant infections. Yet there remain mothers who deliver infants without the benefit of PMTCT interventions. The BBCCOE cares for, counsels and tests several hundred infants born to HIV-infected mothers annually. This study describes the BBCCOE's 2009 PMTCT experience.

Methods: A review of the PMTCT coverage and infant HIV testing (DNA PCR) data from infants enrolled at the BBCCOE in 2009. PMTCT coverage=mother or infant having received any portion of Botswana's PMTCT approach (maternal-HAART for mothers with WHO stage III/IV or $CD4 < 250$, otherwise AZT from 28 weeks+sdNVP (if < 4 weeks of AZT or HAART); infant: sdNVP+4 weeks AZT).

Results: Of 384 infants with known PMTCT status, 322 (83.9%) had received PMTCT, 62 (16.1%) had not. 216 PMTCT-receiving had a known DNA PCR result: 193-negative (89.4%), 23-positive (10.6%). 43 PMTCT non-recipients had a known DNA PCR result: 13-negative (30.2%), 30-positive (69.8%). Whether infants had been exposed to breast milk was not recorded in the reviewed data.

Conclusions: While the patient cohort at the BBCCOE may be non-representative of Botswana in general, the BBCCOE cohort's high rate of PMTCT coverage is consistent with Botswana's high national rate. Infants who have received PMTCT are much less likely to acquire HIV. Yet even within the cohort of infants receiving PMTCT, there remains an appreciable HIV infection rate, much higher than $< 2\%$ achievable with a full package of PMTCT interventions, including HAART for all HIV-infected pregnant women—an approach now being piloted in Botswana. Eliminating missed opportunities for PMTCT, and ensuring the most effective PMTCT strategies are universally available, will help Botswana achieve even lower rates of perinatal HIV transmission.

Abstract number: MOPE0263

Second babies delivered by HIV positive mothers accessing care in a prevention of mother-to-child transmission programme: characteristics and HIV transmission rate

Regina Oladokun, B. J. Brown, O. Awolude, O. Adesina, A. Oladokun, A. Roberts, K. Osinusi, and I. F. Adewole

Background: Prevention of Mother-to-child Transmission (PMTCT) programmes have grown and improved in service delivery and as such may be recording subsequent deliveries among clients. The aim of the study was to determine the interventions utilized characteristics and proportion of mothers who delivered second babies in the PMTCT programme. Rates of HIV transmission between the first and second babies were also compared.

Methods: Longitudinal study involving mothers who had accessed care and delivered two babies in the University College Hospital, Ibadan PMTCT programme. The socio-demographic characteristics, ARV prophylaxis in mother and babies, mode of delivery, infant feeding practices and HIV status in the 1st and 2nd babies were recorded.

Results: Out of 1767 mothers enrolled, 115 (6.2%) had second babies in the programme. Their mean age at delivery of first babies was 28.4yrs (SD 3.8yrs) and 30.9yrs (SD 4.2yrs) for second babies. One hundred and six (92.2%) mothers had disclosed their status to their partners and 42 (36.5%) partners were positive. First babies numbered 118 including 3 sets of twins while second babies were 120 and included 5 sets of twins. The mean birth interval between the deliveries was 2.4 ±1.1years. Fifteen (12.7%) mothers did not receive ARV prophylaxis during the first delivery compared to 8 (6.8%) in the second and HAART in pregnancy increased from 29(24.6%) to 67 (55.8%). ($p = 0.00$). Elective Caesarean delivery also increased from 22 (18.6%) to 28 (23.3%). ($p = 0.32$). There was no ARV prophylaxis in 12 (10.2%) of the first babies compared to 7 (5.8%) of second babies. Infant feeding practice both groups was similar. The HIV transmission rates were 13.5% and 4.4% in first and second babies respectively.

Conclusions: The rate of HIV transmission reduced among second babies delivered in the programme which may have resulted from improved access to effective PMTCT interventions.

Abstract number: MOPE0278

Strengthening PMTCT in antenatal and postnatal care services in KwaZulu-Natal

Hlamalani Mabasa, Saiqa Mullick, Edwin Mkwanazi, Mhlahlandlela Mabena, Doctor Khoza, and Mantshi Menziwa

Background: HIV prevalence in pregnant women is 28% nationally with KwaZulu-Natal province having the highest (37.4%). Maternal mortality has increased by 20.1% from 2005 and AIDS is the leading cause (43.7%) (Saving Mothers, 2007). KwaZulu-Natal province has the highest Maternal Mortality (340/1000). Population Council in collaboration with KZN provincial DOH developed evidence-based antenatal (ANC) and postnatal care (PNC) policy and guidelines. The policy and guidelines integrate comprehensive HIV into ANC and PNC care and establish a postnatal framework for strengthening PMTCT. This is an evaluation of the guidelines on the quality of PMTCT.

Methods: A pre-post intervention design was used. The study was conducted in three districts Amajuba, Zululand and Umkhanyakude (3 facilities per district). Structured client-provider observations of ANC first visit, repeat visit and postnatal visit were also conducted. Assessments of quality of care were conducted before and after training of health care providers.

Results: Antenatal observations revealed a significant increase in clients that recently had a CD4 count test from 42% to 58%. Provider asking clients about knowing partner's HIV status increased from 41% to 59%. Discussion on infant feeding also increased from 42% to 58%. Provider mentioning PMTCT increased significantly from 40% to 60%. Results showed an increase in discussing the following during PNC: PMTCT (28%-31%), HIV testing (39%-42%), finding out if client had CD4 count testing (22%-27%), multiple sexual partners (16%-25%) and asking if partner's status is known (8%-14%). Onsite PCR testing increased significantly (12%-88%) and referrals for PCR testing (25-74%). Prescription of bactrim for the baby also increased from 3%-15%.

Conclusions: The results suggest that the training on the guidelines was effective in improving the quality of care and strengthening PMTCT services in ANC and PNC settings.

Abstract number: CDE1008

Uptake and outcomes of a prevention of mother-to-child transmission (PMTCT) program for 382 mother-child pairs in Zomba district, Malawi

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Background: HIV prevalence among pregnant women in Malawi is 12.6%, and mother-to-child transmission is a major route of transmission. As basic PMTCT services have expanded recently, we sought to determine uptake of services, HIV-relevant infant feeding practices and mother-child health outcomes.

Methods: A matched-cohort study of HIV-infected mothers 18-20 months following their estimated delivery date in Zomba District, Malawi. All HIV-infected mothers from 15 rural public PMTCT facilities delivering 18-20 months prior to data collection were identified from registers. For every HIV-infected mother, the next registered HIV-uninfected mother was identified as control.

Results: 720 mothers were identified; 10 (9 HIV-infected, 1 HIV-uninfected) mother-child pairs were both confirmed dead. 168 HIV-infected and 214 HIV-uninfected were found and interviewed. 15/163(9%) mothers denied their HIV+ status at the time of interview. 17/163(10%) of HIV-infected mothers were on ART during pregnancy and single-dose NVP (sdNVP) was taken by 117/163(72%) HIV-infected mothers at labor onset and by 114/163(70%) babies within 72 hours after birth. HIV-uninfected mothers breastfed longer than HIV-infected mothers (mean 18.5 vs. 13.5 months, respectively; $p < 0.01$); 53% of HIV-infected and 96% of HIV-uninfected mothers breastfed >18 months ($p = 0.01$). 27/163(19%) of HIV-infected mothers started ART at a mean of 9 months into the breastfeeding period. 52% of exposed children never returned for follow-up and testing. 29/168(17%) exposed, 10/214(5%) non-exposed children and 5/168(3%) HIV+ mothers had died. 112/139(81%) of surviving exposed children were tested at the time of study: 16/112(14%) tested HIV+, 2/16(13%) were on ART. HIV-free infant survival was 123/168 (73%; 95% CI 66-80).

Conclusions: PMTCT services in Zomba district achieved moderate uptake of NVP for mother and infant, but follow up of exposed infants was poor. Improved HIV-free infant survival may be achieved by optimizing initiation of HAART during pregnancy and breastfeeding, and improved post-natal follow-up.

Abstract number: WEPDE103

Program scale-up

Accelerating scale up of PMTCT and paediatric HIV care in high HIV burden countries: 2009-2010 focus in Eastern and Southern Africa region

Andrew Agabu, Janet Kayita, Dorothy Mbori-Ngacha, Besrat Hagos, and David Alnwick

Issues: UNAIDS and its co-sponsors committed to elimination of paediatric HIV (PAIDS) by 2015. To realize this compelling goal, prioritization and intensified support to accelerate PMTCT scale up in Eastern and Southern African Region (ESAR) countries accounting for the bulk of new HIV infections in children is essential.

Description: A regional interagency experts' consultation on PMTCT and PAIDS was held in May 2009 to agree on a strategic direction for accelerating progress in PMTCT and PAIDS care. Participants included stakeholders representing governments, UN agencies, development and implementing partners. The consultation was driven by detailed stocktaking and diagnostics of bottlenecks and opportunities using regional and country specific data from 16 high HIV burden countries.

Lessons learned: There are encouraging trends indicating that elimination of new HIV infections in children is feasible. In 2008 maternal ARV prophylaxis, infant ARV and PAIDS treatment coverage rates were 58%, 40% and 47%, respectively. However, huge disparities in coverage exist across and within countries with comparable HIV epidemiology and health care infrastructures. This is compromising achievement of the UNGASS 2010 targets. Markers of good success identified include: effective government leadership and partner coordination; effective health systems, integration of PMTCT/PAIDS in maternal and child health settings; task shifting; decentralization to primary health facilities and strong programme monitoring and evaluation.

Next steps: The meeting reached consensus for renewed regional commitment and identified three key targets for 2010: reaching 80% of pregnant women with comprehensive PMTCT; doubling the number of children on ART; closing the gaps across the PMTCT cascade. A regional inter-agency task team was established to provide leadership and coordinate support to priority countries focusing on: advocacy for achieving the targets; adoption of decentralized service delivery; intensified strategic and technical support addressing existing gaps; leveraging resources for health systems strengthening (including community); streamlining coordination among governments & implementing partners.

Abstract number: CDE1121

Assessing four prong strategies to improve ART quality and coverage for preventing vertical transmissions in six countries: case study on the failures and challenges in policy development and implementation of prevention of vertical transmission programmes in Argentina, Cambodia, Moldova, Morocco, Uganda and Zimbabwe

Attapon Ngoksin

Issues: Challenges in implementation of prevention of vertical transmission programs in 6 countries.

Description: The study focuses challenges in PVT to reach the very group it was designed for—HIV positive pregnant women. One of the key reasons for failure is the emphasis has been narrowly focused on providing ART to newborns and not on the other essentials. Civil society activists in six countries conducted on-the-ground research used a standardized research template to interview 15-25 key informants in each of their countries, including current and former MoH, ministries, representatives of medical organizations aids activists who are the health consumers themselves. The study is aimed at analyzing the situation based on four-prong strategy—the comprehensive approach adopted in 2003 by the UN.

Lessons learned: (a) the emphasis of governments and UN agencies has been on providing ART to newborns rather than essential prevention and treatment services for women and girls; (b) there is dangerous inconsistency between national policies and actual practice and the UN's global infant feeding guidelines; (c) health services are not designed or delivered to meet the needs; (d) inadequate integration between PVT programs, ART services, maternal and child health. In Argentina, many pregnant women visit health centers in their late pregnancy while a majority of births occur outside medical facilities in Cambodia.

Next steps: With national governments and other international institutions acknowledging the importance of the problem, the community has called to measure and report progress at UNGASS in June 2010, increase access to triple-dose prophylaxis regimen, revise national infant feeding policies, increase funding for PVT, better integrate PVT programme with family planning, sexual and reproductive, maternal and child health. This presentation will discuss the particular experimental challenges and how they overcome-including specifics on how the six teams pursue their follow up advocacy in different settings.

Abstract number: MOPE0247

Scaling up of PMTCT programs in high HIV prevalence areas: a case of TASO Masaka in Uganda

Peterson Gordon Clinical Office Tugume, Williams Ssenkirikimbe, Josephine Birungi, and Livingstone Ssali

Issues: The uptake of PMTCT is low in most high HIV prevalence areas despite high fertility rates, coupled with under utilization of family planning services. TASO Masaka has about 6800 active clients, of whom 65% are women in the child bearing age. TASO's mission and strategic goal is "Prevention of HIV transmission" Efforts have been made to integrate PMTCT services into the TASO comprehensive care package.

Description: Women of child-bearing age are routinely screened for pregnancy, while all female partners of male TASO clients are offered free HIV counseling and testing. Communities are sensitized about PMTCT through music, dance and drama. Men are encouraged to accompany their pregnant partners to antenatal clinics, home visits to follow up all the pregnant women is done monthly to educate them on STI prevention and early treatment, nutrition education and infant feeding options. Referral linkages have been established with the government health units and mission hospitals. Exposed infants undergo PCR tests for HIV within 6 weeks post-natal.

Lessons learned: Of the 672 women who tested positive for pregnancy, 306 were enrolled on to the TASO PMTCT program while 59 were referred to their nearest health facilities. Out of the 44 babies born to HIV positive mothers only 3 have tested positive, reflecting a 93% success rate in prevention of mother to child transmission of HIV in the TASO program. Exclusive replacement feeding may not be feasible in poor rural settings as evidenced by high rates of malnutrition in even HIV negative infants who were not breastfed. Male involvement is key to a successful PMTCT program implementation. Sustained community sensitization can help to minimize negative cultural attitudes towards PMTCT.

Conclusion: PMTCT programs can be implemented successfully in resource if there is male involvement, couple counseling and testing as well as effective referral linkages for early HIV diagnosis, care and treatment.

Abstract number: CDC0530

Virtual elimination of mother-to-child transmission of HIV in low- and middle-income countries: achievements, missed opportunities for improving program effectiveness and the way forward

Mariam Jashi, Rene Ekpini, Chewe Luo, Anirban Chatterjee, Priscilla Akwara, Michel Beusenberg, Yves Souteyrand, and Chika Hayashi

Issues: Low- and middle-income countries have demonstrated tremendous progress in scaling-up services for preventing mother-to-child-transmission of HIV (PMTCT). In 2008 45% of pregnant women living with HIV (PWLHIV) received antiretrovirals for PMTCT up from 10% in 2004. However more significant progress is still needed and success of the global response will largely depend on performance of 20 countries accounting for 89% of 1,400,000 PWLHIV worldwide and 90% of the global gap towards reaching 80% coverage of PMTCT services.

Description: The abstract describes accessibility, utilization and quality of PMTCT services and the missed opportunities for averting new paediatric HIV infections and child deaths in the 20 countries. The countries have increased facility-based coverage of PMTCT services by 77% from 13048 facilities in 2006 to 23070 in 2008. Population based uptake of PMTCT services was also expanded from 189,137 (15%) to 550,226 (44%) PWLHIV reached by antiretrovirals in the same period. However the progress should be assessed with cautious optimism. Only 3 of the 20 countries are on track to meeting UNGASS target by 2010. In 2008 5 out of 20 countries were still predominantly providing single-dose NVP for PMTCT. Only 35% of PLWHIV were screened for ART eligibility (clinical or CD4) to identify mothers with the highest risk of perinatal HIV transmission. Antiretrovirals for PMTCT has reached only 31% of infants born to PWLHIV. In three countries with available data only 13.5% of children born to PWLHIV were reached by PCR testing by 2 months, that both ensures early identification of HIV-infected infants and is a critical preventive intervention to inform infant feeding choices.

Lessons learned: Virtual elimination of MTCT of HIV requires refocusing on these missed opportunities to improve coverage, quality and effectiveness of programmes.

Next steps: This work will inform strategic planning and implementation efforts for strengthening PMTCT responses in resource-limited settings.

Abstract number: MOPE0286

Replacement feeding and infant formula

Comprehensive approach to the prevention of mother-to-child transmission of HIV in Russian regions: implementation and lessons learned

Elena Demchenko

Issues: Prevention of mother-to-child HIV transmission (PMTCT) was initially viewed in Russia as a purely medical issue. However, high mother-to-child transmission rates (8.19%) demonstrated the need for other—social and psychological—approaches that could have a significant input tackling the problem.

Description: AFEW's PMTCT project ran in 8 regions of Russia from July 2005 to June 2009. It was based on a comprehensive approach and included provision of technical, informational, methodological and financial support to improve services for pregnant women from vulnerable groups. Technical support involved supplying testing and prevention materials and medications to maternity clinics. In every region there was a major demand for infant formula for children born to HIV-positive mothers (3500 children were provided with it). 855 HIV-positive mothers and their partners received ARV-therapy. Informational support was offered in close cooperation with the regional NGOs and AIDS Centres and included educational and methodological assistance for medical workers. To achieve this, PMTCT Resource Centres were created, 65 trainings held, 1164 specialists trained. The project issued info-materials for PLHIV and healthcare workers. 499 peer counsellors were trained (HIV-positive women); financial support was given to 22 NGOs to develop their capacities in working with hard-to-reach groups.

Lessons learned: The level of mother-to-child HIV transmission among PMTCT project clients was reduced: in July 2005 mother-to-child transmission rate was 8.19%, whereas in July 2007 this figure for project clients (January 2006–June 2007) went down to 5.03%.

Next steps: Comprehensive activities to support PLHIV, peer counselors and healthcare specialists play an important role in PMTCT. Further research is needed to evaluate the impact of a comprehensive approach on reducing mother-to-child HIV transmission rates.

Abstract number: MOPE0486

Decrease of the vertical transmission of HIV/AIDS in Cuba, January 1986-September 2009

Ida González-Nuñez, MD

Background: Since 1986, a controlled program has been established in the primary health care system in order to reduce HIV vertical transmission in Cuba.

Methods: The usual approach since 2008, applied to every HIV+ pregnant woman who decides to keep her pregnancy, is to administer HAART independently of her immunological status, from week 14 to the time when the caesarean section is carried out (week 38). Breastfeeding is strongly discouraged. The newborn child receives ZDV (2mg/Kg/dose) every 6 hours for the first 6 weeks. The children are followed-up at the IPK outpatient office, where their HIV infection status is determined. Infected children are treated with antiretrovirals according to the presence of opportunistic diseases, CD4 cell count and viral load. Quantification of CD4 is determined by flow cytometry, using a FACScan cytometer. Quantification of viral RNA levels is made with the Nuclisens system from Biomerieux.

Results: Of all the seropositive cases (11725) reported for the country, 2267 seropositive women have been reported between January 1st, 1986 and September 2009 (19.3%). Three hundred fifty four seropositive women (15,6%) have given birth 382 children (23 women have delivered twice and 5 women have delivered twins); of the 382 children, 36 (9,4%) are HIV+, 34 (9,4%) have been classified as AIDS patients, 23 (63,8%) are under treatment with HAART ; 2 (5,5%) are asymptomatic and 11 (30,5 %) have died. No infection has been shown in 274 children (71, 2%) by PCR and Western Blot, and 72 (18, 8%) are still under study.

Conclusions: The Program for Prevention and Control of HIV Vertical Transmission is effective since the number of infected children is low, similar to the figures reported for developed countries.

Abstract number: CDC0532

Evaluation of public policies to reduce mother-to-child transmission of HIV in the state of Sao Paulo, Brazil, 1987-2008

Carmen Silvia Bruniera Domingues, Maria Aparecida Silva, Angela Tayra, Luiza H. Matida, Mariliza H. Silva, Vilma Cervantes, and Maria Clara Gianna

Background: In Brazil, the National policy for individuals with HIV/AIDS is based on the principles of universal access to comprehensive health, including prevention and free treatment. In relation to mother-to-child transmission (MTCT) of HIV, important preventive measures were implemented to reduce the transmission in the country: (i) in 1997, introduction of antiretroviral therapy (ART) during pregnancy and delivery, and for newborns, (ii) in 2001, implementation of rapid HIV testing at maternities, (iii) in 2003, free distribution of commercial infant formula for children exposed to HIV, during the first six months. Between 1987-2008, in the State of Sao Paulo, 4,584 AIDS cases by MTCT were reported among children under the age of 13, corresponding almost to 40% of Brazil's total. Purpose is to assess results of preventive measures on the reduction of MTCT in the State of Sao Paulo.

Methods: Descriptive analysis of cases of MTCT in children under 13 years of age, reported to the State of Sao Paulo AIDS Surveillance System, in the 1987-2008 period.

Results: Incidence rates of MTCT increased before 1997 (from 0.31/100,000 in 1987 to 4.46/100,000 children in 1996). Incidence rates declined dramatically after the implementation of each measure: (i) from 5.26/100,000 in 1997 to 3.94/100,000 children in 1998; (ii) from 3.66/100,000 in 2001 to 2.79/100,000 children in 2002; (iii) from 2.41/100,000 in 2003 to 1.81/100,000 children in 2004. In 2008, incidence rate was 0.72/100,000 children under 13 years of age.

Conclusion: In the 1997-2008 period, incidence rates declined by 7.3 times and reflect continued improvement in actions, such as: better access to prenatal care and to HIV diagnosis; introduction of ART for treatment or prophylaxis in due time; and monitoring of children exposed to HIV in specialized outpatient clinics since the first days of life, with a multidisciplinary team and diagnostic tests.

Abstract number: THPE0411

Experiences of HIV positive women going through artificial infant feeding in an urban public clinic offering services to low income populations in Sao Paulo, Brazil

Beatriz da Costa Thomé, MD, Regina Célia de Menezes Succi, and James Pfeiffer

Background: In Brazil, where breastfeeding is normally promoted, the HIV/AIDS National Program recommends that HIV positive mothers should not breastfeed their infants, providing them with artificial milk formula. Despite the positive impact this policy has had in decreasing HIV Mother to Child Transmission, little is known about its emotional effects on mothers.

Methods: Using qualitative research methods, this study was conducted at a Center for Pediatric AIDS Care (CEADIPE), in order to document mothers' experiences when advised not to breastfeed, and how health services address their needs and provide them with adequate support. Open-ended interviews of 24 HIV positive mothers were conducted and interpreted in light of mothers' social and cultural context, including women with and without previous breastfeeding experience.

Results: Although mothers felt non-breastfeeding as a difficult topic, different patterns of reaction and coping strategies were identified in the analysis of the interviews. Mothers' frustrations and acceptance varied according to their age and previous motherhood and infant feeding experiences, but in general they were more assured if they felt they had enough information and support from health staff to deal with artificial feeding, which for this cohort wasn't a problem since they had easy access to formula. The prescription of breast milk cessation through mechanical methods was often described as painful and discriminating. Stigma represented an important challenge to mothers not breastfeeding since it could represent the disclosure of their HIV status. Fear was commonly mentioned regarding babies health status especially when deprived of maternal milk.

Conclusions: Factors that influence mothers' well being and how they experience artificial feeding were identified, which can illuminate the points of intervention where improvement of services could be most productive. The role of the public sector in order to support mothers with formula milk and specialized services proved to be crucial.

Abstract number: THPE0492

Two years of HIV, syphilis and hepatitis B screening in pregnant women in Guatemala

Tamara Velasquez Porta, Blanca Samayoa Herrera, Jessica Barrios, Claudia Motta, and Eduardo Arathoon

Background: Despite the proven efficacy of programs for prevention of mother-to-child transmission (PMTCT) to reduce the transmission of HIV, most of the hospitals in Guatemala do not have any kind of screening programs nor integral care for HIV-positive pregnant women. The objective of this work was the implementation of a PMTCT program in a major public hospital in Guatemala.

Methods: 33,725 pregnant women were screened during a period of 2 years; from them, 26,385 (78.2%) were in labor and went directly to the labor and delivery area of Hospital General San Juan de Dios (HGSJD) in Guatemala City, while 7,340 (21.8%) attended prenatal care in the same hospital. The screening included rapid tests for HIV (DetermineTM), hepatitis B (DetermineTM), and syphilis (RPR).

Results: A positive rapid test for HIV was obtained by 103 (0.30%) women, these results were confirmed by ELISA (Immunocomb). 232 (0.68%) women tested positive for syphilis and 56 (0.17%) were positive for hepatitis B. All positive cases were referred to integral care clinics for mother and child follow up. Pregnant women who tested positive for HIV received antiretroviral therapy and deliver their child by scheduled Cesarean section. Artificial formula and new-born follow up were also provided.

Conclusion: It is imperative to implement PMTCT programs in Guatemala's entire health system, in order to reduce the risk of vertical transmission of HIV.

Abstract number: CDC0552

WHO revised guidelines: scale-up and implementation

Cost and impact of adopting the new WHO guidelines to prevent mother-to-child transmission in Malawi

Elizabeth McCarthy, Aaron Tjoa, Justin Yarrow, Sostena Romano, and Jennifer Campbell

Background: The WHO recently released revised PMTCT recommendations for decreasing HIV transmission to infants. Cost and impact compared to the 2006 guidelines are unclear.

Methods: We built an Excel model to project the infections-averted and costs of putting the approximately 74,500 pregnant HIV-positive women expected over one year in Malawi on either the revised 2006 or 2009 recommendations. Eligibility for HAART or prophylaxis was based on national HIV prevalence and CD4 data. Duration of prophylaxis and transmission risks assumed exclusive breastfeeding for 12 months and transmission rates from the literature. ANC human resource costs were calculated using MOH salary data and estimates of health-provider-hours required to deliver antenatal (4 visits) and delivery services to all pregnant women and perinatal PMTCT services to the HIV-positive women. We used CHAI ARV prices and included the drug cost of providing HAART through the cessation of breastfeeding for women eligible for treatment.

Results: In Malawi, the 2009 recommendations result in approximately 2,600 fewer infections compared to the 2006 recommendations, and avert over 16,000 infections. The cost per infection averted is higher for the 2009 recommendations, especially Option B, with most of the difference attributed to antiretrovirals. [tab_01]

Conclusions: This analysis is a first step at understanding the impact of the WHO's recommended guideline changes on PMTCT programs. Policy makers will need to weigh additional factors such as availability of laboratory monitoring in determining the best approach. The next step will be linking these results to long-term prevention and treatment strategies and cost for women and children.

Abstract number: TUPE0930

Potential impact and cost-effectiveness of the 2009 “Rapid Advice” PMTCT guidelines—15 resource-limited countries, 2010

Andrew Francis Auld, Omotayo Bolu, Tracy Creek, Mary Lou Lindegren, Emilia Rivadeneira, Helen Dale, Naline Sangruee, and Tedd Ellerbrock

Background: The 2009 World Health Organization (WHO) “Rapid Advice” guidelines on prevention of mother-to-child transmission (PMTCT) recommend starting antiretroviral therapy (ART) at earlier disease stages for HIV-infected pregnant women and one of two options for ART-ineligible women. Option “A” includes maternal zidovudine and lamivudine (dual therapy) prenatally, and daily infant nevirapine during breastfeeding. Option “B” includes one of four maternal triple antiretroviral prophylaxis regimens during pregnancy and breastfeeding. Previous guidelines recommended dual therapy prenatally and no breastfeeding prophylaxis for ART-ineligible women.

Methods: Using a deterministic model, we analyzed cost-effectiveness of implementing new guidelines under options “A” or “B” instead of previous guidelines for projected cohorts of HIV-infected pregnant women and exposed infants born in 12 African countries, Guyana, Haiti and Vietnam in 2010. PMTCT-effectiveness data were obtained from “Kesho Bora” and “BAN” randomized trials. PMTCT-coverage and costs were obtained from literature review. Outcome measures included infections averted and life-years gained (LYG) through averted infections. The analytic time horizon for infection risk was pregnancy through breastfeeding. LYG and costs of infant treatment were excluded. Option “A” or “B” was considered highly cost-effective if its incremental cost-effectiveness ratio (ICER) was < US\$1,463 (the weighted average gross domestic product per capita for the 15 countries). A Monte-Carlo simulation for 10,000 trials constructed 95% confidence intervals (CI).

Results: [tab_01]The ICER of option “A” was US\$119 (95% CI, 97-128). Option “B” was dominated (i.e. similarly effective but costlier than option “A”).

Conclusions: In 2010 in the 15 countries, implementing new PMTCT guidelines could prevent twice as many infections as previous guidelines. Option “A” is highly cost-effective.

Abstract number: WEAE0205

UNICEF-WHO 2009 expert consultation to define the highest priority operational research (OR) questions for the prevention of mother-to-child transmission (PMTCT) and paediatric HIV care, support and treatment (CST)

Rene Ehounou Ekpini, MD, MPH, Alan Greenberg, Lynne Mofenson, Nathan Shaffer, Anirban Chatterjee, Laura Guay, Yves Souteyrand, Kiragu Karusa, Chewe Luo, Priscilla Akwara, and M. I. Gill

Background: To define the highest priority OR questions to be addressed to promote and guide the rapid scale up of PMTCT and Paediatric HIV CST, UNICEF and WHO organized an expert consultation in Washington DC, September 2009. More >70 representatives from international and donor organizations, governments, highly impacted countries, implementing organizations, foundations, and academic institutions participated.

Methods: The four OR focus areas were: (1) Maximizing PMTCT Effectiveness; (2) Paediatric HIV CST; (3) Integration of PMTCT and Paediatric HIV CST within Broader Maternal, Newborn and Child Health (MNCH) Programs; and (4) Health Systems Strengthening in the Context of PMTCT and Paediatric CST. A summary of an extensive OR literature review of nearly 300 peer-reviewed manuscripts and >100 abstracts was presented along with gaps in knowledge. Work Groups (WG) for each focus area identified their five highest priority OR questions and then scored each question on its Answerability, Usefulness, and Potential Impact.

Results: The highest priority OR questions for each of the WGs were: (WG #1) effective strategies for CD4 testing and, if eligible, provision of antiretroviral (ARV) treatment for pregnant and breastfeeding women (score 10.9); (WG#2) optimal delivery model for care and treatment of HIV-infected infants and children (score 9.4); (WG #3) feasibility and impact of integrating HIV TC and care for HIV-exposed infants into MCH services (score 9.3); and (WG #4) impact of task shifting/sharing on PMTCT and Paediatric CST scale up (score 9.5). Overall, the highest priority questions were from Group1 on CD4 testing and ARVs (score 10.9), effective strategies for postpartum prophylaxis (score 10.2), and the feasibility and impact of providing ARV treatment in antenatal settings (score 10.1).

Conclusions: UNICEF, WHO, partners and national governments will work to encourage the development and funding of protocols to address these high priority OR questions on PMTCT and Paediatric CST.

Abstract number: MOPE0869