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## ROMANIA

Romania is one of the largest countries of Europe (the size of the United Kingdom or roughly half of France), with a population of approx. 19 million inhabitants. Along with the Romanians, Hungarians, Germans, Serbs, Turks and other minorities also live in the country.

Often compared to a "Latin island in a Slav sea", Romania features a unique familiar feeling in Eastern Europe: its language of a Latin origin, the Latin alphabet (quite rare in this part of Europe) and moreover the Latin temperament and friendliness of its people - all make of Romania a place where most visitors feel very comfortable.

There are many tourist attractions in Romania: some are unique in the world, as the enchanting monasteries of Bucovina with their churches entirely covered with 16th century frescoes on the outside walls.

So is the Danube Delta, the largest natural reserve in Europe, a paradise for fishermen and birdwatchers, a wild land with just a few fishermen villages and only waterways (no roads, no cars).

Unique is also Transylvania - "the Land across the woods", a vast province of Romania with its lovely medieval towns and fortresses at the foothill of the Carpathians, rich with precious Saxon heritage treasures...

Romania is probably also the last place in Europe where you can still see unspoiled countryside, with the traditional rural civilization still alive. Discover the northern provinces of Maramures or Bucovina, with their old handicrafts, friendly people fiercely dressed in their folk costumes, horse or oxen-drawn carriages (horse-drawn sleighs in winter), with colorful villages where time seems to have stood still. If you are a Dracula fan, you wouldn't want to miss Dracula's Castle in Bran.

Wherever you go in Romania, there is another thing you will enjoy: tasty meals, large food portions, excellent wines and other local drinks.

The Centre of Excellence initially opened in Constanta 15 years ago. Since its inception, it has been offering medical services to the beneficiaries through various centers: at our obstetrics and gynecology (OB/GYN), dental, TB and family planning offices to name a few.

Approximately 90% of all the HIV patients of all Constanta County have been beneficiaries of at least one of the services rendered by the Baylor Centre of Excellence in 2013. That means 876 HIV infected patients were seen in 2013 with a total number of 6416 sessions, both at the Centre and out in the community.

Romania is honored to be hosting the 16<sup>th</sup> Annual BIPAI Network Meeting. We hope you enjoy the experience!



# COUNTRY UPDATES



## COUNTRY UPDATE - COLUMBIA

## APPROACH TO DECREASING THE CHILDREN UNDER-5 AND MATERNAL MORTALITY IN LA GUAJIRA, COLOMBIA WITH SAIL: SALUD Y AUTOSUFICIENCIA INDÍGENAS EN LA GUAJIRA

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**Issues:** In the past decade, Colombia has seen a steady decline in the children under 5 and maternal mortality rates. However, the rates in the La Guajira region continue to be 2-3 times higher than the national, which are the worst in the country. Various factors contribute to this disparity including a large indigenous (Wayúu) population that live in remote, sparsely populated areas (rancherías) preventing easy access to medical care, extreme delays in seeking medical care, poor nutrition, unhealthy reproductive and birthing practices and an difficult civil registration process.

**Description:** This multi-faceted program, done in partnership with Chevron, is designed to decrease the high rates of children under-5 and maternal mortality in the following manner. First, train indigenous Wayúu health promoters in AIEPI (Atención Integrada de Enfermedades de Primera Infancia) so that they are able to identify at-risk or ill children and pregnant women in the community in order to bring them to care. Second, implement community outreach with health education campaigns conducted by the Wayúu health promoters so communities feel empowered to play a more active role in their medical care. Third, place BIPAI Global Health Corps (GHC) paediatrician and maternal health specialist at under-staffed health centers and hospitals to evaluate & treat high-risk patients while mentoring rural general medicine physicians. And lastly, provide medical education and capacity building for all medical personnel through lecture series created by GHC physicians and local staff.

**Challenges & Lessons Learned:** Lack of resources (medications, ready-to-use-therapeutic foods, F-75, F-100) as well as low percentage of patients covered by health insurance creates a challenge to providing optimal care for patients. Also, as many of these patients live in remote communities, transportation to reach health centers & hospitals in their communities continues to present a challenge. Working with local health insurance companies as well as local non-governmental and governmental organizations has been key to helping address these challenges.

**Next steps:** Roll out of health education campaigns in the communities with the Wayúu health promoters as well as search for additional funding sources in order to expand the program outside of Chevron's sphere of influence.



## COUNTRY UPDATE - PAPUA NEW GUINEA

LONGITUDINAL NORTH-SOUTH AND SOUTH-NORTH  
COLLABORATION IN PAEDIATRICS AND PUBLIC HEALTH: A  
CAPACITY BUILDING MODEL IN PAPUA NEW GUINEA

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**Background:** Shortage of faculty in Papua New Guinea (PNG) affects every aspect of care and training at Port Moresby General Hospital (PMGH) and the University of Papua New Guinea (UPNG) School of Medicine and Health Sciences. Medical schools in resource-limited settings are often plagued by surges in student-to-teacher ratio; the volume and quality of research is lacking; and efforts to improve patient care are limited.

**Methods:** Baylor College of Medicine International Paediatric AIDS Initiative (BIPAI) and Texas Children's Hospital (TCH), the Government of the Independent State of Papua New Guinea (PNG) and ExxonMobil (XOM), undertook a comprehensive needs assessment process to identify gaps in maternal/child health and public health. This would be the basis of a multi-year Public Private Partnership with UPNG and XOM to build paediatric and Public Health faculty capacity at UPNG.

**Results:** Multiple site visits were made to PNG to assess the care, treatment and medical school needs/gaps in Paediatrics and Public Health. Historically short-term secondments of faculty to UPNG were 1-3 months in duration and were unable to provide stable consistent long-term faculty appointments. Additionally, there were limited opportunities to support South-North trainings in public health for Papua New Guineans. Barriers to long-term secondments to PMGH/UPNG and/or rural teaching hospitals included logistical safety issues, spontaneous outbreaks of tribal violence, crime, corruption, outrageously high cost of living for expatriates and isolationism.

**Conclusions:** BIPAI, through its Global Health Corps of physicians, recruited one Med/Peds physician and one Public Health Specialist (PhD) for minimum of one year secondments to UPNG, substantially increasing and improving its baseline faculty. A robust M&E framework has been developed to capture pertinent data in teaching, training and improved care outcomes. Additionally, one PNG public health learner will be supported for a two year MPH program at the University of Texas School of Public Health in Houston, Texas. Through long term faculty attachments to UPNG, the ability to increase the number of residents that may be retained as the next generation of faculty can ensure sustainable growth and capacity at UPNG and teaching hospitals throughout PNG.



# PARTNER PRESENTATIONS





## PARTNER PRESENTATION - MALAWI

## THE RESIDENCY PROGRAM IN GLOBAL CHILD HEALTH: FOUR YEARS OF EXPERIENCE

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**Issues:** The Baylor College of Medicine Residency Program in Global Child Health aims to create leaders in paediatric global health. Residents will offer lifesaving health care, educate other healthcare workers, conduct research, be effective advocates in resource-limited settings globally. Graduates will be qualified candidates for positions at global health institutions.

**Description:** Trainees complete a four-year residency program that includes three years of categorical paediatric training at Texas Children's Hospital (TCH) and one year at a Baylor International Paediatric AIDS Initiative (BIPAI) or other relevant site. At TCH, global health activities include: monthly noon conferences, semiannual grand rounds, quarterly journal clubs with faculty, bimonthly case reviews led by senior global health residents, outpatient continuity clinic assignments which cater to local underserved patients, and a variety of elective rotations. Trainees complete the BIPAI American Society of Tropical Medicine and Hygiene- approved diploma course with incoming Global Health Core physicians and undergo full licensure prior to departing Houston.

While abroad, trainees serve as members of the BIPAI physician team, prioritizing day-to-day clinical, educational and programmatic needs of each site. Trainees are expected to participate in outreach, teen club, at least two weeks of inpatient experience, and carryout a scholarly project. Trainees will work with their sites and site partners to tailor their time to fulfill individual goals.

**Lessons Learned:** To date, six residents have completed time in Lesotho, Malawi, Swaziland, Botswana; seven residents are currently in Malawi, Swaziland, Romania and a South Dakota Indian Health Service site. Trainees are engaged in global health programming at TCH. The first cohort of five trainees will graduate in June and are pursuing: a global health fellowship, an academic medicine fellowship, a hematology/oncology fellowship, a primary care posting, and one is undecided.

**Next Steps:** Trainee experiences and exposures will be analyzed. Attention will be paid to variation between the sites in educational opportunities and ability to fulfill individual goals. The program continues to develop methods to provide consistent support and standardize sites' involvement of trainees.



## PARTNER PRESENTATION - SWAZILAND

**BAYLOR COLLEGE OF MEDICINE CHILDREN'S FOUNDATION-  
SWAZILAND & THE ROCKING HORSE PROJECT: A PIVOTAL  
PARTNERSHIP IN PROGRESSING PAEDIATRIC PALLIATIVE CARE IN  
SWAZILAND**

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**Background:** Swaziland has the highest prevalence of HIV and TB in the world and is the second African country to formalize palliative care guidelines. Baylor College of Medicine Children's Foundation-Swaziland's (BCMCF-SD) serves 44% of Swaziland's children living with HIV, yet remained without a specific palliative care component. The Rocking Horse Project (RHP) is the only organizations with a primary focus to advance paediatric palliative care in Swaziland.

**Description:** RHP is a not-for-profit association established in Swaziland in 2013. RHP aims to address the needs of children living with a life-shortening condition via a multifaceted approach addressing the physical, psychosocial and spiritual wellbeing of children and their families. Aware of BCMCF-SD's paediatric focus, RHP approached BCMCF-SD to inform the staff of its availability to help increase paediatric palliative care in Swaziland.

BCMCF-SD contacts RHP when a child is identified as having a medical or social need the family is unable to meet. RHP then performs a needs-assessment of the child's family and offers support where needed. RHP's objective is to be the hands that join together each aspect of a child's care. Support has been in the form of financial assistance including paying for medications, laboratory tests, transport, caregivers, accommodation, occupational and physiotherapy evaluations, and helping coordinate specialists' appointments. RHP and BCMCF-SD are in frequent contact regarding the children they jointly care for. To date, RHP has sponsored approximately 30 BCMCF-SD children.

**Lessons Learned:** Public Private Partnerships are important in helping Governments improving access all children with chronic conditions. Each of these children's needs were more fully met due to RHP's involvement. Through the partnership, palliative care needs at hospitals have been identified and plans are in place to scale-up paediatric palliative care at one of the largest referral hospitals in Swaziland. Overwhelmingly positive feedback from this partnership has been received from the beneficiaries, both organizations, and community members.

**Conclusions:** BCMCF-SD seeks to address the medical and psychosocial needs of its patients; yet due to the enormous needs of some patients, gaps in care still remain. Partnerships such as this one can help Programs provide a truly holistic care package for all patients.



## PARTNER PRESENTATION - BOTSWANA

BUILDING CAPACITY FOR PAEDIATRIC GENOMICS RESEARCH IN  
SUBSAHARAN AFRICA: THE CAFGEN EXPERIENCE

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**Background:** In a 2011 white paper, the Human Heredity and Health in Africa (H3Africa) Initiative identified a need for building human and infrastructural capacity for conducting population-based genomics research and undertaking large-scale bio-archiving on the African continent. In 2013, the Botswana-Baylor Children's Clinical Centre of Excellence received NIH funding to support a network of 5 institutions called the Collaborative African Genomics Network (CAfGEN), which aims to integrate genetic and genomic technologies to study the influence of host genetic factors on HIV disease progression in African children, namely in Botswana and Uganda.

**Description:** CAfGEN's Botswana- and Uganda-based institutions have partnered with Baylor College of Medicine (BCM) in Houston, Texas, to build local capacity in cutting-edge genomics expertise and resources within the Africa-based sites. Graduate-level trainees have been selected from the University of Botswana (UB) and Makerere University College of Health Sciences (MakCHS) for a 2-year Genomics Research Training Program (GRTP) at BCM where they will complete coursework and hands-on training in medical genomics and bioinformatics in part-fulfilment of their PhD qualifications. They will carry out mentored research with samples from Botswana and Uganda. Efforts are currently underway to procure an ABI 3500 capillary sequencer for UB and an Illumina MiSeq instrument for MakCHS.

**Lessons learned:** For genomics-centered, population-based research to be conducted successfully and sustainably, it is imperative that research projects be deliberately designed to impart transferable expertise in genomics and bioinformatics as well as to build infrastructural capacity to carry out such research. To address current disparities, training of African scientists should include genetic epidemiology, bioinformatics, high-thorough put technologies, clinical research, and research on ethical, legal, and societal issues.

**Conclusions/Next steps:** Next steps involve implementation of the GRTP and enhancement of the molecular facilities at UB and MakCHS for large-scale core genomic bio-archiving. Upon completion of their training, GRTP graduates will return to their home institutions to assume faculty positions and to continue their research projects, while helping to oversee the newly established sequencing and bioinformatics initiatives. Trainees will also help to develop Interdepartmental Programs in Genetics and Genomics (IPGG) with a long-term goal of establishing full graduate programs at UB and MakCHS.

**H-32788**



## PARTNER PRESENTATION - SWAZILAND

## HOME MADE FABRIC SOFTNER PROJECT: SWAZILAND ADULT INCOME-GENERATING PROJECT

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**Background:** Poverty remains a major challenge to follow-up of chronic care patients in Swaziland. A large percentage of the children attending follow-up care from Baylor-Swaziland reside with their grandparents who are unemployed. Lack of a sustainable source of income for most families' results in HIV-positive clients missing scheduled appointments and defaulting from care. It is in this backdrop that the need for an income-generating project was envisioned.

**Description:** The Baylor-Swaziland Adult Income-Generating Project was founded in 2009. Its goal was to disseminate sustainable income-generating skills to the primary caregivers of Baylor patients, whose average age range is 9 years at the Mbabane COE to 10 years at the satellite clinics. It currently consists of 60 registered members with 25 regular attendees. The members cater for their own transport costs and meet on the second Saturday of every month. They are currently involved in making home-made fabric softener. Income from the project is saved in a common bank account, registered by the Swaziland Building Society. The group currently has E5000 saved. This income acts as both capital for future projects as well as an emergency fund, with provision for Support Group members to acquire loans. The saved funds also provide capital for expansion of the current project and future projects.

**Lessons learnt:** The Support Group membership has grown over the years, although financial constraints remain a major limitation to attendance. Attendees are able to attend clinical follow-up appointments as well as generate household income. Among future project ideas suggested are subsistence farming, tailoring and poultry farming. Lack of funding and limited land accessible for implementation of different projects have remained a major challenge to expansion of the scope of income-generating activities for the group. Many of the adult Baylor clients have shown interest in joining the group, but are unable to attend the meetings owing to financial constraints.

**Conclusions/Next steps:** Paucity of funding greatly hinders the expansion and progress of this group. The Baylor Swaziland Team is currently in the process of lobbying for more funding from both government and private sources to support this cause.



# ISSUES IN ADHERENCE AND DISCLOSURE



## ISSUES IN ADHERENCE AND DISCLOSURE - ROMANIA

VIRAL LOAD, ADHERENCE, AND ADHERENCE-RELATED BARRIERS  
AMONG WOMEN LIVING WITH HIV IN CONSTANTA, ROMANIA

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**Background:** The number of women living with HIV is increasing. Developing effective adherence support interventions requires an understanding of gender-specific challenges. Among these, the transition to motherhood may change adherence patterns as women adjust to new life routines. We conducted a cross-sectional adherence (ADH) survey among Romanian women with HIV with and without children.

**Methods:** Self-reports of ADH behaviors and barriers were obtained from 158 women. Viral load (VL) and socio-demographic data were collected from medical files. We examined differences between the two groups on VL, ADH, and ADH-related barriers.

**Findings:** More mothers had detectable VL than childless women ( $\chi^2(1)=4.9$ ;  $p<.05$ ), although self-reported ADH levels did not differ. Perceived side effects, satisfaction with treatment and positive doctor’s feedback were related only to mothers’ adherence ( $\rho=.51$ ,  $.39$  and  $.28$ ; all  $p<.05$ ), while perceived treatment effectiveness was relevant only for childless women ( $\rho=.32$ ;  $p<.05$ ). ADH scores correlated significantly with VL ( $\rho=-.23$  to  $-.26$ ;  $p<.01$ ). Mothers had shorter treatment duration, less education, and more lived in independent families.

**Discussion:** Mothers are at higher risk of worsening health status, despite similar levels of reported ADH. Differences in ADH-related barriers between these groups may help develop targeted interventions.



## ISSUES IN ADHERENCE AND DISCLOSURE - SWAZILAND

BAYLOR-SWAZILAND CENTRE OF EXCELLENCE CHALLENGE CLINIC:  
NEXT PHASE IN HIV CARE IN SWAZILAND

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**Background:** Treatment failure is a common problem which cuts across all across all age groups of HIV-positive patients who attend follow-up care from the Baylor College of Medicine- Bristol Myer Squibb Children's Clinical Centre of Excellence (COE) in Swaziland. Specific reasons identified for treatment failure include treatment fatigue, complex psychosocial problems and change of caregivers, which underscores the need to engage a multidisciplinary team in the follow-up care of these clients. It is for this reason that Challenge Clinic was commenced.

**Description:** Challenge Clinic is an intervention which provides a multidisciplinary approach to children failing antiretroviral therapy. The team consists of two doctors, the nursing manager and social workers. It is responsible for early recognition, follow-up and intervention for clients at high risk of treatment failure. Inclusion criteria are children 0-18 years of age and PMTCT clients with a viral load greater than 20, children 0-18 years old with history of defaulting on follow-up appointments and adults with major adherence issues/failing ART who have a child with the same problem. Referral to Challenge Clinic is done by the Adherence Committee team. Clinical appointments are scheduled on Thursdays. During the clinical consultation, these patients are concurrently seen by the doctor and social worker. Psychosocial challenges leading to poor adherence to antiretroviral therapy are discussed and comprehensive follow-up plans made. In-Reach visits are scheduled to obtain greater insight into their social support structure. During these visits, spot pill-counts are done to verify adherence.

**Lessons learnt:** A multidisciplinary approach to management of patients with complex psychosocial challenges allows for better quality patient follow-up and continuity of care. In addition, it allows for efficient transition of complex patients through the clinic. Lack of social workers in smaller clinics and health centers hinders expansion of this service.

**Conclusions/Next steps:** Increased psychosocial support is critical in ensuring treatment success especially in the face of a growing number of patients with treatment failure. The need for this service greatly outweighs the number of qualified health workers who provide it.



## ISSUES IN ADHERENCE AND DISCLOSURE - BOTSWANA

## PARENTAL ABSENCE FROM CLINIC PREDICTS VIROLOGIC FAILURE IN ADOLESCENTS IN BOTSWANA

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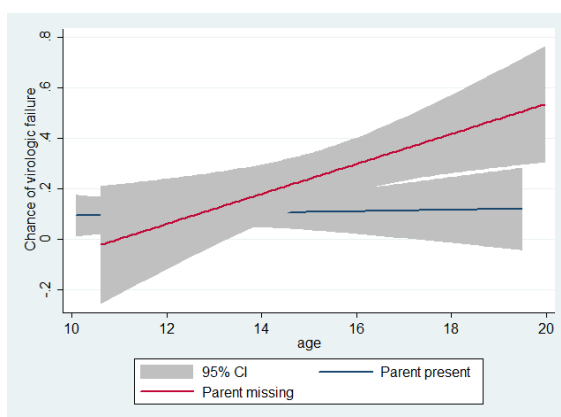
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**Background:** HIV-infected adolescents have higher rates of non-adherence and virologic failure than younger children and adults. Adolescents may attend clinic with or without an adult caregiver (parent). We hypothesized that routine clinic attendance without a parent would increase the risk of treatment failure, particularly in younger adolescents.

**Methods:** We conducted a prospective cohort study of HIV infected adolescents (age 10-19) on ART at the Botswana-Baylor Children's Clinical Centre of Excellence in Gaborone, Botswana. We calculated the relative risk of virologic failure (VL $\geq$ 400cpm) between those with/without a parent present at the 3 month and 6 month study visits. We evaluated for confounding by sex, orphan status (death of either parent), and time on treatment using multivariable logistic regression. The likelihood of failure with increasing age was calculated using linear regression for those with and without a parent present at 3 months. We tested for interaction between age and parent presence using linear regression.

**Results:** We enrolled 298 adolescents, median age 13.3 years (IQR 11.8-15.6), 52% female, median time on treatment 7.5 years (IQR 5.4-8.8). Detectable viral load was present in 35 adolescents (12%) at month 3 and 15(9%) adolescents at month 6. Absence of a caregiver conferred a relative risk of 2.5 (95% CI 1.4-4.6) of failure at month 3 and 3.4 (95% CI 1.3-9.2) at month 6. There was no confounding. For each year of age, the risk of failure increased [6% per year (95% CI: 2-10%)] among those without a parent present, but not for those with a parent present [0.3% per year (95% CI: -0.8%-0.8%)]. The p-value for the interaction between age and parent presence was <0.001(see Figure).



**Conclusions:** Absence of a parent conferred a higher risk of virologic failure. Older adolescents without a parent present in clinic were at highest risk. Interventions to identify potentially supportive caregivers and strengthen the adolescent/parent dyad might lower the adolescents' risk of treatment failure. Particular attention should be paid to older adolescents who attend clinic alone.

H-31242





## ISSUES IN ADHERENCE AND DISCLOSURE - ROMANIA

## INVESTIGATING HIV-STATUS DISCLOSURE: A 3-STEP PROCEDURE

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**Background:** Disclosing one's HIV status can have a substantial impact on the well-being of people living with HIV, and on preventing HIV transmission. Previous studies have reported beneficial effects such as increased social support, less stigmatization, and improved treatment adherence, but also negative influences such as associations with increased stigmatization. To better understand the complex role of disclosure, we need to rethink how disclosure is considered in research and clinical practice: is it one event, one process consisting of multiple events, or a collection of distinct processes? Most studies have assumed that disclosure is a single event or process, but evidence has started to gather in support of the fact that HIV disclosure may have different occurrence rates and different causes and consequences depending on disclosure target and intent. Therefore it is important to examine the structure of disclosure events before studying its role in HIV treatment and prevention.

**Methods:** We present a 3-step procedure for studying disclosure quantitatively that takes into account disclosure target and intent and their possible influences on the structure of disclosure. This procedure consists of developing a list of relevant actor-categories for the study population, examining the structure of voluntary and involuntary disclosure via Mokken Scaling, and examined the relationships between the resulting disclosure dimensions and stigma and social support.

**Results:** Reports of voluntary and involuntary disclosure from 158 people living with HIV in Kilimanjaro, Tanzania, were collected via interviews in the spring of 2010. For voluntary disclosure, we identified two multi-actor clusters, family and community, and two single-category dimensions, partner and children. Involuntary disclosure consisted of several unrelated single- or two-category dimensions. Correlation analyses revealed distinct relationships for each disclosure dimension.

**Conclusions:** Assessing HIV disclosure as a single process may lead to incorrect conclusions about causes and consequences of disclosure. We therefore recommend using this methodology to investigate disclosure processes in HIV research. Understanding the process of disclosure itself prior to examining its relationships with other constructs would increase the quality of our evidence base regarding the process (es) of sharing this information.



# MORTALITY AND LOSS TO FOLLOW UP



## MORTALITY AND LOSS TO FOLLOW UP - TANZANIA - MWANZA

## OUTCOMES OF HIV-EXPOSED INFANTS AT 18 MONTHS OF AGE IN MWANZA, TANZANIA

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**Background:** HIV-Exposed and infected children are at high risk of morbidity and mortality if they do not receive appropriate health services. HIV-infected children require early diagnosis and initiation on ART to ensure positive outcomes. HIV-exposed, but uninfected children are also vulnerable as they are at risk of malnutrition related to early weaning and other diseases, such as respiratory infections, diarrheal illnesses, and tuberculosis. However, retention in care until 18 months of age remains a challenge.

**Methods:** Retrospective chart review of HIV-exposed infants enrolled into the COE in Mwanza from February 1, 2011 – December 31, 2013. Inclusion criteria: all infants of HIV-infected mothers enrolled into clinic at less than 18 months of age who reached 18 months of age by the end of the study period. Infants whose HIV-status was known at the time of enrollment were excluded from the study. Baseline and outcomes data were collected.

**Results:** During the study period 249 of 542 HIV-Exposed infants enrolled into care, had reached at least 18 months of age. Among these the median age of enrollment was 6.6 months (range 0.1 – 18 months), with 124 males and 125 females. Definitive diagnosis of HIV-infection had been confirmed by DNA-PCR or rapid test at 18 months of age in 64 patients. 44 patients (17.6%) were on tuberculosis treatment. At enrollment 52 (20.8%) had Severe Acute Malnutrition and 74 (29.6%) had severe stunting. 124 (50%) patients had their last visit prior to 18 months of age.

**Status at End of Study Period**

Chart Status on 31.12.2013	Number (%)	Median Age (months) (range)	Number HIV-Positive
Active	51 (20.5%)	22.3 (15.2-46.3)	39
Died	23 (9.2%)	10.4 (2.6-27.4)	13
Discharged	88 (35.3%)	18.4 (7.1-26.9)	0
Lost	77 (30.9%)	11.4 (1.7-24.1)	11
Transferred	10 (4.0%)	14.5 (14.2-26.4)	1

**Infants with Last Visit Prior to 18 months**

Last Visit Prior to 18 months of Age	Number (% of cohort)
Active	5 (2.0%)
Died	19 (7.6%)
Discharged	22 (8.8%)
Lost	73 (29.3%)
Transferred	5 (2.0%)
Total	124 (50.0%)

**Conclusions:** HIV-exposed infants are a very vulnerable population. Tuberculosis infection and both acute and chronic malnutrition were common in our cohort of patients. Additionally, half of the deaths occurred in patients with unknown HIV-status. A significant number of children were lost-to-follow-up or discharged prior to 18 months of age when definitive diagnosis can be made. Efforts to retain these infants in care and promote over-all health need to be increased as further efforts are made to eliminate mother-to-child transmission of HIV.



## MORTALITY AND LOSS TO FOLLOW UP - BOTSWANA

**MEASURING THE DISEASE BURDEN IN PAEDIATRIC HIV POPULATION: EFFECT OF DIARRHEA OUTBREAK ON MORTALITY AND POTENTIAL LIFE LOST**

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**Background:** The success of the Botswana Anti-Retroviral Therapy (ART) program has resulted in the majority of perinatal HIV-infected children surviving into adolescence and young adulthood. The objective of this study is to determine the effect of a significant event such as diarrhea outbreak on Crude Mortality Rate (CMR) and Years of Potential Life Lost (YPLL) as an initial step in determining the true burden of premature HIV-related deaths in Botswana.

**Methods:** A retrospective chart review of deaths in HIV infected children in Botswana-Baylor COE from January 2008- December 2013. All Electronic Medical Records were queried for the primary outcome, death: date of death, age at death. HIV related Crude mortality rates (HIV-CMR) are based on UNAIDS estimated HIV related deaths for Botswana and YPLL is based on Centers for Disease Control methods with 5-year age groups based on each person's age at death, assuming a life expectancy of 65 years, according to WHO Global Health Observatory of 2009.

**Results:** The chart review identified 304 deaths: 6 deaths were excluded from analysis because of missing data. COE HIV-CMR (all in deaths/100 000 population) was 909 in 2004 comparable to 1070 national HIV-CMR in 2001. By 2011 the COE HIV-CMR had increased to 1323 and national HIV-CMR dropped to 206. There was no statistical difference in the annual changes in year on year as well as between COE and national rates (Chi test,  $p < 0.05$ ). There was no statistical difference in gender based mortality. The COE YPLL ranged from 133-154 YPLL from 2008-2010 but shot up to 3739 YPLL with the 2011 diarrhea outbreak.

**Conclusions:** HIV-related mortality in Botswana at the COE is similar to national trends. HIV-CMR showed no significant change in the presence of the diarrhea outbreak while YPLL appropriately showed an exaggerated rise with the outbreak. YPLL is a good indicator for burden of disease that can be used to compare different sized populations. Larger prospective survival studies are needed to characterize these outcomes further.

**H - 25403**



## MORTALITY AND LOSS TO FOLLOW UP - TANZANIA - MWANZA

EVALUATION OF MORTALITY AND LOSS TO FOLLOW UP  
COMPARING PRE-ART AND ART INITIATED HIV INFECTED CHILDREN  
AT BAYLOR CENTRES OF EXCELLENCE – MWANZA, TANZANIA

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**Introduction:** Ongoing monitoring and evaluation data throughout the BIPAI Centres of Excellence (COEs) suggest that HIV positive patients not on antiretroviral therapy (ART) have higher rates of mortality and lost to follow up (LTFU) than patients on ART. This study analyses the rates of mortality and LTFU among HIV positive patients < 18 years old from the Mwanza, Tanzania COE and is part of a larger study encompassing all BIPAI COEs in Africa.

**Methods:** Retrospective, cross-sectional study. Inclusion criteria: HIV positive, ART naive, < 18 years old, enrolled at Mwanza COE from March 1, 2011 (opening of COE) to December 31, 2013. Data collected: Date of birth, date of HIV diagnosis, gender, residential distance from the COE, provided phone number, nutritional status, WHO stage, and CD4 count or %. LTFU was defined as any patient who was reported as LTFU in EMR or did not return for a visit for > 6 months.

**Results:** N=453. 43 transfer-out excluded. 52.0% male (213/410). LTFU was 3.5% in ART and 20.8% in Non-ART patients. Mortality was 4.8% in ART and 5.3% in Non-ART patients. Average age at enrolment of Non-ART LTFU patients 8.7 years vs 5.3 years for ART LTFU. Only 63.2% of Non-ART LTFU patient were on cotrimoxazole prophylaxis at time of LTFU. At most recent visit severe malnutrition was reported in 40.0% of ART mortality, 20.0% Non-ART mortality, 9.1% ART LTFU, and 5.0% Non-ART LTFU patients. 87.9% of active and mortality groups provided contact information compared to 54.5% of LTFU groups. Distance from the COE was 7.4km in Non-ART LTFU vs 5.4km in Active Non-ART and 14.0km in ART LTFU vs. 11.7km in ART active patients.

**Conclusions:** There are significantly elevated rates of LTFU among Non-ART patients compared with patients on ART whereas mortality rates were similar. LTFU patients present at older age, therefore early identification and initiation of ART seems critical in preventing LTFU. LTFU patients were less likely to have phone numbers in EMR, and they live further from the COE. The larger study looking at all the BIPAI Sub-Saharan African COEs will delve deeper into determining associations with this group of patients which may make them more likely to become LTFU.



## MORTALITY AND LOSS TO FOLLOW UP - UGANDA

## RETENTION OF HIV INFECTED CHILDREN ON TREATMENT IN UGANDA OVER 24 MONTHS FOLLOWING ART INITIATION

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**Background:** Paediatric ART coverage in Uganda remains low with only 30% of eligible children on treatment by the end of the 2012. However even after initiation of therapy, there is limited data on retention of these children on treatment. To establish retention rates and better characterize factors associated with loss to follow up after initiation of ART we conducted a program assessment of the Paediatric HIV/AIDS services in Uganda.

**Methods:** This was a cross-sectional assessment done in the setting of the annual National Paediatric HIV services technical support supervision and monitoring activities. A total of 66 health facilities were visited across the country. Pre-designed chart abstraction forms were used to collect patient related data from patients' HIV care cards. The study population included children (0-14 years) that had been initiated on ART in the periods; April-June 2011, April-June 2012 and October-December 2012. Determination of retention on treatment was done by verifying patient treatment status as of April-June 2013.

**Results:** A total of 243 (M=48%, F=52%), 370 (M=44%, F=56%) and 332 (M=49%, F=51%) records were reviewed for the 6, 12 and 24 month cohorts respectively. The proportion of children retained at the initiating health facility was 80%, 79% and 67% for the 6, 12 and 24 month cohorts respectively. Overall, a higher proportion of children were retained at lower level health facilities as compared to hospitals. On bivariate analysis, factors associated with loss to follow included late initiation on ART (WHO Stage III & IV), initiation of treatment at hospital level and initiation of ART at an age  $\geq 1$  year; in the 6, 12 and 24 months cohorts respectively.

**Conclusions:** Overall retention on treatment was sub-optimal across the 24 months of observation with at least 20% of children lost by 6 months and 33% by 24 months. Early initiation of ART in children as recommended by WHO and National policy is critical. Operationalization of strategies like family clinic days, appointment books, community linkage facilitators and telephone calls can ensure that children are retained on treatment.



# CASE STUDIES



## CASE STUDIES - ROMANIA

## EVALUATION OF SEVERE ANEMIA IN AN HIV POSITIVE CHILD IN CONSTANTA, ROMANIA

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**Introduction:** A 5 year old HIV positive child with history of presumed iron deficiency anemia presented to the local hospital and was found to have a hemoglobin of 1.3 g/dL. He was promptly admitted and given treatment which consisted of a blood transfusion, steroids, and intensive monitoring. HIV can cause anemia in itself. The antiretroviral medications, especially zidovudine, can cause it as well – which this patient was taking. This case study shows the difficulties of discovering the etiology and treating severe anemia in an HIV positive child in a resource-limited setting.

**Methods:** Retrospective case study. Patient was hospitalized October 2013-December 2013. EMR and hospital charts were analyzed over the past 4 years to trend his history of anemia and HIV infection as well as age, weight, sex, progress on treatment, viral load, and CD4 counts.

**Results:** The patient was hospitalized for two months and received one packed RBC transfusion, IV corticosteroids for his severe anemia (Hemoglobin was 1.3 g/dL upon arrival). His CD4 absolute count one year prior was 0 cells detected and a viral load of 12,139 c/mL. He also was found to have ALT 2270 U/L and AST 3955 U/L. He was subsequently found not to have antibodies to Hepatitis A, Hepatitis C core antigen or Hepatitis B surface antigen. His antiretroviral therapy was changed from Retrovir (AZT), Efavir (3TC) and Kaletra to Ziagen (ABC), Efavir (3TC) and Kaletra. He steadily improved to a near normal hemoglobin, AST, and ALT and was discharged home.

**Conclusions:** In a resource-limited environment, it can be hard to determine the etiology of severe anemia in HIV infected individuals – especially determining between HIV infection vs. an adverse reaction of the medication. This patient improved with blood transfusion and a change from AZT to ABC in his antiretroviral regimen. He has continued to improve to this day.





## CASE STUDIES - BOTSWANA

## NEVIRAPINE RELATED TOXIC EPIDERMAL NECROLYSIS IN RESOURCE LIMITED SETTING: CASE REPORT

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**Background:** The Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs), Efavirenz (EFV) and Nevirapine (NVP) are chemically distinct but both may cause life threatening cutaneous hypersensitivity reaction. The patients commonly develop a mild transient rash that in most cases resolves with less intense management. In a few cases, the rash may progress to Stephen-Johnson's Syndrome (SJS) or even toxic epidermal necrolysis with increasing mortality. We report a case of mortality resulting from the substitution of EFV with NVP for gynecomastia in a young patient.

**Presentation:** A 15 years old male, WHO Clinical stage 4, had been on treatment with Zidovudine (AZT), Lamuvudine (3TC) and EFV since October 2008. At enrolment to treatment, his baseline CD4 count was 324 cells/uL (9%) and his weight was 19.2 kg. He had been clinically well with a suppressed viral load and good immunological recovery on the above treatment. In 2011 following 5 years of treatment he developed bilateral non-tender breast enlargement with no secretions. He was concerned and worried about this development. After a year of extensive counselling, he was switched from EFV to NVP. His NVP dosing was based on the WHO anti-retroviral (ARV) treatment dosing charts. At the time of switching the viral load (VL) was suppressed and the CD4 was within normal limits. Two weeks later, he developed severe rash with blisters on the face with mucosal/conjunctival involvement and dehydration. His antiretroviral regimen was stopped and he was admitted for severe SJS, encephalitis and Pneumonia. On admission his liver function profile was normal, the viral load was <400 copies/mL and the CD4 count was 392 cells/uL (21 %). Nonetheless, despite a high level of care by a multidisciplinary team of specialists the SJS progressed to toxic epidermal necrolysis and the patient demised 6 days later.

**Lessons Learned:** Switching EFV to NVP can be fatal. Care needs to be taken when switching such patients for non-life threatening side effects and families should be made aware of the risks involved in situations where the switch is necessary. Where options are available, a protease inhibitor may be a better replacement for EFV.

**H-25403**



## CASE STUDIES - MALAWI

**SEVERE HIV DISEASE IN A RAPID ANTIBODY NEGATIVE INFANT  
INFECTED AFTER LATE MATERNAL SEROCONVERSION: A CASE  
REPORT FROM LILONGWE, MALAWI***A.L. Dean, A. McKenney, M. Kim**Baylor College of Medicine, Clinical Center of Excellence, Lilongwe, Malawi*

**Issues:** With the success of Option B+ for Prevention of Mother-to-Child HIV Transmission (PMTCT) in Malawi, an increasing proportion of vertical transmission will be attributable to maternal incident HIV infection during pregnancy and breastfeeding. Infants infected in this manner present a challenge to early infant diagnosis (EID) and initiation of antiretroviral therapy (ART).

**Description:** A four-month old infant was admitted to Kamuzu Central Hospital with fever and respiratory distress. The infant's mother reported a negative rapid HIV antibody test during pregnancy. Upon admission, the mother had a positive rapid HIV antibody test. Exam revealed a febrile, hypoxic infant, weight/height in the 99<sup>th</sup> percentile, with a non-focal lung exam and oral thrush, concerning for presumptive diagnosis of severe HIV disease based on World Health Organization criteria of pneumocystis pneumonia versus severe pneumonia with oral thrush. However, two rapid antibody tests performed one day apart were nonreactive. A HIV DNA PCR drawn simultaneously yielded a positive result. Patient improved after three weeks of therapy with ceftriaxone, high-dose cotrimoxazole, steroids, oxygen therapy, fluconazole and ART. The patient developed BCG-lymphadenitis after three weeks of ART, likely secondary to immune reconstitution, for which he is currently completing treatment.

**Lessons Learned:** Infants vertically HIV infected in the setting of late maternal incident infection have a theoretical risk of rapid disease progression and discordant test results due to immature immune systems, high inherited viral load burden, and lack of maternal antibody receipt and protection. As a result, unlike the limited acute infection seen in adults, infants can become severely ill prior to developing antibodies to HIV resulting in nonreactive rapid testing and delayed ART initiation where virological testing is unavailable or turnaround of results delayed.

**Future Steps:** This case emphasizes the need to repeat HIV testing in late pregnancy, labor and breastfeeding. Furthermore, it suggests that in settings with high rates of maternal incident HIV infection, the diagnosis of presumptive diagnosis of severe HIV disease may need to be reconsidered to include HIV-exposed infants with negative rapid antibody tests.



# TUBERCULOSIS



## TUBERCULOSIS - TANZANIA - MBEYA

## THE MBEYA ADVANCED PAEDIATRIC TB CENTRE: A PARTNERSHIP BETWEEN BAYLOR TANZANIA, MBEYA MEDICAL RESEARCH CENTRE (MMRC) AND MBEYA REFERRAL HOSPITAL (MRH)

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**Introduction:** In March 2013, the Baylor Tanzania Centre of Excellence (COE) in Mbeya, MMRC and the Mbeya Referral Hospital partnered to create a centre offering comprehensive TB diagnostics including sputum work-up, tuberculin skin testing (TST), fine needle aspiration (FNA), and chest x-ray (CXR) interpretation for children identified with presumptive TB. This abstract provides a description of robust patient assessments, diagnostic findings and treatment during the first 10 months of program evaluation.

**Methods:** Retrospective chart review at the COE between March 2013 and December 2013. Baseline and outcome data were captured using a standardized data collection tool and unique data base. Data is summarized by means and standard deviations for continuous variables and by frequency and proportion for categorical variables.

**Results:** Baseline data: 203 patients with presumptive TB were referred. 47% female (95/203); age 0.3-19.7 years (median 5.3yr). 61% (123/203) HIV-infected, 7% (14/203) HIV-exposed, HIV-uninfected, and 32% (66/203) HIV-negative. Of HIV-infected, 66% (82/124) were on ART at time of referral. 26% (52/203) reported a known TB contact. For HIV-infected presumptive TB, mean CD4 count 650 (3-4387, SD 640). Of all patients evaluated, 76% (155/203) had sputa (44% induced, 56% spontaneous), 96% (194/203) had TSTs, 8% (17/203) FNAs, and only 51% (104/203) had CXRs due to mechanical and logistical challenges.

**Outcome data:** 78 of the 203 (38%) were diagnosed with TB disease and 95% (74/78) initiated on TB therapy. 35% (27/78) were confirmed TB, 38% (38/78) probable TB, and 17% (13/78) possible TB. 10 patients were LTFU or died (4 of which had bacteriologically-confirmed TB results). Of those diagnosed, 76% (59/78) had pulmonary TB, 10% (8/78) lymph node TB, and 14% (11/78) extra-pulmonary TB. HIV-infected accounted for 59% (33/59) of P'TB, 50% (4/8) of LNTB and 73% (8/11) EPTB diagnosed. Table 1 lists the results and performance of the TB diagnostic tests in our patients. Median time from referral for TB diagnostics to initiation of TB therapy was 3 days (range 0-98 days).



**Table 1: TB diagnostic test results and test performance measures for pediatric patients with presumptive TB (with "TB Disease" diagnosis used as reference standard)**

All patients (n=203)							
Diagnostic Test (# performed)	% tests with positive result (n)	PPV	NVP	Sensitivity	Specificity	PLR	NLR
Sputum GeneXpert (n=155)	3% (4/155)	1.00	0.37	0.07	1.00	0.07	0.93
Sputum smear (n=155)	3% (4/155)	1.00	0.37	0.07	1.00	0.07	0.93
Sputum culture (n=155)	17% (26/155)	0.92	0.29	0.39	0.98	0.65	0.62
TST (n=194)	13% (25/194)	0.80	0.35	0.27	0.95	0.37	0.76
FNA (n=17)	41% (7/17)	1.00	0.67	0.64	1.00	1.75	0.36
Chest x-ray (n=104)	35% (36/104)	1.00	0.17	0.75	1.00	3.00	0.25
HIV-infected patients only (n=123)							
Diagnostic Test (# performed)	% tests with positive result (n)	PPV	NVP	Sensitivity	Specificity	PLR	NLR
Sputum GeneXpert (n=101)	3% (3/101)	1.00	0.36	0.08	1.00	0.09	0.92
Sputum smear (n=101)	2% (2/101)	1.00	0.36	0.05	1.00	0.06	0.95
Sputum culture (n=101)	15% (15/101)	0.93	0.28	0.37	0.98	0.58	0.64
TST (n=106)	11% (12/106)	0.83	0.35	0.23	0.97	0.30	0.79
FNA (n=8)	38% (3/8)	0.75	0.50	0.60	0.67	1.50	0.60
Chest x-ray (n=59)	36% (21/59)	1.00	0.20	0.72	1.00	2.62	0.28

TST-Tuberculin Skin Test; FNA- Fine Needle Aspirate; PPV- Positive Predictive Value; NPV- Negative Predictive Value; PLR- Positive Likelihood Ratio; NLR- Negative Likelihood Ratio

**Conclusions:** Advanced TB diagnosis is possible in our resource-constrained setting and successfully led to increased TB case finding and prompt initiation of anti-TB in children. However, our results show that despite having access to state of the art diagnostics, positive test results are still low, stressing the importance of clinical TB diagnosis in children.



## TUBERCULOSIS - ROMANIA

## THE IMPACT OF HAART ON THE SURVIVAL OF PATIENTS WITH TUBERCULOSIS RELATED TO HIV-1 INFECTION, 1989-2009

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**Background:** Tuberculosis is the commonest opportunistic infection among HIV infected individuals and HIV infection is the strongest identified risk factor for TB infection and disease. The AIDS epidemic had a profound impact on paediatric tuberculosis in the early 90 in the south eastern part of Romania. In 1990, 39.2% of Romanian Paediatric AIDS cases (n=351/1,037) were reported by Constanta county and in the same year the rate Paediatric TB related HIV was 19‰.

**Aim:** To assess the impact of highly active Antiretroviral Therapy (HAART) on the survivals of patients with TB related HIV-1 infection.

**Methods:** From the 1<sup>st</sup> of January 1989 to the 31<sup>st</sup> December 2009, we retrospectively evaluated data of HIV infected individuals with related TB who were reported by Constanta HIV Statistical Department. Survival from TB association perspective was reviewed for a 20 years interval. Data from HIV-1 infected individuals with available medical files were collected to assess the impact of HAART on patients with TB related HIV by site of TB process localization (pulmonary, extrapulmonary or both). HAART has been initiated since 1998. The methods for survival statistical analysis performed by SPSS software were Lee Desu for the group 1 (before HAART) and Kaplan Meier for the group 2 (after HAART).

**Results:** In group 1 with no HAART, there were included 313 patients mean aged 4.2 year-old +/- 2,532 std dev. 116 were diagnosed with PTB, 96 with EPTB and 101 with DTB. Almost a half of them died (n=138/313; 44.08%). The median of survival was 66.34 months for PTB, 87 months for EPTB, and 16.2 months for DTB (F=14.05; p< 0.01). Of 144 patients mean aged 28.76 year-old +/- 12.361 std dev included in group 2 because they received HAART, 49 deaths were reported (12.76%). 114 were diagnosed with PTB, 17 with EPTB and 13 with DTB. The median of survival was 87.92 for PTB, 89.25 for EPTB and 16.2 months for DTB (p< 0.650). HAART increases the numbers of survivors [n2=95/144 versus n1=175/313; OR=1.53 (0.99<OR<2.35); CI 95%; RR=1.18 (1.01<RR<1.38);  $\chi^2=4.12$  p 0.05].

**Conclusions:** The outstanding of tuberculosis as a risk factor for death in HIV infected patients as well as the evaluation of the site of TB disease may influence the survival of TB related HIV patients but HAART influenced significantly the survival.



## TUBERCULOSIS - SWAZILAND

## NURSE-LED STRATEGIES TO MAXIMIZE PAEDIATRIC TB DIAGNOSIS AND LINKAGES TO CARE IN SWAZILAND

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**Background:** Swaziland is a high TB burden country and 83% of the incident TB cases are co-infected with HIV. Baylor College of Medicine Children's Foundation-Swaziland (COE), a premier tertiary HIV center, has offered comprehensive TB/HIV services since 2006. Currently more than 3000 children and adolescents are in care with over 1500 caregivers enrolled. Traditionally TB services were limited to: sputum smear diagnosis and treatment with limited impact due to the scarcity of human resources with majority of cases under-detected leading to high morbidity and mortality.

**Description:** In 2012 BCMCF-SD leveraged WHO TB Reach, wave 3 funding to strengthen paediatric TB services via incorporation of GeneXpert TB/RIF (GXP) diagnostics, introduction of contact-tracing, and development of a high-quality comprehensive and nurse-led paediatric TB clinic. The program primarily focuses on: capacity building and skills transfer that include comprehensive TB/HIV care, early diagnosis, and initiation of TB treatment and Antiretroviral Therapy (ART) for HIV/TB co-infected clients. Also includes robust intensified case finding and contact tracing system, including home visits routine paediatric sample collection techniques with same day results (Gastric aspiration and sputum induction), elimination of patient fees to improve access to radiology, enhanced implementation of Isoniazid Preventative Therapy in TB contacts under 5 years of age, management of drug resistant TB, and establish of a national educational center for childhood TB management.

**Lessons learned:** TB diagnosis and management in children is poor in our setting. Task shifting/sharing is feasible and increases access to high quality TB care. Decentralization and skills transfer from doctor to nurse and the nurse to nurse with physician oversight and newer GXP technology rapidly improves yield of diagnosis and treatment initiation. Reducing barriers to care improves outcomes.

**Conclusions:** In countries where doctors are scarce, task shifting provides a safe and high-standard environment to address TB in the paediatric population. Nurse mentoring by experienced TB nurses is a safe, acceptable and more feasible alternative to conventional physician led models.

**Next Steps:** Our program aims to become a model for paediatric TB care in Swaziland and many other resource limited setting like our country using the context-adapted strategies that maximize available resources. Construction of TB clinic ongoing.



## TUBERCULOSIS – LESOTHO

### IMPLEMENTATION OF ISONIAZID PREVENTIVE THERAPY

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**Issues:** In an effort to combat the devastating HIV and tuberculosis (TB) epidemics in Lesotho, the Ministry of Health launched National Guidelines for the Three I's: Intensified Case Finding (ICF), Isoniazid Preventive Therapy (IPT) and Infection Control (IC) in September 2011, based on WHO recommendations. All HIV-infected persons over one year of age are eligible for IPT as part of a comprehensive package of HIV care and treatment services. Routine use of IPT in HIV-infected persons is new in Lesotho, and BCMCF served as a pilot site for national implementation.

**Description:** Tuberculosis is the most frequent life-threatening opportunistic infection among people living with HIV, and remains one of the leading causes of mortality among HIV-infected children in Lesotho. All eligible patients, pre-ART and on ART, were initiated on a six-month course of IPT.

Clinicians were prepared for implementation of this new initiative by receiving lectures on IPT, job aids on isoniazid dosing and National Guidelines for the Three I's. Additionally, they received training on TB screening for all HIV-infected persons and diagnosis of TB disease.

The clinic flow was increased during the roll-out as all patients on IPT were reviewed on a monthly basis, not only to refill medications, but also to see clinicians for potential INH side effects or TB symptoms, as recommended by the guidelines.

**Lessons Learned:** Changes in clinic flow were dramatic and required multiple adjustments. One or two clinicians were assigned each day to IPT review. Otherwise clinically-stable patients were thus 'fast-tracked' for TB screening, side effect review, and refill of medications.

Data collection and clinical recording involved paper-based registers. No adherence calculations were available initially to ensure completion of recommended therapy. Modification of the EMR has simplified data collection and analysis. Also, patients who were initiated on IPT and then transferred to other health centers discontinued IPT as there were few healthcare facilities in the country implementing IPT.

**Next Steps:** Almost all eligible clients have now completed IPT, although the initiative continues for newly enrolled clients and those with new TB exposure. Adjustments to clinic flow and monitoring schedules are recommended for sites beginning IPT.





## TUBERCULOSIS - LESOTHO

### FUMANA TB BANENG

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**Background:** Tuberculosis (TB) is common in children, but there are many challenges in diagnosing and confirming disease. Sputum examination remains the primary means of diagnosis, but infants and young children are often unable to produce quality sputum samples. In 2012, approximately 6% of Lesotho's TB cases were identified in children. Difficulties in obtaining sputum contribute to under diagnosis of TB in children.

**Description:** TB Reach Project – “Fumana TB Baneng” – aims to improve the diagnosis and treatment of children with TB. It literally means “Find TB in Children.”

Starting July 2013, trained lay personnel and village health workers conduct home visits to TB patients to trace household contacts. Household members are educated about prevention and treatment of TB and are screened for TB symptoms. Individuals who are found to be ill or who answer “yes” to the screening questions are referred to local clinics for further evaluation. Individuals under five years of age and those who are HIV-infected are referred for Isoniazid Preventive Therapy. Anyone who does not know their HIV status is encouraged to receive HIV counselling and testing.

The COE currently offers sputum induction. Children with clinical symptoms of TB can be referred from other health facilities. Sputum induction is also being established at four district hospitals in Lesotho.

COE staff have regular slots on local radio to increase awareness of paediatric TB prevalence and diagnosis, including the sputum induction procedure.

**Lessons learned:** Expanding community TB support to include active case-finding is necessary to improve identification rates in children. Clear guidance is needed from the National Tuberculosis Program to integrate new initiatives, programmatic and clinical, into community TB support programs. As new diagnostics tests for TB are developed and implemented, efforts to include children in the use of those diagnostics need to be a priority. However, while sputum analysis remains a primary diagnostic tool, special attention must be focused on obtaining quality samples from children.

**Next steps:** Ongoing analysis of the project will provide valuable information on the yield of active case-finding in the community. Sputum induction results will be analyzed to give feedback on diagnostic possibilities within Lesotho.



# ADOLESCENT TRANSITIONING



## ADOLESCENT TRANSITIONING – MALAWI

**TRANSITION TRAINING (T<sup>2</sup>): TRANSFERRING THE NECESSARY ECONOMIC PSYCHOSOCIAL, AND SELF-CARE SKILLS NEEDED FOR YOUNG ADULTS LIVING WITH HIV IN MALAWI TO MAKE A HEALTHY AND SUCCESSFUL TRANSITION INTO ADULTHOOD**

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**Background:** In Sub-Saharan Africa, there is a large gap in age-appropriate medical and non-medical services for young adults living with HIV. Teen Club programming often lacks the tools necessary for adolescents to successfully transition into adulthood. Based on a baseline needs assessment at BCM-CFM, the Transition Training (T<sup>2</sup>) program was developed and piloted to equip young adults living with HIV with life skills to gain financial security and social enfranchisement, and to strengthen medical and non-medical self-care skills.

**Description:** T<sup>2</sup> is a hands-on training to equip 18-24 year olds with practical knowledge, skills, and tools to achieve their personal goals while living positively with HIV. T<sup>2</sup> creates a unique and safe space for young adults to learn how to balance career advancement while addressing fears of stigma/discrimination and disclosure. 21 participants attended the eight-week T<sup>2</sup> pilot. Economic empowerment sessions focused on transferring skills and completing practical exercises that make participants more eligible for employment. Healthy positive living sessions addressed participant-driven, age-specific needs relating to disclosure, positive sex, family planning, and stigma/discrimination.

**Lessons Learned:** Through this pilot program, the 21 participants gained economic and self-care skills that encourage self-empowerment for their transition to adulthood. As a result of the program, six young adults disclosed their HIV status at national and international events and one disclosed to his girlfriend. All participants designed career goals, cover letters, CVs, partook in mock interviews, and created email addresses. Consequently, two participants successfully gained employment, three were awarded internships, and four decided to re-enroll in school.

**Next steps:** Citing the positive participant feedback from the pilot program and the large number of young adults living with HIV in Malawi, BCM-CFM plans to roll out the T<sup>2</sup> curriculum to Teen Club sites in Malawi, and help fulfill the gap of services that currently exist for young adults living with HIV in Malawi.



## ADOLESCENT TRANSITIONING - TANZANIA - MWANZA

## MANAGEMENT OF TRANSITION PROCESS FOR AGING-OUT YOUTH

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**Issues:** Eventually, all adolescents who have been cared for at Paediatric Clinics have to transition from adolescent to adult health care. Of the 1,310 paediatric patients at Mwanza COE, 131 of them are teens between the ages of 15 and 18 year olds who will age out of the Baylor system at 18 and transfer to adult CTCs. Preparing for transfer requires a process that objectively measures transition readiness in the years preceding transfer. Adolescents leaving the comparatively richly resourced paediatric system, face greatly reduced services in the adult CTC world. Without adequate preparation, the move from youth to adult systems may put teens at risk for losing momentum in managing their HIV, and interruptions or cessation of treatment altogether.

**Description:** Multiple strategies have been devised to measure transition readiness, identify and address knowledge gaps, and coordinate social service and medical services to ensure successful transfer. Three stages of transition/transfer have been identified and transition readiness tools designed to objectively measure readiness at each stage. During stage three, a cross-disciplinary case staffing is used to reach consensus on readiness. A coordinated care plan is developed for those youth who are nearing 18, but not medically or psycho-socially ready for transition. Finally, coordination occurs with the receiving Adult CTC to insure the transfer of clinical information needed for management in the adult setting.

**Lessons Learned:** Meaningful and objective measures of transition readiness take significant time to test and develop. However, even the preliminary tool is providing information about knowledge gaps that tell us what information we need to provide to both the individual patient and the population. For instance, consistent deficits in knowledge of sexual health during phase one testing can point to a need for teen club meetings with that theme. Formalizing the transition/transfer procedure and creating a venue for multidisciplinary staffing has increased staff awareness of their role in preparing our teens for transfer.

**Next Steps:** We have now had four months of experience using the phase I and II tools. In two months we hope to have enough data to experiment with cut-off scores that correspond with successful transition to adult facilities.



## ADOLESCENT TRANSITIONING - TANZANIA - MBEYA

## TRANSITIONING HIV-INFECTED ADOLESCENTS INTO ADULT CTC

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**Issues:** In Tanzania, of the estimated 1.5 million people living with HIV, 500,000 are between ages 15-24. With a growing number of HIV+ adolescents in care, there exists a need for developing a standardized, comprehensive process for transitioning adolescents into healthy adulthood and adult HIV care.

**Description:** In April 2013, Baylor Mbeya developed a standard operating procedure for its Transition Program. The program involves joint evaluation of eligible teens by clinicians and counselors. Eligible teens must be over the age of 18 years and be stable from a medical and a psychosocial standpoint. Transition meetings occur once per month, and are led by a counselor and a Transition Expert Patient. In the morning, one-on-one sessions are held, and in the afternoon a large group session is held in the Baylor classroom. In addition to discussing the transition process, location of adult clinics (using maps) and explanation of what to expect at adult clinics is covered. Adolescents may attend as many transition meetings as desired. Adolescents are transferred out once they have attended the meeting(s), visited their new clinic, and are cleared by the clinical team. They can return to Baylor COE for support if any challenges arise, and can continue to participate in Teen Clubs.

**Lesson learned:** From May to December 2013, eight Transition Meetings were held, with a total of 57 (of 71 invited) adolescents attending one or more meetings. A total of 37 teens have successfully transitioned using the program. The program has been well received by adolescents, particularly the use of peer mentors. Challenges include teens experiencing anxiety about transitioning, and having a difficult time adjusting to the increased responsibility and expectations in an adult clinic. The identification of adult clinics with second line ART has also proven difficult.

**Next steps:** Ways to increase sensitization and uptake of the Transition Program (e.g. integrate into Teen Club, waiting room education, etc) are currently underway. There is also a growing need to developing transition plans for adolescents with complex medical conditions and needs. Evaluating the short- and long-term the outcomes of these transitioned patients is needed.



## ADOLESCENT TRANSITIONING - BOTSWANA

## TOOLS FOR SUCCESS: EQUIPPING HIV-INFECTED ADOLESCENTS TO BRIDGE THE GAP BETWEEN PAEDIATRIC AND ADULT HEALTHCARE IN RESOURCE-LIMITED SETTINGS

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**Background:** Increased availability of antiretroviral therapy (ART) in sub-Saharan African countries like Botswana, with the second-highest prevalence of HIV/AIDS in the world, has resulted in unprecedented numbers of perinatal HIV-infected children surviving into adolescence and young adulthood. The Botswana-Baylor Children's Clinical Centre of Excellence (COE) has lead the way in developing interventions for this perinatal infected cohort, including the region's first comprehensive healthcare transition program, which utilizes a number of indigenized tools to assist HIV-positive adolescents make a successful transition into adult care

**Description:** The "Kalogo" (Setswana for "graduation") Transition Program is lead by a multidisciplinary team of the healthcare providers. The team started meeting monthly in 2009 to review existing tools and develop protocols, utilizing focus group discussions and quality improvement methods to continually improve indigenize program components. Over 1,000 adolescents aged 13 to 19 have been enrolled in the program and 33 have been identified as ready for transition in peer groups of 2-3 "buddies". These patients helped create, pilot, and finalize the following 5 tools: a transition roadmap of staged progress based on knowledge, skills and adherence; a risk-screening tool tailored to the local population to identify risks for adherence/treatment failure prior to transition; a tool that prompts providers to ask 2-3 transition readiness questions each visit; homework assignments to be completed during clinic visits that reinforce knowledge; and an educational module on transition used during peer support group meetings. Upon roll-out in Botswana, tools will be shared and piloted in other resource-limited countries.

**Lessons learned:** The collaborative and inclusive nature of the multidisciplinary transition team, including adolescents themselves, ensures local relevance and ownership of the program tools. Public-private partnership development is key as the program continues to share and pilot its tools with partners in other countries.

**Conclusions/Next steps:** Healthcare transition in the developing world setting is still a nascent concept. As the first comprehensive transition program for perinatal HIV-infected youth in sub-Saharan Africa, the "Kalogo" model and associated tools have much to offer programs in other resource-limited settings. A formal transition program with locally relevant tools is critical to ensuring successful linkage to and retention in adult care.

H-25403



# CHALLENGES IN HIV CARE



## CHALLENGES IN HIV CARE - MALAWI

## DISCORDANT HIV TEST RESULTS IN HIV INFECTED / EXPOSED INFANTS.

## EXPERIENCE FROM BAYLOR CENTRE OF CLINICAL EXCELLENCE – MALAWI

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**Background:** Baylor-Malawi has an average monthly enrollment of 37 HIV exposed infants. Exposed infant – mother pairs are followed in HIV Care Clinics. Few infants become infected due to late maternal ART initiation or poor adherence. Infection in these infants is determined by a positive DNA-PCR test and the child started on ART. HIV status is then re-confirmed with routine HIV rapid (antibody) test at 12 and 24 months for all exposed infants in order to capture false positives resulting from contamination or mix-up of samples used in DNA-PCR testing.

A child with positive DNA PCR usually has a reactive HIV rapid test at 12 and 24 months. However, in some cases, a child may have a positive DNA-PCR earlier in life, and a negative HIV rapid test at 12 or 24 months. This discordance causes confusion for many pediatric providers and requires a tie-breaker (currently a repeat DNA PCR) to determine if ART should be continued. Surprisingly, a repeat DNA-PCR turns out negative in some, and positive in others. In these cases another tie breaker is needed apart from repeating DNA-PCR.

**Description:** At Baylor-Malawi, 14 infants with +DNA-PCR early in life were identified, started on ART and found to have negative rapid tests at 12 or 24 months. Of those who received repeat DNA PCR tests, three had NEGATIVE and ten had POSITIVE repeat DNA-PCR. One result is not available.

**Lessons Learnt:** Some exposed infants with a positive DNA-PCR early in life, have a negative rapid test and a negative tiebreaker DNA-PCR later. Repeat rapid HIV tests may not be necessary in HIV infected children who start ART at <6months of age.

**Next steps:** Repeat DNA PCR is necessary when starting ART in children <6 months of age to double confirm HIV infection other than repeating rapid antibody tests later in life which may be NR. Before discharging children who have negative repeat DNA PCR whilst on ART, we may need to do another DNA PCR, 8 weeks after stopping ART to confirm their negative HIV status.





## CHALLENGES IN HIV CARE - BOTSWANA

## A CASE SERIES OF HIV-POSITIVE CHILDREN WITH HIV-NEGATIVE MOTHERS AT THE BOTSWANA BAYLOR CHILDREN'S CLINICAL CENTRE OF EXCELLENCE: AN UNEXPLAINED PARADOX

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**Background:** The current standard practice in Botswana recommend HIV testing for all HIV exposed children but none for children of HIV negative mothers. Anecdotally, there are some cases where some children are found to be HIV positive despite their mother's HIV negative status. We describe 3 cases of HIV positive children of HIV negative mothers and their potential risk factors for HIV infection.

**Methods:** A retrospective chart review of all HIV positive children of HIV negative mothers, who have been followed up at Botswana Baylor Clinic as of December 2013.

**Results:** Case 1: Male child, delivered by spontaneous vaginal delivery (SVD) at term, diagnosed with HIV at 8 years of age. Presented at diagnosis with cough, TB contacts, molluscum contagiosum, malnutrition and generalized lymphadenopathy. His mother was HIV negative during pregnancy and at the time of the diagnosis. The child has no history of prior blood transfusion or known history of sexual abuse. The child used to be under the care of HIV positive grandmother who passed away.

Case 2: Male child delivered at term by SVD, first diagnosed with HIV at the age of 7 years following clinical presentation with repeated episodes of scalp sores. His mother was HIV negative during pregnancy and at diagnosis. He has no known history of sexual abuse or blood transfusion. The child used to stay with an HIV positive uncle.

Case 3. Female child born at term by SVD to an HIV negative mother, first diagnosed with HIV at 7 years of age, following presentation with per vaginal discharge, generalized lymphadenopathy and smelly urine. There was no known history of sexual abuse or blood transfusion. Of note, the housemaid used to put her fingers in her vagina when bathing her. The swab grew commensals and the HIV status of housemaid was unknown.

**Conclusion:** These three cases of HIV positive children of HIV negative mothers indicate that such cases are not uncommon. While household contact with HIV positive individuals seems to be a possible risk factor, these cases challenge the current HIV testing guidelines. Further research is needed to understand the cause behind this unexplained paradox.

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## CHALLENGES IN HIV CARE - UGANDA

## HIV DRUG RESISTANCE PATTERNS AMONG PATIENTS ATTENDING BAYLOR-UGANDA CLINICAL CENTER OF EXCELLENCE

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**Background:** As access to antiretroviral therapy (ART) continues to improve in resource-limited settings, the emergence of HIV drug resistant mutations (DRMs) is becoming a challenge due to the absence of virological monitoring in routine clinical care. DRMs decrease viral susceptibility contributing to treatment failure among patients. At Baylor-Uganda, resistance testing is not routinely performed; however, clinicians often request for resistance tests for a few patients with treatment failure. We report on the genotypic profile of HIV-1 isolates from ART experienced patients at Baylor-Uganda, and document prevalence of mutations in the reverse transcriptase (RT) and protease (PR) genes

**Methodology:** We reviewed patient records for the period 2010-2013, and abstracted information on age, sex, viral load, and CD4 counts at the time of resistance profiling, and antiretroviral agents used. For the tests, whole blood specimens were used for resistance profiling, viral load measurements and CD4 counts. CD4 counts were carried out using the BD Facs caliber analyzer, Plasma HIV-1 RNA levels were done using a Taq Man Machine with a low HIV-1 RNA detection threshold of 250 copies/ml. Resistance profiling was done at the Center For AIDS Research (CFAR) laboratory at the Joint Clinical Research center using plasma.

**Results:** Samples from 28 patients, all with viral loads > 1,000 copies/ml, were submitted for resistance testing. Of these, 4 (14%) could not be amplified. Among the 24 that were amplified, the most common HIV mutations were M184V, 41L, 215Y,103N, 190AG and 46I, 54V,82A,10I. The patients showed resistance to Lamivudine 15 (63%), Emtricitabine 15 (63%), Zidovudine 7 (29%), Stavudine 6 (25%), Abacavir 5 (21%) and Didanosine 5 (21%). Ten (42%) had resistance to Efavirenz and 15 (63) showed resistance to NVP. The most frequent DRMs were M184V (33%); and M41L (21%) for the reverse transcriptase inhibitors while for the non-reverse transcriptase inhibitors the common mutations were G190AG (25%) and for the protease inhibitors the most frequent DRMs were I54V4 (17%), L10I3 (13%).

**Conclusions:** HIV drug resistance mutations were common among these group of Ugandan patients on ART.



## CHALLENGES IN HIV CARE - TANZANIA - MBEYA

## “WHERE THERE IS NO ONCOLOGIST” – CHARACTERISTICS AND OUTCOMES OF CHILDREN TREATED FOR KAPOSÍ SARCOMA AT BAYLOR MBEYA, TANZANIA

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### **Background:**

An oncology program was developed at the Baylor Mbeya Center of Excellence (COE) to provide comprehensive care for pediatric Kaposi sarcoma (KS) patients. This program represents a unique initiative to provide oncology care in a resource constrained non-academic setting. This study aims to describe the baseline characteristics and outcomes of patients enrolled in the program.

### **Methods:**

Retrospective chart review of HIV infected children diagnosed with KS between 1 March 2011 and 31 Dec 2013. Baseline data: gender, age, KS clinical presentation, WHO immunological stage, and ART status. Outcomes data: treatment outcome and chemotherapy regimen.

### **Results:**

Baseline data (n=26): 35% female (9/26); age 4-18 years (mean 11.8 years). Diagnosis by biopsy: 62% (16/26). Characteristics at time of diagnosis: 58% (15/26) skin lesions, 54% (14/26) lymphadenopathy, 46% (12/26) oral lesions, 42% (11/26) woody edema, 19% (5/26) more than 20 skin lesions, 8% (2/26) presumed pulmonary. Severe cytopenias in 27% (7/26). WHO severe immunosuppression: 85% (22/26). 65% (17/26) on ART at time of diagnosis, all on first line regimen. Median time on ART prior to diagnosis of KS: 7 months (0.5-75 months). 20% (5/17) virologic or immunologic evidence of treatment failure.

Outcomes data among those receiving chemotherapy for 2 months or greater (n=25): 40% (10/25) achieved complete clinical remission (CCR); 32% (8/25) partial remission (PR)/stable disease, 8% (2/25) relapse; 20% (5/25) died. For patients with CCR, median time between diagnosis and end-of-study: 15 months (5-28 months). Of patients who relapsed or died, 85% (6/7) had severe immunosuppression, one patient died prior to obtaining CD4.

All patients treated with chemotherapy except one who died without receiving treatment. 68% (17/25) were treated with bleomycin and vincristine (BV). 32% (8/25) were given 3 drug therapy (BV+doxorubicin). One patient who relapsed after treatment with BV+doxorubicin was treated with paclitaxel and achieved partial remission.

### **Conclusions:**

Despite resource limitations, with chemotherapy and ART, good outcomes are possible outside major teaching hospital settings in Africa, with low mortality rates and sustained clinical remission. Patients who relapse or die are more likely to have severe immunosuppression, and early diagnosis of children with HIV and KS is essential to achieve good outcomes.



## CHALLENGES IN HIV CARE - TANZANIA - MWANZA

## COMPARISON OF THE OUTCOME AMONG HIV EXPOSED INFANTS WHO ENROLLED EARLY IN CARE TO THOSE WHO ENROLLED LATE AT BAYLOR PAEDIATRIC CENTRE IN MWANZA, TANZANIA.

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**Background:** Globally, over 900,000 HIV positive pregnant women receive antiretroviral treatment<sup>1</sup>. As a result of scaled-up HIV prevention, newly infected children was 260 000 by 2012, in developing countries. This is 52% decline since 2001.<sup>1</sup> National prevalence of HIV at ANC is 6.9%. Country is rolling out Option B+ to accelerate eMTCT. These interventions will allow for mother-baby pairs to be followed together till definitive diagnosis is made. This study had set out to evaluate the outcome between HEI who enrolled early compared to late into Care.

**Methods:** Retrospective chart review of HEI enrolled from March 2011-December 2013. Inclusion criteria: all HEI enrolled during this period. Relevant data was evaluated among three cohorts; enrolled early (0-2.5 months), late (2.6-6.9 months) and very late (7-17.9 months).

**Results:** 536 charts of HEI were reviewed, 38% (203/536) enrolled early: median age 1.3. At enrolment, 94/203 were Negative. At 6 months and 12 months 1 had SAM. By 9 months, 64/94 remained Negative, 5 Positive, 1 Died, 5 LTFU. 6/203 were Positive, 4/6 received NVP for 6 weeks. By 9 months, 3 became Negative by DNA PCR and discharged, 1 LTFU, 2 Positive.

29% (155/536) enrolled late: median age 4.8. 64/155 were Negative. 25% EBF, 56% had no documented feeding method. 58% (37/64) received PMTCT, 22/64 (no or incomplete PMTCT; 3/22 Presumptive diagnosis). At 9 months, 6/64 became Positive, 47 remained Negative, 11/64 (6 LTFU, 1 transferred out, 1 died, 3 discharged). 23/155 were Positive at enrolment, 13/23 active, 7 Died, 3 LTFU. Among these 7 had Presumptive diagnosis. 90% (unknown or no PMTCT).

32% (175/536) enrolled very late: median age 12.3. At enrolment, 51/175 were Negative, 45% were on Cotrimoxazole, 31% mixed feeding. 3/51 had Presumptive diagnosis, 8 active, 3 Died, 19 discharged, 20 LTFU and 1 transferred. 40/175 were Positive, 55% not on Cotrimoxazole. 33% were ongoing mixed feeding. By 12 months (6 SAM, 9 MAM and 25 Died), 35% had presumptive diagnosis.

**Conclusions:** Early enrolment into Care and concurrently comprehensive antenatal care can greatly enhance eMTCT efforts. However, retention in care is still a challenge, especially inability to achieve adequate monitoring of HIE.

Late enrolment has detrimental effects for HEI. We have observed in our cohorts, high mortality rates, lost to follow up as well as poor nutrition status to be more common among this group of children.



## CHALLENGES IN HIV CARE - MALAWI

## ACUTE COMPLAINTS AT UNSCHEDULED SICK VISITS AT THE BAYLOR MALAWI CHILDREN'S FOUNDATION CENTRE OF EXCELLENCE (COE): A RETROSPECTIVE CHART ANALYSIS

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**Background:** Increased availability of ART has resulted in the profound reduction of mortality of HIV-positive children worldwide. Despite this improvement, mortality of children on ART remains more than 30 times that of uninfected children. While the reasons for this discrepancy are multi-factorial, studies from higher-resource settings have clearly shown shifts in causes of mortality after the introduction of ART. While overall mortality and prevalence of opportunistic infections (OIs) are reduced, there are increases in other causes of death. In children, non-AIDS related infections become a primary cause of morbidity and mortality after introduction of ART. This analysis was conducted to characterize the most common diagnoses among children at a government HIV clinic in Malawi.

**Methods:** A retrospective chart analysis of unscheduled sick visits over a 3-month period was completed. Baseline demographics including age, sex, WHO Stage, and CD4/VL data along with chief complaints, diagnoses, frequency of sick visits, and rates of hospitalization were extracted from the EMR. This data was then analyzed to characterize the trends seen in unscheduled sick visits.

**Results:** Between 1/12/13 – 28/02/14, there were 6,094 total patient visits. Of these, unscheduled sick visits accounted for 6% (n=345) of visits. The majority of patients were WHO T1/T2 or I/II (87%). They also had suppressed VLs (75%) and/or CD4 counts greater than 500 (70.5%) or > 25% (63%). Acute infectious complaints were the most common reasons for presentation. Fever, cough, vomiting, and diarrhea comprised 66% of complaints. Among diagnoses, 5 comprised 73% of all diagnoses (n=359). These included sepsis (n= 80, 22.7%), malaria (n= 45, 12.8%), pneumonia (n=35, 9.9%), URTI (n=51 14.5%), and gastroenteritis (n=46, 13.1%). In contrast, only 7 visits (1.9%) were associated with an OI diagnosis.

**Conclusions:** Consistent with data from larger studies, OIs were diagnosed in a minority of visits. In contrast, acute infectious complaints were a primary source of morbidity among HIV-positive children that by clinical and laboratory criteria are doing well on ART. This finding highlights the importance of strengthening current management of acute infectious complaints in order to further reduce the morbidity and mortality of children with HIV.



## CHALLENGES IN HIV CARE - TANZANIA – MBEYA

## UPDATE ON HIV-INFECTED CHILDREN AND ADOLESCENTS ON SECOND-LINE THERAPY DUE TO TREATMENT FAILURE IN MBEYA, TANZANIA

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**Background:** There is little published data describing characteristics and outcomes of HIV-infected children experiencing treatment failure (TF) in Tanzania. This study aims to evaluate children at Mbeya COE switched to second-line ART due to treatment failure from 2011-2013.

**Methods:** Retrospective chart review at Mbeya COE from March 2011-December 2013. Inclusion criteria: HIV-infected children ages 5 years and older switched to second-line due to TF.

Baseline data: age, gender, duration on first-line, T-stage, CD4, and pre-switch VL.

Outcomes data: death, lost to follow-up (LTFU), T-stage at 6 and 12 months, CD4 6-12 months post-switch, and VL  $\geq$  6 months post-switch.

**Results:** N=92, or 7.7% (92/1198) of total active HIV-infected clients at the COE. Median age 15.8 years (6.1-22.2); 41% female (38/92). Average duration on first-line before switch=4.5 years (0.7-8.3). T-stage before switch: T4=18.5% (17/92), T3=12.0% (11/92), T2=17.4% (16/92), T1=52.2% (48/92). 92% (85/92) had CD4 data in the year prior to switch: median=122 cells/uL (5-885). 69.4% (59/85) had CD4 <200. 88% (81/92) had pre-switch VL data: median=77,122 copies/mL (2,490-2,069,304). Two had VL <5000. Of 11 patients without pre-switch VL, 9 had VL drawn but results not returned. For those switched without VL, 5 had immunologic failure only, 1 had clinical failure only, and 5 had clinical and immunologic failure.

**Outcomes:** 87% (80/92) had follow-up at COE, 4 were LTFU and 8 transferred care. Two patients died, at 1 month and 17 months post-switch. Of T-stage III/IV pre-switch patients, 23 had T-stage data 6 months post-switch: T4=13.0% (3/23), T3=0% (0/23), T2=21.7% (5/23), T1=65.2% (15/23). 18 had T-stage data 12 months post-switch: T4=11.1% (2/18), T3=11.1% (2/18), T2=0% (0/18), T1=77.8% (14/18). Due to laboratory challenges, only 37 patients had CD4 data both one year before and 6-12 months after switch: median prior=96 (6-430), median after=311 (8-2055), median CD4 rise=215. 30 patients had VL  $\geq$  6 months post-switch: median=61 (undetectable-1,353,783), and 20.0% (6/30) had VL >5000.

**Conclusions:** Early clinical, immunological, and virological outcomes, follow-up and mortality were good after switch to second-line ART. Further research is needed to characterize patients <5 years old and patients without virologic suppression post-switch. The lack of pre- and post-switch VL for all patients, despite VL testing availability for these indications, suggests the need for a standardized TF protocol at the COE.



## CHALLENGES IN HIV CARE - LESOTHO

### HIV BURDEN OF DISEASE IN CHILDREN'S MEDICAL WARDS IN LESOTHO

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**Background:** Children continue to lag behind adults in HIV counselling and testing, enrolment into care, and provision of ART. Yet, many HIV-exposed and infected children are accessing health services without knowing their HIV status. To assist the Ministry of Health of Lesotho (MOH) in identifying these children, BCMCFCL through the *Strengthening Clinical Services in Lesotho* project, hired provider-initiated testing and counselling (PITC) counsellors in seven districts hospitals. The counsellors offer HIV testing and counselling services to children hospitalized on Children's Medical Wards and to their caregivers. Three hospitals are located in urban areas, including the national referral hospital in Maseru, one in semi-urban area and three are located in the rural highlands of Lesotho.

**Methods:** PITC counsellors record monthly admissions (children and their caregivers), numbers of clients offered HIV testing and counselling, number newly identified as HIV-infected or exposed, and total numbers of HIV-exposed and infected persons. PITC records were available for all seven hospitals from April – December 2013.

**Results:** The total number of admissions was 4708 children and caregivers, and 4027 (86%) were offered HIV testing and counselling by BCMCFCL PITC counsellors. Eighty percent of patients were admitted to the four urban-area hospitals. 168 individuals (4%) were newly diagnosed with HIV infection and 20 infants (0.4%) were newly identified as HIV-exposed. However, 860 individuals (18%) were HIV-infected, including those newly diagnosed and those with known HIV infection. 197 infants (4%) were HIV-exposed. There were no differences in prevalence between the urban and rural hospitals.

**Conclusions:** National HIV guidelines recommend HIV testing to individuals with unknown status at all clinical interactions with a health care facility. PITC counsellors were placed by BCMCFCL in Children's Medical Wards to assist the MOH in offering this important diagnostic strategy. Identification of previously undiagnosed HIV-infected children enables appropriate medical management, both acute and chronic care, and PITC is an effective method of diagnosing children. Yet, our experience in Lesotho is that HIV-exposed and infected children continue to be disproportionately represented on inpatient wards. Additional evaluation regarding the clinical, immunological, and ART status of these children is indicated.



# FAMILY PLANNING





## FAMILY PLANNING - UGANDA

## FACTORS THAT INFLUENCE UPTAKE OF CONTRACEPTION AMONG HIV POSITIVE WOMEN IN AN URBAN HEALTH FACILITY IN UGANDA

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**Background:** Despite the existence of several contraceptive choices, only 30% of Ugandan women are on contraception. HIV-Infected women, like other women, may wish to avoid unplanned pregnancies. Our objective was to determine the proportion of HIV-infected women on contraception; determine factors that influence uptake of contraception, and assess the preferred methods among HIV-positive women in Baylor – Uganda, a large urban HIV/AIDS clinic in Kampala, Uganda.

**Method:** We conducted a survey among HIV-positive women (18-49 years) that received treatment from the clinic between June and July 2013. A self-administered questionnaire that obtained information on contraceptive use, factors influencing choice of contraception, reasons for non-use, partner involvement, pregnancy intentions, and knowledge of available choices was used. Data were summarized.

**Results:** Of 200 women [mean age 29.2 years (SD= 7.15)] that returned the questionnaire, 120 (60%) were on contraception. Of these, 42 (35%) were on hormonal contraceptive injections, 42 (35%) used condoms, 13 (10.8%) were on natural methods, 9 (7.5%) used permanent methods, 7 (5.8%) used hormonal skin implants, 5 (4.2%) were on oral pills and 2 (1.7%) used intrauterine devices. 102 (85%) women used only one contraceptive method, while 18 (15%) were on dual protection. 88/120 (73.3%) women on contraception reported that their partner supported their decision to use contraception.

110/200 (55%) women expressed desire to have more children. Of 80 (40%) women not on contraception, the reasons given for non-contraceptive use were: 30 (37.5%) women were not in a committed sexual relationship, 23 (28.8%) women desired to have more children, 10 (12.5%) had experienced side effects and were unwilling to try again, 8 (10.0%) had partners that were against contraception, 6 (7.5%) reported lack of knowledge, 2 (2.5%) thought the contraceptive services were not convenient, and 1 (1.3%) woman did not know where to get the services. Use of contraception was not associated with age, marital status, education level, employment, income, or antiretroviral therapy; however, there was an association with religion [being Muslim or Catholic (p-values-0.032 and 0.048 respectively)].

**Conclusion:** Close to two thirds of HIV-infected Ugandan women are on contraception; however, lack of a sexual partner, desire for more children, previous side effects, and refusal by partner are some of the factors that influence uptake of contraception.



## FAMILY PLANNING - BOTSWANA

## KNOWLEDGE OF FATHERS HIV STATUS AMONG TEEN AGE MOTHERS IN BOTSWANA

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**Background:** Adolescence is often a confusing period for most teenagers. HIV infected teenagers face the additional burden of having to live with stigma even as they struggle to normalize their lives. High risk behaviors like casual sexual intercourse have been noted among adolescents in many different settings. In high HIV burden countries, it is particularly important for partners to disclose to each other in order to better care for themselves and prevent transmission.

**Objectives:** To evaluate the knowledge of teen mothers on the HIV status of the men who father their children. As secondary objective was to determine the fathers' level of involvement in the care of the mother-child pairs.

**Methods:** A retrospective chart review of HIV infected teen mothers was carried out at the Botswana-Baylor Children's Clinical Centre of Excellence (COE) from June 2003 to December 2013. The COE is the largest paediatric HIV clinic in Botswana. Charts were reviewed for the HIV status of all fathers of babies born to HIV infected teenage mothers. Social Worker and Clinical psychologist notes were also reviewed in order to ascertain the HIV status of fathers as well as the extent of their involvement in taking care of the child in terms of monetary, material and/or psychosocial support. Currently pregnant teenagers and those reporting rape were excluded.

**Results:** Of the 20 teen mothers who were included in the study only 7 (35%) knew the HIV status of the father (5 were negative and 2 positive), while 13 (65%) did not. Fathers' knowledge of the mothers HIV status was not recorded in the charts. Half 10 (50%) of the teen mothers reported fathers' involvement in their upkeep. Of the 20 babies born, 2 (10%) were HIV infected compared to the national average of <4%.

**Conclusions:** Majority of HIV infected teen mothers were impregnated by males whose HIV status was not known to them. Meaningful communications on sexual health issues between partners is an important area to be tackled if the tide of HIV is to be turned particularly among HIV infected teenagers.

H-25403



## FAMILY PLANNING - ROMANIA

## SETTING THE STAGE FOR INTEGRATING FAMILY PLANNING SERVICE INTO BAYLOR COE SERVICES IN CONSTANTA, ROMANIA

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**Issues:** The Black Sea Baylor Foundation is making efforts to integrate contraceptive services into HIV services to reduce referrals, improve access and to prevent missed opportunities. In the last few years we noticed a rising trend of repeated abortions and multiparity among our beneficiaries.

**Description:** The majority of Baylor COE patients are young adults, sexually active, engaged in all sort of relationships (discordant couples, concordant ones). Their sexual and reproductive health is a priority. A family planning specialist has joined Baylor Romania team and set the stage for introducing a new service for the patients. In order to be able to develop a family planning program that meets the needs of our beneficiaries, it was important to first understand the behavioral profile of our target group. Thus, the family planning specialist has evaluated our patients' use of contraceptive methods as part of their usual care at Baylor COE.

**Lessons learned:** There are unmet needs for modern, efficient (and long acting) contraceptive methods among HIV negative and positive women (especially for limiting needs), regardless the partner's HIV status. Using condoms helps preventing the HIV transmission (likely corroborated with ARV adherence and other possible factors) but is less efficient in typical use for pregnancy prevention among our beneficiaries. For HIV infected and/or afflicted persons who want to delay, space or limit births, using condoms simultaneously with an efficient contraceptive method will ensure the dual protection for HIV transmission and pregnancy prevention.

**Next steps:** The family planning program will be built on three pillars: a) the procurement and distribution of a diversified range of free of charge contraceptive methods (IUDs, oral and injectable contraceptives, emergency contraception); b) on job training of nurses on contraceptive technology and client family planning counselling; c) behavior change communication activities for promoting available FP services and increase demand for efficient contraceptives use among our beneficiaries.



## FAMILY PLANNING - UGANDA

## REDUCING MATERNAL MORTALITY BY 50 PERCENT BY 2015: THE OPTIMAL MATERNAL SERVICES PACKAGE

*Alice R. Asimwe\* on behalf of the entire SMGL*

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**Background:** Most sub-Saharan countries are unlikely to meet MDGs 4 and 5 by 2015. Baylor-Uganda, working with Ministry of health (MOH) and its USG partners, has been implementing the Saving Mothers Giving Life (SMGL) project in an attempt to accelerate maternal mortality reduction. The project pilot phase reduced maternal mortality by 30% in one year. The paper describes the SMGL package of interventions that delivered this unprecedented result

**Project description:** The project was implemented in four districts of Kabarole, Kamwenge, Kyenjojo and Kibaale of Western Uganda. Through public private partnerships interventions focused on increasing *demand for, access to and utilization of quality* maternal & newborn care services at the time of birth addressing the WHO 3-delay model.

Communities were engaged using Mass Media, village health teams (VHTs) and advocacy by district opinion leaders. Transport vouchers and ambulances were provided to facilitate health facility delivery and timely referral. Health facilities providing comprehensive emergency obstetric care (CEmOC) had infrastructure upgraded, critical staff recruited and trained and essential equipment and medical supplies provided to enable delivery of quality obstetric services.

**Lessons learnt:** Eleven facilities upgraded to CEmOC capacity improving women proximity to facility, 196 staff recruited, 7 ambulance vehicles and 16 tricycle ambulances were procured and 29,892 mothers accessed HF using vouchers. The population met need for obstetric care increased from 39% to 49%; 4th antenatal care visits doubled (22% to 45%), health facility deliveries increased (46% to 74%) and caesarian section rate from 5.3% to 6.5%. Partograph use to monitor labor increased from 37% to 77%, active management of 3<sup>rd</sup> stage of labor from 42% to 85%. HIV positive women and infants receiving antiretroviral therapy for the Prevention of Mother to Child Transmission increased from 1262 and 1117 to 1620 and 1415 (28% and 27% increases) respectively. Facility and community maternal mortality ratio reduced from 769 to 299 (- 61%) and 452 to 316 (-30%) deaths per 100,000 live births respectively.

**Next Steps:** The SMGL package of interventions rapidly and markedly reduced maternal mortality. The MoH has rolled out a sharpened plan replicating the SMGL model to accelerate maternal mortality reduction in Uganda.



# MALNUTRITION



## MALNUTRITION - TANZANIA - MBEYA

## INPATIENT CASE FATALITY RATE FOR CHILDREN WITH SEVERE ACUTE MALNUTRITION AT MBEYA REFERRAL HOSPITAL IN MBEYA, TANZANIA

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**Introduction:** In Tanzania, the overall prevalence of acute malnutrition is 4.5% of which 1% severely as reported by TDHS 2010. Despite Mbeya region being a top 4 food-producing regions in Tanzania, it has a 2.7% rate of acute malnutrition, with 0.6% being severe type. In most developing countries, case fatality rates (CFRs) in hospitals treating severe acute malnutrition (SAM) remain at 20–30%. This study aims to evaluating CFR for children admitted with SAM at Mbeya Referral Hospital (MRH), the partnering hospital of the Baylor Mbeya COE.

**Methods:** Retrospective data review of patients admitted for SAM at MRH from August to December 2013. Data collected included demographic information, date of admission, outcome being death or discharged, date of death, presence of acute medical complication and HIV status. Sources of information were admission books, death record book, ward round files and nurse report books.

**Results:** 139 children were admitted with SAM during the 5 month period. 60% (83/139) males. CFR was 21.6% (30/139). Of the deaths, 43% (13/30) were under 1 year, 40% (12/30) were between 1 year to 5 years and 17% (5/30) were above 5 years. Types of SAM were marasmus 50% (15/30), kwashiorkor 37% (11/30), and marasmic-kwashiorkor 17% (4/30). HIV prevalence was 27% (38/139) in all admissions, and 34% (13/38) in those who died. 40% (12/30) of the deaths occurred within 24 hours of admission, 27% (8/30) between 24 hours and 7 days, and 33% (10/30) after 7 days. Medical complications reported were septicemia (33%, 10/30), TB (17%, 5/30), bacterial pneumonias (20%, 6/30) and malaria. (7%, 2/30), others (anemia, UTI, Diarrhea, skin infections) (23%; 7/30).

**Conclusion:** Inpatient CFR for paediatric SAM remains high at our setting. Possible reasons include late presentation to care at the referral center resulting in severely ill patients, challenges with antibiotic and medication availability and high HIV prevalence. High mortality rate during the first 24hrs of admission highlight this as a critical period for further investigation, review and improvement of care. Preventative efforts, such early diagnosis and recognition of malnutrition, HIV and/or TB in our setting warrants further investigation. Better documentation and research is needed to determine the immediate and underlying causes of death in our patients.



## MALNUTRITION - BOTSWANA

## ASSOCIATION OF FOOD INSECURITY, SOCIOECONOMIC INDICATORS, AND BODY MASS INDEX AMONG HIV+ CHILDREN IN GABORONE, BOTSWANA

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**Background:** Household food insecurity (HFI), defined as limited or uncertain availability of nutritionally adequate and safe foods or ability to acquire acceptable foods in socially acceptable ways, has been linked to lower CD4 counts among HIV+ adults and children.

**Objective:** To investigate the association of HFI and socioeconomic indicators or BMI z-score among young HIV+ children. Hypothesis: HFI would be inversely associated with socioeconomic indicators and BMI z-score.

**Methods:** A cross-sectional survey among HIV+ patients ages 2-6 years at the Botswana-Baylor Children's Clinical Center of Excellence (COE) - a large clinic in Gaborone, Botswana. The Household Food Insecurity Access Scale (HFIAS), a previously validated 9-item measure, was used to quantify caregivers' assessment of HFI. Variables collected included age, gender, and orphan status; family socioeconomic status, and household setting or receipt of food assistance. Clinical variables included BMI z-score from measured height and weight and CD4% from the medical record. We used ordinal logistic regression with parent/guardian education, household income, or household wealth/assets as the dependent variable. Similarly we used a generalized linear model with BMI z-score as the dependent variable, controlling for child characteristics, CD4%, and socioeconomic status.

**Results:** Of 114 eligible children 78 were enrolled. The average age was  $3.9 \pm 1.3$  years, 42.3% were female, 15.4% were orphans, and all were taking either two or three tablet regimens of ARVs with a mean CD4% of  $32.8 \pm 9.4\%$ . 66.7% of parents/guardians had <10th grade education, 75.7% had annual incomes of <333 US Dollars. Majority of households were food insecure: 16.7% mild, 21.8% moderate, and 38.5% severe. Logistic regression showed a significant main effect ( $p=0.041$ ) for HFIAS score comparing the lowest to the highest categories of household income (OR=1.31, 95% CI 1.09, 1.56) and wealth/assets (OR=1.32, 95% CI 1.13, 1.55). No significant association was found between HFIAS and BMI z-score ( $p=0.985$ ), controlling for covariates.

**Conclusion:** Higher HFI was associated with both lower household income and less wealth/assets suggesting that approaches to alleviate HFI among HIV+ children in Botswana should also address issues of family poverty besides access to food. Lack of association between HFI and CD4 counts requires confirmation in a larger prospective study.

H-26239



## MALNUTRITION - MALAWI

THE OUTPATIENT THERAPEUTIC FEEDING PROGRAM (OTP) IN 2013  
AT BAYLOR COE, LILONGWE, MALAWI

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**Background:** Acute malnutrition is a significant public health concern in Malawi. Treatment of malnutrition can be complicated when it is associated with HIV/AIDS due to other contributing factors including Opportunistic infections. Outcomes of patients with malnutrition and HIV/AIDS have not been frequently looked at in Malawi.

In Malawi 13% of under 5 (U5) children are underweight, 2% of U5 children have moderate wasting, 2% of U5 children have severe wasting, and 47% of U5 children have stunted growth due to chronic malnutrition (MDHS2010). Nearly similar statistics as seen in Zambia, which has stunting (45.4%), wasting (5.2%), underweight (14.6%).

**Methods:** This study explored outcomes of children with malnutrition enrolled in 2013 for nutrition rehabilitation as OTP at the Baylor COE, Lilongwe. This was a retrospective cohort study from January to December 2013. Main outcomes are death, cured, active, defaulted, and transferred out and readmission. All patients were either HIV-infected or exposed.

**Results:** A total of 63 malnourished patients (n=63), diagnosed with moderate or severe malnutrition according to the Malawi National guidelines, were enrolled in OTP from January to December 2013.

25 were cured (39.7%) within an average time of 11.2 weeks. 31 were active (49.2%), with 26 of the active cases within the recommended period of not more than 16 weeks in program. The remaining 2 had tuberculosis. 2 defaulted (3.2%), 1 died (1.6%) of septicemia, 3 transferred out (4.8%), and 1 readmission 1.6%. There were more females in the program than there were males, not solely explained by the higher number of females (52%) female composition in Malawi population.

**Conclusions:** Having learnt that nearly half of the patients remained active at end of year, there is need to improve monitoring progress of the active patients to rule out possibility of sharing RUTF at home and discuss feeding habits. The increasing availability of RUTF has the potential to mitigate impact of malnutrition/ HIV/AIDS as erratic supply made a few patients to overstay in the program. All patients overstay in the program should be reviewed thoroughly to rule out under hidden facilitators.

