

BIPAI

Baylor International
Pediatric AIDS Initiative

THEME: ACCESS, QUALITY &
INNOVATION FOR HEALTH

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Welcome



It is my honour and privilege to welcome you all to the 18th BIPAI Network meeting on behalf of Baylor-Uganda that had the rear opportunity to organize this meeting.

The theme for this year's meeting is **Access, Quality and Innovation for Health** and it takes into account the whole purpose of the BIPAI network in the past, present and the future.

This year's meeting is not only timely but unique as it has come at a time when countries have just made global commitments to end AIDS by 2030. We hope to utilize this forum as a platform for sharing experiences and best practices and also leverage on the strength of the BIPAI network to quicken the

Dr. Adeodata Kekitiin
EXECUTIVE DIRECTOR

steps towards attaining good health outcomes but also in attaining the global targets.

We present a highly engaging program comprising a range of topics including research that centers on achieving the UNAIDS 90-90-90 global target, newborn and maternal child health, TB HIV and health systems strengthening. The discussions are based on real life situations and experiences

I trust that this forum is informative and will spur us into action as we exchange information and stimulate new ideas that will shape the future on health. We wish you a pleasant stay at the heart of the rainbow nation

The BIPAI Network





President and founder of Baylor International pediatric AIDS Initiative



Directors from different countries

Approaches for improving HCT

Sub-Theme A: Achieving the UNAIDS 90-90-90 Global Target

Track 1: Approaches For Improving HCT Yield -Targeted HCT Approaches

MAXIMISING TARGETED TESTING TO IMPROVE HIV YIELD AMONG CHILDREN AND ADOLESCENTS IN RWENZORI REGION, UGANDA

Authors: *Harriet Bitimwine, Fiona Musiime, Ajuna Patrick, Paul Tumbu, Adeodata Kekitiinwa*

Back ground: The national Anti-retroviral therapy (ART) coverage among children (< 15 years) is low 42% (61,642/147,394) compared the target of 80%. This arises from the low identification of HIV infected children and adolescents through HIV Testing Service (HTS) models such as routine counselling and testing.

In Rwenzori region, HIV testing yield is low for children (0.7%) and adolescents (1%). Baylor-Uganda, implemented targeted HTS models to improve HIV yield among children and adolescents and thus close the ART gap in the Rwenzori region. We determined the HIV yield from these models.

Description: In the period March-June 2016, we provided HTS to children and adolescents 18months -19 years using the following models: HTS outreaches to dwelling homes of orphans and vulnerable children (OVC); Know your child Status Campaigns (KYCS); HTS outreaches to children of Female Sex Workers (FSWs), Fisher folks (FFs) and tea plantation workers; and Evening HTS points targeting adolescents after work/school hours. We summarized the results of HTS in proportions and frequencies

Results: Of the 4,091 children and adolescents tested, 52% (2,135) were females and adolescents (10-19 years) were 2,030(50%). The overall HIV yield was 1.3% (53/4,091).

The HIV yield among adolescents, children (5-9 years) and those under 5 years was 1.5% (30/2,030), 1.6% (20/1,234) and 0.4% (3/824) respectively. It was highest through outreaches at OVC dwelling homes 2.6% (7/271) and lowest through outreaches to children of tea plantation workers 0% (0/214).

The HIV yield through outreaches to children of FSWs, children of FFs, KYCS campaigns and evening HTS points was 1.6% (10/610); 1.1% (3/283) ; 0.9 % (16/836) and 1.7% (14/815) respectively.

Conclusion: A relatively high HIV yield through outreaches to OVC dwelling homes,

children of FSWs, FFs and Evening HTS; and a low yield through outreaches to children of tea plantation workers and KYCS campaign was observed.

Next Steps: Deliberate efforts should be made to scale up HTS outreaches to OVC dwelling homes, children of FSWs and Fisher folks, and Evening HTS for adolescents; and strongly consider to discontinue HTS outreaches to children of tea plantation workers and scale down/modify KYCS campaigns.

Sub-theme A Track 1: Approaches for improving HTC yield

When the shine wears off: examining the evolving yield and cost of facility-based testing events in the Southern Highlands of Tanzania

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Introduction: Tanzania adopted facility-based testing (FBT) as the preferred means of pediatric case finding testing event efforts. Since 2011, Baylor Tanzania –Southern Highlands Zone COE in Mbeya has aligned its “Know Your Child’s Status” (KYCS) testing event strategies to these recommendations, and shifted all testing events from community-based testing events (CBT) to FBT events.

Initially, outputs from these FBT events were promising, showing improved yield and cost-effectiveness. However, in recent years, gaps in national pediatric targets remain, and there is a need to re-examine the yield and cost effectiveness of the FBT strategy.

Methods: Retrospective review of all HIV testing events conducted by the SHZ COE testing and counseling team from 1 November 2011 through 31 March 2016. All testing events followed national and COE standard operating procedures. Yield was defined as the number of new HIV+ cases and new HIV-exposed infants (DBS testing) found. Total costs were gathered from COE finance records.

Results: Three 14 month periods of testing events were compared – CBT in 2011-12, FBT in 2011-12 and FBT 2015-16. During the initial shift from CBT to FBT in 2011-12, the positivity rates and cost per new HIV+/HEI found improved markedly (Table 1).

However, these gains were lost in FBT in 2015-16. FBT events in 2015-16 had similar low positivity rates as the original CBT events in 2011-12 (1.53% vs 1.43%), though the costs for finding new HIV+/HEI was notably higher for the 2015-16 FBT events (\$126 vs \$68).

When looking at pediatric case finding alone (<15 year olds), the differences were wider, with the 2015-16 FBT events having even lower positivity rates (1.20%) and higher costs (\$198 per new HIV+/HEI).

The initial shift to FBT in 2011-12 showed greatest positivity rates (6.86%) at lowest costs (\$31 per new HIV+/HEI), but these FBT trends were reversed and lost by 2015-16.

Conclusion: While the shift to FBT events initially brought improved positivity rates at reduced costs, data from 2015-16 FBTs have shown complete reversal of these trends with positivity rates of FBT now being as low as initial CBT events with much higher costs per

new case found. Critical evaluation of these reversing trends and FBT implementation needs to be done to better understand the waning effectiveness of FBT events, and to help inform strategies and policy for pediatric case finding in our setting.

Table 1: Comparison of the outputs, positivity rates, and costs of CBT and FBTs between November 2011 through March 2016

	November 2011 - December 2012 (14 months) Community-based Testing Events (CBT)	November 2011 - December 2012 (14 months) Facility-based Testing Events (FBT)	February 2015-March 2016 (14 months) Facility-based Testing Events (FBT)
Total # of events	2	25	67
Total tested (all ages)	5378	4110	10268
Total tested (<15yo)	4509	3236	8352
Total new HIV+ or HEIs (all ages)	77	282	157
Total new HIV+ or HEIs (<15yo)	64	192	100
Positivity rate (all ages, HEI/HIV+)	1.43%	6.86%	1.53%
Positivity rate (<15yo, HEI/ HIV+)	1.42%	5.93%	1.20%
Cost per event	\$2,625	\$355	\$295
Cost per new HIV+/HEI (all ages)	\$68	\$31	\$126
Cost per new HIV+/HEI (<15yo)	\$82	\$46	\$198

Using a Simple “Sticker System” to Increase HIV Testing Coverage on a High-burden, High-volume Pediatric Inpatient Ward at a Central Hospital in Malawi

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Introduction: Though Provider Initiated Testing and Counseling (PITC) plays an important role in identifying new HIV infections, routine testing on inpatient pediatric wards in Malawi is rare with testing coverage estimated between 2% and 20% at most facilities.

Kamuzu Central Hospital (KCH) has the busiest inpatient pediatric ward in the country with up to 20000 admissions (ages birth-14 years) annually. Baylor College of Medicine-Children’s Foundation Malawi (BCM-CFM) oversees the PITC services on the KCH pediatric wards. Since 2010 testing averages above 60% were difficult to achieve. Overcrowding, patient transfers, incomplete charts, and weekend admissions/ discharges were recognized as barriers to identifying untested individuals. I

n 2015, BCM-CFM introduced a “sticker system” for easier identification of untested individuals. After screening/testing by an HIV counselor, a green sticker is placed on the outside of the chart signifying easily to ward clinicians that the child and guardian have been screened. Upon discharge, the ward clerks look for the green sticker, and if missing, refer the child for screening/testing prior to discharge.

Methods: A retrospective review of the admission, HIV Testing and Counseling (HTC), early-infant-diagnosis dried blood spot (DBS), and linkage registers at the KCH inpatient pediatric ward was done from October 1, 2015-March 30, 2016. A descriptive analysis of the data was performed.

Results: During the above period, 6,958 children were admitted on the pediatric ward. 11,548 individuals were tested; of which 4,761 were guardians and 6,787 were children admitted on the wards. Total testing coverage was 97.5% of pediatric admissions, a 37% increase from the baseline of 60%. Of those tested, 462 total (108 males, 354) were found positive (4% testing yield), with 206 children (114 males, 92 females) newly identified, giving an inpatient testing yield of 3% (3-6% is the national average). Of the children found infected, 55 (27%) were 0-11 months, 128 (62%) were 1-9 years, and 23 (11%) were 10-14 years.

Conclusion: A simple system such as the “sticker system” can help improve testing coverage of high volume inpatient settings without increasing personnel in resource limited settings. Achieving universal testing coverage in high volume inpatient sites is possible.

Track: Health systems strengthening

HIV Continuum of Care in Romania against 2020 UNAIDS targets

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- **Issue:** Reaching 90-90-90 UNAIDS targets at the end of 2020 is still a challenge for many countries. No data regarding the Romanian National HIV treatment cascade were available until last year, when the MOH communicated in the Annual “Report” on HIV/AIDS evolution in Romania the status of 2014 HIV cascade. Data are presented as percentages and numbers without comments, nor recommendations or action items.
- **Description:** We aimed to compare the Romanian national HIV treatment cascade against the 90-90-90 targets. We used the reported estimates for the 5 stages (estimated PLWH, aware of HIV status, retained in care, on ART, and VL suppressed), in order to identify the breakpoints, defined as a drop of more than 10% between successive UNAIDS targets in the cascade, and also to determine the magnitude of the losses/gaps along the continuum.
- **Lessons Learnt :** According to the MOH data, of the estimated 14000 people living with HIV in Romania in 2014, 92% were diagnosed, meaning that the first target of 90 was exceeded. Although for Linkage and Retention in care there are no direct UNAIDS target, we noticed that no breakpoint occurred (82% were retained in HIV medical care). Starting with the next stage things are worsening: only 73% of people diagnosed were prescribed ART – the first breakpoint, and only 54% of them had achieved viral suppression, that is 37% of the estimated 14000 – the second breakpoint. Using the CDC’s 2014 model, from the 63% of PLWH who did not have viral suppression: 50% were on ART but had not yet achieved viral suppression, 24% were in care but not on ART, 13% had been diagnosed but not retain in care, and 13% did not yet know they were infected.
- **Next Steps :** The HIV continuum of care should be used by the HIV program managers in order to identify gaps, analyze where, when and how to intervene to improve outcomes along the continuum. Using both, the two different approaches CDC currently uses to monitor the HIV care continuum could be useful to measure progress among different groups of PLWH.

Test and Treat

Sub-theme A Track 2: Test and Treat - Successes, challenges, Innovations;

STANDARDIZED PEDIATRIC EXPEDITED ENCOUNTERS FOR ART DRUGS INITIATIVE (SPEEDI): DESCRIPTION AND EVALUATION OF AN INNOVATIVE PEDIATRIC ART HEALTH SERVICE DELIVERY MODEL IN TANZANIA

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Background: In resource limited settings (RLS), critical shortages of health care workers coupled with large patient volumes hinder the effective delivery of antiretroviral therapy (ART) services. In addition, frequent clinic visits create burdens on patients due to costs associated with transport and missed work, driving high attrition rates. Innovative ART programs that reduce these burdens have been successfully piloted in adults, but to date, no such program has been described in children living with HIV. This abstract describes the Standardized Pediatric Expedited Encounters for ART Drugs Initiative (SPEEDI) and examines its effectiveness in children on ART in Mbeya, Tanzania.

Materials and Methods: The SPEEDI program was implemented in January 2013 at the Baylor College of Medicine Tanzania Centre of Excellence (COE) in Mbeya, Tanzania. To qualify for a SPEEDI visit, the following criteria are met: 1) On ART for at least 4 months; 2) No medical or social complications, and no concerning lab results; 3) Good adherence to ART (95-105% via pill counts); and 4) Presence of a reliable caregiver. During a SPEEDI visit, patients are triaged for vital signs, anthropometrics and pill counts. Patients/caregivers are given the option to see a doctor, and if deferred they will proceed directly to collect medications. The file is reviewed by a doctor to ensure the patient is appropriate for SPEEDI prior to writing prescriptions. SPEEDI patients are given a two month follow up visit, and alternate SPEEDI with routine visits that include physician examination. Retrospective chart review of patients with at least one SPEEDI visit between 1st January 2013 and 31st December 2015 was performed. "Good Outcome" included patients still active in care and those transferred out; "Poor Outcome" included deaths and lost to follow up (LTFU). COE patients on ART between 1st March 2011 (when the COE opened) and 31 December 2012 (before the SPEEDI program started) were used as a comparison group.

Results: A total of 1164 pediatric ART patients utilized SPEEDI, totaling 3499 total SPEEDI visits. SPEEDI reached 51.3% (1164/2269) of the total pediatric ART patients and accounted for 7.9% (3499/44489) of all patient encounters during this time. The demographics of SPEEDI patients were: 52% (605/1164) female, median age of 9 years (range 1-18yr), and median time on ART prior to first SPEEDI of 21 months (range 4-130 months). 98.7% (1150/1164) of SPEEDI patients had good outcomes, and 1.2% had poor outcomes (14/1164). Prior to implementation of SPEEDI, the mortality rate of COE patients on ART (n=1110) was 2.8 deaths per 100 patient-years and LTFU was 3.0%. Mortality rate of the SPEEDI cohort was 0.37 deaths per 100 patient-years and LTFU was <0.1%.

Conclusion: SPEEDI was an effective, feasible way to delivery ART to children in a RLS, and led to good clinical outcomes. Potential benefits include better utilization of clinician's time and skills, reduced wait times, patient satisfaction and increased retention, and need to be further explored. SPEEDI can serve as an ART delivery model for children that can be adapted and scaled up in other RLS.

ABSTRACT NUMBER: 015

Abstract category: Adolescent HIV Care

Title: **MORTALITY TRENDS AT THE BOTSWANA BAYLOR CHILDREN'S CLINICAL CENTRE OF EXCELLENCE**

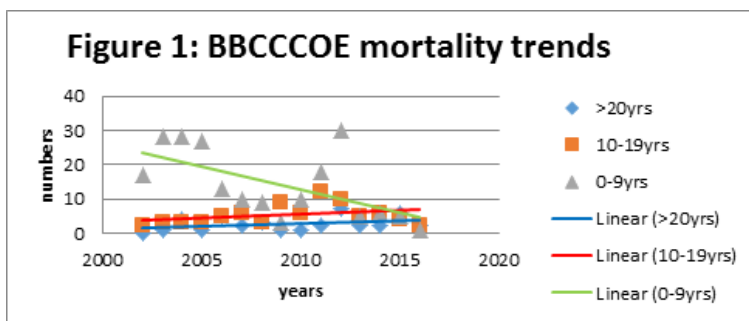
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Background: HIV is one of the leading causes of death in Sub Saharan Africa. Faced with an epidemic of unprecedented proportions, Botswana Government rolled out the MASA program providing Antiretrovirals (ARVs) free of charge. This turned the tide against HIV and dramatically reduced mortality overall. ARVs have greatly increased the number of HIV positive people living longer and children reaching adolescence. UNAIDS reports indicate that worldwide HIV related mortality has fallen in all age groups with the exception of adolescents where it continues to rise, likely due to complex adherence issues in this age group. The objective of this review study is to study trends in mortality in different paediatric age groups.

Methods: A retrospective chart review of the Electronic Medical Records (EMR) from the year 2002 to 2016. The recorded date of death was noted for each occurrence. Where the exact date of death was not available, the year of closure of the record was used as proxy for the year of death. Patients were categorized in ages of 0-9 years, 10-19yrs and >20years based on their age at death.

Results: From 2002 to 2016, 338 deaths (178 female) were recorded in the EMR. The results as displayed in Figure 1 show a generally linear and slow upward trend for age groups 10-19 and >20. This contrasts sharply with the 0-9 age group which shows a sharp decline in mortality. A spike in mortality is noted in 2012. Overall, annualized mortality rate dropped from 4.9% in 2003 to 0.3% in 2015.



Conclusions: The mortality of patients at BBCCOE is declining over time and patterns observed follow the expected global trends. The mortality spike noted around 2012 may be due to the national diarrhea outbreak that occurred during that year. A more detailed analysis is recommended to examine the impact on mortality of such factors as age at ART initiation, age of HIV diagnosis, treatment regimen and disease stage.

Evaluating Impact of Group Therapy Based Intervention on Anti-Retroviral Therapy (ART) Adherence Among Adolescents Living with HIV (ALHIV) in Malawi

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Organization: *¹Baylor College of Medicine Children's Foundation Malawi, ²Baylor College of Medicine Pediatrics AIDS Initiative, ³Baylor College of Medicine*

Introduction: Adolescents living with HIV (ALHIV) experience psychological and emotional distress which negatively impacts their adherence to anti-retroviral therapy (ART) and overall health. A review of individual counseling sessions offered at the Baylor College of Medicine Center of Excellence in Malawi from September 2013-March 2014 showed that despite individual counseling, many of the teens still experienced persistent poor adherence. Thus, group therapy was introduced in April 2014 focusing on common psychosocial issues.

Methods: 20 adolescents aged 11 to 15 years with poor adherence for over three months were enrolled using cluster random sampling in April and July 2014. and 27 adolescents attending boarding school were enrolled in December 2014 and July 2015. The 20 non boarding adolescents attended 6 sessions and those at boarding school attended 3 sessions. Group discussions were used to identify common psychosocial issues that contributed to poor adherence. Rational emotive behavioral approaches were used to address issues. Retrospective chart review of participants was done evaluating adherence 1 year after participation (6 month review for the July 2015 participants) evaluating ART adherence and a descriptive analysis of the data was performed.

Results: Non-boarding school participants identified the following contributing factors to poor adherence: 15% (3) religious influences, 55% (11) classroom issues including stigma, 20% (4) parental issues, 10% (2) issues related to sense of belonging. Boarding school participants identified the following contributing factors to poor adherence: 63% (17) fear of stigma, 63% (17) fear of being seen taking ART, 37% (10) lack of lockable cupboards for ART, and 88% (24) lack of trust in school staff. Following the group counseling at 1 year, 90% of non-boarding school participants, 74% of boarding school participants had excellent adherence to ART, defined as 95-105% adherence by pill count. Adherence for 12 out of 20 adolescents improved after group sessions alone (60%), adherence for the remaining 6 adolescents improved after two and three supportive individual counseling sessions (30%).

Conclusions: Group counseling may be helpful in addressing psychological issues affecting ALHIV and improving adherence. More attention is needed to address systemic barriers to good adherence at boarding schools.

TRACK 2: EARLY INFANT DIAGNOSIS

OUTCOMES OF HIV EXPOSED INFANTS BEFORE AND AFTER IMPLEMENTING OPTION B+ PMTCT GUIDELINES IN KAMPALA, UGANDA: A RETROSPECTIVE COHORT STUDY

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Background: To assess the impact of Option B+ on outcomes of HIV-exposed infants (HEI), we compared the 18-month's cumulative incidence of HIV infection, loss to follow-up (LTFU) and death in HEI before and after implementing Option B+. We also compared proportions of HIV-infected infants initiated on combination antiretroviral therapy (cART) and determined factors associated with mother to child HIV transmission (MTCT) during Option B+.

Methods: We retrospectively analysed routine data from HEI at Mulago Hospital, Uganda. We compared estimated cumulative incidence of HIV infection, LTFU and death for HEI born from July 2010-June 2011 (Option A cohort) and July 2013-June 2014 (Option B+ cohort), accounting for competing risks. We used Fisher's exact test to compare cART initiation proportions between the two cohorts. Competing risks regression model by Fine and Gray (1999) was adopted to determine predictors of MTCT during Option B+.

Results: There were 2203 (Option A) and 1571 (Option B+) HEI enrolled at median age of 6.3 weeks. The 18-month cumulative incidence of HIV infection were similarly low when comparing Option A to Option B cohorts, 5.1% (95% CI: 4.3%, 6.2%) Vs 4.3% (95% CI: 3.3%, 5.5%) respectively $p=0.2$ (fig 1a).

LTFU were similar, Option A: 30.3% (95%CI: 28.4%, 32.3%) Vs. Option B+ 28.4% (95%CI: 26.2, 30.7) $p=0.06$ (fig 1b). Cumulative incidence death during Option A was 0.9 % (95% CI: 0.5%, 1.5%) Vs. 1.4% (95% CI: 0.8%, 2.2%) during Option B+ ($p=0.3$) fig 1c. cART initiation proportion was higher during Option B+ [88% (51/58) vs. 74% (72/97); $p=0.04$]. Mothers or infants not receiving ARVs for PMTCT were associated with MTCT, Adjusted Hazard Ratio: 16.3(95%CI: 7.6, 34.6) and 2.3(95%CI: 1.03, 4.95) respectively.

Conclusion: Outcomes of HIV-exposed infants at 18-months of life before and after implementing Option B+ were similar; however, the cART initiation in HIV-infected infants was better. Mothers or infants not receiving ARVs predicted MTCT during Option B+. LTFU remains high and should be addressed.

Fig 1a. Cumulative Incidence, HIV infection

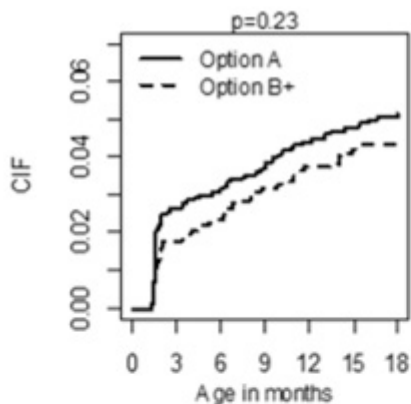


Fig 1c. Cumulative Incidence, death

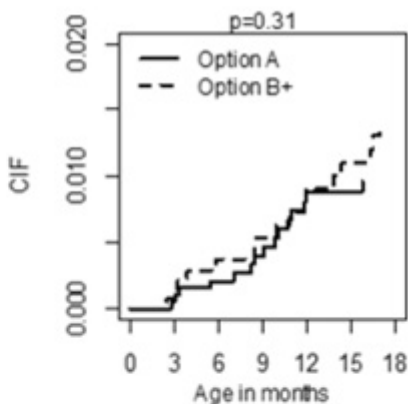


Fig 1b. Cumulative Incidence, LTFU

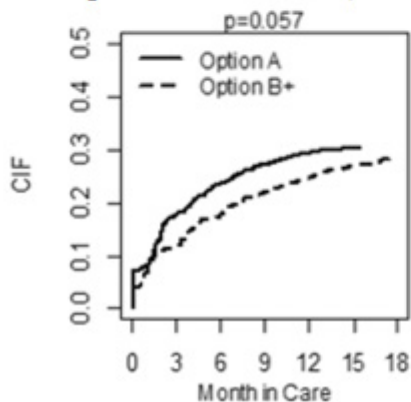


Fig 1 Cumulative Incidence Function of HIV infection (1a), loss to follow up(1b) and death (1c) among HIV exposed infants in Mulago Hospital, Kampala, Uganda

CIF, Cumulative Incidence Function

LTFU, Loss to follow up.

P-values are of the Gray's test for equality of CIF.

Viral Load Monitoring

Sub-theme A: Achieving the UNAIDS 90-90-90 global target

Track 4: Viral Load Monitoring

Title: *Durable viral load suppression among young people on second line ART at Baylor Uganda.*

Authors: Moses Matovu, Gerald Agaba

Introduction: Although the majority of HIV-infected patients on second line (PI) regimens expect long term virologic suppression, this isn't the case. It is imperative that these patients stay on these regimens for as long as possible due to the limited availability of third line ART. We set out to determine the proportion of young people with durable viral load suppression, viral blips, viral rebound and the risk of viral rebound among young people on second line ART at Baylor- Uganda.

Methods: We retrospectively reviewed medical records of young people aged 13-24, on second line ART between 2013 and 2015. viral load measurements were compared longitudinally for durable viral suppression defined as, all plasma viral load <200 cp/ml, viral rebound as viral load ≥ 200 cp/mL following viral suppression and viral blip as isolated incidents of detectable viral load followed by viral suppression. Cox proportional methods were used in the data analysis.

Results: 607 patients were reviewed between 2012 and 2015. 417 (68.7%) were included while 190 (31.3%) were excluded due to missing viral load. The median number of viral loads done was 4 (3-7) per participant. The total follow up time was 1598 person years. 203 (48.7%) were males, 215 (51.3%) were females, the median age was 16.7 (13.0-23.9) years. 73 (17.5%) had been on second line <2 years, 217 (52%) for 2-5 years while 127 (30.5) for > 5 years. 189 (45.3%) had durable suppression, 215 (51.6%) did not attain durable suppression with 23 (5.5%) attributable to virological blips and 22 (5.5%) to virological rebound. The proportion of participants with virological rebound at 48, 60 and 72 months were 2%, 8% and 11% and the incidence rate for virological rebound was 14.4 (9.6-21.7) per 1000 person years.

Conclusion

It is encouraging that about forty-five percent of young people on second line regimens had attained durable viral load suppression. This number can further be improved with targeted interventions like adherence for those with virological rebound and blip.

Sub-theme A Track 4: Viral Load Monitoring

Rethinking the value of pill counts – poor performance of pill counts in correlating with viral suppression in HIV-infected patients on ART at the Mbeya, Tanzania COE

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Introduction: Pill counting has long been an objective method used to measure adherence to ART at Baylor COEs. However, pill counting is a labor-intensive, time-consuming and logistically challenging process to implement efficiently at high volume clinics. It is susceptible to unintentional calculation and human errors at the pharmacy or triage level, as well as patient factors - such as forgetting to bring pills, bringing only partial amounts, bringing pills from other clinics/family member, or misplacing pills accidentally – all of which adversely impact the accuracy of pill counts. Given the time consuming nature of the practice, it is important to evaluate the utility of pill counting in our settings. Tanzania adopted routine VL testing in 2016, and this abstract looks to evaluate the performance of pill counting measure in correlating with viral suppression in patients on ART at the Mbeya COE in Tanzania.

Methods: Retrospective review of pill count data and VL results was extracted from the EMR at the Mbeya COE from January 2015 (when a VL result field was added to the EMR) through May 2016. “Viral suppression” is defined as VL <1000 copies/mL per Tanzanian national guidelines. Pill count value of “95-105%” is universally accepted as optimal adherence and was used to define test result of interest. Pill count data was extracted from the same visit the VL testing was performed. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) was calculated to evaluate the performance of pill count of “95-105%” to identify viral suppression. In addition, a subset of the patients with VL from February 2016 to May 2016 – when routine VL was implemented – were analyzed to evaluate pill count performance in routine care.

Results: Between January 2015 and May 2016, 903 patients had both a documented pill count and VL. Of these, 59% (530/903) were virologically suppressed. In correctly identifying virologically suppressed patients, pill count of “95-105%” had 64% sensitivity, 40% specificity, 60% PPV and 44% NPV (Table 1).

For patients during the routine VL testing era (n= 575), 63% (364/575) were fully

suppressed. In this cohort, performance of “95-105%” pill count was 63% sensitivity, 38% specificity, 64% PPV and 38% NPV (Table 1).

Conclusion: Pill count value of “95-105%” performed poorly in identifying virologically suppressed patients on ART. Sensitivity, specificity, PPV and NPV were all low. Clinicians and COEs need to be aware of these limitations of pill counts, and critically consider the utility of this practice, and how best to incorporate it into COE care. Pill counts may be an additional tool, but is not a standalone replacement for adherence monitoring, and our findings should bring to light the risks and pitfalls of relying too heavily on pill counts as the sole measure of adherence.

Table 1: Diagnostic test performance of pill count of 95-105% in identifying patients with fully suppressed (<1,000 copies/mL) viral loads

All patients with VL and pill count results (n=903)		
Statistic:	Value	95% CI
Sensitivity	64.53%	60.29% to 68.60%
Specificity	39.95%	34.94% to 45.11%
PPV	60.42%	56.26% to 64.48%
NPV	44.21%	38.83% to 49.70%
Patients with VL and pill count results since routine VL testing began (n=575)		
Statistic:	Value	95% CI
Sensitivity	63.46%	58.28% to 68.42%
Specificity	37.91%	31.34% to 44.83%
PPV	63.81%	58.63% to 68.77%
NPV	37.56%	31.03% to 44.43%

Subtheme A: Track 4

Towards the 90-90-90 UNAIDS viral load suppression rate: Where is Karamoja region?

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Background: Viral load (VL) monitoring is a gold standard test for detecting treatment failure among patients on anti-retroviral therapy (ART). However, information on VL monitoring, VL sample rejection (VLR) rate and viral load suppression (VLS) rate in Karamoja region is lacking. We assessed VL monitoring, described reasons for VLR and compared regional VLS rate with the national and UNAIDS rates.

Method: Regional VL data was abstracted from Central Public Health Laboratories (CPHL) VL dashboard for the period June 2015-May 2016 and analyzed at 5% significance level using STATA version 12. Valid VL tests; VLR and VLS rates; and the regional VLS rate was compared with the national and UNAIDS targets using proportional tests.

Result: 899 VL samples were sent and received at CPHL but 773 (86.0%) were tested. Of samples tested, 751 (97.2%) were valid with 79.9% VLS rate. This VLS rate is lower than the national VLS rate (79.9% versus 91.3%, $p < 0.0001$). The VLR rate was 16.2%. This VLR rate is higher than the national rate (16.2% versus 5.8%, $p < 0.0001$). Out of six Hubs, only five (83.0%) conduct VL monitoring. Moroto, Kotido and Tokora were the worst performing Hubs with VL samples rejected on all criteria: sample quality, eligibility and incomplete documentation. None of the five Hubs met the UNAIDS VLS rate of 90%. Only 15 (25.0%) ART sites offer VL testing. Two (13.0%) Army affiliated health facilities had 100% VLS rate over and above the UNAIDS VLS rate of 90%. Of VL samples tested, only 10 (67.0%) ART sites had valid samples.

Conclusion: Karamoja region is distant from achieving the national and UNAIDS VLS rate. Urgent need exists in addressing ART adherence to maximize VLS rate and ultimately reduce new HIV-infections. Baylor-Uganda has rollout VL training across the region to reduce VLR rates and increase VL monitoring.

TB-HIV

Abstract category: *Case Study*
Title: **A case study of BCG immune reconstitution syndrome after Anti-retroviral therapy initiation in a HIV positive infant in Botswana**

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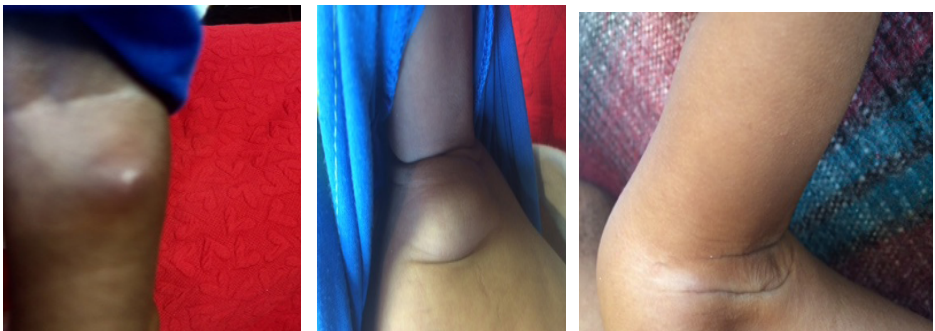
Text: Background: Immune reconstitution inflammatory syndrome (IRIS) is paradoxical worsening of pre-existing pathological conditions following the initiation of highly active antiretroviral therapy (HAART) in HIV-infected persons. In Botswana BCG, a vaccine which reduces the risk of severe forms of TB, is routinely given at birth to all children - including those exposed to HIV.

Case Presentation: C.P, a male infant was born via normal delivery at full term, and received BCG vaccine 4 days after delivery. The mother had a discordant HIV rapid antibody based test during pregnancy and defaulted and was not enrolled in the PMTCT program.

C.P was admitted in hospital at age of 3 months with severe pneumonia/ PCP/PTB and HIV DNA PCR which tested positive. HAART was initiated 1 week after admission with the regimen Abacavir, Lamivudine and Kaletra. The child became stable and was discharged from hospital at 4 months of age.

He was re-admitted 3 weeks later (age 5 months; 8 weeks after HAART initiation) with a severe respiratory infection. At the same time the BCG scar on the left forearm (which had previously healed) had become nodular and inflamed with an associated left axillary lymphadenopathy (Figure 1 panel (A) and (B)). The lesions resolved within 2 weeks of starting Anti TB Treatment (Figure 1 panel (C)).

The child's overall condition however did not completely resolve and he died at 6 months of age with suspected respiratory failure.



(A) At Presentation (B) At Presentation (C) Post Treatment

Fig. 1 Nodular lesion left forearm and left axillary lymphadenopathy.

Lessons learned: BCG-IRIS and TB IRIS can develop after HAART Initiation.

This respiratory episode could be PTB related IRIS, although there is a high possibility that this was pulmonary dissemination of BCG, which has a high case fatality rates. Differentiating the two is very difficult.

CONCLUSION: BCG IRIS and TB

IRIS can occur in the HIV infected infants and children starting treatment. Where the risk is high or the child is symptomatic, BCG should be delayed until HIV infection has been ruled out or HAART has been started. Discordant results should be repeated urgently and all patients enrolled in treatment.

Country of research:	Botswana
Key Population:	Young people and adolescents, People living with HIV, Not applicable
Related to women and girls:	No
Related to children:	Yes
Ethical research declaration:	Yes
Protocol Number:	H-25403

Subtheme A, Track 3: TB/HIV - Hindrance or opportunity to achieving the 90- 90-90 goal?

CHARACTERISTICS AND OUTCOMES EARLY VERSUS LATE ART INITIATION IN HIV-INFECTED, ART-NAÏVE CHILDREN DIAGNOSED WITH TB DISEASE IN MBEYA, TANZANIA

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Introduction: In ART-naïve HIV-infected children with TB, guidelines favour early ART initiation following d antituberculosis treatment (ATT) initiation. However, optimal timing of their ART initiation is unknown. This study aims to measure associations between clinical outcomes of ART naïve HIV-infected children and timing of their ART initiation following ATT.

Methods: Retrospective chart review between March 2013 and December 2015 of HIV-infected children diagnosed with and treated for TB with no prior exposure to ART at the Baylor College of Medicine Children's Foundation - Tanzania clinic in Mbeya, Tanzania. ART naïve children were classified as "Early ART" if ART was initiated 0-14 days after ATT or as "Late ART" if ART was initiated 15 days or more after ATT. The baseline characteristics and clinical outcomes were compared by ART timing groups using the Chi-square or Fisher's exact test for categorical measures and Wilcoxon rank-sum test for age.

Results: 47 ART naïve patients were treated for TB followed by ART initiation, with 22 (47%) classified as Early ART and 25 (53%) as Late ART. Baseline characteristics did not differ between comparison groups with the exception that the Late ART group was older (median age 8.7 yr vs 5.1 yr, $p=0.04$; Table 1). Both Early and Late ART groups showed high rates of severe or advanced immunosuppression (53 vs 55%, $p=0.90$), severe or moderate acute malnutrition (68 vs 76%, $p=0.55$), and low rates of bacteriologically-confirmed TB (14 vs 20%, 0.51).

The majority of ART naïve patients had favourable TB, nutritional and immunological outcomes, regardless of ART timing; these outcomes did not differ between the two groups (Table 2). TB-IRIS was not reported in any of the patients.

Conclusions:

Both Early ART and Late ART groups showed good rates of favourable outcomes for their TB disease, immunological recovery and nutritional status.

There were no differences in these favourable outcomes between the Early ART and Late ART groups. These findings demonstrated that initiation of ART – even as early as within 2 weeks of ATT – in ART naïve children lead to favourable outcomes, and delayed ART initiation is not necessary to achieve good clinical outcomes.

Table 1: Comparison of Baseline characteristics between 'Early ART' vs 'Late ART'

Characteristic	Early ART (n=22)	Late ART (n=25)	p-value
Age (median, range)	5.1 (1.6-8.9)	8.7 (4.8-12.1)	0.04
Female (% , n)	10 (45.5)	13 (52.0)	0.65
WHO immunosuppression			
Severe or Advanced (%) [n=19]	10 (52.6)	12 (54.6)	0.90
Mild or Not significant (%) [n=22]	9 (47.4)	10 (45.4)	
Nutritional Status			
SAM/MAM (%)*	15 (68.2)	19 (76.0)	0.55
Normal (%)	7 (31.8)	6 (24.0)	
Diagnostic certainty			
Confirmed TB (%)	3 (13.6)	5 (20.0)	0.51
Probable TB (%)	2 (9.1)	5 (20.0)	
Possible TB (%)	17 (77.3)	15 (60.0)	

*SAM=Severe Acute Malnutrition; MAM=Moderate Acute Malnutrition

Table 2: Comparison of TB, nutritional and immunosuppression outcomes between the Early ART and Late ART

	Early ART			Late ART			p-value
	N	Unfavorable Outcomes	Favorable Outcomes	N	Unfavorable Outcomes	Favorable Outcomes	
TB outcome*		Unfavorable (n, %)	Favorable (n,%)		Unfavorable (n, %)	Favorable (n,%)	
6 month outcome	21	6 (28.6)	15 (71.4)	24	4 (16.7)	20 (83.3)	0.48
Nutritional outcome		SAM (n, %)	Not SAM (n,%)		SAM (n, %)	Not SAM (n,%)	
6 month	15	1 (6.7)	14 (93.3)	20	0 (0.0)	20 (100.0)	0.43
12 month	10	1 (10.0)	9 (90.0)	15	0 (0.0)	15 (100.0)	
Immunosuppression outcome		Severe or Advanced (n, %)	Mild or Not significant (n,%)		Severe or Advanced (n, %)	Mild or Not significant (n,%)	
6 month	14	2 (14.3)	12 (85.7)	17	5 (29.4)	12 (70.6)	0.41
12 month	9	0 (0.0)	9 (100.0)	14	2 (14.3)	12 (85.7)	

*Unfavorable TB outcome=died or lost to follow up; Favorable TB outcome=cured or completed treatment; SAM=Severe Acute Malnutrition; NB: 2 patients transferred out (1 from Early ART, 1 from Late ART) and were not included in outcome analysis.

Track 3:TB/HIV

Study Title:Enhancing TB case finding among HIV positive children attending an urban paediatric and adolescent HIV clinic in Uganda

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Background: In July 2013, the Uganda Ministry of Health introduced a revised TB symptom screening tool adapted from WHO to intensify TB case finding in children, adolescents, and adults. The national recommendation is to screen all HIV infected patients for TB on each clinic visit and initiate Isoniazid Preventive Therapy (IPT) for those without TB while prioritizing children < 5 years with a history of TB contact. We examined the impact of the screening tool on the identification of presumptive TB, diagnosis of TB disease, and uptake of IPT among HIV infected children < 15 years.

Methods: We extracted data from an electronic medical record at the Baylor-Uganda clinic which is the largest paediatric and adolescent HIV clinic in Uganda. We analyzed individual patient data on TB symptom screening collected at the initial clinic visit before (April 2012 - March 2013: period 1) and after (April 2014 – March 2015: period 2) implementation of the screening tool. Children on TB treatment at the time of screening were excluded from the analysis. Data were compared using means and proportions.

Results: The proportion of children screened for TB increased from 83% (3673/4422) in period 1 to 95% (4167/4374) in period 2 ($p < 0.05$). We registered a seven fold increase in the proportion of children identified with presumptive TB in period 2 [1.6% (59/3673) versus 10.9% (456/4167)]. The mean age for the children identified with presumptive TB was comparable for both periods [6.6 years (SD 5.0) versus 6.4 years (SD 4.0)]. There was equal sex distribution in both periods. More children were started on TB treatment during period 2 (51 confirmed TB and 88 clinically diagnosed) compared to period 1 (11 clinically diagnosed). Similarly, more children were initiated on IPT during period 2 (16 versus 3).

Conclusion:

The revised TB symptom screening tool identified more children with presumptive TB and improved uptake of IPT. Its use should be scaled up in order to identify children with or at risk for TB.

Sub-theme A, Track 3: TB/HIV

Household intensified case finding in a high TB/HIV burden setting: whom do you find? A TB REACH experience in Swaziland

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Background: Intensified case finding (ICF) in communities increases TB/HIV case detection. Swaziland would benefit from innovative, efficient programs to increase TB case notification, currently at 60%. Few ICF programs have explored their impact on both TB and HIV epidemics. With TB REACH funding, Baylor College of Medicine Children's Foundation–Swaziland (BCMCF-SD) implemented a community-based ICF program to increase TB case detection among HIV-affected households.

Intervention: BCMCF-SD screened household contacts of index cases (ICs) initiating TB treatment in 7 health facilities. Those screened TB positive on report were referred to a health facility for sputum submission. Home visits were conducted to complete TB screening and sputum collection for contacts with presumptive TB who didn't reach a health facility. Bacteriologically confirmed contacts were referred to start TB treatment. Symptomatic contacts with negative sputums were referred for further evaluation and treatment accordingly. We describe the population reached through household ICF from May 2013–November 2015, according to age, gender, self-reported HIV-status, and number of additional TB cases.

Results and lessons learnt: 3,255 ICs were linked to 858 households yielding 5,235 contacts. 49% (2,588/5,235) of contacts provided sputum and 88% (2,275/2,588) did so during the home visit, resulting in diagnosis of 2% (37/2,275) additional bacteriologically confirmed TB cases. Although representative of Swazi demography, our sample's sputum positivity mainly captures females (65%) and 20–50 years-old individuals (69%) (Table 1). HIV-positivity was disclosed by 9% (462/5,235) of contacts while 55% (2,899/5,235) reported an unknown HIV-status. Males and adolescents (10–19 years) were more likely to report an HIV unknown status ($p < 0.01$).

Table 1. Population distribution and TB confirmed cases

Characteristics	DHS 2007 (N=22,612)	BCMCF-SD home visits profile (N=5,235)	BCMCF-SD sputum positive (N=37)
<20 years	56%	56%	25%
20-50 years	33%	33%	69%
>50 years	11%	11%	6%
Female/male	55%/ 46%	56%/ 44%	65%/ 35%

Conclusions: Although effective at finding additional TB cases, household-based ICF strategies have limited potential to identify bacteriologically confirmed cases among children, adolescents and elders in this setting. Our model of household contact tracing provides an ideal opportunity to reach a representative population of Swaziland and to extend TB-HIV services to hard-to-reach populations, thereby reducing the TB burden.

Health systems strengthening HCT

Social Support Services for Orphans and Vulnerable Children (OVCs) in Mbeya, Tanzania

Authors:

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Issues: In Tanzania, children affected by HIV/AIDS often live in households undergoing dramatic changes and challenges to meet children's basic needs including access to health facilities and social support services.

Focused efforts in improving the well being of most vulnerable children (MVCs) utilize sustainable approaches such as strengthening capacity of LGA, child protection and youth approaches have increasingly missed opportunities to link identified children in need with health services due to lack of skills to identify MVCs.

Baylor Tanzania has supports MVC committees (MVCC) program to enhance identification of MVCs and increase MVC household access to comprehensive care.

Description: Between October 2015 and March 2016, six groups of MVCCs were identified and received additional training on MVC linkage to social support services and linkages health services.

Members of the MVCC developed work plans, developed registers, provided with referral tools and targets according to their geographic location. Home visits, household counseling, HIV review of schedules, screening for nutrition needs and linkages to social and health services was done. MVCC volunteers meet quarterly in their respective districts and submitted quarterly reports, identified gaps and provided way forward with Baylor staff and District Social Welfare officers.

Challenges included inability of volunteers to attend the meeting and submit quarterly reports due to heavy rainfall that impaired road transport in some wards.

Lessons learned: Between October and December 2015, 2060 MVCs have been reached and linked into social health services, while January and March 2016 the total number of clients reached and linked were 2222. Additionally, 131 HIV-exposed children were identified, and 108 of the HIV clients who were LTFU were found and linked back to cares.

Next steps

Baylor SHZ will develop, document and share best practices with local government to invest in supporting MVCs and their households.

Abstract category: **Project Description**

Title: **Determination of the True Lost to Follow Up rate: the Botswana-Baylor Experience**

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Background: Management at the Botswana-Baylor children's Clinical Centre of Excellence (COE) were concern the loss to follow up (LTFU) rate as generated from the electronic medical records (EMR) of 3.5% on ART and 2, 7% not on ART. Management believed the true LTFU number was much lower and resolved to determine our true loss to follow up rate.

Methods: The February 2016 monthly report was used as baseline to identify all active files at the COE. The EMR, IPMS and manual registers, were used to verify the status of patients at the COE who had HIV tests done or appeared as active patients. A manual count for all patient files in the COE was conducted and thoroughly documented. Two medical records officers conducted the exercise under the guidance of the M&E officer. The process took 10 weeks.

The chart numbers for manual records were documented (smallest to Largest) and the same process was done for the electronic monthly report and verification was done.

Results: 2519 active patient charts found in the EMR of which 2436 had no errors and 316 were reflected as LTFU and 144 as inactive. 19 patients had double chart numbers, 60 patients had HIV tests results undocumented, 26 transfer-outs appeared active and 1 missing temporary manual file was opened.

In addition 251 files were identified which were not in the report..

All errors discovered were corrected and the EMR updated. In the end, LTFU constituted 167 out of 8628 or 1.9 %.

Conclusions: The true LTFU of 1.9% was lower than the EMR generated number. We therefore recommend a full internal records audit every 2 years and quarterly EMR audits to help standardize files and improve quality of services and reporting.

Staff need to be constantly sensitized to maintain complete charts and data quality checks should be routine.

Country of research: Botswana

Key Population: Young people and adolescents, People living with HIV, Not applicable

Related to women and girls: No

Related to children: Yes

Ethical research declaration: Yes

Protocol Number: H-25403

INVESTIGATING THE IMPACT OF INVOLVING MALE CAREGIVERS IN IMPROVING ART ADHERENCE AND FAMILY SUPPORT SYSTEM AT BAYLOR MALAWI CENTRE OF EXCELLENCE (COE)

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Organization: ¹*Baylor College of Medicine Children's Foundation Malawi,* ²*Baylor College of Medicine International Pediatric AIDS Initiative,* ³*Baylor College of Medicine*

Background:As children's health care is increasingly complex in Malawi, fathers are needed even more to assist overburdened female caregivers. At Children's Foundation of Malawi Baylor Center of Excellence (COE) challenges noted among HIV positive/exposed children include poor adherence, missed appointments, lack of transport needs, nutritional deficits, This exploratory study reports some of the first in-depth evidence of fathers' experiences in Malawi and presents a research agenda in this critically under-researched area.

Methods: We conducted in-depth qualitative interviews with 8 fathers who provided a substantial amount of complex technical and nursing care for their child at home. The aim was to describe their experiences of fathering, parenting and caring. Interviews were recorded, transcribed and analysed using Burnard's approach, which has commonalities with phenomenological and content analysis.

Results and Discussion: Fathers enjoyed their caring role and found it rewarding and at times stressful. They instituted structured regimes, which focused on the father/child/family. Performing intimate care posed specific challenges for which there is no guidance. Children's community nursing was highly valued. Fathers generally rejected the need for specific father-focused services, as such provision would induce guilt feelings. Fathers reported positive relationships with their children and partners.

Conclusions: Key areas for future exploration include gaining a better understanding of fathers' motivations and styles of caring, developing interventions to support fathers' caring role, developing guidance on intimate care, and delivering tailored services to fathers in a family context. There is little understanding of fathering and caring by non-resident, teenage and step-fathers in Malawi. Understanding the involved and uninvolved fathers in their children's health care may inform public health interventions which may increase male participation, motivate uninvolved male peers, engage men in recognition as stakeholders in Malawian health care systems delivery, and increase male participation in the care of HIV infected children.

Addressing Psychosocial Needs and Care/Treatment Delivery Gaps for Adolescents Living With HIV (ALHIV) Using Technology: The Case Of The Teen Support Line (TSL) In Malawi.

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Introduction: Quality psychosocial services are sparse across Sub-Saharan Africa with distance to health centers and transport costs representing major barriers to accessing services. The Teen Support Line (TSL) bridges these service gaps giving ALHIV in Malawi 24-hour access to HIV-specific information, psychosocial support, and linkage to care centers through a free cellular hotline service. Call-takers provide counseling, referrals, and follow-ups with on call clinician, social worker, and counselors.

Healthcare providers and community mentors share the TSL number, found in Ministry of Health publications, with fully disclosed HIV positive adolescents. The number is shared throughout the network of 'Teen Clubs' across Malawi for ALHIV.

Methods: From March 2013 to March-2016, the hotline number was shared with 3126 ALHIV using the existing 'Teen Club' network and targeted TSL launches across Malawi.

Call-responders complete forms eliciting caller demographics, discussion topics, pre-and-post caller perspectives. Data was collected from forms for calls made March 2013-March 2016 and a retrospective review and descriptive analysis of results was done.

Results: During the period above the TSL received a total 876 calls. 46% callers were female and 56% male. 50% were ages 12-15 years, 34% were 16-19 years. 33% (291) used their own phone and 43% (381) used a guardian's phone. 33.3% (292) of the calls were made within peak call time of 4-9 pm. 18% (160) were first-time callers and 40% (346) were returning callers. 15% (135) of the callers were referred for depressive symptoms. 12% (107) of calls required follow-up.

At the call's conclusion, 87% (763) felt better about their situation and 78% (686) indicated that they had learned something from the call. Most common call topics were: Teen club/clinic appointment information (29%), ART and adherence (19%), stigma/discrimination (11%), caretaker issues (10%), and sexual reproductive health (9%).

Conclusions: ALHIV are using the TSL. An ALHIV-specific hotline can provide psychosocial services lacking at health-centers and loosen the constraint of distance in providing case-specific counseling. ALHIV-specific hotlines may serve as adjuncts to care in countries with adolescent-focused delivery gaps. The success of such hotlines is dependent on safeguarding the privacy and confidentiality of ALHIV, and well trained call-responders.

Case Studies

CASE REPORT: DISSEMINATED CYSTICERCOSIS IN HIV INFECTED CHILD WITH KAPOSI SARCOMA IN THE SOUTHERN HIGHLANDS ZONE OF TANZANIA

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Background: The larval stage of the pork tapeworm *Taenia solium* causes cysticercosis. Extraneural manifestations of cysticercosis can include subcutaneous nodules, an entity with a wide differential diagnosis in the HIV positive child in the resource limited setting. We present a case of disseminated cysticercosis presenting as extensive subcutaneous nodules in an HIV positive child undergoing chemotherapy for Kaposi sarcoma.

Case Report: A 4 year old HIV positive male presented to the Baylor COE in Mbeya, Tanzania for evaluation of violaceous skin and genital lesions and subcutaneous nodules which rapidly grew after initiation of ART, 8 weeks prior to presentation. His baseline presentation was notable for a circumferential penile lesion with partial urinary obstruction and more than 30 skin lesions over his trunk and extremities (Figure 1a). Baseline CD4 was 32/3% and initial labs showed severe neutropenia with an ANC of 10. The patient was clinically diagnosed with Kaposi sarcoma and started on bleomycin and vincristine (BV).

After 5 cycles of BV, chemotherapy was intensified to BV + doxorubicin based on failure to achieve complete clinical remission. CXR obtained after 5 cycles of BV was notable for an extensive reticulonodular pattern and was concerning for pulmonary involvement (Figure 2).

He completed 10 cycles of BVD but due to the presence of persistent skin lesions, subcutaneous nodules and abnormal CXR, he was started on paclitaxel.

He completed 12 cycles of paclitaxel at 135mg/m² but had continued progression of subcutaneous nodule (Figure 1b) and follow up CXR showed no improvement in the reticulonodular pattern. While receiving chemotherapy, he achieved full viral suppression and had CD4 rise to 455/45%. Biopsy of a scapular subcutaneous nodule was obtained and when histopathology revealed *Taenia solium* he was diagnosed with disseminated cysticercosis.

After diagnosis of cysticercosis, his chemotherapy was stopped and he was started on praziquantel and albendazole for 10 days. He also started prednisone due to the potential for neural involvement. After completing 10 days of anti-helminthic therapy, he had a dramatic reduction of subcutaneous nodules (Figure 1c).

Discussion: Disseminated cysticercosis is an unusual opportunistic infection which can occur in immunocompromised patients receiving chemotherapy in the resource constrained setting. Cysticercosis can present as multiple skin nodules, resembling Kaposi sarcoma and histopathology is essential to accurately diagnose and manage these patients.

Figure 1: Physical exam findings at diagnosis of Kaposi Sarcoma and Disseminated Cystercosis



Figure 2: CXR at time of KS diagnosis



Abstract category: *Sub-theme B, Track 9: Adolescent Health*

Title: **CASE REPORT ON THE FIRST PAEDIATRIC PATIENT INITIATED ON THIRD LINE ANTIRETROVIRAL THERAPY IN SWAZILAND**

Authors: **F. A. Anabwani**

1. **Baylor College of Medicine Children's Foundation Swaziland, Mbabane, Swaziland**

Institute(s): ***Baylor College of Medicine- Bristol Myers Squibb Children's Clinical Centre of Excellence, Mbabane, Swaziland***

Text: Through the Swaziland Paediatric Third Line Antiretroviral Therapy (ART) Program, the country introduced two new drugs, Darunavir/Ritonavir (DRV/r) and Raltegravir (RAL).

Background: The Baylor College of Medicine Bristol Myers Squibb Children's Clinical Centre of Excellence in Swaziland is the national clinical referral centre for paediatric and adolescent second-line ART failure and third-line ART initiation.

Case: An 18 year old female was referred from a regional health centre with immunological and virological failure to second-line ART. She was initiated on first-line ART, Stavudine/Lamivudine/Nevirapine (D4T/3TC/NVP), on 17-Sept-2008 with a baseline CD4 count of 6/2%. D4T was discontinued, with subsequently switch to Zidovudine/Lamivudine/Nevirapine(AZT/3TC/NVP) on 16-June-2011, during a national D4T phase-out campaign.

However, she was erroneously switched from AZT/3TC/NVP to AZT/3TC/LPV/r on 23-Nov-2011, when initiated on TB treatment at the health centre.

Neither double-dosed Kaletra (LPV/r) nor Ritonavir (RTV) boosting was done upon initiation of TB treatment. She was again treated for TB in 2014 while on a LPV/r-based regimen. There was no documented history of poor adherence. At the time of her referral to Baylor Clinic on 8-June-2015, she was 33kg, with a CD4 count of 5/2% and viral load of 92,800.

Results: Genotyping showed high-level resistance to Stavudine (D4T), Abacavir (ABC), Tenofovir (TDF), Nevirapine (NVP), Efavirenz (EFV), Emtricitabine (FTC) and Kaletra (LPV/r). She had low to intermediate level resistance to Zidovudine (AZT) and Lamivudine (3TC), and low-level resistance to Darunavir/Ritonavir (DRV/r). Based on her genotyping results, she was switched to AZT/3TC/RAL/DRV/r on 9-July-2015. She has been on third-line ART for over a year, with consistently good adherence.

Her current weight is a remarkable 53kg, with a CD4 count of 358/11%,

and undetectable viral load (less than 20 copies/mL).

Conclusions:

Despite the excellent treatment outcome as a result of this adolescent being transitioned to third-line ART, it is important to note that the reason she qualified for this line of treatment was not as a result of poor adherence, but rather as a result of a prescription error.

This case reflects the diverse challenges and costs associated with knowledge-gaps among prescribers as regards management of paediatric HIV and TB co-infection.

Country of research:	Swaziland
Related to women and girls?	Yes
Related to children?	Yes
Ethical research declaration:	Yes
Word count:	345

GENERAL INFORMATION	
COUNTRY	Colombia, South America
TITLE	Western Medicine Vs Traditional Medicine: Strategy Approach of a high-risk pregnant woman in the community, a case study report.
TRACK	(7) <i>Maternal Health</i>
AIMS AND RATIONALE	
METHODS	
FINDINGS	
POTENTIAL USE	
BACKGROUND HISTORY	

Due to ancestral beliefs and difficulties in transport routes, 40% of pregnant Wayuu women have their births in their communities. When they have obstetric complications such as eclampsia, they believe that the spirit “yojura” takes over the mother’s body. Only at that point do they accept that the birth should be handled by a traditional doctor. This belief system delays medical care and increases maternal and infant mortality rates.

DESCRIPTION	
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A forty-year-old pregnant woman was identified by the health promoters and referred to an obstetrician. During the medical consultation she had a blood pressure reading of 180/90 mmHg and was sent to a hospital where she was diagnosed with 32 weeks of pregnancy and severe pre-eclampsia. They recommended an emergency cesarean section. Due to the strong belief of the Wayuu culture in which women must wait for natural childbirth, the patient refused any procedure and requested a voluntary discharge from the hospital.

MANAGEMENT	
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Design Strategy: A health worker will visit pregnant women on a daily basis and take their vital signs and check for maternal warning signs.

Treatment includes:

- Taking antihypertensive drugs and corticosteroids.
- Testing of blood and urine. Medical examination in the community.
- Raise awareness about the benefits of planning and possible obstetric complications due to lack of hospital care.

After three weeks the patient became aware of her illness, accepted the recommended treatment and agreed to the application of a subdermal implant as a method of family planning. Patient gave birth to a live female infant, weighing 2900 gms and length 49

cms.

LESSONS LEARNED	
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- The clash of traditional and western medicine generates isolation and rejection by Wayuu pregnant women.
- Open dialogue and consistent community follow-ups are useful tools that allow for the resolution of high-risk health situations, while understanding and respecting local customs and beliefs.
- Provide high-risk obstetric patients, at the time of childbirth, with a definitive or temporary family planning method.
- Seek coordination between program obstetrician and pediatrician to inform the latter of high-risk cases so that newborns will receive integral care, thus reducing perinatal mortality..

Aplastic Anaemia – 12 months ‘experience at Kamuzu Central Hospital, Malawi

Atupele Mpsa, Kevin Mackenzie, Stella Wachepa, Mercy Butia, Aida Mtete, Mary Chasela, Mary Ntunda, Peter Wasswa

Background.: Aplastic anaemia (AA) is reported to be a very rare disease. The cause of AA cannot be discerned in 85% of cases, even in highly resourced settings with high diagnostic capability. Historically, Chloramphenicol was thought to be a major contributor to the cause of AA in SSA, however, this association has been found to be weak. Despite suggestions that AA may be more prevalent in Sub Saharan Africa (SSA) than in the West, there is a dearth of studies on the epidemiology and outcomes of AA in SSA. We describe our experience of managing aplastic anaemia over a period of 12 months, at Kamuzu Central Hospital (KCH).

Methods: This is a descriptive study of all children (<18yrs) diagnosed with aplastic anaemia at KCH from July 2015 to July 2016. The case definition and classification was based on the Camitta criteria, using bone marrow and blood counts. Data was collected on the demographics, antecedent drug exposure, Medical history, HIV status, Clinical characteristics, Haematological features and outcomes.

Results: 10 children (60% female), were diagnosed with very severe aplastic anaemia during the study period. The median age was 8.5 years (range 2 to 15years). The median duration of symptoms prior to diagnosis was 10 weeks (range 0.4 to 32 weeks). 9/10 (90%) of affected children presented with symptomatic anaemia, 5/10(50%) with bleeding symptoms and 1/10 (10%) with infection.

At diagnosis, the median platelet count was $14 \times 10^9/L$ (range 2 to 28); median Haemoglobin 47g/L (range 30 to 83g/L); mean neutrophil count was $0.17 \times 10^6/L$ (range 0.01 to 0.36). All the children had severe bone marrow hypoplasia. All children were HIV sero negative, had no antecedent symptoms of hepatitis, no drug exposure 3 months prior to diagnosis, and no significant medical history.

All children had no family history or clinical history of familial bone marrow failure syndromes. Survival was 9/10 (90%) at 1 month and 2/7 (28%) of evaluable patients at 6 months. Septicaemia was implicated in mortality for 5/5 (100%) of cases and bleeding was implicated in 1/5 (20%).

Discussion: The number of new cases of AA seen at KCH over the last 12 months exceeds that expected if the prevalence data in the West was applicable to Malawi. The limited diagnostic infrastructure precluded the robust search for underlying cause for AA. However, the failure of clinical evaluation and limited laboratory assessment to reveal a cause of AA in all the patients is in keeping with current knowledge that most cases of AA are idiopathic. The poor long term survival observed in this cohort is to be expected in a setting such as ours with no access to curative treatment options and limited supportive care infrastructure.

The seemingly high incidence of AA provides an opportunity to study potential biological aberrations and predispositions to AA in Malawian Children, and is an impetus to develop innovative cost effective approaches to improve outcomes.

Adolescent Health

Case Report: A Case of Severe Malabsorption. Difficulties in Diagnosing Inflammatory Bowel Disease in an HIV positive child in resource limited settings

Author : Bongani Sonto Chirigo

Baylor College of Medicine Bristol Myers' Squibb Children's Clinical Centre of Excellence, Swaziland

Background History

Diagnosis of Inflammatory Bowel disease (IBD) is based on clinical signs and symptoms, endoscopy, histology and radiology. In children, IBD is usually not high on the list of differential diagnoses of malabsorption and tests are not readily available in resource limited settings for an accurate diagnosis,

This is a case of an HIV positive 4-year-old boy with a 3 year history of being managed for chronic bloody diarrhea and severe malnutrition until a presumptive diagnoses was finally made of IBD after F-Claprotectin came back high and is now improving on corticosteroids.

Description

The child presented at 3 weeks of age on PMTCT and exclusively breastfed. At 6 months the child developed bloody diarrhoea. Dry Blood Spot (DBS) was positive. FBC showed a microcytic anaemia. CD4 was 1858-23%. ART was initiated. Child continued having bloody diarrhea and losing weight. Stool microscopy and sero-markers of celiac disease were normal.

He was treated numerous times with albendazole, ORS, zinc, plumpynut and antibiotics with minimum improvement.

TB was suspected on CXR but with no improvement on treatment. USS Abdomen, Gene expert and culture were negative. The child was admitted 3 times with severe dehydration, malnutrition, anaemia and diarrhoea. At 3 years, he weighed 6kgs, severely malnourished (W/H of below 2SD) and a detectable VL -1076. He was unable to sit or speak.

A team of paediatricians and gastroenterologists decided to use tests available including F-Calprotectin levels which were elevated and highly suggestive of IBD. An intestinal biopsy for definitive diagnosis could not be attained.

Management

Since January 2016, the child was started on corticosteroids for IBD. The child significantly improved; reduced bouts of non-bloody diarrhea and gaining weight. He walks with support and speaks some words. VL is undetectable and CD4 is 2587-31%. Anaemia is improvin

Fig. 1: Weight (kgs) of Patient on every visit

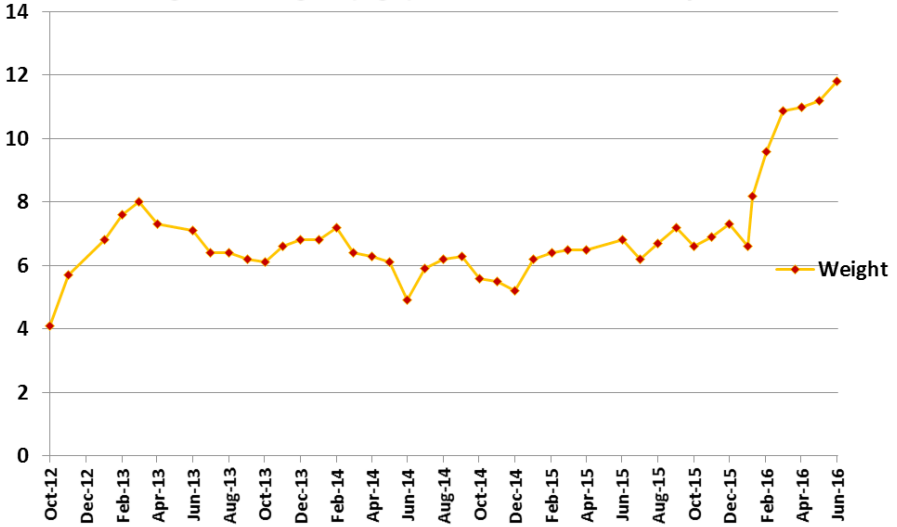


Fig 2:Haemoglobin Levels of the Patient

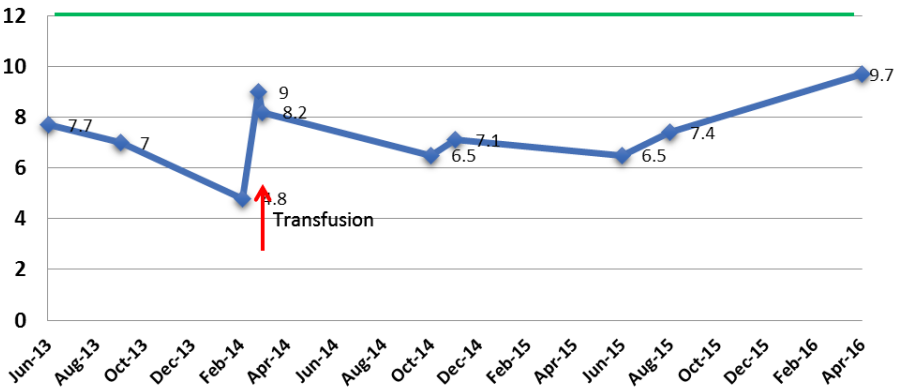
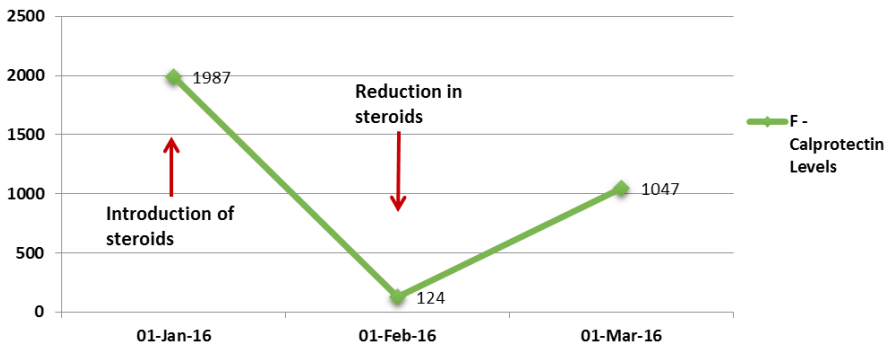


Fig 3: F - Calprotectin Levels of Patient



Lessons Learnt

Though IBD is more common in developed countries, clinicians in resource limited settings should take it into account more often. Clinicians should be aware of tests available in one's area and seek support early. There is need for more research on malabsorption conditions like IBD and correlation with HIV in African children as it affects adherence and prognosis.

Abstract category: Psychosocial
Title: *Health, schooling, needs, perspectives and aspirations of HIV infected and affected children in Botswana: a cross-sectional survey*

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Institution (s): *1Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana;
2Baylor College of Medicine, Pediatric Retrovirology, Houston, Texas, USA;
3Baylor International Pediatric AIDS Initiative, Houston, Texas, USA;
4University of Botswana, Gaborone, Botswana*

Text: Background: Antiretroviral treatment means many HIV infected children are surviving with a highly stigmatised condition. There is a paucity of data to inform policies for this growing cohort. Hence we carried out a study on the health, schooling, needs, aspirations, perspectives and knowledge of HIV infected and affected children in Botswana.

Description: A cross-sectional survey using interviews and focus group discussions among HIV infected children aged 06-18 years versus age matched HIV uninfected counterparts living in the same households between August 2010 and March 2011. Supplemental clinical data was abstracted from medical records for HIV infected participants.

Results: 984 HIV infected and 258 affected children completed the survey. Females predominated in the affected group (63.6% versus 50.3%, $P < 0.001$). School attendance was high in both groups (98.9% versus 97.3%, $P = 0.057$). HIV infected children were mostly in primary school (grades 3-7) while affected children were mostly in upper primary or secondary grades.

Sixty percent HIV infected children reported having missed school at least one day in the preceding month. Significantly more infected than affected children reported experiencing problems at school (78% versus 62.3%, $P < 0.001$). 22% of 15-18 year old HIV infected children were in standard 7 and below compared to only 8% of HIV affected children ($p = 0.335$). School related problems included poor grades, poor health/school attendance, stigma and inadequate scholastic materials.

The wish-list for improving the school environment was similar for both groups and included extra learning support; better meals; protection from bullying/teasing; more scholastic materials, extracurricular activities, love and care; structural improvements; improved teacher attendance and teaching approaches.

Significantly more HIV infected children reported feeling hungry all the time (50.6% versus 41%, $P = 0.007$) and more trouble hearing (26.8% versus 12.5%, $P = 0.028$). The mean age for HIV disclosure 10 years was high. Sexual activity (9.2% versus 3%,

P=0.001) and emotions of anger (71% versus 55.3%, P<0.001) were significantly higher among HIV affected children.

Future perspectives were equally positive (93% versus 96%, P=0.080).

Way Forward: The young people are capable of taking care of themselves. They intend to continue raising funds so they can attend and finish their training. They are in the process of registering a company which they will continue to run after their tenure in the program elapses.

Country of research:	Botswana
Key Population:	Young people and adolescents, People living with HIV, Not applicable
Related to women and girls:	No
Related to children:	Yes
Ethical research declaration:	Yes
Protocol Number:	H-25403

Track 9: Adolescent Health: Adolescent Transition Clinics

**THE IMPACT OF A FORMAL TRANSITION PROCESS ON YOUNG ADULTS
ATTENDING BUGANDO MEDICAL CENTRE IN MWANZA, TANZANIA**

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M. Minde¹, L. Mwita¹.

*1- Baylor college of Medicine Children's
Foundation-Tanzania, Mwanza, Tanzania.*

2- Bugando Medical Centre, Mwanza, Tanzania

*3- Baylor College of Medicine International
Pediatric AIDS Initiative*

Background

Young people living with HIV between the ages of 10 and 24 represent the only age group with increasing HIV prevalence and mortality worldwide. HIV infected adolescents and young adults face many challenges to long term adherence to Anti-retroviral therapy (ART) including peer pressure, risky behaviors, poor adherence, missed appointments, and a variety of other social and medical problems.

At the Baylor College of Medicine Children's Foundation- Tanzania Centre of Excellence (COE) in Mwanza, Tanzania, adolescents approaching the age of 18 years complete 2 transition phases as part of a formal transition process prior to transfer to adult care.

Adolescents get an opportunity to learn more about the disease process and how they can continue to live positively with HIV as well as receive encouragement for taking responsibility for their healthcare needs. This study assesses the impact of this transition process.

Methods: A retrospective chart review of clients between the ages of 18 and 24 years attending Bugando Medical Centre (BMC) from January-December 2015. Inclusion criteria: Group #1: clients on ART transferred from Baylor after completing the formal transition process. Group #2: clients on ART directly enrolled at BMC or transferred in from a non Baylor facility during the study period.

The last five visits through 31st December 2015 were analyzed considering Adherence, Attendance and ART regimen type.

Results

	TRANSITIONED CLIENTS (n=30)	NON TRANSITIONED CLIENTS (n=30)
Good adherence (>95%)	29 (97%)	17 (57%)
Poor adherence (<95%)	01 (03%)	13 (43%)
Good attendance	28 (93%)	14 (47%)
Missing appointments	02 (07%)	16 (53%)
1 st line regimen	24 (80%)	30 (100%)
2 nd line regimen	06 (20%)	0 (0%)

Conclusion

Young adults formally transitioned had better attendance and adherence to ART. The importance of clinic attendance and good adherence was stressed during the transition process. Clients not transitioned did not perform as well in terms of adherence and attendance suggesting they may not fully understand the importance of ART and attending clinic.

A formal transition process bridging the gap between pediatric and adult services represents an effective strategy to ensure long term ART adherence for adolescents at the COE as they mature into healthy, responsible adults.

H-32678 MEDICAL AUDIT OF ACTIVITIES FROM THE BAYLOR COLLEGE OF MEDICINE LAKE ZONE CHILDREN'S CLINICAL CENTRE OF EXCELLENCE AT BUGANDO MEDICAL CENTRE, MWANZA, TANZANIA

Feasibility, Safety, and Efficacy of an Anthracycline containing Induction Protocol for Childhood Acute Lymphoblastic Leukaemia in Malawi

Wasswa P, Westmoreland K, Mtete I, Butia M, Chasela M, El Mallawany N, Scheurer M, Mehta P, Cubbage M, Lubega J, Margolin J.

Background: The success achieved in treatment of Acute lymphoblastic leukaemia (ALL) in high income countries has not been replicated in low income countries (LIC). Mortality is highest during induction.

Low-intensity treatment (which generally excludes anthracyclines) reduces toxicity, but may compromise chances of cure. There is a paucity of data documenting the toxicity of anthracycline-containing induction protocols in LICs. We share our experience of treating childhood ALL at Kamuzu Central Hospital, in Malawi.

Methods: Between July 2015 and March 2016, all children diagnosed with ALL or lymphoblastic lymphoma (LBL) were treated on a protocol similar to UKALL 2011 regimen B. We substituted Daunorubicin for Doxorubicin 20-25mg/m²/day. Due to scarcity, Asparaginase was used for only 5(38%) children. Data was collected on the demographics, baseline clinical and haematological features, toxicity, and remission status at the end of induction.

Results: During the treatment period, 13 children with ALL or LBL, were commenced on this induction protocol. Median age was 9 years (range 2.7-15.4), 7/13 (54%) were male. 10 patients (77%) were NCI high risk for age (6/12, 50%) and/or WCC (8/13, 60%). 1 patient was lost to follow up. 10/12 (83%) evaluable children survived to the end of induction. Of the two deaths, 1 died from sepsis and the other from unexplained cardiac arrest. Grade 4 toxicity was observed in 1/11 (9%) evaluable children. Remission was achieved in 9/10 (90%) of evaluable patients by end of induction.

Conclusion: Anthracycline containing ALL induction protocols appear to be feasible, safe and effective for children in poor resource settings, such as Malawi.

Maternal and Child Health

Track: Maternal Health

Sub-theme: *Reducing maternal mortality in resource-limited settings*

Title: *Why mothers die in Western Uganda: The three delays model*

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Background: Delays in decision to seek care (delay 1), reaching health facility (delay 2) and in receiving care (delay 3) by mothers are known to contribute to maternal morbidity and mortality in worst case scenarios. Saving Mothers Giving Life (SMGL) project implemented since 2012 aimed at describing the three delays causality model for mortality in Kabarole, Kamwenge, Kibaale and Kyenjojo districts.

Description: Data from the 2015 surveillance in the four districts of all deaths among women of reproductive age was reviewed to identify pregnancy-related deaths. Verbal autopsy was done for the 146 pregnancy-related deaths to establish the cause of death. Trained doctors reviewed, certified and coded the causes of death. Delays which contributed most to maternal deaths were established. The delays and reasons for these delays were summarized as proportions.

Lessons Learnt: Of the 146 maternal deaths, 68% reported delay1 as contributing to death, 24% delay 3 and 8% delay 2. Fifteen percent of these maternal deaths had both delay1 and delay 2 while 4% had all the 3 delays. Reasons for delayed decisions to seek care included; limited trust in the medical system to handle complications, lack of means of communication and transportation, and the most cited (60%) was limited knowledge of complication danger signs.

Reasons for delay in receiving care at the health facility included; lack of essential supplies and drugs (7%), delayed provision of care (11%) and difficulty in obtaining transportation for referral (8%). Twenty eight percent of deaths occurred at home, 9% on the way to a health facility, 14% in private health facilities and 49% in government health facilities. Of those who died at home 81% died post-delivery and only 19% had delivered in a health facility. Of those who died at both private and public health facilities 27% (25/92) died undelivered.

Conclusions: Most maternal deaths still result from delays in deciding to seek medical assistance due to limited knowledge of danger signs. Efforts to sensitize communities about danger signs in pregnancy and importance of delivering at health facilities should be heightened.

GENERAL INFORMATION	
COUNTRY	Colombia, South America
TITLE	Comprehensive Care Program Differentiated Maternal – Fetal Health for the Wayuu population
TRACK	(7) Maternal Health
AIMS AND RATIONALE	
METHODS	
FINDINGS	
POTENTIAL USE	
TITLE	Comprehensive Care Program Differentiated Maternal – Fetal Health for the Wayuu population

Issue Description - Summary of the issue(s) addressed by the abstract

The department of La Guajira has the highest maternal mortality rate in Colombia: of the 150 cases per 100,000 live births, 60% are indigenous Wayuu. Some of the issues identified among pregnant women are low maternal weight, anemia, the late onset of prenatal care, and the absence of prenatal testing.

The absence of prenatal care and the fact that most deliveries happen at home are caused by the lack of access to medical care due to the long distances between the women in need and the health centers, and the cultural and language barrier.

PROGRAM DESCRIPTION	Comprehensive Care Program Differentiated Maternal – Fetal Health for the Wayuu population
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Program Description - Description of the research, project, experience, service and/or advocacy

Baylor Foundation Colombia has developed an integral ethnic oriented Maternal – Health Care program for the Wayuu Indigenous population not tested before in La Guajira.

The program is designed to identify and monitor pregnant women in situ through: 1. Training and hiring of local Wayuu Indigenous health workers, 2. Local obstetrician who treats the patients at the governmental medical centers and trains health staff.

The program benefits 172 Wayuu indigenous communities (approx. population 5,300.) located at the north of Colombia in a deserted landscape with very low basic needs covered.

Comprehensive prenatal care is provided during each patient visit. It includes xx

main steps: 1. Identification or arrival, 2. Medical consultation, 3. Dental assessment, 4. Vaccination, 5. Obstetrical ultrasound, 6. Prenatal laboratories, 7. Delivery of micronutrients, 8. Advice on breastfeeding, and family planning.

Dispersion of the population and a non-existent ethnic outreach model were identified as the main barriers to access to proper pre- and post-natal care to help improve the high maternal mortality rates in the Guajira desert.

LESSONS LEARNED	Comprehensive Care Program Differentiated Maternal – Fetal Health for the Wayuu population
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Lessons Learned - includes results, Conclusions and implications of the research or project

In 2015 the program treated 883 pregnant women, offered prenatal care to 1,773 women, performed 1,220 ultrasound examinations, and identified 514 high-risk patients. There were no cases of maternal mortality. A decrease from the previous year, in which five cases of maternal mortality were recorded. However, the number of cases of extreme maternal morbidity and perinatal deaths due to preterm birth and low birth weight of newborns increased.

The monthly comprehensive prenatal consultations (883 pregnant women were seen and 1,773 prenatal consultations were carried out conducted by the obstetrician and the regular monitoring of high-risk pregnant women (58.8% were high-risk pregnant women) performed by the health promoters have an impact on maternal mortality rates.

There were no maternal death cases in the area intervened, thanks to the community follow-up activities of 60 extreme high-risk patients, with a successful neonatal result in 80% of all cases.

NEXT STEPS	
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Next Steps - possible next steps and/or recommendations for implementation or further research

1. Design a treatment protocol to treat anemia during pregnancy. Anemia was diagnosed in 40% of all pregnant women seen, which is a risk factor for post-partum hemorrhage and maternal death.
2. Participate with the Ministry of Health's complimentary educational project to train traditional midwives. 60% of all pregnant women have received care from midwives in their communities, who are unable to identify high-risk pregnancies and promptly refer them to the hospital when there are obstetric complications.
3. Design fetal growth curves for the Wayuu population because they have specific anthropometric characteristics that do not fit in with the standard fetal growth tables, therefore making it difficult to diagnose restricted fetal growth.

STEPS OF IMPLEMENTATION OF THE MOTHER-BABY-PAIR STRATEGY AT BAYLOR - CENTER OF EXCELLENCE SWAZILAND

Authors: *Thembele Mavuso1, Bulisile Mzileni 1, Sandile Dlamini1, Samukelisiwe Masilela 1, Sarah Perry MD1, Zodwa Gamedze1, Makhosazana Hlatshwayo ED1*

Institution: *Baylor College of Medicine Bristol Myers' Squibb Children's Clinical Centre of Excellence, Swaziland*

Background: According to the HIV Sentinel Surveillance (2008) the HIV prevalence rate of pregnant women attending ANC age 15-49 in Swaziland is 42%. Looking at the high prevalence and other factors the 2015 Swaziland National Guidelines for HIV Care and Treatment developed a new strategy to strengthen mother and baby care termed Mother-Baby-Pair (MBP), recommended by World Health Organization.

The main objective of the strategy is to lower transmission rate of HIV from mother to child and ensure mothers obtains comprehensive health care services.

Swaziland Baylor Clinical Centre of Excellence started implementing this strategy, beginning October 2015. This will enable the clinic to follow-up mothers at pre- and post-natal care and babies up to 5 years of age.

Description In promoting that babies are brought to the clinic by their mothers instead of caregivers the COE started to offer a comprehensive package of health care services for the MBP. These include family planning, immunization, growth monitoring, HIV re-testing, ART refills and cervical cancer services.

Results Baseline data 6 months before the project started: children <5 years; 1153 came with their mothers and 587 came to the health facility with any other caregiver excluding their mothers, this implied that 66% (1153/1740) of children were seen with their mothers. Six months post the project life, 1683 children has been seen at the clinic; 1386 were seen with their mothers which is 82%.

Children who were brought to the clinic 18 months before the project started were 9 and 6 were retested (67%). HIV re-testing at the age of 18 months after project implementation was 19 out of 19 children (100%). Cervical cancer screening was at 331 women 6 months before the project and 535 post 6 months of project implementation.

Conclusion There has been a significant increase in the number of mothers bringing their babies to the clinic receiving the diverse services since the MBP strategy implementation. This indicates that the MBP intervention is effective so far. However the results shown represent 6 months only. The intervention will be evaluated after two years of implementation.

Track 5: Non-communicable diseases.

Comprehensive management of children with sickle cell anemia in Cabinda, Angola

Authors: *A. Nlolo,^{1,2} K. Helena,^{1,2} S. Luemba¹, P. Noli²,
D. Nirenberg³, S. Kahan,² G. Airewele,³*

Institutions: *¹Angola Sickle Cell Initiative, ²Baylor College of Medicine Global Health Corps,
³Baylor College of Medicine Department of Pediatrics, Houston, TX USA,*

Issue: Most newborns with sickle cell anemia (SCA) in sub-Saharan Africa (SSA) do not make it to their 5th birthday and most deaths result from severe anemia and preventable infections. Except for those with HIV, children who suffer from chronic disease such as SCA in SSA do not have access to comprehensive longitudinal care programs. Since 2011, Baylor College of Medicine, Angola Ministry of Health and Chevron collaborated on the Angola Sickle Cell Initiative (ASCI) to screen newborns for SCA and treat affected children. In 2012, ASCI established a comprehensive care clinic for SCA in Cabinda, Angola.

Description: The clinic space in Cabinda is located in a Ministry of Health facility. Coincident with the introduction of hydroxyurea, in June 2015, all patients treated in ASCI clinic, Cabinda, were entered into an electronic database. During each clinic visit, clinicians filled out forms that documented demographic information, past medical and social history, physical examination and plan. This report documents the clinical characteristics of children seen from June 1, 2015 to March 30, 2016.

Lessons learnt: During this period, we completed 1886 encounters on 538 patients with SCA ranging from 6 months to 30 years of age, 88 % were less than 15 years old. Only one patient was already taking hydroxyurea. 38 % of mothers had fewer than 9 years of education and 36 % of patients had at least one full sibling who died. 78% had been transfused at least once and 15% had been transfused over 10 times raising the possibility of iron overload. 353 patients were started on hydroxyurea. We observed significant missing data- e.g. maternal education was unrecorded for 55 patients.

Next Steps: The ASCI clinic offers a successful model for comprehensive care for SCA and other chronic diseases in Africa. We will document the effect of hydroxyurea on frequency of complications and need for blood transfusions. The review also highlights the need better train data managers to minimize missing data.

Newborn Health

Track 7: Maternal Health: Pregnancy and breastfeeding

FEEDING PRACTICES AND NUTRITIONAL STATUS AT THE TIME OF ENROLLMENT FOR HIV EXPOSED INFANTS LESS THAN 6 MONTHS OLD ENROLLED AT THE BAYLOR COLLEGE OF MEDICINE CHILDREN'S FOUNDATION- TANZANIA LAKE ZONE CENTER OF EXCELLENCE (COE) IN MWANZA, TANZANIA FROM JANUARY 2014 TO DECEMBER 2015

K. Jackson¹, Nasizya Mataluma¹, M. Brown¹, M. Chimwanda¹, Esther Masunga¹ A. Gesase¹, S.Shea^{1,2}, M. Minde¹, L. Mwita¹.

1- Baylor college of Medicine Children's Foundation- Tanzania, Mwanza, Tanzania.

2- Baylor College of Medicine International Pediatric AIDS Initiative

Background: WHO recommends exclusive breastfeeding for six months for infants with HIV -positive mothers as one of the core strategies in prevention of mother to child transmission (PMTCT) programming designed to reduce vertical HIV transmission. Maintaining exclusive breastfeeding for six months presents many challenges to HIV-positive mothers. Different feeding options carry significant health risks to infants and young children. Breastfeeding practices influence the health of children by reducing the incidence of many infectious diseases, and preventing some chronic diseases. This study reviews feeding practices employed by mothers enrolling their exposed infants at the COE to assess the ongoing need to educate mothers on the importance of breastfeeding to improve children's health.

Methods : This is a retrospective study utilizing data extracted from electronic medical record (EMR) at the Baylor Lake Zone COE. Inclusion criteria: all HIV-exposed infants less than six months old enrolled at Baylor COE from January 2014 - December 2015.

Results: During the study period, 546 HIV-exposed infants were enrolled at the COE. For the infants enrolled, 84.8% (463/546) mothers were exclusively breastfeeding, 8.4% (46/546) were practicing mixed feeding, and 6.4% (35/546) used replacement feeding while 0.4% (2/546) had no documented feeding practice. Of the infants who were exclusively breastfed, 97.6% (452/463) had normal nutritional status, 0.7% (3/463) had Moderate Acute Malnutrition (MAM), and 1.7% (8/463) had Severe Acute Malnutrition (SAM).

For infants on replacement feeding, 62.9% (22/35) had normal nutritional status, 22.8% (8/35) had MAM, 14.3% (5/46) had SAM, while for Mixed Feeding 89.1% (41/46) had normal nutritional status and the remaining 10.9% (5/46) had SAM. The nutritional

assessment was done using WHO Weight for height Charts.

Conclusion: Overall, the majority of mothers are following PMTCT guidelines, practicing exclusive breastfeeding at the Lake Zone COE. Nutritional status is better for exclusively breastfed infants with a larger percentage of them in the normal range compared to infants whose mothers are using replacement or mixed feeding. In addition, there might be increased sick visits for those who did mixed and replacement feeding and increased risk of vertical HIV transmission compared to infants who were exclusively breastfed. Further studies are needed to explore these outcomes.

H-32678 MEDICAL AUDIT OF ACTIVITIES FROM THE BAYLOR COLLEGE OF MEDICINE LAKE ZONE CHILDREN'S CLINICAL CENTRE OF EXCELLENCE AT BUGANDO MEDICAL CENTRE, MWANZA, TANZANIA

Baylor Tanzania programs are funded and supported by USAID, BMS Foundation, and Barclays Bank

Initial Clinical Validation of a Rapid, Low-Cost, Paper-Based Diagnostic Test for Sickle Cell Anemia as a Tool to Facilitate Newborn Screening in Resource-Limited Settings

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Background: Conventional testing methods for sickle cell disease (SCD) are impractical in resource-limited clinical settings due to their high cost, complexity, and delayed availability of results. In this work we evaluated the practicality and clinical utility of a low-cost, rapid paper-based test for screening newborns and their mothers for SCD in Angola.

Methods: For this study we recruited postpartum mothers and their newborns at an obstetric hospital in Cabinda, Angola. Newborns were screened directly (using the neonatal version of the paper-based test) and indirectly (by screening mothers with the adult version of the paper-based test). Testing results were compared to isoelectric focusing (IEF) performed on all newborn samples.

Results: We screened 159 newborns directly and 731 indirectly. The neonatal test detected sickle hemoglobin (HbS) with 81.8% sensitivity and 83.3% specificity, while the adult test had lower sensitivity of 60.2% but a negative predictive value of 91.8%. Screening with the low-cost paper-based test could have excluded 69.8% of directly and 78.7% of indirectly tested newborns from expensive confirmatory testing by IEF with a false-negative rate of zero among FS newborns.

Conclusion: Most of the resources used by newborn screening programs now is spent on testing healthy children. This study demonstrates that unaffected newborns could be effectively excluded from expensive laboratory testing with the use of a simple, low-cost paper-based screening test, thus substantially reducing the cost of universal newborn screening for SCD in resource-limited settings.

Funding: Baylor College of Medicine Center for Global Initiatives, National Institutes of Health, Angola Sickle Cell Initiative.

MATERNAL HUMAN IMMUNODEFICIENCY VIRUS STATUS AND MORTALITY OF VERY LOW BIRTH WEIGHT INFANTS

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Background: Human immunodeficiency virus (HIV) exposure is associated with high morbidity and mortality in children. It is not clear if there is the same association in very low birth weight infants (VLBWI). This study was performed to determine anthropometry at birth, morbidity during hospital stay and mortality at hospital discharge of VLBWI stratified according to maternal HIV status.

Methods: Hospital records of VLBWI born 1st January to 30th June 2011 at Chris Hani Baragwanath Academic Hospital were reviewed for maternal HIV status, infant characteristics, diagnosis and outcome to hospital discharge. Comparisons were made between HIV-exposed and unexposed infants in terms of anthropometry, morbidity and mortality at hospital discharge.

Results: 302 hospital records of VLBWI were retrieved and reviewed. Just over a third (34.1%) of VLBWI were born to mothers who were HIV positive. There were more babies who weighed <1000 grams (41.2 vs 23.1%; $p=0.001$) and had a lower 5 minute Apgar score (20.7 vs 13.7%; $p=0.030$) in the HIV-exposed infants compared to HIV-unexposed infants. HIV-exposed infants had a smaller head circumference (26.9 ± 2.4 vs 27.7 ± 2.2 cm; $p=0.003$), and were shorter (36.6 ± 4.0 vs 38.0 ± 3.9 cm; $p=0.006$) compared to HIV-unexposed infants.

There were no differences in incidence or number of episodes of sepsis between HIV-exposed and unexposed infants. HIV-exposure in VLBWI was associated with severe intraventricular haemorrhage (IVH) (57.1 vs 11.4%; $p<0.001$). The overall mortality rate was 27%, with HIV-exposed infants having a mortality rate of 38.6% compared to 21% in the HIV-unexposed infants ($p=0.002$). On multivariate analysis the main predictor of mortality was birth weight ($p<0.001$).

Conclusion: HIV-exposed VLBWI are born shorter, with a smaller head circumference, higher incidence of severe IVH and higher mortality rate to hospital discharge compared to HIV unexposed infants. Main risk factor for mortality in VLBWI is birth weight, irrespective of maternal HIV status.

Subtheme: *Maternal and child health*

Track: 8

Impact of neonatal care units and neonatal corners at district health facilities on the pre-discharge neonatal mortality in Kabarole district.

Authors: *V.Tumukunde, A. Kekitinwa, A. Asimwe, D. Murokora, F.Luwaga*

Affiliations: *Baylor College of medicine-Uganda*

Background: Neonatal mortality still contributes over 40% of under-five mortality in developing countries. 50% of all neonatal deaths happen on the first day of life while 75% happen within the first week of life. Majority of these deaths take place in rural areas/urban areas that are hard to reach and with insufficient facilities for neonatal care. We set out to determine whether establishment of neonatal intensive care units at referral health facilities and neonatal corners at lower health facilities would significantly reduce pre-discharge neonatal mortality in Kabarole district in western Uganda.

Methods: Neonatal intensive care units were refurbished, equipped with incubators and infant warmers in December 2014. Nurses and midwives were trained in neonatal resuscitation, essential new-born care and care of sick new-borns. Lower health facilities staff were also trained in essential newborn care, helping baby breathe and pre-referral care of sick newborns. The trainings were followed with quarterly mentorships and technical support supervi

sion. We reviewed facility based data from the NICU admission registers and facility based pregnancy outcome survey from the lower health facilities to get the newborn outcomes at discharge. We compared the baseline data (2014) on pre-discharge with the 2015 data after one year in operation.

Results: On average 95 new-borns were being admitted in NICUs on a monthly basis in 2014 compared to 125 in 2015, the difference of about 30 babies is significant at 95% level of confidence (CI: 7 - 51, $p=0.015$) indicating 20% increase in the number of new-born complications managed. Of the 1,494 complications managed in 2015, 39% were birth asphyxia, 23% Sepsis, 26% complications of prematurity and 6% other complications. Survival rate at discharge was at 88%. Pre discharge neonatal mortality reduced from 6.5 deaths per 1000 live births in 2014 to 4.6 deaths per 1000 live births in 2015 with 95% confidence (CI = 1.06 to 1.09, $p=0.000$) representing a 29% reduction.

Conclusion: Establishment of neonatal care units at higher facilities and neonatal corners at lower health facilities significantly reduces pre-discharge neonatal mortality.

Poster presentation

Theme 3: Psychosocial and Related Topics

DIFFERENT STROKES FOR DIFFERENT FOLKS: COST COMPARISONS BETWEEN TWO MODELS OF ADOLESCENT CAMPS IN TANZANIA

Authors: *J. Bacha¹, S. Shea², D. Mbuba¹, S. Ndunguru¹, B. Makamong'oko¹, B. Kasambala¹, L. Mwita²*

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Issues:

Baylor Tanzania offers adolescent camp programs at both its Mbeya and Mwanza sites using complementary, though unique, strategies and funding mechanisms.

The Mbeya COE partners with SeriousFun Network in the USA, as well as UNICEF, to receiving funding, personnel, and technical support. Best practices and guiding documents from the initial 2012 Mbeya camp session were shared with the Mwanza team – where there was no SeriousFun or UNICEF support - who adapted and modified them to better suit their capacity and availability of funds.

Additionally, staff from Mwanza attended the first Mbeya camp to learn and adopt practices first hand. Mwanza team then successfully replicated the camp sessions on a modified budget, following the same curriculum, but on a smaller scale. This abstract compares the costs and reach of the Mbeya and Mwanza camp sessions over the past two years.

Description:

Each site had two camp sessions (5 days each) per year in 2014 and 2015. Camp schedule, activities, structure and educational topics were similar and best practices shared between both sites. Camps were staffed by COE staff and volunteers, with the Mbeya camps also receiving onsite HR support from SeriousFun Network and a more intensive week-long leadership training and staff training.

Total expenses incurred by the COEs for camps (including pre-camp preparations, camp activities, and post-camp activities) were gathered from finance teams at the COE. SeriousFun Network helped with cost-sharing for Mbeya Camps. Total number adolescents and staff/volunteers reached were extracted from camp reports.

Lessons Learned:

Both sites hosted successful camps in 2014 and 2015, albeit using different funding sources to reach different numbers of individuals (Table 1). A successful camp experience is obtainable through adoption of best practices and creative planning and budgeting. Feedback reports from participants at both sites were universally positive.

Next Steps:

Adolescent camps can successfully be tailored to fit a variety of budgets and resources. Through sharing of strategies, ideas, successes and challenges, sites within the BIPAI network can continue to improve on camp best practices to maximize the impact of camp.

Table 1: Cost Comparison of Adolescent Camps in Mbeya and Mwanza, Tanzania

	Total Costs	# children reached	# staff capacitated	Cost per child reached	Cost per person reached (children+staff)
Mbeya					
2014	\$28,742.58	80	31	\$359.28	\$258.94
2015	\$22,800.43	80	30	\$285.01	\$207.28
2 year average	\$25,771.50	80	30.5	\$322.14	\$233.11
Mwanza					
2014	\$4,735.10	30	15	\$157.84	\$105.22
2015	\$4,464.90	29	20	\$153.96	\$91.12
2 year average	\$4,600.00	29.5	17.5	\$155.90	\$98.17

Sub-theme B, Track 7: *Maternal Health*

Title: BAYLOR- SWAZILAND CERVICAL CANCER
SCREENING DECENTRALIZATION INITIATIVE

Authors: *F. A. Anabwani*

Institute(s): *Baylor College of Medicine Texas Children's
Hospital Bristol Myers Squibb Children's Clinical
Centre of Excellence, Mbabane, Swaziland*

Background:

The Baylor College of Medicine-Bristol Myers Squibb Children's Clinical Centre of Excellence (BCM-BMS CCCOE) in Mbabane launched its Breast and Cervical Cancer Screening Program in February 2015. This project was aimed at addressing the unmet need for adolescents and women with low-grade cervical cancer lesions which progressed to high grade lesions due to delays in the diagnostic cascade across various health care facilities in Swaziland.

Description:

The BCM-BMS CCCOE received grant funding from the Bristol-Myers Squibb Foundation through the Swaziland Breast and Cervical Cancer Network (SBCCN), to launch the the Screen and-Treat campaign on the 13th of February 2015.

As the clinic surpassed its target of screening over 1000 patients for cervical cancer by June 2016, the Swaziland Ministry of Health recommended that the Baylor-Swaziland cervical cancer screening team comprising one doctor and a nurse, form part of the national cervical cancer advocacy team.

In May 2016, decentralization of these services to 12 clinics, health centres and regional referral hospitals across all regions in Swaziland was commenced. Mentoring on cervical cancer screening using visual inspection using acetic acid (VIA), treatment using cryotherapy, data entry, and referral of patients for specialised care was done. Of the abovementioned sites, four booked patients for cervical cancer screening.

Results: A total of 126 clients were booked for cervical cancer screening at 3 clinics and one hospital. The ages of the women screened ranged from 20 to 66 years.

The total number of patients screened and number of patients with suspicious cervical lesions were disaggregated as follows; 53 at Lomahasha Clinic (11 VIA positive, 21% VIA positivity rate), 24 clients at Lamvelase Clinic (6 VIA positive, 25% VIA positivity rate), 40 clients at Lubombo Referral Hospital (3 VIA positive with on-site cryotherapy done, 7.5% VIA positivity rate), and 9 clients at Luyengo Clinic (1 VIA positive, 11% VIA positivity rate).

Conclusions: Progression of early cervical cancer lesions to fulminant cancer can be minimised through early screening, detection and management.

This community cervical cancer screening initiative revealed higher VIA positivity rates among women of all age groups than those detailed in national statistics.

Decentralization of cervical cancer screening services to these communities underscores the importance of service delivery in close proximity to these populations.

These findings will be used by the Swaziland Ministry of Health to plan equitable cervical cancer screening service delivery.

Sub-theme B: Reducing maternal mortality in resource-limited settings

Track 7: Maternal Health

Title: Near misses among emergency intrapartum obstetric referrals in western Uganda

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BACKGROUND; Over 289,000 women worldwide die annually due to complications of pregnancy or child birth.

In addition many women survive death but suffer from severe acute morbidity, and are referred to as near misses. For every maternal death 10 to 15 women suffer from disability. This assessment aimed at determining the facility-based causes of morbidity (near miss), and the contribution of emergency obstetric referrals towards reduction in maternal mortality.

Method: Retrospective facility-based review of cases of near-miss that took place in 2015 in health facilities in Kabarole, Kamwenge, Kyenjojo and Kibaale. Near-miss cases were defined based on disease specific criteria including: haemorrhage, hypertensive disorders in pregnancy, dystocia, infection and anaemia. Main outcomes were summarised as proportions in stata13 and they included; the general near miss proportion, cause specific near miss proportions and proportion of near-miss cases that were referred from the lower health facilities using emergency referral system.

Results: There were 53,986 deliveries and 1,658 abortion cases. Of these 6,886 (12.4%) were near-miss cases. Obstructed labour contributed 5,488 (62% of NM) cases, foetal relate complications 20%, obstetric haemorrhage 9%, eclampsia 2%, sepsis 3% and 4% others. Of the 6, 886 near misses, 16% were transferred by the emergency obstetric referral system from one health facility level to another while the rest were managed at their primary health facility of admission.

Conclusion: Obstructed labour still contributes to over 60% of the near-miss cases. This further emphasises need for close monitoring of labour and facilitated referral as part of impactful programs to improve maternal outcomes. Managing obstructed labour at all stages should be a major focus too.

Sub-theme A Track 4: Viral Load Monitoring

Genotyping in Mbeya, Tanzania – A Brave New World: findings of the first cohort of patients to undergo HIV genotyping at the BIPAI COE in Mbeya, Tanzania

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USA*

Introduction: At the COEs in Tanzania, HIV genotype testing was not available until late 2014 when a local research partner in Mbeya who was utilizing genotype testing for separate research agreed to assist the Mbeya COE with in-kind genotyping for patients failing 2nd line ART despite maximal intervention efforts. This abstract describes the characteristics and genotype results of the first cohort of COE patients to undergo HIV genotyping in at the Mbeya COE.

Methods: Retrospective chart review from the EMR of patients at the Mbeya COE underwent HIV genotyping between July 2014 and March 2016. Patients qualifying for genotyping showed evidence of persistent virologic treatment failure while on 2nd line despite the maximal interventions and efforts of the COE.

Results: Thirteen patients had HIV genotype testing. 69% female (9/13), median age of 17.5 yrs (range 12.3-20.3yrs). All were on 2nd line ART at time of testing, with a median time on ART of 57 months (range 16-120mo), of which median time on 2nd line ART was 22 months (range 8-91 mo). Prior to genotype testing, median CD4 of 156 (range 1-815) and median VL of 75,522 (range 1202-10,000,000). HIV genotyping results: 69% of patients had sensitivity to NRTIs (9/13), 38% had sensitivity to NNRTIs (5/13) and 85% had sensitivity to PIs (11/13). Four patients (31%) had pan-sensitive strains. Of those with any degree of resistance to any class of ART (9/13), high level resistance was seen in 75% (3/7) of NRTI-resistant strains, 88% (7/8) of NNRTI-resistant strains, and 50% (1/2) of PI-resistant strains. 69% (9/13) of patients remain alive, while 31% (4/13) have died.

Conclusion: In our small cohort of patients with virologic failure to 2nd line ART, the majority were adolescent females with severe immunocompromise and high viremia. The majority results demonstrated sensitivity to the NRTIs and PIs used as 2nd line, thus suggesting adherence as the underlying cause of persistent failure. NNRTIs showed the highest levels of resistance, and PIs the lowest levels in our cohort. As genotyping availability expands in Tanzania, results gathered will help better inform targeted interventions, as well as policy regarding 1st, 2nd and salvage therapy regimens.

THE “TEEN CELL LEADERS” PROGRAM AT BAYLOR CENTER OF EXCELLENCE IN MBEYA, TANZANIA.

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Issues: Adolescents living with HIV (ALHIV) face many challenges in adhering to ART. It is particularly difficult to retain them in treatment, and high loss to follow up is seen in this cohort. Such problems can lead to poor adherence, treatment failure, clinical deterioration and ultimately death if no interventions are made. To prevent poor outcomes in ALHIV, the Baylor Mbeya team created the “Teen Cell Leaders” program as a unique community-based peer support initiative.

Description: The program was launched in January 2016 and involved six adolescents aged 15-20 years selected to act as “Teen Cell Leaders”. Leaders were selected based on their treatment literacy, flexibility, and leadership skills. They were trained on HIV/AIDS, safety and confidentiality, behavior change communication, ART adherence, stigma and coping with depression, sexual reproductive health, and psychological support techniques. Each teen cell leader was assigned a geographical coverage of neighborhoods, and assigned ten high risk adolescents in that area (“teen cell”) to support and mentor. They were supplied with cell phones to use to regularly communicate with their teen cell, communicating adherence messages through SMS messages and calls. In addition, the leaders hold monthly neighborhood meetings with their teen cell to lead discussions, question and answer sessions, and provide education and support. The leaders remind their groups about their appointment dates and accompany them to the COE as needed. Monthly feedback meetings with Teen Cell Leaders are conducted by Baylor staff to evaluate the program, achievements, challenges and way forward.

Lesson Learned: Feedback has been universally positive from the leaders and members. Adolescent education and literacy to treatment appears to be highly influenced by peer support networks. The program gathers valuable information about the challenges adolescents face in the course of care. Adherence and retention has been improved through these groups. Teaching of life skills, a commonly overlooked skill for ALHIV, seems to foster better self esteem and confidence in facing the future.

Next steps: ALHIV need to be given special consideration and the use of small, personal peer support groups, such as the “Teen Cell Leaders” is a valuable tool in creating comprehensive care packages for ALHIV. Further development of the program will include advocacy and forming partnerships with government and community organizations and increasing awareness and availability of adolescent friendly care services at partner health care facilities.

Track 1: Subtheme A, Track : Approaches for improving HCT yield

Title: Proactive search and testing program for HIV exposed children in Swaziland

Authors: *F. Morón Maldonado, Zodwa Gamedze, handekile Bhembe, Pilar Ustero, Makhosazana Hlatshwayo*

Institution: *Baylor College of Medicine Bristol Myers' Squibb Children's Clinical Centre of Excellence, Swaziland*

Issue: Renewed focus has been called to strategically target more decentralized diagnostics and clinical management for children exposed and living with HIV. In Swaziland, by the end of 2015;147,274 patients are actively on Antiretroviral therapy; among them 8,063, (5.5%) are children <14 yrs old. Our program targeted children related directly or indirectly to people living with HIV/AIDS. We implemented a proactive approach. We offered to caregiver the option to perform HTC to related children at their homes.

Description: We conducted a questionnaire to HIV+ clients (index cases) inquiring about if they had children <18 yrs old and if they knew their HIV status (index case contact). In case they had children we arranged home visits for HTC.

Lessons Learnt:

From February 1 to June 30 2016, 652 adults living with HIV (Index case) were interviewed and we mapped 1259 children linked directly or indirectly to the Index case. We tested 719 (n:1259) children <18 yrs old. A positive HIV result was found in 20 (n:719) children (2.8%) and they were referred for care and treatment to the nearest health facility.

Next steps and recommendations:

A proactive approach for HIV testing is an effective way to increase the HIV diagnosis in children. We met general good acceptance for home visits among the interviewed HIV positive clients. According to our experience in Swaziland we believe that home visit is a recommended approach for testing children and adolescents.

Abstract category: *Project Description*

Title: **HIV DNA POLYMERACE CHAIN REACTION (DNA-PCR) TRENDS AT THE BOTSWANA- BAYLOR CHILDREN'S CLINICAL CENTRE OF EXCELLENCE**

Authors: *B. Mathuba^{1,2}, N. Chidah¹, M. Matshaba^{1,2}, G. Anabwani^{1,2}*
Institution(s): *¹Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana, ²Baylor College of Medicine, Pediatrics, Houston, United States*

Text:

Background: HIV DNA Polymerase Chain Reaction (DNA-PCR) is a method of amplifying HIV DNA genetic material to enable detection of particular sequences. This technique is used to detect the presence and quantity of HIV in blood specimen. In 2005, Botswana introduced the national Early Infant Diagnosis (EID) Program using DNA- PCR at the age of 6 weeks, aimed at early identification of HIV infection and early initiation of antiretroviral therapy (ART. BBCCCOE is a referral site for EID for the Greater Gaborone area. The number of babies that test positive also indicates the effectiveness of the prevention of Mother-to-Child Transmission (PMTCT) program in the catchment area. Here we report the results of DNA-PCR testing at the BBCCCOE over a period of six years.

Methods: A retrospective chart review of patient charts in the BBCCCOE Electronic Medical Records (EMR) and DNA-PCR record book. . Data from the DNA-PCR record book were analyzed for the six-year period May 2010 to April 2016. Any record regardless of nationality with “positive” recorded in the result slot was considered valid. Records with no information on the result slot were considered negative.

Results A total of 859 DNA-PCR tests were done between May 2010 and April 2016 and of these 7.8% were positive. Sequentially, in two-year intervals, 458 DNA-PCR tests were done in the first two years and 5.7% were positive , 234 tests were done in the two years and 8.6% were positive while 167 tests were done the last two years and 12.6% were positive., indicate that the number of DNA-PCR tests done over the six-year period decreased while the percentage of the positive tests significantly increased (p=0.004).

CONCLUSION: The decline in the number of children being referred for DNA-PCR testing may indicate a decline in the number of HIV infected pregnant women; however, it is not clear why the percentage of positive results has increased over the same period. Overall, the trend is that fewer children are testing positive for HIV at the BBCCCOE every succeeding year. The trend may be generalizable to the Greater Gaborone area, affirming the impact of the national PMTCT effort.

Country of
research: Botswana

Key Population: Young people and adolescents, People living with HIV, Not applicable

Related to women
and girls: No

Related to
children: Yes

Ethical research
declaration: Yes

Protocol H-25403

Number:

Abstract category: Project Description

Title: INTERNAL AUDIT OF RESEARCH STUDIES CONDUCTED IN A PAEDIATRIC HIV REFERRAL CLINIC: LESSONS LEARNED

Authors: *K.Mathuba1, M. Matshaba1,2, G. Anabwani1,2*

Institution(s): 1Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana, 2Baylor College of Medicine, Pediatrics, Houston, United States

Background: The Botswana-Baylor Children's Clinical Centre of Excellence (BBCCCOE) is the premier paediatric HIV referral clinic in Botswana that provides comprehensive HIV care and treatment, health care provider training as well as clinical research. One of the functions of the Office of Research at BBCCCOE is to carry out routine internal study audits to ensure adherence to international and national good clinical practice standards and to advise investigators and management accordingly... Here we describe the research audit experience at the BBCCCOE.

Description: The COE Internal Audit Committee is composed of 3 staff, all with training in research audit: 2 nurses and 1 Monitoring and Evaluation officer. The Audit committee works independently to the Institutional Review Board and its Standard Operating Procedures are in line with international standards of human research practice. The audit process is designed to be continuous and to run in three phases: pre study, during and at study closure. Between 2012 and 2016, 10 studies were audited. Audited studies were either running or completed. Audit reports were forwarded to investigators as feedback in order to attend discrepancies noted, with follow up made in 6 months.

No major protocol deviations were noted. However, there were some discrepancies, which needed to be attended by investigators: 8 studies had common issues with missing Good Clinical Practice (GCP) certificates and CV's, missing information, poor correction technique or using blue pens or pencil. Three out ten researchers managed to attend to the discrepancies reported at the stipulated 6-month point.

Lessons Learned: No major deviations were found in the audited studies. Although all researchers were required to do online GCP, some were not certified in the stipulated time of 6 months. Since the inception of the Internal Audit, more of research personnel have completed training. Response to audit reports is however not satisfactory, perhaps signifying poor understanding of the expectation to comply. More training and engagement is needed.

Conclusions: Auditing studies can improve the quality of research done and help to protect study subjects in the clinic.. Additional policies should be developed to ensure that researchers comply with audit queries more promptly.

Country of research:	Botswana
Key Population:	Young people and adolescents, People living with HIV, Not applicable
Related to women and girls:	No
Related to children:	Yes
Ethical research declaration:	Yes
Protocol Number:	H-25403

EMPOWERING YOUTHS THROUGH ENTREPRENEURSHIP – THE MBEYA, TANZANIA EXPERIENCE

Authors: *S. Ndunguru¹, R. Mgimba¹, B. Makamang'oko¹, N. Myenzi¹, J.Bacha¹, B. Kasambala¹, L.Mwita¹*

¹Baylor College of Medicine Children's Foundation – Tanzania, Mbeya, Tanzania.

Issues: Adolescents – particularly those in resource limited settings - may have no choice but undertake work that is marginal, leading to risky behaviors and exposure to HIV. Globally, it is believed that assets, skills and social connections forged by interventions of economic empowerment could be possible ways of enhancing the ability to avoid HIV infection. Women are most vulnerable and the ability to protect themselves from HIV is frequently compromised by a combination of factors including HIV information, services, disempowering socio-cultural and economic conditions.

Description: In May 2016, Baylor Mbeya and International Labor Organization (ILO) under the UN Joint Partnership, partnered with two non-governmental organizations (NGOs) from Southern Highlands Zone (SHZ) to implement a two phased approach to entrepreneurship to promote safe work and employment for at-risk youths. The first phase involved training of trainers on entrepreneurship whereby 35 facilitators were trained. The second phase involved roll out of this entrepreneurship development training between May and June 2016 targeting 80 youths. The objective of the training was to support partner organizations to reach many disadvantaged youth groups (e.g. those at risk of contracting HIV) to gain financial health skills and empower them to start economic activities and employment. The entrepreneurship development training utilized HIV education focusing on prevention and life skills.

Lessons learned: Between March and June 2016, both phases were completed reaching 35 facilitators and 80 youths. Out of the 80 youths, 52 (65%) were females and 28 (35%) were males. Four intensive business seminars were held and a total of 4 business plans were developed. The participants had average pre-test score of 55%, and an average post-test score of 76% (i.e. 21% average increase in scores). The initiative was well received by the youths and district authorities. Challenges include youth expressing anxiety on how to receive capital and the delays of fund from ILO.

Next steps: Baylor SHZ will support ongoing supervision and mentorship of these youths, and help link viable projects with access to funds through ongoing district initiatives including “Youth Development Fund” (YDF) and Women Development FUND” (WDF) as well as DREAMS. If this pilot is successful, we hope to scale up these efforts throughout Baylor supported regions.

Subtheme B: TRACK 8

Integrating nutrition assessment into Triage improves linkage of malnourished clients to nutritional care - Baylor-Uganda paediatric HIV clinic's success story.

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Issue: In 2013, the Uganda Ministry of health with development partners embarked on integrating nutrition assessment, counselling and support into health services to improve nutrition status of individuals and the population. Within this approach, the recommended client flow involves; a Waiting area where triaging is done including nutrition and health education; Anthropometric area where anthropometry is done; Clinical assessment by a clinician, Appetite test, Registration to OTC and dispensing of RUTF and medicine.

Baylor-Uganda, adopted this flow chart with nutrition and health education and anthropometric measurements being taken at triage, followed by clinician's assessment. Clients confirmed to be malnourished are referred by the clinician to the nutrition unit.

However, it was noted that many malnourished clients were missed by clinicians. The patient flow was modified for the nurses at triage to identify and refer malnourished clients without complications directly to the nutrition unit.

Description: We integrated nutrition assessment into the activities of nurses in triage area. Nurses were trained in basic nutrition assessment using color-coded MUAC tapes and assessment of oedema. The nurses were provided with revised standard operating procedures for nutrition assessment and referral for all clients with; red or yellow MUAC, and any degree of oedema. These were directly referred to the nutrition unit before the clinician's assessment. This ensured immediate linkage of malnourished clients to nutritional care before end of the clinic visit.

Results: The number of clients with Severe Acute Malnutrition (SAM) clients identified in a year increased from less than 300 cases to 624 cases while cases of Moderate Acute Malnutrition (MAM) increased from less than 1500 to 3,756 cases per year. The proportion of clients with SAM and MAM receiving therapeutic care increased from 49% to 85% and 28% to 81% respectively.

The proportion of malnourished clients (both MAM and MAM) receiving nutrition counselling increased from 41% to 84%.

Conclusion: Modifying client flow and integrating nutrition assessment, and referrals within triage increases the proportion of malnutrition cases identified, counseled and provided with treatment.

Track 9: Adolescent Health

UPDATES FROM STITCH X STITCH, AN INCOME GENERATING PROJECT (IGP) AT THE BAYLOR COLLEGE OF MEDICINE CHILDREN'S FOUNDATION- TANZANIA LAKE ZONE CENTER OF EXCELLENCE (COE) IN MWANZA, TANZANIA

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Issues: Tanzania is a young nation with more than 40% of the population under 15 years of age. Many of the youth of Tanzania do not complete secondary school and have limited options in terms of career choices. Adolescents living with HIV (ALHIV) are disproportionately represented in the growing pool of unskilled and undereducated laborers. Stitch x Stitch is an IGP started in 2012 for ALHIV attending the Mwanza COE following the program model started at the Botswana COE. The program was created to help ALHIV to develop independence through tangible skills acquisition including tailoring, marketing, budgeting, and presentation.

Description: Participants are chosen by doctors, nurses, social workers, and counselors based on a perceived need. The criteria for selection include: not attending school, demonstrated interest in the program, performance during the application and interview process, and willingness of caregivers to allow participation. To date, there have been 5 groups of adolescents selected for the year long program in Mwanza. Participants learn to make products ranging from safari bags and backpacks to wallets. Participants attend monthly educational sessions covering professionalism, punctuality, hygiene and nutrition. Adherence to Antiretroviral Therapy (ART) is part of the discussion every month. Stitch x Stitch members serve as teen leaders for the monthly psychosocial support group, Teen Club.

Lessons learned: For almost 5 years now Stitch x Stitch members have been role models to other adolescents attending the COE. Most are still using the tailoring skills they acquired at least on a part time basis. Four started their own business together and are earning a modest living and enjoying the independence which this affords. Other past participants were able to build on the positive momentum from the program and return to secondary school or complete a program in hospitality and then start work at a local hotel.

Next steps: The Mwanza COE hopes to expand and recruit more adolescents who can benefit from the program. A large shipping container was purchased with plans for renovations to combat the issue of limited space. The container is located on the campus of the COE and is more visible than the current location in the library.

H-32678 MEDICAL AUDIT OF ACTIVITIES FROM THE BAYLOR COLLEGE OF MEDICINE LAKE ZONE CHILDREN'S CLINICAL CENTRE OF EXCELLENCE AT BUGANDO MEDICAL CENTRE, MWANZA, TANZANIA

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EVOLVING PROFILE OF CHILDHOOD LEUKAEMIA AT KAMUZU CENTRAL HOSPITAL, LILONGWE

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Background: The prevalence and spectrum of childhood leukaemia in Sub-Saharan Africa is poorly understood. Under-diagnosis and lack of effective cancer registries pose significant challenges. There is a widely held belief that childhood leukaemia is comparatively rare in Malawi. Previous retrospective data from Kamuzu Central Hospital (KCH) showed that leukaemia represented 2% of the childhood cancer burden. We describe the substantial, relative contribution of Leukaemia to the paediatric cancer burden at KCH in Lilongwe Malawi.

Methods: Between July 2015 and March 2016, all children referred to KCH cancer center, were assessed for the possibility of leukemia. All leukemia diagnoses were confirmed morphologically using peripheral blood smear and bone marrow evaluation. Immune histochemistry was used to evaluate one case. BCR-ABL status was assessed in one case. Data was collected on the demographics, baseline clinical and haematological features, World Health Organization (WHO) leukemia classification, and 28 day survival.

Results: Excluding Kaposi Sarcoma, 23/113 (20%) new childhood cancer diagnoses at KCH, during the study period were leukaemia. We registered 12 (52%) cases of Acute lymphoblastic leukaemia (ALL), 7 (30%) cases of Acute myeloid leukaemia, (AML), 2 cases of Acute promyelocytic leukaemia (APL), 1 case of Burkitts leukaemia and 1 case of BCR-ABL positive chronic myeloid leukaemia (CML). The median age was 9 years (range 2.7 to 15.4 years) and 10 (45%) patients were male. The median white cell count (WCC) was $66 \times 10^6/L$ (range 3-380). CNS involvement occurred in 2/23 patients (8%); both had AML. One (4%) patient was lost to follow up. Day 28 survival was 13/23(56%). Three patients died within 48 hours of admission. Of the 12 evaluable patients, 9 (90%) achieved complete remission at end of induction

Conclusion: Contrary to traditional views, leukaemia is one of the more common types of childhood cancer in Malawi, with different subtypes represented within the spectrum