

Report on the 10th Annual College of Medicine Research Dissemination Meeting

The theme for the 2006 College of Medicine Research Dissemination Meeting was "A decade of research dissemination". In that sense, it was a celebration of another milestone for the College of Medicine. The meeting was opened by the guest of honour, Dr Charles Mwanambo as Chairman of the National Health Sciences Research Committee. As in previous years, it was held at the Mahatma Ghandi Campus of the College of Medicine on the day following the last day of final year student examinations. It was a very successful meeting. The quantity (69 this year) and quality of presentations improved on previous years. The abstracts are set out below. Major work of national and international relevance was presented such as beneficial impact of the Hib vaccine, return of chloroquine efficacy in children with malaria in Ndirande and variety of work related to tackling the HIV/AIDS epidemic. For the second year, a session was devoted to a selection of year 4 student-project presentations and these were very good. Ms Grace Banda won the prize for the best medical student presentation for her work on "Accepti-

bility of companionship during labour".

The meeting attracted over 200 participants representing a range of health-related activities going on in Malawi. Efforts to raise funds for the event were more successful than previous years and major sponsors included the Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, and the University of North Carolina Project, Lilongwe. The conference was also a focus for attention for the recently established College of Medicine Research Support Centre and for renewed interest in the Malawi Medical Journal. The COM Annual Research Dissemination Meeting is a major health research dissemination meeting in the Malawian calendar. It is encouraging to see that the interest and participation in this important vehicle of dissemination of health research in Malawi continues to grow. Enjoy the abstracts.

Dr SM Graham, Conference Co-ordinator

DCON/06/01 - National Survey of Surgical Activities At The District Hospital In Malawi

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Objectives

To document surgical activities at all district hospitals in Malawi in relation to human and material resources available.

Materials And Methods

Twenty-one district hospitals were visited by two surgical registrars (trainees). Using a structured questionnaire data were collected regarding surgical facilities at the district hospital after interviewing key officers (district health officer, medical officer, matron or clinical officer). The operating theatre logbooks were reviewed and all recorded surgical activities for the calendar year 2003 were analyzed.

Results

All district hospitals had functioning operating theatres. None of the hospitals had a resident trained surgeon. Most district hospitals are manned by a single general doctor (medical officer) and two or more paramedical officers (clinical officer / medical assistant). In 2003 a total of 28594 surgical procedures were performed in the district hospitals. 12506 (44%) were obstetric or gynaecological procedures. Only 821 (3%) were general surgical cases.

Conclusions And Recommendations

It appears district clinicians are happy to manage emergency obstetric and gynaecological cases but tend to refer emergency general surgical cases. Delay in operating on abdominal emergencies increases morbidity and mortality, thus there is a strong case for improving surgical manpower and skills at the district hospital so that these cases can be performed at the district hospital. To have a surgeon at every district hospital is a distant goal, however training of existing medical

and clinical officers at the district hospital in management of common acute life threatening abdominal emergencies is a realistic first step.

DCON/06/02- Accelerated HIV Testing for PMTCT in Maternity and Labour Wards is vital to capture Mothers at a Critical Point in the programme at district level in Malawi

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Introduction

Mother to Child transmission (MCT) accounts for almost 1 million newly infected children in Sub Saharan Africa annually. Missed opportunities for HIV testing in the prenatal maternity and labour wards were previously documented at 63% in our hospital (1) (March 2002- September 2003). Many HIV + mothers give birth in health facilities without previous HIV test. Thereby missing opportunity for prevention to infant and also care for their own health. Recent audit in Thyolo found that infection related deaths accounted for 59% maternal mortality 2005. HIV was underlying factor in 100% of those tested but few were tested. We examined the impact of accelerated HIV testing in the maternity and delivery wards in Thyolo District Hospital where a prevention of mother to child transmission programme (PMTCT) has been implemented since beginning of 2002. Previously most of the testing was done at the antenatal clinic (ANC) with a prevalence of 20%.

Methods

Retrospective review was done from June 05 till January 06 after programme revision in May 2005. From June 2005 – January 2006 the PMTCT programme targeted women who attended for any inpatient care, including high-risk pregnancies, malaria, early labour or pregnancies for caesarean section. All admissions were offered opt out testing and counselling. Women who tested HIV positive were offered nevirapine (NVP) prophylaxis intrapartum. Their babies received a single dose of NVP within 72 hours

after delivery (2 mg/kg). We adopted a "One stop approach" to our antenatal and maternity services (this meant that all prevention and care services were integrated in same clinic). CD4 test and clinical staging were also introduced in August 05). The one stop approach was further accelerated in January 2006.

Results

During the study period 1941 women delivered of whom 212 were previously identified as HIV positive. (Prevalence of 11%). An additional 30 (12.4%) tested HIV positive in the maternity/ labour ward. With an overall annual hospital based HIV prevalence of 20% a total of 388 HIV deliveries were expected and 146 (37%) were missed compared with 63% in 2003. In the final month of study a 24 hour testing service was implemented which resulted in an additional 73 women tested of whom 17 (24%) were HIV positive. From February till May 2006, 918 hospital deliveries were reported. With an overall prevalence rate of 22% (revised since Jan 06) a total of 202 HIV + deliveries were expected. A reported 163 (81%) HIV deliveries took place in the hospital. Reduction of from 63% to 19% missed opportunities for HIV testing

Conclusions

This additional PMTCT testing was well accepted by both staff and patients in the hospital. Round the clock, 24 x 7 days HIV testing is vital to maintain a high PMTCT coverage for women delivering in district health facilities. An acceleration in HIV testing in maternity and labour ward 24 x 7, could benefit patients by knowing the HIV status in advance and will make early intervention possible, with hopefully a reduction of maternal deaths.

DCON/06/03 -Aetiology of Pulmonary Infections in Adult Patients admitted to the High Dependency Unit at Queen Elizabeth Central Hospital

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Objectives

To determine the aetiology of pulmonary infections in patients admitted to the Medical High Dependency Unit (HDU), Queen Elizabeth Central Hospital.

Methods

Patients with suspected pulmonary infections and at least one negative acid fast bacilli (AFB) sputum smear examination were recruited prospectively for sampling of bronchoalveolar lavage (BAL) fluid.

Results

55 patients (27 female) of all 149 admitted to HDU over 24 weeks met entry criteria. Mean age was 34 years (17-88); HIV infection was detected in 51 (93%). Bronchoscopy was not carried out in 11 (20%) subjects (hypoxia 6, refused 2, confused 2, staff shortage 1). Microbiological examination of 44 BAL samples generated 27 clinically relevant isolates in 23 (52%) patients. *Pneumocystis jiroveci* was identified by immunofluorescence microscopy in 10 (23%) patients, all of whom had very low CD4 counts (mean 12 cells/ μ l, 1-39). AFB were seen in 6 (14%) samples and mycobacterial culture was positive in a further 2. Also cultured were *Staphylococcus*

aureus (4), *Enterobacter* spp (2), *Klebsiella pneumoniae* (1), *Streptococcus pneumoniae* (1) and *Pseudomonas aeruginosa* (1). Bronchial abnormalities consistent with Kaposi's sarcoma (KS) were seen in 8 (18%) patients who had a negative BAL, all except one had visible skin KS.

Conclusion And Recommendation

Brochoscopy and BAL sampling provided a more secure diagnosis in 70% of patients who were able to tolerate the procedure. *Pneumocystis jiroveci* pneumonia and pulmonary tuberculosis were both common in this select and severely immuno-suppressed population. Pulmonary KS was an important non-infectious differential diagnosis.

DCON/06/04 - Affordable Miniaturized Flow-cytometric CD4+ T-Cell Enumeration, The Blantyrecount, For Clinical Use In Malawi

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Objectives

To develop an affordable accurate flow cytometric method (BlantyreCount) for measuring absolute CD4 counts and CD4 counts as a percentage of total lymphocyte count (%CD4/lymphocyte), for routine clinical use in Malawi, and to assess its potential impact on clinical decision-making in an antiretroviral therapy (ART) clinic.

Setting

MLW Research Programme, Department of Medicine and adult ART clinic QECH.

Materials And Methods

A combination of antibodies to CD4 and CD45 were used in reduced blood sample volumes on a FACSCalibur flow cytometer. Reagents were used at sufficiently low quantities for affordability whilst maintaining diagnostic accuracy. BlantyreCount was compared with TruCount and FACSCCount assays using blood samples from 129 HIV-infected patients. BlantyreCount was used to measure CD4 counts on another 178 HIV-infected patients presenting to the ART clinic.

Results

The reagent costs per BlantyreCount assay were US\$0.44 for both absolute count and %CD4/lymphocyte, and US\$0.11 for %CD4/lymphocyte alone. The 95% limits of agreement for BlantyreCount and TruCount for absolute counts in the CD4 range <400 cells/ \square l were -48.9 to 27.0 cells/ \square l and for %CD4/lymphocyte were -2•42% to 2•37%. Using

BlantyreCount in the ART clinic in Blantyre, 37% of 143 patients with clinical stage I or II disease who were ineligible for ART by clinical staging criteria, had a CD4 count <200 cells/ μ l. In the same group, 47% of 34 patients with stage III disease, had CD4 counts >200 cells/ μ l.

Conclusion And Recommendations

BlantyreCount is a low-cost accurate flow cytometric method of CD4 counting which could improve clinical decision making about when to commence ART.

DCON/06/05 - Anthropological And Bioethics Study of Clinical Research in Malawi

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Introduction

This research project is being conducted in three phases over three years. The first phase has been completed while Phase 2 is just about to begin; and Phase 3 will commence after completion of Phase 2. This presentation is based on the first phase only which is an Anthropological Study.

Objectives

To provide a base for informing, reforming and improving informed consent policy and practice by describing the local cultural attitudes and perceptions to research, autonomy, informed consent process and community consultation.

Setting

The rural areas surrounding Mpemba and Madziabango Health Centres and the urban areas surrounding Bangwe Health Centre in Blantyre District.

Methodology

Data was collected from a total of 494 participants between February and April 2005 using focus group discussions (FGDs). A total of 50 FGDs composed of 6-12 people per group were conducted in the three areas altogether. In an attempt to achieve homogeneity in the groups, the respondents were divided into the five categories of participants, non-participants, refusers, local leaders, and health workers. Sex and age composition varied greatly among the groups. Data analysis was done using N6 (also known as NUD*IST) with pre-categorized themes of understanding of health research, motivation to take part in research, perception of the informed consent process (individual consent and community consultation), and attitude towards health research.

Results

Apart from the category of health workers, the perception of the meaning of health research was similar among all respondents. Overall, the respondents were unable to accurately define health research and most commonly described health research as activities associated with preventive health measures such as community health assessment and education. They also differentiated health research from normal health care in terms of quality of care; thus normal health care in health centres was perceived as being unsatisfactory with medication given without proper diagnosis, and patients accorded poor reception; whereas in health research treatment is prompt and given after a proper

diagnosis.

Many focus group participants who had participated or were participating in health research and non-participants cited wanting to know one's health status as a motivating factor to take part in research. Although this was overwhelmingly cited as a motivating factor, it also reinforces the idea that many people are not able to differentiate health research from seeking normal health care (therapeutic misconception). On the other hand, those who had refused to take part cited fear as the main reason because there are so many rumors that circulate in the communities once a research projects is launched. For example is research studies that involve drawing of blood samples the rumors are that the blood will be sold or will be used for satanic rituals.

All respondents strongly believed that they have to be asked to give their consent before being recruited in any research. The majority of participants said they preferred signing or thumb printing as opposed to consenting verbally. The major reason cited in preference of this method was that the signature can be used as a reference/evidence in future if something goes wrong. Very few of the focus group participants expressed a preference for verbal consent as it was perceived as faster than signing and because signing induces fear as a signature is seen as indelible and hence involves a measure of personal sacrifice.

The majority of the participants perceived community consultation to supersede individual consent. Before any health research starts, whether hospital or community based, FGD participants considered community consultation, through the local chief, to be a prerequisite. In their universal opinion this has to be done on the basis that it is customary for any outsider to first seek the consent of the chief, as a custodian of the land and subjects, before doing anything in the village.

Respondents expressed interest in health research projects to be conducted in their communities; but raised concerns that they are usually put off because many researchers do not seek prior consent from the community and people just hear about the research when they visit the clinics which makes them reluctant to take part as they are not sure what it is all about. They also expressed concern that researchers disappear after finishing conducting the research; and they do not come back to give feedback to the community which makes the participants lose interest.

Those in the category of "refusers" indicated that they would be interested to take part in research if the research procedures are clearly explained to them in order to array rumors that usually circulate such as the researchers collecting blood for sale or satanic rituals.

Conclusions

Though there is an impaired understanding of what health research means among the community members, the study established that people do not participate in health research because they think that the research is aimed at treating them; rather they choose to participate in health research for the sake of obtaining better quality treatment through the research procedures. While they can differentiate between routine health care and health research, the people actually make rational decisions to participate or refuse to participate in health research.

Contrary to the global thinking that those who refuse to

take part in health research are emancipated and educated individuals in resource poor setting, it was found that the reasons for refusing were not based on knowledge; rather it was ignorance and superstition. Many believed that the researchers were drawing blood not for research, but for satanic rituals or for sale.

The study has also revealed that community members fully understand why they have to give consent prior to taking part in health research and many are aware that taking part in health research is voluntary. The majority preferred signing or printing their thumbs to giving verbal consent.

It has also been established that community consultation should be done before individuals from the communities are asked to take part in health research whether at the hospital or within the community.

Attitude towards health research is generally good among the people only that there are certain concerns that need to be addressed prior to recruitment of research participants. Things like adequate disclosure of research information and community consultation are of paramount importance to the people.

DCON/06/06 - Anthropometric Characteristics of Underfive Children and Adults in Lungwena, Mangochi

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Objective

To determine nutritional status of underfive children and adults in Lungwena area as a benchmark for evaluating the impact of the Lungwena Health, Nutrition and Agricultural Multidisciplinary Project.

Setting

Lungwena, Mangochi

Material and Methods

A baseline survey for the Lungwena multidisciplinary project was conducted from October to December 2004. A total of 300 households were randomly selected from the participating villages and a DHS format questionnaire was adopted for the survey. Anthropometric measurements such as weight, height and MUAC were taken among underfive children and adults (aged 15 -54 years for men and 12 – 49 years for women). To assess nutritional status, weight for age, height for age and weight for height were used for underfive children and body mass index (BMI) was used for adults.

Results

Overall, among underfive children, 36.4% were classified as stunted, 20% were underweight and 3.3% were wasted. Among adults, as expected, men were significantly taller (164.7 ± 6.8 cm vs 153.6 ± 7.4 cm, $p < 0.001$) and heavier than women (56.0 ± 7.7 kg vs 49.3 ± 8.7 kg, $p < 0.001$) but no difference was seen in MUAC. Overall one in ten men (12.2%) and two in ten women (20.8%) were malnourished using BMI < 18.5 kg/m².

Conclusion And Recommendations

The baseline study has shown that malnutrition is a problem

for both children and adults in the area. The challenge for the project is to improve the situation since the consequences of malnutrition can be severe.

DCON/06/07 - Antibiotics for Prevention of Preterm Labour (Apple) Trial: A Randomised Controlled Trial

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Objectives

We have previously described high rates of preterm birth in ultrasound-dated pregnant populations in Namitambo. There is a well established association of infections with preterm birth, and high burden of infection in this population. The objective of the APLe study was to assess the effect of prophylactic azithromycin on various maternal and infant outcomes, primarily preterm birth.

Materials And Methods

Women attending for antenatal care in Bangwe, Mikolongwe, Namitambo and Nguludi, with gestational age less than 24 completed weeks (by ultrasound) at recruitment. This randomized controlled trial was of Azithromycin 2g orally, or placebo, given at < 24 and 28-32 weeks. Ante- and post- natal care were provided in accordance with the Malawi Ministry of Health Program.

Results

1,149 women received Azithromycin; 1,148 placebo. Azithromycin did not reduce the incidence of preterm birth (< 37 weeks) which was 16.8% for the Azithromycin group and 17.4% for the placebo group. Risk factors for preterm delivery in this population will be reported as will the effects on secondary outcomes including birthweight and neonatal survival.

Conclusions And Recommendations

Although there was no demonstrable impact of Azithromycin on preterm birth, possible causes of preterm delivery deserve further exploration. Other factors that may contribute to preterm birth in this population may include infection, heavy work, stress and depression. A follow-up study of preterm, surviving babies is ongoing – to assess long term effects.

DCON/06/08 - Antibody-dependent Complement-mediated Lysis: A Neglected Mechanism of Immunity To Salmonella

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Objectives

To investigate the role of antibody and complement in humoral immunity to salmonella in Malawi.

Setting

MLW Research Programme and QECH.

Materials And Methods

Serum was collected from 65 medically-well children aged 0 to 10 years recruited from the surgical outpatient clinics at QECH and Cure Hospital. Serum killing of *S. typhimurium* strain D23580, isolated from a bacteraemic child at QECH, was assessed by serum bactericidal assay. Specific IgG and IgM to D23580 and complement-deposition on D23580 were measured by flow-cytometry.

Results

Serum from all children over 14 months of age effected a 1.4 log kill on D23580 ('normal killing'). Of those under 14 months, 72% could not cause normal killing. All sera with specific IgG to D23580 were able to effect normal killing. 67% (8/12) sera that showed normal killing of D23580, but did not have specific IgG, were found to have specific IgM for D23580. Deposition of complement on D23580 was associated with killing. All sera that could deposit the membrane attack complex of complement on the surface of D23580 could effect normal killing. The amount of membrane attack complex deposited on D23580 showed strong correlation with specific IgG titre to D23580 ($r_s = 0.82$, $P < 0.001$).

Conclusion And Recommendations

These findings suggest that antibody-dependent complement mediated lysis is an important mechanism for immunity against salmonella in Malawi. The lack of specific antibody to salmonella in children under two years may explain why salmonella bacteraemia is particularly common in this age group. These findings support the development of a vaccine capable of inducing protective antibody in young Malawian children.

DCON/06/09 - Arv Therapy Clinic, Queen Elizabeth Central Hospital, Blantyre: Retrospective Description Of Defaulters

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Objective

To describe patients who have defaulted free-of-charge antiretroviral therapy (ART) between July 2004 and MMJ 19(1) 2007 www.mmj.medcol.mw

December 2005.

Methods

In June 2006 all ART files were reviewed retrospectively. Defaulting was defined as non-attendance for 3 consecutive months. Where appropriate, data were compared with cumulative national results.

Results

Of 3110 patients ever started over 18 months, 346 (11.1%; national 9%) defaulted after a mean of 4.5 months (sd 3.7) and 77% did so within the first 6 months. There was no difference between males and females. 33.5% had been transferred in mainly from private clinics at the launch of the ART program. Compared to the national cohort defaulters were more often in WHO stage IV (30% vs 24%, OR 1.5, 95% CI 1.17-1.91). During a total of 1352 follow-up visits mean body weight of defaulters did not rise, non-adherence as per pill count was 7.2% (97) and side effects occurred in 8.6% (116) of visits. There was no trace of the patients' whereabouts in 83% of cases but 10% were reported unwell at home and 7% had been admitted to hospital.

Conclusion And Recommendation

The defaulter rate was in line with national average. Although there was no active tracing of defaulters, we speculate that some may have died, in particular patients in WHO stage IV or those who were unwell at home or hospitalized. Others may have opted to return to private clinics after free ART became available for the private sector. Paying particular attention to patients who fail to gain weight might prevent defaulting.

DCON/06/10 - Caesarean Sections and other Emergency Obstetric Surgery by Clinical Officers, Medical Officers and Specialists: The Malawi Experience

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Objectives

To document the quantity and quality of caesarean sections (CS) and other emergency obstetric surgery (EMOS) performed by Clinical Officers (COs) in Malawi in comparison to those performed by either Medical Officers (MOs) or Specialists(S).

Setting

21 Government District Hospitals and 17 Christian Health Association of Malawi Hospitals.

Materials And Methods

2131 operations were prospectively documented with regards to diagnosis on admission, indication for the operation, intra- and post-operative outcome. The operations done were CS only, CS + sub-total hysterectomy, CS + total hysterectomy, CS + repair of uterine rupture, CS + bilateral tubal ligation.

Results

Diagnoses on admission and indications for operation were similar for COs and MOs/S. COs performed 88% while MOs/S performed 12%. COs had 1.6% intra-operative surgical complications slightly lower than MOs/S who had 2.7%. Post-operative complications of fever, wound rupture, wound infection and need for re-operation occurred in 31.6% after operations by COs statistically not different from that for MOs/S of 30.9%. COs had 10.7% fatal foetal outcome slightly lower than the corresponding proportion for MOs/S of 12.9%.

Conclusions And Recommendations

COs performed the bulk of CS and EMOS with a quality similar to that of MOs/S. We therefore recommend that their and delegation to perform EMOS continue since this is one of the evidence based ways of reducing maternal mortality.

DCON/06/11 - CD4 Levels as Criteria for ART in Severely Malnourished Children with HIV

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Background

There is debate surrounding the criteria for initiation of ART for HIV infected children in resource limited settings. Where available, CD4 count (as a % of lymphocytes) gives an indication of disease progression and the need for ART. In this study we examine the CD4 levels in severely malnourished children with HIV to assess their suitability for anti-retroviral therapy (ART).

Methods

Prospective cohort study.

Results

In a cohort of 313 severely malnourished children admitted to 3 Nutrition Rehabilitation Units in Malawi, 46 (15%) were HIV infected. The mean CD4 count (as a % of lymphocytes) was 15.1% (SD 7.7) in the HIV infected children and 35.4% (SD 8.1) in the HIV uninfected children. As CD4 counts of <15% is often used as an indication for starting ART, the data was analysed to show the % of children with CD4% <15% in HIV infected and uninfected children. 50% (23/46) of HIV infected children had a CD4% <15% compared with only 0.7% (2/265) of HIV uninfected children. Oedema was common in both HIV infected and uninfected children. 65.2% (30/46) of infected children and 88.7% of uninfected children were oedematous.

Conclusions

Presence of oedema does not assist in distinguishing between HIV infected and uninfected children. HIV occurs in an important proportion of severely malnourished children but not all HIV infected children have sufficiently low CD4 counts at conventional cut-off values to merit starting ART. More research is needed to determine optimal markers for initiating ART in severely malnourished children.

DCON/06/12 - Cotrimoxazole Prevention Therapy (CPT) reduces Early Mortality of HIV-infected Individuals on Antiretroviral Treatment (ART)

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Objective

High early mortality rates of patients on ART are a concern across Africa. CPT is associated with 25-46% reduction in mortality for HIV+ individuals in sub-Saharan Africa not on ART. The objective is to evaluate the effect of CPT on the mortality of patients on ART.

Methods

The study was retrospective cohort design to evaluate differences in 6-month mortality between ART patients on CPT and not on CPT at 11 ART clinics. Baseline clinical and outcome information was abstracted from 1,295 routine medical records.

Results

The CPT group had significantly higher mean age, percentage with CD4+ cell count <200 as the indication for ART, and either prior or active TB at ART initiation. When all default (>90 days) patients were excluded from the analysis the 6-month mortality risk reduction was 41% (p<0.001) for ART patients on CPT compared with non-CPT group. Kaplan-Meier survival curves for CPT and non-CPT patients were significantly different (p<0.007), regardless of the percentage of default patients that were considered deaths.

Conclusion/ Recommendation

CPT prophylaxis reduces mortality by 41% during the first 6 months of ART in patients in Malawi. CPT prophylaxis has significant potential to improve the lives of patients on ART because CPT is readily available, comparatively cheap, and has a major impact on mortality at least during the first 6 months of ART. Rapid scale-up of CPT is needed.

DCON/06/13 - Effectiveness Of PMTCT Services At Embangweni Hospital

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Objectives

A follow up of children born to HIV positive mothers was conducted to determine the effectiveness of PMTCT services at Embangweni Hospital as one way of monitoring and evaluating the program.

Materials And Methods

A list of names for antenatal women who were tested HIV positive from 2001 to January 2005 was obtained from hospital's PMTCT database. These were mothers whose children were expected to have attained at least 15-18 months

of age by July 2006. Using a carefully designed tool, these women were followed up to their respective homes. A one-to-one interview and counseling session was conducted by the trained counselors while the tools were being administered. Upon acceptance of the test on a child, a blood sample was taken and the testing was done on site using the rapid tests of Determine and Uni-Gold. Coding and sorting of the data was done manually. Analysis was done using Epi Info Version 6.

Results

This was the first follow up activity since the beginning of PMTCT program in 2001. A total of 101 cases were followed up. The average age of the living children (n=82) was 30.6 months, with a standard deviation of 10.28. More children died within the first twelve months of life (52.6%) and the causes of death were malaria (31.6%), pneumonia (31.6%) and diarrhoeal diseases (26.3%). Counseling on feeding options was done in 44.6% of the mothers (n=45) and the most common option chosen was sustained breastfeeding (93.3%). A single dose Nevirapine tablet was given to 37.6% of the mothers (n=38). Among them 5.3% of their children tested positive. On the other hand, 16.7% of children from mothers who did not take Nevirapine also tested HIV positive (RR=3.1). In addition, 45.5% of the children were given Nevirapine syrup after delivery (n=46) and 8.7% of them tested positive compared to 16.3% of the children who did not take Nevirapine (RR=1.8).

Conclusion And Recommendation

PMTCT services have helped in the reduction of mother to child transmission of HIV in Embangweni. However, there are areas like counseling services, follow up and Nevirapine coverage to both mothers and their children that need to improve for the services to be more effective.

DCON/06/14 - Energy and Nutrient Intakes of Households in Lungwena, Mangochi: Baseline Findings

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Objective

To determine energy and nutrient intake of household members participating in the Lungwena Health, Nutrition and Agricultural Multidisciplinary Project: towards poverty reduction in Mangochi district.

Material And Methods

A random sample of 35 households were selected from 6 villages (Chapola, Mdala Makumba, Chilonga, Kwilasya, Milombwa, and Mtumbula) that were participating in the Lungwena project. An interactive 24-hour dietary recall method was used to determine food consumption. Food composition tables were used to calculate energy and nutrient intakes using an Excel programme. Daily energy and nutrient intakes were later compared with age-specific recommended daily intakes to determine the adequacy of the diets.

Results

In total, 109 respondents from the 35 households participated in the study. Mean energy intakes for various

age groups were: 1249±604 kcal for children aged less than 5 years; 1563±429 kcal for school age children (5 – 11.9 years); 2272±848 kcal for adolescents (12 – 17.9 years) and 2373±767 kcal for adults (18 years and over). Over 80% of the respondents were able to meet their protein, calcium and vitamin A requirements. Of major concern were energy and iron intakes whereby only about 40% and less than 20% of the respondents were able to meet their daily requirements respectively.

Conclusion And Recommendations

The study has shown poor energy and micronutrient intakes in this area. Strategies to improve energy and micronutrient intakes in the intervention phase of the project are recommended since the baseline survey was undertaken to inform interventions.

DCON/06/15 - Factors Influencing Choice of Place of Delivery in Lungwena Area of Mangochi District, Malawi

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This explorative study was conducted in Lungwena in Mangochi district in Malawi, with the aim of investigating the individual, community and health facility level factors influencing women's choice of place of delivery. Semi-structured interviews, observations and Focus Group Discussions were the methods used. Four major issues were revealed; sub optimal quality of care, including communication, attitudes and cooperation within the health care system were identified as main factors; unsatisfactory access to skilled delivery care, cost of services and transport issues and non perceptions of danger signs. We conclude that the barriers to use of professional obstetric care in Mangochi partly can be attributed to the health care system itself, and that a more individualized maternity care service is needed.

DCON/06/16 - FAMILY PERCEPTIONS OF QUALITY OF CARE AND HIV RELATED STIGMA IN A NUTRITION REHABILITATION UNIT IN LILONGWE

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Background

HIV infected and uninfected severely malnourished children are managed within residential nutrition rehabilitation units (NRUs). The potential impact of stigma on the quality of care provided for these children in a high HIV prevalence setting has not previously been examined.

Methods

A grounded theory approach was used to analyse qualitative

data from participant observation and in-depth interviews with 15 children's carers.

Results

The study took place at the NRU within Kamuzu Central Hospital, a large referral hospital in Lilongwe, Malawi. The prevalence of HIV within children in the NRU at KCH is 17%. The analysis generated four themed categories. "We have different blood" referring to staff attitudes and underperformance, "What wrong did I do to God?" referring to stigma and chronic illness, "The milk is not enough" referring to resources available in the NRU: milk, medicine, space, hygiene, and "My other children back home" referring to the carer's multiple responsibilities and challenges associated with remaining in the NRU. All carers reported concern over their divided responsibilities between home and hospital while staying in the NRU for several weeks. Carers reported that some staff members were helpful, but others were lazy, disrespectful, or even verbally abusive. Carers also felt that the care provided within the NRU was not holistic; that they had to move between wards to gain care for themselves and their children and that carers were not given adequate food and basic hygiene items. Carers sometimes perceived it as a personal or spiritual failing when their children did not recover, especially where underlying chronic illness was involved.

Conclusions

Provision of more holistic family care, where carers are educated about and involved in the care plan development and implementation for both HIV infected and uninfected malnourished children could help to improve quality of life and care outcomes in NRUs.

DCON/06/17 - HIV-1 Seroconversion among Women Participating in an Intravaginal Antibiotic Microbicide Trial

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Background

As a secondary objective we compared HIV-1 incidence among women who intermittently used an intravaginal antibiotic microbicide to treat bacterial vaginosis (BV) to that among placebo controls.

Methods

HIV-uninfected women were randomized to either metronidazole 0.75% gel (MetroGel-Vaginal®) or placebo gel. Tests to determine HIV infection (using ELISA and Western blot), BV, *T. vaginalis* and candida were performed every 3 months. HIV incidence rate was estimated per 100 person-years (p-y). Predictors of seroconversion were determined using Cox proportional hazards models.

Results

842 HIV-uninfected women were randomized equally to treatment or placebo; 27 seroconverted. HIV incidence

was 3.75 (13/346.4) per 100 p-y (95% CI 1.73-6.06) with treatment and 4.04 with placebo (14/346.2) (95% CI 2.02-6.35). Treatment (vs placebo) was not significantly associated with HIV seroconversion (adjusted hazard ratio [AHR] 0.99, 95% CI 0.46-2.13). *T. vaginalis* and injectable hormonal contraceptive significantly increased the hazard of seroconversion: *T.vaginalis* AHR 7.26 (95 CI 2.37-22.24), use of hormonal contraception AHR 3.67 (95% CI 1.22-10.99). BV was not significantly associated with seroconversion (AHR 1.84, 95% CI 0.85-3.98).

Conclusion

HIV incidence did not differ by treatment; sample size was small to assess efficacy.

DCON/06/18 - Hypo-adrenalism and Early Mortality During Tuberculosis Treatment in Queen Elizabeth Central Hospital, Blantyre

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Objectives

Mortality early during tuberculous treatment (TBT) in Malawi is high. The causes may include delayed TBT, malnutrition and HIV related conditions. Hypo-adrenalism is associated with tuberculosis and HIV, may be exacerbated by rifampicin and may be fatal. We aimed to assess the prevalence of hypo-adrenalism among tuberculosis patients and its association with early mortality during TBT.

Methods

Consecutive adults, registered for treatment of sputum AFB smear positive tuberculosis in QECH, underwent synacthen tests (measurement of cortisol response after stimulation with intravenous synthetic adrenocorticotrophic hormone) before and 2 weeks after initiation of TBT. Clinical follow-up was undertaken for 3 months.

Results

Of 51 patients enrolled, 29 (57%) were female. The median age was 32 years (range 18-62). HIV prevalence among those tested (43) was 88%. Seven had died after one, thirteen after two months. At 3 months follow-up 57% were known to be alive. Adequate cortisol responses were found in 96% (49/51) at baseline and 100% after two weeks of rifampicin (10 declined synacthen test and seven had died at this point). Neither of the two patients with hypo-adrenalism died.

Conclusions and recommendations

In this high HIV prevalence cohort, the mortality we observed during TBT was comparable with national data. Hypo-adrenalism was rare before or after start of TBT and no association with early mortality was found. Further study of the causes of death of tuberculosis patients is urgently required.

DCON/06/19 - Improvement of HIV Infected Children on Antiretroviral Therapy (ART) – First Analysis

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Objective

To assess the motor development and quality of life of a group of HIV infected children on an antiretroviral treatment regimen (ART) using split tablets of Triomune.

Methods

During Clinic visits guardians of children who are on ART for at least six months were asked about the child's condition before starting ART and their present condition. Gross motor development, activity level, engagement in household activities and school attendance were assessed. Developmental delay was classified as mild, moderate and severe (1-2 months, 3-4 and >4 months behind the expected age of achieving the developmental milestones respectively).

Results

Information could be retrieved from 66 of the 233 eligible patients. In the 31 children above 5 years of age the percentage of regular school visits rose from 35.5% to 90.3%. The same group showed an increased engagement in household activities from 25.8% (n=8) to 100% (n=31). Only 6 children between 3-5 years were enrolled. The number of children described as active and helping at home rose from 1 to 4 and 2 to 4 respectively.

19 (76%) of the 25 children below 3 years of age were described as non-active before starting ART compared with 1 child after taking ART for six months or longer. Severe motor developmental delay was found in 60% (n=15) of the children in this age group. 2 were classified as moderately and 3 as not delayed. On ART 64% (n=16) showed no delay for the assessed motor skills, 3 were still found to have severe and 1 infant had moderate developmental delay.

Conclusion

With the current national ART regimen not only the quantitative outcome but also the motor development and quality of life improve markedly. For the group of children between 3-5 years numbers were low and the assessment tool not specific enough to provide relevant data.

DCON/06/20 - Increasing Uptake for HIV Testing and Counseling (HTC) Through a National Promotional Campaign

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Setting

Community mobilization for increased HTC uptake is critical to achievement of universal access targets for HIV prevention and care. Malawi therefore conducted the first National HTC week in July 2006.

Objective

To Conduct National HTC week targeting 50,000 clients and assess its success in increasing HTC uptake

Methods

Working with multisectoral partners, Ministry of Health and National AIDS Commission provided leadership in organizing and coordinating the HTC week. District level task forces developed and implemented plans for community mobilization and increasing local availability of HTC through outreaches. The National testing algorithm and standards were used.

Results

The 96,849 clients tested represented a ten-fold increase in average weekly HTC uptake. Over 70% of the clients were aged 21-34 years, children <15 years were 3%. About 11% (10,421) of clients tested HIV+. 53% of clients tested were female, having higher HIV+ rates than males (11.5% vs 8.2%; p< 0.0001) in all age-groups. Peak prevalence in females was higher and earlier (18.4% in 25-34 year age-group) than for male (12.2% in 35years+). HIV rate in children <15 years was double that for ages 15-24 years (11.8% vs 5.6%). Among clients below 15 years, females had higher HIV rate than males (14.0% vs 8.1%), suggesting a predominance of sexual transmission.

Conclusion and Recommendation

Increased availability of HTC services during campaign week effectively raised HTC uptake, and the initiative generated data for evaluating HTC program responsiveness. HIV prevalence trends seen in population data were further supported. Rapid equitable expansion of HTC services is recommended.

DCON/06/21 - Infant Feeding Practices in a Rural and Semi-urban Community in Mangochi District

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Objectives

To investigate socio-demographic factors associated with optimal infant feeding practices and nutrition status.

Methods

A cross sectional survey was conducted in 2004 where questionnaire data and infant's anthropometric measurements were obtained from 157 rural and 192 semi-urban infant – mother pairs.

Results

Early breastfeeding (<1hour after delivery) was practiced among 68.2% of the rural and 63% of the semi-urban

mothers. Colostrum was given by 96%, while pre-lacteal feeds were given by 4%, of all the sampled mothers. Exclusive breastfeeding at 4 months was significantly higher ($p < 0.01$) among semi-urban (44.4%) than rural (4.7%) mothers. 65.6% of the rural and 68% of the semi-urban mothers had introduced complementary feeds because of infant's crying. Living in the semi-urban area (OR = 7.94; 95% CI 2.03 – 31.1) and giving birth in a health facility (OR = 3.89; 95% CI 1.24 – 12.25) were independently associated with exclusive breastfeeding at 4 months.

12.6% of all the sampled infants were stunted and underweight, while 6.6% were wasted. Rates of stunting, being underweight or wasting were significantly higher ($p < 0.01$) in the rural than semi-urban group; and among infants not exclusively breastfed at 4 months than those exclusively breastfed.

Conclusion and Recommendation

Semi-urban mothers are more likely to practice exclusive breastfeeding than rural mothers. Access to healthcare at birth is likely to influence mothers to exclusively breastfeed. Promotion of exclusive breastfeeding could be an effective way of addressing malnutrition in infancy. Provision of breastfeeding support through community health workers can be a way of promoting exclusive breastfeeding.

DCON/06/22 - Influences on Decision-making for Pregnancy and Childbirth in a Rural Malawian Matrilineal Community

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Objective

To examine relationships, influences and power dynamics underpinning childbearing decisions in a resource-poor subsistence farming community, southern Malawi.

Methods

Participant observation, key informant and group interviews of community residents, service providers and project workers, and household survey during nine months community residence. Childbearing themes, residence and relatedness, knowledge and power, health and risk perceptions were examined.

Audio and observational data was examined thematically, credibility being checked through triangulation and expert secondary translation of interpretation. Technical and anthropological literature was examined. Ethical issues were analysed.

Results

A strongly matrilineal and matrilocal lifestyle emerged, substantial decision-making power residing with pregnant women's older female relatives. Husbands have limited influence but are expected to support childbearing decisions made by older women and take responsibility for their own matrikin. Most young women and men remain too ignorant for independent action and formal health services do not necessarily take this into account.

Biomedical knowledge is layered over ethnomedical, and expressions of morality and wellbeing. Choices are ultimately pragmatic, neither biomedical nor ethnomedical prevailing. Nevertheless all age groups demonstrated acceptance of

biomedical knowledge and service provision, and desired greater understanding.

Conclusions

The strong influence of older female matrikin has a substantial impact on childbearing choices so their willingness to engage positively with health services needs to be taken into account in maternity care provision. Excluding these decision-makers from encounters with pregnant women is counter-productive.

Recommendations

Action research and policy implementation that targets these matrikin, as well as men, to increase their knowledge and involvement may bring positive benefits for safer motherhood.

DCON/06/23 - Insight, Psychopathology and Psychosocial Outcome in Schizophrenia

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Objective

To identify the determinants of psychosocial outcomes - functioning and quality of life - in a group of patients recruited to a randomised controlled trial (RCT) of carer education in schizophrenia.

Materials And Methods

Following diagnostic interview and recruitment to the RCT, we measured psychopathology, quality of life and functioning with standardised clinical measures. To evaluate the three dimensions of insight in psychosis - treatment compliance, recognition of illness and ability to relabel symptoms - we used the Schedule for Assessment of Insight.

Results

The best predictor of functioning was the ability to relabel symptoms (R² change=0.22, $p=0.001$); predictors of poor functioning were negative symptoms (R² change=0.16, $p=0.001$) and first-rank symptoms (R² change=0.12, $p=0.002$). Poor quality of life was predicted by younger age (R² change=0.13, $p=0.02$), hallucinations (R² change=0.15, $p=0.005$), and increasing recognition of mental illness (R² change=0.07, $p=0.05$).

Conclusions And Recommendations

These preliminary findings suggest that insight and psychopathology are important determinants of psychosocial outcomes in this group, pre-RCT. Perhaps surprisingly, different dimensions of insight had opposing effects on outcome, with recognition of mental illness showing an inverse relationship with quality of life. This may have implications for psychoeducation and disclosure of diagnosis in schizophrenia.

DCON/06/24 - Lobar Pneumonia due to Nontyphoidal Salmonella in a Child with recent severe Malaria

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Background

Nontyphoidal *Salmonella* (NTS) is recognized as a common cause of bacteremia in malaria-endemic Africa but its importance as a cause of pneumonia is uncertain.

Case Report

We report a case of pneumonia due to NTS, confirmed on culture of lung aspirate from a consolidated left lung, in a 16 month-old HIV-uninfected girl who had been admitted to hospital one month previously with severe malaria. She did not respond to first-line antibiotic therapy of benzylpenicillin and gentamicin but improved with ceftriaxone.

Implications

This case highlights risk factors for invasive NTS disease in African children and prompts reconsideration of appropriate antibiotic management of acute severe pneumonia in the region.

DCON/06/25 - Lymphocyte Subset Numbers, Activation And Memory in severe Malaria in Malawian Children

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Objectives

To compare lymphocyte subset numbers, activation and memory in Malawian children with severe malarial anaemia (SMA), cerebral malaria (CM) and uncomplicated malaria (UCM).

Materials And Methods

Study participants were children aged between 6 to 60 months presenting to QECH with SMA and CM, and UCM and healthy children. Eligibility for each group was determined by Blantyre Coma Score and haematocrit. Over 30 children were recruited for each group. A blood sample was collected for flow cytometric analysis. Lymphocyte subpopulation enumeration was assessed using antibodies to CD3, CD4, CD8, TCR- $\alpha\beta$, CD56, CD19, activation using antibodies to CD69 and memory status using antibodies to CD45RO and CD45RA.

Results

Lymphopenia was found in acute CM affecting all lymphocyte subsets. This pan-lymphopenia normalised in convalescence. There was a higher proportion of activated to non-activated CD4 T cells in CM compared with SMA (median: CM = 35.1%, SMA = 26.4%, $p = 0.005$). The ratio of memory-to-naïve CD4 T cells was higher in acute CM compared to SMA (median: CM = 0.9, SMA = 0.4, $p < 0.001$).

Conclusions And Recommendations

We have found transient pan-lymphopenia in CM and an increased ratio of activated to non-activated and memory to naïve CD4 T cells in CM compared with SMA. A possible

explanation for this pan-lymphopenia is the accumulation of circulating lymphocytes in secondary lymphoid tissue in CM. The increased ratio of memory to naïve and activated to non-activated CD4 T cells is consistent with the hypothesis that CM is an immunopathological state with over-activation of CD4 T cells following priming during previous episodes of malaria.

DCON/06/26 - Nevirapine Based Antiretroviral Therapy Started Early in the course of Tuberculosis Treatment in Adult Malawians

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Objectives

Mortality during TB treatment (TBT) in Malawi is high, probably for a large degree due to HIV related complications. Sixty percent of deaths occur in the first two months. Antiretroviral therapy (ART) may improve TBT outcome but problems occur with drug interactions, adherence, toxicity and immune-reconstitution disease (IRD).

Methods

We prospectively followed 27 HIV infected adults for eight months after initiating Triomune® (stavudine, lamivudine, nevirapine) in the second week of TBT. Patients were hospitalized for two months. CD4 counts, HIV-viral loads, nevirapine plasma levels, transaminases, structured adherence and adverse event interviews and pill counts were done.

Results

At baseline 88% had a CD4 count < 100 cells/ml, the prevalence of anemia was 100%, of malnutrition 78%, indicating high mortality risk. Five patients died, two withdrew consent, and one stopped all drugs due to hepatitis. Nineteen patients completed TBT on Triomune®. At six months, median CD4 increase was 170 cells/ml, median weight gain 8.4 kg and 16 patients (64%) had a viral load < 400 copies/ml. Adverse events were very common, particularly in the first two months. Suspected IRD episodes were managed without treatment interruptions. During the nevirapine lead-in phase (week 1 and 2), 59% of nevirapine levels were sub-therapeutic despite good adherence, compared to 14% during week 4 and 8.

Conclusion and Recommendations

It was feasible to combine nevirapine and rifampicin and, with intensive clinical monitoring, to start ART early during TBT. A nevirapine lead-in phase should be avoided when the patient is already on rifampicin for > 1 week.

DCON/06/27 - Nutritional Response of HIV infected, severely Malnourished Children after commencing HAART

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Objectives

To describe the nutritional and clinical outcomes of previously severely malnourished children commencing HAART.

Setting

Nutrition Rehabilitation Unit and Paediatric ARV clinic, QECH

Methods

Retrospective cohort study of Malawian children commenced on HAART following ARV scale up in September 2004. Age and gender adjusted height and weight z scores (WAZ, HAZ) and clinical outcome were studied for 93 severely malnourished children prior to HAART. Weight gain was analysed every 4 weeks to 6 months, and then at one year. Change in weight and height z score from starting HAART to last visit (median 36 weeks) were calculated. Defaulters with addresses were followed up.

Results

There was a significant improvement in mean WAZ score (-4.04 to -2.63) after 26 weeks on HAART ($n = 45$, $p < 0.01$). There was however no significant improvement in stature by last visit (HAZ -4.05 to -3.86, $n = 48$, $p = 0.226$). The period of maximal weight gain was between the 10-14th week after commencing HAART, and was 2.5g/Kg/d by 6 weeks without formal additional nutrition support. Of children commencing HAART, 73.6% were still attending clinic, with 16% known to have died, and 11.7% defaulted (outcome unknown). Weight loss at last clinic visit predicted death ($p < 0.01$).

Conclusions And Recommendations

We report rapid improvement in weight, but not stunting in severely malnourished HIV infected children soon after starting HAART. Weight also appears a sensitive marker of failure of treatment, and should be routinely measured.

DCON/06/28 - Outcome, HIV Serostatus and Testing Behaviour of Parents of HIV Infected Children at the Paediatric ART Clinic, Blantyre, Malawi

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Objectives

To describe some features of the caretakers of HIV infected children from the paediatric ARV Clinic, QECH, Blantyre focusing on HIV sero-status, testing behaviour and percentage of guardians on antiretroviral treatment (ART).

Methods

498 children were registered in the paediatric ARV Clinic at the beginning of September 2006. Information about the relationship of the caretaker to the child, the outcome of the parents, their HIV sero-status and the number of parents on ART was collected from the file (30 of the original files were missing).

Results

The mother was the caretaker in 46.2% ($n = 230$), followed by an aunt ($n = 73$, 14.7%) and a grandmother ($n = 56$, 11.2%). 70 children (14%) had lost their father, 78 (15.6%) their mother and 81 children both parents (16.2%). In 60 cases

the outcome of the father was not definitely known due to separation or loss of contact after the death of the mother. Lifetable analysis showed a trend towards fewer deaths and defaulters in the group of orphaned or single parent children but did not differ significantly from the group of children who still had both of their parents. Of the mothers that were alive 157 (51.5%) reported to be tested HIV positive, of whom 61 (38.8%) stated to be taking ART. The fathers were reported to be positive in 21.1% ($n = 54$) and almost half of them ($n = 27$) were on ART. 33.3% of the mothers and 52.3% of the fathers said that they had not been tested. The HIV status was not recorded by the Clinician in about a third of the cases.

Conclusion

Orphanhood does not appear to have a negative influence on the outcome of the children in our Clinic.

Discussing the HIV sero-status of the parents in paediatric ART Clinics remains an important issue that requires reinforcement.

DCON/06/29 - Predictors of Death with Pneumonia in Under-five Children in Mchinji District, Malawi

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Objectives

To determine risk factors of death in under-five children admitted with pneumonia.

Materials And Methods

Retrospective study was conducted between January 2004 to January 2006 from a review of registers and Pneumonia files. Socio demographic data, medical history, clinical features of the patient, associated conditions, possible complications, treatment prescribed, and the outcomes were collected. Data were cleaned and entered in SPSS for analysis using logistic regressions to determine odds ratio and 95% confidence interval for each outcome. Initially adjusted odds for potentially confounders (age and type of pneumonia) odds-ratio were also calculated.

Results

We evaluate 466 patients among them 60 (12.9%) died and the rest either completed treatment, failed in 48 hours or after 5 days, left against medical advices, has been transferred or the outcome unknown. Multivariable logistic regression revealed that age, previous admission for pneumonia, presence of major signs, associated malaria and month were associated with risk of death. After adjustment for age and severity signs of gravity, previous admissions for pneumonia predict death.

Conclusion And Recommendation

The study presents some factors increasing the likelihood of death due to pneumonia. A policy based on a close monitoring during management of sick children presenting with such features is recommended.

DCON/06/30 - Pregnancy Rates among HIV-uninfected and Infected Women participating in an

Intravaginal Antibiotic Microbicide Trial

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Background

Discontinuation of product use due to pregnancy may reduce study power and introduce bias. We assessed rates of pregnancy in an intravaginal antibiotic microbicide trial of intermittent bacterial vaginosis (BV) presumptive treatment.

Methods

Non-pregnant HIV-uninfected and infected women were randomized to either metronidazole 0.75% gel (MetroGel-Vaginal®) or placebo gel. Starting at enrollment and repeated every 3 months for one year, women were dosed for five consecutive nights. Tests for pregnancy (urine), BV, *T. vaginalis* and candida were performed at each visit. Pregnancy rates were estimated using Kaplan-Meier analysis. Multivariate predictors of pregnancy were determined using Cox proportional hazards models.

Results

842 HIV-uninfected and 844 infected were enrolled and equally randomized to treatment or placebo. Among HIV-uninfected women 53 in treatment and 48 in placebo became pregnant: 13.3% overall pregnancy rate. Among HIV-infected women 47 in treatment and 53 in placebo became pregnant; 14.0% overall pregnancy rate. Among HIV uninfected and infected women, use of injectable hormonal contraception was protective (Hazard ratio [HR] 0.37, 95% CI 0.27-0.49) while detection of candida was associated with higher hazard of pregnancy (HR 1.76, 95% CI 1.30-2.37).

Conclusion

Pregnancy rates were not different by study arm in both HIV-uninfected and infected women.

DCON/06/31 - Preliminary Results Infections and Childhood Cancer in Malawi

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Objectives

To identify infectious agents associated with childhood malignancies at Queen Elizabeth Central Hospital, and to investigate maternal and childhood factors that are associated with the risk of childhood cancer in general and Burkitt's lymphoma specifically.

Setting

Queen Elizabeth Central Hospital, Blantyre in wards where children with cancer were treated, including the paediatric oncology surgical and the eye wards.

Study Methods

Children 15 years and below with a malignancy were recruited. Biological mothers of the children were also recruited. The study ran from 20th July 2005 to 20th July 2006. An interviewer administered questionnaire was used to collect socio-demographic data about the child from guardians, and to collect information from the mother about her general, reproductive and sexual history and the child's living circumstances. Blood samples were collected from the child and mother, and tested for HIV. Maternal blood was also tested for syphilis on site.

Results And Progress to Date

A total of 308 cancer patients were recruited, and 243 were newly diagnosed. A total of 215 mothers were interviewed. The five common tumours were Burkitt lymphoma at 50%, 10% Wilms tumour, 6% Rhabdomyosarcoma, 7% Kaposi sarcoma, and 6% Retinoblastoma. Eleven percent of the children and 20% of the mums were HIV positive, and syphilis was positive in 14% of mothers. Morphological verification was attained for 67% of the tumours and 30% were clinically or radiologically diagnosed. The data is still being thoroughly analysed, and blood samples being analysed for malaria antibodies and herpes viruses. Updated results will be presented.

DCON/06/32 - Prevalence and Causes of Childhood Blindness in Southern Region of Malawi

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Objectives

1. To determine the prevalence and causes of childhood blindness in Chikwawa District, Malawi
2. To use the key informant method in identifying blind children in Chikwawa District, Malawi

Materials And Methods

This was a population based cross sectional survey of a catchment area comprising of 43,000 children in Chikwawa district. Key informants from various communities were identified through local village leaders and trained to identify blind and severe visual impaired children from the communities. Identified children had a proper eye examination at designated centres. Children requiring further medical assistance were referred to tertiary centres.

Results

Results were analysed using Stata software 9.0 and epi info version 6.4. 44 key informants were trained to cover 196 villages. In total 37 blind children were identified from the

study area. The prevalence of childhood blindness was 0.09% (CI 0.06-0.11). Congenital cataract was the commonest cause of blindness (35%) followed by corneal disease (22%).

Conclusions And Recommendations

Key informant method is an easy way of identifying blind children in the community for purposes of programme intervention. The fact that prevalence of childhood blindness in Chikwawa (0.09%) obtained using the Key informant method is well within the WHO projected figures of blindness in a developing country indicates reliability and calls for recommendation of this method for other diseases.

DCON/06/33 - Randomized Trial of Intermittent Treatment of Bacterial Vaginosis (BV) using Intravaginal Antibiotic Microbicide

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Background

We presumptively treated BV and genitourinary symptoms (GUS) using an intravaginal antibiotic microbicide.

Methods

A randomized, double-masked, placebo-controlled, phase III clinical trial of intermittent BV treatment was conducted in Malawi. Starting at enrollment and repeated every 3 months for one year, HIV-uninfected and infected women used metronidazole 0.75% gel (MetroGel-Vaginal®) or placebo gel intravaginally for 5 consecutive nights. At each visit, tests for BV, *T. vaginalis* and candida were performed and information on GUS was collected. Cross-sectional proportions of women with BV or GUS were compared using exact tests. Robust covariance log-binomial models assessed longitudinal associations of BV with treatment and other covariates.

Results

842 HIV-uninfected and 844 infected women were randomized equally to treatment or placebo. During the study, BV prevalence among HIV-uninfected women declined from 45.9% to 24.7% with treatment ($p < 0.001$) and from 46.8% to 28.8% with placebo ($p < 0.001$). Among HIV infected women there were also significant declines in BV prevalence over time. The metronidazole treatment advantage (vs placebo) persisted after adjusting for covariates (HIV-uninfected: adjusted relative risk [ARR] 0.88, 95% CI 0.81-0.96; HIV-infected ARR 0.94, 95% CI 0.89-1.00). Both treatment and placebo gels substantially reduced GUS frequency (>60%).

Conclusion

Intermittent use of vaginal gels should be considered to prevent vaginal infections.

DCON/06/34 - Reproductive Intentions and Sexual Behaviors among Women aged 20-49 in Lungwena

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Objectives

To assess women's reproductive intentions in avoidance of unintended pregnancy, establish sexual behaviors contributing to unintended pregnancies, and recommend strategies for strengthening sexual behavior change activities in Lungwena.

Setting

Six villages in TA Makanjira and Chowe in Lungwena health centre catchment in Mangochi district

Materials And Methods

Data were collected in a cross sectional study (Demographic and Health Survey {DHS}) conducted in 2004 by Lungwena NUFU project. Stratified random sampling was used to select 300 households from six villages in the catchment area. Enumerators administered adult and adolescent women's questionnaires in one-on-one interviews in Chiyao.

results

188 women aged 20-49 were interviewed. 35.5% and 30% of those who had unintended pregnancy at conception for first born and second born respectively, could have liked to wait for over 2 years. At the time of study, 65.5% wanted another child after 2 years. Among those who had sexual exposure one month prior to the survey, 62.6% had unprotected sex, >50% of all women wanted family size > 7 compared to 29.5% that had achieved this. Besides, only 27.1% perceived pregnancy in the next few weeks as a big problem, and spousal communication about family planning was low (22%). There was a discrepancy between reproductive intentions and sexual and reproductive behaviors.

Conclusions And Recommendations

Reproductive intentions among the women had no influence on sexual and reproductive behaviors. In this case, it is recommended to design behavior change interventions that address the specific behaviors for reduction of unintended pregnancies in Lungwena.

DCON/06/35 - Return of Chloroquine Antimalarial Efficacy in Malawi

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Objectives

In 1993 Malawi became the first African country to replace chloroquine with sulfadoxine-pyrimethamine (SP) for the treatment of malaria. At that time, chloroquine's clinical efficacy was less than 50 percent. The molecular marker for chloroquine-resistant falciparum malaria subsequently declined in prevalence and was undetectable by 2001, suggesting that chloroquine might once again be effective in Malawi. The objectives of this study were to assess the efficacy of chloroquine for the treatment of uncomplicated

falciparum malaria in Malawi, and to compare it to the efficacy of standard therapy with SP.

Setting

The Blantyre Malaria Project Research Clinic at the Ndirande Health Centre, Blantyre.

Materials And Methods

We conducted a randomized clinical trial among 210 children with uncomplicated *Plasmodium falciparum* malaria. Children were treated with either chloroquine or sulfadoxine-pyrimethamine and followed for 28 days to assess antimalarial efficacy. Cumulative efficacy was calculated using survival analysis. Filter paper blood specimens were subjected to PCR and sequencing to detect the molecular marker for chloroquine resistance, a K76T mutation in *pfcr*.

Results

One treatment failure occurred among 80 evaluable children randomized to chloroquine treatment, compared to 71 treatment failures among 87 evaluable children assigned to sulfadoxine-pyrimethamine. Chloroquine efficacy was 99 percent (95 percent confidence interval 93 to 100) and sulfadoxine-pyrimethamine efficacy was 21 percent (95 percent confidence interval 13 to 30) among participants who completed the study ($P < 0.001$). The mean parasite clearance time was 2.6 days (confidence interval 2.5 to 2.8) for children treated with chloroquine and 8.8 days (confidence interval 6.3 to 11.2, $P < 0.001$) for those treated with sulfadoxine-pyrimethamine. Fever clearance times were 10.3 hours (95% confidence interval 8.1 to 12.6) and 47.7 hours (95 percent confidence interval 37.7 to 57.7) in the chloroquine and sulfadoxine-pyrimethamine groups, respectively ($P < 0.001$). No unexpected adverse events occurred that were related to the study drugs. No chloroquine resistant genotypes were detected among pre-treatment or post-treatment infections.

Conclusions

Chloroquine efficacy has returned 12 years after chloroquine was withdrawn from use in Malawi. As new anti-malarial drugs are introduced in Africa, chloroquine should be retired so that it can later be re-introduced as a component of combination therapy. (ClinicalTrials.gov number NCT00125489.)

DCON/06/36 - Role of Men in Spousal Communication about Family Planning and use in Lungwena and Malindi, Southern Malawi

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4. Vaestoliitto (Family Federation of Finland), Helsinki, Finland

Objectives

To investigate intra-familial communication on family planning as a source of information and as an influencing factor for decision-making on contraceptive use.

Methods

This descriptive study drew its data from the Male involvement in Family Planning (MIFP) Project. Data was collected in two phases. Phase I was qualitative data collection where

8 focus group discussions (FGDs) were held with married men of the reproductive age group (15-65 years). Phase II involved quantitative data collection, where a structured survey questionnaire was administered to 380 married men of the reproductive age group as well. Qualitative data was analyzed manually while quantitative data was analyzed using the Statistical Package for Social Science (SPSS) version 11.0.

Results

The common pattern of spousal communication about family planning in the area is husband-to-wife. 85.6% of the respondents in the survey reported that husbands initiate such discussions. These discussions are regarded as clandestine, hence they are held during bedtime as 91.1% of the survey respondents noted. The husband is regarded as the head of the household, and hence at the centre of all reproductive decisions in the family. 86.8% of the survey respondents unanimously reported that the husband is the main decision-maker. This implies that he is the initiator, controller of family planning discussion and, above all, the prime decision-maker in the household.

Conclusions And Recommendations

Family planning information, education and communication (IEC) strategies should focus on men, in order to disseminate information about family planning in families effectively. Family planning programmes should target men with information on contraception in the places that they can be found. The Family Planning Policy of Malawi requires a revision where such issues like those of spousal communication can be incorporated.

DCON/06/37 - Salmonella In Malawi: Serum Sensitivity in the face of Multi Drug Resistance

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5. MRC Centre for Immune Regulation, University of Birmingham, UK.

Objectives

To investigate sensitivity to serum killing and antibiotics of salmonella isolates from bacteraemic Malawian children.

Materials And Methods

211 salmonella blood culture isolates (188 *S.typhimurium* (STM), 23 *S.enteritidis* (SEN)) from children admitted to QECH between August 2003 and September 2004 were studied. Sensitivity to serum killing was assessed using a reversed serum bactericidal assay with pooled control serum. Antibody content of control serum to each isolate was determined by flow cytometry. Salmonella clonality was assessed by pulse field gel electrophoresis (PFGE) of *Xba*I endonuclease digests. The plasmids from each isolate were purified and visualized. Antibiotic sensitivities were

determined at MLW.

Results

95% of isolates were resistant to a combination of chloramphenicol, ampicillin and cotrimoxazole. However, 91% of the isolates were sensitive to a 1.0 log serum kill. IgG to each isolate was detected in control serum. STM were homogeneous in serum killing and genotype while SEN were heterogeneous in both. A 1.4 MDa plasmid was associated with chloramphenicol resistance. Two SEN and two STM isolates demonstrated complete serum resistance. The two SEN isolates had no plasmids, but were from unique and rare clonal groups. The two STM isolates were from common clonal subgroups. One contained an unusual plasmid.

Conclusions And Recommendations

Salmonella strains causing bacteraemia in children at QECH are sensitive to serum killing in the face of multiple antibiotic resistance. With drug resistance certain to increase, these findings provide a rationale for the development of an antibody-inducing vaccine against salmonella for Malawi.

DCON/06/38 - Serial Versus Parallel Testing For HIV Diagnosis

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Objectives

To explore accuracy and cost associated with using a serial rapid testing algorithm as an alternative to the standard parallel algorithm for HIV diagnosis.

Methods

Test results from all clients served from Jan-June 2006 at MACRO VCT in Lilongwe were reviewed to assess the potential impact of serial testing on the number of false results given to clients and cost of HIV testing.

Results

Of the 6810 client results included in this assessment, individual outcomes returned to the client under both parallel and serial testing algorithms would be identical. Under the parallel testing algorithm 99.3% of the outcomes required two tests and the remaining required three tests, at an estimated cost of US\$14,036.50 (\$2.06/ test result). However, if a serial testing algorithm had been used, then 84.8% of the samples would only require one test, 14.6% two tests, and 0.06% three tests, resulting in an overall cost of US\$6865.90 (\$1.01/ test result).

Conclusions

When comparing the observed results under parallel testing to those that would have been observed under serial testing in the MACRO data, we conclude that there is no detectable difference in accuracy. However, serial testing requires far fewer tests than parallel testing at half of the cost.

Recommendations

Based on this investigation, we recommend that a field

assessment and a subsequent policy level discussion be held to assess the appropriateness of a serial testing algorithm for HIV diagnosis, with the potential implication of less costly HIV testing services.

DCON/06/39 - Prospective Study of Aetiology of Severe Pneumonia in Children

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Background

Pneumonia is a very common cause of admission to the paediatric wards at QECH and mortality is high. Failure to respond to currently recommended first-line antibiotics is very common.

Objectives

To describe the aetiology and outcome of HIV-infected and uninfected Malawian children 2 months and older admitted to the paediatric wards at QECH with a diagnosis of severe pneumonia as defined by WHO criteria.

Methods

A prospective study over a 12-month period is ongoing and will be completed by October 2006. Following informed consent, clinical and demographic data are collected on admission. Investigations for cause of pneumonia include blood culture, nasopharyngeal aspirate (NPA) and/or induced sputum samples for respiratory virus screen (RSV, adenovirus, influenza, parainfluenza), Pneumocystis and M.tuberculosis (including culture). Lung aspirates for bacterial culture are performed before antibiotic administration in a subgroup of children. An appropriate HIV test for age is done following separate consent. Penicillin and gentamicin are the first-line antibiotics and oxygen use is guided by pulse oximetry. Outcome measures include death, days in hospital and days requiring oxygen.

Results

Data are available for the first 200 children enrolled with severe pneumonia. Causes of pneumonia include bacteria (31 cases with Strep pneumoniae [n=11] and nontyphoidal Salmonella [n=9] the commonest with 4 each of Staph aureus and Haemophilus influenzae), Pneumocystis (11 cases) and tuberculosis (8 cases). No results of viral screen available. HIV infection status is known for 157 cases and HIV prevalence was 51%. Case-fatality rate was 5% overall but 64% for PcP.

Conclusion

It is difficult to confirm aetiology in most cases of severe pneumonia in children. The finding that nontyphoidal Salmonella is a common cause of severe bacterial pneumonia raises concerns about appropriate first-line antibiotic treatment. The case-fatality rate for this study group was much lower than for a similar study in 1996 (22%) and important differences in severity and HIV-related management will be analysed.

DCON/06/40 - Social Support for Women Caregivers of Family Members with HIV and AIDS in Rural and Peri-urban in Malawi

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Objectives

To explore social support for women caregivers in rural and peri-urban communities of Lilongwe

Setting

Lumbadzi and Mitundu, where Lumbadzi is peri-urban and Mitundu is predominantly rural

Methods

Social support is an important buffer for family caregivers of people living with HIV/AIDS. In order to further our understanding, an exploratory and descriptive qualitative study was conducted to explore social support for women caregivers in rural and urban communities of Lilongwe. Participants for the study involved women caregivers over the age of 18 years who were providing care to sick family members who have either HIV/AIDS or show symptoms that suggest HIV/AIDS. 4 focus groups, (8 participants in each) were conducted in setting, making a total of 8 focus groups. Focus group discussions were tape recorded and thereafter transcribed for analysis through which major themes were identified which included types of support caregivers receive and sources of support.

Results

Findings revealed that the support caregivers receive is quite substantial. The following categories of support were identified: physical, material, informational, emotional, financial and spiritual support. Material, financial and spiritual support were the ones commonly reported. However, some participants indicated that physical support is rarely given and others did not perceive a visit without bringing something (material support) as support. The findings have been very significant in the development of an intervention strategy to be implemented during the second phase of the pilot study

DCON/06/41 - The Distribution and Intensity of Parasite Sequestration in Comatose Malawian Children

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Objectives

To investigate the quantity and distribution of malaria parasites in tissues obtained at autopsy from two groups of patients meeting the clinical case definition of cerebral malaria – parasitemic patients with a non-malarial cause of death identified at autopsy, and parasitemic patients with no other cause identified (presumed to have died of cerebral malaria).

Setting

Research Ward and Mortuary, Queen Elizabeth Central Hospital; Department of Histopathology; Laboratory of Malaria and Vector Research, National Institutes of Health, Bethesda, Maryland, USA.

Materials And Methods

Tissue from six different organs (cerebral cortex, skin, intestine, liver, kidney, and lung) was obtained from 11 cases
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with an identifiable, non-malarial cause of death at autopsy. These cases were age matched with 11 cases of presumed cerebral malaria. All 22 cases met the clinical case definition of cerebral malaria. These tissues were analyzed using an ELISA specific for parasite-derived lactate dehydrogenase (pLDH), a parasite specific protein.

Results

When pLDH could be detected, the parasite burden was higher in presumed cerebral malaria patients than in parasitemic patients with other pathology. This increased parasite burden was present not only in the cerebral cortex ($p < 0.005$), but also in the intestine and the skin ($p < 0.05$ for each).

Conclusions

These findings suggest that the sequestration of parasitized erythrocytes in patients with fatal cerebral malaria occurs in multiple organs and does not reflect a predilection for the cerebral vasculature.

DCON/06/42 - The First 6 Months On Triomune® (Stavudine/ Lamivudine/ Nevirapine) – A Detailed Analysis of Outcomes in a Cohort of Patients from Queen Elizabeth Central Hospital, Blantyre.

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Objectives

To describe treatment outcome and adverse events in a cohort of HIV infected adults during the first 6 months of antiretroviral therapy (ART) with Triomune®.

Materials And Settings

In a prospective cohort study 300 ART-naïve adults from the ART clinic at Queen Elizabeth Central Hospital were enrolled. Treatment followed national ART guidelines. Patients were followed at home when not appearing for scheduled appointments.

Results

At baseline 62% were female, mean age 36 years (range 16-60), median CD4 count 131 cells/ml (IQ range 60-228). Results at six month were: alive on Triomune® 230 (77%), death 36 (12%), lost to follow up 10 (3%), transfer-out 8 (3%), stopped 16 (5%). Causes of death included: chronic diarrhoea (25%), tuberculosis (17%), Kaposi's sarcoma (17%), Cryptococcus (11%), and sepsis (6%). Severe skin rash led to ART interruption in nine patients (3%) and resulted in one death. Hepatotoxicity was common (ALT rise from baseline to 6 weeks: > 2 fold in 13%; > 5 fold in 2%) but did not lead to ART interruption. Clinical jaundice did not occur. The mean CD4 count rise at six months was 175 cells/ml (IQ range 91-232) in 230 patients tested.

Conclusions And Recommendations

While most patients did well, the most important problems were intercurrent illnesses, leading to death, and severe rash, leading to drug stoppage. Severe hepatotoxicity did not occur. Further work to identify risk factors for adverse events is required.

DCON/06/43 - The HIV Epidemic Status in Blantyre Malawi

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Background

We assessed the HIV infection rates obtained over the past 20 years to determine the status of the epidemic in Blantyre.

Methods

We obtained data from prevalence surveys at QECH and the Health centers collected from 1985 to date, including all HIV sentinel surveillance data. We examined the trend in infection rates. We also assessed incidence data obtained from 3 cohort studies conducted in Blantyre since 1985.

Results

Data from the prevalence and sentinel surveillance indicate that HIV prevalence among pregnant women in Blantyre increased from <5% in 1985 to 32% in 1996. Between 1996 and 1998 the prevalence rate remained stable but appears to have declined to about 20% in 2006. Age specific rates indicate that 25-54 age groups have the highest infection rates, about 30% for the 1997-2002 period. However, from follow up studies of 559 in 1999-2001 and 842 in 2003-05 of HIV negative women the incidences rate was 4.9 (95%CI 3.9-5.6) person years, and 4.04 (95%CI 2.02-6.35) person-years respectively. In 1994 incidence rate was estimated at 4.6 person years from serial prevalence data.

Conclusion

Prevalence of HIV has declined but the rate of new infections appears to have remained same. HIV is still spreading at a high rate in Blantyre.

DCON/06/44 - The impact of Routine Infant Immunization with Haemophilus Influenzae Type B Conjugate Vaccine in Malawi, a Country with High HIV Prevalence

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4. Agence de Medecine Preventive a l'Institut Pasteur, France
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6. College of Medicine

Introduction

Malawi introduced Haemophilus influenzae type b (Hib) conjugate vaccine into the routine immunisation programme in 2002 and we wished to assess the effect on Hib meningitis in vaccinated children.

Methods

Surveillance data from 1997 to 2005 for acute bacterial meningitis in children under age five years admitted at Queen Elizabeth Central Hospital were analysed. Vaccine effectiveness was estimated using a case control approach with vaccination status as the exposure variable, Hib versus pneumococcal meningitis as the outcome variable, and adjusting for age, residence, and HIV status.

Results

Before Hib vaccine introduction, the annual incidence rates for Hib meningitis varied from 20 to 40 per 100,000 children. The incidence rate decreased to near zero in both rural and urban residents after vaccine introduction. A similar Hib meningitis trend was observed among HIV-infected children. The annual incidence rates for pneumococcal meningitis in the same age groups remained unchanged between the periods before and after vaccine introduction. The vaccine was highly effective after administration of at least two doses.

Conclusion

The introduction of Hib conjugate vaccine was associated with a significant reduction in the burden of paediatric Hib meningitis and this benefit extended to include HIV-infected and rural children.

DCON/06/45 - The Prevalence of Psychological Distress and Associated Factors among People Living with AIDS attending Antiretroviral Therapy Clinics in Mzuzu, Malawi: A Cross Sectional Descriptive Study

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Background

With 14.4% HIV prevalence among Malawians aged 15-49 years and limited antiretroviral (ARV) clinic facilities, interventions in ARV clinics are focusing more on physical than psychological care.

Objective

To determine the prevalence of psychological distress and associated factors among people living with AIDS (PLWAs) attending ARV clinics in Mzuzu City.

Methods

A cross-sectional survey was done among PLWAs attending ARV clinics at Mzuzu Central and St. John's hospitals. 440 clients were sampled using systematic random sampling. The "Self Reporting Questionnaire" (SRQ, social-demographics and other questions on predictive factors for psychological distress were administered verbally to participants. Ethical clearance was sought from COMREC. SPSS and STATA were used to analyze study data.

Findings

14.4% of this sample was distressed with 4.5 % having suicidal feelings. Young age, being female, low education, joblessness, poor social economical status were demographic characteristics associated with psychological distress. Shorter duration on ARVs and non-availability of psychological support were two of the clinical factors that were predictive of psychological distress. Logistic regression did not find any statistically significant interaction or confounding brought by age, sex or social-economic status.

Conclusions

There is unrecognized psychological distress among PLWAs in ARV clinics. Health care providers should consider the needs of the patient (both physical and psychological) in a comprehensive way.

DCON/06/46 - The Relative Validity of an interactive 24 hour recall in estimating Energy And Nutrient Intakes in 16-month old Rural Malawian Children

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4. Department of Paediatrics, Tampere University Hospital, Finland.

Objectives

To determine the relative validity of a structured interactive 24-hour dietary recall in assessing energy and selected nutrient intakes for 16-months old rural Malawian children.

To compare nutrient adequacy in the children as assessed by the two methods.

Setting

26 villages in the Lungwena Health Center's catchment area.

Materials And Methods

Cross-sectional study. Food consumption estimated on the same day using Weighed Food Record (WFR) and structured interactive 24 hour recall (24-hr) methods. SPSS version 10.1 calculated mean absolute intakes and percentage RDA for energy and selected nutrients from the two methods to determine agreement.

Results

169 16 months old children participating in a 12-month complementary feeding clinical trial called Lungwena Child Nutrition Intervention study (LCNI-3) participated.

The 24-hr gave 4% -53% higher mean absolute intakes than the WFR. Energy had the lowest (3%) followed by iron (17%) and fat (25%) while Calcium had the biggest difference (53%) followed by Vitamin C (37%).

Both methods showed that <25% of the children meet RDA for energy, iron, zinc, calcium and vitamin A. >50% of the children met at least half of the RDA for energy, protein and vitamin C as shown by both methods.

Conclusions And Recommendations

The 24-hr can replace the WFR to assess energy and iron intakes of infants in rural areas in developing countries. However it cannot replace the WFR to assess intakes of proteins, vitamin A, calcium, fats, vitamin C and zinc as it tends to overestimate. The 24-hr can replace the WFR in assessing nutrient adequacy for energy, protein, iron, calcium and vitamin A and vitamin C in rural children.

DCON/06/47 - The Role of Il-17 in the Pathophysiology of Invasive Pneumococcal Disease

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Background

Interleukin-17 (IL-17) is a pro-inflammatory cytokine produced by activated memory T lymphocytes. It induces neutrophil recruitment both by stimulating production of CXC chemokines (which attract neutrophils) and by stimulating production of granulocyte colony stimulating factor (G-CSF) and granulocyte macrophage colony stimulating factor (GM-CSF). A descriptive clinical study investigating the role of IL-17 in bacterial infection has not previously been reported.

Objective

To determine the potential role of IL-17 in the pathophysiology of invasive pneumococcal disease (IPD).

Methods

A total of 85 children with IPD (meningitis n=73, pneumonia n=12) were prospectively recruited and plasma and CSF samples taken for cytokine determination (IL-6, IL-8, IL-17, TNF-alpha, MCP-1, MIP-1beta, RANTES, G-CSF, GM-CSF).

Results

Plasma IL-17 was undetectable in 61/85 (72%) children and CSF IL-17 was undetectable in 3/62 (5%) of children tested. In children with meningitis, CSF concentrations of IL-17 were significantly higher than plasma concentrations ($p < 0.0005$). Plasma concentrations of IL-17 were higher in non-survivors than survivors ($p = 0.004$) and in children with meningitis than those with pneumonia ($p = 0.03$). Plasma IL-17 correlated with plasma G-CSF ($r = 0.41$, $p < 0.0005$) and GM-CSF ($r = 0.35$, $p = 0.001$) and CSF IL-17 correlated with CSF G-CSF ($r = 0.71$, $p < 0.0005$) and GM-CSF ($r = 0.55$, $p < 0.0005$). Plasma and CSF IL-17 correlated significantly with plasma and CSF concentrations respectively of both CXC (IL-8) and CC (MCP-1, MIP-1beta) chemokines.

Conclusion

IL-17 appears to act as a regulator of the host response to pneumococcal infection, and may be a potential target for therapeutic intervention.

DCON/06/48 - Assessing Agreement Between CD4 Counting Methods: A Review

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Objectives

To compare standards of scientific reporting concerning CD4 counting methods with those advocated by STARD (the Standards for Reporting of Diagnostic Accuracy) steering group, and identify specific areas of poor practice. To promote awareness and use of appropriate statistical methods for method agreement studies.

Materials And Methods

We extracted information from thirteen papers reporting an assessment of method agreement for a CD4 counting method. The information extracted was based on the

STARD checklist, and included the statistical methods used to assess agreement and those that were the focus in drawing conclusions.

Results

All 13 papers estimated the bias and 95% limits of agreement, as recommended by Bland and Altman (1986) though only six gave 95% confidence intervals for these estimates. Twelve reported correlation coefficients, and five inappropriately based their conclusions on correlation rather than bias. Other inappropriate methods used included regression and paired data hypothesis tests. Repeatability was only assessed in seven papers. Only one mentioned blinding.

Conclusion And Recommendations

In spite of widespread reporting of the appropriate statistical methods for a method comparison study of CD4 counting methods understanding of these methods needs to be raised. Correlation coefficients are popular but poorly understood statistical measures. For method agreement studies authors should use the STARD checklist and journal editors should insist on its use. Areas for attention include the assessment of repeatability and reproducibility and the blinding of assessors to other results for the samples.

DCON/06/49 - HIV HepBsAg and Hep C Prevalence among Prison Inmates in a Central Prison in Southern Malawi

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Objectives

To determine HIV, Hepatitis BsAg (HepBsAg) and Hepatitis C prevalence, HIV knowledge, attitudes, practices and risk factors that may facilitate the spread of HIV among inmates at Chichiri Prison in Blantyre, Malawi.

Design

This was a Cross Sectional Study. Informed consent was sought from each of the participants before interviewer-administered questionnaires were used to collect data and blood specimens collected for HIV, HepBsAg and Hepatitis C serology.

Results

A total of 164 prison inmates comprising 142 males (86.6%) and 22 females (13.4%) participated in the study. The age range was 18-65 years with a mean of 28.6 years. Overall HIV prevalence rate was 36.6%; among male inmates it was 29.9%, and among the 22 female inmates tested, 11(50%) were reactive. Five males were HepBsAg positive with one dually infected with HIV. No participant tested positive for Hepatitis C. 141 (86%) inmates acknowledged that they knew that men having sex with men (MSM) activities occurred in prison and 3(2.1%) males confessed to having had sex with other men in prison. 55 (33.5%) believed that mosquito bites could spread HIV; 33(20.1%) said that sex is the only way HIV could be spread, 8(4.9%) thought that HIV/AIDS could be spread through food sharing. 20 (12.2%) said that HIV couldn't be spread from mother to child, 135 (82.3%) acknowledged that tattooing was practiced among the inmates. While 130(79.3%) acknowledged knowledge of

use of cannabis in prison, none reported the use of injecting drugs within Chichiri Prison.

Conclusions

HIV prevalence of 36.6% at the Chichiri Prison is higher compared to the national adult prevalence at 11% while female prevalence is higher than males. In comparison to developed countries, eastern Europe and Latin America, MSM may contribute significantly to prison HIV transmission, while in Malawi MSM and injecting drug use may not be a major factor. A significant proportion of the participants held misconceptions about HIV transmission stressing the need for HIV awareness campaigns in Malawi prisons. The low prevalence of HepBsAg and Hepatitis C infection deserved further study. There is also need to explore how anti-retroviral therapy may be available to patients in prisons.

DCON/06/50 - Ties of Dependence: AIDS and Transactional Sex in Rural Malawi

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Objectives

The objective of this study was to improve understanding of transactional sex by examining it in the context of rural Malawi. Transactional sex is thought to be a major driver of the AIDS epidemic in Malawi as elsewhere in the region. In the literature on AIDS, transactional sex is seen as a degraded form of sexual expression forced on vulnerable women by economic desperation. In this study, we ask how the exchange of sex for money and/or gifts is perceived by rural Malawians.

Study Methods

The method used to collect data was ethnography. A total of 21 Form Four graduates living in or around the three research sites of the University of Pennsylvania's Malawi Diffusion and Ideational Change Project (MDICP) kept notes on public conversations they overheard in the course of their daily lives. The MDICP now has approximately 600 field journals, covering the period from 1999 to the present. The journals were coded and analyzed using a qualitative analysis software.

Results

Our analyses show that the exchange of sex for money and/or gifts is widespread, but that the standard explanation that links transactional sex to prostitution and emphasizes the exploitation of poor, vulnerable women by wealthier, more powerful men, misses a great deal of what motivates and sustains such sexual patterns. We find that the understanding of transactional sex in rural Malawi can be better understood by seeing it as but one of the many ties of unequal exchange in which Malawians engage to provide security in an uncertain world. These ties are held together by a powerful moral ethic of redistribution and reciprocity, and are far more pervasive than transactional sex: they include, for example, the patron-client relationships through which the wealthier find jobs and other opportunities, and through which the poor exchange farm labor and food as well as other forms of support in times of emergency.

Conclusion

We believe that the pervasiveness of multiple sexual

partnerships is better understood not as driven by either men's nature or by women's poverty. Both men and women are seeking to establish ties of dependence that provide a form of social insurance. These ties mitigate uncertain risk for both men and women by binding relatives, patrons and clients—at every social stratum, and in many of life's activities—in a web of ties held together by a moral ethic of redistribution and reciprocity.

Recommendations

If transactional sex is understood as a form of redistribution and reciprocity that has benefits for those seeking to mitigate social as well as economic insecurity, it suggests that simply labeling it as prostitution by needy women, ignoring the role of men, and advocating the end of this practice will not be sufficient. Researchers and policy makers need to have a more realistic understanding of the circumstances that make dependence on others an important form of social insurance even among the wealthy, and the major form of social insurance for the poor.

DCON/06/51 - School, Sex, and Social Networks among Unmarried Women in Rural Malawi

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Objectives

To compare HIV risk behavior of unmarried school-going girls with school-leavers, and to identify whether schooling is protective or not.

Methodology

This paper examines the links between schooling, sexual activity, and AIDS-related social networks among unmarried women (aged 15-24 years) in three rural districts of the country as part of the Malawi Diffusion and Ideational Change Project (MDICP). The present findings come from survey data, in-depth interviews, and HIV biomarker status from a sub-set (N=258) of the 2004 youth sample.

Results

The survey data show that school-going girls report consistently lower levels of sexual activity than do women who are no longer schooling, even after controlling for age, wealth, and region. Yet AIDS-related knowledge and attitudes do not differ across schooling status, suggesting that the difference between the sexual behavior of school-goers and non-goers is due not to the content of the school instruction. The qualitative data support the findings from the survey. Both show that a number of individual and social factors influence sexual choices, but these factors differ for girls who are in school versus girls who are not. School-goers' networks are primarily composed of other girls who are also in school, and they encourage each other to avoid zibwenzis. In contrast, school-leavers' social networks are primarily composed of other, non-school-going girls, who seek marriage and are thereby more likely to have had sex.

Conclusions and Recommendations

Attending school is protective against the risk of HIV infection. This is not due to formal education itself, but because schoolgirls see a better future for themselves by delaying marriage and avoiding premarital sex. These findings have important policy implications, especially in its emphasis on how social networks modify using AIDS-

associated information.

DCON/06/52 - Effect of Counseling HIV Infected Mothers on Early Breastfeeding Cessation and Abrupt Weaning in Blantyre, Malawi

F.G Zulu

Introduction

Breastfeeding (BF) is a major risk factor for mother-to-child HIV transmission. However, breastfeeding is universal and replacement feed is considered not feasible because of cost and availability. For an HIV infected mother stopping breastfeeding altogether is the surest way of eliminating breastfeeding associated HIV infection. MOH/WHO is recommending informing HIV infected mothers to make informed decisions regarding breastfeeding. Guidelines and other tools have been developed for this purpose for resource poor settings

Aim

The aim of our study was to determine the effectiveness of intensive education and counseling of HIV infected women to stop breastfeeding early and abruptly.

Methods

This was part of a large clinical trial investigating the use of Post Exposure Prophylaxis for Infants to reduce HIV MTCT through breastfeeding. All HIV infected women who enrolled in the main study received counseling and education to stop breastfeeding at 6 months based on WHO/MOH guidelines. Women were continuously counseled to exclusively breastfeed and wean abruptly. They were instructed on food replacements, preparation and feeding practices. They were interviewed at each visit whether they actually decided to stop breastfeeding.

Data on various factors demographic, Socio economic and health status were collected through interviews using standard questionnaire to determine whether these factors were related with ability to stop breastfeeding early.

Results

1100 women had enrolled in the study, 800 of them had reached 6 months of follow up. Their mean age was 26.7 (18-44) years. More than 95% were married. Of the 800 mothers 81.1% weaned their babies abruptly at 6 months. Factors such as partner education, ability to read and history of involuntary weight loss were significantly associated with early breastfeeding cessation.

Conclusion

In this study, education and counseling of HIV infected women to stop breastfeeding early was effective. Implementation of early breastfeeding cessation programs must be considered.

DCON/06/53 - Complementary Feeding with Fortified Spread Reduces the Incidence of Severe Stunting among 6-18 Month Old Rural Malawian Infants

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Background

Childhood growth failure and incidence of malnutrition are very common in Malawi. Fortified spreads have proven effective in malnutrition rehabilitation and may also offer a means to prevention.

Objective

To compare growth and incidence of malnutrition among infants receiving long-term dietary complementation with either ready to use fortified spread (FS) or maize-soy flour (Likuni-Phala).

Methods

A randomised, controlled, single-blinded clinical trial. Six-month-old healthy infants were randomised to receive daily supplementation for 12 months of either 25g FS (FS25 group), 50g FS (FS 50), or 72g of LP (LP). All supplements were fortified with micronutrients. Daily dose for FS50 and LP contained 256 kcal energy, FS25 half of that. Outcome measures included changes in weight and length and incidence of severe malnutrition.

Results

182 infants started and 168 completed the intervention. The mean (SD) weight gain in the FS25, FS50 or LP groups were 2.36 (0.61), 2.45 (0.78), and 2.36 (0.60), respectively. Comparable mean (SD) gains in length were 13.0 (2.7), 13.0 (2.4), and 12.6 (1.7) cm. The incidence of severe underweight (WAZ<-3) was 18%, 19% and 15%, severe stunting (HAZ<-3) 3%, 0% and 12%, and severe wasting (WHZ<-3) 5%, 2% and 2%, in the FS25, FS50, and LP groups, respectively. Compared to infants receiving LP, those getting FS had a 12% (95% CI 4 to 20%) lower incidence of severe stunting.

Conclusions

One-year-long complementary feeding with FS has at maximum modest effect on the infants' average growth, but it seems to markedly decrease the incidence of severe stunting.

DCON/06/54 - Incidence and Serotype Distribution of Invasive Group B Streptococcal Infection in Infants in Blantyre, Malawi

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Objectives

To serologically characterize the Group B streptococci (GBS) collected from infants over a 14-month period in Queen Elizabeth Hospital, Blantyre, Malawi (QECH), to investigate the patient characteristics of disease from whom the GBS were isolated and to estimate the burden of invasive GBS in infants in Blantyre.

Materials And Methods

Over the period May 2004-June 2005, all Group B streptococci isolated from blood cultures and cerebrospinal fluids in Queen Elizabeth Central Hospital, Blantyre, Malawi were collected, serotyped and had antibiotic susceptibilities performed. Clinical data and outcome were collected retrospectively on infants with invasive disease. Rates of disease were estimated for Blantyre district.

Results

GBS were isolated from 57 infants. The overall incidence was 1.8 cases per 1000 live births; early-onset disease (0-

6 days after birth) was 0.92 per 1000 live births; and late-onset disease (7-90 days after birth) was 0.89 per 1000 live births. Disease presented as sepsis (44%), meningitis (37%), pneumonia (5%) and was uncertain in 14%. There was a high overall case-fatality rate of 35%. Serotypes Ia and III were responsible for 77% of disease with serotypes Ib, II and V making up the remainder. All isolates were susceptible to penicillin but 21% were resistant to erythromycin and 96% resistant to tetracycline.

Conclusions And Recommendations

This suggests that neonatal GBS disease in Malawi is similar to that in the developed world both in terms of the microbiology and disease presentation. The case-fatality is much higher suggesting that an intervention in this country could have a substantial impact on neonatal morbidity and mortality. Maternal vaccination in this setting merits further evaluation.

DCON/06/55 - Implementation of "One Stop Supermarket Approach" in Prevention Of Parents –to-child HIV Transmission in Thyolo District Hospital

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Objectives and Scope

The PMTCT program at Thyolo District Hospital has been implemented since 2002 in the context of an extremely high HIV seroprevalence (23%) in antenatal clinic (ANC) setting. The objective of this new strategy is to increase access to PMTCT services for positive pregnant mothers at Thyolo District Hospital.

Methodology

The study was conducted looking at data from August 2005 – July 2006. We compared the uptake of pregnant mothers for PMTCT services before and after the implementation of the "one stop supermarket approach".

All mothers received group motivation talks in the waiting area and are then offered HIV and syphilis testing and post test counseling, at the first contact.

All the services are integrated in the normal antenatal package. Opportunistic infection management, Cotrimoxazole prophylaxis and ART are offered to HIV+ mothers and the service is provided within the PMTCT infrastructure. The nutritional supplement (RUTF) is given to all HIV positive pregnant mothers and children during the post-natal period. This will help to improve the adherence to the program till 18 months.

Lessons learnt

With the current "One Stop Approach", the uptake of PMTCT services is high (up to 98% of new ante natal mothers). Before the uptake was on average 70%.

There is an excellent "patient flow circuit" not allowing queues and therefore minimum waiting time at all levels. Accelerated HIV testing and counseling along with NVP administration is done in the maternity unit and limits missed HIV-positive deliveries occurring in the labor ward. The staff (NGO and MOH) who were complaining before of overwork are now highly motivated and demonstrating good team spirit.

Conclusion

"One stop shop service" in a hospital setting seems to be a positive way forward to increase uptake in PMTCT programmes. The mothers receive the maximum package of activities on the same day of visit and at the same site and

by the same nurse.

Recommendations

The pregnant mothers offered “routine counseling and HIV testing” should always be aware of their right to “OPT-OUT”. All the positive mothers attending the Hospital based PMTCT program should have the option of continuing their care and possible initiation of ART at health centers that maybe closer to their home. The implementation of “one stop market” strategy should be extended to health centers where PMTCT is already run.

DCON/06/56 - Treatment Of Kaposi Sarcoma attending the Continuum of Care Clinic in Thyolo District Hospital

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Background

With HIV/AIDS epidemic KS incidence has arisen dramatically. KS generally regresses under ART and patients, who have a good prognosis, may benefit from ART alone.

Objectives

To document the characteristics and initial outcomes of HIV-patients on treatment for Kaposi sarcoma (KS), in a resource poor setting.

Method

Retrospective descriptive study using routine data. Inclusion - All patients with clinical diagnosis of KS receiving chemotherapy and/or HAART between 2003 until September 2007. Regular ART and chemotherapy outcomes were recorded.

Results

593 patients diagnosed and treated for KS. Mean age 33.7 years and male/female ratio 2/1. Ever stated ART 326/593 (54.9747%). <50 CD4 cells/mm³ 87, >50 <199 cells/mm³ 141, >200 < 499 cells/mm³ 76 and > 500 CD4 cells/mm³ 8. The mean CD4-count 132.1 cells/mm³. ACTG KS classification: T0S0 4/593 (0.67%), T0S1 7/593 (1.18%), T1S0 44/593 (7.42%), T1S1 155/593 (26.14%) and 383/593 (64.59%) not staged. WHO clinical staging: stage 4 226 and stage 3 60. ART regimen: 1st line ART 300/326 (90.03%), alternate 1st line 26/326 (7.97%). Chemotherapy (bleomycin): Ever started bleomycin 192/593 (32.38%, completed 10 cycles 49/192 (25.52%), completed 20 cycles 12/192 (6.25%). Treatment outcomes: Alive 206/326 (63.19%), death 74/326 (22.70%), defaulters (4.91%), stopped treatment 3/326 (0.92%) and transferred out 13/326 (3.99%). Side effects: Cutaneous hypersensitivity 1 and PSP 22.

Conclusions And Recommendations

KS represents a significant burden of disease in patients with advanced AIDS and their outcomes are poor than overall patient outcomes. However, all cases followed up showed a remarkable improvement of the lesions, oedema, lymph nodes and general condition.

DCON/06/57 - Conjugate Pneumococcal Vaccines as Secondary Prophylaxis in HIV-infected Adults

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Objective

To determine the efficacy of a seven valent pneumococcal conjugate vaccine (CPV) in Malawian adults to prevent recurrent invasive pneumococcal disease (IPD).

Background

IPD is a leading cause of ill-health globally in HIV-infected adults. Measures to reduce pneumococcal disease in this group are required. Pneumococcal plain polysaccharide vaccines are ineffective in HIV-infected Africans but the newer CPV's are untested in adults. A double blind randomised placebo-controlled trial was started in Blantyre in 2003 to evaluate this vaccine.

Methods

Adults, who have suffered an IPD event (pneumococcus cultured from blood culture, CSF or other sterile site) and are identified on the adult medical wards of the QECH, are invited to participate. Following informed consent participants receive two doses of either seven-valent CPV or saline placebo. Participants are then followed up every 3 months or when unwell for evaluation. The primary end-point of the study is vaccine serotype IPD. A secondary prophylaxis trial was chosen in order to minimise the size of the study – estimated sample size 420 person years of observation (c.f. primary prophylaxis study 3000 pyo).

Findings to date

As of end August the study has recruited 411 participants (87% HIV positive) and accumulated 409 pyo. There have been 56 IPD events in 42 individuals (first event rate 102/1000pyo, all HIV positive) of which 21 (38% of all IPD events) have been vaccine serotypes in 20 individuals. 102 (25% of total, rate 249/1000pyo) participants have died. The study has been recommended to continue by the data monitoring committee until October 2007 on the basis of lower than predicted numbers of primary end-points – a priori end point target was 42. Recruitment will continue until June 06.

DCON/06/58 - The Bangwe Project – The Impact of Antiretroviral Therapy

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Background

Careful assessment and follow up of patients receiving home based care in a defined population of Bangwe, Malawi provides details of the frequency and severity of common symptoms and survival. This information can be used to assess the impact of antiretroviral therapy.

Methods

Mortality and the incidence, duration and severity of common symptoms of patients in a defined population receiving home based care were measured over a 42 month period. Two cohorts were constructed from the data, one starting in January 2005 when ART became available, and the other preceding the advent of ART and used to provide “historical controls”.

Results

886 patients, of whom 446 died, were studied. A quarter of patients died within two months of being first seen. About a third of the patients were unable to care for themselves on first assessment and two thirds had stage 4 disease. Half (58%) were malnourished with a Body Mass Index (BMI) < 18.5kg/m². Most patients had a mixture of symptoms at presentation.

91 patients were on ART. There was no effect on the survival of the 2005-2006 cohort for whom ART was available compared to the 2003-2004 cohort.

Conclusions

The lack of impact of ART on survival could be due to either limited effectiveness of triple therapy in this group of patients with relatively advanced disease or due to those receiving ART having good survival in the early period after diagnosis even without ART. The impact of ART may take time to appear. This is of concern as first line ART has limited durability and Malawi may fail to benefit from the costly intervention.

DCON/06/59 - Isolation, Identification and Speciation of Mycobacterial Organisms Associated with Tuberculosis In HIV-infected and Uninfected Adult Patients

Adult Patients

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Objective

To isolate and characterize mycobacterial organisms associated with tuberculosis in cohorts of HIV-infected and uninfected adult patients at the QECH, Blantyre.

Methodology

Sputum specimens from index TB patients were subjected to mycobacteriology and culture. Blood samples from enrolled patients were also subjected to HIV serology using two spot tests and a tie-breaker as recommended by the National AIDS Commission.

Results

Sputum specimens from 136 patients were studied. 21 (15%) were acid-fast bacilli (AFB) positive but negative on culture and 18 (86%) patients in this group were HIV reactive. Of the 115 patients with smear and culture positive specimens, male (57) and female (58) were in equal proportions of 50% and 88 (76%) were HIV positive. Of the 155 mycobacterial isolates recovered from the participants, 94 (61%) grew on glycerol-based LJ slant, 57 (37%) on pyruvate-based slant while 40 (26%) of these numbers grew on both slants incubated at 36o -37oCelsius. Only 4 (2.5%) isolates suggestive of *Mycobacterium xenopi* grew on slants kept at 440C and all 4 patients were HIV positive. There is no significant difference between HIV positive patients which constitute 76% of the study population and produced 74% of the isolates and HIV negative patients (24%) producing 26% of the isolates. Serpentine cord formation, a cultural characteristic of *Mycobacterium tuberculosis* complex was detected in 66 (92%) of the 72 isolates examined so far.

Conclusion

This is an on-going study but preliminary results are pointing

to *M. tuberculosis* complex as the most preponderant mycobacterial organisms associated with both HIV positive and negative TB patients.

Detailed organism speciation by a combination of biochemical and PCR techniques including antibiotic sensitivities of *M. tuberculosis* isolates are yet to be carried out.

DCON/06/60- Where are Our Graduates?

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Objectives

To assess where the graduates of the College of Medicine are working and in what capacity.

Methods

Simple audit by obtaining information from graduates, classmates and College staff.

Results

Between 1992 and 2006, 232 students graduated (78% male) with a mean of 17 graduates per year. Of these 8 died and 18 are still completing their internship. The remaining 206 are working as follows: specialist [22 (11%)], post-graduate student [60 (29%)], PhD student [5 (2%)], medical officer [94 (46%)], administrator [14 (7%)]; not practising are 4 (2%) and for 7 it is unknown (3%). Currently in Malawi are 123 (60% of total); of these 48 work for the Government (MOH 45, NAC 3), 27 in the COM, 20 in mission hospitals and 11 in private practice. Currently abroad are 83 (40%); 55 are in post-graduate training. 40 (19% of total) are in the UK, 22 (11%) in the RSA and 8 (4%) in the USA; 24 are unlikely to return to Malawi.

Conclusion

The majority of COM graduates are in Malawi and practising. Of those abroad most are in postgraduate training and expected to return.

DCON/06/61 - Acceptance of Door-to-door Voluntary Counseling and Testing in Rural Malawi

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Objectives

To evaluate the acceptability of door-to-door voluntary counseling and testing (VCT) in rural Malawi and discuss its relevance for HIV research and HIV testing policy.

Methods

During June and July 2007, as part of the data collection for the fourth wave of the Malawi Diffusion and Ideational Change Project (MDICP), we conducted door-to-door voluntary counseling and testing of our random population-based sample of 3000 men, women and adolescents in the Balaka, Mchinji and Rumphi Districts of Malawi.

Results

Preliminary findings from two sites suggest that approximately 90% of persons in the sample approached for VCT agreed

to be tested with rapid tests in their homes. Of those tested, approximately 98% chose to receive their test results immediately. Qualitative interviews conducted with a subsample of those who accepted and refused an HIV test reveal that most individuals were comfortable with having an HIV test at their home. Those who refused an HIV test generally reported that they did not want an HIV test because they felt that they were not at risk for HIV or that they already had been tested for HIV in the near past.

Conclusions and Recommendations

Research projects that intend to measure HIV prevalence of populations or samples can learn from the high acceptance rates and demand for door-to-door rapid testing observed in this rural Malawian cohort. Additionally, while door-to-door VCT is not logistically feasible on a large-scale in resource-poor settings, the success of home-based rapid testing suggests that people want to be tested and that alternative provision of counseling and testing may increase its use. Mobile clinics have been popular in other rural sub-Saharan settings and may provide an environment that lessens logistical barriers and perceived confidentiality threats commonly associated with testing at clinics. This conclusion is consistent with the success of the July 2006 National Testing Week in Malawi and suggests that a move towards less rights-based policies such as routine testing in health centers may be premature.

DCON/06/62 - ABO Blood Group Phenotypes and Placental Malaria

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Objective

To assess the association between the ABO blood group (bgrp) phenotypes and the placental malaria (plmal) infection.

To investigate if pregnancy outcomes are associated with ABO bgrps.

Materials And Methods

The study was conducted between Feb - June 2004 and Jan - July 2005 at Montfort Hospital in Chikwawa - Malawi. A total of 647 women were enrolled. Maternal peripheral and cord blood samples were obtained after delivery. Using standard haematological methods the ABO bgrps were typed with commercial anti-serum reagents. Placenta tissues (1cm cubes) were obtained and fixed in 10% formalin, processed and were examined microscopically by three observers. Placental histology was classified according to Bulmer's classification of acute, chronic, past and no infection.

Results

The ABO phenotype distribution was 146 (A), 21(AB), 161(B) and 309(O). Of the 647 women, 206 (31.8%) were primigravid (PG) and 441(68.2%) were multigravid (MG). Overall, 235(36.4%) had plmal infection and 401(60%) had no infection and 11 had no data. 124(19.2%) had active

infection and 111(17.2%) had past infection. The risk of plmal infection was higher in PG: OR 2.15, 95% CI 1.53–3.01, $P < 0.001$. Blood group O was significantly associated to a higher risk of acute plmal in primiparae (PP) [OR 2.18, 95% CI 1.05–4.55, Chi-sq 5.17, $p = 0.02$] and to a lower risk in the multiparae (MP) [OR 0.59, 95% CI 0.35–1.00, Chi-sq 4.29, $p = 0.04$]. Babies of O group mothers in their first pregnancy have an increased risk of falciparum placental malaria. Mean birth weight was higher in mothers with than without blood group O, ($p = .05$), (O: 2808gms PP vs 3098gms MP, $p < 0.001$; non-O: 2828gms PP vs 3017gms MP, $p < 0.001$). Mean newborn ponderal index was higher in O bgrp MP ($p = 0.007$).

Conclusion And Recommendation

Blood group O is a risk factor for increased malaria risk in first pregnancies and reduced risk in later pregnancies in these Malawian women.

DCON/06/63 - Cryptosporidium in Paediatric Patients in Chikwawa and Blantyre Districts, Malawi

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Background

Cryptosporidiosis can be a severe, protracted and debilitating disease in the immunocompromised, and may lead to death due to the lack of current effective treatment. Risk factors and the epidemiology of disease must be understood to reduce exposure to infectious *Cryptosporidium* oocysts. This requires species identification as well as assessment of potential risk factors that lead to infection.

Objectives

To identify species of *Cryptosporidium* infecting children in both urban and rural Malawi, and to assess the potential sources of infection with a view to identifying suitable controls to reduce infection.

Methods

A hospital based study enrolled patients were enrolled from Queen Elizabeth Central Hospital under five OPD, Chikwawa District Hospital OPD/paediatrics/NRU and three remote health clinics in Chikwawa District. Stool samples procured from patients under the age of five years suffering from diarrhoea were examined using brightfield and epifluorescence microscopic methods in Malawi, with all putative positive samples subject to PCR-RFLP for species identification at the Scottish Parasite Diagnostic Laboratory (UK).

Positive cases in Chikwawa District were further included in a case control study to assess potential sources of infection. Data collected from each case and control included questionnaires, water samples, handwashing samples, animal stools, latrine surface swabs and stool samples from household members assessing 61 risk factors in total.

Results

Cryptosporidium spp. oocysts were seen in 5.9% (50 / 848) of samples, of which 43 amplified by PCR-RFLP indicating the following species: *C. hominis*, *C. parvum*, *C. hominis* /

C. parvum, *C. meleagridis* and *C. andersoni*. Seven samples could not be amplified by PCR. Seasonal variations were seen in disease prevalence, and age was a determining factor in contraction of infection. Wider species diversity was found in the rural setting. Risks were identified for all reported routes of *Cryptosporidium* transmission, namely person-to-person, waterborne, zoonotic and foodborne. The potential for faecal-oral transmission, zoonotic and water contamination were of particular interest.

Conclusions

Due to the significant health implications for the malnourished and immunocompromised from cryptosporidiosis, it is essential to develop, conduct and monitor suitable IEC materials to ensure community hygiene. This must include the participation of HSA's and VHC's if messages are to be effective and practices are to improve.

DCON/06/64 - HIV Point-prevalence amongst Malnourished Children admitted to Nutritional Rehabilitation Units in Malawi: Geographical & Seasonal Variations

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Background

HIV/AIDS and malnutrition are inextricably linked and together represent a serious humanitarian and public health challenge in Southern Africa. However, their treatment has remained largely separate, and seasonal and geographic variations in presentation are often ignored.

Objective

The aim of this study was to collect information to guide integrated, targeted care.

Methods

This was a cross-sectional study of 12 representative nutritional rehabilitation units (NRUs). During the dry (post harvest) and rainy (hungry) seasons, all severely malnourished children >15 months of age admitted to each NRU over a two week period were offered HIV counselling and testing.

Results:

568 children were eligible. 529 (93.1%) caretakers consented to HIV testing; 421 (74.1%) were themselves tested. Overall prevalence amongst children tested was 21.9% (95% confidence intervals, 18.4- 25.4%). Range between NRUs was 1.9%(CI 0-5.6%) to 55.6%(CI 23.1-88.1%).

Significant geographical prevalence variations reflected known adult prevalence patterns:

Southern region 38.8% (95% CI 31.7-45.9%); Central 6.6% (3.6-9.6%); Northern 22.5% (13.3-31.7%) [p<0.001]. There were significant differences between urban 34.8% (28.4-41.2%) versus rural settings 13.5% (9.8-17.2%) [p<0.001] and dry season admissions 30.1% (22.6-37.6%) versus rainy season admissions 18.9% (15.0-22.8%) [p=0.005].

Conclusions and Recommendations

There is a high prevalence of concurrent HIV infection in severely malnourished children. HIV testing is widely

acceptable in this population. There is a need and potential for increased integration of HIV and NRU services. NRUs could act as an entry point to antiretroviral and social welfare programmes. Wide geographical variations in HIV prevalence should be recognised to help explain malnutrition epidemiology and variations in NRU outcomes and this could help optimally target limited resources.

DCON/06/65 – Causes of Maternal Deaths in Mponda, Mangochi District

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Objective

To identify the causes of maternal deaths and possible avoidable factors contributing to maternal deaths in Mponda area in Mangochi in the year 2004 and 2005.

Study methods

This was a retrospective descriptive study of maternal deaths occurring in Mponda area between 2004 and 2005 using both qualitative and quantitative methods. The study was done in Mponda area which is within a radius of 30km from Mangochi district hospital. The catchment area of Mpondasi and Koche health centres which are CHAM facilities and Mangochi district hospital lie within this area.

Findings

20 maternal deaths (MDs) from Mponda were identified at the district hospital and 12 deaths (60%) were followed to the community and investigated. In addition, 23 other deaths were identified in the community making a total of 35 deaths investigated. 21 deaths occurred in 2004 and 14 deaths occurred in 2005. About 48.7% of the mothers were teenage mothers. 82% had less than 4 ANC visits. Cost sharing at CHAM health facility was reported as a reason for not attending ANC. The major contributing factors were delays both at the community and health facility level and lack of blood.

Conclusion

Many maternal deaths are due to avoidable factors that occur both at the community and health facility level. Most of these avoidable factors are not medical.

DCON/06/66 – Acceptability of Companionship During Childbirth Among Mothers and Midwives

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Objective

To study the acceptability of supportive companionship to women during childbirth by mothers, midwives and potential supportive companions

Study methods

This was a cross-sectional quantitative and qualitative study carried out in health facilities with maternity services, both government and private, in Blantyre City, Malawi

Results

220 mothers who had delivered normally prior to discharge from postnatal wards, 60 midwives working in the health facilities and 325 women from the community who had given birth before and had an interest in providing support

to fellow women during childbirth were interviewed. 83.6% of mothers, 75.5% of midwives and all potential companions wanted labouring women to have supportive companions for psychological, informational and physical support. Mothers and potential companions also thought these could conduct deliveries and protect mothers and babies while midwives wanted them to discipline uncooperative mothers. Some mothers had reservations thinking companions may lack expertise and professionalism, and feared embarrassment, spread of rumours and witchcraft. Some midwives thought that only they had expertise and that companions would make labouring women uncooperative, spread rumours, and increase possible litigation. Mothers preferred a mother, sister and grandmother while midwives preferred a husband, midwife and mother as a companion.

Conclusion

Supportive companionship for women during childbirth is a highly acceptable among mothers and midwives. There were misconceptions in the understanding of the role of a supportive companion for a woman during labour by mothers, midwives and potential companions. Someone known to the labouring woman is the most preferred for a companion during labour.

DCON/06/67 – Risk of Tuberculosis Infection Among Nursing Students

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Objective

To determine and quantify the excess prevalence of latent tuberculosis infection (LTBI) in nursing students compared to non-nursing students in order to ascertain whether nosocomial TB transmission is a risk factor for LTBI.

Study methods

This was an unmatched case control study carried out at Kamuzu College of Nursing (Queen Elizabeth Central Hospital), Malawi College of Health Sciences (MCHS), Blantyre Business College (BBC), Blantyre School of Business Studies (BSBS) and Skyway Business College (SBC).

Results

85 nursing students at the KCN and MCHS and 84 non-nursing students at the BBC, BSBS and SBC, 18 years and above with a BCG vaccination but no history of active TB disease participated in the study. There was a significant excess of tuberculin (TST) positivity in nursing students (80% vs. 42%) ($p < 0.001$), and a highly significant tendency to strongly positive TSTs among the nursing students ($p < 0.001$). TST size had a positive linear relationship with the number of weeks spent taking care of TB patients ($p = 0.049$).

Conclusion

This study has demonstrated that there is an excess of LTBI among nursing students compared to non-nursing students. The evidence suggests a need for further investigations of TB transmission among HCWs in low-income settings and to establish effective methods of infection control.

DCON/06/68 – Assessment of Palliative Care Services for Cancer Patients at QECH

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Objective

To assess the need for palliative care services for adult cancer patients receiving surgical services at Queen Elizabeth Central Hospital (QECH).

Study methods

This study utilized a qualitative design. In-depth interviews were conducted with adult cancer patients, guardians and health professionals at QECH in Blantyre. The specific sites were the adult surgical wards and outpatient clinics.

Results

Fourteen patients, 12 guardians and 8 health professionals participated in the study. The study revealed that the articulated needs of cancer patients include need for more knowledge about their illness, counseling, pain and symptom control and financial assistance for basic needs. Guardians' needs were mainly psychosocial. Due to time constraints and poor staffing, health professionals are unable to provide psychological and spiritual support. Though health workers seek to meet the physical need of these patients, they are unable to adequately control pain.

Conclusion

Most of the palliative care needs of cancer patients are unmet. The current staffing, time constraints, limited treatment options and lack of palliative care skills are the barriers to good PC highlighted by health workers at QECH.

DCON/06/69 – Causes of Maternal Deaths in Mponda, Mangochi District

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Objective

To explore the perceptions and attitudes of PLWA towards HIV partner notification

Study methods

This was a cross-sectional study that utilized a semi-structured questionnaire administered to HIV infected persons living in Bangwe, a township in Blantyre, and participating in a home based care program run by the College of Medicine.

Results

A random sample of 75 HIV positive people was interviewed. More females (49) than males were represented in the sample. The mean age was 35.7 years (SD 9.6). Overall, 59% of the respondents perceived partner notification as necessary. 95% of participants indicated that they would be willing to participate in a partner notification program as long as it was confidential and voluntary. Provider-referral was the preferred method of partner notification. The major barrier to patient-led notification was fear of discrimination and stigma. Other barriers were fear of losing respect, shyness, fear of being abandoned, divorce and termination of a relationship.

Conclusion

This study has finds that partner notification is considered by many PLWHA an appropriate strategy to assist HIV prevention and control.