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# Children and Medicines Use in Uganda



## National Research Dissemination Meeting

By

Child Health and Development Centre  
Makerere College of Health Science

&

Faculty of Medical and Health Sciences  
University of Copenhagen

17th October 2014

Venue: Hotel Africana, Kampala

**Sponsored by the Danish Ministry of Foreign Affairs Danida,  
Project number 09-100KU.**

## Children and Medicine Use in Uganda

Meeting Friday 17 October 2014

Venue HOTEL AFRICANA, KAMPALA

### PROGRAMME

8:00-9:00	Arrival and Registration	Ms. Margret Nakuya
9:00-10.00	<b>Session 1: Opening</b>	
9.00-9.05	Welcome –Master of Ceremony	Dr. David Kyaddondo
	Introduction and Objectives Coordinator (UG) ChildMed Project	Dr. Jessica Jitta
9:05-9:10	Remarks Director Child Health & Development Centre	Dr. Herbert Muyinda
9:10-9:15	Remarks Coordinator (Denmark) ChildMed Project	Prof Ebba Holme Hansen, University of Copenhagen
9:15-9:25	Remarks Principal MakCHS and Chair Advisory Board ChildMed Project	Dr. Isaac Okullo Ag Principal MakCHS
9.25-9.30	Remarks by DANIDA Representative Uganda	DANIDA (UG)
9.30 -9.35	Remarks Director General Health Services, MOH	Dr. Jane Ruth Aceng
9.35-10.00	Guest of Honour, Minister of Health, Uganda	Minister of Health
10:00-10:40	<b>Session 2:Acute Respiratory Infections and Asthma</b>	<b>Chair: Prof. James Tumwine</b>
10.00-10.10	Clinical outcomes of children with acute asthma and pneumonia in Mulago Hospital, Uganda: a prospective study	Dr. Rebecca Nantanda

10.10- 10.20	Inhaled corticosteroids reduce ARI case fatality in Ugandan children U5 years: a randomized controlled trial	Prof. Grace Ndeezi
10.20-10.30	Presentation of policy brief	Prof. Grace Ndeezi
10.30-10.40	Discussion	
10:40-11:00	TEA/COFFEE BREAK	
11:00-11:30	<b>Session 3:Quality medicine use for children with epilepsy</b>	<b>Chair: Prof. Ogwal Okeng</b>
11.00-11.10	Multiple Anti-epileptic drug therapy in childhood epilepsy	Dr. Rita Atugonza
11.10-11.20	Social Support, self-esteem and adherence to medication for epilepsy among children	Ms. Suzan Akwii
11.20-11:30	Presentation of Policy Brief	Dr. Rita Atugonza
11.30- 11.40	Discussion	
11.40-12.30	<b>Session 4: Social and communication aspects of paediatric ART in Uganda</b>	<b>Chair: Prof. Susan Whyte</b>
11.40-11.50	HIV + children-caregiver communication and children's knowledge of their medicines: a cross sectional study in Jinja District, Uganda	Ms. Phoebe Kajubi
11.50-12.00	Social support for refugee children on ART in Kyaka II Refugee Settlement, Kyegegwa District, Uganda	Ms. Yusrah Nagujja
12.00- 12.10	Presentation Policy Brief	Ms. Phoebe Kajubi
12.10-12.20	Discussion	
12.30-2:00	LUNCH BREAK and Poster Viewing	All

<b>2.00-2:40</b>	<b>Session 5:Schistosomiasis in pre and school children: Treatment adherence and reduction in morbidity</b>	<b>Chair : Dr. Edridah Muheki Tukahebwa</b>
<b>2.00- 2.10</b>	Effectiveness of a pre-treatment snack on uptake of mass treatment for schistosomiasis in Uganda: cluster randomized trial	Dr. Simon Muhumuza
<b>2.10-2.20</b>	Intestinal schistosomiasis related morbidity and effect on praziquantel on morbidity in pre-school children along Lake Victoria shoreline, Uganda	Dr. Allen Nalugwa
<b>2.20-2.40</b>	Presentation Policy Briefs	Dr. Simon Muhumuza Dr. Allen Nalugwa
<b>2.40-3.00</b>	Discussion	
<b>3.00-3.50</b>	<b>Session 6: Policy and medicine use in children</b>	<b>Chair: Prof. Ebba Hansen</b>
<b>3.00-3.10</b>	Factors affecting child caretaker knowledge on administering medicine for malaria in U5 in Public Health Facilities in KCCA	Julius Ssentongo
<b>3.10-3.20</b>	"Child Size Medicines" Concept: Policy provisions in Uganda	Xavier Nsabagasani
<b>3.20-3.30</b>	Policy Brief	Xavier Nsabagasani
<b>3.30-3.50</b>	Discussions	
<b>4.00- 4.30</b>	<b>Session 7: Closing Session</b>	<b>Chair Prof Annette Olsen</b>
	Guest of Honour, Vice	Chancellor, Makerere University
<b>5:30</b>	<b>COCKTAIL</b>	

## **SUMMARY: CHILDREN AND MEDICINE USE IN UGANDA NATIONAL DISSEMINATION MEETING**

**17 OCTOBER 2014**

The Child Health and Development Centre of the College of Health Sciences Makerere University in collaboration with the University of Copenhagen have organized this national dissemination meeting to share key findings and important policy implications from their 5-year (2010-2014) research work on improving quality use of medicines in children in Uganda. This area of research was selected on the premise that medicine use is core to providing quality health care to children in the country. The information that was gathered through research and training at Masters, PhDs and Post Doctorate levels at Makerere University, assumed that appropriate and effective medicinal treatment depends on: coherency of policies relevant to children's medicine use; accurate diagnostic procedures; availability and adequate use of appropriate medicines; and effective communication of perceptions and knowledge.

The multidisciplinary project was implemented by the Child Health and Development Centre of the College of Health Sciences, Makerere University, in collaboration with the Faculty of Health and Medical Sciences of the University of Copenhagen. Scholars were recruited widely from Makerere University including the School of Medicine (Paediatrics), School of Public Health (Health Policy), School of Psychology (Clinical Psychology) and College of Humanities and Social Sciences (Social Work and Social Administration).

By the end of 2014, the project will have completed 4 PhDs and 4 Masters Degrees from Makerere University and 2 Post doctorates, working on cross-cutting issues of children's medicines (policies, diagnosis, medicines and communication). Specific areas of study have included acute respiratory infections (pneumonia and asthma), HIV/AIDS, epilepsy, neglected diseases (Schistosomiasis) and relevant policies.

This project has been generously supported by the Danish Ministry of Foreign Affairs Danida, Project number 09-100KU.

## ORAL PRESENTATION ABSTRACTS

### Abstract 1:

#### CLINICAL OUTCOMES OF CHILDREN WITH ACUTE ASTHMA AND PNEUMONIA IN MULAGO HOSPITAL, UGANDA: A PROSPECTIVE STUDY

\* Rebecca Nantanda<sup>1,3</sup>, Marianne S Ostergaard<sup>2</sup>, Grace Ndeezi<sup>3</sup>, James K Tumwine<sup>3</sup>

1. Child Health and Development Centre, College of Health Sciences Makerere University, Kampala Uganda
2. The Research Unit for General Practice and Section of General Practice, Department of Public Health, University of Copenhagen, Copenhagen, Denmark
3. Department of Paediatrics and Child Health, College of Health Sciences Makerere University, Kampala Uganda

\*Corresponding author: [rnantanda@gmail.com](mailto:rnantanda@gmail.com) +256 777723332

**Background:** Little attention has been paid to asthma in 'under-fives' in Sub-Saharan Africa. Acute asthma and pneumonia have similar clinical presentation and most children with acute respiratory symptoms are diagnosed with pneumonia according to the WHO criteria. The mortality associated with acute respiratory diseases in Uganda is high but improving, dropping from 24% in 2004 to 11.9% in 2012. We describe the immediate clinical outcomes of children with acute asthma and pneumonia and document the factors associated with prolonged hospitalization and mortality.

**Methods:** We enrolled 614 children aged 2 to 59 months with acute respiratory symptoms presenting at the emergency paediatric unit of Mulago hospital. Clinical histories, physical examination, blood and radiological tests were done. Hospitalised children were monitored every 12 hours for a maximum of 7 days. Survival analysis was done to compare outcome of children with asthma and pneumonia. Cox regression analysis was done to determine factors associated with prolonged hospitalization and mortality.

**Results:** Overall mortality was 3.6%. The highest case fatality was due to *pneumocystis jirovecii* pneumonia (2/4) and pulmonary tuberculosis (2/7). None of the children with asthma syndrome died. Factors independently associated with mortality included hypoxemia (HR=10.7, 95% CI 1.4- 81.1) and severe malnutrition (HR=5.7, 95% CI 2.1- 15.8). Factors independently associated with prolonged hospitalization among children with asthma syndrome included age less than 12 months (RR= 1.2, 95% CI 1.0-1.4), hypoxemia (RR=1.4, 95% CI 1.2-1.7), and severe malnutrition (RR=1.5 95% CI 1.3-1.8). Similar factors were associated with prolonged hospitalization among those with pneumonia.

**Conclusion:** This study identified a sharp decline in acute respiratory mortality compared to the previous studies in Mulago hospital. This may be related to focus on and treatment of asthma in this study. Bacterial pneumonia is still associated with high case fatality. Hypoxemia, severe malnutrition, lack of exclusive breastfeeding and being an infant were associated with poor prognosis among children with acute asthma and pneumonia and need to be addressed in the management protocols.

*Key words: asthma, pneumonia, 'under-fives', duration of hospitalization, mortality.*

## Abstract 2:

### INHALED CORTICOSTEROIDS REDUCE ARI CASE FATALITY IN UGANDAN CHILDREN UNDER- FIVE YEARS OF AGE: A RANDOMIZED CONTROLLED TRIAL

\*Grace Ndeez<sup>1</sup>j, James K Tumwine<sup>1</sup>, Marianne S Østergaard<sup>2</sup>

1. Department of Paediatrics and Child Health, Makerere University College of Health Sciences, Uganda
2. Department of General Practice, University of Copenhagen, Denmark

\*Corresponding author: [gracendeezi@yahoo.com](mailto:gracendeezi@yahoo.com) +256 772453191

**Introduction:** Acute lower respiratory infections (ALRI) are the leading cause of mortality among children under 5 years of age globally. In low income countries children with cough and difficult breathing are assumed to have bacterial pneumonia and are treated with antibiotics (WHO). Although ICS is a well recognized treatment for asthma this study examined their use in children U-5 with ARI, based on the hypothesis that 50% may have asthma/wheeze based on current literature.

**Objectives:** To determine the supplementary effect of inhaled corticosteroids (ICS) on ALRI case fatality.

**Methods:** Children aged 2-59 months admitted at Mulago hospital with severe ALRI were randomized to inhaled fluticasone or placebo, in addition to standard treatment. Inhaled fluticasone was administered in a dose of 500mcg 12 hourly for 5 days or earlier if the patient was well enough to be discharged. The main outcomes were ALRI associated case fatality, duration of

hospitalization, time to normalization of respiratory rate and oxygen saturation.

**Results:** Of the 1010 children enrolled in the study, 502(49.7%) received the intervention while 508 (50.3%) received the placebo. There were no significant differences in the baseline characteristics of the two groups. Overall 10 out of 1010 children (1.0%) died, 1/502 (0.2%) in the intervention compared to 9/508 (1.8%) in the placebo group. This difference was statistically significant, P=0.01 (Log Rank test). There was no significant difference in time to normalization of respiratory rate, oxygen saturation and the duration of hospitalization. There were no adverse effects observed.

**Discussion and Conclusion:** ALRI case fatality was lower in the intervention compared to the placebo group. Side effects of ICS were not registered, not even in the children with bacterial pneumonia. The findings suggest that ICS could reduce case fatality in children with severe ALRI in low income countries. Further studies are needed.

*Key words: inhaled corticosteroids, 'under-fives', acute respiratory infections*

### Abstract 3:

#### MULTIPLE ANTI-EPILEPTIC DRUG THERAPY IN CHILDHOOD EPILEPSY: THE PREVALENCE AND ASSOCIATED FACTORS

\*Rita Atugonza<sup>1</sup>, Angelina Kakooza-Mwesige<sup>1</sup>, Richard Idro<sup>1</sup>

1. Department of Paediatrics and Child Health, School of Medicine, Makerere University, College of Health Sciences, Kampala, Uganda.

\*Corresponding author: [atugonzarita@gmail.com](mailto:atugonzarita@gmail.com); 0776-180360

**Background:** 20-40% of children with epilepsy may require multiple anti-epileptic drugs (AEDs) to attain seizure control. Multiple AEDs are associated with poorer adherence, more adverse events, drug interactions and higher costs. This study set out to determine the proportion of children using multiple AEDs, the factors associated with their use and seizure control in a referral paediatric neurology clinic.

**Methods:** One hundred and thirty nine children on treatment for at least six months were consecutively enrolled into a cross sectional study between July-December 2013. History was obtained, physical examinations performed and serum levels of AEDs measured. The proportion of children on multiple AEDs was determined and logistic

regression analysis done to determine associated factors.

**Results:** Forty five (32.4%) children were on multiple AEDs. Factors associated with multiple AEDs included; poor seizure control (OR<sup>a</sup> 3.93, 95% CI 1.66 – 9.31) and the presence of a neurological deficit (OR<sup>a</sup> 3.86, 95% CI 1.31 – 11.48). Children using Sodium Valproate were less likely to be on multiple AEDs (OR<sup>a</sup> 0.28 95% CI 0.11 – 0.71). More children on multiple AEDs (71.1%) had poor seizure control.

**Conclusion:** Poor seizure control was still persistent in the majority of patients. These findings merit the study of adjunctive interventions that may improve the quality of our patients' lives.

*Key words: epilepsy, children, drugs, treatment*



#### Abstract 4:

### SOCIAL SUPPORT, SELF-ESTEEM AND ADHERENCE TO MEDICATION FOR EPILEPSY AMONG CHILDREN

\*Suzan Akwii<sup>1</sup>, Anne Katahoire<sup>2</sup>, Ebba Holme Hansen<sup>3</sup>, Paul Bangirina<sup>1</sup>

1. Department of Mental Health and Community Psychology, School of Psychology, Makerere University College of Humanities and Social Sciences

2. Child Health and Development Centre, College of Health Sciences Makerere University, Kampala Uganda

3. Department of Pharmacy, Faculty of Health and Medical Sciences, Section for Social and Clinical Pharmacy, University of Copenhagen, Denmark

\*Corresponding author: [suzanakwi2010@gmail.com](mailto:suzanakwi2010@gmail.com) +256 0779-063874

**Introduction:** Epilepsy is one of the world's oldest health conditions and is recognized by the WHO and its partners as a major public health concern with prevalence rates ranging from 2.2-58 per 1000 in the African region, especially among children with about 30% occurrences. Social support and self esteem are important factors in recovery, injury and health maintenance because it influences the ability to adjust to and live with the illness. The purpose of this study was to investigate the effect of social support and self esteem on adherence to medication for epilepsy among children.

**Methods:** A cross-sectional study was carried out. A total of 237 children of ages 7-17 years diagnosed with epilepsy and had been on Anti Epilepsy Drug (AED) therapy for a period of at least 6 months and living in a radius of 40km from Kampala were included in the study. The effect of social support and self esteem on adherence to medication was analyzed using

linear regression controlling for child's education and number of medications.

**Results:** Half the sample (52.3 %) was adhering to their medication. Sex, age, type of epilepsy or medication schedule did not in any way influence their adherence to medication but ability to attend school and number of medications given to the child was found to influence adherence to medication among children with epilepsy. In linear regression model, social support was found to be a predictor of adherence ( $r=0.206$ , 95% CI=0.162-0.695,  $p = 0.002$ ) whereas self esteem was not ( $r= 0.003$ ; 95% CI=-0.595-0.628,  $p = 0.958$ ).

**Conclusion:** Social support is associated with adherence to AED therapy in Ugandan children aged 7 to 17 years. It is therefore vital that social support is accorded to children with epilepsy as this will act to improve on their adherence to prescribed AED.

*Key words: epilepsy, adherence, social support, self esteem, children*

**Abstract 5:**

**HIV+CHILDREN-CAREGIVER COMMUNICATION AND CHILDREN'S KNOWLEDGE OF THEIR MEDICINES: A CROSS SECTIONAL STUDY IN JINJA DISTRICT, UGANDA.**

\*Phoebe Kajubi<sup>1</sup>, Susan Whyte<sup>2</sup>, Simon Muhumuza<sup>1</sup>, David Kyaddondo<sup>1</sup>, Anne R.Katahoire<sup>1</sup>

1. Makerere University, School of Medicine, Child Health and Development Centre, Kampala, Uganda
2. Department of Anthropology, University of Copenhagen, Denmark.

\*Corresponding author: [phoebekajubi@yahoo.com](mailto:phoebekajubi@yahoo.com) +256 772485815

**Background:** HIV-infected children's knowledge of ART is partly dependent on open communication with their caregivers about their health and medicines. However, studies suggest that communication between HIV + children and caregivers is constrained and knowledge of ART among children on treatment in low-income countries is low. We assessed reported frequency and content of communication regarding children's medicines and their knowledge of what the medicines were for.

**Methods:** We undertook a cross-sectional survey of 394 HIV+ children aged 8-17 years on ART and their caregivers at 9 health facilities in Jinja District, Uganda between September and December 2011. Logistic regression analysis was used to determine the factors associated with communication and children's knowledge of ART.

**Results:** Majority of the children (55.3 %) and caregivers (80.9 %) were female. Although 79.6% of the caregivers reported that they explained the medicines to the children, only 50.8% knew that they were taking medicines for HIV. Communication between caregivers and the children about ART in the preceding month was less likely among children aged 15-17 years (OR 0.5, 95% CI 0.3-0.7, p=0.002). Older children aged were more likely to know they were taking medicines for HIV. The most mentioned topic of discussion between children and caregivers was "the time to take medicines."

**Conclusions:** Although reported communication by caregivers is high, knowledge of ART is low. There is need for age-sensitive guidelines to support caregivers communicate diagnosis and treatment to Infected children.

*Key words: HIV-infected children, antiretroviral therapy, HIV disclosure, therapeutic communication, Uganda*

## Abstract 6:

### SOCIAL SUPPORT FOR REFUGEE CHILDREN ON ANTI RETROVIRAL THERAPY IN KYAKA II REFUGEE SETTLEMENT, KYEGEGWA DISTRICT, UGANDA

\*Yusrah Nagujja<sup>1</sup>, David Kyaddondo<sup>2</sup>, Susan R. Whyte<sup>2</sup>

<sup>1</sup> Makerere University School of Social Sciences, Kampala, Uganda

<sup>2</sup> Department of Social Work and Social Administration, Makerere University College of Humanities and Social Sciences, Kampala, Uganda

<sup>3</sup> Department of Anthropology, University of Copenhagen, Denmark

\*Corresponding author: [nyusrah@yahoo.com](mailto:nyusrah@yahoo.com) +256 752260573

**Background:** Social support is associated with achieving access and adherence to antiretroviral therapy (ART). The Refugee Act of Uganda (2006) provides for social and health integration of refugees into communities and national health systems. This study provides information on nature and sources of support for refugee children on ART, useful for policy and practice on managing paediatric ART care and support programs in refugee populations, in line with the integration policy.

**Methodology:** It was a comparative exploratory study. Using participant observation, focus group discussions and in-depth interviews, twenty six children below 18 years, both Ugandan and Congolese on ART were studied. Data was analyzed manually and grouped into emerging themes.

**Results:** In the absence of traditional support systems like family, refugees rely on support from friends, neighbours, churches, health care workers and humanitarian organizations. Extended family was a more critical source of support for Ugandans. There were more

refugee children dropping out and not adhering to ART due to inadequate material, instrumental and information support. Barriers to support for refugee children were low knowledge of HIV/AIDS, poverty, and high levels of mobility. Barriers to accessing support for Ugandan children were long distances to the treatment facility, perceived and actual discrimination within the community and health centre.

**Conclusion and recommendations:** The support systems are under skilled, inadequately resourced, and not well motivated to provide adequate support, which has affected children's access and adherence to ART. Key actors should be trained to identify and respond to information and psychological needs of the children as well as be financially empowered and facilitated to offer support. The ART clinic could consider using a home-based nursing intervention to improve ART adherence. Humanitarian organizations should integrate Ugandan children as well in their services so as to maximize benefits of ART for them.

*Key words: social support, refugee children, antiretroviral therapy, kyaka settlement*

## Abstract 7:

### EFFECTIVENESS OF A PRE-TREATMENT SNACK ON THE UPTAKE OF MASS TREATMENT FOR SCHISTOSOMIASIS IN UGANDA: A CLUSTER RANDOMIZED TRIAL.

\*Simon Muhumuza<sup>1</sup>, Annette Olsen<sup>2</sup>, Anne Katahoire<sup>1</sup>, Agnes N. Kiragga<sup>3</sup>, Fred Nuwaha<sup>4</sup>

3. Makerere University, School of Medicine, Child Health and Development Centre, Kampala, Uganda
4. University of Copenhagen, Faculty of Health and Medical Sciences, Section for Parasitology, Health and Development, , Copenhagen, Denmark
5. Infectious Diseases Institute, College of Health Sciences, Makerere University Kampala
6. Makerere University, School of Public Health, Kampala Uganda

\*Corresponding author: Simon Muhumuza: [simonmhmz@yahoo.com](mailto:simonmhmz@yahoo.com) +256 758712026

**Background:** School-based mass treatment with praziquantel is the cornerstone for schistosomiasis control in school-aged children. However, uptake of treatment among school-age children in Uganda is low in some areas. The objective of the study was to examine the effectiveness of a pre-treatment snack on uptake of mass treatment.

In a cluster randomized trial carried out in Jinja district, Uganda, 12 primary schools were randomized into two groups; one received education messages for schistosomiasis prevention for two months prior to mass treatment, while the other, in addition to the education messages, received a pre-treatment snack shortly before mass treatment. Four weeks after mass treatment, uptake of praziquantel was assessed among a random sample of 595 children in the snack schools and 689 children in the non-snack schools as the primary outcome. The occurrence of side effects and the prevalence and mean intensity of *Schistosoma mansoni* infection were determined as the secondary outcomes.

Uptake of praziquantel was higher in the snack schools 93.9% (95% CI 91.7%-95.7%) compared to that in the non-snack schools 78.7% (95% CI: 75.4%-81.7%) (p=0.002). The occurrence of side-effects was lower in the snack schools 34.4% (95% CI: 31.5-39.8%) compared to that in the non-snack schools 46.9% (95% CI: 42.2%-50.7%) (p=0.041). Prevalence and mean intensity of *S. mansoni* infection was lower in the snack schools 1.3% (95% CI 0.6%-2.6%) and 38.3 eggs per gram of stool (epg) (95% CI 21.8-67.2) compared to that in the non-snack schools 14.1% (95% CI 11.6%-16.9%) (p=0.001) and 78.4 epg (95% CI 60.6-101.5) (p=0.001) respectively.

**Conclusions:** Our results suggest that provision of a pre-treatment snack combined with education messages achieves a higher uptake compared to the education messages alone. The use a pre-treatment snack was associated with reduced side effects as well as decreased prevalence and intensity of *S. mansoni* infection.

*Key words:* Pre-treatment snack, uptake of praziquantel, school children, Uganda

**ClinicalTrials.gov Identifier:** NCT 01869465.

## Abstract 8:

### INTESTINAL SCHISTOSOMIASIS, RELATED MORBIDITY AND EFFECT OF PRAZIQUANTEL ON MORBIDITY IN PRESCHOOL CHILDREN ALONG LAKE VICTORIA SHORELINE - UGANDA

\*Allen Nalugwa<sup>1</sup>, Fred Nuwaha<sup>2</sup>, Edridah Tukahebwa<sup>3</sup> and Annette Olsen<sup>4</sup>

<sup>1</sup>Child Health and Development Centre, Makerere University College of Health Sciences, Kampala Uganda

<sup>2</sup>Disease Control and Prevention, Makerere University College of Health Sciences, Kampala Uganda,

<sup>3</sup>Vector Control Division, Ministry of Health, Kampala Uganda

<sup>4</sup>Department of Veterinary Disease Biology, University of Copenhagen, Denmark

\*Correspondence author: [analugwa@chdc.mak.ac.ug](mailto:analugwa@chdc.mak.ac.ug) +256772456429

**Background:** Schistosomiasis affects millions of people and accounts for more than 40% of the global health burden due to neglected tropical diseases. *In Uganda*, about 55% of the population are at risk of infection with intestinal schistosomiasis but information on the status and burden of schistosomiasis in preschool children is scanty. We report intestinal schistosomiasis among children aged 1-5 years and the effect of treatment on the related morbidity along Lake Victoria shoreline.

**Major Findings:** Of the enrolled 3058 children, 39.3% were infected with *Schistosoma mansoni* and 27.8% found with the related morbidity. Organ enlargement was significantly ( $p=0.004$ ) related to *S. mansoni* infection intensity and it increased with increase in age. Liver fibrosis, a late symptom of *S. mansoni* disease was detected in the children. Both infection intensity and the related morbidity reduced promptly after treatment with praziquantel. Liver morbidity was significantly ( $p=0.004$ ) reduced with two praziquantel doses than with a single dose ( $p=0.48$ ).

**Conclusion:** Preschool children are at high risk of schistosomiasis infection. *S. mansoni*-related morbidity can occur by the age of five years and treatment with praziquantel reduces infection as well as the related morbidity in these children.

**Recommendation:** Include Preschool Children in the National Schistosomiasis Control Programs to avoid complicated disease. With high risk of infection in children aged 1-5 years it is important that health education on transmission of schistosomiasis is delivered to the endemic communities regularly. With apparent development of schistosomiasis related morbidity, this age group should be included in the national schistosomiasis control programs. Although the solid praziquantel dosage works well in reducing schistosomiasis infection and related disease, there is need for a paediatric formulation to be introduced for mass treatment of preschool children. Improved health education and early treatment are likely to prevent disease in adulthood.

*Key words: Intestinal schistosomiasis; morbidity; praziquantel; preschool children; Uganda*

## Abstract 9:

### FACTORS AFFECTING CHILD CARETAKER KNOWLEDGE ON ADMINISTERING MEDICINES FOR TREATING UNCOMPLICATED MALARIA AND NON-SEVERE PNEUMONIA AMONG CHILDREN BELOW 5 YEARS AT LOWER PUBLIC HEALTH FACILITIES UNDER KAMPALA CAPITAL CITY AUTHORITY

\*Julius Ssentongo<sup>1</sup>, Freddie Ssengooba<sup>2</sup>, Vincent Kawooya<sup>2</sup>, Jasper Ogwal-Okeng<sup>3</sup>

<sup>1</sup> Makerere University School of Public Health, Kampala, Uganda

<sup>2</sup> Department of Health Policy Planning and Management, Makerere University College of Health Sciences, Kampala, Uganda

<sup>3</sup> Department of Pharmacology and Therapeutics, Makerere University College of Health Sciences, Kampala, Uganda

\*Corresponding author: [ssentongojulius@yahoo.com](mailto:ssentongojulius@yahoo.com) +256 773 964341

**Background:** In 2011, an estimated 7.6 million children under the age of 5 years died globally (Lozano et al., 2011). In Uganda, 32% of childhood mortality is due to malaria (MoH, 2010) and another 17–26% attributed to pneumonia (Black et al., 2003), conditions which are treatable with existing medicines. Our study assessed caretaker knowledge on administering children medicines for treating uncomplicated malaria and non-severe pneumonia among children below 5 years attending lower public health facilities under Kampala Capital City Authority (KCCA) so as to reduce childhood morbidity and mortality.

**Methodology:** A cross sectional study was conducted at 8 KCCA clinics. The study population comprised of caretakers of children below 5 years of age who had received medical treatment for uncomplicated malaria and/or non-severe pneumonia and health workers who had been involved in prescribing and dispensing

medicines to the sick children. Data was collected using structured questionnaires and a checklist. Analysis was done using STATA 10.0 and Microsoft Office Excel 2007.

**Results:** Overall, caretaker knowledge on the dispensed medicines was low. Caretakers had limited recall of duration of the treatment; however, they had good recall of the reason for receiving the medicine, correct dosage and frequency. The factors that were associated with caretaker knowledge on the dispensed medicines were caretaker age, level of education and level of health facility attended.

#### **Conclusion and recommendations**

Child caretaker knowledge on administering medicines to children is still very low. There is a need to strengthen caretaker recall of instructions on how to administer medicines to sick children.

*Key words: medicines, uncomplicated malaria, non-severe pneumonia, public health facilities, Knowledge*

## Abstract 10:

### TRANSITION OR STAGNATION? DILEMMAS AND CONTRADICTIONS IN THE NEED TO PROVIDE 'CHILD-APPROPRIATE' DOSAGE FORMULATIONS IN UGANDA

\*Xavier Nsabagasani<sup>1</sup>, Ebba Holme Hansen<sup>2</sup>, Anthony Mbonye<sup>3, 4, 5</sup>, Freddie Ssenooba<sup>5</sup>, Herbert Muyinda<sup>1</sup>, James Mugisha<sup>1</sup> and Jasper Ogwal Okeng<sup>2</sup>

1. Child Health and Development Center, College of Health Sciences, Makerere University Email: [hmyinda@chdc.ac.ug](mailto:hmyinda@chdc.ac.ug); [jmmugi77@hotmail.com](mailto:jmmugi77@hotmail.com)
2. Department of Pharmacy, Section for Social and Clinical Pharmacy University of Copenhagen, Faculty of Health and Medical Sciences, Universitetsparken 2, DK-2100 Copenhagen, Denmark. Email: [ebba.holme@sund.ku.dk](mailto:ebba.holme@sund.ku.dk)
3. Department of Community Health, Ministry of Health Uganda, [akmbonye@yahoo.com](mailto:akmbonye@yahoo.com)
4. Department of Health, Uganda Christian University
5. School of Public Health, College of Health Sciences, Makerere University, [Sengooba@musph.ac.ug](mailto:Sengooba@musph.ac.ug)
6. Department of Pharmacology and Therapeutics, Gulu University, Email: [jogwal.okeng@gmail.com](mailto:jogwal.okeng@gmail.com)

\* Corresponding author: Xavier Nsabagasani: [dianatim2001@yahoo.co.uk](mailto:dianatim2001@yahoo.co.uk)

**Background:** The World Health Organization recommended 'child-appropriate' dosage formulations as part of the strategy for reducing under-five mortality for which national policy response is critical. This study sought to establish the knowledge and perceptions of stakeholders about the relevancy of 'child-appropriate' formulations in Uganda.

**Methodology:** The study was based on 33 in-depth interviews with stakeholder representatives. Basing on theories about policy analysis and knowledge transfer, interviews were deductively analyzed using manifest and latent content analysis. A stakeholder dissemination meeting was organized to share the findings and participants' comments were considered for this paper.

**Findings:** Findings demonstrated stagnation of the transition to 'child-appropriate' dosage forms as a result of interrelated factors. First, there were gaps in the process of knowledge transfer characterised by lack of: technical

and financial support from WHO and other global partners; an agency for systematic research and policy discussions about child-appropriate dosage formulations. Second, there were stakeholders' disagreements about syrups on the one hand and, adult tablets on the other which deviated attention from integrating the WHO recommended flexible oral solid dosage forms such as dispersible tablets. Third, the private sector interests in fast registration of medicines for children conflicted with other stakeholders' desire for more government regulation of the private sector; the other major alternative source of medicines for children.

**Conclusion:** The WHO recommendation for 'child-appropriate' dosage forms has not been fully achieved in Uganda due to gaps in knowledge transfer, conservative stakeholder disagreements centered on syrups and adult tablets and, dilemmas of working with the private sector. WHO and partners should support Ministry of Health to institutionalize research and integration of 'child appropriate' dosage forms into policy.

*Keywords: stakeholders, knowledge transfer, policy, child-appropriate formulations and Uganda.*

## POSTER ABSTRACTS

### Abstract Poster 1

#### ASTHMA AND PNEUMONIA AMONG CHILDREN LESS THAN FIVE YEARS WITH ACUTE RESPIRATORY SYMPTOMS IN MULAGO HOSPITAL, UGANDA: EVIDENCE OF UNDER-DIAGNOSIS OF ASTHMA

\*Rebecca Nantanda<sup>1</sup>, James K Tumwine<sup>2</sup>, Grace Ndeezi<sup>2</sup>, Marianne S Ostergaard<sup>3</sup>

1. Child Health and Development Centre, College of Health Sciences Makerere University, Kampala Uganda.
2. Department of Paediatrics and Child Health, College of Health Sciences Makerere University, Kampala Uganda.
3. The Research Unit for General Practice and Section of General Practice, Department of Public Health, University of Copenhagen, Copenhagen, Denmark.

\*Corresponding author: [rnantanda@gmail.com](mailto:rnantanda@gmail.com) +256 777723332

**Background:** Pneumonia is considered the major cause of mortality among children with acute respiratory disease in low-income countries but may be over-diagnosed at the cost of under-diagnosing asthma. We report the magnitude of asthma and pneumonia among 'under-fives' with cough and difficulty breathing, based on stringent clinical criteria. We also describe the treatment for children with acute respiratory symptoms in Mulago hospital.

**Methods:** We enrolled 614 children aged 2-59 months with cough and difficulty breathing. Interviews, physical examination, blood and radiological investigations were done. We defined asthma according to Global Initiative for Asthma guidelines. Pneumonia was defined according to World Health Organization guidelines which were modified by including fever and, white cell count, C-reactive protein, blood culture and chest x-ray. Children with asthma or bronchiolitis were collectively referred to as "asthma syndrome" due to challenges of differentiating the two conditions in young

children. Three paediatricians reviewed each participant's case report post hoc and made a diagnosis according to the study criteria.

**Results:** Of the 614 children, 41.2% (95% CI: 37.3 - 45.2) had asthma syndrome, 27.2 % (95% CI: 23.7 - 30.9) had bacterial pneumonia, 26.5% (95% CI: 23.1 - 30.2) had viral pneumonia, while 5.1% (95% CI: 3.5 - 7.1) had other diagnoses including tuberculosis. Only 9.5% of the children with asthma syndrome had been previously diagnosed as asthma. Of the 253 children with asthma syndrome, 95.3% (95% CI: 91.9 - 97.5) had a prescription for antibiotics, 87.7% (95% CI: 83.1- 91.5) for bronchodilators and 43.1% (95% CI: 36.9 - 49.4) for steroids.

**Conclusion:** Although reports indicate that acute respiratory symptoms in children are predominantly due to pneumonia, asthma syndrome contributes a significant proportion. Antibiotics are used irrationally due to mis-diagnosis of asthma as pneumonia. There is need for better diagnostic tools for childhood asthma and pneumonia in Uganda.

**Key words:** *asthma syndrome, pneumonia, magnitude, under-fives, low-income countries*



## Abstract Poster 2

### CARETAKERS' KNOWLEDGE, PERCEPTIONS AND SATISFACTION TO USE OF INHALED CORTICOSTEROIDS IN THE MANAGEMENT OF CHILDREN UNDER 5 YEARS OF AGE WITH SEVERE ACUTE RESPIRATORY INFECTIONS AT MULAGO HOSPITAL

\*[Grace Ndeezi](#)<sup>1</sup>, James K Tumwine<sup>1</sup>, Marianne S Østergaard<sup>2</sup>.

1. Department of Paediatrics and Child Health, Makerere University College of Health Sciences, Uganda
2. Department of General Practice, University of Copenhagen, Denmark

\*Corresponding author: [gracendeezi@yahoo.com](mailto:gracendeezi@yahoo.com) +256 772453191

**Introduction:** In Uganda, Acute Respiratory Infections (ARI) are the second major cause of morbidity in children under five years of age (U-5). Clinically, it is difficult to differentiate bacterial, viral pneumonia from acute asthma in young children. This results in over-diagnosis of bacterial pneumonia, over-use of antibiotics and under-use of asthma medicines. Inhaled corticosteroids (ICS) are a well recognized treatment for asthma, but there is limited information regarding caretakers' knowledge and perceptions about their use.

**Objective:** To describe the caretakers' knowledge, perceptions and satisfaction to use of inhaled corticosteroids in children with ARI.

**Methods:** This was a cross-sectional study, nested in a clinical trial of ICS in children U-5 admitted with ARI at Mulago hospital. Interviews and focus group discussions were used to collect information. Quantitative data were analyzed using descriptive statistics and content thematic approach was used for the qualitative information.

**Results:** Two hundred and seven of 1010 caretakers (20.5%) involved in the ICS study were randomly selected for this sub-study. The majority of the caretakers were mothers (94.2%). Ninety four (45.4%) of the caretakers had heard about steroids before. Only 33/94 (35.1%) could give examples and they were more familiar with dexamethazone, commonly called 'dexa'. The majority thought that steroids were used to treat cough and flu, and only 14/90 (15.6%) knew that they were used to treat asthma. Only 7/90 knew that steroids could be dangerous citing that they are very strong drugs. Most of the caretakers, (201/207) stated that the treatment received during admission was exceptional and wished that it could be given to other children with similar problems.

**Conclusion:** Use of ICS as treatment for asthma was hardly known. Almost all caretakers were satisfied with ICS therapy and would recommend it for other children with similar illness.

*Key words: caretakers' knowledge, perceptions, Inhaled corticosteroids*

### Abstract Poster 3

#### FAMILY SITUATIONS AND COMMUNICATION ABOUT HIV+ CHILDREN'S HEALTH AND MEDICINES: A QUALITATIVE STUDY OF CHILDREN ON ART IN UGANDA.

\*Phoebe Kajubi<sup>1</sup>, Anne R.Katahoire<sup>1</sup>, David Kyaddondo<sup>1</sup>, Susan R. Whyte<sup>2</sup>

7. Makerere University, School of Medicine, Child Health and Development Center, Kampala, Uganda

8. Department of Anthropology, University of Copenhagen, Denmark.

\*Corresponding author: Phoebe Kajubi: [phoebekajubi@yahoo.com](mailto:phoebekajubi@yahoo.com) +256 772485815

**Background:** Studies on communication with HIV+ children have largely focused on disclosure. Yet guidelines on disclosure underscore the importance of family contextual factors regarding decisions to communicate illness and treatment to children.

**Methods:** Through participant observation and in-depth interviews conducted between November 2011 and December 2012, we explored the significance of family situations for communication with 29 HIV+ children on ART in Jinja District, Uganda. Content thematic analysis was done using ATLAS.ti. Version 7

**Results:** Of the 29 children, 16 were female. The majority (21/29) were orphans. Children's communication with caregivers about their illness and treatment differed depending on whether they were double, maternal or

paternal orphans. Children communicated best with their mothers and described their mothers as the most supportive, followed by grandmothers and aunts. They described care largely in terms of emotional support, expressed in messages of concern, encouragement conveyed in reminders to take medicines, attention when sick, and confidential conversations about challenges of being HIV+ and taking ART. Care was also communicated in acts of provision of food to take with medicines, counting pills to confirm they had taken the medicines, and being escorted to treatment centres. Double and maternal orphans reported less communication with caregivers and deprivation of emotional and material care.

**Conclusion:** Children's communication about their health, medicines and care is shaped by family situations and care giving is highly gendered. Disclosure must be seen in terms of the quality of relationships children have with their caregivers.

*Keywords: children, communication, HIV/AIDS, medicines, family, care, Uganda*

## Abstract Poster 4

### TITLE: UPTAKE OF PREVENTIVE TREATMENT FOR INTESTINAL SCHISTOSOMIASIS AMONG SCHOOL CHILDREN IN JINJA DISTRICT, UGANDA: A CROSS SECTIONAL STUDY

\*Simon Muhumuza<sup>1</sup>, Annette Olsen<sup>2</sup>, Anne Katahoire<sup>1</sup>, and Fred Nuwaha<sup>3</sup>

9. Makerere University, School of Medicine, Child Health and Development Center, Kampala, Uganda
10. University of Copenhagen, Faculty of Health and Medical Sciences, Section for Parasitology, Health and Development, , Copenhagen, Denmark
11. Makerere University, School of Public Health, Kampala Uganda

\*Corresponding author: Simon Muhumuza: [simonmhmz@yahoo.com](mailto:simonmhmz@yahoo.com) +256 758712026

**Background:** In Uganda, the current national health sector strategic and investment plan underscores schistosomiasis as one of the diseases targeted for elimination by the year 2015. However, uptake of treatment among school children is unknown but suspected to be low. We estimated the uptake and predictors of preventive treatment with praziquantel.

**Methods:** A cross sectional study carried out in Jinja district of Uganda, a random sample of 1,010. Children in 12 primary schools was questioned about their uptake of praziquantel, knowledge and perceptions about schistosomiasis, support for taking preventive and perceptions about schistosomiasis, support for taking preventive treatment and the dangers of taking praziquantel. The prevalence and mean intensity of infection with *Schistosoma mansoni* were determined.

**Results:** Self reported uptake of praziquantel at last mass treatment was 28.2% (95%

confidence interval (CI): 22.9%-33.6%). Overall prevalence and mean intensity of *S. mansoni* infection was 35% (95% CI: 25.4%-37.9%) and 116.1 eggs per gram (epg) of stool (95% CI: 98.3-137.1) respectively. Uptake of praziquantel was more likely if a child was from a school with high prevalence of infection, had knowledge about schistosomiasis transmission and prevention and reported teachers' support to take praziquantel. Of the 285 children who took praziquantel, 142 (49.8%) developed side effects. Of the 725 children who did not take the drug, 522 (72.0%) reported fear of side effects as a major reason for non-uptake.

**Conclusions:** Uptake of praziquantel in this population is very low. Fear of side effects of praziquantel, lack of knowledge about schistosomiasis transmission and prevention and lack of teacher support are some of the major factors associated with low uptake.

*Key words: Schistosomiasis, uptake of praziquantel, school children, Uganda*

## Abstract Poster 5

### INTESTINAL SCHISTOSOMIASIS AMONG PRESCHOOL CHILDREN ALONG THE SHORES OF LAKE VICTORIA IN UGANDA

\*Allen Nalugwa<sup>1</sup>, Fred Nuwaha<sup>2</sup>, Edridah Tukahebwa<sup>3</sup> and Annette Olsen<sup>4</sup>

<sup>1</sup>Child Health and Development Centre, Makerere University College of Health Sciences, Kampala Uganda

<sup>2</sup>Disease Control and Prevention, Makerere University College of Health Sciences, Kampala Uganda,

<sup>3</sup>Vector Control Division, Ministry of Health, Kampala Uganda

<sup>4</sup>Department of Veterinary Disease Biology, University of Copenhagen, Denmark

\*Corresponding author: [analugwa@chdc.mak.ac.ug](mailto:analugwa@chdc.mak.ac.ug) +256772456429

**Background:** Schistosomiasis is caused by parasitic worms known as schistosomes. Infection is acquired when people come into contact with fresh water infested with the larvae. Schistosomiasis affects millions of people and accounts for more than 40% of the global health burden due to neglected tropical diseases. In Uganda, about 55% of the population are at risk of infection with intestinal schistosomiasis but preventive chemotherapy using praziquantel is towards school children, aged 6-19 years, and adults. There is scanty information on the prevalence and intensity of *S. mansoni* in preschool children in Uganda.

**Methods and Major Findings:** Of the enrolled 3058 children, 39.3% were infected with *Schistosoma mansoni*. Both prevalence and intensity of schistosomiasis were lowest in age group 12-24 months and highest in age group 49-60 months. Although boys and girls had similar rates of infection boys in age group 49-60 months presented with more intensity of infection compared to girls. The majority (60.7%) of the children were lightly infected; age group 12-24 months showed the highest level of light infections while age

group 49-60 months showed the highest level of heavy infections. The majority (93.0%) of the caregivers interviewed were aware of the existence of intestinal schistosomiasis in their communities though many (80.3%) were ignorant of how the disease is transmitted and its related symptoms. Young children become infected when taken to infested waters by their care-givers and siblings. Water contact activities like fetching water, washing clothes, playing and bathing played a big role in exposing children to infested water.

**Conclusions:** Preschool children are at high risk of schistosomiasis infection and infection can occur by the age of one year. Water contact activities and ignorance of transmission of schistosomiasis are major factors contributing to infections in the endemic communities.

**Recommendations:** Health education would be an important measure in the control of schistosomiasis. Preschool children should be included in the national schistosomiasis control programs to avoid complicated disease.

*Key words: Intestinal schistosomiasis; infection; morbidity; prevalence; preschool children; Uganda*

## Abstract Poster 6

### AVAILABILITY OF CHILD-FRIENDLY MEDICINES FOR TREATING UNCOMPLICATED MALARIA AND NON-SEVERE PNEUMONIA AMONG CHILDREN BELOW 5 YEARS AT LOWER PUBLIC HEALTH FACILITIES UNDER KAMPALA CAPITAL CITY AUTHORITY

\*Julius Ssentongo<sup>1</sup>, Freddie Ssenkooba<sup>2</sup>, Vincent Kawooya<sup>2</sup>, Jasper Ogwal-Okeng<sup>3</sup>

<sup>1</sup> Makerere University School of Public Health, Kampala, Uganda

<sup>2</sup> Department of Health Policy Planning and Management, Makerere University College of Health Sciences, Kampala, Uganda

<sup>3</sup> Department of Pharmacology and Therapeutics, Makerere University College of Health Sciences, Kampala, Uganda

\* Corresponding author: [ssentongojulius@yahoo.com](mailto:ssentongojulius@yahoo.com) +256 773 964341

**Background:** In 2011, an estimated 7.6 million children under the age of 5 years died globally (Lozano et al., 2011). In Uganda, 32% of childhood mortality is due to malaria (MoH, 2010) and another 17–26% attributed to pneumonia (Black et al., 2003), conditions which are treatable with existing medicines. This paper analyzes the availability of child-friendly medicines for treating uncomplicated malaria and non-severe pneumonia among children below 5 years attending lower public health facilities under Kampala Capital City Authority (KCCA) so as to reduce childhood morbidity and mortality.

**Methodology:** A cross sectional study was conducted at 8 KCCA clinics. The study population comprised of caretakers of children below 5 years of age who had received medical treatment for uncomplicated malaria and/or non-severe pneumonia and health workers who had been involved in prescribing and dispensing

medicines to the sick children. Data was collected using structured questionnaires and a checklist. Analysis was done using STATA 10.0 and Microsoft Office Excel 2007.

**Results:** Availability of child-friendly medicines for treating uncomplicated malaria and non-severe pneumonia was unpredictable. None of the health facilities stocked any child-friendly formulation of artemether lumefantrine (A/L) during the study period. Dispersible amoxicillin 125mg tablet and dispersible cotrimoxazole 120mg tablet for treating non-severe pneumonia were available during 42% and 81% of the study period respectively.

**Conclusion and recommendations:** Availability of child-friendly medicines for treating uncomplicated malaria and non-severe pneumonia is still erratic. There is a need to procure and stock child-friendly medicines at KCCA clinics.

*Key words: availability; child-friendly medicine; uncomplicated malaria; non-severe pneumonia; public health facilities*

## CHILDMED ORGANIZATIONAL STRUCTURES

### ORGANIZING INSTITUTIONS

Child Health and Development Centre  
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Copenhagen, Denmark- [ebba.holme@sund.ku.dk](mailto:ebba.holme@sund.ku.dk)

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Child Health and Development Centre, Makerere College of Health Sciences  
[jjitta@chdc.mak.ac.ug](mailto:jjitta@chdc.mak.ac.ug)

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Section for Parasitology, Health and Development, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark- [aol@sund.ku.dk](mailto:aol@sund.ku.dk)

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Research Unit for General Practice and Section of General Practice, Department of public Health, University of Copenhagen, Denmark - [moster@sund.ku.dk](mailto:moster@sund.ku.dk)

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[susan.reynolds.whyte@anthro.ku.dk](mailto:susan.reynolds.whyte@anthro.ku.dk)

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[hmuyinda@chdc.mak.ac.ug](mailto:hmuyinda@chdc.mak.ac.ug)

Prof. Fred Nuwaha- **Member**

School of Public Health, Makerere College of Health Sciences  
[nuwahaf@yahoo.co.uk](mailto:nuwahaf@yahoo.co.uk)

Prof Jasper Ogwal-Okeng- **Member**

Department of Pharmacology and Therapeutics, Makerere College of Health Sciences  
[jogwal.okeng@gmail.com](mailto:jogwal.okeng@gmail.com) and [jogwal@chs.mak.ac.ug](mailto:jogwal@chs.mak.ac.ug)

Prof. James K Tumwine- **Member**

Department of Paediatrics and Child Health, Makerere College of Health Sciences  
[kabaleimc@gmail.com](mailto:kabaleimc@gmail.com)

Dr. David Kyaddondo- **Member**

Child Health and Development Centre, Makerere College of Health Sciences  
[kyaddondo@chdc.mak.ac.ug](mailto:kyaddondo@chdc.mak.ac.ug)

Prof. Anthony K. Mbonye- **Member**

Department of Community Health Services, Ministry of Health Uganda  
[akmbonye@yahoo.com](mailto:akmbonye@yahoo.com)

Prof. Freddie Ssenogooba- **Member**  
Department of Health Policy Planning and Management, Makerere College of Health Sciences  
[sengooba@musph.mak.ac.ug](mailto:sengooba@musph.mak.ac.ug)

Dr. AbnerTagoola- **Member**  
Paediatrician Jinja Children's Hospital, Jinja District, Uganda  
[avtagoola@yahoo.com](mailto:avtagoola@yahoo.com)

Dr. Jessica Jitta – **Project Coordinator (Uganda)**  
Child Health and Development Centre, Makerere College of Health Sciences  
[jjitta@chdc.mak.ac.ug](mailto:jjitta@chdc.mak.ac.ug)

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Dr. Allen Nalugwa- Member- [analugwa@mak.ac.ug](mailto:analugwa@mak.ac.ug)

Dr. Rita Atugonza- Secretary- [ritaatugonza@yahoo.com](mailto:ritaatugonza@yahoo.com)

Dr. Jessica Jitta- Coordinator- [jjitta@chdc.mak.ac.ug](mailto:jjitta@chdc.mak.ac.ug)



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