

Rapid assessment of the training needs and mentorship approaches for child and adolescent HIV services in Uganda

.....
REPORT ON THE FINDINGS OF A
COUNTRYWIDE CROSS-SECTIONAL
STUDY
.....



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List of Abbreviations

3TC	Lamivudine
ABC	Abacavir
ACP	AIDS Control Program
AIDS	Acquired Immunodeficiency Syndrome
ALHIV	Adolescent Living with HIV
ANC	Antenatal Care
ANECCA	African Network for the Care of Children Affected by AIDS
ART	Antiretroviral therapy
ATV/r	Atazanavir/ritonavir
BIPAI	Baylor International Paediatric AIDS Initiative
CDC	US Centers for Disease Control and Prevention
CRS	Catholic Relief Services
CSM	Clinical Systems Mentorship
DTG	Dolutegravir
EFV	Efavirenz
EMTCT	Elimination of Mother to Child Transmission of HIV
FHI	Family Health International
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HCP	Health Communications Partnership
HIV	Human Immunodeficiency Virus
IPT	Isoniazid Preventive Therapy
JCRC	Joint Clinical Research Centre
LPV/r	Lopinavir/ritonavir
MOH	Ministry of Health
NGO	Non government Organization
NNRTI	Non Nucleoside Reverse Transcriptase Inhibitor
NVP	Nevirapine
PEPFAR	US President's Emergency Plan for AIDS Relief
PI	Protease inhibitor
PMTCT	Prevention of Mother to Child Transmission of HIV
QI	Quality Improvement
QIF	Quality Improvement Framework
RAL	Raltegravir
STD	Sexually Transmitted Disease
SAINTS	Supporting and Improving National Training Systems for Health Workers in Uganda under the President's Emergency Plan for AIDS Relief
SSA	Sub Saharan Africa
TB	Tuberculosis
TDF	Tenofovir disoproxil fumerate
TNA	Training Needs Assessment
TREAT	Timetable for Regional Expansion of Antiretroviral Therapy
UNICEF	United Nations Children Emergency Fund
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VHTM	Village Health Team
WHO	World Health Organization

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RAPID ASSESSMENT OF THE TRAINING NEEDS AND MENTORSHIP APPROACHES FOR CHILD AND ADOLESCENT HIV SERVICES IN UGANDA

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Executive Summary

HIV/AIDS services in many countries are structured to provide care for adults, with children and adolescents not being adequately catered for. In fact, the antiretroviral therapy (ART) coverage among HIV-infected children under 15 years worldwide, majority of whom are in Sub-Saharan Africa, by end of 2015 was 51%. In Uganda, 63% of HIV-infected children under 15 years were on ART, implying that 37% were yet to start treatment, in 2015. Considering this sub optimal ART coverage, the African Network for the Care of Children Affected by HIV/AIDS (ANECCA), with a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), initiated a project in early 2016, in 7 countries including Uganda, to try and bridge the gap.

It is within this framework that this **cross-sectional study** was conducted in Uganda in August and September 2016, as the 2nd step in a two – step training needs assessment; the first being a desk review of the existing training and mentorship documents conducted earlier in June 2016.

The **general objective** of the study was to assess the training needs of the health workers involved in the provision of HIV services in Uganda. The study employed both quantitative and qualitative (key informant interviews) methods.

It was conducted in **10 districts of Uganda** randomly selected from each of the 10 regions of Uganda (one district per region). Participants for the quantitative survey included all health workers involved in the provision of HIV/AIDS services in the randomly selected health facilities within the 10 districts. Key informants were selected from

national, district and facility level of HIV/AIDS service provision for children and adolescents. The primary outcome was the level of knowledge of the health care workers on Paediatric and Adolescent HIV/AIDS. The quantitative data was analyzed using STATA version 12 and SSPS version 22, while the qualitative data was analyzed using a content thematic approach.

A total of **430 health workers** participated in the quantitative survey; majority (63.8%) were from health center IIIs and health centre IVs; over 54% were nurses/midwives; 65.5% were female. Their mean (sd) age was 35.9 (10.0) years; they had been in the health profession for a mean (sd) 10.1 (8.6) years; and in the field of HIV medicine for a mean (sd) of 4.7 (4.2) years.

Of the 430 participants, 238 (55.3%) reported that they had received training on HIV medicine; 44.8% (107/239) had received formal training on care and support of children with HIV; while 45.1% (107/237) reported having received formal training on care and support of adolescents with HIV.

There were knowledge gaps observed among the participants. In response to questions assessing knowledge, the clinicians registered lower mean scores (mean (sd) – 50.8 (7.3)%) than the other health workers (mean (sd) – 61.4(12.5)%).

Regarding their opinion on whether children/ adolescents living with HIV deserve special treatment when compared to adults, 86.3% (366/424) of the participants agreed/strongly agreed. However, although, most disagreed/strongly disagreed that anti-HIV drugs were too strong for a child's young body, a large proportion (22%;93/423) agreed/strongly agreed that they were; 11 (2.6%)

had no opinion. Also, as many as 25% (106/423) felt uncomfortable offering condoms to sexually active adolescents.

The **40 key informant interviews** held confirmed that there were training gaps, in the provision of paediatric and adolescent HIV services in Uganda. The key gaps were: lack of counseling and communication skills, difficulties in diagnosis and treatment of other infections including TB/HIV; dosage and side effects of drugs; use of ART in malnourished children; identification and addressing psycho-social needs of adolescents living with HIV including addressing stigma and counseling them to remain motivated to adhere to drugs and clinic appointments. Facility based training and mentorship were highlighted as the preferred methods of training the health workers. Several challenges in the delivery of HIV/AIDS services were mentioned including: stock outs of HIV commodities, shortage of staff and low demand for the services.

In conclusion, over half of the health workers involved in the care of people living with HIV had not received any formal training on Paediatric or Adolescent HIV/AIDS. This explains why the knowledge gaps observed among the health workers as highlighted by the key informant interviews. This calls for an urgent need for training of health workers in paediatric HIV/AIDS and especially in adolescent HIV/AIDS. Facility-based training and mentorship could be a cost-effective approach to meeting these training needs. In addition, the supply chain and human resource constraints identified in this study would need to be addressed.

1.0 INTRODUCTION

1.1 Background

The antiretroviral therapy (ART) coverage among HIV-infected children under 15 years worldwide, majority of whom reside in Sub-Saharan Africa, by end of 2015 was 51%. Considering this poor ART coverage in HIV infected children (and adolescents), the African Network for the Care of Children Affected by HIV/AIDS (ANECCA), with a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), initiated a project in early 2016, entitled: “*Catalysing Improvement in the Policy Environment, Human Resources Capacity and Knowledge Management about Care, Treatment and Support for Children and Adolescents Living with HIV in Africa*”. This project is being implemented in seven countries including Uganda, which at the time of the grant had the least ART coverage for children and adolescents living with HIV. The other six countries are Burundi, Ethiopia, Malawi, Nigeria, South Sudan and Tanzania. As part of the implementation, a training needs assessment was conducted in 2 steps: **step 1** was a desk review of existing documents carried out in June 2016, while step 2 was conducting a rapid assessment of the training needs of the health workers involved in the provision of HIV services for children and adolescents, in a cross-section study. This report describes the methods and findings of the cross-sectional study (Step 2) that was conducted from July to September 2016.



34.9million

Ugandan population



155

Total No. of hospitals in Uganda



8:100,000

Doctor-patient ratio in Uganda



95,649

children living with HIV in Uganda in 2015

1.2 Uganda country profile: focus on health systems

Uganda has a population of 34.9 million people, a large proportion of whom are young; 55% are children (age <18 years) and 75% are under of 25 years age.

The lowest level of health care is the village health team or Health Centre I, which is the initial point of contact with the health system, offering basic health services at the village level. The higher levels are Health Centre IIs at parish level; Health Centre IIIs at sub-county level; Health Centre IVs at county/ district level; General Hospitals at district/ sub-regional level; Regional Referral Hospitals

at Regional level; and the National Referral Hospital. Primary health care is provided at Health Centres I, II and III, while secondary health care is provided at health centre IVs and general hospitals, while tertiary care is at the national referral hospitals. Primary health care services like immunization and family planning are also provided at the higher levels of health care (health centre IVs and hospitals). Hospitals are major contributors to outputs of essential clinical care and take up a large volume of human and financial resources. In the financial year 2014 /15, hospitals produced 54% of all inpatient admissions, 19% of total outpatients, and 36% of all deliveries.

There are 155 hospitals of which 139 are general hospitals, 14 are regional referral hospitals, and 2 are national referral hospitals, one specifically for mental / psychiatric care. In terms of ownership, 65 are government owned, 63 private not for profit (PNFP) and 27 are private. All these hospitals provide HIV services; in addition, there are 188 health centre IVs, 1045 health centre IIIs, 182 health centre IIs and 62 special clinics that offer HIV services in the country.

HIV services are provided at all levels of health care with antiretroviral therapy (ART) offered from health III level.

In Uganda, there are 8 doctors per 100,000 people.

1.3 HIV/AIDS response in Uganda

There were an estimated 1.6 million people living with HIV (PLHIV) in Uganda in 2015, with the national adult HIV prevalence being 7.3%.

The national HIV response in Uganda follows the National Strategic Plan for HIV and AIDS, the current one covering the period 2015/2016 – 2019-2020. It is within this framework that over 830,000 Ugandans (over 50% of PLHIV) were receiving ART in 2015 and a decline in new HIV infections was observed from an estimated 162,294 in 2011 to 99,000 by end of 2014.

The decline in new infections is largely contributed to by the reduction of mother to child transmission, given improvements over the years in prevention of mother to child transmission (PMTCT) practices. For instance in 2015, 1,658,881 pregnant women were counselled and tested for HIV and received their results; representing over 95% of the pregnant women that attended the health facilities. In the same year, 110,094 women were placed on ART, which is 91% of those identified as HIV infected. As a result, 6100 infants were identified as HIV infected in 2015, a decline from 27,660 in 2011.

The country has an integrated set of guidelines for ART, prevention of mother to child transmission of HIV (PMTCT) and young child feeding published in 2011 with an addendum in 2014. [9, 10] These guidelines are an adaptation of the WHO 2010 and 2013 consolidated ART guidelines. There is an ongoing process to update the guidelines in line with the WHO 2016 guidelines.

The integrated guidelines describe psychosocial support mechanisms for children, adolescents and their families.

The country in the ART guidelines also spells out standards for facilities to be accredited to offer ART and other HIV services There is also a quality improvement framework which covers the health sector in general, not just HIV services.

1.4 Paediatric and adolescent HIV in Uganda

An estimated 95,649 children were living with HIV in Uganda in 2015; of these 60,029 (63%) were on ART. The number on ART rose from 58,884 in 2014; this was 32% of the estimated number of children on ART then. The big change in the proportion on ART is because the denominator (total number of children living with HIV), was revised downwards. In 2013, adolescents living with HIV (ALHIV) were estimated to be 130,000 of whom 12,617 (29%) were on ART. In comparison, 774,902 (53%) of the estimated 1,461,756 adults living with HIV were on ART in 2015. [6] This highlights how far behind adolescent ART and other HIV services lag behind those of children and adults. Although the adolescent figures were collected earlier, the situation may not be very different currently. This is because in the supportive supervision visits conducted by the ministry of health in 2015, only 39% of 355 facilities were found to have adolescent friendly services (defined as: having a designated person, designated space, and designated days for adolescent health services).

The supportive supervision reports in 2015 showed that retention on ART 12 months after initiation was 83%, 79%, and 75.2% in HIV infected children, adolescents and adults, respectively. The higher retention among children and adolescents than in adults, though surprising, is encouraging. Similarly, encouraging findings were observed in a study among 156 adolescents from

30 facilities from 10 districts selected from the 10 regions of Uganda. In this study, 90% of these adolescents initiated on ART between July to September 2012, were still in care after 1 year. The proportion of HIV-infected children and adolescents tested, on ART, and are virologically suppressed in Uganda is still relatively low. For example, only 51% of HIV exposed babies accessed the first DNA PCR by 6 weeks of age in the year 2015; 37% of HIV-infected children were yet to start on ART in 2015; and among children under 2 years of age initiated on ART in 2015, 23% were lost to follow up in the first year.

1.5 The ANECCA Project

The ANECCA project partly aims to improve the capacity of HIV service providers in provision of HIV care, treatment and psychosocial support to children and adolescents living with HIV. This is expected to improve observed poor ART coverage in the seven countries involved.

ANECCA is a not-for-profit Pan African

ANECCA is registered in Uganda, Tanzania, Ethiopia, Niger, and Burkina Faso with its headquarters in Kampala, and has focal persons in 15 other countries in Africa.

network of clinicians and social scientists with a mission to improve access to quality and comprehensive HIV prevention, care, treatment and support services for children. Integrated within the broader maternal and child health framework. It is a membership organization with active members of National Paediatric HIV Technical working groups contributing to development of national guidelines and resources for paediatric HIV in their respective countries. ANECCA also has active collaboration and partnership with other regional organizations for strengthening paediatric HIV activities. ANECCA is registered in Uganda, Tanzania, Ethiopia, Niger, and Burkina Faso with its headquarters in Kampala, and has focal persons in 15 other countries in Africa. The regional project provides a unique opportunity to capitalize on paediatric and adolescent expertise across the continent to address disparities in access to care and treatment for children and adolescents.

1.6 Problem statement and study justification

The proportion of HIV-infected children and adolescents with known HIV status and who are receiving effective ART in Uganda is still relatively low. This has been attributed to limited capacity of healthcare workers to provide the needed paediatric and adolescent services. While efforts have been made by the Ministry of health, in collaboration with Non-government Organizations (NGOs), with funding from development partners, to boost the human resource capacity, there has been no prior national human resource capacity assessment with respect to children and adolescent HIV services to inform appropriate interventions. It is hoped that the findings from this study will provide the needed information for the design of comprehensive training and mentorship programmes in Uganda for improved service delivery to adolescents and children living with HIV.

1.7 Study objectives

The **general objective** of the study was to assess the training needs and mentorship approaches of the health workers related to paediatric and adolescent HIV services in Uganda.

The **specific objectives** included:

1. To identify performance gaps among health care workers responsible for providing treatment, care and support services to children and adolescents living with HIV in Uganda that can be addressed through appropriate training and/or mentorship programmes.
2. To determine the types of trainings and mentorship approaches required to address identified performance gaps.

2.0 METHODS

2.1 Study design

This was a cross-sectional study employing both quantitative and qualitative methods conducted in August and September 2016. The qualitative component utilized Key Informant Interviews (KIIs), while a structured survey tool was used for the quantitative component.

2.2 Study Setting and scope

The study was conducted in all 10 regions of Uganda as defined by UBOS/UDHS.[2] From each region, one district was randomly selected as shown in Table 1. From Kampala as a region, one division was randomly selected. In each of the selected districts and division, the study focused on health facilities at all levels of care with ART clinics; that is health centres at level III (health centre IIIs/ HCIIIs), health centres at level IV (health centre IVs/ HCIVs), district/general Hospitals, regional referral hospitals and a national referral hospital.

Table 1: List of regions and selected districts

Regions	Selected districts/division
Kampala	Nakawa Division
Central 1	Mpigi
Central 2	Kiboga
East Central	Kamuli
Mid Eastern	Pallisa
North Eastern	Bukedea
West Nile	Nebbi
Mid North	Lira
South Western	Kanungu
Mid Western	Masindi

2.3 Target population

The target populations were health care workers involved in care for people living with HIV, and district as well as national level program managers and health officials. The health workers were targeted for the quantitative survey and were key informants, while the district and national level managers/officials were primarily for key informant interviews.

2.3.1 Selection (inclusion) criteria

I. Quantitative survey

- Health care worker at the selected facility. This included doctors, nurses, clinical officers, , counsellors and social workers.

- Involvement in the care of HIV infected individuals
- A written informed consent

II. Key Informant Interviews

- Working in the district, health facility, HIV program, government ministry or implementing/developmental partner as a manager or head. This included personnel from the Ministry of Health; Ministry of Gender, Labour and Social Development; district health Officers; health facility heads; implementing/ development partners, i.e. USAID, CDC, PEPFAR, UNICEF, UNAIDS, Baylor Uganda & MildMay Uganda.
- Involvement in planning for or delivery of Paediatric and Adolescent HIV services.
- Provision of written informed consent.

2.4 Sample size determination and selection

2.4.1 Health Workers for the Quantitative survey

To determine the sample size for the health workers, the Krejcie and Morgan table was used. The sample size was made with reference to the population of health workers in public and private not

for profit health facilities in the 10 selected districts of 52,328 as determined by the Annual Health Sector Performance Report 2014/2015. This, with an assumed population proportion of 50%, a degree of accuracy of 5%, at the 95% confidence interval, provided us with a minimum sample size of 381.

2.4.2 Sample size for Key Informants

A total of 40 key informants were purposively selected from the districts and at national level as per Table 2.

Table 2: Selection of key informants per district and at national level

Region	District/ Division	District Health Team	ART /Health facility In-charge	Community Development	Education sector	Total
District KIIs						
Kampala	Nakawa Division	-	2	1	-	3
Central 1	Mpigi	2	1	-	-	3
Central 2	Kiboga	3	1	-	1	5
East Central	Kamuli	1	1	1	-	3
Mid Eastern	Pallisa	2	1	-	-	3
North Eastern	Bukedea	1		1		2
West Nile	Nebbi	1	1	-	1	3
Mid North	Lira	2	1	-	-	3
South Western	Kanungu	1	-		1	2
Mid Western	Masindi	1	1	1	-	3
Sub-Total	10	14	9	4	3	30
National Level KIIs						
Government Ministries (MoH, MoGLSD, MoES)						3
Development / Implementing Partners (USAID, CDC, PEPFAR, UNICEF, UNAIDS, UNFPA, Baylor Uganda & Mild May)						7
Sub-Total						10
Grand Total						40

Key: KIIs – Key Informant Interviews

2.4.3 Sample Size for Health Facilities

The single National Referral Hospital, all Regional Referral Hospitals, District/ General Hospitals and HCIVs in the 10 districts were included in the study, while a 10% sample of HCIIIs in the 10 districts were randomly selected. Using this approach, a sample size of 52 facilities was obtained. However, during the study,

the minimum sample of 381 health care workers. An additional 27 facilities were randomly selected to obtain the required participants. A list of the facilities that participated in the study, with the number of health care staff included, is shown in Appendix I.

2.5 Study variables

For the quantitative component of the study, the study variables were of a

descriptive nature as outlined below:

- i) Demographic information, namely: age, sex, marital status, duration in service
- ii) Training and mentorship experience, assessed by ever receiving training or mentorship on various aspects of paediatric and adolescent HIV.
- iii) Knowledge of paediatric and adolescent HIV, as determined by answering particular questions correctly.

- iv) Attitude towards provision of various HIV services to children and adolescents, as determined by respondents providing answers along predetermined options.

The qualitative component used key informant guides to elicit the following:

- Existing children and adolescent HIV services
- Knowledge and skill gaps
- Gaps in the existing mentorship approaches and frameworks
- Training needed to bridge the skills and knowledge gaps
- Preferred training modalities

2.6 Data Collection Methods and Procedures

2.6.1 Health care Interviews: A quantitative survey

A structured questionnaire (Appendix 2) was used to collect individual data from each of the health workers providing HIV/AIDS care in the participating health facilities. This was aimed at assessing their receiving of training and mentorship on paediatric and adolescent HIV medicine; their level of knowledge of paediatric and adolescent HIV diagnosis, treatment and retention in care; and their attitudes towards providing HIV services to children and adolescents.

The questionnaire was self administered after the participant provided written informed consent. Prior to answering the questions, a research assistant explained the tool to the respective participant and was available to provide to any of the questions as needed.

2.6.2 Key Informant Interviews

A pre-designed key informant interview guide with open ended questions

followed with probes (Appendix 3) was used to explore stakeholder views on arrangements for testing and providing care to children and adolescents living with HIV, challenges encountered, knowledge and skills gaps, training approaches used and suggestions for improvement in enhancing the capacity of health workers to provide quality paediatric and adolescent HIV service. Two research assistants (interviewer and note taker) conducted the interviews at district and health facility levels while national level Key Informants were conducted by two senior qualitative researchers. All interviews were conducted in English, were audio recorded and transcribed by the research assistants.

2.6.3 Training of research assistants pretesting and refinement of study tools

2.6.3.1 Training of Research Assistants and their supervisors

A total of 15 Research Assistants (RAs), including 2 data entry clerks, and 5 supervisors were recruited and taken through 2 days of training on the study protocol and tools, by the Principal investigator, local co-investigator and the qualitative data analyst.

The research assistants were divided into 5 teams and allocated 1 supervisor each. Each of the 5 teams conducted interviews in 2 districts. The list of the research assistants (data collectors), data entry clerks and supervisors is indicated in appendix 8.

2.6.3.2 Pre-testing of the study tools and field deployment

The day after the training of the research assistants and the supervisors, the 5 teams were sent out to health units in

2 districts that did not participate in the main study, Mukono and Buikwe. Each of the research assistants and the supervisors got an opportunity to conduct a quantitative and qualitative interview. The teams then met with the Principal investigator, local co-investigator and qualitative data analyst, and revised the tools accordingly.

Each team received a letter which introduced them to the stakeholders at the district local government and health facilities. Logistics, in form of printed study tools, notebooks, pens, pencils and other stationery, as well as facilitation towards transport, accommodation and meals, were provided to all team members to ensure that the entire geographical scope of the study was covered and the targeted eligible respondents were interviewed.

40 key informants were selected from district and national levels, and implementing and development partners

2.7 Field work/Data Collection

2.7.1 Qualitative data collection

Each team, with prior notification, visited the respective district health office; interviewed district health personnel selected as key informants where possible, and received clearance to go to the selected health facilities in the district. On arrival at the health facility, the team approached the In-Charge of the health facility and conducted the key informant interviews. National level interviews were conducted at the same time as the district interviews.

Two research assistants (interviewer and note taker) conducted the interviews at district and health facility levels while national level Key Informants were conducted by two senior qualitative researchers. A pre-designed key informant interview guide with open ended questions followed with probes (Appendix 3) was used to explore stakeholder views on

The transcripts were then sent by email to the qualitative data analyst for review and subsequent analysis. Any issues with the transcripts/ data collection procedure were then fed back to the field teams by the data analyst accordingly. All those interviewed provided written informed consent prior to the interview, using the consent form in Appendix 8.

2.7.2 Quantitative data collection

On arrival at the health facility, the data collection team was directed to the health workers involved in HIV/AIDS services provision, who were then interviewed with the TNA questionnaire (Appendix 2). After each interview, the

supervisors crosschecked all completed questionnaires in order to ensure accuracy, completeness and uniformity of the data collected. Where questionnaires were substantially incomplete, the respective research assistants returned them to the respondents for completion accordingly. A debrief meeting was then held with data collectors at the end of each day to review filled questionnaires and record any incidents/events occurring during data collection and take appropriate decisions. The filled in questionnaires were then transported to the ANECCA offices in Kampala, where data entry was done.

2.8 Data management and analysis

2.8.2 Quantitative Data entry

All interviews were conducted in English, were audio recorded and transcribed verbatim by the research assistants. The transcripts were then sent by email to the qualitative data analyst for review and subsequent analysis

Data from the TNA questionnaire was entered into a web based database, given that this study was part of a seven-country regional project with similar data collected, making it easier for centralized data analysis of regional data for the project. It was also entered into an EpiData version 3.01 database, to allow for more detailed analysis at Uganda country level, as needed. Both databases were backed up on secured computers. The data from the web based database was exported to SSPS version 22, while that from the EpiData 3.01 database was exported to STATA version 12, for analysis.

2.8.3 Quantitative data analysis

The data was analyzed using descriptive statistics. The categorical data was summarized using simple proportions; while continuous data was described, using means and standard deviations for normally distributed data; and medians and interquartile ranges for non-normally distributed data. The data covered four areas: socio-demographic characteristics; training and mentorship experience; knowledge of the health workers; and attitudes of the health workers. To obtain the primary outcome, knowledge of the health workers, the responses to true or false questions were assessed for correctness and summarized as percentage scores. The rest of the variables were summarized descriptively; these included: socio-demographic characteristics like age, sex, marital status and duration in health service; number and duration of training or mentorship sessions ever received; and agreement or disagreement with particular opinions on approach to care of children and adolescents.

2.8.4 Qualitative data analysis

A Content thematic approach was used for analysis of the data from the key informant interviews (KIIs). The transcripts were read and re-read to identify themes and sub-themes by the study qualitative data analyst, an experienced qualitative researcher, in relation to objectives of the study. Coding was done using the NVivo software version 9. The findings from KIIs at different levels were triangulated. The themes obtained have been used in presentation of the study findings. Some quotes from respondents were selected for emphasis and tables used utilized to highlight the themes.

2.8.5 Quality assurance

2.8.5.1 Qualitative data

The following were the approaches utilized to ensure good quality data from the KIIs:

- I. The research assistants were trained on the protocol and study tools, and these tools were pretested.
- II. The data was audio recorded and the audio records were referred to from time to time to ensure that the transcripts were a true reflection of the interviews.
- III. The qualitative data analyst was in constant touch by phone with the field teams for consultation as needed, and also provided feed back to the teams for each transcript to him by email, to ensure improved approaches for the subsequent interviews.
- IV. The qualitative data analyst made supervisory visits to several facilities to ensure that the interviews were being conducted appropriately.

2.8.5.2 Quantitative data

To ensure good quality quantitative data the following were done:

- I. The Research Assistants were training on the protocol and the study tool, which was pretested.
- II. The data entry clerks were trained on the databases used for data entry.
- III. The filled in questionnaires were checked for completeness by the supervisors before they .
- IV. Double data entry was done for the Epidata database used for in depth local analysis.
- V. The Principal Investigator made visits to several health facilities to ensure that the data collection procedures were being followed.

2.9 Ethical Considerations

The study protocol was approved by the Makerere University School of Public Health Higher Degrees, Research and Ethics Committee (HDREC) (Ref: HDREC No 425), and then by the Uganda National Council of Science and Technology (UNCST) (Ref: SS 5030). Secondly, all participants for the quantitative and qualitative components of the study provided written informed consent, using the consent form in Appendix 9.

3.1.2 HIV Educational Background

Of the 430 participants, 238 (55.3%) reported that they had received training on HIV medicine, excluding that obtained during pre-service training. They received a mean (sd) 3(2.2) training courses, that were for a mean (sd) cumulative duration of 1.2 (4.8) months. When asked whether they had received any

3.0 RESULTS

3.1 Quantitative data findings

3.1.1 Sociodemographic characteristics of the participants

A total of 430 health workers filled in the survey questionnaire across the 10 study districts; their number per facility (mean – 5) is reflected in Appendix 1. Majority of these respondents were from health center IIIs and health centre IVs, with only 6 being from the national referral hospital, Butabika Mental Referral Hospital, and 24 from the 2 regional referral Hospitals (China Uganda Friendship Hospital - Naguru and Lira RRH); 82 were from general Hospitals, as shown in Table 3. Over 54% were nurses/midwives; only 15 were doctors, including one (1) paediatrician (Table 3). Given the predominance of nurses/midwives, 281 (65.5%) were expectedly female. Most respondents were under 40 years of age, with a mean (sd) age of 35.9 (10.0) years. Majority had been in the health profession for under 10 years, median (range) – 7(0-43) years; most had worked in their current facility for 1-4 years, median (range) – 3 (0-30) years; while 62% (235/380) had worked in the field of HIV medicine for under 4 years, median (range) – 3 (0-26) years; Table 3 and Figure 1. The clinicians (doctors and clinical officers) had a greater proportion of those working in HIV medicine for ≤ 5 years (87%; 80/92) than the other health workers (72%; 225/311). Majority (66%) were married, as shown in Table 3.

Table 3: Socio-demographic characteristics of the study participants

		Frequency	Percent
Type of Facility (n = 429)	Primary	297	69.2
	Secondary	126	29.4
	Tertiary	6	1.4
Level of Facility (n = 428)	Clinic / Medical Centre	43	10.1
	HCIII	182	42.5
	HCIV	91	21.3
	General Hospital	82	19.2
	Regional Referral Hospital	24	5.6
	National Referral Hospital	6	1.4
	Respondent's job/ role (n=429)	Paediatrician	1
HIV-trained doctor	7	1.6	
Non-HIV-trained doctor	7	1.6	
HIV trained Nurse/midwife	126	29.4	
Non-HIV trained Nurse/midwife	107	24.9	
HIV trained Clinical Officer	44	10.3	
Non-HIV trained Clinical Office	31	7.2	
Community health worker	9	2.1	
Social Worker	28	6.5	
HIV Counsellor	27	6.3	
Other*	42	9.8	
Gender (n=429)	Male	148	34.5
	Female	281	65.5

		Frequency	Percent
Age in years (n=422)	Mean (sd)	35.9 (10.0)	
	20-29years	149	35.3
	30-39years	141	33.4
	40-49years	79	18.7
	50+years	53	12.6
Number of years in profession (n=415)	Mean (sd)	10.1 (8.6)	
	<1 years	5	1.2
	1-4 years	131	31.6
	5-9 years	108	26
	10+ years	171	41.2
Number of years working in HIV (n=380)	Mean (sd)	4.7 (4.2)	
	<1 years	30	7.9
	1-4 years	205	54
	5-9 years	93	24.5
	10+ years	52	13.7
Number of years in current facility (n=418)	Mean (sd)	4.9 (5.2)	
	<1 years	32	7.7
	1-4 years	248	59.3
	5-9 years	81	19.4
	10+ years	57	13.6
Marital Status (n=425)	Single, never married	92	21.6
	Married	279	65.6
	Divorced	6	1.4
	Separated	6	1.4
	Co-habiting	22	5.2
	Widowed	20	4.7

* **Others include:** Coordinator (1), Dispensor (2), Lab Technician (12), Laboratory Assistant (8), Nursing Assistant (7), Nutritionist (2), peer educationist (1), pharmacy (1), public health dental officer (1), RCT volunteer (1), Records assistant (4) and Student (1)

Figure 1: Work experience of the study participants in the health profession, at the current facility and in the field of HIV Medicine



training on care and support of children with HIV, 55.2% (132/239) of those that responded to the question answered "No". Similarly, only 45.1% (107/237) reported having received formal training on care and support of adolescents with HIV. On the other hand, 68.2% (163/239) respondents reported having received formal training on HIV counseling in general; although only 38.7% (63/163) reported ever having received training on counseling of children living with HIV. Interestingly, a higher percentage (47.5%; 75/158) reported having receiving training on counseling of adolescents living with HIV. Slightly over half (58%; 246/42) reported having received formal

mentorship on care and support of people living with HIV. The participants reported being trained on paediatric HIV through a wide range of modalities with the most frequent being self- teaching through reading journals and other literature (37.2%; 157/422); conference attendance (23.8%; 99/416); and as part of continuous professional development (22.1%; 91/412). Only 23.8%, 13.9% and 10.5% of the respondents reported having received training sessions and obtaining a certificate on general HIV medicine, paediatric HIV medicine, and adolescent HIV medicine, respectively. As shown in Table 5. Only 30.7% (61/199) and 31.2% (62/199)

had received any formal training on treatment of children and adolescents living with hiv and adolescents living with HIV, respectively, as shown in Table 4.

3.1.3 Attitudes and Opinions about caring for children and adolescents living with HIV

Questions were asked to reflect the attitudes and opinions of the participants regarding several scenarios related to care and treatment of children and adolescents living with HIV. Although overall the responses could be regarded as positive attitudes, there were some

Table 4: HIV training background for clinicians

		Frequency	Percent
Ever received any formal training on treatment of children living with HIV (n=199)	Yes	61	30.7
	No	138	69.3
Approximate number of trainings received (n=105)	Mean (sd)	1.7 (1.7)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	0.5 (0.9)	
Ever received any formal training on treatment of adolescents living with HIV (n=199)	Yes	62	31.2
	No	137	68.8
Approximate number of trainings received (n=105)	Mean (sd)	1.5 (1.3)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	0.4 (0.9)	

Table 5: HIV training background for all Health workers

		Frequency	Percent
Ever received training on HIV medicine, excluding pre-service (n=430)	Yes	238	55.3
	No	192	44.7
Number of trainings received (n=232)	Mean (sd)	2.9 (2.2)	
Cumulative duration (months) of the trainings (n=222)	Mean (sd)	1.2 (4.8)	
Ever received training on care and support of children with HIV (n=239)	Yes	107	44.8
	No	132	55.2
Approximate number of trainings received (n=105)	Mean (sd)	1.5 (1.3)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	1.1 (6.1)	
Ever received training on care and support of adolescents with HIV (n=237)	Yes	107	45.1
	No	130	54.9
Approximate number of trainings received (n=105)	Mean (sd)	1.3 (0.7)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	0.4 (1.0)	
Ever received formal of training on HIV counselling? (n=239)	Yes	163	68.2
	No	76	31.8
Approximate number of trainings received (n=105)	Mean (sd)	2.1 (1.7)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	2.0 (9.5)	

		Frequency	Percent
Ever received training on HIV counselling for children with HIV (n=163)	Yes	63	38.7
	No	100	61.3
Approximate number of trainings received (n=105)	Mean (sd)	1.6 (1.2)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	0.5 (0.9)	
Ever received training on HIV counselling for adolescents with HIV (n=158)	Yes	75	47.5
	No	83	52.5
Approximate number of trainings received (n=105)	Mean (sd)	1.5 (1.0)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	0.3 (0.8)	
Received mentoring on treatment, care and support of people with HIV (n=424)	Yes	246	58
	No	178	42
Approximate number of trainings received (n=105)	Mean (sd)	3.7 (4.3)	
Cumulative duration (months) of the trainings (n=100)	Mean (sd)	15.7 (39.8)	
Did self-training on HIV medicine using journals and other literature (n=419)		189	45.1
Did self-training on paediatric HIV using journals and other literature (n=422)		157	37.2
Did self-training on adolescent HIV using journals and other literature (n=419)		124	29.6
Got instructions on HIV medicine through conferences on HIV/AIDS (n=422)		155	36.7
Got instructions on paediatric HIV through conferences on HIV/AIDS (n=416)		99	23.8
Got instructions on adolescent HIV through conferences on HIV/AIDS (n=421)		98	23.3
Took courses on HIV medicine during pre-service training (n=421)		118	28
Took courses on paediatric HIV as pre-service student (n=420)		86	20.5
Took courses on adolescent HIV as a pre-service student (n=413)		73	17.7
Took courses on HIV medicine as part of a continuing professional development (n=409)		143	35
Took courses on paediatric HIV as part of a continuing professional development (n=412)		91	22.1
Took courses on adolescent HIV as part of a continuing professional development (n=398)		85	21.4
Attended a formal training session on HIV medicine and received certificate (n=411)		98	23.8
Attended a formal training session on paediatric HIV and received certificate (n=411)		57	13.9
Attended a formal training session on adolescent HIV and received certificate (n=409)		43	10.5
Used web-based learning to get instructions on HIV medicine (n=402)		74	18.4

interesting findings. For instance (57.7%) strongly agreed or agreed that children with HIV could be effectively managed by any clinician with or without training on management of HIV positive children. Similar views were held regarding the management of adolescents living with HIV. On the other hand, (49.8%) reported that children with HIV should only be managed by HIV trained paediatricians. On whether children/ adolescents living with HIV deserve special treatment when compared to adults, they overwhelmingly agreed/strongly agreed (86.3%).

Although, most disagreed/ strongly disagreed that anti-HIV drugs were too strong for a child's young body, a relatively large proportion of (22%) agreed/strongly agreed that they were, while (2.6%) had no opinion. (49.4%) of health workers felt that the parents of an adolescent with HIV should be notified of the patient's status with or without his/ her "consent ". Also, a relatively large proportion (25%) felt uncomfortable offering condoms to sexually active adolescents. The details are in Table 6 and Figure 2.

3.1.4 Knowledge of Paediatric and Adolescent HIV Medicine

Several questions were asked to test for the knowledge of the participants on several aspects of diagnosis, care and treatment of HIV infected children and adolescents. Although, the clinicians answered more questions than the other health workers, it is worth noting that the other health workers registered higher scores (mean (sd) – 61.4 (12.5)%) than the clinicians (mean (sd) – 50.8 (7.3)%), as shown in Figures 3 and 4.

Figure 2: Attitudes and Opinions about Paediatric and Adolescent HIV Care (All Participants)

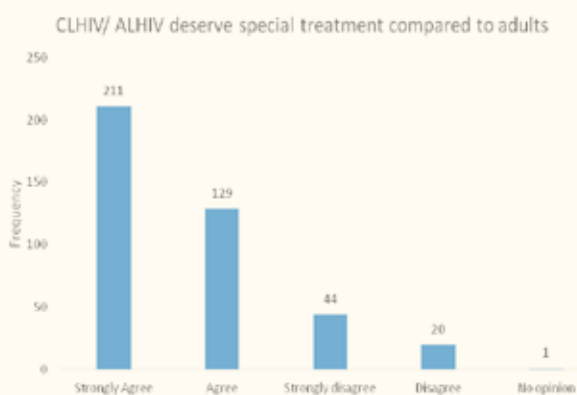


Fig 2a: Special treatment for children (CLHIV) or adolescents (ALHIV)

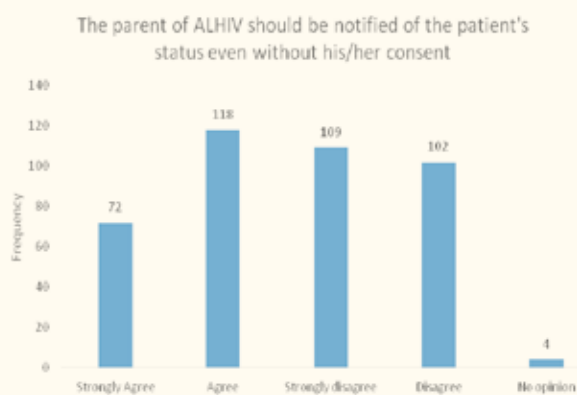


Fig 2b: Notification of parent's about Adolescent's HIV status

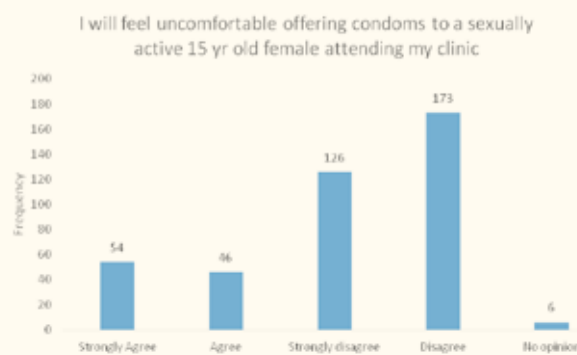


Fig 2c: Anti-HIV drugs are too strong for children

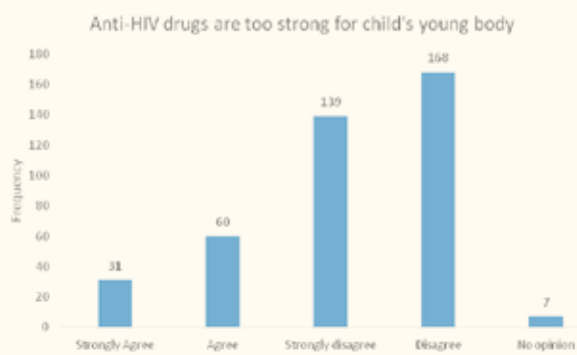


Fig 2d: Discomfort giving children adolescent condoms

Table 6: Attitudes and Opinions of Participants towards management of children and adolescents living with HIV

	Frequency	Percent	
Children with HIV can be effectively managed by any clinician with or without specific training on management of HIV positive children (n=423)	Strongly agree	69	16.3
	Agree	175	41.4
	Disagree	112	26.5
	Strongly disagree	64	15.1
	No opinion	3	0.7
Adolescents with HIV can be effectively managed by clinician with or minus specific training on management of HIV positive adolescents (n=423)	Strongly agree	48	11.4
	Agree	182	43.1
	Disagree	141	33.4
	Strongly disagree	50	11.8
	No opinion	1	0.2
Children with HIV should only be managed by HIV-trained paediatrician (n=424)	Strongly agree	117	27.6
	Agree	94	22.2
	Disagree	155	36.6
	Strongly disagree	55	13
	No opinion	3	0.7

Children/adolescents with HIV deserve special treatment compared to adults (n=424)	Strongly agree	226	53.3
	Agree	140	33
	Disagree	44	10.4
	Strongly disagree	13	3.1
	No opinion	1	0.2
Anti-HIV drugs/ ARVs are too strong for a child's young body (n=423)	Strongly agree	31	7.3
	Agree	62	14.7
	Disagree	152	35.9
	Strongly disagree	167	39.5
	No opinion	11	2.6
Parents of an adolescent with HIV should be notified of the patient's status even minus their consent (n=425)	Strongly agree	89	20.9
	Agree	121	28.5
	Disagree	111	26.1
	Strongly disagree	100	23.5
	No opinion	4	0.9
Pregnant adolescents with HIV attending ANC should be used to illustrate why pe-marital sex is bad (n=421)	Strongly agree	30	7.1
	Agree	51	12.1
	Disagree	107	25.4
	Strongly disagree	226	53.7
	No opinion	7	1.7
A sexually active 14-year-old female attending your clinic should be offered condoms (n=423)	Strongly agree	197	46.6
	Agree	157	37.1
	Disagree	29	6.9
	Strongly disagree	28	6.6
	No opinion	12	2.8
I feel uncomfortable offering condoms to a sexually active 15-year-old female attending my clinic (n=424)	Strongly agree	55	13
	Agree	51	12
	Disagree	131	30.9
	Strongly disagree	181	42.7
	No opinion	6	1.4

Whereas, 65% of the other health workers scored 61-80% (Figure 3), only 1% of the clinicians obtained scores in this range, with (93%) obtaining scores between 41-60% (Figure 4).

A closer look at the clinician's responses revealed notable findings. A relatively large proportion (19/190; 10%) answered that it was "False", regarding the statement that "HIV positive children below 10 years should commence on ARVs irrespective of their CD4 or clinical stage, according to the 2016 WHO consolidated ART guidelines". An even

larger proportion (81/188; 43.1%) made a similar statement regarding universal ART for adolescents was "False". When asked what they would do in a clinical scenario of an HIV exposed child presenting at 6 weeks, (14.7%) of the clinicians answered that they would defer cotrimoxazole until 3 months of age. Furthermore, 27.2% answered that NNRTIs were absolutely contraindicated in a TB/HIV co-infected child. In addition, majority of these clinicians (78.5%) responded that a 3 year old girl with oesophageal candidiasis was in WHO clinical stage 3. For this same girl, best recommended first-line ART was d4T+3TC+NVP.

When asked about a 5 year old boy that initiated a regimen of AZT+3TC+NVP 6 weeks earlier and presents with a severe rash all over the body, (42.1%) responded that the rash should be treated with hydrocortisone and antifungals, as the child continues with the ART. And when asked that if this same child presented with a dropped CD4 amidst good adherence, (35.2%) thought he would continue with the same regimen. The details of some of the responses are in Table 7 (for clinicians) and Table 8 (for other health workers).

Figure 3: Percentage scores on knowledge of Paediatric/ Adolescent HIV medicine by other health workers

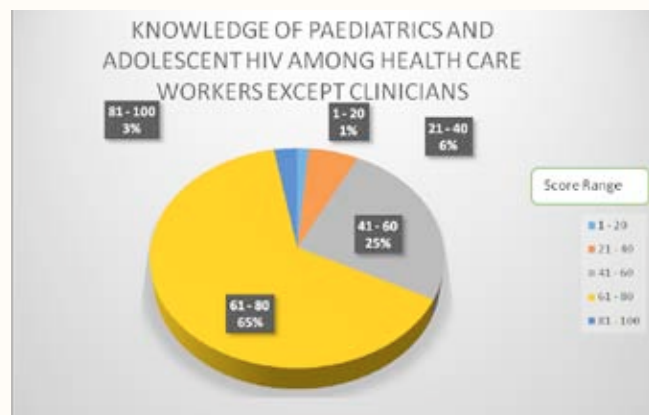


Figure 4: Percentage scores on knowledge of Paediatric/ Adolescent HIV medicine by clinicians

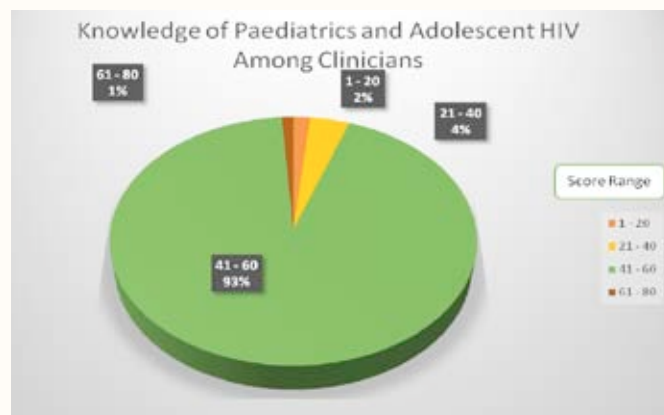


Table 7: Responses to clinical scenarios on Paediatric and Adolescent HIV by Clinicians

	Frequency	Percent	
According to WHO, HIV positive children below 10y should commence ARVs irrespective of their CD4 or clinical stage (n=190)	TRUE	171	90
	FALSE	19	10
According to WHO, HIV positive adolescents (10-19 years) should be commenced on ARVs irrespective of CD4 or clinical stage (n=188)	TRUE	107	56.9
	FALSE	81	43.1
Mirembe was diagnosed with HIV during pregnancy and gave birth to a daughter 6 weeks ago. Today she brings her to the under-5 clinic for her first immunization visit. There is no access to virologic tests available at your clinic. In addition to giving her immunizations. The respondent agrees that the next action to be taken should be:			
Prescribe single-dose Nevirapine only (n=186)	61	32.8	
Prescribe zidovudine for 6 weeks only (n=186)	10	5.4	
Prescribe Cotrimoxazole if her growth and development are appropriate (n=187)	127	67.9	
Prescribe Cotrimoxazole when the child is 3-month old (n=184)	27	14.7	
Developmental assessment should be performed at every visit (n=186)	176	94.6	
A 3-year-old HIV infected child presents with lymphadenopathy, severe oral candidiasis and severe pneumonia. Her CD4 is 20%. The respondent agrees to the fact that:			
She has WHO stage 11 disease (n=186)	75	40.3	
She is severely immunosuppressed (n=185)	158	85.4	
Defer starting her on antiretroviral therapy (n=182)	90	49.5	
The priority here is to manage opportunistic infections first (n=186)	130	69.9	
Screen the child for tuberculosis (n=183)	169	92.3	
Regarding immunological and virological assessment, the respondent agrees to the fact that:			
A CD4 % of 12 in a 4-year-old girl is suggestive of severe immune-suppression (n=180)	152	84.4	
Advanced immune-suppression in a child <1 year is defined as CD4% of 25 – 30 (n=178)	90	50.6	
Severe immune-suppression in a child > 5 years is defined as CD4 count < 200 (n=175)	119	68	
At 1 year of age, a child with a CD4 count of 700 is not immunosuppressed (n=181)	86	47.5	

	Frequency	Percent
HIV virologic test is necessary to make a diagnosis of HIV in children of all ages (n=184)	94	51.1
In a TB/HIV co-infected child, the respondent agrees to the fact that:		
There is an increased risk of developing primary progressive infection (n=184)	172	93.5
Most diagnostic criteria would have higher sensitivity and specificity (n=174)	111	63.8
NNRTIs are absolutely contraindicated (n=173)	47	27.2
It is possible to have a deteriorating clinical condition despite improving CD4+ count and suppression of viral load (n=183)	131	71.6
If TB develops while a child is on AZT, NVP and 3TC; a possible option is to substitute NVP with EFV or ABC (n=182)	149	81.9
Aisha is a 3-year-old girl who was recently diagnosed with HIV infection in a private hospital. She has been having recurrent illness with pneumonia, oesophageal candidiasis and recurrent diarrhoea. Her weight is 10kg with a CD% of 15%. Aisha lives with her grandmother as she had lost her mother to HIV last year. The respondent agrees to the fact that		
Aisha is in WHO clinical stage 3 (n=186)	146	78.5
Prior to initiation of ART, identification of a secondary caregiver is not desirable (n=183)	35	19.1
The following regimen is best recommended as first line ABC/3TC/EFV (n=184)	137	74.5
The following regimen is best recommended as first line D4T/3TC/NVP (n=182)	29	15.9
Ogwal is a five year old boy with HIV infection that was commended on AZT/3TC/NVP about 6 weeks ago. The respondent agrees that the following statements are true:		
If his Hb is 7g/dl all his ARVs should be stopped (n=181)	45	24.9
If his haemoglobin is 7g/dl, AZT should be substituted with an alternative drug (n=180)	161	89.4
If he develops a severe rash all over his body, it should be treated c.with hydrocortisone and antifungals, and he should continue ART (n=183)	77	42.1
If his mother reports that most of his time he vomits out the ARV drugs, the ARVs should be withdrawn immediately (n=182)	26	14.3
If after 6 months of ART with good adherence his CD4 has dropped, he should continue on the same ARV drugs (n=182)	64	35.2

Table 8: Responses to clinical scenarios on Paediatric and Adolescent HIV by other healthworkers

		Frequency	Percent
According to WHO, HIV positive children below 10y should be commenced on ARVs irrespective of their CD4 or clinical stage (n=243)	True	212	87.2
	False	31	12.8
According to WHO, HIV positive adolescents should be commenced on ARVs irrespective of CD4 or clinical stage (n=238)	True	139	58.4
	False	99	41.6
Concerning paediatric HIV counselling and testing, the respondent agrees that:			
For effective counselling all relevant information should be given at first contact (n=241)		210	87.1
Counselling should not include nutritional support and growth monitoring (n=239)		20	8.4
It is right to test a critically ill child whose parent refuses to consent for HIV testing for the purpose of immediate clinical management (n=240)		200	83.3
Post-test counselling should be provided by the same care provider who conducted the pre-test counselling (n=238)		189	79.4
In provider initiated testing and counselling, HIV testing is offered to all in-patient and out-patients seen in health facilities (n=238)		204	85.7
Regarding mother-to-child transmission (MTCT) of HIV, the respondent agrees to the fact that:			
More than 95% of paediatric HIV infections are due to MTCT of HIV (n=236)		184	78
All HIV infected women transmit HIV to their babies (n=242)		23	9.5
Sexually transmitted diseases increase risk of MTCT of HIV (n=239)		211	88.3

	Frequency	Percent
Babies are at risk of breast milk transmission of HIV only in the first 6 months of life (n=242)	71	29.3
Mixed feeding does not pose a higher risk for infants of HIV infected women (n=240)	47	19.6
Mirembe was diagnosed with HIV during pregnancy and gave birth to a daughter 6 weeks ago. Today she brings her to the under-5 clinic for her first immunization visit. There is no access to virologic tests available at your clinic. In addition to giving her immunizations, the respondent agrees that the next course of action should be:		
Prescribe single-dose Nevirapine only (n=229)	98	42.8
Prescribe zidovudine for 6 weeks only (n=226)	31	13.7
Prescribe Cotrimoxazole if her growth and development are appropriate (n=233)	148	63.5
Prescribe Cotrimoxazole when the child is 3-month old (n=223)	49	22
Developmental assessment should be performed at every visit (n=230)	211	91.7
The respondent agrees to the fact that supportive care for infected and affected children include:		
Psychosocial support in homes and communities (n=239)	233	97.5
Disclosure to all children at the age of 5 years (n=231)	81	35.1
Administration of BCG vaccine to all HIV exposed infants (n=230)	173	75.2
Administration of Measles vaccine twice at 6 and 9 months to all HIV (n=229)	123	53.7
About Nutrition and HIV, the respondent agrees to the fact that:		
Exclusive breastfeeding for the first 3 months of life is an option for babies of HIV-infected mothers (n=234)	98	41.9
Breast milk substitutes can be used if AFASS, which means affordable, feasible, adaptable, secure and safe (n=232)	172	74.1
Low birth weight is a common manifestation of HIV in the new born (n=232)	124	53.4
Nausea in HIV infected children may be managed with feeding small meals frequently and the avoidance of high fat and greasy diets (n=231)	163	70.6
A 3-year-old weighing 11kg is well nourished (n=229)	74	32.3
The respondent agrees that the following statements are true about the care of adolescents with HIV and AIDS		
Adherence to care and treatment can be a challenge (n=241)	215	89.2
Relationship with peers and family is developmental stage dependent (n=222)	164	73.9
Obtaining consent for medical treatment is easy (n=231)	66	28.6
Are unable to appreciate the long-term implications of diseases (n=221)	154	69.7
They often lack social skills (n=232)	163	70.3

3.3 Qualitative (Key Informant Interview) Findings

Using the key informant guide in, several areas were explored including: service delivery for HIV infected children and adolescents; knowledge and skill gaps related to the care of children and adolescents living with HIV; challenges faced in providing HIV services for children and adolescents; and methods

training and mentorship as well as delivery of HIV services for children and adolescents.

3.3.1 Service delivery arrangements for children and adolescents living with HIV

The study explored the existence of arrangements for providing HIV testing, treatment, care and support services to children and adolescents living with HIV and the key mechanisms are summarized in Table 9.

Table 9: Service delivery mechanisms for children and adolescents living with HIV

Thematic Area	Service Delivery Mechanism	Description and target	Gap
HIV Counseling and testing	HIV testing integrated in maternal and child health clinics	Early infant diagnosis as part of EMTCT HIV testing as part of ANC for pregnant adolescents Routine HIV testing in other medical settings like outpatient clinics included children and adolescents	Not at all health facilities Often limited by health system challenges such as stock-out of test kits, few health workers/heavy work load, and attitude of health workers. Not common in public health facilities
	Targeted campaigns/ programmes testing children, adolescents and their care givers	<i>Know your child's HIV status</i> implemented by big health facilities with support from implementing partners Home based testing for family members with adult/child in care	Irregular and limited in scope Does not target private health facilities
Care and Support	Integrated family care	Children and caregivers seen on the same day	Limited in scope mainly at large HIV care centers
		Children below 15 years initiated on treatment regardless of CD4 and HIV clinical staging	Gaps in linkages especially for adolescents Does not target private health facilities
	Adolescent specific clinics/ programmes	Adolescents living with HIV attended to on specific days	Limited in scope mainly at large HIV care centers (HC IV and above)
		Adolescent support groups Adolescent led peer models – adolescents involved in counseling, disclosure and adherence counseling support	Limited in scope mainly at large HIV care centers (HC IV and above) No standard guidelines on – engaging, supporting and evaluating such structures

The details are described below.

Regarding HIV counseling and testing, most informants noted that HIV testing services have been integrated in maternal, child and other health services thus providing an opportunity to identify children and adolescents living with HIV in through multiple service points such as the antenatal care (ANC) clinic, the elimination of mother to child transmission of HIV (eMTCT) programme, maternal and child wellness clinics, outpatient clinics and in-patient wards.

For those (children) below 18 months, the appointment is made in the mother baby care clinic and they are seen on a monthly basis (Key informant, District Health Team).

Study participants at health facility, district and national levels revealed that several health facilities especially at hospital and HC IV levels or HIV specialized care centres by implementing partners such as Baylor Uganda, Reach out Mbuya, The AIDS Support Organization (TASO) run periodical *Know Your child's HIV status*

campaigns as one informant noted. *We dedicate a special week for testing children like you find the regional referral hospitals; run 'know your child status campaign' usually in the first week of December to coincide with commemoration of the World AIDS Day celebrations. Health workers first start by mobilizing the community through radio and use all the available avenues so that parents and caregivers are able to bring children for HIV services (Key Informant, Government Ministry)*

Similarly, study participants revealed that some HIV care centers especially those run/supported by HIV implementing partners provided targeted home based HIV testing services mainly in families and neighbourhoods of their clients already in care as another avenue to reach children and adolescents. Children and adolescents found to be living with HIV in these settings are linked to care. It was however noted that compliance with linkages to care was specifically difficult for adolescents. While these initiatives could increase access to HIV testing for children and adolescents, challenges related to limited scale of these initiatives and health system gaps like few staff and stock-out of test kits hindered this potential. The campaigns were not regular and did not include private clinics.

With regard to HIV care, most study participants noted that services of children and adolescents are integrated with those of adults. Some big health care centres provided integrated services for children and their caregivers. A few health facilities run paediatric and adolescent HIV clinics on specific days either monthly or weekly. These were also reported to be limited.

We have special days for them like in the hospital it is not like the days for adults, we handle children on their own day so they are brought by their care takers and we give counseling to the caretaker then the health workers check the needs as per their clinic infections or what they are suffering from, treat them and also give them ARVs ... (Key Informant, District Health Team)

Another participant added:

...we have a number of adolescents and children and we manage them in the HIV Clinic. We have special days. ... One Wednesday in the month for adolescents and one Wednesday in a month for children. We have specific days, so every month we give appointments for these children on a particular day. Then we have children who are younger than this

especially those who have graduated from the early infant diagnosis and those we see them on a specific day with their mothers (Key Informant, Health facility).

At lower level health facilities, initiating child and adolescent specific clinics was hindered by inadequate staff and space as one informant noted.

The bigger facilities like the hospitals they have now well designated clinics for children and adolescents ... the challenge comes for the small facilities because of space and number of staff they may not have well designated facilities for children and adolescents. Sometimes they may be forced to really do everything (provide services for children and adults) within the same space (Key Informant, District Health Team).

This was echoed by another study participant:

There is no segregation, what we know is that the ART day is Thursday or Wednesday, so those clients come and crowd like that. We do not really have that specific clinic. For adolescents we do not have a special arrangement but so long as an adolescent needs a service, he/she comes and goes there and he is accessed (Key informant, District Health Team)

These findings indicate that while the big health facilities have special days for children and adolescents. This was not the case especially at lower level health facilities.

In addition, more specialized HIV care providers such as Baylor Uganda, Mild May, TASO were implementing peer led interventions such adolescent support groups and involvement of adolescents in day to day provision of care including counseling. These models were at few HIV care centers and national level study participants expressed lack of standard

guidelines on initiating, enhancing and evaluating the effectiveness of peer led interventions in enhancing adolescent HIV care as major gaps.

We are trying to roll out teen support and then I believe many implementing partners have psycho-social support clubs for adolescents but there hasn't been a structured approach for psychosocial services including rolling out of teen support structures in this country, so you find every organization is rolling out in their way and there is no standard minimum package for psycho-social support for adolescents..(Key Informant, Development partner)

While this was helpful in creating adolescent friendly care services, peer led initiatives were limited and implementers lacked operational and evaluation guidelines.

3.3.2 Knowledge and skill gaps in relation to paediatric and adolescent HIV

All key informants noted that while many HIV implementing partners have been involved in health worker training to improve the capacity for paediatric and adolescent HIV care, skill and knowledge gaps with regard to paediatric and adolescent HIV care still existed. Most informants attributed the persistent training needs to regular changes in HIV guidelines, high staff turn-over and lack of refresher training as one of the informants noted.

... in some or most of the places health workers have been trained but one complaint they have is that the training happens once and there is no refresher training...(Key Informant Implementing partner) .

The major gaps, and as such training needs, mentioned by study participants are summarized in Table 10.

Table 10: Thematic Training Needs in

Paediatric and Adolescent HIV care in Uganda

Thematic Area	Training Needs for Paediatric HIV	Training Needs for Adolescent HIV
HIV counseling and testing	<ul style="list-style-type: none"> - Skills in counseling and communicating with children - Disclosure of HIV status 	<ul style="list-style-type: none"> - Skills in counseling and communicating with adolescents - Disclosure of HIV status
Treatment	<ul style="list-style-type: none"> - Treatment – drugs, dosage, side effects - Diagnosis and management of HIV/TB co-infection - Diagnosis and management of other opportunistic infections - ARVs and malnutrition 	<ul style="list-style-type: none"> - Treatment – prescription of ARVs, dosage, side effects - Diagnosis and management of HIV/TB co-infection
Care and support	<ul style="list-style-type: none"> - Psycho-social support and counseling for children - How to address stigma among children 	<ul style="list-style-type: none"> - Psycho-social needs, support and counseling for adolescents - Strategies to keep adolescents motivated to adhere to ARVS - How to identify and address stigma among adolescents
Client monitoring	<ul style="list-style-type: none"> - Interpreting CD4 and Viral load results 	<ul style="list-style-type: none"> - Interpreting CD4 and Viral load results
Use of community and peer support models for children and adolescents	<ul style="list-style-type: none"> - Lack of skills in building and evaluating effective community and peer support programmes 	<ul style="list-style-type: none"> - Lack of skills in building and evaluating effective community and peer support programmes

The detailed findings are described below.

3.3.2.1 HIV Counseling and Testing

During HIV counseling and testing most informants mentioned that health workers have gaps in communication and counseling children, but more so with adolescents. Study participants observed that while over the years, paediatric HIV counseling and testing has been an area of focus in Uganda, adolescent HIV testing and care has not been equally prioritized partly because adolescents in HIV care have been few. Others argued that now that many children living with HIV are growing and becoming adolescents and therefore the need to deal with them is becoming greater. District and national level key informants expressed a need to train health care providers in counseling and communicating with children and adolescents living with HIV.

Health workers need that counseling element because the approach sometimes by some health workers maybe poor instead of attracting these adolescents they might be sending

them away- the adolescent Health friendly component should be looked at (In Charge nurses and midwives, (Key Informant, Health facility). Like the first one we talked about counseling, the way you talk children and adolescents is different from the way you talk to an adult because you need to have special skills to get information from them. If you treat them like adults they will either close off or will not be able to open up so many health workers have not yet got those skills (Key Informant, Government Ministry)

The challenge with adolescents is mainly about counseling or talking to the adolescents themselves. That's where the health worker skills are deficient. How do you actually talk to this teenager who is not even listening to you or pretending not to be listening to you so the skills around managing the adolescent client... challenges are much more. For the children it is actually through the caregivers but then we come

to counseling that's where the problem is because children should also be counseled as well as their care givers (Key Informant, Development Partner)

From the above narratives, it is clear that training health workers in counseling and communication with children and adolescents remains a major gap in paediatric and adolescent HIV care. Study participants noted that few health workers have been trained in this area, as one observed:

People were not comfortable counseling children and adolescents, so very few people were actually trained or interested in working with children because you also cannot take people for training who are not interested in working with children .But now at least health workers have appreciated that this is really important and there is need to train more health workers in counseling children and adolescents (Key Informant, Development Partner)

3.3.2.2 HIV treatment for children and adolescents

The major training needs identified for both children and adolescents were related to the drugs, dosage and side effects of ARVs, diagnosis and management of TB/HIV co-infection in children and adolescents, difficulties in examining and diagnosing opportunistic infections in children but also use of ARVs in malnourished children among others.

Knowledge and skill gaps in diagnosis and treatment of TB in children were a recurrent gap mentioned by several study participants at health facility, district and national levels. Some observations are outlined below:

...diagnosis of children with TB is still challenging but there are efforts in place even currently we are building the capacity of health workers (Key Informant, District Health Team).

Another gap is lack of knowledge and skill in diagnosing opportunistic infection in children and especially tuberculosis, the way it presents in children is very unique from the way it presents in adults and so the staff down there don't have adequate knowledge and skills to assess these children ... (Key Informant, District Health Team)

From the call centre reports (health workers call and get support on paediatric and adolescent HIV), questions normally repeat the frequently asked questions relate to drugs, side effects or what to give in case of stock out and so comprehensive knowledge is still an issue. Most questions are on TB, TB-HIV co-infection, treating underweight children..., the other one is they still suffer with stock outs, so they call and say now what do I do this drug is not here? so you know issues of alternatives... (Key Informant, Development Partner)

The major training needs identified for both children and adolescents were related to the drugs, dosage and side effects of ARVs, diagnosis and management of TB/HIV co-infection

Emerging from the above narratives is the fact that diagnosis and management of TB/HIV co-infection, ARVs and related side effects as well as treating malnourished children were some of the training needs for health workers.

3.3.2.3 Care and Support for children and adolescents

For older children and adolescents, most informants noted that identifying and addressing their psychosocial needs was a major training need among health workers. Most study participants noted that while some health workers had attended general HIV counseling training sessions, many had never attended specialized training on how to address psychosocial needs of children and adolescents. Major issues identified under this thematic area related to the need to train health workers on communication and counseling children and adolescents, identifying and addressing stigma, motivating children and adolescents to adhere to treatment, disclosure of HIV status and how to solicit family, community and school support for children and adolescents living with

HIV. Health workers required training in handling adolescents as one informant noted:

We have a big problem; the percentage of adolescents attending ANC is a challenge. ... first of all, they have stigma for being pregnant and the pressure even within the ANC, how to deal with adolescent especially an HIV positive adolescent who is pregnant requires a special package because you are dealing with a child basically, a child who is pregnant and that package seems not in place (Key Informant, Development Partner).

Another informant added:

Health workers need to be trained on what psycho-social care is and how it should be given. I think health workers need more of that especially since there are no counselors and there are minimal social workers in the health system. I personally studied palliative care and I think Palliative care gives a good over view of what the psycho-social aspect is. It integrates both the medical and psycho-social aspect and helps you understand the importance of the psycho-social aspect so probably if more health workers would be trained in palliative care, it would help ... (Key Informant, Development Partner).

3.3.2.4 Interpreting Client HIV Treatment monitoring tests

This was mainly observed among national level study participants; they mentioned that some health workers had difficulties in interpreting client monitoring tests such as CD4 and viral load tests. The difficulties in interpreting results were linked to viral load tests still being new at the facilities, thus some health workers had not been trained nor had a good understanding of such tests, as some informants mentioned.

The other gap where there is still need for more emphasis is viral load testing for both children and adolescents. There are efforts and trainings are going on but viral load interpretation of results and using them for patient care is still a challenge for health workers. Viral load is still a new thing that is confusing them (HWs). Some health workers ask, If a patient comes with viral load of 2000, what do I do? (Key Informant, Development Partner).

Emerging from the above voices is the need to train health care workers on interpretation of virological tests for children and adolescents living with HIV.

3.3.2.5 Lack of Skills in building and evaluating community and peer support programmes

Study participants mentioned that many HIV implementing partners are adopting community and peer support groups, as well as peer service providers to enhance care for children and adolescents living with HIV. However, such health workers were noted to require training; and the effectiveness of such structures in the delivery of paediatric and adolescent HIV services needed evaluation.

We are trying to promoting this peer led approach empower the adolescents to support their colleagues especially with adherence and psychosocial support.

But you also realize that we have a gap there. We do not have training curriculum for the peers. The training curriculum we have is for VHTs but not for peers. So you find that we are trying to pass on the information using the curriculum for health workers, which is not appropriate, because you have to tone it down to the level of the peer... (Key Informant, Government Ministry).

There is need to train staff who run psychosocial support clubs to prepare them to do a good job. Currently there is no standard curriculum and approach for psychosocial support ... (Key Informant, Government Ministry).

From the call centre reports, the frequently asked questions relate to drugs, side effects or what to give in case of stock out

3.3.4 Challenges faced by the clinic regarding managing HIV infected children and adolescents.

3.3.4.1 Limited community awareness and demand for paediatric and adolescent HIV services

Study participants highlighted limited community awareness and demand for paediatric and adolescent HIV services by communities. Stigma at family and community levels was another challenge to effective provision of paediatric and adolescent HIV services.

Even when we test, the groups that will be less likely to be linked to HIV care are children and adolescents because they create additional stigma to the family..... (Key informant, Development partner).

The participants recommended

community sensitization to include provision of information on children's rights and where services are offered. Use of adolescents as peer service providers was also recommended to reduce stigma among adolescents.

3.3.4.2 Shortage of Supplies

Stock out of critical supplies for paediatric and adolescent HIV care was another challenge to effective implementation of paediatric and adolescent HIV policies and guidelines. Study participants at health facility, district and national levels mentioned that supplies such as HIV test kits, ARVs and drugs for treatment and prevention of opportunistic infections often run out and limit effective delivery of HIV testing and treatment services for children and adolescents.

We have also had issues with supplies, you may find a health facility going without anti TB drugs for two or three

months or even HIV test kits ... (Key Informant, Health facility). Health workers still suffer with stock outs, so they call and say what do I do this drug is not here? So you know, sometimes there are no alternatives or health workers do not know them (Key Informant, Development Partner).

Stock-out of supplies meant that children and adolescents miss out or encounter delays in access to services.

3.3.4.3 Human resource related challenges

The main human resource challenges limiting paediatric and adolescent HIV service delivery were; inadequate staff, skill and knowledge gaps among health workers and lack of counselors in the Ministry of Health staff structure.

Few staff, we need more human resource those who can remain here

(facility) and those who can go for out reaches (Key Informant ,Health Facility). I think over all it gets back to resources somebody needs to invest more in the health sector give us the numbers build their capacity and give them what to work with including space and equipment to do their work (Key informant ,District Health Team)

The human resource challenges were compounded by the transfer of staff from these units to other departments. The implication here is that the new health workers need to be oriented about paediatric and adolescent HIV.

...there are gaps in the health work force, we are understaffed especially in the outpatient department, we need some more nurses, but I talked to the DHO and they promised to transfer in some more nurses. Sometimes they take health care workers for training and some of them after training they don't come back to give information to the rest of the health care workers. And also I have found this generally in most places that if a health care worker has been trained, and they come back and try to do on job training, the other health care workers will not be interested in learning (Key informant, Health facility)..

3.3.4 Preferred methods for health worker training with regard to paediatric and adolescent HIV care in Uganda

The study explored perspectives of study participants with approaches they use and those they would prefer in training health workers for the provision of quality paediatric and adolescent HIV services in Uganda; the findings are summarized in Table 11.

Table 11: Preferred Practices in health worker training on Paediatric and Adolescent HIV care in Uganda

Preferred Practices for training in Paediatric and Adolescent HIV care

- Mentorship training an avenue for health worker training
- Whole site training sessions at health facilities as opposed to workshop outside the health facility. This model was cherished by study participants for being cost effective and having an added advantage of reaching more health workers than the hotel/ workshop based training where only few health workers are often trained as representatives of health facilities.
- Toll free call in centre run by Baylor Uganda in collaboration with the Ministry of Health. This provides an opportunity for health workers to call and access expert advice from a multidisciplinary team consisting of doctors, nurses and counselors.
- The Ministry of health with support from partners has developed a centralized training curriculum on paediatric and adolescent HIV. It was noted that trainers of trainers had been trained from most Ugandan regions and are expected to roll-out the training to all districts of Uganda. Development of standard training content and training trainers are important elements in standardizing capacity building for health workers.
- Several implementing partners were engaging adolescent peers in service delivery but also to obtain feedback from service users on areas that require improvement.
- Use of mobile technology for training health workers. In this regard, ANNECA had initiated mobile phone applications and uploaded some training materials for health workers.
- Regular Continuing Medical Education at some health facilities was another avenue for skills and knowledge transfer to health workers.

Several informants were in favour of mentorship as an approach of training health workers, particularly coupled with facility based training:

Increase on the number of Health Facility-Based Trainings these external ones support one person or two but once they come to facilities a large number of staff get trained (Key informant ,Health facility).

Other study participants also argued for mentorship, that:-

Working with the health workers to have hands on mentorship is very important because sometimes you may train someone and if you do not go down to support them, it becomes difficult to put skills to use and to transfer skills to others (Key Informant, Government Ministry)

I think the mentorships would be the best,...they find them may be at health facility and train all of them and then there is someone who will follow-up and you have that ongoing link. I think the

mentorship would be the best because it is like internship... all interns are mentored so they have mentors alongside them as they move along. Mentorship would be the appropriate way to train health workers on adolescent and paediatric HIV (Key informant, Development Partner).

Some health workers and district officials mentioned the *Health Worker support call centre on Paediatric and adolescent HIV* as a source of knowledge on HIV care, as one of them observed.

The good thing is the free line by Baylor; you call and ask. Toll free line for adolescents and pediatrics is helping us so when we get stranded you can consult... (Key Informant, District Health Team)

In addition, Continuing Medical Education (CME) sessions at health facilities were other avenues for training health workers on paediatric and adolescent HIV. It was noted that some health facilities often conduct CME sessions on different topics including paediatric and adolescent HIV. The major gap with CMEs was that they were not implemented at all health facilities.

We usually have CMEs and you found us having one, but it was about other concerns. So we usually identify a topic and sometimes there is a topic, like for this financial year we have a schedule for CMEs. But if we identify a gap, like we have identified a gap in pediatric and adolescent HIV/AIDS Care we can organize a special CME. The last one was conducted by the in-charge

ART. If someone has gone for training in paediatric and say adolescent HIV/AIDS care, when they come back I ask them to organize a CME about that. That is how we have been doing it (Key Informant, Health facility)

Some health workers observed that such sessions though important in strengthening health worker knowledge and skills, they were in general irregular and donor dependent.

4.0 DISCUSSION

The study aimed at assessing the training needs with regard to paediatric and adolescent HIV/AIDS services, among health workers providing HIV/AIDS services for people living with HIV. This was achieved by utilizing quantitative and qualitative methods aimed at assessing the training the participants had received, their knowledge gaps, and attitudes towards providing care for HIV-infected children and adolescents. In addition, the qualitative (key informant interviews) methods were meant to provide what was perceived as the gaps and the priorities with preferred training approaches. The study showed that slightly over half of the health workers, most of whom were drawn from health centres III and IVs, had received training on HIV medicine in general; however less than half had received training on paediatric or adolescent HIV/AIDS. Similarly, although, over two thirds had received training on HIV counselling in general, less than half had received training on counselling children and adolescents. Of particular concern, is that only a third of the clinicians – those entrusted with initiating children and adolescents on ART and following them up, had received training on Paediatric or Adolescent HIV/AIDS.

This gap in training of health workers for provision of HIV/AIDS services for children and adolescents was also reflected in the key informant interviews, with a greater need highlighted for adolescent care and support. It is therefore not surprising that knowledge gaps were observed among the health workers in the quantitative survey. It is particularly important to note that the clinicians had lower scores than the other health workers. Although, the clinicians answered additional questions to those answered by the other health workers, these additional questions were meant to reflect their additional roles such as initiating of ART, recognition and management of adverse events to ART, and recognition of when to switch therapy. This is probably explained by the lower proportion of clinicians receiving paediatric/ adolescent HIV/AIDS training when compared to other health workers, and the clinicians having a comparatively lower proportion in HIV/AIDS service for over 5 years.

Although most health workers recognized that children and adolescents needed special attention from that given to adults, a large proportion had some reservations about providing care for them. For instance, there are those that felt the ARVs were too strong for a child's body; some did not recognize that adolescents could be provided with some autonomy to make decisions about their treatment and hence would need to notify their parents about their HIV status without the adolescents' consent, and in fact several were uncomfortable providing condoms to sexually active adolescents.

Many of the key informants at national, district and facility levels thought that facility based training was more effective than "hotel" based training. This is understandable since the actual people who provide the service would be the

ones trained at their work stations, rather than a few who could be selected to attend a workshop in a "hotel". It would also be less costly as transport and other logistic costs would essentially cover the facilitators, who are often comparatively few. The participants also recommended mentorship for the continuity it provides. On the other hand, while discussing the findings of this study with stakeholders in the country, who included representatives of government ministries of health, education and sports, gender and justice; implanting and funding partners; district health officials; and members of the paediatric ART committee of the ministry of health, an observation was made that whereas facility based training would be beneficial and by consensus was found to be preferred, there are health workers for whom hotel based training would be a motivation. The participant allowances

and a "breather" from the work place, would possibly motivate them to work better on return to the health facilities.

The study has shown that health workers involved in the care for children and adolescents living with HIV need to receive training in practically all forms of care, ranging from diagnosis, initiation of treatment, and retention in care if Uganda is to achieve the 90-90-90 targets by 2020. Training programmes like SAINTS implemented by Baylor Uganda in collaboration with ministry of health, with support from CDC/PEPFAR which trained 3,060 health workers in 10 districts in 5 years (2010-2016), including one district in our study (Bukedea), will need to be reviewed and from lessons learned similar or improved training programmes would need to be implemented on a wider scale.

This cross-sectional survey followed a desk review of existing training documents and guidelines which revealed that there were 25 documents for training and mentorship of health workers involved in the provision of care for children and adolescents living with HIV. The documents included: 13 training curricular (reflected in 19 documents), 3 sets of guidelines, 2 mentorship framework documents, and one (1) quality improvement framework document. These documents will need to be streamlined to identify key ones that the Ministry of Health would sanction as the training/mentorship documents for the country. Fortunately, majority of the documents were produced by or in partnership/ collaboration with the Ministry of health.

The training curricular covered all aspects of paediatric/adolescent HIV care. Notable among these were: *The 2014 National Paediatric HIV care and Treatment Curriculum (by MOH/ACP[28]); A competence based training manual for Health workers in the management of Tuberculosis in Children, 2015* (by National Tuberculosis and Leprosy Program (NTLP) [29]; *Adolescent HIV Care, Treatment and Support Training Curriculum. August 2015* (by MOH/ACP)[30]; *Psychosocial Care and Counselling for HIV-Infected Children and Adolescents: A training Curriculum. Revised edition, 2009* (by ANECCA, CRS/AIDS Relief). The *Clinical Systems Mentorship framework for comprehensive HIV and AIDS Prevention, Care, Treatment and Support services* (by MOH) released in March 2016, will provide the necessary guidance for mentorship that was highlighted as a key approach that will be effective in building the capacity of the health workers.

The key informant interviews stressed a need for Peer led support to children and adolescents living with HIV but added that there were no standardized procedures nor curricular for training the peer providers. Among the training curricular identified in the desk review,

were some specifically aimed at training lay workers/ peer providers; one targets adolescents. This curriculum, developed by Joint Clinical Research Centre (JCRC)/ Health Communications Partnership (HCP), in 2009, and entitled: *Curriculum for Training Adolescent Peer Change Agents and Counsellors: Manual for Training of Facilitators*, could be used as a basis for update and adopted for use by the HIV program just like the other training curricular of the Ministry of Health.

Regarding approach to training, the Ministry of Health is making a move towards more facility based training sessions. For instance, this is what was used for the “Test and Treat” roll out training and is what is being used for TB/HIV training. As observed by the key informants, this is a more effective approach. Another probably effective approach mentioned by the key informants was the toll free telephone line run by the Ministry of health in partnership with Baylor Uganda, which was launched in 2015. This provides guidance to the health workers at the actual time of providing the service; it could also be used for mentorship where the mentee calls the mentor and seeks guidance accordingly, and vice versa.

However, in spite of these positive steps taken by the ministry in terms of curriculum development and steps taken to try and use effective training/ mentorship approaches, the several challenges and bottlenecks in the system need to be addressed if the care of children and adolescents is to be optimized. The key informants cited stock out of HIV commodities, staff shortages and low demand for the paediatric and adolescent HIV services. Psychosocial support is so key in the care of people living with HIV, also observed in the key informant interviews, yet the cadre of “counselor” is currently not present in the Ministry of health structure. Intra-Health International in collaboration with Ministry of Health implemented 2 projects with support from USAID/

PEPFAR to strengthen health workforce management; these projects provided data that led to increased funding by the Ministry of Finance which enabled recruitment of 7211 health workers in one fiscal year (2012-2013). Such efforts will need to be replicated to achieve an optimal work force.

The current indicators in the country show that adolescent HIV care lags behind that of adults and children living with HIV. The key informant interviews and the attitudes reflected in the quantitative survey of health workers imply that training on adolescent care and support will need to be prioritized. Fortunately the Ministry of health has a curriculum to use.

The Ministry of Health sets standards for health facilities to be accredited by the Ministry of Health to provide ART. However, the ART program has no clear and routinely updated guidelines for provision of paediatric and adolescent

The key informant interviews stressed a need for Peer led support to children and adolescents living with HIV but added that there were no standardized procedures nor curricular for training the peer providers

HIV services in Uganda. WHO provides a list of standards for delivery of quality services, including those specifically for adolescents, which could be adapted by Uganda. It is great that the country has a quality improvement framework which could be made use of to improve the paediatric and adolescent HIV services.

This study had several strengths: first it combined quantitative and qualitative methods; the knowledge gaps identified in the quantitative survey were largely explained by the findings of the key informant interviews. Secondly, the sample was obtained from facilities in districts randomly selected from all regions of Uganda. The facilities were of a wide range including public and private facilities and at all levels of health care for HIV/AIDS. Furthermore, the key informants were drawn from national,

district and facility level, and included the development partners.

There were some limitations, key among them was that the study did not directly capture perspectives of children and adolescents living with HIV and their caregivers yet these are critical stakeholders for effective training of health care providers. Besides they could have provided insights on priority client needs and skills/knowledge gaps among health care providers. However, given that we purposively targeted actors involved in the design and implementation of paediatric and adolescent HIV services, we are confident that the stakeholder perspectives we obtained in this study provide rich insights about the strengths, gaps and suggestions to enhance the skill and knowledge of health care providers to provide quality paediatric and adolescent

HIV care services. Secondly, due to time and resource constraints, there is a wide range of other stakeholders who could have been involved in the study such as religious leaders, the media, business entities, other development actors and government departments. However, the country wide focus of our study and the fact that most stakeholder narratives did not vary greatly, we are confident that the findings largely reflects the training needs and actions needed to strengthen paediatric and adolescent HIV services in Uganda.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

- Knowledge gaps were observed among the health workers across the continuum of care for children and adolescents living with HIV; from diagnosis, to care and treatment, to retention in care. The clinicians had lower scores than other health workers in the quantitative assessment, although there was some difference in the questions.
- The study identified facility based training/mentorship as the preferred and probably more effective method of training. Another probably effective approach identified was the toll free telephone line which is a good tool for providing guidance to health workers as they provide care and could be a viable avenue for mentorship.

5.2 Recommendations

- There is urgent need to provide training for health workers involved in the care of children and especially adolescents living with HIV. This study suggests that clinicians, or those involved in treating and monitoring those on treatment, should be prioritized.
- Facility based training and mentorship should be promoted given their relatively low cost and more importantly their probable effectiveness for capacity building at the facility.
- Psychosocial support is important in delivery of service to children and particularly adolescents living with HIV. Peer support is a viable approach and the Ministry of Health should update the existing curricular in the country, such as that developed by JCRC/HCP, and come up with an appropriate one for use accordingly. For effective delivery of HIV services for children and adolescents, in addition to training, system/ structural issues will need to be addressed. Such include maintaining stocks of HIV commodities, and ensuring adequate staffing. It may even require having counselors in the Ministry of health staff structure.
- As the capacity of health workers is enhanced with training and mentorship, the ministry will need to set minimum standards for provision of HIV services for children and adolescents.

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Appendix I :

List of Health Facilities and Health care workers that participated in the Quantitative survey by cadre

Health facility Name	No. of Staff interviewed		
Agali HCIII	2	Kinyara HCIII	7
Agape Nursing Home	3	Kiswa HCIII	8
Amaca HCIV	3	Kitayunjwa HCIII	11
Angal HCIII	2	Kokoro HCIII	2
Angal Hospital	7	Kolir HCIII	6
Aponong HCIII	3	Kucwiny HCIII	2
Barrite HCIII	5	Kyambogo University Med Ctr	9
Boroboro HCIII	6	Lira Regional Referral Hospital	13
Bugolobi Medical Center	4	Lwamata HCIII	6
Bukedea HCIV	5	Malera HCIII	6
Bukomero HCIV	8	Masindi Regional Referral Hospital	10
Bunjako HCIII	6	Mbulamuti HCIII	7
Butabika Hospital	6	Mpigi HCIV	5
Butebo HCIV	4	Muduuma HCIII	8
Buwama HCIII	6	Murchison Bay Hospital	2
Buwanaga HCIV	1	Naankandulo HCIV	1
Bwijanga HCIV	10	Nabirumba HCIII	4
Bwindi Community Hospital	5	Naguru Teenage Information HC	2
China Uganda Friendship Hsp.	11	Namuwendula HCIV	1
Gogonyo HCIII	5	Namwendwa HCIV	8
Ikoba HCIII	4	Nankandulo HCIV	10
Kabale HCIII	1	Nebbi Hospital	9
Kabarwa HCIII	6	Ngetta HCIII	6
Kabwangasi HCIII	3	Nkozi Hospital	7
Kachumbala HCIII	4	Nyakatare HCIII	5
Kakoro HCIII	1	Nyaravur HCIII	7
Kambuga Hospital	11	Ogur HCIV	4
Kameke HCIII	2	Pag HCIV	4
Kamuge HCIII	3	Pakanyi HCIII	6
Kamuli Gen Hospital	12	Pakwach HCIV	6
Kamuli Mission Hospital	11	Pakwach Mission HCIII	4
Kanginima Hospital	3	Palisa Gen Hospital	2
Kanjimo Hospital	1	Palisa Mission Kaucho HCIII	2
Kanugu HCIV	3	Reach-out Mbuya	17
Kasodo HCIII	3	ST. Peters Clinic	3
Katete HCIII	9	ST. Stephens Dispensary and Mat. Center	4
Kibale HCIII	4	Uganda Cares Naguru	1
Kiboga Hospital	9	Wadelai HCIII	7
Kidongole HCIII	3	[Missing]	2
Kihihi HCIV	11	Total	430

Appendix 2:

Structured questionnaire for training needs assessment

Rapid Assessment of Training Needs and Mentorship approaches for Children and Adolescent HIV Services in Uganda Structured Questionnaire

Demographic information (For All Health Care Worker Respondents)

1. **Health facility:** _____
2. Type of Facility
 - a. Primary 1
 - b. Secondary 2
 - c. Tertiary 3
3. Respondent's job/ role
 - a. Paediatrician 1
 - b. HIV-trained doctor (in-service) 2
 - c. Non-HIV-trained doctor (in-service) 3
 - d. Nurse/midwife – HIV trained 4
 - e. Nurse/midwife – non-HIV trained 5
 - f. Clinical Officer – HIV trained 6
 - g. Clinical Officer – non-HIV trained 7
 - h. Community health worker 9
 - i. Social Worker 10
 - j. HIV Counsellor 11
 - k. Other Please specify: _____ 99
4. Sex: Male (1) Female (2)
5. Age (years): _____
6. No of years in profession: _____
7. No of years working on HIV: _____
8. No of years working in this facility: _____
9. Marital Status
 - a. Single – never married 1
 - b. Married 2
 - c. Divorced 3
 - d. Separated 4
 - e. Co-habiting 5
 - f. Widowed 6

HIV Educational Background (For All Health Care Worker Respondents)

10. Have you ever received any formal of training on HIV medicine, excluding pre-service training? Yes (1) No (2)
(If No, go to question 28)
11. If yes to question 10 above, approximately how many trainings have you received?
12. If yes to question 10 above, what is the cumulative duration of the training?
13. Have you ever received any formal training on care and support of children living with HIV Yes (1) No (2)
(If No, go to question 16)

14. If yes to question 13 above, approximately how many trainings have you received?
15. If yes to question 13 above, what is the cumulative duration of the training?
16. Have you ever received any formal training on care and support of adolescents living with HIV Yes [] (1) No [] (2)
(If No, go to question 19)
17. If yes to question 16 above, approximately how many trainings have you received?
18. If yes to question 16 above, what is the cumulative duration of the training?
19. Have you ever received any formal of training on HIV counselling? Yes [] (1) No [] (2) (If No, go to question 28)
20. If yes to question 19 above, approximately how many trainings have you received?
21. If yes to question 19 above, what is the cumulative duration of the training?
22. Have you ever received any formal training on HIV counselling for children living with HIV Yes [] (1) No [] (2)
(If No, go to question 25)
23. If yes to question 22 above, approximately how many trainings have you received?
24. If yes to question 22 above, what is the cumulative duration of the training?
25. Have you ever received any formal training on HIV counselling for adolescents living with HIV Yes [] (1) No [] (2)
(If No, go to question 23)
26. If yes to question 25 above, approximately how many trainings have you received?
27. If yes to question 25 above, what is the cumulative duration of the training?
28. Have you ever received any form of formal **mentoring** on treatment, care and support of people living with HIV? Yes [] (1) No [] (1) (If No, go to question 31)
29. If yes to question 28 above, approximately how many times have you been mentored in the last 24 months?
30. If yes to question 28 above, approximately how many people have you mentored in the last 24 months?
31. Which of the following scenarios applies to you (Mark True or False as appropriate)?
- a. I did self-training on HIV medicine using journals and other literature (1)
 - b. I did self-training on paediatric HIV using journals and other literature (2)
 - c. I did self-training on adolescent HIV using journals and other literature (3)
 - d. I got instructions on HIV medicine through conferences on HIV/AIDS (4)
 - e. I got instructions on paediatric HIV through conferences on HIV/AIDS (5)
 - f. I got instructions on adolescent HIV through conferences on HIV/AIDS (6)
 - g. I took courses on HIV medicine during pre-service training (7)
 - h. I took courses on paediatric HIV as pre-service student (8)
 - i. I took courses on adolescent HIV as a pre-service student (9)
 - j. I took courses on HIV medicine as part of a continuing professional development programme (10)
 - k. I took courses on paediatric HIV as part of a continuing professional development programme (11)
 - l. I took courses on adolescent HIV as part of a continuing professional development programme (12)
 - m. I attended a formal training session on HIV medicine and received certificate (13)
 - n. I attended a formal training session on paediatric HIV and received certificate (14)
 - o. I attended a formal training session on adolescent HIV and received certificate (15)
 - p. I used web-based learning to get instructions on HIV medicine (16)

HIV Educational Background (For only Clinicians)

32. Have you ever received any formal training on treatment of children living with HIV Yes [] (1) No [] (2) (If No, go to question 35)
33. If yes to question 32 above, approximately how many trainings have you received?
34. If yes to question 32 above, what is the cumulative duration of the training?
35. Have you ever received any formal training on treatment of adolescents living with HIV ? Yes [] (1) No [] (2) (If No, go to question 38)

36. If yes to question 35 above, approximately how many trainings have you received?
37. If yes to question 35 above, what is the cumulative duration of the training?

Attitudes and opinions about paediatric and adolescent HIV (For All Health Care Worker Respondents)

38. A child living with HIV can be effectively managed by HIV clinician whether or not that clinician has specific training on management of HIV positive children.
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
39. An adolescent living with HIV can be effectively managed by HIV clinician whether or not that clinician has specific training on management of HIV positive adolescents.
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
40. Children with HIV should ideally only be managed by an HIV-trained paediatrician because children are too complicated.
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
41. Children/adolescents living with HIV deserve special treatment compared to adults.
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
42. Anti-HIV drugs/ ARVs are too strong for a child's young body
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
43. The parents of an adolescent with HIV should be notified of the patient's status even without his/her consent
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
44. Pregnant adolescents with HIV attending an antenatal clinic should be used to illustrate to the rest of the antenatal clinic attendees why pre-marital sex should be avoided.
- | | |
|----------------------|---|
| a. Strongly agree | 1 |
| b. Agree | 2 |
| c. Disagree | 3 |
| d. Strongly disagree | 4 |
| e. No opinion | 5 |
45. A sexually active 14-year-old female attending your clinic should be offered condoms.
- | | |
|-------------------|---|
| a. Strongly agree | 1 |
|-------------------|---|

- b. Agree 2
 - c. Disagree 3
 - d. Strongly disagree 4
 - e. No opinion 5
46. I will feel uncomfortable offering condoms to a sexually active 15-year-old female attending my clinic.
- a. Strongly agree 1
 - b. Agree 2
 - c. Disagree 3
 - d. Strongly disagree 4
 - e. No opinion 5
- f.

Knowledge of paediatric and adolescent HIV (For clinicians only)

47. According to the 2016 WHO recommendations on management of children with HIV, HIV positive children below 10 years of age should be commenced on ARVs irrespective of their CD4 or clinical stage True [] (1) False [] (2)
48. According to the 2016 WHO recommendations on management of adolescents with HIV, HIV positive adolescents (10-19 years) should be commenced on ARVs irrespective of CD4 or clinical stage True [] (1) False [] (2)

For Questions 49 - 63, indicate whether the statement is true (1) or false (2)

49. Concerning HIV infections in children:
- a. When using CD4 estimation to monitor disease progression and treatment response in infants, it is better to use the absolute number rather than CD4 Cell percentage
 - b. Virologic set-point occurs early in infection when CD4 cells are produced and the HIV virus is actively replicating
 - c. The presence of HIV antibody in a child less than 12 months of age defines HIV infection
 - d. Infection before 4 months of life increases HIV disease progression in infants
 - e. Breastfeeding accounts for more than 50% of HIV transmission in children
50. Concerning paediatric HIV counselling and testing:
- a. For effective counselling all relevant information should be given at first contact or visit
 - b. Counselling should not include nutritional support and growth monitoring
 - c. It is right to test a critically ill child whose parent refuses to consent for HIV testing for the purpose of immediate clinical management
 - d. Post-test counselling should be provided by the same care provider who conducted the pre-test counselling
 - e. In provider initiated testing and counselling, HIV testing is offered to all in-patient and out-patients seen in health facilities
51. Regarding mother-to-child transmission (MTCT) of HIV
- a. More than 95% of paediatric HIV infections are due to MTCT of HIV
 - b. All HIV infected women transmit HIV to their babies
 - c. Sexually transmitted diseases increase risk of MTCT of HIV
 - d. Babies are at risk of breast milk transmission of HIV only in the first 6 months of life
 - e. Mixed feeding does not pose a higher risk for infants of HIV infected women
52. Mirembe was diagnosed with HIV during pregnancy and gave birth to a daughter 6 weeks ago. Today she brings her to the under-5 clinic for her first immunization visit. There is no access to virologic tests available at your clinic. In addition to giving her immunizations, what else should you do?
- a. Prescribe single-dose Nevirapine only
 - b. Prescribe zidovudine for 6 weeks only
 - c. Prescribe Cotrimoxazole if her growth and development are appropriate
 - d. Prescribe Cotrimoxazole when the child is 3-month old
 - e. Developmental assessment should be performed at every visit
53. A 3-year-old HIV infected child presents with lymphadenopathy, severe oral candidiasis and severe pneumonia. Her CD4 is 20%
- a. She has WHO stage 11 disease
 - b. She is severely immunosuppressed
 - c. Defer starting her on antiretroviral therapy
 - d. The priority here is to manage opportunistic infections first

- e. Screen the child for tuberculosis
54. Regarding immunological and virological assessment
- a. A CD4 percentage of 12 in a 4-year-old girl is suggestive of severe immunosuppression
 - b. Advanced immunosuppression in a child less than 1 year is defined as CD4 percentage of 25 – 30
 - c. Severe immunosuppression in a child older than 5 years is defined as CD4 count < 200
 - d. At 1 year of age, a child with a CD4 count of 700 is not immunosuppressed.
 - e. An HIV virologic test is necessary to make a diagnosis of HIV in children of all ages
55. In a TB/HIV co-infected child;
- a. There is an increased risk of developing primary progressive infection
 - b. Most diagnostic criteria would have higher sensitivity and specificity
 - c. NNRTIs are absolutely contraindicated
 - d. It is possible to have a deteriorating clinical condition despite improving CD4+ count and suppression of viral load
 - e. If TB develops while a child is on AZT, NVP and 3TC; a possible option is to substitute NVP with EFV or ABC
56. In management of OIs;
- a. Cotrimoxazole prophylaxis lowers the risk of pneumocystis jirovecii pneumonia (PCP), toxoplasmosis, salmonella species and malaria
 - b. LIP occurs in less than 5% of HIV infected children
 - c. Prednisolone is useful in treating LIP
 - d. In a child with white patches in the mouth, retrosternal pain on swallowing, refusal of food and excessive salivation; oral nystatin should be the drug of choice
57. Aisha is a 3-year-old girl who was recently diagnosed with HIV infection in a private hospital. She has been having recurrent illness with pneumonia, oesophageal candidiasis and recurrent diarrhoea. Her weight is 10kg with a CD% of 15%. Aisha lives with her grandmother as she had lost her mother to HIV last year. The following statements are true:
- a. Aisha is in WHO clinical stage 3
 - b. Prior to initiation of ART, identification of a secondary care giver is not desirable
 - c. The following regimen is best recommended as first line ABC/3TC/EFV
 - d. The following regimen is best recommended as first line D4T/3TC/NVP
58. Ogwal is a five old boy with HIV infection that was commenced on AZT/3TC/NVP about 6 weeks ago. The following statements are true:
- a. If his Hb is 7g/dl all his ARVs should be stopped
 - b. If his haemoglobin is 7g/dl, zidovudine (AZT) should be substituted with an alternative drug
 - c. If he develops a severe rash all over his body, it should be treated with hydrocortisone and antifungals, and he should continue ART
 - d. If his mother reports that most of his time he vomits out the ARV drugs, the ARVs should be withdrawn immediately
 - e. If after 6 months of ART with good adherence his CD4 has dropped, he should continue on the same ARV drugs
59. Supportive care for infected and affected children include
- a. Psychosocial support in homes and communities
 - b. Disclosure to all children at the age of 5 years
 - c. Administration of BCG vaccine to all HIV exposed infants
 - d. Administration of Measles vaccine twice at 6 and 9 months to all HIV infected/exposed children
 - e. Basic essential services identified by the National Plan on Action on OVC focuses on health and psychosocial support only
60. About Nutrition and HIV
- a. Exclusive breastfeeding for the first 3 months of life is an option for babies of HIV-infected mothers
 - b. Breast milk substitutes can be used if AFASS, which means affordable, feasible, adaptable, secure and safe
 - c. Low birth weight is a common manifestation of HIV in the new born
 - d. Nausea in HIV infected children may be managed with feeding small meals frequently and the avoidance of high fat and greasy diets
 - e. A 3-year-old weighing 11kg is well nourished
61. The following statements are true about the care of adolescents with HIV and AIDS
- a. Adherence to care and treatment can be a challenge
 - b. Relationship with peers and family is developmental stage dependent

- c. Obtaining consent for medical treatment is easy
 - d. Are unable to appreciate the long-term implications of diseases
 - e. They often lack social skills
62. Concerning care of adolescents with HIV;
- a. Those in Tanner Stages 1 & 11 are managed using paediatric ARV guidelines, while those in stages 111 and above are managed using adult ARV guidelines
 - b. Pill burden and lifestyle may be barriers to adherence
 - c. Having treatment partners may not be useful to adolescents
 - d. Life skills training should be part of any adolescent care program
 - e. Developing self-awareness and managing emotions are components of life skills
63. The minimum health services package for paediatric HIV and AIDS care should include the following:
- a. Confirmation of HIV status as early as possible
 - b. Advocacy to policy makers
 - c. Monitoring growth and development
 - d. Diagnosis and early treatment of other infectious (Malaria, TB and ARI)
 - e. Appointment of a paediatrician for paediatric OPD care.

Knowledge of paediatric and adolescent HIV (For All Health Care Workers except Clinicians)

64. According to the 2016 WHO recommendations on management of children with HIV, HIV positive children below 10 years of age should be commenced on ARVs irrespective of their CD4 or clinical stage True [] (1) False [] (2)
65. According to the 2016 WHO recommendations on management of adolescents with HIV, HIV positive adolescents (10-19 years) should be commenced on ARVs irrespective of CD4 or clinical stage True [] (1) False [] (2)

For Questions 66 – 73, indicate whether the statement is true (1) or false (2)

66. Concerning paediatric HIV counselling and testing:
- a. For effective counselling all relevant information should be given at first contact or visit
 - b. Counselling should not include nutritional support and growth monitoring
 - c. It is right to test a critically ill child whose parent refuses to consent for HIV testing for the purpose of immediate clinical management
 - d. Post-test counselling should be provided by the same care provider who conducted the pre-test counselling
 - e. In provider initiated testing and counselling, HIV testing is offered to all in-patient and out-patients seen in health facilities
67. Regarding mother-to-child transmission (MTCT) of HIV
- a. More than 95% of paediatric HIV infections are due to MTCT of HIV
 - b. All HIV infected women transmit HIV to their babies
 - c. Sexually transmitted diseases increase risk of MTCT of HIV
 - d. Babies are at risk of breast milk transmission of HIV only in the first 6 months of life
 - e. Mixed feeding does not pose a higher risk for infants of HIV infected women
68. Miremba was diagnosed with HIV during pregnancy and gave birth to a daughter 6 weeks ago. Today she brings her to the under-5 clinic for her first immunization visit. There is no access to virologic tests available at your clinic. In addition to giving her immunizations, what else should you do?
- a. Prescribe single-dose Nevirapine only
 - b. Prescribe zidovudine for 6 weeks only
 - c. Prescribe Cotrimoxazole if her growth and development are appropriate
 - d. Prescribe Cotrimoxazole when the child is 3-month old

- e. Developmental assessment should be performed at every visit
69. Supportive care for infected and affected children include
- a. Psychosocial support in homes and communities
 - b. Disclosure to all children at the age of 5 years
 - c. Administration of BCG vaccine to all HIV exposed infants
 - d. Administration of Measles vaccine twice at 6 and 9 months to all HIV infected/exposed children
 - e. Basic essential services identified by the National Plan on Action on OVC focuses on health and psychosocial support only
70. About Nutrition and HIV
- a. Exclusive breastfeeding for the first 3 months of life is an option for babies of HIV-infected mothers
 - b. Breast milk substitutes can be used if AFASS, which means affordable, feasible, adaptable, secure and safe
 - c. Low birth weight is a common manifestation of HIV in the new born
 - d. Nausea in HIV infected children may be managed with feeding small meals frequently and the avoidance of high fat and greasy diets
 - e. A 3-year-old weighing 11kg is well nourished
71. The following statements are true about the care of adolescents with HIV and AIDS
- a. Adherence to care and treatment can be a challenge
 - b. Relationship with peers and family is developmental stage dependent
 - c. Obtaining consent for medical treatment is easy
 - d. Are unable to appreciate the long-term implications of diseases
 - e. They often lack social skills
72. Concerning care of adolescents with HIV;
- a. Those in Tanner Stages 1 & 11 are managed using paediatric ARV guidelines, while those in stages 111 and above are managed using adult ARV guidelines
 - b. Pill burden and lifestyle may be barriers to adherence
 - c. Having treatment partners may not be useful to adolescents
 - d. Life skills training should be part of any adolescent care program
 - e. Developing self-awareness and managing emotions are components of life skills
73. The minimum health services package for paediatric HIV and AIDS care should include the following:
- a. Confirmation of HIV status as early as possible
 - b. Advocacy to policy makers
 - c. Monitoring growth and development
 - d. Diagnosis and early treatment of other infectious (Malaria, TB and ARI)
 - e. Appointment of a paediatrician for paediatric OPD care.

Thank you for your time.

Appendix 3:

Key Informant Interview (KII) Guide – HIV Training needs assessment for health workers on delivery of HIV services to children living with HIV

Background, rationale and informed consent – see informed consent information sheet (have the interviewee sign the informed consent form, including consent for audio taping the interview).

Section A: Demographic details

Interviewer's name: _____ Date of interview _____

Interviewee's Sex: _____ Age: _____

Professional Role: _____

Office Address: _____

Phone number: _____ Email: _____

Section B

Tell us about how HIV+ children and adolescents are managed in this facility/program.

Probing questions:

- a. Do you have special arrangements for conducting HIV Counselling and Testing (HCT) for children?
- b. In this facility/program do you have a special clinic for managing children and adolescents with HIV?
- c. In this facility/program, are there areas that may require improvements in your perception?
- d. What are some of the challenges you have encountered with managing children and adolescents living with HIV?
- e. Are there paediatricians in this facility, where applicable?
- f. If yes have these paediatricians received additional training on managing children and adolescents with HIV?
- g. Is there any particular support you may require to improve the management of children and adolescents living with HIV?
- h. Are there any skills gap that you have observed among your staff working with children and adolescents living with HIV?
- i. Is there any knowledge gap that you have observed among your staff working with children and adolescents living with HIV?
- j. How do you train your staff on children living with HIV and who does the training for you?

Appendix 4 :

List of Research Assistants, Data entry clerks and Supervisors; and the local data analysis team

Supervisors		Research assistants	
1	Ilakut Christine	1	Kitimbo Joshua
2	Sarah Naiga Noah	2	Mpanga Tonny
3	Susan Mutesi	3	Okwakol Susan
4	Serunjogi David	4	Atusinguza Patricia
5	Emmanuel Curuma Obia	5	Sebatta Fixion
		6	Mbabazi Moureen
		7	Leah Wanyenya
		8	Kalumba Jamilah
		9	Balikurungi Abdullatifh
		10	Iriza Rosemary
		11	Naiga Aminah
		12	Kansiimire Aisha
		13	Nanyunja Flavia
Data entry clerks			
1	Edigar Nabugodi		
2	Tumusiime Ashraf		

Data Analysis team

Quantitative data

Dr. Matthias Alagi, MBBS, M.Sc (Epid & Med Stat), FWACP (Comm Health)
Consultant Public Health Physician and Epidemiologist Email: matthiasalagi@gmail.com

Qualitative data

Joseph Rujumba, BSWA, MA, PhD Lecturer, Makerere University College of Health Sciences
Email: jrujumba@yahoo.com

Appendix 5 :

Informed consent form

KEY INFORMANTS AND HEALTH WORKERS

Good morning/ Good afternoon, my name is _____

About the study

This study involves conducting analysis of policies and guidelines on children and adolescents living with HIV; and the training needs assessment for service providers in Uganda. The Ministry of Health (MoH) in partnership with African Network for the Care of Children Affected by HIV/AIDS (ANECCA) commissioned it. The information you will provide shall help them to understand the policy gaps in service delivery, access and utilization by children and adolescents, and training needs of health service providers to better plan health services for them. You have been selected because you are involved in provision of HIV services to children and adolescents in Uganda. Your participation is voluntary and will incur you no cost. It will also not affect your appointment at your present or future job.

- The Principal Investigators are Dr. Hizaamu Ramadhan and Dr. Victor Musiime who are in-charge of the study. The Co-investigators are Dr. Makeba Shiroya-Wandabwa, Dr. Chidi Victor Nweneka, Dr. Denis Tindyebwa and Dr. Robert Iriso.
- This study was approved by the Makerere University School of Public health Higher Degrees Research and Ethics Committee (Chairperson is Dr Suzanne Kiwanuka, Tel- 0701-888-163 or 0312-291-397)

The interview will take 30-45 minutes.

Risks

Although the study involves collection of data from you, the design of the study does not include procedures relating to taking any biological samples. Minimal risks are expected and these could be from distress arising from questions that may be considered sensitive.

Benefits

There are no direct benefits to participants themselves at the time of the study. However, there are indirect social benefits that include the fact that this data will help ANECCA and MoH to review relevant policies and guidelines as well as develop a training strategy for service providers with respect to pediatric and adolescent health and HIV services.

Voluntary participation

In case you are not interested in the study, you do not have to participate and no benefits will be lost. One of your rights to participate in this study is that you can withdraw from this study at any time.

Confidentiality

The answers you give us will only be known to us and will be kept confidential. For all study participants, names shall not be taken; instead, anonymous identifiers will be used, and referred to during the discussions, so that no names shall be tagged to particular responses. All answers provided shall only be known to the research team and will be kept confidential.

Authorization to use and disclosure of your information

Signature: Signing below indicates that; you have been informed about the study in which you volunteer to participate; that you have asked the questions about the study and that information given to you has permitted you to make a fully informed decision about the participation in the study. By signing this consent form, you, do not waive any legal rights. A copy of this consent form will be provided to you. In case of any questions regarding the study, please contact the Principal Investigators, Dr Hizaamu Ramadhan on telephone: 0772 408816; and Dr Victor Musiime on telephone: 0772 401749.

In case of any questions regarding your rights, please contact the chairperson of the Makerere University School of Public health Higher Degrees Research and Ethics Committee, Dr Suzanne Kiwanuka, on Telephone: 0701-888-163 or 0312-291-397.

Respondent signature: _____ Date: _____

Interviewer's name: _____ Telephone Contact: _____

Signature: _____ Date: _____



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by HIV and AIDS [ANECCA]

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