

# **MAKERERE UNIVERSITY WALTER REED PROJECT**

## **ANNUAL REPORT 2021**



The background of the slide is a collage of images. The top half shows a laboratory setting with a person in a white lab coat and a face mask working at a bench. The bottom half shows two men in business suits, one of whom is wearing a face mask. The entire image is overlaid with a semi-transparent white rectangle containing the text. The background has a vibrant green and blue color scheme with abstract patterns and splatters.

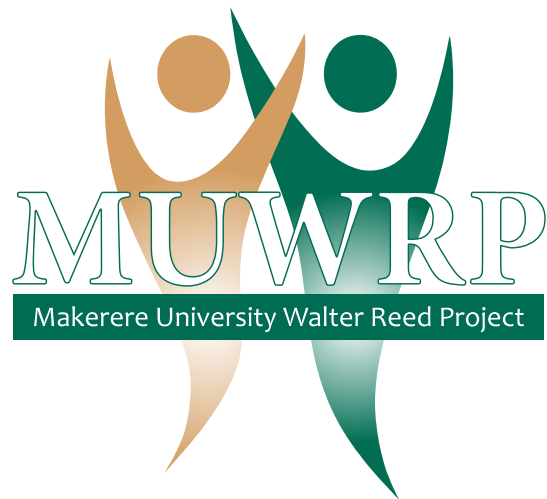
## **VISION**

To be a leading biomedical research organization for better health.

## **MISSION**

To mitigate disease threats through quality research, health care and disease surveillance.





# **ANNUAL REPORT 2021**

[www.muwrp.org](http://www.muwrp.org)

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# ABOUT *MUWRP*



## Makerere University Walter Reed Project (MUWRP) is a not-for-profit research program established in 2002 by Makerere University in partnership with the Henry M. Jackson Foundation for the Advancement of Military Medicine (HJM).

### “

**VISION**  
**To be a leading biomedical research organization for better health.**

**MISSION**  
**To mitigate disease threats through quality research, health care and disease surveillance.**

The original focus of the research program was to establish local capabilities for conducting high quality phase I to phase III HIV vaccine trials and HIV high risk cohort studies.

The program's scope has since expanded to include clinical trials in other infections such as neglected tropical diseases, surveillance projects in emerging and re-emerging infections, the Joint Mobile Emerging Disease Intervention Clinical Capability (JMEDICC) program to build capacity to conduct clinical research during filovirus outbreaks as well as implementation of a comprehensive HIV prevention, care and treatment program in Mukono, Kayunga, Buvuma and Buikwe districts.

Since its inception, MUWRP has focused on development of research infrastructure, definition of cohorts, acquisition of appropriate products for evaluation, and clinical evaluation of these products.

MUWRP has successfully enrolled and retained participants for five Phase I and II HIV vaccine trials; 5 Phase I and II Ebola vaccine trials, one Schistosomiasis vaccine trial and 2 phase III/IV HIV therapeutic clinical trials. The Schistosomiasis vaccine trial is the first of its kind to be conducted in Africa.

Surveillance projects initiated in 2008 have focused on Influenza and influenza like illnesses in humans and animals, antimicrobial resistance and acute febrile illness at several sentinel sites where reports generated are shared with MoH and other relevant key stakeholders.

The HIV prevention, care and treatment program which started in one district in 2005 currently covers 4 districts and majorly focuses on Health systems strengthening to facilitate the achievement of UNAIDS 95-95-95 goal.



Over the years, *MUWRP* has developed facilities and infrastructure to accomplish project goals to include several research clinics and research sites across Uganda, a College of American Pathologists (CAP) accredited clinical and research laboratory, 2 BSL-2 human and non-human Emerging Infectious Disease Program (EIDP) laboratories, a high containment

BSL-2 filovirus research laboratory and support to several public health clinical laboratories.

*MUWRP* has an established Grants office to support resource mobilization efforts for sustainability of organizational funding.

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***MUWRP* has an established Grants office to support resource mobilization efforts for sustainability of organizational funding.**



*MUWRP Head Office*





## CHAIRMAN OF THE BOARD

**As we continue through these challenging COVID-19 pandemic times, MUWRP's unique ability to respond flexibly and its agility in ensuring continued research, surveillance and strengthened service delivery for the Ugandan population over the year 2021 was commendable.**



**The research program also delivered highly in ensuring that all participants are safe...**

It has been a unifying year in terms of the global community's understanding of the importance of biomedical research as the world battled to address the COVID -19 epidemic while seeking to ensure readiness to mitigate new epidemics. MUWRP celebrates, its contribution to the global and national health plan and its resilience in living to its mission of mitigating disease threats through quality research, health care and disease surveillance during the hit of the pandemic.

Our support with the National response to COVID-19 through three of our programmes; the Emerging and re-emerging Disease Surveillance Program (EIDP), Joint Mobile Emerging Infectious Diseases Clinical Capability (JMEDICC) and the PEPFAR comprehensive HIV prevention care and treatment programme, highlights MUWRP's relevance to the public health needs of the country.

We have worked hard to support all program activities and together with all our partners continued to fulfil the wishes of our sponsors and funders. The research program also delivered highly in ensuring that all participants are safe and that research activities are adequately conducted despite the challenges of lockdowns.

Thanks to the continued support of all our funders, MUWRP seeks to continue to collaboratively consolidate current programs while looking to form new partnerships in more areas of biomedical research as well as

**PROF. FRED WABWIRE-MANGEN**

*MUWRP Board Chairman*



## BOARD MEMBERS



**Prof. Fred Wabwire-Mangen**  
Board Chairman, *MBChB,*  
*DTM&H, MPH & PhD*



**Prof. Nelson Sewankambo**  
Founder Member, *MBChB, MSc,*  
*M.MED, FRCP & LLD (HC)*



**Prof. David M. Serwadda**  
Founder Member, *MBChB,*  
*MSc & MPH*



**Corey Hastings**  
Henry Jackson Foundation  
*MBA & CPA*



**Dr. Leigh Anne Eller**  
Ex-officio, *Ph.D*



**Milly Katana**  
Community Member,  
*M.A, MPH*



**Dr. Merlin Robb**  
Founder Member, *MD*



**Birungyi Cephas Kagyenda**  
Legal/Financial Management  
Expert, *LLB & Dip. Legal Practice*



**Prof. Elly Tebasoboke Katabira**  
Research Community  
Representative, *MD & FRCP*



**Dr. Hannah Kibuuka**  
Board Member, *MBChB,*  
*MMED, MPH*





## EXECUTIVE DIRECTOR

**I warmly welcome you to the MUWRP 2021 Annual Report. This is the first of its kind presented to our external collaborators and stakeholders. You will find a somewhat detailed report that has MUWRP background information intended to provide context for the achievements and challenges of the year.**

The year 2021 was especially exciting as it followed a more restrictive year 2020 that saw the establishment of a new normal with reductions in the staff numbers that physically went to office and others majorly working from home. MUWRP executive management instituted an infection, prevention and control (IPC) committee, which was tasked to oversee the health and safety requirements for all MUWRP staff and customers during the raging COVID-19 epidemic.

Our Administration department worked tirelessly to ensure smooth running of project activities. This required putting in place several innovations to maximize outputs virtually. Working with the MUWRP PEPFAR program, vaccination camps were organized to support staff and their close relatives to access vaccination. All MUWRP programs continued to function uninterrupted. Research and surveillance studies established site risk management plans and received further guidance from research regulators to conduct these activities with minimal risks to research participants and staff. The HIV care, treatment and prevention program required innovations to continue providing HIV care during the COVID-19 pandemic but also attain the required targets despite a restrictive environment.

The challenges and the lessons learned in year 2021 are invaluable as we continue into the unpredictable future with COVID-19.

**DR. HANNAH KIBUUKA**  
*MUWRP Executive Director*

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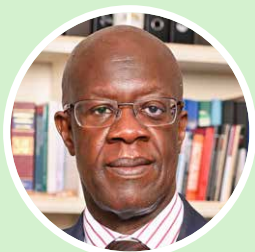
**The challenges and the lesson learned in year 2021 are invaluable...**



## Executive Management



**Prof. Fred Wabwire-Mangen**  
Executive Chairman



**Prof. Nelson Sewankambo**  
Executive Member



**Prof. David M. Serwadda**  
Executive Member



**Dr. Hannah Kibuuka**  
Executive Director



**Dr. Betty Mwesigwa**  
Deputy Executive Director



**Arthur Natwijuka**  
Director - Finance  
& Administration



**Dr. Prossy Naluyima**  
Laboratory Director



**Dr. Fred Magala**  
PEPFAR Program Director

## Departmental Leadership



**Jude Thaddeus Ssensamba**  
EIDP Program Manager



**Dr. Okello Stephen Erecu**  
JMEDICC Program Manager



**Anne Frances Nakirijja**  
PEPFAR Program Manager



**Ezra Musingye**  
Senior Data Manager



**Dr. Allan Tindikahwa**  
Head, Quality & Compliance



**Dr. Grace Mirembe**  
Research Manager



## Staff Highlights

### ALLEN KIGOZI PROFESSIONAL AWARD (AKIPA) WINNER 2021



**Mark Ivan Kayiso**, Program Officer (*Monitoring and Evaluation*)

Mark primarily supports Strategic Information for Community Prevention Programs (Orphans and Vulnerable Children (OVC), Determined resilient Empowered AIDS free Mentored Safe (DREAMS), Key Populations (KP) & Pre-Exposure Prophylaxis (PrEP).

With over eight (8) years' experience, Mark has exhibited exceptional aptitudes and skills in Data Base and Systems (DBS) management, design, analysis, data quality assessments and designing operational procedures, proposals, protocols and policies, coupled with distinctive working knowledge of different statistical packages such as Statistical Package for the Social Sciences (SPSS), STATA, Geographical Information Systems (GIS), Ms. Access, tableau, Excel visuals, Clinic Master, R Statistical Software and Uganda EMR. In the past year, Mark developed a number of useful databases that eased the general PEPFAR programming i.e. the PEPFAR Human Resource for Health (HRH) Specific database, the OVC tracker preventive database, the in-house synchronization tools that support quality HIBRID and Data for Accountability Transparency Impact Monitoring (DATIM) reporting [OVC, KP and Antiretroviral Therapy (ART)], supported in the development of the institutional M&E system and work plan that aligns the implementation schedules of the PEPFAR programmes and also developed the KoboCollect; a system that supports collection of data in challenging situations. In addition, regardless of the COVID-19 risks he demonstrated a high level of efficiency and service above self that led to the successful submission of the DOD-WRAIR PEPFAR application. Mark received AKIPA in appreciation for his outstanding and selfless contribution to support MUWRP's vision, mission and core values.

#### **About the Award:**

Allen Kigozi (RIP), was a former Field Administrator for Makerere University Walter Reed Project. She is remembered for having demonstrated an exceptionally high level of integrity and commitment to her job before her untimely passing. AKIPA is the highest professional Award in the organization, first awarded in 2014 and is given to outstanding individuals that demonstrate exceptional merit in the support of MUWRP's mission, vision and core values.



## SHINING BEYOND BOUNDARIES:



In 2021, Albert was named amongst the top 10 CIO & IT Executives in the East African Region by the prestigious CIO100 magazine and recognized in the top 40 under 40 years most impactful Ugandans. His ability to drive change aligned with strategic objectives through the continued development of innovative, robust, and secure information-communication infrastructure and biomedical technologies throughout MUWRP and beyond is remarkable and for this he is recognized.

Albert is a highly competent professional with over 15 years of experience. A Certified Information Systems Security Professional (CISSP) and a Health Care Information Systems Privacy Practitioner

(HCISPP); he holds a BSc. IT, MSc. Human Centered Systems & Computer Engineering from Birmingham University and an Executive MBA. He leads technology and technological resources, system security, and establishes the technology vision, strategies, and growth plans of the organization. In a year disrupted by a pandemic, Albert launched a digital procurement solution amidst an aggressive lockdown.

This initiative enabled uninterrupted supply-chain of medical supplies to clinics, laboratories and public health facilities. Up to 80% of associated costs were cut and Turn Around Times improved threefold; transparency and teleworking were achieved. The net effect is efficient delivery of critical services and resources to an ever-growing pool of over 80 public health facilities and 20,000 active patients.

**Albert Musinguzi ,**  
*Chief Technology Officer*

“

**launched  
a digital  
procurement  
solution amidst  
an aggressive  
lockdown.**



## BEST TEAM OF THE YEAR – 2021



**Gladys Atim and Andrew Mubiru**  
*Laboratory Technologists - EIDP Lab, Entebbe*

### The MUWRP Emerging Infectious Diseases Programme (EIDP) Laboratory Team - Entebbe

The MUWRP-EIDP laboratory team at the Uganda Virus Research Institute (UVRI) is comprised of Andrew Mubiru and Gladys Atim, both Laboratory Technologists. They oversee the day-to-day running of the Biosafety Level II EIDP laboratory located at the National Influenza Center, at the Uganda Virus Research Institute (UVRI), in Entebbe. The team is responsible for analyzing, subtyping, and sharing influenza surveillance data for public health decision making. **Andrew** and **Gladys** demonstrated a strong sense of loyalty, hard work, teamwork, and timeliness, that saw improvements in efficiency and timely reporting of surveillance results to the Ministry of Health and the funders. Their dedication saw the team work during weekends, public holidays, and spend long hours at the facilities just to ensure that program objectives are met, and on time. In 2021 they analyzed over 5000 samples, making it possible for EIDP to achieve over 95% of its programmatic milestones. They are a winning team because irrespective of the COVID-19 pandemic disruptions and risks, they continued to work diligently, providing critical SARS-CoV-2 surveillance information to the Ministry of Health. They are MUWRP's immediate ambassadors to UVRI, a role very well played. With such a selfless commitment and dedication, the MUWRP-EIDP Entebbe laboratory team is a model for an achievement worth emulating.

## EDITORIAL TEAM



**Dr. Betty**  
**Mwesigwa**

**Brenda**  
**Kyohangirwe**

**Stephen**  
**Mugamba**

**Albert**  
**Musinguzi**

**Stephanie**  
**Nakimuli**

**Jesca**  
**Nawatti**

**Ronald**  
**Gombya**



# 2

## *MUWRP* **PROGRAMS**





## Clinical Research

*Research During the COVID-19 Pandemic*

**For 2 decades, MUWRP has demonstrated leadership in biomedical research in the country. MUWRP has successfully conducted several phase I/II HIV vaccine trials to determine if experimental vaccine candidates are safe and if they induce favourable immune responses against HIV infection.**

Results from these trials have greatly informed the HIV vaccine research field in terms of which experimental vaccines can be improved or advanced for further testing.

In addition, the implementation of these phase I/II trials has helped to establish infrastructural capacity, human resource expertise and processes to enable Uganda participate in future large-scale efficacy trials (Phase III trials) that will determine if the experimental vaccines actually prevent

HIV infection. MUWRP has also established HIV cohorts including among high risk individuals to learn more about high risk behaviour and early phase viral dynamics, diversity, host responses and possible therapeutic interventions. This information feeds directly into the efforts to develop new vaccines and therapeutic products.

Since inception MUWRP's Clinical Trials Research Clinic (CTRC) located at MUWRP headquarters on Plot 42 Nakasero road in Kampala has successfully implemented 12



vaccine trials (5 for candidate HIV vaccines and 5 for candidate Ebola vaccines, one Schistosomiasis candidate vaccine and one COVID-19 vaccine trial), one HIV human monoclonal antibody trial, one HIV high risk observational cohort and one longitudinal biological specimens collection study to determine HIV existence in different body compartments. Results from these studies have been shared in both local and international scientific fora through presentations and publications.

The overall goal of the CTRC is to be a center of excellence for the conduct of quality biomedical research and a trusted partner for national, regional and international research collaborations.

The CTRC remains focused on continued growth of MUWRP's research portfolio and building sustainable research capacity through training of clinical and administrative research teams in the relevant clinical trial approaches.

### **The achievements during 2021:**

- Despite the COVID-19 pandemic and resultant containment restrictions like the nationwide lockdowns, the team carried on with trial protocol activities following Institutional Review Board and research regulatory authority guidance. Some of the study visits had to be conducted telephonically while critical ones for study integrity were conducted physically with strict adherence to COVID-19 risk

mitigation measures. Innovations to reach the study participants included; conducting field visits, flexibility in visit schedules to suit both protocol and participant needs and working with the trial sponsors who gave guidance on protocol priorities including participant safety. The research team completed follow up of the Phase I Schistosomiasis trial and began enrolment into the Phase II of the trial titled "A Phase I/II Trial of the Safety, Immunogenicity, and Efficacy trial of a Schistosomiasis Vaccine candidate in Healthy Exposed Ugandan Adults." The study aims at assessing the safety, immunogenicity and efficacy of a vaccine candidate against *Schistosoma mansoni*. Study activities are conducted close to the study population in a fishing village along Lake Victoria. By the end of the year the team had enrolled 63/200 participants required for the phase II of the study with enrolment expected to end in the second quarter of financial year 2022.

- Due to its' renown clinical trials experience, the site was selected to coordinate the regulatory approval process of a Phase III, multi-site COVID-19 vaccine trial entitled "A parallel-group, Phase III, multi-stage, modified double-blind, multi-armed study to assess the efficacy, safety, and immunogenicity of two SARS-CoV-2 Adjuvanted Recombinant Protein Vaccines (monovalent and bivalent) for prevention against COVID-19 in adults 18 years of age and older" in Uganda. The team successfully coordinated protocol submissions

“

**The team successfully coordinated all protocol and supporting documents submissions for ten Ugandan sites...**



“  
... 90% visit  
attendance  
and 97%  
participant  
retention  
despite of  
the COVID-19  
disruptions

for 10 Ugandan sites. In addition, the team successfully recruited participants into this competitive trial despite challenges related to product importation. Our ability to enroll competitively is testament to our long-term experience in planning, organizing and community engagement for clinical research purposes.

- The research team also completed follow up of participants in the “Nucleosides and Darunavir/Dolutegravir In Africa trial (The NADIA trial)” at MUWRP’s, Mukono-based field research site. This was a second line ART trial that completed follow up with over 90% visit attendance and 97% participant retention despite the COVID-19 disruptions. Following end of study follow up, all participants were successfully transitioned back to

their parent facilities at the national HIV treatment centers for continued care.

- The site also successfully completed the five year follow up (the long-term extension phase with a focus on long term safety of the products) of the RV417 clinical trial protocol “A Phase 1/2a Study to Evaluate the Safety/Tolerability and Immunogenicity of Homologous Ad26 Mosaic Vector Vaccine Regimens or Ad26 Mosaic and MVA Mosaic Heterologous Vector Vaccine Regimens, with High-Dose, Low-Dose or no Clade C gp140 Protein Plus Adjuvant for HIV Prevention”. No major safety concerns were reported from our participants in the long-term extension study. Final data analysis is ongoing.



*Attending to a Research Participant*



## Clinical Research Pharmacy



Research Pharmacy

**MUWRP has a state-of-the-art research pharmacy with long term experience in managing investigational products including investigational new drugs (INDs) in accordance with national and international standards.**

The MUWRP research pharmacy has an approved Division of AIDS (DAIDS) Pharmacy Establishment Plan ready to support DAIDS protocols. It is connected to heavy duty stand-by generators and a battery bank (inverter system) for backup power and a power stabilization unit that protects against voltage surge from the national grid. The pharmacy is equipped with fire extinguishers and access to it is limited by both biometric and lock and key systems.

Due to the COVID-19 pandemic, the pharmacy made necessary adjustments to ensure that active clinical trials maintained scientific credibility. A cloud based remote temperature monitoring system with real time access to all investigational product storage units via a mobile phone application with both dialing and messaging functionalities in case temperature deviations occurred was instituted. With this system, pharmacy personnel were in position to remotely monitor

**“**  
**Due to the COVID-19 pandemic, the pharmacy made necessary adjustments to ensure that active clinical trials maintained scientific credibility.**



“  
2021 was more  
challenging than  
ever before due  
to the fact  
COVID-19  
limited the  
person to  
person contact  
with the  
community

investigational products. Pharmacy personnel were physically at the site only on days subjects were scheduled to receive investigational products. In addition, the pharmacy provided mentorship to 2 new research sites participating in the phase III COVID-19 vaccine trial in pharmacy set up and importation and receipt of investigational product.

## COMMUNITY ENGAGEMENT & OUTREACH FOR RESEARCH

The success of MUWRP's research activities is also explained by a strong and highly experienced Community Engagement team which undertakes a broad range of activities to include; general sensitization of the communities about research, community dialogues with opinion leaders and key persons in the communities to solicit for feedback and development of

communication materials that appeal/resonate with the communities. All this is done to sustain enrolment and retention in all research studies. In terms of community engagement for research, 2021 was more challenging than ever before due to the fact COVID-19 limited the person to person contact with the community members. However, the team was able to sustain engaging their target communities through radio messaging, flyers, posters as well as the new digital platforms such as WhatsApp, short message services and direct voice calls.

## RESEARCH DATA MANAGEMENT

Research data management is managed by a fully-fledged department that conducts data processing activities to include: development of data collection tools, electronic data capture, database development and management, data quality control and query management, data cleaning, generation of follow up reports, performing statistical analyses, and short and long term archival of study records.

## Achievements in the Data Department

These include:

- Continued support performing statistical analyses that have resulted in peer reviewed manuscripts.



*Dr. Hannah Kibuuka Engaging the Ugandan Parliamentarians about HIV Vaccines in Uganda*



- For the Emerging Infectious Diseases Program, we continued to locally manage and host study data via OpenClinica and REDCap database platforms.
- Piloting of a digitized document archival system of study documents for the EIDP program in order to reduce the paper load and ease retrieval of study documents.

### QUALITY AND COMPLIANCE (QMC):

Under this section are 2 main components

#### 1- Regulatory Affairs/Compliance:

At all times this component ensures that research and all other activities comply with national and international regulatory guidelines. The team

ensures that all study protocols are reviewed by an accredited ethics committee in Uganda, then further submitted for approval and registration by the Uganda National Council of Science and Technology (UNCST).

#### 2- Quality Management:

This is implemented in line with approved Quality Management Plans that cater for quality control and periodic quality assurance activities.

The Quality Management Plan (QMP) and Standard Operating Procedures that the site is currently using is based on the DAIDs guidelines. These are updated as and when necessary to suit the requirements of the research protocols.



**This is implemented in line with approved Quality Management Plans that cater for quality control and periodic quality assurance activities.**

### Quality Management & Compliance Achievements in 2021

Coordinated regulatory approvals for 10 sites implementing the SANOFI Phase III COVID-19 Trial (VAT00008)

Ensured protection of research subjects and staff against SARS-COV-2 transmission by developing a risk management plan for each of the ongoing studies.

Successfully embraced the UNCST and NRIIMS online submission systems and ensured that studies continued smoothly throughout the COVID-19 period.

Successfully interacted with regulatory personnel, sponsor personnel, clinical trial monitors etc. The team was able to facilitate remote protocol monitoring in addition to safely physically hosting clinical monitors as and when required.



## Clinical Research Pivoting in the *COVID-19* Pandemic



*Continuing with Research during COVID-19 Pandemic*

**The *COVID-19* outbreak created dilemmas for clinical research implementation and businesses globally. Innovative approaches for continued research while ensuring the protection of staff and research volunteers against the virus were needed.**

In response to the pandemic, we implemented risk-reduction measures and procedures for conducting research following the Presidential, Ministry of Health and Research Regulatory guidance.

We instituted symptom and body temperature checks for staff and visitors on access to the premises. Social distancing among staff, patients and

participants while at the clinic, office premises was encouraged. Isolation spaces were also created for anyone who developed symptoms or signs.

All staff, participants and visitors used appropriate Personal Protective Equipment including; masks, face shields, disposable aprons as appropriate while on-site. Staff with COVID-like symptoms remained in home



isolation, were supported to receive testing and assessed for fitness to de-isolate once symptoms had resolved.

These measures supported safe continuity of research activities during the pandemic.

## Research focus for the subsequent year

### **New protocols;**

A Multi-centre Observational Cohort Study on HIV and Other Infections (MOCHI/RV583).

A HIV Obstruction by Programmed Epigenetics (HOPE) HIV cure research program using samples collected from different body compartments.

We continue to engage with different funding agencies, national and international collaborators for more clinical research opportunities.

- We look forward to participating in scientific meetings and conferences to share new findings and innovations in research and learn from colleagues and peers.



Clinical Research Team Undergoing Protocol Training



## The African Cohort Study (AFRICOS)



*MHRP Visitors at the AFRICOS site in Kayunga*

**AFRICOS is a large prospective cohort study funded by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). It is conducted at sites in Kenya, Nigeria, Tanzania, and Uganda and enrolls both HIV infected and HIV uninfected volunteers.**

The Uganda site based at the Kayunga regional referral hospital started enrolling participants in January 2013.

By close of 2021, the longest surviving study participants had made a total of 9 years on the study (18 semi-annual visits). The study is currently enrolling adolescents and young adults aged 15-24 years.

This study has contributed a lot of information related to HIV

prevention, care and treatment and has informed national policy. The information generated from this study has been shared widely in peer reviewed publications and at national conferences/meetings. Of note was data relating to Dolutegravir and the weight gain and hyperglycemia signal which was shared with Uganda Ministry of Health to inform decisions on continued roll out of Dolutegravir.



**Weight gain and hyperglycemia during the dolutegravir transition in Africa.** AIDS 2020 virtual. 6–10 July 2020. Oral abstract OAB0602 <https://doi.org/10.1002/jia2.25899>

In the review period, the study team published 2 manuscripts; **“Factors associated with sexually transmitted infections among care-seeking adults in the African**

**Cohort Study”** at <https://doi.org/10.1186/s12889-021-10762-4>

**Predictors of All-Cause Mortality Among People With Human Immunodeficiency Virus (HIV) in a Prospective Cohort Study in East Africa and Nigeria.** Clinical Infectious Diseases. 03 December 2021 <https://doi.org/10.1093/cid/ciab995>

## Publications and Scientific Meeting Presentations -2021





# The Clinical and Research Laboratory

**College of American Pathologists (CAP) accredited Biosafety Level 2 (BSL-2) Laboratory located at Makerere University College of Health Sciences.**



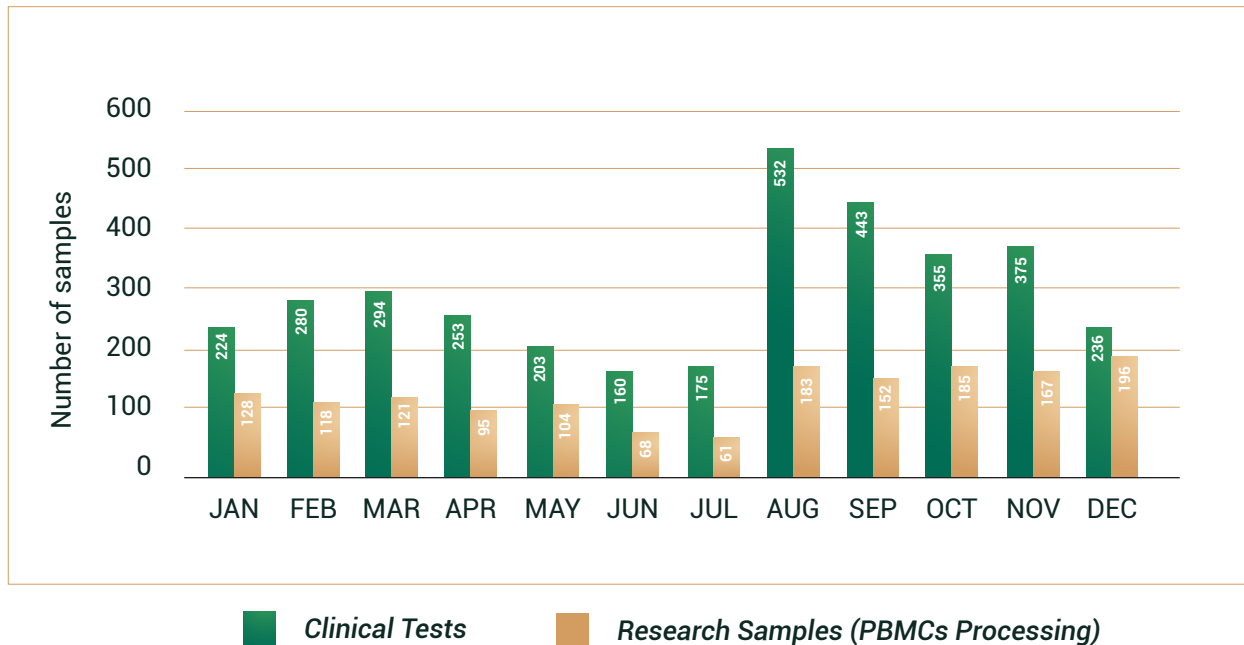
*Biomedical Scientist at Work*

MUWRP clinical and research laboratory is a College of American Pathologists (CAP) accredited laboratory. It was the second laboratory to be CAP accredited in Uganda, and has successfully maintained CAP standards and accreditation since 2005. To further meet both local and international BSL-2 quality control and quality assurance (QA/ QC) standards, the laboratory also subscribes to Applied Health Professional's Council Uganda (AHPC), and the External Quality Assurance Program Oversight Laboratory (EQAPOL).

The laboratory has 3 well equipped sections (i.e., sample processing, diagnostics and flow cytometry) with capacity for biological specimen (blood, spinal fluid, mucosal samples and tissue such as lymph node and rectal biopsies) processing and cryopreservation, complete blood count (CBC), blood chemistry, light microscopy, serology, diagnostic immunology,



## Tests performed by the MUWRP laboratory in 2021



molecular diagnostics, tissue culture and immunophenotyping by multicolor flow cytometry.

The laboratory adheres to Good Clinical Laboratory Practices (GCLP) and has robust laboratory information management systems and software (Freezerworks), and in-house capacity for shipping biological specimens following International Air Transport Association (IATA) standards. Amidst the resource constrained COVID-19 pandemic, it was handy to have onsite infrastructure to support long-term storage of specimens for future studies.

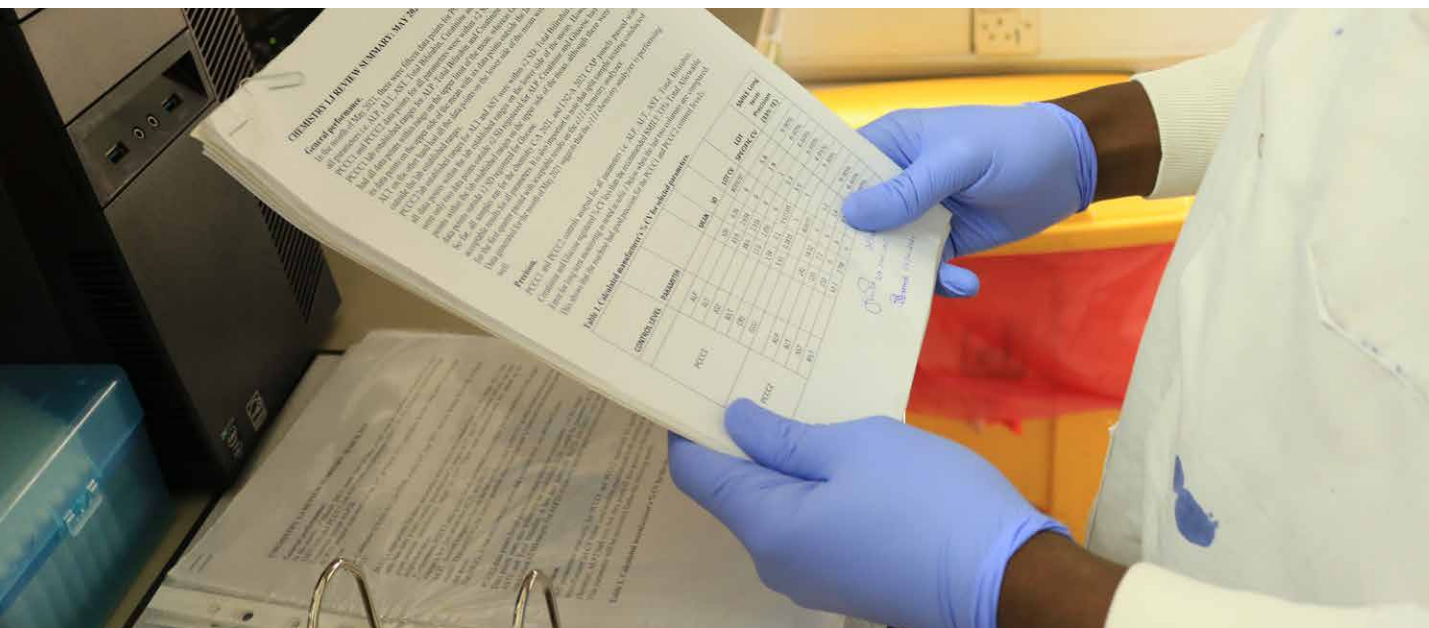


Liquid Nitrogen Plant

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The biorepository is maintained by eighteen freezers (-80°C) and 15 liquid nitrogen freezers with 2 on-site liquid nitrogen plants.





Reagent Levy-Jennings reports

**the laboratory  
hosted QA/QC  
laboratory  
personnel  
from the Joint  
Clinical Research  
Centre laboratory  
for refresher  
training**

The biorepository is maintained by eighteen -80°C freezers and 15 liquid nitrogen freezers with 2 on-site liquid nitrogen plants which together produce approximately 400 liters/day. Two standby automatic generators provide back-up power supply.

Having onsite liquid nitrogen plants was most handy while facilities closed and movements restricted in order to combat the spread of the SAR-COV-2 virus. The biorepository was well supplied.

### LABORATORY WORKFORCE DEVELOPMENT

- The laboratory contributes to workforce development and higher education at Makerere University College of Health Sciences, other Uganda Colleges

and Universities and other research institutions by supporting student training, graduate level research through experiential learning (laboratory rotations) and internship and continuous medical education.

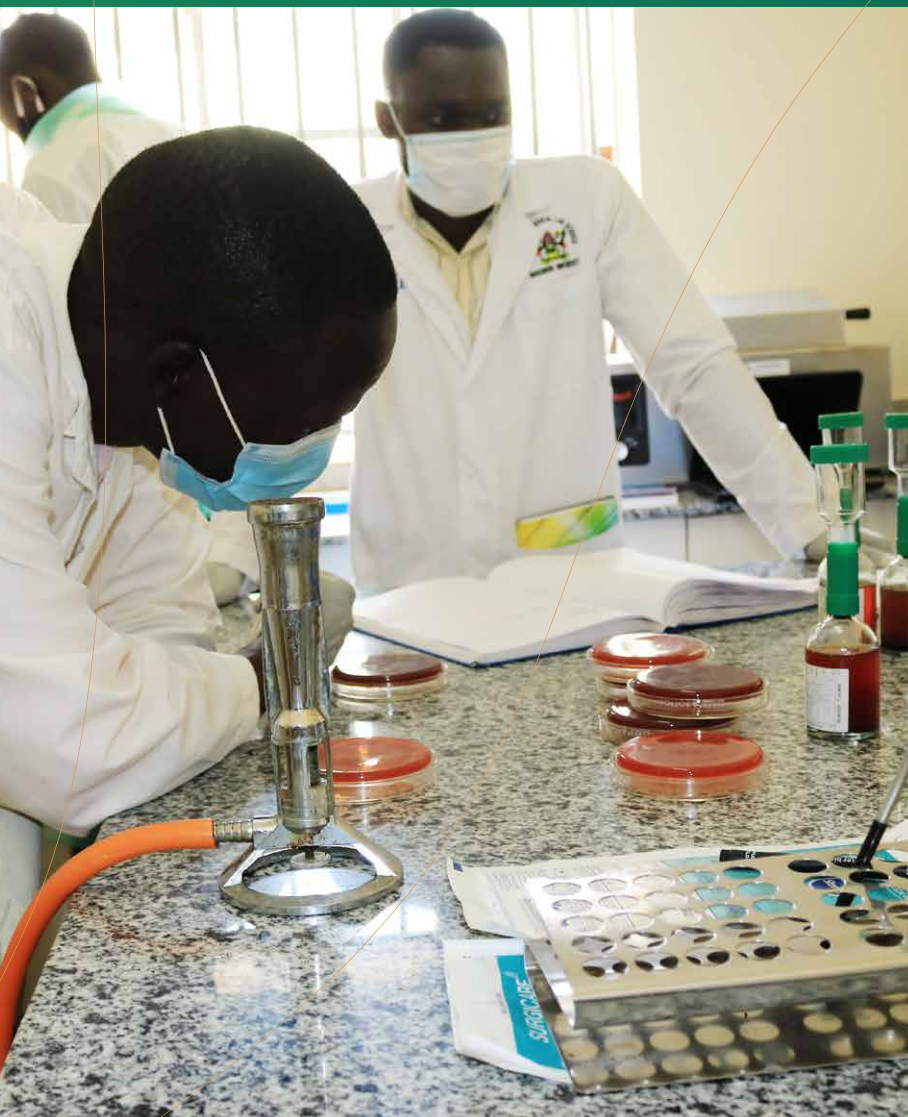
Between February and March 2021, the laboratory hosted QA/QC laboratory personnel from the Joint Clinical Research Centre laboratory for refresher training in laboratory quality management systems. In September 2021, the laboratory hosted more trainees from JCRC for skills attainment in sample accessioning and processing.



# Emerging Infectious Diseases Program (EIDP)

**The Emerging Infectious Disease Program is one of MUWRP's signature programs implemented since 2007. The program's mission is to mitigate, detect, and robustly respond to emerging and re-emerging infectious disease threats through innovation, quality research, health systems strengthening, and surveillance.**

EIDP directly contributes to strengthening Uganda's global health security and public health emergency operations response through sharing critical surveillance information with the Ministry of Health (MoH), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), and other key stakeholders, and building health facility-based surveillance capacity for antimicrobial resistance, and human and animal diseases. EIDP activities are funded by the US Department of Defense (DoD)'s Global Emerging Infections Surveillance Section (GEIS), the National Institute of



AMR Activities in the Gulu Regional Referral Hospital Laboratory



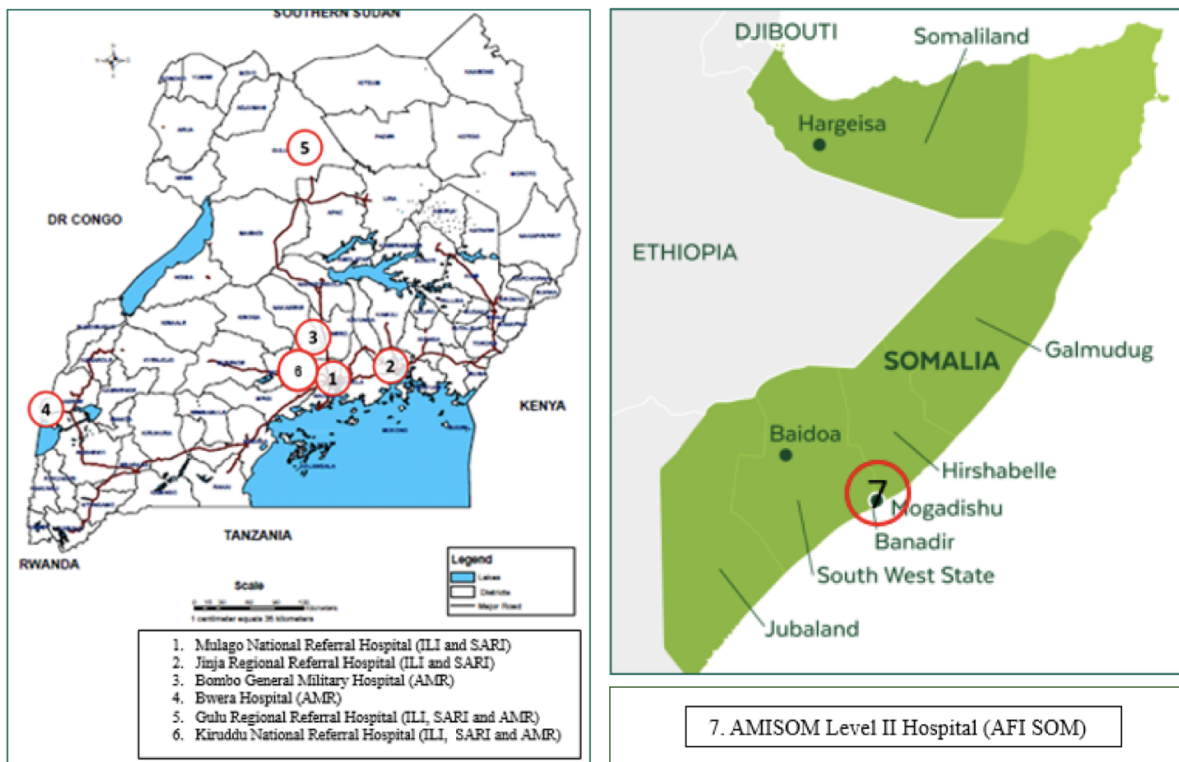


Sample Management for the AFI -Somalia with UPDF

Allergy and Infectious Diseases (NIAID), Defense Threat Reduction Agency (DTRA), and the Makerere University Research and Innovation Fund (Mak-RIF).

For FY2020/2021, the EIDP program implemented six projects: (1) Influenza and other respiratory infections surveillance, (2) Antimicrobial Resistance surveillance, (3) Detecting emerging zoonotic viruses at the human animal interface in bats, swine and poultry in Uganda, (4) The Acute Febrile Illness (AFI) surveillance in Uganda and Somalia, (5) Influenza surveillance among migratory birds, domestic birds,

Figure 1: MUWRP's Influenza, AMR and AFI Somalia Surveillance Sites FY 2020/2021





swine, and cattle in Uganda, and (6) Asymptomatic COVID-19 infection among patients seeking health care, all implemented across different regions and countries.

## Our Approach

MUWRP's EIDP activities are implemented through a collaborative public health system strengthening and capacity building mechanism. We work within Uganda's public health system, engaging, training, equipping, mentoring, and supporting public and military facility-based health workers to take lead in all surveillance and research activities. We build laboratory capacity through provision of equipment, reagents, and technical support for better antimicrobial resistance surveillance outcomes.

## Our Collaborators

- The Uganda Ministry of Health (MoH)
- Ministry of Agriculture Animal

Industry and Fisheries (MAAIF)

- The Uganda Peoples Defence Forces (UPDF)
- The Uganda Wild Life Authority (UWA)
- Nature Uganda
- Makerere University College of Veterinary Medicine, Animal Resources and Bio-Security (COVAB)
- The Uganda Virus Research Institute (UVRI)
- Select Hospitals (Mulago, Kiruddu, Jinja, Gulu, Bwera, Bombo Military Hospital).

## HUMAN INFLUENZA SURVEILLANCE

- Irrespective of the COVID-19 related drawbacks, the lab analysed 2,631 participant samples for Flu A, Flu B, COVID-19, and nine other viral causes of ILI/SARI.

*Table 1* below shows the prevalence of influenza-like illnesses (ILI) at the surveillance sites.



**The analysis enabled us to understand the prevalence of influenza like illnesses (ILI) at surveillance sites...**

**Table 1: The Prevalence of Influenza during FY 2020/2021**

PCR Result	Gulu Hospital n (%)	Jinja Hospital n (%)	Kiruddu Hospital n (%)	Mulago Hospital n (%)	Total n (%)
Flu A Positive	10(1.5)	24(1.5)	66(8.5)	103(14.9)	203(7.7)
Flu B Positive	0(0.0)	0(0.0)	4(0.5)	5(0.7)	9(0.3)
Flu A & Flu B Negative	652(98.5)	473(95.2)	708(91.0)	585(84.4)	2418(91.9)



In the same analyses, the overall prevalence of COVID-19 at surveillance sites was 5.29%. Kiruddu NRH, located in central Uganda had the highest prevalence of SARS-CoV-2 in the review period at 15.04% (n=117/2,631).

Adenoviruses, the Respiratory Syncytial Virus Type B (RSV-B), and RSV-A, were the most prevalent non-influenza causes of ILI/SARI at (7.97%; n=197/2,471), 5.95% (n=147/2,471), and 3.12% (n=77/2,471) respectively. These results were and

continue to be shared with the Ministry of Health on a weekly basis to inform public health response.

### ANIMAL INFLUENZA SURVEILLANCE

During this period, a total of 960 cloacal and oropharyngeal swabs and 393 serum samples from the live bird market and 401 nasal swabs and 598 serum samples from swine were collected. Below are the results of prevalence of Flu A from poultry.

Table 2: PCR and ELISA Results for Poultry Samples Collected in FY 2020/2021

Site	PCR Result	ELISA Result
	Prevalence (%) (Frequency)	Prevalence (%) (Frequency)
Kalerwe Market	52.92 (127/240)	27.73 (33/119)
Kasubi Market	32.08 (77/240)	16.81 (20/119)
Nakasero Market	80.00 (192/240)	32.77 (39/119)
Nakawa Market	42.50 (102/240)	22.69 (27/119)
<b>Total</b>	<b>51.88 (498/960)</b>	<b>23.90 (119/498)</b>



The overall prevalence of Flu A by ELISA was 31.73%, with the Kasubi live bird market having birds with the highest prevalence of Flu A, at 52.08% (n=125/240).

Sampling Procedure of Swine



## Human Link Project



*Fecal Sample Collection from Migratory birds at Lutembe bay.*

**This project is also known as the ecology of influenza viruses among migratory birds, domestic birds, swine, and cattle in Uganda.**

Human Link Project is a research collaborative between the National Institute of Allergy and Infectious Diseases (NIAID) Center of Excellence for Influenza Research and Surveillance; Division of Virology department of infectious diseases St. Jude Children's Research Hospital Memphis USA; Ecole Nationale Vétérinaire de Toulouse (ENVT) (France) and Makerere University Walter Reed Project's Emerging Infectious Diseases Program (EIDP). It aims to establish the subtypes of influenza viruses and provide information on the gene pool of influenza viruses circulating in Uganda.

For FY2021, collaborative activities supported active abattoir surveillance for influenza D viruses in cattle and swine, and continued Influenza A surveillance in aquatic birds and shorebirds. Samples were collected from the Kampala Capital City Authority (KCCA) and Nansana abattoir. Water fowl fecal samples were collected from Lutembe and Nakiwogo on Lake Victoria, known to receive large numbers of migratory birds.

On analysis, fourteen of the 180 (7.78%) fecal samples from Lutembe bay tested positive for flu A.



**aims to establish the subtypes of influenza viruses and provide information on the gene pool of influenza viruses circulating in Uganda.**



# Antimicrobial Resistance Surveillance (AMR)

**The AMR Project is implemented at four sites; Kiruddu National Referral Hospital, Gulu Regional Referral Hospital, Bwera Hospital, and Bombo General Military Hospital.**

Microbiology laboratories at these hospitals have been equipped with reagents and laboratory supplies, for antimicrobial sensitivity testing (AST). We frequently provide technical support to improve isolate identification. During FY 2020/2021, 2,017 samples were collected from the four AMR surveillance sites. From these, 889 bacterial pathogens were isolated. The most isolated organisms were *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, Coagulase-negative *Staphylococci* (CoNS), and *Proteus mirabilis*.





The antimicrobial susceptibility testing results showed that microbial organisms were highly resistant to majority of the antimicrobial agents available on the Ugandan market, and sensitive to groups of antibiotics called carbapenems (e.g. Meropenem, Ertapenem) and oxazolidinones (e.g. Linezolid).

The presence of high levels of antimicrobial resistance has strong implications for management of bacterial

infections in Uganda.

For the *Neisseria gonorrhoeae* sub-study, MUWRP supported Kiruddu NRH to set up a clinic to manage sexually transmitted infections (STIs) and the clinic is fully functional with adequate staffing and clinical and laboratory resources to diagnose and manage STIs. AMR data for the different surveillance sites was shared with MoH on a weekly basis throughout the review period.



COVID-19 Specimen is Collected using a Long Nasal Swab

## The Asymptomatic COVID-19 Study

**The study was sponsored by Makerere University Research and Innovations Fund (Mak-RIF), to Assess the Burden of Asymptomatic SARS-COV-2 Infection among Patients Seeking Health Care at Health care facilities in Uganda. A total of 419 samples were collected and analyzed.**

The overall burden of asymptomatic COVID-19 was 2.4% (95% CI: 0.9%-3.9%), with all cases (n=10; 4.6%) observed at Mulago national Referral Hospital.



## The Acute Febrile Illness (AFI) - Somalia

The AFI Somalia project is implemented with the UPDF's medical Corps working at the African Union Mission in Somalia (AMISOM) level II hospital at Mogadishu. The project was initiated in July 2021, and by September 2021, a total of 15 (10% of target) participants had been enrolled, and a total of 80 samples collected. Relatedly, 12 UPDF medical corps were provided with Protocol, Good Clinical Practice, Human Subjects Protection, and International Air Transport Association training.

“

**The labs contributed 2,631 tests to national SARS-CoV-2 surveillance efforts.**

### EIDP ACHIEVEMENTS

The MUWRP-EIDP labs were accredited by MoH to conduct COVID-19 testing, making them one of the 33 nationwide labs with a mandate to conduct COVID-19 testing. The labs contributed 2,631 tests to the national SARS-CoV-2 surveillance efforts.

MUWRP procured sequencing equipment. With this capability, MUWRP will be able to conduct in-house sequencing for different pathogens. This will minimize the time and resources used to ship out samples for sequencing.

EIDP conducted its first SARS-CoV-2 sequencing. Results contributed to national surveillance and response efforts by highlighting A.23.1 as the most predominant variant in 2020.

The Acute Febrile Illnesses Somalia project started sample collection and the first set of samples arrived in Uganda.

EIDP won a new acute febrile illness Uganda grant which will provide critical surveillance information to policy makers on causes of acute fevers in Uganda, including filo and Flavi viruses.

The MoU between Kiruddu NRH and MUWRP was executed. This achievement opens an opportunity for collaboration between the two parties towards improvement of the health of Ugandans.

EIDP executed an MTA with the Somali Ministry of Health (SMoH) to ship samples for further analysis.





JMEDICC Infection Prevention and Control Drills

## The Joint Mobile Emerging Disease Intervention Clinical Capability (*JMEDICC*)

The JMEDICC programme, housed at the Fort Portal Regional Referral Hospital, was established in 2017 to provide a platform and infrastructure for conducting clinical trials for medical countermeasures during filovirus (Ebola/Marburg) outbreaks.



## THE JMEDICC ACTIVITIES TO DATE

Improved standard of care support to patients through training of clinical staff in patient management using novel technologies.

Improved laboratory capacity through laboratory renovations, provision of supplies and equipment, and training of laboratory staff in diagnostics for sepsis and filoviruses, biosecurity measures and Infection Prevention Control (IPC).

Development of clinical research capability through renovations of an isolation research ward, hiring and training of research staff. The resulting capacity will offer a mechanism to greatly accelerate the development of life medical counter measures for future outbreaks.

Conduct of an observational study of sepsis management in Uganda as a measure to maintain staff clinical research capability for handling high consequence pathogens.

## KEY ACCOMPLISHMENTS IN THE PAST YEAR

Evaluation of novel technology in the sepsis study for the management of severely ill patients

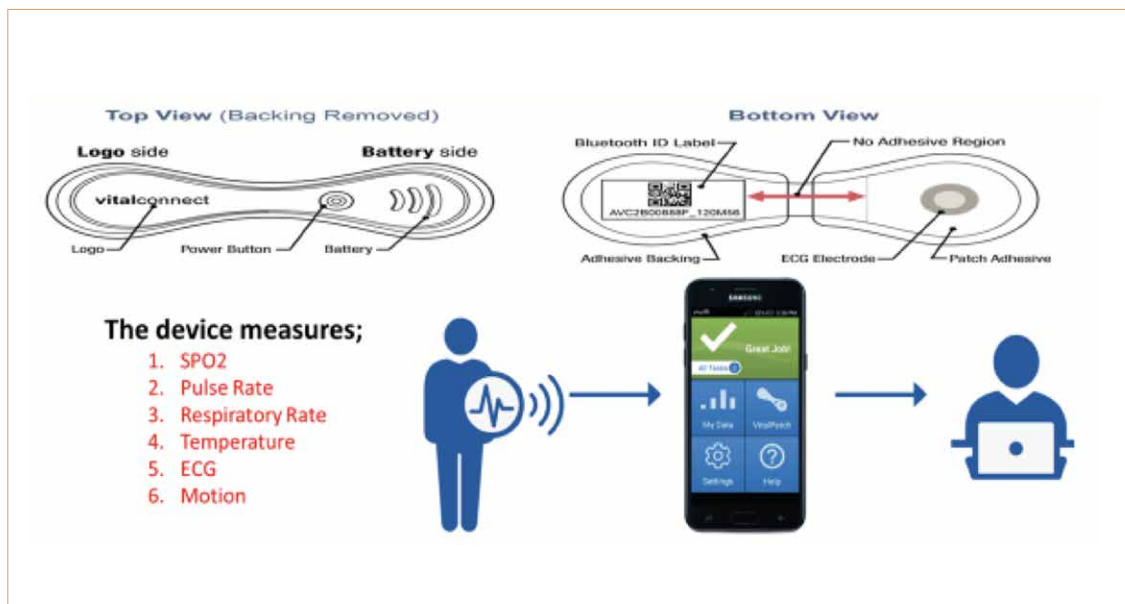


### TASSO-TSS DEVICE

A 4mm sterile disposable, integrated painless blood collection device including a lancet assembly and a detectable reservoir for the collection of blood. The device is designed to collect up to 300uL of capillary blood for chemistry evaluation.



## Modular Wireless Patient Monitoring System (MWPMS) Biosensor patch\*



Uses Bluetooth to send information via telephone to the database.  
Would be valuable in Ebola Treatment Units (ETUs).



Dr. Stephen Okello, JMEDICC Program Manager, During a Capability Exercise.



## OTHER ACHIEVEMENTS

Fort Portal Regional Referral Hospital was accredited as a *COVID-19* subnational testing site with support from JMEDICC.

Recruited patients that had *COVID-19* into the sepsis study which provided invaluable information on the new pandemic including; risk factors and treatment practices.

Provided *COVID-19* and Infection Prevention Control (*IPC*) training for regional members of armed forces, teachers, and regional health workers which strengthened the program's presence in the region.



The main laboratory at Fort Portal Regional Referral Hospital





The PEPFAR Dreams Team at the World AIDS Day Celebrations

## US President's Emergency Plan for AIDS Relief (PEPFAR)

The goal of the project is to deliver targeted, evidence-based and comprehensive *HIV/AIDS* services and interventions that will contribute to *HIV/AIDS* epidemic control (95-95-95 by 2030) in Kayunga, Mukono, Buikwe, Buvuma, Kampala and Uganda at large as proposed in the *National HIV and AIDS Strategic Plan 2020/21 – 2024/25*.





*HIV Testing at Koome Islands*

**Accountability,  
Transparency  
and Impact will  
seek to ensure  
efficiency in  
service delivery**

MUWRP is the prime awardee for the PEPFAR program grant funded through the Department of Defence (DoD), Walter Reed Army Institute of Research (WRAIR) aimed at; Building sustainable strong partnerships and collaborations for HIV/AIDS service delivery; enhancing Capacity for governance and support comprehensive HIV/AIDS services in Kayunga, Mukono, Buvuma, Buikwe, and 1 HIV specialized clinic in Kampala, in order to achieve HIV epidemic control.

The program approach is built on 3 technical pillars that include Accountability, Transparency and Impact that seek to ensure

efficiency in service delivery.

### **PREVENTION AND TESTING PROGRAM**

MUWRP was able to reach and serve populations in the 4 districts with great achievements in all areas to include;

- Outreach for Adolescent Girls and Young Women (AGYW) who were served with age appropriate prevention services and a relevant secondary package across all age bands.
- Under Orphans and Vulnerable Children's (OVC) program, the team provided a comprehensive



and preventive package that entailed SINOVUYO curricula – a 'Caring Families Programme for Parents and Teens' and the 'No means No' curricula for sexual and gender-based violence prevention.

- Circumcision of pivot age band using the Shang ring device.
- Provision of Pre-Exposure Prophylaxis (PrEP) among high risk populations including men who have sex with men (MSM), female sex workers (FSW), sero discordant couples and AGYW. The key population prevention

programme achieved 100% linkage of all identified key populations and a viral load suppression of 95% above the national viral load suppression rates of 91%, among the HIV positives.

- The Prevention of Mother to Child Transmission (PMTCT) programme which ensured that 97% of all identified positive mothers were started on treatment.

The program was able to effectively identify and link new HIV positive persons to

97%  
of all identified  
positive mothers  
were started on  
treatment.



*PEPFAR Staff Arrive for a Technical Support Visit at Buvuma Islands*



treatment. Significant efforts were made to ensure all children, adolescents, adults and pregnant and breast-feeding women in care received a comprehensive care and treatment package and were also tracked and supported for adherence and retention in care and offered viral load blood draws.

The program has continued to ensure that new and relapsed TB cases are offered HIV testing, and all patients on ART are screened for TB and started on TB treatment as aligned to the MoH treatment algorithm.

*DREAMS Project - Village Savings and Loans Scheme Activity*



*The DREAMS Project has skilled girls with self sustaining skills*



## Health Systems Strengthening



*MUWRP Staff Deliver Computers to Kawolo Hospital*

## CAPACITY BUILDING FOR LABORATORIES

In the year under review, MUWRP through the PEPFAR program-built capacity of 66 public and private-not-for-profit laboratories and 4 laboratory hubs to conduct HIV testing, as well as CD4 and viral load testing for monitoring of clients on ARVs. This has improved service delivery for HIV prevention, care and treatment in the region. The following were registered;

- 33 health workers (lab personnel) were trained in Laboratory Management Systems (LMS).

- 66 were supported in the implementation of laboratory stock management through the Laboratory Supervision, Performance Assessment and Recognition Strategy (SPARS).

- The Kayunga Regional Referral Hospital laboratory maintained the SANAS international laboratory accreditation (acquired in 2017).

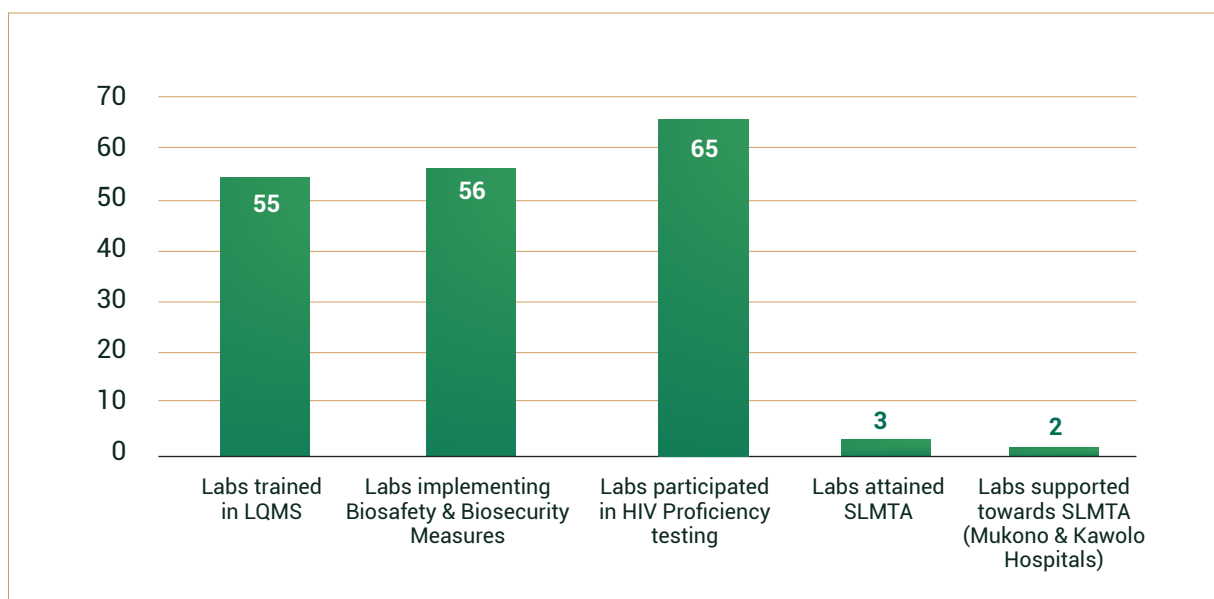
- 160/170 (94%) HIV Point of Care Testing (POCT) points across the four supported districts participated in HIV proficiency testing, and 151/160 (94.4%) passed.

“

**PEPFAR  
program built  
capacity of 66  
public and  
private-not-  
for-profit  
laboratories  
and 4 laboratory  
hubs to conduct  
HIV testing**



## Laboratory Systems Strengthening



LQMS- Laboratory Quality Management Systems (LQMS)

SLMTA- Strengthening Laboratory Management Towards Accreditation.



**MUWRP rolled out EMR in 62 health centers using EMR (Clinic Master & Uganda EMR) achieving 73% of the target for the Financial Year.**

## MONITORING & EVALUATION

The program continued to strengthen Health Information Management System (HMIS) and community level reporting through forecasting, quantification, ordering and distribution of required tools in 115 facilities and 36 communities for purposes of data collection and reporting. MUWRP continued to scale up E-Systems both at health facilities and communities to support data collection and reporting.

By December 2021, MUWRP had rolled out EMR in 62 health centers using EMR (Clinic Master

& Uganda EMR) achieving 73% of the target for the Financial Year.

### Key achievements:

1. Became prime awardee for the DOD/WRAIR HIV prevention care and treatment grant following a successful proposal development and submission process.
2. Supported development of the national curriculum and training materials critical for quality HIV service delivery in the country Including the Journeys Plus Community Curriculum , a behavioral change curriculum that addresses HIV and violence prevention among adolescent girls and boys 10 to 14 years, as well as the Cervical Cancer Health workers' guide.



3. Supported the ministry of health with COVID-19 vaccination roll out.

## FUTURE PLANS

The program plans to scale up the new innovations in the 4 districts where MUWRP is implementing the PEPFAR program.

Such innovations include; Group Antenatal Care (GANC), key populations Drop in Centers, social media approaches to receive instant feedback about service delivery and also alerts in service gaps, utilizing KP influencers to get to the 'hard to reach', continue utilizing the mentor mothers for community mobilization of pregnant

mothers.

- MUWRP plans to expand and decentralize viral load and Early Infant Diagnosis (EID) result printing at facility and health sub district level to reduce the turnaround time for results which in turn would improve client management.
- Strengthening laboratory capacity to perform and conduct quality monitoring of laboratory tests, building capacity of the public health systems and quality monitoring.
- Expanding EMR in all the 89 ART accredited facilities. This will reduce documentation gaps and improve real time data collection and reporting.

“

**MUWRP plans to expand and decentralize viral load and Early Infant Diagnosis (EID) result printing**



*Newly Refurbished ART Clinic at Buvuma Islands*



## New Staff Quarters at Koome Islands

MUWRP with support from her US partners constructed quarters for the Health Facility staff in Koome. The new facility will allow medical professionals to reside and work in the remote islands to provide comprehensive care to the approximately 22,000 inhabitants that live in the 16 islands that make up Koome.

*At the Handover Event*



*The Old Staff Houses*



*The Newly Constructed Staff Houses*





3

**IMPACTING  
COMMUNITIES  
THROUGH THE  
*PEPFAR* PROGRAM**



STORY 1

## DREAMS, the game changer of a young woman's life

**The 'Determined, Resilient, Empowered, AIDS-free, Mentored and Safe' (DREAMS) partnership is a public-private partnership aimed at reducing HIV infection among adolescent girls and young women (AGYW) in the highest HIV burden countries.**

Winnie spent her early life with her mother and stepfather and because of frequent family disagreements, she only achieved primary four education. At the age fifteen (15) she found a job as a bar maid.

"At the bar, is where I heard about commercial sex work from friends who were doing it", she narrates. "They interested me in joining sex work and I did. In a single day I would sleep with about four men and each would on average give me twenty thousand shillings (20,000) to cater for my needs.





## STORY 1 CONTINUED

“  
**When I became pregnant the story changed, I wouldn't get customers anymore and so decided to give sex trade a break**

At the bar we weren't paid but we used it as an address where men would find us”.

At times, she would even agree to have unprotected sex with customers who were willing to pay more money. Eventually, she got pregnant but could not tell who was responsible for the pregnancy. “When I became pregnant the story changed, I wouldn't get customers anymore and so decided to give sex trade a break”. When the baby was one year old, she couldn't cope with personal and child needs and therefore decided to return to sex work. Because she had become a common face in Iganga (a town in Eastern Uganda), she decided to relocate to Mukono (Central Uganda).

One evening while she was resting in the small rented room where she entertained her customers, two friends with whom she previously worked with in Iganga visited her. They told her about a program providing an intervention package to prevent HIV infection among adolescent girls and young women.

“When they told me about the DREAMS programme, I decided to join. Since then, I have never

regretted my decision. We have learnt safe sex practices especially the value of condom use. We were also given an opportunity to test for HIV. At first, I feared to take a test, but I was given very good counselling and later agreed. Lucky enough I tested HIV negative”, Winnie explains.

Winnie also prides in having learnt the importance of financial saving under the DREAMS programme. She says, “At first, I saw it as impossible. Already I was getting very little money because I had quit sex trade and was working in a hair salon using the skills I had learnt in the safe space. However, after saving for one (1) year, I was excited about my accumulated savings”. Winnie plans to use her savings to start up her own hair dressing business.

“This is what it means to be empowered!”, Winnie proudly exclaims. “Under DREAMS we have learnt many life skills including hair dressing, sweater making and beads making. I feel that with all the skills that I have acquired, I cannot go without food, my child cannot fail to get good clothing or fail go to school”.



## STORY 2

# New found hope for Dorothy and her vulnerable children



**The Orphans and Vulnerable Children's program under PEPFAR aims to improve health, education, protection, and socio-economic outcomes among children living with and affected by HIV, their caregivers, and families.**

At the age of six years, Dorothy lost her father and lived with her mother who also passed away before she completed her Advanced Level education. She dropped out of school, got pregnant by a motor cycle “*boda-boda*” rider who lived in the same village. “He promised to support me to complete my Advanced Level education on condition that I joined him in his small house as wife”, Dorothy recalls.

At first Dorothy's partner was understanding and supportive, but life changed when she got her second pregnancy. He stopped communicating with the family, spending months without returning home. “He only returned one month before I gave birth. He still did not give any support during the time of delivery”, Dorothy narrates. This routine continued



## STORY 2 CONTINUED

**“her school going children had been enrolled in a nearby school and she was offering free labor the whole day in compensation for her children's fees**

throughout Dorothy's subsequent pregnancies. Dorothy has seven (7) children with a set of twins.

Dorothy, who lives in a rented mud and wattle structure, was referred to the Makerere University Walter Reed Project Orphans and Vulnerable Children's program by a member of the Village Health Team who was conducting a house to house mobilization and sensitization drive to increase access and uptake of Voluntary Medical Male Circumcision services.

On assessment, the program team discovered that her school going children had been enrolled in a nearby school where she was offering free labor the whole day in compensation for her children's fees. In order to earn an income to meet the other basic necessities of life like; rent, clothing and food; Dorothy and her children were cultivating in the neighbors' gardens over the weekends in exchange for food and living on food handouts from good Samaritans.

“After the long day's work at school, I run back to the village to either dig for money or collect water for those who might be in need. I then return home to process cassava flour with a neighbor who pays me back in kind by giving me some to feed my children, otherwise we would

sleep over a cup of water”.

Working with the Community Development Office, the OVC program team supported her to reach the Child and Family protection unit of the local police, which engaged the husband to make contributions to the family welfare. She was also linked to the health facility to access family planning information and services. The children received medication for fungal infections, and school fees support which has enabled Dorothy get engaged in other forms of gainful employment other than work at the school that only paid her for the children's school fees. The family also received agricultural inputs in form of seedlings.

The program team continued to conduct quarterly house hold visits to assess the progress of the family towards implementation of the house hold development plan. Through her savings, Dorothy has been able to start a small business to boost her daily income, bought beddings for the children and has joined a Village Savings and Loans Association group to boost her savings and gain access to loans.

Dorothy's desire is to acquire her own land and construct a house where she can raise her children and cultivate crops for subsistence and for sale.





# **DIRECTORATE FOR FINANCE & ADMINISTRATION**



# Human Resource Section

**The Human Resource Section is housed under the Directorate for Administration operating under the mandate of managing staff entry, stay, and exit.**

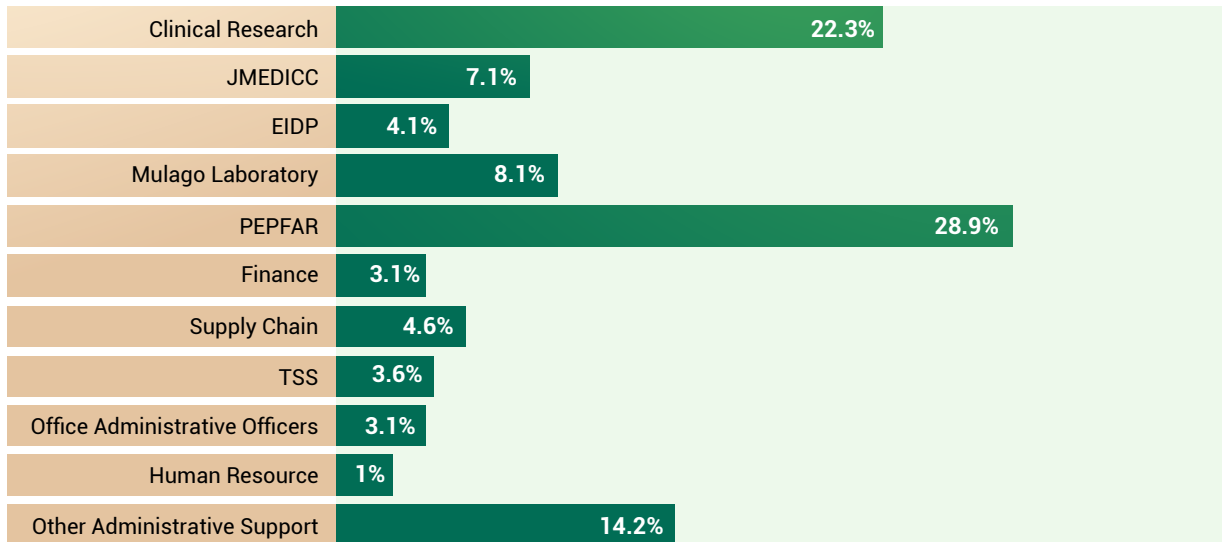
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Over the years the HR function has supported MUWRP to develop human resource strategies, policies and procedures that have enabled a vibrant work force, and this is the reason MUWRP is what it is now. Among these strategies include; coordinating staff training and development, managing employee relations, staff compensation and wellness, ensuring proper staff performance management, as well as managing all HR related information systems.

The past period was unprecedented, and so unique in the history of the organization. The COVID-19 nation-wide lockdowns created disruption, uncertainty, complexity, and ambiguity in the



## FY21 Employee Numbers



**“**  
**We**  
**successfully**  
**held our first**  
**ever virtual**  
**End of Year**  
**event and**  
**Award**  
**ceremony**

entire operations of the organization. Such situations presented with demoralization, anxiety and loss of focus. Throughout these times, we however celebrate the innovativeness and positivity of the MUWRP staff which has greatly helped us to stay on track. With the unwavering support of management, we have experienced the biggest shock absorber of our time, to the fact that our teams are even much stronger than ever before.

### ACHIEVEMENTS

Our survival through the COVID-19 times has been evidenced by the following accomplishments;

- The digitalization of our recruitment system which has

supported continued acquisition of the right talent.

- Leadership training for all staff in supervisory roles held virtually for 2 days with attendance of over 50 participants.
- Full support of our Technology Support Services team (TSS) section has enabled a viable and effective “work from home” approach. Our productivity has improved.
- We organized and successfully held our first ever virtual End of Year event and Award ceremony, where 22 awards were given in recognition for significant achievement in support of MUWRP's vision and mission.



## STAFF WELLNESS

We pride in the fact that regardless of the numerous impediments that came with the COVID-19 vaccination campaign including myths, misconceptions, mistrust due to limited experience with the vaccines and uncertainties of their safety profile, continued sensitization, education and vaccination camps helped us to vaccinate 90% of our staff and family members.

We successfully organized and conducted 13 vaccination camps at MUWRP head office and fully vaccinated a total of 178 staff and 329 family members (1014 vaccine

doses). We have also given our staff the appropriate Personal Protective Equipment (PPE) and as well as ensured general infection prevention control strategies across departments.

All these preventive efforts have enabled us minimize infections amongst our staff and thus sustained productivity by reducing absenteeism from duty.

We understand that working in isolation can breed psychosocial challenges. To avert this, MUWRP incorporated a wellness program under our medical insurance cover to ensure support is available to staff at no extra cost to them.

“

**organized and conducted 13 vaccination camps at MUWRP head office and fully vaccinated a total of 178 staff and 329 family members**



MUWRP Staff Receiving COVID-19 Vaccination



## Technology Support Services (TSS)

**TSS' mandate is to plan, develop and oversee all Computer, Biomedical Technology and Information Systems for MUWRP research and provide technical support for public healthcare facilities.**

The team comprises subsections namely; Projects, Innovations & Cyber Security, Operations and Infrastructure, Biomedical Engineering and Applications Development & Support.

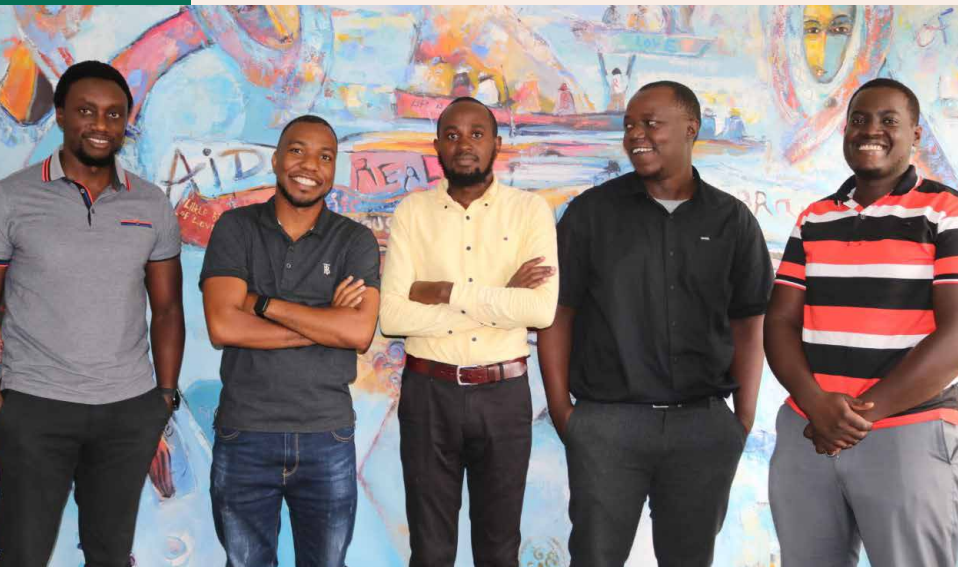
TSS continues to develop, manage and secure critical core infrastructure for example Clinical and Biomedical Engineering equipment, power, network, storage and server infrastructure. TSS has innovations around centralised real-time cold chain monitoring

of LAB freezers and Security Compliance of all data at rest and in transit.

In the past year, as per industry trends, TSS experienced a spike in technology support requirements for the suddenly remote and hybrid workforce. There were expedited evaluations of all departments and their anticipated technology requirements. Under the tagline #InnovateAutomate, over ten simultaneous digital transformation projects were fast tracked and deployed within the strictly enforced COVID restrictions.

For over seven years, TSS has been the CAST (Clinical Appointments, Scheduling and Tracking System) Regional Support and Development Centre for Africa HJF sites; and continues to deploy CAST for all new Research studies in Africa under the MHRP/HJF funding.

TSS provides Technical Guidance on various National Committees such as the Ministry



*Technology Support Services (TSS) Team*



of Health- PEPFAR Central IT Infrastructure Management and Point of Care (EMR) Deployment Working Groups. TSS' direct implementation of robust core network connectivity at over 50 public and private Health Facilities has been improved Access to PEPFAR Services even in remote areas.

TSS deployed an innovative and model suite of technologies resulting in paperless, fully digitised systems at the JMEDICC campus of Research Wards and Laboratories in the Kabarole Regional Referral Hospital. These innovations have minimised risks of infections by health workers in VHF case management and also set a technology stack model for future mobile research camps.



Technology Support Services (TSS) Team

## KEY INNOVATIONS

**Online Purchase Requests** and order processing System that replaced the paper-based process and made the purchasing process more efficient and streamlined-

MUWRP won a prestigious CIO100 Gold category award for this Innovation.

Setting up of **Virtual Workspaces** and Staff Collaboration tools for teamwork and conferencing.

**Online Timesheets** and leave requests platform to replace a previously paper based system.

**Online Recruitment** and Talent Management Portal

**Remote grid power and temperature monitoring system** for critical equipment in the Lab and pharmacy that sends real time alerts in event of an outage.

**Enabling Secure remote access** to work/data files through Zero Trust Architecture and Data Encryption Technologies

**Laboratory Information Management Systems (LIMS)** for archival and inventory of LAB samples and specimens for the EIDP LABs in Makerere and Entebbe.



## Logistics & Supply Chain

**Learning to Adopt and Adopting to Learn is the “New Normal”. The Supply Chain section operates under the Directorate for Administration with its staff spread out at all MUWRP sites to support both research and program activities.**

The section is guided by the procurement / logistics procedures manual that stipulates the minimum standards for conducting procurement activities in the organization.

Over time, this section has developed capacity to handle both local and international procurements, and established contacts in all the areas where MUWRP requires logistical support.

The COVID-19 pandemic greatly challenged the Supply Chain section, and brought on the reality of “thinking out of the box”. Digital procurement workspaces including Fraxion and Microsoft Dynamics were introduced.

The Fraxion interface manages all requisitions from the end users to the final approving authorities and also provides interactive real time information



*Setting up a Power Generator at the MUWRP Laboratory*

in the workflow for easy tracking of approvals.

The Microsoft Dynamics software on the other hand is majorly used for inventory management by enabling inventory reports for the different departments in a very timely manner and also tracking of purchase orders to delivery and closure.



5

# FINANCIAL REPORT FOR FY 2020/2021

Highlights of the year



# Introduction

**The Board of Directors of Makerere University Walter Reed Project (MUWRP) is required to maintain adequate accounting records and are responsible for the content and integrity of Fund Accountability Statement and the related financial information included in this report.**

It is also their responsibility to ensure that the Financial Statements fairly represents the state of affairs of MUWRP at the end of each financial year.

The Financial Statements are prepared in accordance with U.S. Generally Accepted Accounting Principles and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgments and estimates.



*Part of the Finance Team at Work*



## Financial Statement Highlights During the year

In FY 2020/2021, MUWRP received fund income of US\$ 13.9 million against a budget of US\$ 14.6 million which is 95% of the budget. The 2021 MUWRP financial statements show a surplus for the year of US\$ 154,808, this surplus can be compared to a deficit of US\$ 175,089 in 2020. *Figure 1* below is the Statement of Financial Position - which details the net assets (the difference between total assets and total liabilities) of the MUWRP. This statement provides information about the financial strength of the Organization, and the resources which are available to support its future objectives;

### Statement of Financial Position

	Notes	2021 (US\$)	2020 (US\$)
<b>ASSETS</b>			
<b>Non-Current Assets</b>			
Leasehold Land and Building	10.6	1,722,508	1,847,797
<b>Current Assets</b>			
Cash at bank and in-hand	10.4	1,232,808	1,543,235
Receivables	10.5	3,340,054	3,681,817
<b>Total Assets</b>		<b>6,295,370</b>	<b>7,072,848</b>
<b>FUND BALANCE &amp; LIABILITIES</b>			
<b>Fund Balance</b>			
Accumulated Funds (Unrestricted funds)	10.13	155,503	695
<b>Non-Current Liabilities</b>			
Provision for Severance Costs	10.7 (a)	846,645	745,067
HJF Advance Payable	10.7	3,200,000	3,200,000
DFCU Bank Loan - Non-Current	10.9	991,164	1,116,984
<b>Current Liabilities</b>			
Accrued expenses & other Payables	10.7 (b)	215,523	1,028,301
Short term loan from HJF	10.8	627,056	722,323
DFCU Bank Loan - Current Portion	10.9	259,478	259,478
<b>Total Fund Balance &amp; Liabilities</b>		<b>6,295,370</b>	<b>7,072,848</b>





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## Recent Publications

1. **Hannah Kibuuka, Ezra Musingye, Betty Mwesigwa, Michael Semwogerere,** Michael Iroezindu, Emmanuel Bahemana, Jonah Maswai, John Owuoth, Allahna Esber, Nicole Dear, Trevor A Crowell, Christina S Polyak, Julie A Ake, AFRICOS Study Group. *Predictors of All- Cause Mortality among People with HIV in a Prospective Cohort Study in East Africa and Nigeria. December, 2021. DOI: 10.1093/cid/ciab995*
2. Somi N, Dear N, Reed D, Parikh A, Lwilla A, Bahemana E, Khamadi S, Iroezindu M, **Kibuuka H**, Maswai J, Crowell TA, Owuoth J, Maganga L, Polyak C, Ake J, Esber A; AFRICOS Study Group. *Perceived satisfaction with HIV care and its association with adherence to antiretroviral therapy and viral suppression in the African Cohort Study. November, 2021. DOI: 10.1186/s12981-021-00414-3*
3. Alum S, Asiimwe M, **Kanyomozi G, Nalikka J**, Okwaro P, Migisha I, Muhindo B, **Wailagala A, Okello S**, Blair P, Waitt P, Bhadelia N, Ayebare R, Kwiecien A, Saunders D, Lamorde M, **Kibuuka H**, Clark D. *Optimizing Highly Infectious Disease Isolation Unit Management. Experiences from the Infectious Diseases Isolation and Research Unit, Fort Portal, Uganda. November, 2021. DOI: 10.1017/dmp.2021.339*
4. Barry H, Mutua G, **Kibuuka H**, Anywaine Z, Sirima SB, Meda N, Anzala O, Eholie S, Bétard C, Richert L, Lacabartz C, McElrath MJ, De Rosa S, Cohen KW, Shukarev G, Robinson C, Gaddah A, Heerwegh D, Bockstal V, Luhn K, Leyssen M, Douoguih M, Thiébaud R; EBL2002 Study group. *Safety and immunogenicity of 2-dose heterologous Ad26.ZEBOV, MVA-BN-Filo Ebola vaccination in healthy and HIV-infected adults: A randomised, placebo-controlled Phase II clinical trial in Africa. October, 2021. DOI: 10.1371/journal.pmed.1003813*
5. Paquin-Proulx D, Gunn BM, Alrubayyi A, Clark DV, Creegan M, Kim D, **Kibuuka H, Millard M, Wakabi S**, Eller LA, Michael NL, Schoepp RJ, Hepburn MJ, Hensley LE, Robb ML, Alter G, Eller MA. *Associations Between Antibody Fc-Mediated Effector Functions and Long- Term Sequelae in Ebola Virus Survivors. May, 2021. DOI: 10.3389/fimmu.2021.682120*
6. **Semwogerere M**, Dear N, Tunnage J, Reed D, **Kibuuka H, Kiweewa F**, Iroezindu M, Bahemana E, Maswai J, Owuoth J, Crowell TA, Ake JA, Polyak CS, Esber A; AFRICOS Study Group. *Factors associated with sexually transmitted infections among care-seeking adults in the African Cohort Study. April, 2021. DOI: 10.1186/s12889-021-10762-4*



7. Štambuk J, Nakić N, Vučković F, Pučić-Baković M, Razdorov G, Trbojević-Akmačić I, Novokmet M, Keser T, Vilaj M, Štambuk T, Gudelj I, Šimurina M, Song M, Wang H, Salihović MP, Campbell H, Rudan I, Kolčić I, Eller LA, McKeigue P, Robb ML, Halfvarson J, Kurtoglu M, Annese V, Škarić-Jurić T, Molokhia M, Polašek O, Hayward C, **Kibuuka H**, Thaqi K, Primorac D, Gieger C, Nitayaphan S, Spector T, Wang Y, Tillin T, Chaturvedi N, Wilson JF, Schanfield M, Filipenko M, Wang W, Lauc G. *Global variability of the human IgG glycome. August, 2020. DOI: 10.18632/aging.103884*
8. Rolland M, Tovanabuttra S, Dearlove B, Li Y, Owen CL, Lewitus E, Sanders-Buell E, Bose M, O'Sullivan A, Rossenkhon R, Labuschagne JPL, Edlefsen PT, Reeves DB, Kijak G, Miller S, Poltavee K, Lee J, Bonar L, Harbolick E, Ahani B, Pham P, **Kibuuka H**, Maganga L, Nitayaphan S, Sawe FK, Eller LA, Gramzinski R, Kim JH, Michael NL, Robb ML; RV217 Study Team. *Molecular dating and viral load growth rates suggested that the eclipse phase lasted about a week in HIV-1 infected adults in East Africa and Thailand. Feb, 2020. DOI: 10.1371/journal.ppat.1008179*
9. **Kiweewa F**, Esber A, **Musingye E**, Reed, D., Crowell, T. A., Cham, F., **Semwogerere, M.**, Namagembe, R., Nambuya, A., Kafeero, C., **Tindikahwa, A.**, Eller, L. A., **Millard, M.**, Gelderblom, H. C., Keshinro, B., Adamu, Y., Maswai, J., Owuoth, J., Sing'oei, V. C., Maganga L., Bahemana E., Khamadi, S., Robb, ML., Ake, J.A., Polyak, C.S., & **Kibuuka, H.** *HIV virologic failure and its predictors among HIV-infected adults on antiretroviral therapy in the African Cohort Study. PLoS One 2019; 14: e0211344.*
10. Ake JA, Polyak C, Crowell TA, **Kiweewa F**, **Semwogerere M**, Maganga L, Bahemana E, Maswai J, Langat R, Owuoth J, Otieno S, Keshinro B, Esber A, Liu M, Eller LA, Ganesan K, Parikh AP, Hamm TE, Robb ML, Hickey PW, Valcour VG, Michael NL. *Non-infectious Comorbidity Among HIV Clinic Clients in the African Cohort Study (AFRICOS), Clin Infect Dis. 2019; 69:639-47.*
11. Meffert, S. M., Neylan, T. C., McCulloch, C. E., Maganga, L., Adamu, Y., **Kiweewa, F.**, Maswai, J., Owuoth, J., Polyak, C. S., Ake, J. A., & Valcour, V. G. *East African HIV care: depression and HIV outcomes. Glob Ment Health (Camb) 2019; 6:e9.*
12. Munoz-Nevarez L, Imp B, Eller M, **Kiweewa F**, Maswai J, Polyak C, Olwenyi OA, Allen IE, Rono E, Milanini B, **Kibuuka H**, Ake JA, Eller LA, Valcour VG. *Monocyte activation, HIV, and cognitive performance in East Africa. J Neurovirol 2019. Published ahead of print.*
13. Milanini B, Allen I, Paul R, Bahemana E, **Kiweewa F**, Nambuya A, Maswai J, Langat R, Owuoth J, Martin S, Possin K, Esber A, Polyak C, Ake JA, Valcour V. *Frequency and predictors of HIV-related cognitive impairment in East Africa: The African Cohort Study (AFRICOS). JAIDS. In press.*



14. Esber, A. L., Coakley, P., Ake, J. A., Bahemana, E., Adamu, Y., **Kiweewa, F.**, Maswai, J., Owuoth, J., Robb, M. L., Polyak, C. S., & Crowell, T. A. *Decreasing time to antiretroviral therapy after HIV diagnosis in sub-Saharan Africa. JIAS. 2020, 23:e25446.*
  
15. Copeland NK, Eller MA, Dohoon K, Creegan M, Esber A, Eller LA, **Semwogerere M, Kibuuka H, Kiweewa F**, Crowell TA, Polyak CS, Ake JA. *Increased inflammation and liver disease in HIV/HBV-coinfected individuals. AIDS. Under review.*
  
16. Analogbei T, Dear N, Reed D, Esber A, Akintunde A, Bahemana E, Adamu Y, Iroezindu M, Maganga L, **Kiweewa F**, Maswai J, Owuoth J, Ake JA, Polyak CS, Crowell TA. *Predictors and barriers to condom use in the African Cohort Study. AIDS Patient Care STDS.*



## Posters

1. **Winfred Nansalire**, Grace Mirembe, Betty Mwesigwa, Jauhara Nanyondo, Francis Kiweewa, Fred Magala, Anne Nakirijja, Allan Tindikahwa, Ezra Musingye, Monica Millard, Eniko Akom, Hannah Kibuuka. Social Harms related to PrEP use among Adolescent Girls and Young Women participating in a PrEP Demonstration Project in Uganda. *ICASA 2021 Conference, Durban, South Africa. December 2021.*
2. **Ezra Musingye**, Grace Mirembe, Betty Mwesigwa, Francis Kiweewa, Elizabeth Lee, Monica Millard, Eniko Akom, Hannah Kibuuka. Prevalence of STIs and associated factors among adolescent girls and young women screened into a demonstration study on uptake of HIV oral Pre-Exposure Prophylaxis among female sex workers in Mukono District, Uganda. *ICASA 2021 Conference, Durban, South Africa. December 2021*
3. **Betty Mwesigwa**, Eniko Akom, Nicole Dear, Daniel Choi, Ezra Musingye, Anne Nakirijja, Francis Kiweewa, Elizabeth Lee, Monica Millard, Hannah Kibuuka HIV Risk Taking Behaviors among Fishing Communities on Lake Victoria in Uganda. *ICASA 2021 Conference, Durban, South Africa. December 2021.*
4. **Jesca Nawatti**, Mathias Ssekitoleko, Stephen Mugamba, Francis Kiweewa, Grace Mirembe, Betty Mwesigwa, Ezra Musingye, Anne Nakirijja, Monica Millard, Eniko Akom, Hannah Kibuuka. Effectiveness of different recruitment methods of adolescent girls and young female commercial sex workers into a PrEP demonstration study in Uganda. *ICASA 2021 Conference, Durban, South Africa. December 2021*
5. **Agbaim UC**, Reed D, Esber AL, Harrison NE, Oruka KE, Parikh AP, Polyak CS, Maganga L, Adamu Y, Kiweewa F, Maswai J, Owuoth J, Crowell TA, and Ake JA on behalf of the RV329 AFRICOS Study Team. *Trend of Viral Suppression with Second Line ART Switch in an African Cohort Population. INTEREST, Accra, Ghana. May 2019.*
6. **Langat R, Valcour V**, Esber AL, Reed D, Maswai J, Sawe F, Kiweewa F, Owuoth J, Bahemana E, Adamu Y, Crowell TA, Polyak CS, Ake JA. *Examining the Social Determinants of Depression in Africa. INTEREST, Accra, Ghana. May 2019.*
7. **Lwilla A, Esber AL**, Reed D, Parikh AP, Maganga L, Khamadi S, Bahemana E, Somi N, Owuoth J, Maswai J, **Kiweewa F**, Adamu Y, Ake JA, Crowell TA and Polyak CS. *HIV Controllers in Four African Countries. INTEREST, Accra, Ghana. May 2019.*



8. **Somi N, Esber AL**, Reed D, Parikh AP, Lwilla A, Bahemana E, Khamadi S, Adamu Y, Kiweewa F, Maswai J, Crowell TA, Owuoth J, Maganga L, Polyak CS, Ake JA. *Satisfaction with HIV Care and Its Association with Viral Suppression in Africa. INTEREST, Accra, Ghana. May 2019.*
5. **Esber A, Reed D**, Kiweewa F, Maswai J, Owuoth J, Bahemana E, Iroezindu M, Ake JA, Polyak CS, Akom E. *Temporal Trends in HIV- related self-reported Stigma in the African Cohort Study, 2013-2018. IAS, Mexico City, Mexico. July 2019.*
6. **Noiman A**, Wang X, Esber A, Ganesan A, Crowell T, Polyak C, Ake J, Agan BA. *Clinical Relevance of Immune Non-Response among Virally Suppressed Adults Living with HIV in Africa and the United States. IDWeek, Washington, DC. October 2019.*
7. **Jones MU, Esber AL**, Reed D, Bahemana E, Kiweewa F, Iroezindu M, Maswai J, Owuoth J, Crowell T, Polyak CS, Ake JA, Hickey PW for AFRICOS. *The Pregnancy Factor: Differences in the Prevalence of Depression Among Pregnant and Non-pregnant Sub-Saharan African Women Living with HIV. IDWeek, Washington, DC. October 2019.*
8. **Crowell TA**, Danboise B, Parikh A, Esber A, Kasembeli A, Khamadi S, Iroezindu M, Kiweewa F, Owuoth J, Freeman J, Malia JA, Peel SA, Ake JA, Polyak CS. *Pretreatment and acquired antiretroviral drug resistance in 4 African countries. CROI, Boston, MA. March 2020.*
9. **Esber AL**, Ake JA, Bahemana E, Kiweewa F, Maswai J, Owuoth J, Iroezindu M, Polyak CS, Crowell TA. *Persistent low level viremia is associated with Noninfectious Comorbidities. CROI. Boston, MA. March 2020.*





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