



EAST AFRICAN SCIENCE &
TECHNOLOGY COMMISSION

EASTECO



The Regional Centre of Excellence
in Biomedical Engineering and eHealth (CEBE)



**EAC REGIONAL
E-HEALTH &
TELEMEDICINE
CONFERENCE | 2021**



THE 3RD EAST AFRICAN COMMUNITY REGIONAL E-HEALTH & TELEMEDICINE WORKSHOP, MINISTERIAL CONFERENCE & TRADE EXHIBITION

ABSTRACTS' BOOKLET

June, 16-17, 2021

About the Conference

The 3rd E-Health and Telemedicine Conference is gathering participants including policymakers from public and private organizations. It includes e-Health and Telemedicine experts and professionals, Technology and ICT solutions providers, Research and Development Institutions. The conference will consider and follow-up on the implementation of the resolutions of the second workshop. The meeting also introduces EAC public and private sector decision-makers to solutions that will enable the improvement of healthcare infrastructure and delivery through the use of ICTs

The main objective of the Workshop and Ministerial conference is to provide a dialogue platform for academia, researchers, technologists, developers and government decision makers, to present and discuss existing and new digital technologies for enhancing healthcare in East Africa.

Conference Topics

Enabling environment for e-healthcare in the East African Community

- Advancements in National eHealth Strategies
- Implementation of the Digital REACH Initiative
- Experiences in Implementing National Digital Health Strategies
- Financial solutions for disadvantages, remote and rural communities
- Online and m-Payment and reimbursement issues

Enhancing digital skills for healthcare personnel

- E-literacy in healthcare
- E-learning for health training

Conference Topics

Digital Technology development and innovation for healthcare services and systems

- ICT enabled devices and systems for health
- Bio-informatics and Information management;
- Mobile communications applications for health;
- Big data and health information systems;
- Young innovators in technology solutions for health
- Emerging technology applications for health: Internet of Things, Artificial Intelligence.
- E-Health applications response to Covid-19

SPEAKERS



Hon Dr. Peter Mathuki
*Secretary General,
East African Community*

Ministerial Session Ministerial dialogue on Strategies, Policies and Regulations for e-Health and Telemedicine

Dr. Peter Mathuki is the current Secretary General of the East African Community. He was appointed with effect from 25th April 2021.

Before his appointment to the EAC, Dr. Mathuki was the Executive Director of the East African Business Council (EABC), the regional apex body of Private Sector associations and corporates in the East Africa. He served in that capacity between 2018 and 2021.



Hon. Christophe Brazivamo
*Deputy Secretary General,
Productive Social Sectors,
East African Community*

Opening Remarks by DSG

Prior to his appointment as Deputy Secretary General, Hon. Brazivamo was a Member of Parliament in the East African Legislative Assembly (EALA). Hon. Brazivamo has been a Minister in Rwanda for 9 years from 2002 until 2011 as Minister for Lands, Environment, Forestry, Water and Mines, Minister of Local Government and Minister for Agriculture and Animal Resources among others.



Fortunate Muyambi
*Acting Executive
Secretary, EASTECO*

Opening Remarks by Ag. ES

Mr. Muyambi is at the forefront of coordinating multidisciplinary stakeholders from the East African Community (EAC) partner states to formulate and implement regional science and technology initiatives including regional programmes, policy and strategy development in Science, Technology and Innovation for socio-economic development and regional integration.



Monica Musenero Masanza
*Hon. Minister of Science,
Technology and Innovation,
Republic of Uganda*

Opening Remarks by Hon. Minister of Science, Technology and Innovation, Republic of Uganda

Monica Musenero Masanza, DVM, MS, MPH - Dr. Monica Musenero is a diversely trained and skilled Consultant and Scientist with extensive national and international experience. She has previously worked with Makerere University as an Assistant Lecturer, the Uganda Ministry of Health as the Assistant Commissioner, Epidemiology and Surveillance, and Principal Program Officer with Africa Field Epidemiology Network (AFENET)



Dr. Diana Atwine Kanzira
*Permanent Secretary,
Ministry of Health of the
Republic of Uganda*

Opening Remarks by PS, MoH Republic of Uganda

Dr. Diana Atwine Kanzira MBChB, MMed, is the Permanent Secretary in the Ministry of Health of the Republic of Uganda. She is charged with technical leadership as well as stewardship of all financial resources at the Ministry. She is currently focused on introducing reforms in culture, ethics and values in the sector, which she believes will increase quality and access to health care. She is a staunch crusader against corruption in the health sector.

Dr. Diana is a physician specialist in internal medicine with a post-graduate in 'Project Planning and Management'. She also did 'Improving the quality of Health Services', from Harvard T.H Chan School of Public Health.



Gertrude Ngabirano
*Former Executive Secretary
of EASTECO*

Moderator

Mrs Gertrude Ngabirano, is former Executive Secretary of East African Science and Technology Commission (EASTECO) an institution of the East African Community. The Development Objective of EASTECO is to promote and coordinate the development, management and application of Science and Technology to support regional integration and socio-economic development.

Mrs Ngabirano Gertrude hold a Master degree of Science (MSc) in Water and Environmental Resources Management, Hydrology and Water Resources Science. Before joint EASTECO, she was a Regional Project Manager at Nile Basin Initiative, Regional Programme Manager at Sida's Regional Team for Environment and Economic Development and Head of Section and Water Quality.



Dr. Michael Jackson Katende
*Public Health Specialist,
East African Community
Secretariat*

Plenary Session 1 – Moderator

Dr. Michael Jackson Katende is a Public Health Specialist at East African Community Secretariat, where he is the acting head of the Health department and Coordinates the Integrated Health Programme focusing on RMNCAH and HIV and AIDS integration. He is engaged in policy formulation and analysis at the East African Community Secretariat. Dr. Katende is a Medical doctor with Master's degree in Public Health from the ULB (Free University of Brussels) in Belgium, an alumina of the Galilee International management institute. He has long experience in HIV and AIDS research, and management projects and programmes at local and international level.



Badru Ntege
*CEO and Co-Owner,
NFT Consult Ltd*

Plenary Session 4- Moderator

CEO and Co-Owner of NFT Consult Ltd, a Managed Services firm based in Uganda, Rwanda, Burundi, Tanzania, South Sudan, Kenya and Zambia that has been in operation since 2005. Badru is currently a board member at PSFU and previously served as a member of the Presidential Investment Round table, 2008 -2014;

From a regional perspective, Badru is currently represents Uganda on the East African Science and Technology Commission (EASTECO) board and was the inaugural Chair of that board serving as board chair from 2017-2019. An active member of the African Network Operators Group (AFNOG); and is past Board Chair of Africa Network Information Centre (AFRINIC).



Onesmus Kamau
*Head of Health Informatics
and Digital Health, Ministry
of Health, Kenya*

Plenary Session 2 – Moderator

Onesmus is a Bio-Medical Informatics Expert and currently working as the Head of Health Informatics and Digital Health at Ministry of Health in Kenya. He has over 20 years in Digital Health Work, eHealth and Bio-Medical Informatics. He is highly-skilled in fast-paced environments, able to quickly evaluate and react to constantly changing situations, and drive teams to provide superior results. He is a leader managing a team within the Ministry of Health and digital health leaders and stakeholders in growing the vibrant digital health space in Kenya.

Ministerial Session:

Ministerial dialogue on Strategies, Policies and Regulations for e-Health and Telemedicine



Mr. Antoine Sebera
*Chief Innovation Officer,
Rwanda Information Society
Authority*

Ministerial Session

Ministerial dialogue on Strategies, Policies and Regulations for e-Health and Telemedicine

Mr. Antoine Sebera Currently works as the Government Chief Innovation Officer at Rwanda Information Society Authority (RISA), a government authority affiliated to the Ministry of ICT and Innovation that is mandated to coordinate the implementation of the National ICT Agenda toward becoming a knowledge-based society.

His work involves driving digital transformation initiatives across many sectors but also playing a catalyzing role in ensuring that innovative technologies are used and there is a strong participation of the private sector especially startups.



Dr. Diana Atwine Kanzira
*Permanent Secretary,
Ministry of Health of
the Republic of Uganda*

Opening Remarks

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Dr. Diana is a physician specialist in internal medicine with a post-graduate in 'Project Planning and Management'. She also did 'Improving the quality of Health Services', from Harvard T.H Chan School of Public Health.



Frederick Kamusiime
*Division Manager, EAC and
Eastern Africa, Ministry of
Foreign Affairs*

Opening Remarks

Fredrick is the Division Manager for East African Community and Eastern Africa, Ministry of Foreign Affairs and International Cooperation. Prior to this position, he worked for the Commonwealth Secretariat as a trade policy adviser to the 18 Pacific Island Countries including Australia and New Zealand.



Dr. Amit N. Thakker
*Chairman,
Africa Health Business*

KEYNOTE SPEAKER:

Plenary Session I: Panel Discussion

Theme: Embracing Digital technologies to foster innovations in healthcare for the wellbeing of East Africans

Dr. Amit N. Thakker has been a groundbreaking pioneer in the integration of the private sector within the health system in Africa. Africa Health Business is an African health consultancy, advisory & investment firm that aims to improve access to quality affordable healthcare in Africa.

Plenary Session 1: Panel Discussion

Digital REACH Initiative

Dr Novat Twungubumwe is a Medical Doctor with a Master's degree in Epidemiology obtained at Laval University of Quebec, Province of Quebec, Canada. He is recipient of a certificate on Research for strengthening Health System received at Université Libre de Bruxelles in Belgium. He has also received several capacity building trainings in quantitative and qualitative methods.



Dr Novat Twungubumwe
*Ag. Executive Secretary,
East African Health Research
Commission*

Plenary Session 1: Panel Discussion

Digital Agenda as an enabler for the rapid development & scaling of new, region-wide and digitally enabled services

Vital Wave is a mission-driven professional services firm with a diverse global team focused on digital solutions in emerging markets and a key partner of the East African Community (EAC). Ms. Partridge's work in the digital-for-development field has encompassed field-building contributions, strengthening national systems, and translating research into realizable plans and concrete action.



Brooke Partridge
CEO, Vital Wave



Eng. Daniel Murenzi
*Principal Information
Technology Officer,
East African Community (EAC)*

Plenary Session 1: Panel Discussion

Using ICTs during the COVID-19 pandemic illustrates both the limitations of and opportunities for ICT use

Daniel is a seasoned computer Engineer and holds a MSc in Communication Management & now PhD Researcher in (Artificial Intelligence in health system) with more than 16 years in developing ICT projects in areas of enterprise architecture and e-government projects (Digital-Health, e-education, Finance (FinTech)).



Julio Malikane
*Digital Transformation
Expert
(Health and Education),
UNCDF Uganda*

Plenary Session 1: Panel Discussion

Big data and health information systems

Julio is responsible of assuring the programme delivery and monitoring in digital health and education sectors. Prior to UNCDF, He worked with UNDP (Rwanda), BRCK(Rwanda), UNICEF Innovation (Kenya/global), Medic Mobile (Senegal), UN Peacekeeping operations(Mali) in various roles within the Digital Health and Education space. He holds an MBA in Project Management from Oklahoma Christian University in Edmond in the USA.



Richard Ndahiro
*Inclusive Digital Economy
Expert, UNCDF Uganda*

Plenary Session 1: Panel Discussion

E-Health applications response to Covid-19 with drones

Richard Ndahiro works at the intersection of digital and the real economy. He focuses on how digital innovation can be applied to sectors like Health, Education, Agriculture, Finance, and Energy.



Sam Wambugu
*Project Director,
PATH*

Plenary Session 1: Panel Discussion

East Africa Community Digital Health and Interoperability Assessments

Sam Wambugu has been working in the Global Health arena for 17 years. His career started off in Kenya, where he worked on various projects. Notably, Sam began working with PEPFAR in its early days as Kenya's Resident Advisor for Strategic Information.

Sam is the Project Director of a CDC-funded Global Health Informatics program at PATH based in the US.



Prof. Fredrick Chite Asirwa
CEO,
International Cancer
Institute

KEYNOTE SPEAKER: Plenary Session 2: Panel Discussion

Prof. Fredrick Chite Asirwa M.D. is the CEO of International Cancer Institute, an organization whose main purpose is to expand Education, Clinical Care and Training opportunities in cancer control and research across sub-Saharan Africa (SSA) through multi-sectoral collaborations and partnerships with relevant organizations both governmental and NGOs.

He is a Medical Oncologist & Hematologist, PD/PI of several access to personalized cancer care and research initiatives including Blueprint Program, Shining Tower Program, Clinical Trials Program—all geared towards enhancing early detection, promoting primary HPV screening, providing SOC diagnostics, therapeutics cancer research.

KEYNOTE SPEAKER: Plenary Session 3

Theme: Enabling environment for e-healthcare and advancements in National e-Health Strategies in the East African Community

Dr Richard Gakuba is an international digital health/eHealth consultant with over 15 years' experience in close to 10 countries in Africa. He has a medical degree and a Masters degree in e-Health/Digital Health from Brunel University in the UK.

He is currently working with ICAP as a part time Senior Health Informatics Consultant. He also served as the national e-Health coordinator for Rwanda's Ministry of Health for nine years where he led the establishment of a new eHealth unit and developed National eHealth Strategies and policies.



Dr Richard Gakuba
Founder and Managing
Director,
Health Systems Innovations
Ltd

KEYNOTE SPEAKER: Plenary Session 4

Theme: *Digital Transformation to Achieve Universal Health Coverage in Africa- How do we get it right?*



Dr. Ernest Darkoh
*Founding Partner,
BroadReach*

Dr. Ernest Darkoh is an internationally known expert in strategic planning, health systems and large-scale programme implementation. Ernest's recent work has focused on using 4th Industrial Revolution technologies such as Artificial Intelligence (AI) and Machine Learning to radically improve healthcare delivery and catalyse broader development sector priorities and outcomes. Ernest has worked with governments, international normative organizations and the private sector across Africa, Asia, the Caribbean, and North America.

Ernest was recognized by New African Magazine as one of the 100 most influential Africans. He was selected a Young Global Leader by the World Economic Forum. He was also named one of eighteen "Global Health Heroes" by TIME Magazine. He is a frequent plenary speaker on strategies for implementing large-scale health and social sector interventions.

PRESENTERS



Joseph Kathono
Clinical Psychology
University of Nairobi

Theme: Enhancing digital skills for Healthcare personnel for improved service delivery

Presentation: Human-centered design exploration with Kenyan health workers on proposed digital mental health screening and intervention training development: thematic analysis of user preferences and needs

Background Health provider's perceived sense of knowledge, competency and self-efficacy to support needs of their patients contributes to optimal patient health outcomes. In regards to mental health service delivery in Kenya, this area needs further exploration. Guided by the ehealth Technology Acceptance Model (TAM), needs and preferences of health care providers around mental health training for clinical management and their ability to intervene in peripartum adolescent mental health care are explored. Additionally, we interrogated how well-

equipped service providers are, how they engage with technology to learn and offer services. The healthcare provider's technology use preferences to bolster patient mental health were also explored.

Method Guided by a human-centered design focused qualitative inquiry we interviewed 20 specialists around their needs, perspectives and preferences for digitized mental health screening and intervention. 18 nurses with diverse experiences, 1 psychiatrist and 1 medical social worker participated. Mean age was 44.2 years, (range of 32-58 years), 25%(5) males and 75% (15) females. Our participants represented Nairobi's public health institutions including two National Mental Health and referral hospitals. After written consenting process, the online interviews (30 -45 minutes) were conducted in April 2021, once personal information was de-identified interviews were transcribed and coded. Thematic analysis was used and we combined rapid appraisal of Google Jamboard online storyboards to do individual HCD personas alongside.

Results All of our participants were exposed to digital technologies and many interacted with online learning platforms. Prohibitive costs of data bundles, lack of funds for consistent online engagement, high workload and instability of access to appropriate gadgets were found to be barriers to e-health training. Emerging opportunities were well-identified adolescent and peripartum adolescent mental health service and intervention needs, willingness to take online courses offered on learning platforms and wish for these to be disseminated through simple nuggets of information via Whatsapp, Telegram or Facebook. Other recommendations made were the need to have user-friendly interface such as data-light engaging and practical materials including animations, short, group-based learning, and both asynchronous and synchronous mode of engagement were important for our participants.

Conclusion Understanding contextual factors that influence perceived usefulness and ease of use of the remote/digital components would be critical for e- training development and its uptake.

Keywords: HCD, mental health training and services, health care workers, peripartum adolescent mental health, technology acceptance model



Dr. Patricia Odera
Regional Director (Africa),
Duke Global Health
Innovation Center (GHIC)

Authors: Dr. Andrew Kitua, Dr. Patricia Odera

Theme: Digital Transformation to Achieve Universal Health Coverage in Africa - How do we get it right?

Regional Action Through Data: A two-pronged approach to establish Regional data sharing and protection Policy; introduce mobile technology solutions for cross border immunization to improve quality and reduce health personnel work burden.

The Regional Action Through Data project was initiated in 2016 with the objective of addressing the problem of limited use of data to drive performance in healthcare service delivery in sub-Saharan Africa by changing how and why data is collected, analysed and used to achieve results

Two strategic approaches are applied to achieving the objective. 1. At the regional level: Equip and empower IGAD and WAHO with evidence-based analytics to drive data use for evidence-based policy and program action in public health. 2. At the patient/provider level: Deploy and implement a digital health solution for child-hood vaccination services focused on mobile cross-border populations along the Uganda-Kenya border; for continuity of vaccination services regardless of their location

The RAD project wishes to coordinate/sponsor a symposium to show case her experience and share lessons learnt in implementing the two strategies mentioned above.



Gracia Andriamiadana

Theme: Digital Transformation to Achieve Universal Health Coverage in Africa – How do we get it right?

Impact of COVID-19 related policy measures on maternal healthcare in Madagascar

Abstract:

The COVID-19 pandemic directly and indirectly impacts healthcare services worldwide. Maternal health services access might be disrupted due to a shift in health systems priorities and social distancing measures, putting pregnant individuals at a higher risk. Low-income countries such as Madagascar are particularly vulnerable for epidemics. Several lockdown measures were taken by the Malagasy government to limit the spread of COVID-19 which include reduced work and school attendance, restriction of gatherings, travel bans and strict curfews during two periods in April and July 2020. This study aims at measuring the impact of lockdown measures on the use of maternal healthcare services and on the use of an electronic voucher and savings programs in Antananarivo, Madagascar. High-resolution real-time data of electronic voucher programs (EVPs) for ante-natal care (ANC) sessions, and drug administration and use of a digital health savings account for were analyzed. The analysis included an interrupted time series and segmented regression analysis from the digital health payment platform administering the electronic voucher program and savings wallet for pregnant individuals. Three key results could be concluded: Firstly, digital tools can deliver real-time data to guide action for health system strengthening to react in times of crisis. Secondly, the COVID lockdowns had severe impact on savings and health seeking behavior. Thirdly, compared to the use of a voucher program the use of maternal health services required co-payments which were reduced during lockdowns putting individuals and families from low-income populations at a greater long-term risk. Universal health coverage efforts to remove financial barriers to accessing healthcare should be prioritized.

Keywords: COVID-19 lockdown, Madagascar, lockdown effects, maternal healthcare, essential healthcare delivery
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Peter M. Kibe



Theme: Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community

Mobile health consulting as an option for improved access to healthcare in Nairobi's slums

Mobile phone communication technology has increasingly been suggested as an option for the delivery of healthcare services globally. In Kenya, these technologies provide numerous opportunities for improved access and delivery of healthcare especially in areas with underserved communities.

We undertook an explorative study in Nairobi to assess the status for use of mobile phone consulting (mConsulting) defined as contact by healthcare user to a healthcare provider using a mobile phone audio, text, app or any other form. This is part of a larger study that was conducted in Tanzania, Bangladesh, Pakistan and Nigeria. We did focus group discussions with local residents and key informant interviews with health care providers, mobile phone technology providers, health managers and decision makers working with informal settlement. We explored the type of mConsulting services available, how the users and providers use them and their perceptions on mConsulting services. Our study was guided by an advisory team which was composed of key stakeholders involved in healthcare delivery in informal settlements. Our findings show that residents in informal settlements in Nairobi are using mConsulting services. The services occur in two different forms; first is the direct contact between a healthcare provider and a healthcare user. This normally occurs through mobile phone calls or text messages and is highly likely to occur in an already established contact between the health care provider and a user in a prior physical consultation. The second form of mConsulting occurs through established mConsulting provider platforms run by NGOs or commercial partners which link the care provider to a potential healthcare user.

Key Words: mHealth, mobile phone consulting, Slum health

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Walusimbi Sam



Samuel Walusimbi

Systems Administrator, Ministry of East African Community Affairs (Uganda)

Theme: Enhancing digital skills for Healthcare personnel for improved service delivery

Mobile Communication Application for Health

Background and Purpose: Application of an Information System that can provide a seamless flow of patient information and medical guidelines is highly desirable in the practice of Evidence Based Medicine (EBM) to enable healthcare professionals collaborate, innovate together, and exploit operational synergies. Information systems in Resource Constrained Health Facilities including Uganda have been found to be inadequate in supporting collaboration among healthcare providers and this affects quality service delivery. This study aimed at optimising collaboration and information sharing among healthcare providers by developing an architecture for a collaborative mobile application.

Methods: The study adopted a cross-sectional research design and qualitative data was collected from 32 informants using a series of data collection methods including; interviews, focus group discussions and observation. For secondary data, document reviews from the hospital's resource centre, published articles, online informatics journals and professionally selected internet resources were used.

Results: Findings from this study showed that there were various information and communication systems including Clinic Master, Navision and DHS2 systems computers though limited in number, e-mails, internet access and suffice to note, telephone calls for both landline and mobile were still being used for collaboration. Collaboration challenges that were identified included system integration issues, infrastructure limitations, data quality issues, system usability and geographical dispersals of both healthcare providers and healthcare facilities among others. The study further established that current systems focus more on monitoring and evaluation, surveillance of chronic diseases and data capture; less is done towards optimisation of collaboration.

Conclusions: Healthcare providers ought to make decisions based on the most up-to-date, solid, reliable and scientific evidence, this study proposed a collaborative mobile application architecture to improve collaboration among healthcare providers at any point of care. The architecture was developed using enterprise architecture principles taking cognizance of its four crucial C's; connection, collaboration, communication and customer.

Keywords: Collaboration, Service Delivery, Evidence-Based-Medicine, Mobile tool

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Paul Macharia



Paul Macharia

Consultant, Health Informatics Kenya

Theme: Enhancing digital skills for Healthcare personnel for improved service delivery

Human-centered design exploration with Kenyan health workers on proposed digital mental health screening and intervention training development: thematic analysis of user preferences and needs

Background Health provider's perceived sense of knowledge, competency and self-efficacy to support needs of their patients contributes to optimal patient health outcomes. In regards to mental health service delivery in Kenya, this area needs further exploration. Guided by the ehealth Technology Acceptance Model (TAM), needs and preferences of health care providers around mental health training for clinical management and their ability to intervene in peripartum adolescent mental health care are explored. Additionally, we interrogated how well-equipped service providers are, how they engage with technology to learn and offer services. The healthcare provider's technology use preferences to bolster patient mental health were also explored.

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written consenting process, the online interviews (30 -45 minutes) were conducted in April 2021, once personal information was de-identified interviews were transcribed and coded. Thematic analysis was used and we combined rapid appraisal of Google Jamboard online storyboards to do individual HCD personas alongside.

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Keywords: HCD, mental health training and services, health care workers, peripartum adolescent mental health, technology acceptance model

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Daud Peter



Peter Daud

Medical Doctor

Theme:

***Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community
Contribution of Project Extension for community Health Care Outcomes (Project ECHO) in reducing the cost of Treatment for
Multi-Drug Resistant Tuberculosis Patients in Tanzania***

Abstract:

Background: Successfulness of Project ECHO (Extension for Community Health Care Outcomes) in managing MDR-TB patients has recently been reported in Tanzania. However, cost effectiveness of Project ECHO is yet to be evaluated in Tanzania.

Aims: This study aimed to describe the contribution of Project ECHO in reducing costs of managing the MDR-TB patients in Tanzania.

Methods: This was a retrospective study conducted at the MDR-TB ECHO hub in Tanzania. MDR-TB ECHO is a weekly case-based virtual community of practice (vCOP) model connecting experts at the hub and primary health care team (PHCT) in the clinical site spokes using low-cost videoconferencing. The vCOP approach provides a platform for MDR-TB case presentations

by (PHCT), discussions, recommendations, and didactic presentation on MDR-TB diagnosis, management and follows up. Also MDR-TB ECHO is used for MDR-TB patients Cohort Review meeting to discuss the treatment progress and outcomes of MDR-TB patients .This study describes the contribution of Project ECHO in reducing the cost of multidrug resistance tuberculosis program implementation in Tanzania.

Results: Using the MDR-TB ECHO platform reduced the cost of conducting MDR-TB patient cohort review meetings from around \$20,000 to \$5000 per meeting; we have conducted eight MDR-TB patients' cohort review meetings at a total cost \$35,000. If conducted in person, these eight cohort review meetings would have cost \$160,000. Additionally, the cost of conducting onsite mentorship per single patient was USD\$2500. We used the ECHO platform to conduct mentorship for DR-TB treatment initiation for 47 patients at a cost of \$5000 total; without use of this learning and collaboration platform it would have cost USD\$102,173.

Conclusion: Use of Project ECHO telementoring significantly contributed to a reduction in the cost of treatment services for MDR-TB in Tanzania. It has proved a sustainable and cost-effective model in resource strained settings like Tanzania. We recommend adaptation and scale-up of the ECHO model to support management of MDR-TB and other diseases of public concern.

Key Words : vCOP, PHCT, Project ECHO

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Mudonzi Adelin



Dr Adelin Mudonzi

Intervention Officer, ENABEL National Health Information System Support

Theme: Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community

Mobile phones for maternal health in a rural health district. What contribution? Case of the Health District of Mutaho (Burundi).

This study aims to assess the effect of appointment reminder by short signal messages (SMS) on the use of antenatal and postnatal consultation services. To carry this study, a quantitative comparative study between an area with intervention and without intervention before and after was carried out. Data used in this study were collected from the District Health Information Software 2 (DHIS2) database and the RapidSMS database. The results from this study show that the proportion of women registered in RapidSMS compared to women reported in DHIS2 for ANC (Antenatal Consultation) 1 is low (48.3%). There is also a weak follow-up of the women registered in RapidSMS [0.7 ANC on average / woman instead of 3, ANC 4: 6%, deliveries: 51%, PNC (postnatal consultation) 1: 28%]. The RapidSMS system also did not increase ANCs at the level of Health District from year 2015 to 2018 (ANC1: DF = 0.0455, p = 0.0364; ANC2: DF = -0.0860, p = 0.0001; ANC3: DF = -0.1044, p < 0.0001; ANC4: DF = -0.5350, p < 0.0001). Only PNC1 coverage increased and this indicator had an increasing trend even before the implementation of RapidSMS (PNC1: DF = 0.04990, p < 0.0001). The age and sex of the community health workers (CHW) influence the follow-up of pregnant women registered by RapidSMS. Younger, female CHWs have better follow-up of pregnant women registered in RapidSMS for ANC and

PNC. The level of education of the CHWs has no effect on the follow-up of pregnant women recorded in RapidSMS. Pregnancy risk at time of registration has no effect neither on use of ANC services ($p = 0.29$) nor on health-care delivery ($p = 0.83$). We suggest setting up a framework for collaboration between experts in the field and other involved actors to find plausible elements that can explain the results found.

Keywords: Community Health Workers, RapidSMS, Risk, Antenatal Care, Postnatal Care, pregnant women

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Eric Kiringe



Theme: Enhancing digital skills for Healthcare personnel for improved service delivery

Adopting M-Health for E-learning for Health Training in Kenya Using Community Health Volunteers: A Case Study of Amref Health Africa's Leap in the Fight against COVID-19

Authors: Caroline S. Mbindyo, Peter Otieno, Eric Kiringe, Enock Marita, Raymond Muhanji

Abstract

Background: M-health platforms have emerged as go-to tools to address knowledge gaps in health care in Africa. Mobile phones can aid capacity development interventions through m-health platforms, leveraging on rapid growth in mobile phones ownership, network coverage. Leap is a mHealth learning tool deployed by Amref Health Africa that facilitates community health volunteers (CHVs) to learn and engage their communities on health issues. Amref Health Innovations (AHI) leveraged on Leap for training CHVs on COVID-19 response through key messages with aim of attaining increased awareness levels, case management and reduced social stigma. **Methodology:** The intervention targeted 20,000 CHVs across 20 counties in Kenya. Partners started with content development, county engagement and message deployment. CHVs received key messages biweekly for 3 months. Focus group discussions comprising of public health officials, CHVs, CHAs and community members were held to assess the effectiveness of deploying key messaging in the fight against COVID-19. **Results:** The intervention reached 22,965 CHVs.

The intervention saw CHVs creating awareness through community policing by enforcing hand washing and donning of masks. Enforcing social distancing measures in public spaces like churches, markets and patrolling border points. CHVs forged close working relationships with local rapid response units for swift isolation of suspect cases, assist with contact tracing and reintegration of recovered Covid-19 into society. Conclusions: Key messaging was an effective intervention in awareness creation, boosting CHV capacity in case detection and management of suspected Covid-19 cases. The approach boosted the preparedness and response rate of the health care system to suspected cases of Covid-19. Key messaging contributed to improved public response to identified Covid-19 cases and helped curb mass hysteria.

Keywords: mHealth, Leap, Community health volunteers, COVID-19

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Rehema Maro,



Research Assistant, Kilimanjaro Clinical Research Institute

Theme: Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community

Implementation Bottlenecks of Real Time Medication Monitoring (evriMED) for Improving Adherence to Anti-TB Drugs among Tuberculosis Patients in Kilimanjaro, Tanzania

Authors: Rehema Maro, Kennedy Ngowi, Francis Pima, Alan Mtenga, Benson Mtesha, Pythia Nieuwkerk, Prisca Njau, Marion Sumari-de Boer

Digital Adherence tools, which includes real time medication monitoring and Short Message Service (SMS) reminders, have been reported to improve medication adherence among Tuberculosis (TB) patients. In limited resource settings, several bottlenecks have been identified in implementing digital health technologies. The main objective was to address implementation bottlenecks of real time medication monitoring using the evriMED device. We conducted a mixed-method study to assess the technical bottlenecks of implementation of evriMED among TB patients who participated in the REMIND-TB trial. SMS reports were extracted from the linked Wisepill portal. We calculated the percentage of sent and delivered SMS reminders and device activity status

(i.e. battery). Feedback from exit interviews was analysed to describe the user experience. In-depth interviews were conducted to investigate the TB nurses' perception on evriMED usage. A total of 266 participants were in intervention arm. A total of 99601 SMS reminder were sent and 49603 (50%) were delivered. A number Out of 266 devices, 45% devices were medium low battery, 6.7% devices were low battery and 2.6% were critical battery low which lead to loss of data. Bottlenecks reported included that TB nurses had experienced difficulties in accessing online adherence reports due to limited knowledge of mobile technology; participants moved away from urban to rural areas where they experienced poor network coverage; Unreliable electricity in rural areas. The usage of evriMed technology provides important technical feasibility information on TB-medication intakes. However, future studies using real time monitoring devices should consider issues of network availability, improving device battery life and strengthening training and sensitization on mobile technology to health care provider such as TB nurses.

Keywords: Adherence, evriMed, SMS reminder, Real time monitoring, Tuberculosis

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Dr. Ain Aaviksoo

Chief Medical Officer, Guardtime

Plenary Session 4

Presentation: VaccineGuard – A digital platform that enables end to end visibility for the vaccine value chain

Having 20 years of experience in digital technologies and health innovation, Ain Aaviksoo guides the product roadmap and leads public policy collaboration at Guardtime Health. As the former Undersecretary for eServices and Innovation he was responsible for digital transformation of the health and social care system in Estonia, as well as actively the developments of digitally enhanced health care systems in Europe and globally.



Irene Mwoga

Data Management & Results Monitoring Officer, United Nations Tanzania

Plenary Session 4

Presentation: Championing Health Information systems and Innovation

Irene Mwoga is a management information systems specialist with the UN Secretariat in Tanzania. She carries over 15 years' experience in the fields of health information systems, data analysis and results-based management. She has served in the Ministry of Finance Tanzania as systems analyst and served WHO Tanzania country office as health information specialist and is now serving the UN resident coordinator's office as a data and results reporting coordination officer.



Serge Somda

Methodologist & Biostatistician, West African Health Organisation

Plenary Session 4

Presentation: Strengthening quality of Health information products

Dr Serge Somda is a methodologist and biostatistician. He has a PhD in Applied Mathematics/biostatistics from the University of Toulouse, a MSc in Public Health from the University of Bordeaux, a MSc in Applied Mathematics and Scientific Computing from the University of Ouagadougou and a BEng in Statistics from the National School of Applied Economics in Dakar.

Dr. Serge SOMDA is a consultant, expert in Health Information Systems at the West African Health Organization (WAHO). He also acts as an Assistant Professor in Applied Mathematics with a specialization in Statistics at the University Nazi Boni, and as an associate researcher at Centre MURAZ research center.



Chris Lukolyo

Digital Country Lead, UNCDF Uganda

Plenary Session 3

Presentation: Financial solutions for disadvantaged, remote and rural communities

Chris heads the implementation UNCDF's programme in Uganda that is focused on "Leaving No One Behind in the Digital Era". The programme seeks to foster an enabling policy and regulatory environment; promote an open digital payments ecosystem, encourage inclusive innovation and improve the digital skills and literacy of under-served communities in order to build an inclusive digital.



Celestin Twizere

Senior Lecturer, University of Rwanda

Plenary Session 3

Presentation : Digitalising the hospital patient trajectory and secondary use of Electronic Health Records (EHRs) in Rwanda



Yusuf Henriques

Founder & Chief Executive Officer, IndyGeneUS AI

Plenary Session 3

Presentation

Yusuf Henriques is the Founder & Chief Executive Officer (CEO) of IndyGeneUS AI. (pronounced indigenous) IndyGeneUS is a genomics company creating the world's largest block-chain encrypted repository of indigenous and diasporic African clinical data for disease prevention and detection, drug discovery and development, clinical disease management, and precision health equity. As CEO, he leads strategic direction and partnerships as well as investor relations.



Dr. Ahmed Bashir

Digital Health Coordinator, IGAD

Plenary Session 4

Presentation: Strengthening cross border access to health services for mobile populations

Ahmed Bashir has vast experience in Cross border health innovation solutions, Cross border data sharing and security policy and Cross border health innovation deployment. He is a medical practitioner with expertise in cross border health in the Horn of Africa region.



Martin Weiss

Lead Solutions Engineer, Jembi Health Systems

Plenary Session 4

Presentation: Strengthening cross border access to health services for mobile populations

Martin Weiss is the Lead Solutions Engineer at Jembi Health Systems. His role is to guide and support the development of digital health enabling platforms. The role requires knowledge of appropriate technologies and solutions, and the ability to see how these could impact health. Prior to joining Jembi, Martin was technical director of a telemetry start up that developed the world's first cloud "Internet of Things" platform for mobile network offerings including SIM management technology that was deployed into the South Africa mobile network infrastructure.



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**EAC REGIONAL
E-HEALTH &
TELEMEDICINE
CONFERENCE | 2021**

CONFERENCE PROGRAMME

16th - 17th June 2021

Embracing Digital Technologies to foster Innovations in Healthcare for the well-being of East Africans

The Third EAC Regional E-Health and Telemedicine Workshop and Ministerial Conference 2021 is succeeding a second one organized under the auspice of the EAC Secretariat.

These events aim to enable EAC Partner States to take advantage of technology solutions to improve healthcare delivery for the benefit of all their citizens, through the establishment and implementation of efficient National E-Health Strategies and Programmes, the adoption of ICT and mobile technologies for health as well as sustainable financial and business model for E-Health and Telemedicine.

The main objective of the Workshop and Ministerial conference is to provide a dialogue platform for academia, researchers, technologists, developers and government decision makers, to present and discuss existing and new digital technologies for enhancing healthcare in East Africa.

Wednesday 16th June 2021

09:00 – 10:00 EAT

Opening Remarks

EAC Anthem

Mr Fortunate Muyambi - Executive Secretary, EASTEKO

Hon. Christophe Bazivamo - Deputy Secretary General, Productive Social Sectors, East African Community

Hon. Minister of Science, Technology and Innovation, Republic of Uganda

Mr. Frederick Kamusiime - Ministry of Foreign Affairs and International Cooperation, East African Community, Rwanda

Guest of Honour: Dr. Diana Atwine - Permanent Secretary, Ministry of Health, Republic of Uganda

Moderator: **Mrs Gertrude Ngabirano**

10:00 – 10:30 EAT

Break, Exhibition and Poster session

Wednesday 16th June 2021

10:30 – 12:30 EAT

Plenary Session 1: Panel Discussion

Theme: Embracing Digital technologies to foster innovations in Healthcare for the wellbeing of East Africans

Healthcare innovations are creating enormous capacities to access medical records, treat patients remotely with the limited qualified health personnel in the region, advance patient flow through digital engagements and ease of sharing information between different health departments. ICT-enabled and mobile solutions applied in the health services and now with more citizens owning mobile phones, digital health is improving access via m-health solutions and quality of health coverage and capacity building hence improving the quality of healthcare. Health IT opens up more avenues of exploration and research, which allows experts to make healthcare more driven and effective than it has ever been.

Keynote Speaker: **Dr Amit N. Thakker** - Chairman, Africa Health Business

Digital REACH Initiative: **Dr Novat Twungubumwe** - Ag. Executive Secretary, EAHRC

Digital Agenda as an enabler for the rapid development and scaling of new, region-wide and digitally enabled services

- **Ms. Brooke Partridge** - CEO Vital Wave

Using ICTs during the COVID-19 pandemic illustrates both the limitations of and opportunities for ICT use -

Eng. Daniel Murenzi - Principal Information Technology Officer, East African Community (EAC)

Big data and health information systems - **Mr Julio Malikane** - Digital Transformation Expert, UNCDF Uganda

E-Health applications response to Covid-19 with drones -

Mr Richard Ndahiro - Inclusive Digital Economy Expert, UNCDF Uganda

East Africa Community Digital Health and Interoperability Assessments - **Mr. Sam Wambugu**, Project Director, PATH

Discussion

Moderator: **Dr. Michael Jackson Katende** / Rapporteur: **Dr Sylvance Okoth**

12:30-13:45 EAT

Plenary Session 2: Panel Discussion

Theme: Enhancing digital skills for Healthcare personnel for improved service delivery

With the ever emerging digital tools developments which include Big Data and developments in artificial intelligence (AI), the health workforce in the region as the front-line users of the technology, must be equipped with new skills supported by policymakers who can understand and implement digital health strategies and infrastructure to put it to work effectively and safely. This session will explore the role of governments and the private sector providing capacity building to the health workers and improving e-literacy in healthcare.

Keynote Speaker - **Prof. Fredrick Chite Asirwa**, Executive Director, International Cancer Institute

Presentation 1: Human-centered design exploration with Kenyan health workers on proposed digital mental health screening and intervention training development: thematic analysis of user preferences and needs

- **Paul Macharia**, Informatics Specialist, Health Informatics Kenya and
Joseph Kathono, Clinical Psychology-University of Nairobi

Presentation 2: Adopting M-Health for E-learning for Health Training in Kenya Using Community Health Volunteers: A Case Study of Amref Health Africa's Leap in the Fight against COVID-19

- **Erick Kiringe**, Monitoring, Evaluation, Reporting and Learning, Amref Health Innovations

Presentation 3: Mobile Communication Application for Health

- **Samuel Walusimbi**, Systems Administrator, Ministry of East African Community Affairs (Uganda)

Discussion

Moderator - **Dr. Onesmus Kamau** - Ministry of Health, Kenya / Rapporteur - **Ms Joelle Mumley**

Wednesday 16th June 2021

13:45 - 14:30 EAT

Break, Exhibition and Poster session

14:30-16:30 EAT

Plenary Session 3

Theme: Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community

Today, most especially during the Covid-19 pandemic era, most healthcare providers are trying hard to improve delivery and management of their services. Therefore innovation is key to make this happen but requires a friendly environment and a readiness to invest in change. This session will discuss regional Initiatives to realise an enabling environment for digital health interoperability standards across the region which include financial solutions for the disadvantaged, remote and rural communities, online and m-payment and reimbursement issues, skills development and mobile payment solutions.

Keynote Speaker - **Dr Richard Gakuba**, Founder and Managing Director, Health Systems Innovations Ltd

Presentation 1: Impact of COVID-19 related policy measures on maternal healthcare in Madagascar
- **Mrs. Gracia Andriamiadana**, Data Science, Charité Global Digital Health Lab

Presentation 2: Mobile health consulting as an option for improved access to healthcare in Nairobi's slums
- **Peter M. Kibe**

Presentation 3: Digitalising the hospital patient trajectory and secondary use of Electronic Health Records (EHRs) in Rwanda - **Celestin Twizere**

Presentation 4: **Yusuf Henriques**

Discussion

Moderator: **Steven Kirenga** / Rapporteur: **Dr. Fabian Mashauri**

Health Break

16:45-18:15 EAT

Plenary Session 3 continued

Theme: Enabling environment for e-healthcare and advancements in National E-Health Strategies in the East African Community

Today, most especially during the Covid-19 pandemic era, most healthcare providers are trying hard to improve delivery and management of their services. Therefore innovation is key to make this happen but requires a friendly environment and a readiness to invest in change. This session will discuss regional Initiatives to realise an enabling environment for digital health interoperability standards across the region which include financial solutions for the disadvantaged, remote and rural communities, online and m-payment and reimbursement issues, skills development and mobile payment solutions.

Presentation 5: Contribution of Project Extension for community Health Care Outcomes (Project ECHO) in reducing the cost of Treatment for Multi-Drug Resistant Tuberculosis Patients in Tanzania

- **Mr. Peter Daud**, Medical Doctor

Presentation 6: Mobile phones for maternal health in a rural health district. What contribution?
Case of the Health District of Mutaho (Burundi)

- **Dr. Adelin Mudonzi**, Intervention Officer, ENABEL National Health Information System Support

Presentation 7: Implementation Bottlenecks of Real Time Medication Monitoring (evriMED) for Improving Adherence to Anti-TB Drugs among Tuberculosis Patients in Kilimanjaro, Tanzania

- **Rehema Maro**, Research Assistant, Kilimanjaro Clinical Research Institute

Presentation 8: Financial solutions for disadvantaged, remote and rural communities
- **Mr Chris Lukolyo**, Digital Country Lead, UNCDF Uganda

Discussion

Moderator: Steven Kirenga / Rapporteur: Dr. Fabian Mashauri

18:15 EAT

End of Day One, Exhibition and Poster Session

Thursday 17th June 2021

10:00-12:30 EAT

Plenary Session 4

Theme: Digital Transformation to Achieve Universal Health Coverage in Africa - How do we get it right?

Today's digital advancements in healthcare are pushing innovation and hence motivating long-term structural changes regarding delivery of healthcare and with COVID-19 pandemic making it even more relevant by delivering health care remotely through telemedicine. This session will discuss developments in ICT enabled devices and systems for health, Bio-informatics and Information management, cross borders access to health services and E-health applications response to Covid-19 among others.

Keynote Speaker - **Dr Ernest Darkoh**, Founding Partner, BroadReach Corporation

Presentation 1: Establishing Regional Data Sharing and protection policies
– **Dr Patricia Odero**, Regional Director (Africa), Duke Global Health Innovation Center (GHIC)

Presentation 2: Strengthening quality of Health information products
– **Dr Serge Somda**, Methodologist & Biostatistician, West African Health Organisation

Presentation 3: Strengthening cross border access to health services for mobile populations
– **Ahmed Bashir** - IGAD and **Martin Weiss** - Jembi Health Systems

Presentation 4: VaccineGuard - A digital platform that enables end to end visibility for the vaccine value chain
– **Dr. Ain Aaviksoo**, Chief Medical Officer, Guardtime

Presentation 5: Championing Health Information systems and Innovation - **Irene Mwoga**

Discussion

Moderator: **Badru Ntege** / Rapporteur: **Eng. Andrew Charles**

12:30 - 14:30 EAT

Break, Exhibition and Poster session

14:30 – 16:30 EAT

Ministerial Session (Panel Discussion)

Ministerial dialogue on Strategies, Policies and Regulations for e-Health and Telemedicine

This Ministerial session will be introduced by presentations of the Resolutions of the Workshop sessions and followed by Ministerial dialogue on EAC Partner States' achievements in E-Health and Telemedicine. The Ministers of Health, ICT and STI or their representatives will discuss on subjects related to Healthcare Digital Technologies and innovations, a regional approach to digital health initiatives and e-Government Programmes in support to healthcare delivery systems

Mr Fortunate Muyambi - Executive Secretary, EASTECO

Hon Dr. Peter Mathuki - Secretary General of EAC

Chair Sectoral Council on Health - Hon. MOH - Kenya

Guest of Honour: Dr. Diana Atwine - Permanent Secretary, Ministry of Health, Republic of Uganda

Dialogue members/Ministers

Feedback /Responses from Ministers

Minister responsible for Health, EAC, Republic of Kenya

Minister responsible for Health, Republic of Burundi

Ms. Edith Munyana - Director ICT, Ministry of Health, Republic of Rwanda

Mr. Antoine Sebera, Government Chief Innovation Officer, Rwanda Information Society Authority, Republic of Rwanda

Minister responsible for Health, Regional Authorities and Local Government, United Republic of Tanzania

Minister responsible for EAC, Health, Republic of South Sudan

Output: Key Action Points on E-health and Telemedicine adopted by the Ministers

16:30-17:00 EAT
Closing Remarks

Executive Secretary of the EASTEKO
Secretary General of EAC
Chair of EAC Council on Health
Guest of Honour

17:00 EAT
Close of Conference, Exhibition and Poster Session

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