

THE 2ND EAC REGIONAL E-HEALTH AND TELEMEDICINE WORKSHOP, MINISTERIAL CONFERENCE AND INTERNATIONAL TRADE EXHIBITION

CONFERENCE REPORT



e-Health and Telemedicine Ministerial Conference and closing ceremony, 17th May 2018

Theme: *Harnessing science, technology and innovation to transform healthcare delivery and accelerate the attainment of Sustainable Development Goals in East Africa*

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This report summarises the presentations and discussions at the four-day conference in Kigali-Rwanda 15 May - 18 May 2018. The Conference brought together policymakers from Governments and public organizations, e-Health and Telemedicine experts and professionals, Technology and ICT solutions providers, Research and Development institutions, Development Partners, academia, international and non-profit organizations to explore how science, technology and innovation can transform healthcare delivery and accelerate the attainment of Sustainable Development Goals in East Africa.



Group photo after the official opening ceremony by Hon. Dr. Eugene Mutimura – Minister for Education in Rwanda. He was accompanied by other ministers and delegates from EAC Partner States

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1. Executive Summary

1.1 Introduction

The **9th Ordinary Meeting of the EAC Sectoral Council of Ministers of Health** that was held in Zanzibar, United Republic of Tanzania from 14th to 17th April 2014 noted that the EAC Regional e-Government Framework that was approved by the 13th regular meeting of the EAC Council of Ministers and the 8th Summit of the EAC Heads of States held in November 2006 identifies e-Health as one of the seven focus areas in the implementation of the e-Government Programme.

In this regard, the 9th Ordinary Meeting of the EAC Sectoral Council of Ministers of Health further noted that the “**First East African Community Regional E-Health Workshop and Ministerial Conference**” which was held in Kigali, Rwanda from 8th to 10th November 2010 provided opportunities to share experiences and allow insight into policies, practices and technologies that can advance the E-Health capabilities in the East African Community region. The 1st EAC Regional eHealth and Ministerial Conference came up with the following resolutions:

- i. Creation of an EAC Regional e-Health Working Group /at EAC Regional Level
- ii. Establishment of National Inter – Agency e-Health Working Groups /at Partner States Level
- iii. Development of legal and regulatory frameworks
- iv. Implementation of the East African Community Regional Integrated Telemedicine and e-Health Program;
- v. Technology and Infrastructure Improvements for e-Health Systems
- vi. Consideration of the Proposed Financing Models for e-Health Implementation at national and regional levels in the East African Community region.

Consequently, the **9th Ordinary Meeting of the EAC Sectoral Council of Ministers of Health** considered and approved the convening of the “**Second East African Community Regional E-Health Workshop and Ministerial Conference**” to be held in Kigali, Rwanda, in order to consider and follow-up on the implementation of the resolutions of the first workshop.

Given the above background, the East African Science and Technology Commission (EASTECO) in collaboration with the East African Regional Centre of Excellence of Biomedical Engineering and e-Health hosted by the University of Rwanda, EAC Secretariat and Partner States, convened the 2nd EAC regional e-health and telemedicine workshop, ministerial conference and international trade exhibition at the Kigali Conference and Exhibition Village, Kigali, Republic of Rwanda from 15th to 18th May 2018.

The meeting was informed that the 19th Ordinary Meeting of the Summit of the EAC Heads of States held in Kampala, Uganda on 23rd February 2018 approved nine health sector investment priorities for the period 2018 to 2028 and that one of the priority areas is Investment in e-health technology for better research for health, health services delivery

and health outcomes. In addition, most of the other eight priorities heavily incorporate investments in e-health.

The Second East African Community Regional e-Health and Telemedicine Workshop, Ministerial Conference and International Trade Exhibition brought together policymakers from Governments and public organizations, e-Health and Telemedicine experts and professionals, Technology and ICT solutions providers, Research and Development institutions, Development Partners, academia, International and non-profit organizations to explore how science, technology and innovation can transform healthcare delivery and accelerate the attainment of Sustainable Development Goals in East Africa. The conference covered the following thematic areas:

- Policy and Regulatory framework – Coordination and Governance for e-health.
- Improving Healthcare Systems capacity and efficiency through E-Health and Telemedicine (building human capacity for eHealth and adopting efficient and sustainable financing models).
- Technology and Innovation in improving healthcare systems and services

Through discussions, presentations and the demonstration of innovative projects, the conference aimed to strengthen networks and collaboration between e-Health and Telemedicine experts and other healthcare stakeholders in the East African region and reinforce commitment to evidence-based policy-making, based on research and lessons learnt from practice.

Furthermore, projects on e-health and Telemedicine were showcased in the exhibition area. The Exhibition attracted more than ten exhibitors that showcased current and future e-health innovations and solutions for the healthcare sector.

The conference sought to encourage the further development of national policies which align with strategies agreed at the East African level. The workshop and conference aimed to have high level dialogue with different stakeholders on how technology can enhance healthcare delivery, brainstorm on the issue of ICT regulations especially those related to e-health and how to enhance usage of e-health platforms in East Africa and what should be done to improve/strengthen the healthcare infrastructure of e-health and ICT in general.

The Agenda of the Conference focused on the policies, technologies, capacity building and financial schemes that will advance e-health among and between the EAC Partner States, and specifically the conference aimed to achieve the following objectives:

- Review and share experiences on the progress made by EAC Partner States in using e-health initiatives to achieve the MDG 4 and 5 also strategies to attain the Sustainable Development Goals (SDGs), especially the goal 3 (health related);

- Discuss appropriate enabling environment for e-healthcare, including policies, governance mechanisms and institutional capacity regionally and on national level in general, and in particular (i) the standardization of e-health systems and (ii) data protection and privacy regime for e-health;
- Deliberate on sustainable financing of e-healthcare projects and Implementing Self-sustaining Telehealth Services;
- Strategies on accelerating and broadening access to Health Services through technology and Infrastructure, including ICT infrastructure access, emerging technologies and their implications on access to e-health services.

1.2 Participation

The 2nd EAC Regional eHealth and Telemedicine Workshop and Ministerial Conference was attended by ministers pooled from EAC Partner States led by the Rt. Hon. Dr. Ali H. Kirunda Kivejinja, Second Deputy Prime Minister and Minister of EAC Affairs, Republic of Uganda and Chairperson of the EAC Council of Ministers, Hon. Sarah Achieng Opendi, Minister of State for Health, Republic of Uganda, Hon. Dr. Eugene Mutimura, Minister of Education, Republic of Rwanda, Hon. Dr. Patrick Ndimubandi, State Minister for Public and Primary Health, Ministry of Health, Republic of Rwanda; the Republic of Kenya was represented by Hon. Dr. Rashid Aman, Chief Administrative Secretary, Ministry of Health, Kenya, and Hon. Ken Obura, Chief Administrative Secretary, Ministry of EAC and Northern Corridor Development. Mr. Toritoi Ngosayon Bunto, Ag. High Commissioner of the United Republic of Tanzania in Rwanda represented Hon. Ummu Mwalimu, Minister of Health, Community, Development, Gender, Elderly and Children, United Republic of Tanzania (URT).

The workshops, ministerial conference and trade exhibition brought together over 160 participants from the following organizations and institutions from the region and beyond: MOH Rwanda, MOH Uganda, MOH Kenya, MOHCDGEC - URT, MINAFFET Rwanda, MEACA-Uganda, MSH-URT, MEACA-URT, MEACA-Kenya, MITEC (MoICT) - Rwanda, President's Office URT, Parliament of Rwanda, Uganda High Commission, Tanzania High Commission, EAC Secretariat, EASTECO and EAHRC, University of Rwanda (UR), CEBE-UR, WHO, UNICEF-Rwanda, UNFPA-Rwanda, PATH, African Alliance, FHI 360, IGAD, JEMBI, Kenya Conference of Catholic workshops, Intelligent/KeH14, GHT, Bunzo Hospital, RCE-UHSCM UR, EAC&NCD Kenya, Sayira Hospital, RBA, Umbrella, Awesomity lab, Nyamata DH, Oshen Healthcare, PHDA, CHAI, IHI, Core Pay, KNH, Living Goods, RCE-HSG, RCEVIHSCM/UR, TCMG-Uganda, The Ihangane Project, KCMUCo (URT), ITEC, COSTECH, UIRI, CST/UR, UR-CPGS, ULK Polytechnic, RTI International, JSI, Jambi HS, Rwanda DISPATCH, Kamuco R, ACECOT - UR, UR/SPU, Iris Hub, CDC-RW USA, RISA, IRIS, KCEV, Community Health Academy, IRISHub, MOEST – URT, ABT Association, UR-CMHS, Tantine Group Ltd, Kibagabaga Hospital, CHI, APHRC, Karatina University, Fio, Spherd, MSH, RBC, AFYA Research Africa. The detailed list of participants is hereto attached as **(Annex for a full list)**

1.3 Opening Session and Remarks.

Welcome remarks by Gertrude Ngabirano - Executive Secretary, EASTECO (Host)

Madam Gertrude Ngabirano, welcomed the delegates to Kigali and to the 2nd e-Health conference. She told the meeting that the overall theme is “Harnessing Science, Technology and Innovation to transform healthcare delivery and accelerate attainment of the Sustainable Development Goals in East Africa”. She pointed out that as a region we still have weak health services that results into challenges to the economic development. She emphasized the role played by ICT deployment as it offers avenue to improve healthcare delivery by harnessing innovative technologies. She told the participants that the expectations of this conference is to share experience and develop recommendation especially on progress made by EAC Partner States on SDG goal 3. She elaborated the objectives of the workshop in details. She pointed out that the resolutions of the deliberations will be shared to Ministers session in order to get regional policy directions. She concluded by wishing delegates a successful workshop.

Welcome remarks by Prof. Phillip Cotton - Vice Chancellor, University of Rwanda

Prof. Phillip Cotton welcomed the delegates to the conference. He told the meeting that University of Rwanda through Regional Centres of Excellence have developed a number of postgraduate programmes. He emphasized the need to increase research in the area of e-Health and telemedicine in order to improve practice.

Official Address by Dr. Stanley Sonoiya - EAC Principal Health Officer representing the EAC Secretary General

Dr. Stanley Sonoiya informed the delegates that this workshop is a follow-up to the first workshop that was held in Kigali Rwanda in 2010. He commended EASTECO and Regional Centre of Excellence on Biomedical Engineering and e-Health (CEBE) for revitalizing this e-Health initiative. He pointed out that the 13th Summit of EAC Heads of State adopted the implementation of e-Government including e-Custom, e-Immigration, e-Commerce and e-Health. Dr. Sonoiya further emphasized that the EAC regional health priorities that was approved by the EAC Heads of States in February 2018 include e-Health as investment priority No. 9 and the health sector is tasked to implement it. He pointed out that the e-Health initiatives should not be left to medical practitioners alone so there is a need to work closely with policy makers such as Ministers in order to get clear policy direction for implementation. He suggested that as per the spirit of rotation the next workshop should be held in another EAC Partner States and this recommendation be forwarded to 38th meeting of Council of Ministers for approval. He concluded his remarks by wishing participants fruitful deliberations.

Keynote address by Dr. Humphrey Cyprian Karamagi (WHO-AFRO), The WHO perspectives for e-health in support of the achievement of the SDGs

Dr. Humphrey Cyprian Karamagi started his presentation by elaborating SDG targets that are influencing SDG 3 goal. He described the peculiarity of the African region as it has the lowest health status and many emerging issues and challenges. He pointed out the area of focus for countries that include build multi-sectoral data and information systems that can inform what is going on everywhere. He highlighted the framework of action that was approved last year where digital solution was given high prominence. He further pointed out that the digital solution is a dual role in health that is improving the quality of care and improving the quality of information. He elaborated further that this can be done by implementing the HEALTH EVENTS WAREHOUSE (system for complex data management) through Enterprise Resource Platforms, Community m-health solutions e.g. at community level (birth and death registration), survey data, surveillance data, research data, health statistics, health information and health knowledge.

Remarks by Hon. Sarah Opendi, State Minister of Health, Republic of Uganda. Chairperson of the EAC Sectoral Council of Ministers for Health

Hon. Sarah Opendi started her remarks by congratulating the organizers for organizing this important regional event. She emphasized that the governments need to prioritize investment in e-Health and telemedicine. She emphasized that if EAC Partner States embrace e-Health/digital-health countries will get rid of most health sector challenges where the monitoring and evaluation of health sector will then be done online. She gave example of capabilities of e-Health when she was able to track drugs back to her country when she travelled abroad.

Remarks by Hon. Dr. Patrick Ndimubanzi, State Minister for Public and Primary Health, Ministry of Health - Rwanda

Hon. Dr. Patrick Ndimubanzi emphasized that e-Health/digital-health is the way to go because it is cost effective when there is evidence of scarcity of human resources. He concluded his remarks by welcoming the guest of honour.

Opening Remarks by Guest of Honour, Hon. Dr. Eugene Mutimura, Minister of Education - Rwanda

Hon. Dr. Eugene Mutimura welcomed delegates to the Republic of Rwanda. He emphasized that this is a very important event for the region in order to enable frequent interactions between ICT practitioners and other stakeholders. He commended the political leaders for putting in place regional institutions dealing with Science, Technology and Innovations (STIs). He emphasized the importance of the recommendations of this workshop to be forwarded to the Ministers conference to be held on 17th May 2018. He

officially opened the 2nd EAC Regional eHealth and Telemedicine Workshop and wished delegates fruitful deliberation.

1.4 Main Resolutions and Conclusions

Throughout the conference, participants deliberated and reached a high level dialogue with different stakeholders on how technology can enhance healthcare delivery, brainstormed on the issue of regulations especially those related to e-Health and how to enhance usage of e-Health platforms in East Africa and what should be done to improve/strengthen the healthcare infrastructure of e-health and ICT in general.

There was strong support from participants for the following main resolutions and conclusions that were presented to a panel of Ministers from the EAC Partner States for their views and approval. Thus, the Ministerial conference chaired by Rt. Hon. Dr. Ali H. Kirunda Kivejinja, Second Deputy Prime Minister and Minister of EAC Affairs, Republic of Uganda and Chairperson of the EAC Council of Ministers:

- a) urged the EAC Partner States that do not have a National e-Health Strategy to develop it in line with the WHO - ITU National e-Health Strategy Toolkit by 2020;
- b) directed EASTECO to conduct an EAC regional e-Health readiness assessment incorporating aspects of systems interoperability, costs and benefits of investing in e-Health by 30th December 2019 in collaboration with the EAC Secretariat, East African Health Research Commission, Partner States' National Science and Technology Commissions/Councils and Partners;
- c) directed EASTECO to promote incubation of local digital health solutions in collaboration with the EAC Secretariat and the Partner States' Ministries and Agencies responsible for ICT, Science, Technology and Innovation and submit progress reports to relevant Sectoral Councils and the Council of Ministers every two years;
- d) Urged the Sectoral Council on Health to coordinate the development of regional policies, laws, regulations, guidelines, standards, on health facility/patient safety, data sharing, data security and privacy to facilitate e-health enabled in country and cross border patient referrals within the EAC Partner States by 30th June 2020
- e) directed the EAC Regional Centre of Excellence for Biomedical Engineering and eHealth to conduct a study in the application of eLearning systems for training Health Professional in the Region and IUCEA to develop a regional framework to enhance regional and south-south collaboration in capacity building for e-Health by Jan 2020;
- f) directed EASTECO to take leadership in convening the EAC regional e-health and telemedicine workshops, ministerial conferences and international exhibitions every two years on a rotational basis among the Partner States in the last week of October as part of the meetings of the EAC Sectoral

Council of Ministers responsible for Health in collaboration with the EAC Secretariat, the EAHRC and the EAC Regional Centre of Excellence for Biomedical Engineering and e-Health; and

- g) approved hosting of the 3rd EAC Regional e-Health and Telemedicine Workshop, Ministerial Conferences and International Exhibition by the Republic of Uganda from 28th to 30th October 2020 as approved by the 16th Ordinary Meeting of the EAC Sectoral Council of Ministers for Health.

2. Workshop and Conference Activities

2.1 Day 1 (15th May 2018) Activities

2.1.1 Plenary Session Presentations

Policy and regulatory framework – Coordination and Governance for e-health

Session Chair: Dr. Ignace Gatare Principal of College of Science and Technology, University of Rwanda

Rapporteur: Dr. Louis Sibomana, College of Science and Technology, University of Rwanda

The Plenary Session of the first day (15th May 2018) had presentations on policy and regulatory framework (coordination and governance to e-health). It included four key-note presentations which helped to set the scene for subsequent workshops and discussions. These presentations covered e-health services and its dependency on the efficient coordination of many moving parts including institutional arrangements and processes, appropriate technologies, available capacity – both human and technological to provide better healthcare outcomes. Basing on national experiences in implementing e-Health policies and Strategies, the session explored the role of governments in providing the appropriate enabling environment and driving implementation of e-Health. The session also discussed best practices and governance changes needed to support effective national e-Health programmes:

Presentation 1: African Alliance of Digital Health Networks, by Mr. Olasupo Oyedepo. **Mr. Olasupo Oyedepo** gave general overview on coordination and governance for eHealth and its related policy and regulatory framework. He shared briefly about the role of digital health networks.

Presentation 2: WHO ITU Tool Kit, by Mr. Derrick Muneene. **Mr. Derrick Muneene** elaborated that WHO has made three commitments on digital health and the latest one was on national e-Health toolkit (2012). He highlighted that only 27 African countries have made progress to develop e-Health strategies as of end of 2017. He emphasized that WHO is looking forward to support more Member States to

adopt regional strategy. He recommended to refer to WHO publication (Global diffusion of e-Health) for more details. He presented progress made by different WHO Afro Member States in e-Health, m-Health, telemedicine. He further presented on the toolkit that has 3 parts: vision (strategic direction), implementation plan /action (leadership and governance; strategy investment; services and applications; standards and interoperability; infrastructure; legislation, policy and compliance and workforce) and monitoring and evaluation.

From his presentation, the following recommendations were made:

- The EAC Partner States that have not developed the e-Health strategy are urged to develop them in collaboration with EAC Secretariat, EAC institutions, WHO and other partners;
- The EAC Partner States that have e-Health strategies are urged to adopt the WHO - ITU national e-Health strategy toolkit in revising their strategies once they come to an end;
- EAC Partner States should consider engaging Private sector in e-Health implementation as guided by WHO-ITU framework.

Presentation 3: Digital Health (Leadership and Governance), by Henry Mwanyika, (PATH).

Mr. Henry Mwanyika thanked EAC for inviting him and acknowledged the presence of Ministers who plays a big role to provide policy directions. He pointed out that governance and advocacy is a hot topic in digital health. He reiterated that other hot topics are aligned funding, global goods, commons and community coordination. He emphasized that sustainable digital health impacts require strong governance and enabling policies. He reiterated that new SDG era prompt for new ways of looking for data use. He concluded by emphasizing that in order to have sustainable national digital health strategies the following are needed: (i) sustained senior government leadership, (ii) stakeholder engagement and (iii) national ICT framework.

From this presentation, the following recommendation was made::

- EAC Partner States should ensure that there is sustained senior government leadership in ICT and put emphasis on serious financial commitment in order to ensure workable e-health strategies.

Presentation 4: Integrated and Interconnected Health Care Services, by Prof. Stephen Kinoti (Fio Corporation).

Prof. Stephen Kinoti commended the Digital Regional East African Community Health Initiative (Digital REACH Initiative) that was approved by Ministers recently. He emphasized about strengthening of digital healthcare and decentralizing the effort of digital healthcare. He further presented regional examples of digital health.

2.1.2 Plenary Session Discussions:

Mr. Randy Wilson, MSH-Rwanda

Mr. Randy Wilson pointed out the challenges in Health Systems Strengthening and Behaviors Change because it is a long process. He emphasized about the need to have government mechanisms like TWG to put ICT agenda on the table. He presented a scenario in Rwanda where the use of Decision Support Tools (DSS) is being used to compare health facilities that have systems and those that don't see the impact of ICT interventions.

Recommendation:

- EAC Partner States e-health strategies should focus on ICT flagship projects instead of itemizing everything since resources to implement everything are limited.

Dr. Stanley Sonoiya, EAC Principal Health Officer

Dr. Stanley Sonoiya shared the role played by the EAC Treaty and 13th EAC Heads of State Summit through which commitment have been put to strengthen e-Health at regional and national levels. He highlighted about achievements of many Partner States that have integrated the ICT services. He pointed that across the borders there are still challenges though other sectors like airlines have moved far but in health the issue of health insurance portability is still a challenge. He emphasized that there should be a driving force for Governments to push this agenda where the national hospitals need to be interconnected.

Dr. Sonoiya highlighted the following challenges:

Though there are political commitments, there is no enabling legislations and policies for easing cross-border communication by using ICT e.g. communicating disease outbreak. For instance, now there is Ebola outbreak in DRC but the information the countries get now is only through media as there is no electronic system for facilitating communication. The second problem is Infrastructure e.g. there is no reliable Internet because Optic Fiber is not available everywhere. Though there is limited human resources the existing human resources can be used to maximize linkages in this sector for the time being. He emphasized that Patient centered care is so important. He recommended the ICT system at regional level to be developed to allow patients to be referred across Partner States. He emphasized that the key to reliable e-health strategy is governance and leadership. He concluded his presentations by emphasizing the need for the EAC regional task force be formed to facilitate registration, policies and regulations.

2.1.3 Parallel Sessions

During the afternoon and evening of the first day, participants attended six workshops. To support the discussions in each workshop there were short presentations illustrating projects and research findings on e-health and Telemedicine. The workshop discussions focused on policy and regulatory framework for e-Health and Telemedicine, sustainable financing models for e-Health and Telemedicine, technology and innovation in strengthening infrastructure and e-readiness for improved healthcare delivery, building human capital for e-Health and Telemedicine, Data record and health information

systems, Innovative technologies for health including mobile communications technologies and imagery systems.

In summary the following key topics were discussed at the 6 parallel sessions for day 1:

Group Session 1: Policy and Regulatory Frameworks for e-Health and Telemedicine which looked at ICT/e-Health Policies, Strategies, Regulations and standards for e-Health products. The question of which regional/national regulatory and institutional framework models for e-health can support the creation of an environment conducive to e-healthcare was tackled in this session.

Group Session 2: Sustainable Financing Models for e-Health and Telemedicine which looked at i) Sustainable Financing models for e-Health systems, including Public-Private-Partnership; ii) Financial solutions for disadvantaged, remote and rural communities. The question of which national and regional mechanisms for investment in e-health can provide efficient financing mechanism and economy of scale was discussed in detail.

Group Session 3: Technology & innovation in strengthening EAC Partner States' Infrastructure and e-readiness for improved healthcare delivery that covered the advantages ICT technology applications/solutions are providing in improving health systems and services.

Group Session 4: Policy and Regulatory Frameworks for e-Health and telemedicine (Standards and IPR aspects) which discussed the common challenges related to Standards and IPR aspects and how they can be addressed regionally.

Group Session 5: Building human capital for e-health that focused on capacity issues including: how can a qualified labor force be better developed with relevant skills to support e-health, telemedicine; the challenges and lessons learnt.

Group Session 6: Innovative technologies for health, incl. Mobile communications technologies that showcased relevant applications/solutions available and innovative technologies, including mobile health in transforming the healthcare systems.

2.1.4 Main observations

Key issues and observations that emanated from the presentations and discussions are as follows:

- i. e-Health is a cost-effective tool for improving healthcare access, integration of services and referrals, effectiveness, efficiency, quality of care and ultimately health outcomes.
- ii. The e-Health agenda in the region has until now majorly focused on data and health information management and so the region needs to focus as well on developing the

- other areas of e-Health utility such as capacity building, health promotion, diagnostics, treatment, and rehabilitation.
- iii. The focus of e-Health interventions in the region is steadily moving away from diseases to the broader health and wellbeing issues in line with SDG agenda.
 - iv. Challenges or fear of patient safety, data security and protection, and privacy issues associated with use of e-Health tools continue to pose major risks to the development of e-Health and therefore require deliberate policy and regulatory guidance.
 - v. Only 27 out of the 47 WHO Afro Member States have developed national e-Health strategies in line with the national e-health strategy toolkit, which has three key areas namely vision, action and M&E.
 - vi. Effective e-Health systems are those that are patient/client centered and are supported through sustained high level political leadership, government ownership, effective engagement and coordination of key stakeholders, enabling over-arching government wide ICT policy and backbone, effective monitoring, evaluation and regular adaptation.
 - vii. Effective regional policy and legal instruments for cross-border exchange of data and information including rapid alert systems in case of outbreaks among Partner States are lacking.
 - viii. Lack of a clear model on how to systematically identify, adopt and scale up pathfinder e-Health solutions from among the multiplicity of solutions.
 - ix. There is inadequate co-creation of e-Health solutions between the public and private sector players.
 - x. The need to document the e-Health readiness of the Partner States.
 - xi. There is proliferation of e-Learning systems in the region's medical/healthcare training institutions but most of these are results of north-south collaboration, and less south-south collaborations.
 - xii. The need to develop e-Health training programmes/curricula that meet the EAC Higher Education Qualifications Framework.
 - xiii. The East African Regional Centre of Excellence for Biomedical Engineering and e-Health in the University of Rwanda has developed five (5) training modules in e-Health and plans to commence training of Experts from the EAC Partner States before October 2018;

2.2 Day 2 (16th May 2018) Activities

2.2.1 – Plenary Session Presentations and Discussions

Improving Healthcare Systems Capacity and Efficiency through E-Health and Telemedicine.

Session Chair: Dr. Marie Christine Gasingirwa, DG for Science and Technology (MINEDUC, Rwanda)

Rapporteur: Dr. Louis Sibomana, CST-UR

The second day began with discussions on improving healthcare systems capacity and efficiency through e-health and telemedicine based on national and international experiences in e-Health programmes and products. The session discussed the various aspects of legal and regulatory systems, infrastructure and technology applications, financing models to improve healthcare responses for patient acceptance for e-Health systems, enhancement of e-literacy in healthcare, mobile communications and emerging technologies as well as financial issues including resource and demands through e-Health service, online and m-Payment issues and reimbursements.

Presentation1: Digital health Investments, by Ms. Huguette Diakabana (African Alliance of Digital Health Networks),

The presentation made by Ms. Huguette Diakabana was about the principles of digital health development, including

- design with user: considering who will be going to use the service
- understanding the existing ecosystem: understanding cultural and political environment systems and structure before designing systems
- design for scale: looking for approaches that will work in different contexts
- Build for sustainability: planning for long term
- Be data driven: looking for ways to measure and quantity outcomes
- Use open standards, open data, open source and open innovation: using existing data and standards before inventing new ones
- Reuse and improve: adopting or using other approaches software
- Address privacy and security
- Be collaborative: working with partners

Presentation 2: Tanzania National e-Health Strategy, by Mr. Hermes Sota Rulagirwa (MoH, Tanzania).

Mr. Hermes Sota Rulagirwa talked about the Vision of Tanzania eHealth Strategy and showed strategic pillars to achieve eHealth vision, including i) Governance and coordination; ii) E-health solutions; iii) Digital health investment roadmap; iv) ICT infrastructure; v) Developed interoperability layer platform for healthcare system; and vi) Health facility registry dashboard.

In addition, the presenter discussed the progress of eHealth solutions, mHealth applications, interoperability layer platform (to be implemented in July 2018), integration of health insurance, and telemedicine. The implementation is continuing for Tanzania digital health investment roadmap. Moreover, the presenter pointed out that there is possible for their system to go beyond cross-border.

The Lesson learnt as well as challenges include government leadership, need for involving health workers at all levels, continue of capacity building and need for ICT expertise to health facility levels.

Presentation 3: Health Platform Solutions and Door-to-Door Health Care: The Living Goods Initiatives, by Ms. Caroline Mbindyo (Living Goods, Kenya)

The presenter explained the role of living goods (or community health workers) to improve and support health care delivery in Kenya, Uganda, and Zambia. In particular, living goods intervention model facilitates health pregnancy monitoring, newborn survival, nutrition, household registration, assessment & diagnostic, task lists and individual dashboards and performance management.

The Lessons learnt include:

- Ensure the digital health products or solutions is responsible to address actual needs.
- Build capacity of both the system and people
- Address barriers to uptake as well as incentive of the abandonment
- True collaboration critical: find people who like to share challenges, test and learn more.

2.2.2 Parallel Sessions presentations

During morning and afternoon of the second day, participants attended five break-out sessions that discussed the following topics:

Group Session 1: Policy and Regulatory Frameworks for e-Health and telemedicine. This session was facilitated by the African Alliance for Digital Health.

Group Session 2: Data and medical/health Information Systems. This session was constituted of presentations from companies and developers to showcase relevant ICT applications/solutions for healthcare including ICT devices, tools and systems for health, and medical/health informatics.

Group Session 3: Technology & innovation in strengthening EAC Partner States' Infrastructure and e-readiness for improved healthcare delivery. Participants discussed infrastructure and technology absorption and adaptation covering Health wireless data communications, and Mobile Health services.

Group Session 4: Experiences in using e-health initiatives to improve Health Services.

Group Session 5: Technology Infrastructure to support partner States' capacity in E-Health and Telemedicine Services This session was constituted of presentations and discussions on how broadband and cross-border connectivity is improving healthcare services and systems.

2.2.3 Main observations

The main observations that emanated from the presentations and discussions of Day-2 are as follows:

- Synergy work and collaboration is required between decision makers, researchers, and technical team for eHealth strategy implementation;
- Digital health principles are key to ensure that every investment made is there to solve;
- eHealth should not focus only on technology, but on the impact of the technology and its results;
- Partnership and collaboration for eHealth should target on learning, and sharing success story.

2.3 Main Recommendations

The main recommendations from the workshop and conference activities are outlined below;

- **The EAC Secretariat, EAC institutions and EAC Partner States should work collaboratively to develop enabling legislations, policies and strategies for easing cross-border communication by using ICT (digital health) e.g. communicating disease outbreak.**
- **EASTECO in collaboration with the EAC Secretariat, EAHRC, Partner States National Science and Technology Commissions/Authorities and development Partners to conduct an EAC regional e-health readiness, adoption and scale up assessment by 30th June 2020.**
- **EASTECO in collaboration with the EAC Secretariat and the Partner States' Science and Technology Commissions / Authorities to promote incubation/development of local e-health solutions and public-private sector e-health solutions co-creation and report on their development, adoption and scale up to the EAC Sectoral Council on health every two years.**
- **The EAC Partner States should use the approved investment priorities to solicit more funds in order to invest in e-health infrastructure.**
- **EAC Secretariat in collaboration with EASTECO, EAHRC to develop regional standards on patient safety, data security and privacy to facilitate e-health enabled in country and cross border patient referrals within the EAC Partner States.**
- **Appropriate retention and motivation mechanisms should be used by EAC Partner States for ICT Human Resource for Health in order to accelerate attainment of Sustainable Development goals.**
- **Approve the establishment of an EAC regional Inter-agency e-health taskforce with EAC Secretariat as a Secretariat, to facilitate registration, policies and regulations with its membership drawn from;**

- EAC Partner States relevant ministries, departments and agencies responsible for e-health
- EAC Secretariat
- EASTECO
- EAHRC
- Other interested EAC institutions
- WHO
- Invited experts from UN and other development partners
- Other invited member
- EAC Secretariat, EASTECO, EAHRC and Partner States to report on the functionality of their respective e-health and Telemedicine Technical or Expert Working Groups and their key achievements to the Sectoral Council of Ministers responsible for Health at least once every year
- Approve convening of the EAC regional e-health and telemedicine workshops, ministerial conferences and international exhibitions every two years in the last week of October and aligned to the meetings of the EAC Sectoral Council of Ministers responsible for Health;
- Approve hosting of the 3rd EAC regional e-health and telemedicine workshops, ministerial conferences and international exhibitions by the Republic of Uganda in the week of 26th to 30th October 2020.
- A continuing capacity building for users and ICT expertise to health facility levels.
- Ensure the digital health products or solutions are available to address actual needs.
- True collaboration must be emphasized for learning and sharing success story in eHealth.

3. Summary of Parallel Session Presentations.

3.1 Group Session 1: Policy and Regulatory Frameworks for e-Health and Telemedicine

Date and Time: 15th May 2018, 14:00 – 16:00

Session Chair: Dr. Rogers Ayiko, EAC Secretariat – Health Department

Rapporteur: Dr. David Tumusiime, CST - UR

To support discussions in the workshop, there were short presentations:

Presentation 1: Prof. Gibson Kibiki (Executive Secretary, EAHRC): *Digital REACH Initiative: towards regional commitment to improve health and outcomes through digital technology,*

Prof. Gibson Kibiki emphasised that having complexity of EAC Partner States, there are many opportunities, challenges and need to support free movements in the region. Digital health is one of the tools to help in various ways and key factors to be considered, including:

- Globalisation for the future millennium
- Many benefits for health such as Improved healthcare system; Empowered populations and individuals on health issues; a tool to overcome poverty, hunger and disease;
- Climate change
- Disease Epidemics
 - ICT can search and warn people about the danger of any epidemic, eg HIV, Polio, Ebola, etc
 - ICT can have ways to track all the challenges
 - Systems with ICT can track and advise
- NCDs are becoming a very big challenge
- Infectious diseases and Antibiotics:
 - Present danger with most of the antibiotics becoming resistant
 - There is need to track the use of antibiotics in order to avoid resistance

The session emphasized the need to support the implementation of Digital health.

Presentation 2: Mr. Eric Gaju (Ministry of Health), Rwanda: *Developing the National e-health Strategy for Rwanda;*

Mr. Eric Gaju presented about what is in the national strategy for Rwanda on e-health and telemedicine as follows:

- Digital Health in Rwanda is one of the 7 pillars for development called SMART Rwanda 2020.
- Rwanda wants to have decentralised services for the community and digital health is key tool to use.
- Rwanda's Ministry of Health through Rwanda Biomedical Centre (RBC) use various programmes such as TB, Child and maternal health, HIV, etc, and data management is through Digital Health.
- Success of Digital health in Rwanda is mostly attributable to good governance whereby various ministries work together, mainly MoH with its implementing institution RBC and Ministry of ICT through its implementing institution; Rwanda Information Society Agency (RiSA).
- Rwanda has Stakeholder engagement structure through TWGs that meet on regular basis.

Some of the Key achievements with Digital Health include Rapid sms; EMR and Routine HMIS.

Flagship Projects:

- EMR

- Revision of policy for data sharing
- Health information exchange
- Telehealth

One of the main Challenges is the fragmented systems and interoperability.

Future plans:

- Internet connection in remote areas;
- Solving the challenge of fragmented systems;
- Working with CEBE specifically through capacity building.

Good practices identified from the experience of Rwanda with digital health are:

- Good experience and implemented digital health programmes.
- High insurance coverage
- Billing and payment and
- Progress by governance with smart Rwanda

The session recommended that there is a need to scale the smart Rwanda to the whole of the EAC region.

Presentation 3: Ssebwana Joseph (TMCG, Uganda): *Regulations and Standards for e-health Products; Lessons Learnt from The Medical Digital Concierge Group, Uganda;*

The Medical Digital Consortium major activities include Digital consultations; Remote monitoring; Emergency services and Transmission of medical data to healthcare provider.

The presenter noted that

- The ministry of health in Uganda supports the TMCG initiatives;
- Adherence of the digital healthcare with international standards is crucial.
- There is high need for policy guidance
- The concierge has internal regulations and the National policy need to be updated

3.2 Group Session 2 : Sustainable Financing models for e-health and Telemedicine

Date and Time: 15th May 2018, 14:00 – 16:00

Session Chair: Dr. Zuberi Muvunyi, DG – Clinical and Public Health Services, MOH-Rwanda

Rapporteur: Eng. Andrew Charles, EAC Secretariat, Health Department

To support discussions in the workshop, there were short presentations.

Presentation 1: Mbogo Bunyi, Abt Associate, Kenya: *Mobile phone use among cross-border populations and options for mobile health financial products*

Mbogo Bunyi started his presentation by defining out of pocket (OOP) expenditure. He presented about a study that was conducted in four sites across four countries.

He emphasized that the mobile populations (MP) spends longer time away from home such as long distance truck drivers. While on work travel, the MP most commonly use OOP for healthcare. 38% of MP did not get healthcare at the time they needed because they couldn't afford after being away. 17% of MP were unable to use their insurance where they drove

Future products design considerations:

There is a need for innovation, blended products (combining savings and insurance) and responsiveness (design system that meet customer needs better).

Recommendation:

- The EAC Secretariat should fast track the initiative of harmonization and portability of health insurance services across borders since citizens are paying a lot out of pocket to seek medical services away from the country

Presentation 2: Randy Wilson (MSH-Rwanda): *Sustainable financing models for e-health in developing countries*

Randy Wilson (MSH) Rwanda presented about the rationale of investing in health which includes increasing greater efficiency, facilitate access of services to remote health facilities and better control of resources.

He highlighted sustainability challenges which include:

- Most e-health solutions are externally funded
- Government policies / regulations can be barrier e.g. requirement for national data to be hosted locally while there are cheap and reliable hosting services outside the countries i.e. cloud based. Others are import tariff of ICT equipment, data sharing policy too restrictive, public finance management complicated as it provides no depreciation for ICT equipment, procurement challenges: difficult to repair damaged systems
- Lack of engagement of user community from the beginning of system design
- ICT projects are often begun without a careful analysis of Total Cost of Ownership (TCO) or Return on investment and end up being under funded
- High internet connectivity costs
- Poor connectivity offsets

He concluded by presenting tips for sustainable financing models in developing countries which should include:

- Develop business case (ROI) for major e-health projects
- Assess TCO before making commitments

- Consider PPP
- Develop local eco-system to support ICT e.g. develop local laptops, e-waste managements
- Build required capacity with public sector.

Recommendations:

- The EAC Secretariat, EAC institutions and EAC Partner States should develop a thoroughly business case that will enable to monitor the return on investment on all major e-health projects before commencements
- The EAC Secretariat, EAC institutions and EAC Partner States should assess total cost of ownership of any e-health investment before making commitments
- The EAC Secretariat, EAC institutions and EAC Partner States should consider PPP especially in major e-health investments
- The EAC Secretariat, EAC institutions and EAC Partner States should develop local eco-system to support ICT innovations
- Regular capacity building / strengthening should be done to public sector staff in order to improve the process

Presentation 3: Barry Lagerwell - Carepay Ltd Kenya: *Harnessing mobile payments technology to drive healthcare inclusion*

Barry Lagerwell presented about the social enterprise agenda called “**m-Tiba**” that provides support to the community by providing a number of services including insurance.

He highlighted that when citizens save amount of money through their platform, donors (not Carepay Ltd) give them a bonus. Throughout the process, the citizen (not called patient) is put at a center of service.

This platform offers lower costs and better quality of care and it provides access to citizens who don't have bank accounts.

Recommendation:

EAC Partner State should consider giving more power to citizen by scaling up m-Health solutions that are cost effective and provide best quality of care.

Presentation 4: Mr. Melchiory T. Baltazary under TAMISEMI, Tanzania: *e-payment for e-health: the use of government electronic payment gateway (GePG) for payment of public hospital bills through GoT – HoMIS*

Mr. Melchiory T. Baltazary highlighted the problem that faced the healthcare system in Tanzania for too long. The use of cash through user fee at HFs led to cash handling problems that negatively impacts of service delivery efforts including forgery of receipts to healthcare practitioners receiving cash in corridors from clients instead of a formal way.

He presented the two systems for government of Tanzania namely:

- GoTHoMIS (Government of Tanzania Hospital Management Information system).
- GePG (Government electronic Payment Gateway) – this handles financial aspects only.

He emphasized that 250 HFs implemented GoTHoMIS and only two HFs at Dar have implemented GePG.

He presented the main challenges with the system as power outages and network connectivity.

GepG is only for public sector. There are a number of elderly staff who don't have ICT skills needed for proper management of this system.

Recommendation:

EAC Partner State that have not automated e-payments should adopt it since it is one of the sustainable financing models that reduces cash handling problems

3.3 Group Session 3: Technology & Innovation in Strengthening Infrastructure and e-readiness for improved healthcare delivery

Date and Time: 15th May 2018, 14:00 – 16:00

Session Chair: Dr. Benedict Mtasiwa (IUCEA)

Rapporteur: Dr. Michael Mugisha, UR

To support discussions in the workshop, there were short presentations.

Presentation 1: Antony Kariri - "Partners for Health and Development in Africa (PHDA), Kenya.: *Development of a Biometric Identifier for Public Health Interventions in Resource Limited Setting – Lessons learnt over 5 years*

The use of biometric identifiers provides a feasible and scalable way for uniquely identifying patients across different health facilities which can improve planning, resource allocation, patient management and disease surveillance.

A home grown biometric solution was developed using limited resources by integrating a USB biometric reader into the HIV prevention program database showing that a biometric fingerprint system is a feasible and scalable way in improving treatment adherence and tracking across health systems.

Observations:

- Use of other identifiers e.g. the National Identification Number(NIN) which can also be issued should be considered to complement the biometric identifier.

- Limited and/or no internet connectivity in certain resource limited areas present challenges for the biometric identifier system that relies on sharing of data across health facilities to realize its benefits.
- Protocol violations in some governments where use of biometric identifiers are prohibited due to privacy concerns.
- The ransomware attack that targeted EMR systems show cased risks of cyber-attacks on EMR systems due to the sensitivity medical data that they store.

Conclusions/Recommendations:

- For any health based systems being designed, it is prudent to factor in security at the design phase as opposed to finding ways of securing an already implemented system which will certainly have more vulnerabilities.
- Use of an anonymous unique identifier that is not tied to any patient data parameters should be considered to prevent chances of reverse engineering to trace the patient.
- Data is more valuable now than ever, the EAC can setup its own cloud and have full control of its data without relying on foreign based cloud computing service providers storing and accessing their valuable medical data.
- Pick a leaf from other sectors like Immigration sector on how they are sustainably using biometric data to uniquely identify and verify travelers' information at the airports.
- Technologies do exist but there is need to change the mindset of the decision makers so that they can appreciate the advancements in technology that can be leveraged to develop secure online systems that can uniquely identify patients.

3.4 Group Session 4: Building human capital for e-health

Date and Time: 15th May 2018, 16:30 – 18:00

Session Chair: Dr. Benedict Mtasiwa (IUCEA)

Rapporteur: Dr. David Tumusiime, UR

To support discussions in the workshop, there were short presentations.

Presentation 1: Prof. Stephen Rulisa, Dean - School of Medicine and Pharmacy, UR-CMHS, Rwanda: *Implementation of technology tools to enhance teaching & learning at school of medicine and pharmacy.*

- There is need to use IT in teaching because of changing development
- At UR there is use of IT in medical education and e-learning is one key tools in easing teaching of bigger classes.

Process:

- Teaching materials are put on moodle to facilitate e-learning
- Video – conferences in departments to link up at different campus,
- Staff meeting, PG students, telemedicine in hospitals, HINARI, Google scholar etc,

Benefits of use of different IT at UR:

- It is used at UR staff meetings at distance through video conferences.
- Students read before lecture and can cope very well during the classes.
- Help students and faculty to link up and have good preparedness for the class session.
- Updates with online library has been one of the bigger achievements.
- Quality has been improved in the last two years
- Performance is much better when come with knowledge
- Understanding the materials by students has been improved

How to achieve e-learning:

- Training on one to one for the teachers
- Teachers/lecturers use it in their performance contract system
- For students it is easier to learn the use of e-learning

Conclusion/Recommendation:

Experience of UR can be shared.

Presentation 2: Mr Michael Mugisha, Research associate at CEBE-UR, Rwanda: *Capacity Building for Electronic Medical Records Use and Management in Health Facilities;*

Mr Michael Mugisha outlined how CEBE conducted Capacity building on the use of EMR for 200 healthcare providers in Rwanda and the accrued Benefits of EMR include:

- Record longitudinal patients' data for re-use,
- Improve quality of healthcare delivery,
- Support clinical decision support,
- Support program planning and Evaluation
- Increase efficiency in healthcare

The presenter also quickly noted that the use of EMR has challenges that include:

- Adoption and ownership for users,
- Limited experienced personnel to support and use EMR,
- User centered design is lacking during design of e-health intervention

Intervention for solution;

- Identification and Designing the course
- Training the Healthcare providers, data managers and IT specialists.

Benefits of training;

- Challenges can be addressed by HF themselves
- Trained personnel from Health facilitates train other colleagues at work

Conclusion/Recommendations

- The course was a pilot at UR and is expected to be extended to the EAC Partner States, latest by September, 2018.
- Qualification framework should be considered.

Presentation 3: Glory Ibrahim (KCMUCo, URT), Tanzania: *Implementation of a Learning Management System (LMS) for Medical students.*

The system has been useful in;

- Monitoring and evaluation of students with Adaption of electronic assessment
- It is blended learning
- It is a good approach recommended for distance learning.

Recommendation:

- There should be a mapping which countries have eLearning and with which programmes and this should be presented in the next eHealth and telemedicine conference.
- There should be a cross-border programme to link the Universities that have the programmes of eHealth and telemedicine, such as KCMUCo KCMC and Rwanda to complement each other and collaborate.

3.5 Group Session 5: Data record and Health Information Systems

Date and Time: 15th May 2018, 16:30 – 18:00

Session Chair: Dr. Khadija Yahya Malima (Chief Research Officer, COSTECH-URT)

Rapporteur: Dr. Sylvance Ototh (EASTECO)

Presentation 1: Sosthenes Bagumhe, MOH-Tanzania: *Experience and lesson learnt in implementing interoperability layer to support information exchange across different health information systems*

Mr. Sosthenes Bagumhe and Mr. Hermes Sotter Rulagirwa presented about real life lesson whereby the Tanzania ministry of Health has integrated a number of HIS by designing and implementing an interoperability layer. The system can handle multiple transport methods, different data formats and code sets. Future development plans of the system include provision of e-referral from community to facility or lower HF to higher HF.

In order to ensure sustainability, the system was built such that: it uses three tier structure, easy to use supporting tools and also involve users in design.

The presenter told the delegates that Tanzania is these country worldwide after U.S. to implement the interoperability layer so in Africa it is the first.

Recommendation:

- A twinning programme or technical exchange should be designed to enable other EAC Partner States to exchange technical skills with the United Republic of Tanzania on implementing interoperability layer to support information exchange across different health information systems in their countries

Presentation 2: Mr. Paul Kamau Macharia (ICT Expert, Kenya): *The need for unique patient identifier in healthcare*

Dr. Paul Kamau Macharia started his presentation by highlighting the importance of unique identifier by referring to cases that occurred recently where different patients were offered with different clinical services e.g. surgery in Kenya.

He emphasized that the unique ID ensures opportunity for interoperability. Biometrics for unique identification in healthcare is important as it ensures confidentiality and minimize fraud.

Infant biometrics: Need to track immunization and link it with doses and track outcomes.

He emphasized about the resilient feature of the system with the ability to restore a system to its original validity whenever needed.

Recommendation:

- The EAC Partner States, EAC Secretariat and EAC institutions should mobilize funds in order to implement the electronic identification (e-ID) for national level patients to enhance privacy, security, resilient and interoperability
- The EAC Partner States, EAC Secretariat and EAC institutions in collaboration with other partners should strengthen interoperability systems related to identifications in order to enhance cross border movement of patients who may be unable to seek medical services in other countries while their identity is known.

3.6 Group Session 6: Innovative technologies for health, including Mobile communications technologies, imagery systems

Date and Time: 15th May 2018, 16:30 – 18:00

Session Chair: Mr. Badu Ntege (ICT Private sector, Chairperson EASTECO Governing Board)

Rapporteur: Mr. Fortunate Muyambi (EASTECO)

Presentation 1: *A novel mobile technology to improve accuracy, completeness and timeliness of research data compared with a non-digital system in Kenya.*

Ten clusters were randomly assigned to Fionet, an android application to perform automated malaria testing, interpretation and survey data capture. Fionet transmitted all the tests and survey data to a cloud based database showing significant improvement in data quality and management and that utilization of technology can help ensure accurate, complete and timely availability of research data.

Presentation 2: *Using open source and interoperable SMS and data visualization platforms to improve delivery of healthcare services in Uganda*

The Medical Concierge Group(TMCG) has customized interoperable open source platforms RapidPro, CasePro and Superset to deliver SMS services which include ANC appointment reminders, health related informative content on public health topics and reminders to improve compliance to (Antiretroviral Therapy) ART appointments at health facilities and data visualizations on specific key performance indicators to improve delivery of healthcare services showcasing that these platforms provide a feasible way to deliver healthcare messaging at large scale while monitoring the progress and efficiency. Mobile WACH NEO: Communication Empowering Mothers and Newborns in Kenya Remotely connect women to care providers during the most dangerous period for themselves and their babies through provision of support in 3 strategic domains that is facility delivery planning, clinical assessment of NEOs and the postpartum mother and contraceptive decision support through use of a human-computer hybrid communication system using short message services(SMS).

Observations

A seven-hour battery is provided in Fionet device which allows a community health worker time to collect data with or without an internet connectivity and have the data uploaded once they access connectivity resolving electricity and internet connectivity concerns that are usually experienced in resource limited settings.

Funding from clinical researchers and/or development partners/organizations present sustainability concerns when the funder pulls the plug on the funding.

Smartphones provide more media content type options that can be shared with the mothers compared to SMS text content.

Explore incorporation of artificial intelligence in analysis done on the text data collected from the mothers to get a deeper understanding of their usage of the service. This could also provide insights to design a chatbot that can be used to respond to similar/related inquiries.

Conclusion/Recommendations

Establish public private partnerships to find ways of subsidizing the costs on SMS as an initiative for being able to sustain the projects even when the funders stop funding the projects.

The human resource required to design and develop systems that solve local challenges is available in our community, there is need for the governments to recognize innovations developed in the private sector first before seeking for external foreign already existing systems which were not developed with the specific use case in mind.

SMS interventions are the commonly used content delivery channels because they can be accessible on any kind of phone. There is a need to be able to include mothers who are unable to afford smartphones as they are the most at risk.

Think sustainability through the private sector without being limited to government interventions which might still not be sustainable in the long run.

3.7 Group Session 7: Policy and Regulatory Frameworks for e-Health and Telemedicine

Date and Time: 16th May 2018, 11:00 – 13:00

Session Chair: Mr. Derrick Muneene, WHO-AFO

Rapporteur: Joseph Lune NGENZI, UR-CEBE

This session was facilitated by the African Alliance for Digital Health

Presentations:

- *African Alliance for digital health*
- **Prof. Chris Seebregts:** *Health Architecture Laboratory (HeAL) - An African Digital Health Collaboration*

Summary content of sessions

- The process of development of National e-health policy in Kenya using Global e-health policy guidelines and national policy and vision document
- E-health policy as enabling environment to promote the use digital health
- Translation of e-health policies into action and check for compliance
- The importance of appropriate policy in e-health
- Case of Health Architecture Laboratory (HeAL) implemented in south Africa and proposed solution

Observation:

- Participants have captured the role of e-health policies as enabling environment for better health outcomes.
- Participants were amazed by the role of private, academic and government collaboration to promote the use of e-health systems in the Region
- Participants were willing to know status of data sharing among states, standards

Recommendation:

- The EAC partner States should ensure that there is appropriate e-health policy and support capacity development professionalism within the field of biomedical informatics.

3.8 Group Session 8: Data and medical/health Information Systems

Date and Time: 16th May 2018, 11:00 – 13:00

Session Chair: Dr. Rogers Ayiko (EAC Secretariat)

Rapporteur: Dr. Sylvance Okoth (EASTECO)

Presentation 1: Mr. Melchiory T. Baltazary; *Government of Tanzania: Hospital Management Information System (GoT-HoMIS);*

Summary of presentation

GoHoMIS is an integrated information management system for operations. The system aims to collect and report facility level clinical information and related information. It handles unit operations e.g. medical records, lab information, and billing and revenue collections and also handles referral system. It does not handle financial, HR, Stores, Kitchen Laundry, and sterilization department. Practitioner performance and generate reports. It has been integrated with GePG for service payments; NHIF for card verification, visit authorization. Challenges include slow adoption due to heavy initial investment required; low basic computer skills for targeted health workers; power outages; unreliable connectivity. Aims at green concept – removal on reliance on paper based data collection analysis and reporting.

Observation

- Already installed in 250 facilities in the country
- Already integrated with other systems
- Has included vertical programs through interfacing with CTC, TB RCH modules.

Recommendations

- Need to reduce cost of the system through use of mobile and android devices, which are small handheld gadgets like mobile phones which is more efficient, cheaper, effective and easy to manage instead of the stationary, more expensive infrastructure.

Presentation 2: - by Catherine Kabahuma – MoH, Uganda; *A national Client Registry for Health Information Exchange in Uganda*

Summary of presentation

This is part of a bigger program in Uganda Health Information Exchange architecture. This aspect focuses on developing a prototype in health provider facility and client registry development. The problem is that there are different patient identification formats that make it difficult to track patients on a consolidated platform and have consistent and reliable data and information. It aims to improve health data, patient identity, surveillance system, and research data and information for statistical planning.

Observation

- Prototype is already developed to help prove a concept under lab environment
- Connectivity infrastructure is not required at this point, till the roll out phase, which will be funded by interested donors
- National Identification Authority has started registration of persons, but only those above 18 years. In addition, civil registration is ongoing. However, these may not be wholly used in the health system identifier themes which require much more details

Recommendations

- Need to start a conversation on a global level identifier since patients go beyond countries, region or continents.
- Need to rely on biometric data at birth as an identifier and use it throughout the life of the patient.
- Lower levels of data collection are the basic, most accurate and reliable data source and data systems need to focus on that.
- Whereas the meeting recognized that Partner States are implementing various health information integration, progress in this area is varied; the investments in e-health are expensive and the returns on investments have not been systematically documented. There is a need that EASTECO, in collaboration with EAC secretariat, EAHRC and Partner States should conduct the regional e-readiness assessment, incorporating best practices, lessons, costs and returns on investment on eHealth.

3.9 Group Session 9: Technology & Innovation in strengthening EAC Partner States' infrastructure and e-readiness for improved healthcare delivery

Date and Time: 16th May 2018, 11:00 – 13:00

Session Chair: Prof. Nelson Ijumba, Deputy Vice Chancellor –Academic Affairs and Research, University of Rwanda (UR)

Rapporteur: Dr. Michael MUGISHA, UR-CEBE

Presentation 1: Dr. Khadija Yahya-malima-COSTECH, URT, Tanzania; *Partnership for eHealth based rehabilitation for children with sensory motor disabilities by modular ICT tiles (moto tiles) in East Africa Member states.*

The presentation covered the following:

- It is an implementation science intending to promote system uptake for innovations
- Using moto tiles in rehabilitation for children with sensory motor disabilities.
- Partnership is required among EAC states for such innovations
- It is complex implementation involving multiple stakeholders and such implementations need to think in mind all actors involved.

Presentation 2: Philippa Ngaju Makobore – UIRI, Uganda *Assessing clinical and medical equipment challenges in Ugandan hospitals to design open source medical devices*

The presentation covered the following:

- UBORA Project, a multi-stakeholder science project.
- Assessing medical devices in Uganda.
- There is lack of regulatory framework for medical equipment and devices in Uganda.
- Unaffordable and unadoptable of medical devices is lacking for departments like Obstetrics and gynecology, laboratory, ICU and OPD.
- They are looking on designing with end users and constantly getting their feedback to come up with devices that will meet needs of the facility users.
- Calibration and lack of spare parts is a common problem for medical devices donated or imported.
- Financial constraints to meet biomedical equipment maintenance since it requires external technical maintenance.
- Lack of capacity building for technicians to repair medical devices.
- The approach Obora is using; I have an idea, and I have a need.
- Designed an open source medical devices platform and all developments must meet international standards.

Discussant: IUC delegate

The discussant focused on contextualizing the two presentations above:

- Sensory motor rehabilitation is relevant in the context of EAC needs and requires also to be customized to elderly people.
- The team from Tanzania made it well to collaborate and come up with concrete solutions for the citizens
- The second presentation is critical since it involves using multiple stakeholders from north to south institutions to tackle most challenging situations in EAC such as medical devices
- Maintenance of medical equipment is lacking in the region and there is little intervention on the training program to address this gap.
- Developing based on the needs and involving users in the process is commendable.

Observations:

- The private investors should be involved to reduce technology absorption challenges such as medical device maintenance, by use of PPP approach.
- UR-CEBE is looking for ways to improve on medical equipment development and maintenance, and are looking for collaborations with such projects to leverage knowledge gaps.
- Compliance with international standards should be maintained
- Equipment standards: need to invest in the key people working with them, Engaging right people to be part of design and maintenance process.

Recommendation:

- Donated medical equipment need to be refurbished to meet standards and customized to suit local needs
- Innovative solutions need to be demand driven
- There is a need to leverage skills gap through partnerships and education.
- Innovations need to think in mind and save our large population in the population pyramid (children and women).
- PPP need to be encouraged as a way of turning medical equipment challenges into a business opportunity.
- Capacity building opportunities for right people to drive innovation development in EAC
- Compliance with international standards during development of innovations and Partnerships among EAC Partner States to develop innovative strategy.

3.10 Group Session 10: Experiences in using e-health initiatives to improve health services.

Date and Time: 16th May 2018, 14:00 – 16:00

Chair: Mr. Olasupo Oyedepo, African Alliance of Digital Health Networks

Rapporteur: Dr. Michael MUGISHA, UR-CEBE

Presentation 1: Stella Magambo, Medical Doctor, Uganda: *Mobile health interventions improve health seeking behaviors among men through health education and awareness: lessons from a Tele-health company in Uganda.*

The presentation covered the following:

- Men are generally known to have poor health seeking behaviours
- Medical Doctor-Uganda offers 24/7 free health care using phone calls and SMS, social media to access doctors and pharmacists
- Findings from the last 3 years' experience show that 50,000 people used these services and 71% were male.
- This has facilitated interactions between health care providers and people in need.
- Health inquiries include; HIV, STDs, FP, RH, communicable diseases and NCDs and health services information

Presentation 2. MUZUNGU, Medical student UR, Rwanda; *TANTINE PROJECT*

The presentation covered the following:

- Intervention on the spread of ASRH in refugee camps later expanded to other youth with low education.
- Provide ASRH services online to youth
- They develop content and populate on their website
- They developed forum discussion on the web
- Direct message and call
- Adroid tools to track menstruation and
- There is a free website [www. tantine.rw](http://www.tantine.rw) free access
- Refugees camps are targeted through a room with tablets to indicate

Presentation 3: Pauline Bakibinga - APHRC, Kenya; *Users and health managers' views on implementing some decision support smartphone applications to enhance community health volunteers' effectiveness in Nairobi, Kenya: a qualitative study*

The presentation covered the following:

- Decision support tool using smart phones to improve service delivery by CHW in Kenya.
- This was an implementation science study to explore users experience of the system.
- Themes emerged in a qualitative study was; variation in usage, improve work experience.
- Challenges; infrastructure available, political instability due to election period, lack of knowledge and skills, network coverage, nature of the system.

Observation:

- Africa and EAC have a bunch of talents and resources but the problem is the focus on priorities;
- EASTECO needs to focus on the top five priority areas in eHealth. We have everything but our focus is more funder driven and we should join our efforts;
- Quick access to health services can be realized through phone system especially for male who use services at a low rate;
- Data gathered can be used for research

Recommendations:

- Privacy and confidentiality need to be assured
- Education can be passed on by medical students through eHealth
- Interoperability and integrated of the system need to be studied
- But we also need to work on the ICT readiness to improve eHealth
- Continuous support and upgrading ICT skills for health workers
- Promote e-health innovation among youth
- Invest in research that promote evidence based e-health innovations
- Collaborate and share learning experience as well as improve PPP
- Involve young people in eHealth and telemedicine especially to medical public health and engineering students.

3.11 Group Session 11: Cross-border Technology Infrastructure to support partner states' capacity in E-Health and Telemedicine

Date and Time: 16th May 2018, 14:00 – 16:00

Session Chair: Mr. Innocent B. Muhizi (CEO, RISA-Rwanda)

Rapporteur: Dr. Sylvance Okoth (EASTECO)

Presentations:

1. Tele Pediatrics: project to be implemented by King Faysal in Rwanda
2. Ferrari F: Telemedicine Consultation in Developing Countries
3. Peter Ngeru Njuguna; ICT Director_Karatina university: Case for a Wide Scale Deployment of GIS and GPS assisted Drones in Health Care Delivery

Presentation 1: By Dr. Edgar Kalimba – King Faisal Hospital, Rwanda; *Improving healthcare delivery in Rwanda rural health centers through telemedicine*

The presentation was on pilot application of telemedicine in pediatric healthcare under rural settings. Rwanda met MDG goals in child mortality, however, infrastructure and staffing is still a challenge. About 50% of population is below 15 years. The ration of doctor patient is among the lowest in the world. There is therefore delayed diagnosis due to shortage of doctors and a lot of referrals from lower levels of healthcare that bogs the higher level health facilities. Provide real time or live consultations through telemedicine to overcome the challenge of shortage of doctors in lower levels. This will reduce waiting time and cost, time, accurate diagnosis, inappropriate transfers and overall efficiency in provision of in pediatric care in the country. It employs use of friendly and innovative technologies to achieve this goal. The suitcase package is a software that interlink with hospital facilities as a health solution system.

Observation

- The project is at ethical approval stage and will be rolled out in June
- The system uses both sound and visual (audiovisual system) and is recorded for replay
- There is a limitation in language of communication across telemedicine centers, especially where specialized are from different language country countries.

Presentation 2: By Dr. Ferrari; *Telemedicine consultation in Developing Countries*

This project is under the organization called “Dream”. Dream operates in 47 Centres, with 25 biomedical labs in Africa. 99.9% of children born with HIV positive mothers are covered in areas where the organization operates. Use of telemedicine affords the HIV mother with better quality and life expectancy of life. It provides second opinion in a low cost way. Currently providing service to many areas of medicine using internet connection and high resolution camera and stethoscope. The software works online and is open source. The software is interlinked with mobile phones for alerts and information transmission to concerned parties.

Observations

- Telemedicine is the key access method to reach remote rural areas where medical facilities are lacking
- Connectivity is a major impediment in application of telemedicine in rural Africa

- There is a risk in data confidentiality under telemedicine mode of healthcare provision.
- Due to lack of body feel during patient examination in telemedicine, specific manuals addressing this gap through descriptive explanation should be developed to bridge the gap.

Recommendations

- Given the risk in data sharing under telemedicine practice, there is a need to develop a policy on data confidentiality and ownership since the data is shared from a central server.

Presentation 3: Peter Njeru Njuguna - Karatina University, Kenya; *Wide-scale of deployment GIS and GPS assisted drones in delivery healthcare system in Kenya.*

It is believed that employment of technology can improve delivery of healthcare to larger majority of populations. Combination of GIS and GPS system using a drone system would go a long way in realization of this system. In this project, a simulation model was used to model various possible outcomes. This was done through phases including data risk analysis mapping, launching and operations, and acquisition and training. The spiral drones' health relief project implementation model was used.

Observations

- Drone operations will ensure efficiency according to model results
- Drones enhances effectiveness of delivery even to areas inaccessible by land vehicles
- Drone use will go a long way in realization of SDG
- It was noted that the use of drones in delivery of health care system is not new in the region
- Whereas use of ICT in other sectors like financial, business, telecommunication etc. are well advanced integrated, the same is not true for the medical sector, which seem to large behind.

Recommendations

- It was noted that the countries in the region have strict rules on use of drones and classify drones as military equipment that should not be used without authority in civil services. Need for Partner states to liberalize use of drones in delivery of health services;
- Given the importance of ICT in the practice of medicine, there is a need for close collaboration and synchrony of the medical practice with ICT to enhance cost effectiveness and efficiency in delivery of health services.

4. E-health and Telemedicine Ministerial Conference



A Panel of Ministers from Partner States – Kenya, Tanzania, Uganda and Rwanda

4.1 Remarks at the Opening ceremony of the Ministers' Sessions

Welcome Remarks by Ms. Gertrude Ngabirano, Executive Secretary of EASTECO

Ms. Gertrude Ngabirano, Executive Secretary of EASTECO welcomed the Ministers, EAC Partner States' Senior Officials and Partners to the 2nd EAC Regional eHealth and Telemedicine Ministerial Conference. She informed the Ministers that the ministerial conference was follow up to a workshop held from 15th to 16th May 2018 that covered three themes namely enabling environment for e-Health and Telemedicine through relevant policies and strategies; efficient and sustainable financial models for eHealth; and ICT based infrastructure and technologies to improve healthcare systems.

Ms. Ngabirano concluded her remarks by requesting the Ministers to consider the recommendations from the Workshop and provide policy guidance to facilitate the scale up of eHealth in the EAC region.

Official Address by Prof. Philip Cotton, Vice Chancellor, University of Rwanda

The Vice Chancellor of the University of Rwanda, **Prof. Philip Cotton** welcomed the Ministers and participants to the Kigali Conference and Exhibition Village for the Second EAC Regional eHealth and Telemedicine Conference. He recommended that while adopting and implementing eHealth strategies, other disciplines such as social sciences need to be incorporated beyond the traditional medical ICT disciplines.

Remarks from Hon. Dr. Rashid Aman, Chief Administrative Secretary, Ministry of Health, Kenya

Hon. Dr. Rashid Aman, Chief Administrative Secretary, Ministry of Health of Kenya shared the progress Kenya has made in eHealth. He reported that the Government of Kenya, through the Ministry of Health is already implementing health Information systems to improve Service delivery. He indicated that eHealth is already recognized as a standard tool of healthcare in Kenya and is provided for in the National eHealth Policy. He underscored the role of eHealth in enabling healthcare personnel to use information technology for decisions making and improving service delivery.

He reiterated Kenya's commitment to ensuring that eHealth technologies are fully utilized in supporting service deliveries in health facilities; strengthening interoperability of health systems and investing in appropriate technologies such as mHealth.

He called upon the Partner States to develop mechanisms to facilitate data and information exchange among facilities within the country and among the Partner States.

Remarks from Hon. Dr. Patrick Ndimubanzi, State Minister for Public and Primary Health, Ministry of Health, Rwanda

Hon. Dr. Patrick Ndimubanzi, Minister of State for Public and Primary Health, Republic of Rwanda, welcomed delegates to Rwanda and congratulated EAC Secretariat, EASTECO and EAC Regional Centre of Excellence for Biomedical Engineering and e-health (CEBE) for convening the conference. He emphasized the importance of regulatory issues that were addressed during the workshop and the need for e-health to be integrated in all the health systems building blocks. He emphasized the need to train work force in eHealth. He congratulated the presenters and session chairs and wished the meeting fruitful deliberations.

Remarks from Hon. Mr. Toritoy Ngosayon Bunto, Ag. High Commissioner of the United Republic of Tanzania in Rwanda, representing the Minister responsible for Health, United Republic of Tanzania

Hon. Mr. Toritoy Ngosayon Bunto, Ag. High Commissioner of the United Republic of Tanzania in Rwanda informed the meeting that the Tanzania Government was implementing an eHealth strategy aiming to make use of digital solutions to ensure that health workers, managers and decision makers at all levels of the health system have and use data to identify and solve problems, measure performance and allocate resources; and that health care workers use data to track clients, support clinical decisions and provide healthcare services efficiently.

He added that while East Africa member countries have variety of digital health solutions in place managed and supported by different institutions, most of them cannot easily share and exchange data. There is a need to ensure effective coordination of these different solutions and ways to appropriately link them together. This involves ensuring

systems can “speak the same language” when referring to medical terms, to clients, to health workers, or to the administrative areas around which the Government is organized. Hence the need this conference.

The Ag. High Commissioner of the United Republic of Tanzania in Rwanda ended his statement by wishing the meeting fruitful deliberations.

Remarks from Hon. Sarah Achieng Opendi, Minister of State for Health, Republic of Uganda and Chairperson of the EAC Sectoral Council on Health

Hon. Sarah Achieng Opendi, Minister of State for Health, Republic of Uganda and Chairperson of the EAC Sectoral Council on Health congratulated the organizers for convening the event after eight years. She informed the conference that the 16th Ordinary Meeting of the Sectoral Council of Ministers of Health held on 16th May 2018 recommended that the two yearly convening of the conferences on rotational basis among the Partner States be adhered to. She further informed the meeting that the Sectoral Council recommended that the 3rd conference be hosted by the Republic of Uganda in 2020 and she welcomed participants to participate in this conference.

Hon. Opendi urged the health sector to work in a multi-sectoral approach in order to successfully pursue the eHealth and Telemedicine agenda. She noted that most of EAC Partner States have developed eHealth straggles except for the Republics of Burundi and South Sudan. She underscored the importance of political will in advancing eHealth and noted the EAC Summit of Heads of State had demonstrated political will by approving the 9 EAC Health sector investment priorities including eHealth. She called upon other sectoral ministries like ICT and infrastructure to work with the health sector and participate in future conferences.

Remarks from Rt. Hon. Dr. Ali H. Kirunda Kivejinja, Second Deputy Prime Minister and Minister of EAC Affairs, Republic of Uganda and Chairperson of the EAC Council of Ministers

Rt. Hon. Dr. Ali H. Kirunda Kivejinja, the Chairperson of the EAC Council of Ministers welcomed the participants to Kigali and especially to the Second EAC Regional eHealth and Telemedicine Ministerial Conference. He commended the good collaboration among EASTECO, EAHRC, EAC Secretariat, East African Regional Centre of Excellence for Biomedical Engineering and eHealth and partners in convening the Conference.

Hon. Kivejinja underscored the importance of the conference in bringing together public and private policymakers, technologists, academia, researchers, medical professionals, NGOs and development partners to discuss how technology can be used to enhance healthcare delivery, brainstorm on eHealth policies and regulations and showcase eHealth solutions. He therefore called for a continuous cooperation of EAC Partner States in developing relevant policies and adopting new technologies to enhance healthcare delivery through the use of information technology and communications systems with

ultimate goal of improving the standards of living and increasing life expectancy of East Africans.

He ended his opening statement by wishing the Partner States fruitful deliberations.

Keynote Address by Dr. Juliet Bataringaya, WHO Country Office, Rwanda

Dr. Juliet Bataringaya, WHO Country Office, Rwanda gave a keynote on International experience on Financing E-Health Programmes and Projects. The address focused on eHealth components aligned to the WHO Health Systems Framework, foundations for successful eHealth program, strategy and investment, financing e-Health solutions, business Models and PPPs and making e-Health financing sustainable. She underscored the importance of integrating e-Health financing into the overarching health sector financing strategy. Key components of e-Health strategies are leadership and governance, strategy and investment, services and applications, workforce, policy, legislation and compliance, infrastructure, and standards and inter-operability. Dr. Bataringaya highlighted the following as key foundational aspects to achieving e-Health success: a costed eHealth Strategy and Road Map that is grounded in a multi-sectoral national ICT Framework, government leadership and committed financing, effective governance mechanisms, stakeholder mobilization for successful implementation, eHealth as part of broader health systems strengthening and monitoring and evaluation. Financing e-Health should be based on a good understanding of the cost; leveraging whole of government, economic community blocs; negotiating price / collective bargaining, pricing according to GDP, negotiated rates through UN or AU; technical expertise, capacity building, innovation; and South-South collaboration to leverage learning.

4.2 Deliberations and Observations from the Ministerial Conference Session

The Ministers considered the report and the recommendations of the 2nd EAC regional e-health and telemedicine ministerial conference and international trade exhibition which covered the following thematic areas:

- i. Policy and regulatory framework for e-Health and Telemedicine;
- ii. Sustainable financing models for e-Health and Telemedicine;
- iii. Building human capital for e-Health and Telemedicine;
- iv. Infrastructure and technologies for e-Health;
- v. Technology and innovation in strengthening infrastructure and e-readiness for improved healthcare delivery;
- vi. Data and medical/health information systems;
- vii. Innovative technologies for health including mobile communications technologies and imagery systems;
- viii. Cross-border technology infrastructure to support Partner States capacity in e-Health and Telemedicine;

ix. Experiences in using e-Health initiatives to improve health services.

The 2nd EAC regional e-health and telemedicine ministerial conference and international trade exhibition made the following observations regarding the above topical areas:

- i. e-Health is a cost-effective tool for improving healthcare access, integration of services and referrals, effectiveness, efficiency, quality of care and ultimately health outcomes
- ii. The e-Health agenda in the region has until now majorly focused on data and health information management and so the regions needs to focus as well on developing the other areas of e-Health utility such as capacity building, health promotion, diagnostics, treatment, and rehabilitation.
- iii. The focus of e-Health interventions in the region is steadily moving away from diseases to the broader health and wellbeing issues in line with SDG agenda
- iv. Challenges or fear of patient safety, data security and protection, and privacy issues associated with use of e-Health tools continue to pose major risks to the development of e-Health and therefore require deliberate policy and regulatory guidance
- v. Only 27 out of the 47 WHO Afro Member States have developed national e-health strategies in line with the National e-Health Strategy Toolkit, which has three key areas namely vision (strategic direction), implementation plan (leadership and governance; strategy investment; services and applications; standards and interoperability; infrastructure; legislation, policy and compliance and workforce) and monitoring and evaluation of policy implementation including progress in regulation – only Republic Kenya, Rwanda, Uganda and United Republic of Tanzania have developed their National e-Health Strategy.
- vi. Effective e-Health/digital health systems are those that are patient/client centered and are supported through sustained high level political leadership, government ownership, linkage to the national health needs/national health policy and development plans, effective engagement, coordination and collaboration among the key stakeholders, enabling over-arching government wide ICT backbone, effective monitoring, evaluation and regular adaptation
- vii. Effective regional policy and legal instruments for cross border exchange of data and information including for rapid alert systems in case of outbreaks among Partner States are lacking
- viii. Lack of a clear model on how to systematically identify, adopt and scale up pathfinder e-Health solutions from among the multiplicity of solutions
- ix. There is inadequate co-creation of e-Health solution between the public and private sector players
- x. The need to document the e-Health readiness of the Partner States
- xi. There is proliferation of e-Learning systems in the region's medical /healthcare training institutions but most of these are results of north-south collaboration, and less so, south-south collaborations
- xii. The need to develop e-Health training programmes/ curricular that meet the EAC Higher Education Qualifications Framework

- xiii. The East African Regional Centre of Excellence Biomedical Engineering and e-Health in the University of Rwanda has developed five (5) training modules in e-Health, a master's course in biomedical engineering and is currently developing a course in rehabilitation sciences
- xiv. Key challenges in the implementation of national e-Health strategies include weak leadership and governance, duplication of efforts and changing priorities resulting from parallel programming forces and inadequate resources
- xv. Partner States have implemented e-medical/health information solutions but to varying degrees especially with regard to instituting paperless medical records systems as well as creating integrated interoperable health information systems that link health resources information systems (e.g. human, logistics), laboratory information systems and client feedback information systems
- xvi. Whereas there is knowledge about the costs of investing in e-Health technologies in the region, the returns on investments is not adequately documented.

4.3 Resolutions from the Ministerial Conference Sessions

The 2nd EAC Regional e-Health and Telemedicine Ministerial Conference:

- a) urges the EAC Partner States that do not have a National e-Health Strategy develop it in line with the WHO - ITU National e-Health Strategy Toolkit by 2020;
- b) directs EASTECO to conduct an EAC regional e-Health readiness assessment incorporating aspects of systems interoperability, costs and benefits of investing in e-Health by 30th December 2019 in collaboration with the EAC Secretariat, East African Health Research Commission, Partner States' National Science and Technology Commissions/Councils and Partners;
- c) directs EASTECO to promote incubation of local digital health solutions in collaboration with the EAC Secretariat and the Partner States' Ministries and Agencies responsible for ICT, Science, Technology and Innovation and submit progress reports to relevant Sectoral Councils and the Council of Ministers every two years;
- d) Urges the Sectoral Council on Health to coordinate the development of regional policies, laws, regulations, guidelines, standards, on health facility/patient safety, data sharing, data security and privacy to facilitate e-health enabled in country and cross border patient referrals within the EAC Partner States by 30th June 2020
- e) directs the EAC Regional Centre of Excellence for Biomedical Engineering and eHealth to conduct a study in the application of eLearning systems for training Health Professional in the Region and IUCEA to develop a regional framework to enhance regional and south-south collaboration in capacity building for e-Health by Jan 2020;
- f) direct EASTECO to take leadership in convening the EAC regional e-health and telemedicine workshops, ministerial conferences and international

exhibitions every two years on a rotational basis among the Partner States in last week of October as part of the meetings of the EAC Sectoral Council of Ministers responsible for Health in collaboration with the EAC Secretariat, the EAHRC and the EAC Regional Center for Excellence for Biomedical Engineering and e-Health; and

- g) approve hosting of the 3rd EAC regional e-health and telemedicine workshops, ministerial conferences and international exhibitions by the Republic of Uganda from 28th to 30th October 2020 as approved by the 16th Ordinary Meeting of the EAC Sectoral Council of Ministers of Health.

The Honorable Ministers thanked the Republic of Rwanda for hosting the 2nd EAC regional e-health and telemedicine ministerial conference and international trade exhibition and for the warm and cordial hospitality accorded to them and the conference participants.

5. The Field Visit (18th May 2018)

About 35 participants made it to the field visit on the last day of the conference. The purpose of the field visit was to show delegates practical applications of eHealth and telemedicine solutions in the Republic of Rwanda. Two Hospitals were visited namely:

- King Faisal Hospital – Private Hospital
- Kibagabaga Hospital – Public Hospital

King Faisal Hospital in brief: Presented to the delegates a Telemedicine Room with a telemedicine Suitcase. With this suitcase equipped with internet enabled tools, a health work operating anywhere including remote areas is enabled to take patient diagnostic data and relayed to the doctor in real time for analysis and prescription. It takes temperature, measures BP, scans the Head, scans the Chest, and others organs. This mhealth solution is in advanced stages of implementation and will help patients around the country access a doctor without spending a lot of time travelling to a health center.

Kibagabaga Hospital in Brief: this hospital just like any other hospital in Rwanda (be it private or public) uses an EMR software as a solution to capture patient data starting from the first visit to the hospital and continuously throughout their lives. All health centers are required to link into and use this software that is controlled by the Ministry of Health. Information is captured at the health center level – area level – district level – province level – and country level and thus providing a robust source of data to the ministry of health. The ministry uses this data captured to plan properly for the healthcare system of the entire population.

Visit to Kigali Genocide Memorial Center.

The field visit was rounded off with a visit to Kigali genocide memorial center where delegates were cultured about the genocide that happened about 24 years ago killing over

800,000 Rwandese. A documentary was screened for the guests and an all-round visit into the memorial center was conducted.

6. The International Trade Exhibition

The exhibition was held for three days from 15th to 17th May 2018, in the vicinity of the Conference venue. It was officially opened on 15th May 2018 by the Guest of Honour **Hon. Dr. Eugene Mutimura**, Minister of Education – Rwanda. He was accompanied by other ministers and delegates from Partner states.

This event provided opportunities for private companies, research and learning organizations, public and civil society organizations to share and showcase their innovations, products and eHealth solutions, as well as their ongoing work in e-health, telemedicine and bio-medical engineering. The exhibition attracted over 10 reputable organisations and young innovators who shared a meticulously designed space with first class exhibition booths. Some of the outstanding exhibitors that showcased technology solutions to healthcare problems;

1. The Ihangane Project

Demonstrated E-Heza Digital Health Record

E-Heza is a low-cost, quality-driven point-of-care digital health record that will dramatically improve maternal and child health.

E-Heza Applications

Point-of-Care and Hands Free, Users can shift between Individual and Group Health Assessments, Automated z-score calculations to improve accuracy, Periodic 'health reports' include photographs of a child over time that can be printed and taken home, connects directly to District Health Information System 2 (DHIS2) reporting platform. This platform is used by over 60 countries and is designed to be replicated and scaled throughout East Africa.

2. The Medical Concierge Group (TMCG)

The Medical Concierge Group from Uganda was exhibiting an end-to-end digital health service initiated with a teleconsultation with its licensed medical doctors through a call Centre, remote diagnostic monitoring, mobile money payments for recommended health services, deliveries of medicines, lab sample pick-ups and post-care follow up.



3. East Africa Science and Technology Commission (EASTECO)

Demonstrated the EAJSTI

East Africa Journal for Science, Technology and Innovation (EAJSTI) is a multidisciplinary journal, which publishes original research of relevance to the EAC, covering science, technology and Innovation applications for development.

4. IRIS Hub (The Younger Innovators)

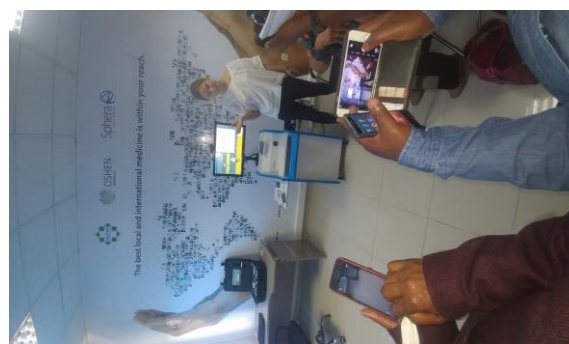
- EA Dictionary Mobile App
- SheCode
- Movie Market

5. Center for Excellence in Biomedical Equipment (CEBE)

6. King Faisal Hospital

Demonstrated Telemedicine room and Suitcase

King Faisal Hospital presented to the delegates a telemedicine suitcase (with tools including internet enable phone) that can be used anywhere including rural areas to transfer patient diagnostic data in real time to the doctor for analysis and prescription. It takes temperature, measures BP, scans the Head, scans the Chest, and others organs. The case is seen below in the picture.



**EASTECO Secretariat
June 2018**