



EU*US eHealth Work Project H2020-SC1-HCO13-2016

Mapping Skills and Competencies; Providing Access to Knowledge, Tools and Platforms; and Strengthening, Disseminating and Exploiting Success Outcomes for a Skilled Transatlantic eHealth Workforce

Case Study: Healthcare Informatics Society of Nigeria's eHealth Solutions in Addressing Socioeconomic Healthcare Inequalities

Healthcare Informatics Society of Nigeria

TITLE Healthcare Informatics Society of Nigeria's eHealth Solutions in Addressing Socioeconomic Healthcare Inequalities

AUTHOR

Dr. Omotayo Omojola, MBBS, AMHISN, FRSPH, MPH, MEM, Public Health Informatician, Clinician and Lagos State Coordinator, Healthcare Informatics Society of Nigeria MBBS

ORGANIZATION

With eHealth expanding its influence on healthcare management, the Healthcare Informatics Society of Nigeria (HISN) is one of the major groups establishing and highlighting the importance of information and communications technology (ICT) in the clinical management of patients. Previously, eHealth's advantages went unnoticed, but as HISN's influence expands, so does the appreciation of eHealth in Nigeria. Seminars and training sessions being organized to sensitize and increase the eHealth knowledge and expertise of healthcare workers nationally. The initial outcomes are encouraging.

As expected, there are still many challenges facing eHealth solutions in Nigeria, including fundamentals like internet connectivity and electric power. With the present national administration's commitment to improve both eHealth knowledge and infrastructure shortages, eHealth should begin to gain ground and traction in Nigeria. Currently, a high-powered initiative is being established within the Nigerian Government through HISN to enhance a national policy on eHealth. In 2017, Dr. Omotayo Omojola was appointed the Lagos State Coordinator and since then, positive collaboration and engagement with the Lagos government has increased. Additionally, with the collaboration of HISN with the Healthcare Information and Management Systems Society (HIMSS) and other internationally recognized non-governmental organizations (NGOs), we hope to generate more awareness and increased government support and commitment in Nigeria.

Despite the progress made, the prospects for an eHealth specialist in a developing country like Nigeria can seem very discouraging compared to a more advanced country where a graduate of eHealth is almost certain to have a promising career path post-graduation. Because of this, many eHealth experts have emigrated from the region. If the trend is not reversed through the active participation of major global eHealth stakeholders, the World Health Organization's (WHO) vision for 2030 of providing "universal affordable healthcare coverage" [6] may be unachievable.

BACKGROUND

Previous healthcare policies have not been able to deliver the expected outcomes in Nigeria [4, 5] because modern health information system (HIS) tools have not been used to drive healthcare delivery solutions. This makes healthcare less affordable, inaccessible and unable to deliver value for the money [1]. For example, in the Nigerian state of Ondo, there are eight priority areas with activities, tactical objectives and interventions established by the previous administration with little or no impact. These priority areas are: leadership and governance; human resources for health; health service delivery; financing for health; HIS; community participation and ownership; partnership for health; and research for health. These policies should apply to other states in Nigeria, but the outcomes in Ondo did not meet expectations.

Two of the priority areas that were so crucial to the success of the health policies were largely inadequate: HIS and research for health – the two mostly complimentary to each other. For instance, there is no

distinct eHealth program, infrastructure or dedicated personnel to drive the HIS. Arguably, if the HIS is not functioning or is non-existent, the possibility of getting reliable data is slim, meaning that there is poor public health intelligence to drive policies. Where there is poor intelligence, policies may not work as expected.

Moreover, there are territories, mostly in rural areas, that expert medical personnel may not access, are unwilling to access, or the number of health care givers is inadequate based on available resources. To achieve universal and affordable healthcare, it is assumed that all territories should be coverable. A new, modern and technological driven policy is needed to ensure these areas are provided healthcare access. There are affordable ICT solutions available that, with the necessary personnel, will make this possible [2, 3]. There is a need to take advantage of modern, proven and recent evidence to drive our healthcare systems in the face of scarce financial resources.

Furthermore, evidence has shown that most healthcare practitioners trained in developing countries, like Nigeria, emigrate to developed nations due to poor welfare and outdated infrastructures (National Medical Association, 2017). Viable, affordable and efficient telemedicine solutions should address this, since the expertise of these healthcare providers will still be accessible remotely. If this is not addressed, eHealth solutions may increase global socioeconomic healthcare inequalities, offsetting the gains of the last few decades. It is becoming increasingly clear that developing nations should be given greater focus by eHealth organizations like HIMSS, to scale-up the implementation of eHealth innovations through collaborations with local stakeholders.

STATUS/CURRENT DEVELOPMENTS

It is an obvious fact that Telemedicine solutions are in urgent need throughout Nigeria to address the perennial medical expert shortage problem, inclusive of eHealth experts. Remote villages are difficult to reach and eHealth education in Nigeria is still far below expectations. For example, most of the universities have yet to begin offering eHealth courses, as there are not enough students interested in enrolling. To address this lack, a distinct eHealth care path should be created to attract prospective students.

With the renewed efforts of HISN, a lot of positive institutional change is beginning to emerge in Nigeria. HISN continues to engage both the online and offline healthcare practitioners training in important ICT health innovations. However, since there has been no official governmental support, progress has been slow, which is mostly attributed to financial constraints. The trainings offered have been free for the students, with most expenses covered by HISN members, making sustainability very challenging. Hopefully, this trend will continue progressing and gain funding from the government or other eHealth organizations, and more courses and training will be available to healthcare practitioners in Nigeria.

ACTIVITIES/MEASURES

HISN is actively working on the creation of an eHealth forum available to all states of the federation, staffed by trained coordinators and officers nationwide. Duties of the State Coordinator include collaboration with state governments and other stakeholders, training initiation and seeking/securing sponsors to keep this momentum going. In Lagos, a lot of work has been done based on our proposal to use eHealth management as a means to ensure universal and affordable health coverage. A sample policy is underway, which should lead to an official and workable eHealth policy. Recent HISN events and

discussions garnered high political interest and some higher education institutions are beginning to focus on eHealth training as well. All of the interest and evidence shows the need for more international partnerships as well as financial and resource sharing and support.

Finally, there is a virtual learning platform on the HISA website available for continuous educational development and workforce training, currently being offered for free to encourage engagement. So far, the response has been encouraging.

CHANGES

A number of improvements are planned and will be incorporated into our program and training for 2018. For example, each state has been mandated to hold state and regional conferences, while the national eHealth conference will be held in Lagos towards the end of the year. These conferences, especially the national one, will draw many key stakeholders and are poised to create broader awareness on eHealth innovations. Many international vendors are planning to be present for networking and collaboration. This is a great improvement, considering it has been three years since a similar conference was held, most likely due to insufficient local eHealth experts, though this is gradually improving.

RESULTS

Presently, many hospitals in Nigeria are interested in Electronic Medical Records (EMRs), although no hospital or clinic has attained HIMSS Electronic Medical Record Adoption Model (EMRAM) stage adoption grading to date. This reiterates that the field of health informatics (HI) is still very new in Nigeria and throughout Africa, and our goal is to elevate at least 100 hospitals to stage 0 within the next two years. Additionally, more and more vendors are showing interest in the Nigerian market, suggesting that things are improving.

OUTLOOK/LESSONS LEARNT

In the very near future, HI is poised to be a rewarding career in Nigeria and other developing countries, if the renewed momentum generated in the field is sustained.

References

- [1] Adegoke, A.A., Lawosin, T.O, Ogundeji, M.O. and Thompson, A.M. (2007) 'A community based investigation of avoidable factors of maternal mortality in Nigeria: a pilot experience', *Africa Health Science Journal*, 7 (3), pp. 176-181
- [2] Bauer, K. (2003) 'Distributive justice and rural healthcare: a case for eHealth', *International Journal of Applications Philos*, 17 (1), pp. 241-252.
- [3] Chesser, A., Burke, A., Reyes, J., and Rohrberg, T. (2016) 'Navigating the digital divide: a systematic review of eHealth literacy in underserved populations in the United States', 41 (1), 1-9.
- [4] UNICEF (2015) *Mother, newborn, and child health and mortality in Nigeria- general facts*. Available at: http://www.unicef.org/nigeria/ng_publications_advocacybrochure.pdf (Accessed: 26th December, 2017).
- [5] USAID (2015) *Ending preventable maternal mortality: USAID maternal health vision for action-evidence for strategic approaches*. Available at: http://www.usaid.gov/sites/default/files/documents/1864/MH%20Strategy_web_red.pdf (Accessed: 23rd December, 2017).

- [6] World Health Organization (2017) *Sustainable development goal 3: health*. Available at: http://www.who.int/universal_health_coverage/en/ (Accessed: 28th April, 2017).
- [7] Merriam-Webster (2018) Brain drain definition. Available at <https://www.merriam-webster.com/dictionary/brain%20drain> (Accessed on 4 January 2018).

Case Study Checklists

Checklist of eHealth topics (competencies)

Role of “Peopleware”:

The importance of awareness, satisfaction and acceptance of eHealth solutions cannot be over-emphasized; end-users needs must be met with satisfaction. In the context of Nigeria, the awareness about health IT has gathered momentum in the past few years, but the inadequate infrastructure—like power and broadband connectivity—is still very much a hindrance to its expansion. Currently, no hospital in Nigeria can be categorised to have “total front-desk record department and management IT”, meaning no hospital is at HIMSS EMRAM stage 0, therefore acceptability and usability is very low.

Role of inter-professional approaches:

Currently, the subject of interprofessional relationships hardly comes into play for Nigeria. All forms of training and learning are currently interprofessional without noticeable conflict; however, clinical decision support (CDS) tends to be more interprofessional among caregivers.

Role of healthcare data sciences:

One of the major hindrances to health IT development in Nigeria is unavailability of data (poor or invalid), so workable evidenced-based policies are rare. The new national eHealth blueprint focuses on health information systems (HIS) and health research driven by reliable, valid, automatic data collection through health IT. Hopefully, in the next few years, high quality data that can be used to validate data analysis and statistics will be readily available.

Fusion of medical technology & informatics:

Currently, a proposal is being worked on for ‘*universal affordable healthcare coverage through telemedicine*’. Once accepted, the use of software such as a device, smart devices, and telemedicine kits, will enable automatic data acquisition. The issue of patient data safety, consent and confidentiality is also being taken very seriously.

Role of process and workflow management:

The importance of change management in an ICT healthcare setting cannot be overemphasized so that the meaningful use of eHealth innovations can be optimally utilized. Many involved in the Nigerian healthcare workforce are used to paper procedures. Substituting it with a new technology will likely initially meet with resistance and will not be easily integrated into the workflow. Indeed, some caregivers have shown

unwillingness to accept the eHealth innovations in Nigeria, despite evidence that supports the positive effects in improving patient care. What we are advocating for in HISN is a good workflow and change management specialist that will make the transition less stressful and acceptable to the end users. This strategy has been leading to gradual acceptability of eHealth solutions in Nigeria.

Role of ethics, legal and data protection issues:

Data security is a major area of concern as eHealth develops in Nigeria. A patient should have complete and absolute control over the information that is shared, even with the physicians, so every patient is empowered to make an informed decision. In addition, as eHealth solutions grow in Nigeria, it is believed that more attention will be added to cybersecurity and data protection.

Role of learning and teaching:

Most training is done through online modules where the lessons taught are active parts of the curriculum. Assessments are given after the modules are completed through HISN. There are three levels of professional examinations to become a fellow of the association. Waivers are provided for those with advanced degrees and certain levels of experience as practitioners in HI.

Role of management related topics in health informatics and IT:

The importance of leadership in healthcare technology development is one of the key areas being addressed with the distinction between a leader and a manager highlighted. Moreover, when proposing eHealth innovations, there is a need to address the interest of executives, healthcare givers and IT groups separately. For example, while the physicians may be interested in better patient care, the executives are usually interested in better care of patients that equally improves profit.

Role of technology:

Nigeria and other developing countries are in great need of eHealth innovations, yet are often the most neglected resulting in backwards health technology solutions. Apart from the inaccessible rural and riverine areas in need of telemedicine solutions, the impact of brain drain (emigration of those highly trained or educated to other countries that provide more opportunity) is enormous. If such technology like telemedicine is appreciated and embraced, the effects of brain drain may be minimized, if not completely eradicated, because the skills of those experts are still available through remote technologies.

Some of the major hindrances to telemedicine, like infrastructure and power, seem to be improving in Nigeria. If the current momentum given to electricity by the present government continues, then hope is on the horizon.

Role of consumers and populations:

The consumer should always be at the centre of innovation and procurement, since it is useless to purchase items that the healthcare workforce will not use when financial resources are scarce. The need to involve the representatives of the local populations cannot be overemphasized. In addition, the population

needs information to empower them about the need for health technology innovations in order to drive research and demand.

Role of Research: information management in research, data analytics

N/A

Role of interoperability: systems integration, IT standards, terminologies and classifications

N/A

Checklist of eHealth topics (gaps and deficiencies)

Teaching the teachers: Are there any activities in your organisation to teach health IT/eHealth to teachers in healthcare?

Yes, by constantly training and updating the skills of our members and sending them to train staff of collaborating institutions.

Supporting participatory design and acceptance testing/research: Are there any educational activities to teach or practice participatory design? Are there any activities including research in user acceptance testing and satisfaction measurement?

Yes, my proposed research on 'the knowledge, attitudes and behaviour of healthcare givers in Nigeria towards eHealth solutions' is currently awaiting funding / a sponsor.

Integrating eHealth/health informatics into traditional curricula: Are there any activities to include eHealth/health informatics into traditional curricula of physicians, nurses and other health professionals with direct patient care?

Yes, currently we are advocating for introducing eHealth training into medical schools. There have been positive responses so far.

Motivating clinicians and managers: Are there any incentives and opportunities for clinicians and healthcare managers to acquire and update digital eHealth/health informatics skills and knowledge?

Yes. The Nigerian Medical and Dental Council is adding eHealth as part of the continuing medical education (CME) needed for licence renewal.

Engaging women: Are there any activities to attract female students in eHealth/health informatics or employ female health IT staff?

Yes. Some females are already eHealth specialists.

Adjusting job descriptions and enable continuing education: Are there any activities to adjust job descriptions, e.g., for clinicians, that include health informatics competencies (also proper use of health IT/eHealth systems) and are there activities to support staff updating and upgrading their health IT related skills and knowledge? This topic is mainly related to provider organisation and to IT vendors.

N/A

Updating teaching and learning material: Are there any activities to ensure that the material is up-to-date and of high quality?

Yes, HISN is registered with some US institutions to ensure high quality with up to date materials.

Availability of courses including electronic courses: Are there any additional activities to improve the availability of courses such as implementation of new courses, new course formats that recognise previous experiences/training in particular for continuing education?

Yes, in conjunction with partner institutions.

Informal caregivers: Are there any educational activities to teach health IT usage to informal caregivers, e.g. for assistive technologies?

N/A

Shortage of health informatics specialists: Are there any programmes to attract health informatics specialists?

Not currently, but HISN is actively encouraging a working eHealth policy which should attract specialists in the near future.

eHealth Budget: Does your organization, area or region have a dedicated budget set aside for eHealth/health informatics training, education or workforce development initiatives?

N/A

eHealth Specialty Areas: Does your organization address any of these speciality settings/areas of training or outreach for eHealth education or workforce development: ambulatory care, social medicine, geriatric/ageing medicine, rehabilitation?

N/A