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The Evidence



Revisiting eHealth in Sudan

In this issue:

- Letter from an International collaborator
- eHealth in Sudan – experimenting forever!
- E-health interest groups - what roles can they play
 - Public Health Institute proposed solutions
 - Readers corner
 - PHI news
 - Contacts

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Letter from an International collaborator

Dr. Huda Hassan Mohamed

Chair of the Sudan Health Consultancy Group
Director of West Midlands East Health
Protection Unit from 2006.

Dear Sudan Public Health Institute,

I was aware of the PHI when it was only a vision to be a centre of excellence for public health in Sudan and now it is a reality. I have been in contact with the institute since its inception and I am proud to say it is flourishing so fast.

I recently gave a presentation on "Partnership working arrangements" to strategic planners from different states which was part of the strategic planning workshop organised by the institute. I was so impressed with the quality of the workshop and the enthusiasm of the participants. I was also very much impressed with the development that took place in the institute during the last few years.

The institute needs to have an institutional development plan, securing resources and have a capacity building programme, this is definitely a challenge for the institute for the next few years. These can be all achieved with strong leadership and dedication.

I hope all the best for the institute and I am sure it will soon be a Global Centre of Excellence.

Letter from the Editor-in-chief

We are pleased to launch 'the Evidence' Newsletter, which marks an important step in the development of the Public Health Institute. In this issue we attempt to bring to the surface some of the problems facing the implementation of eHealth solutions in the Sudan, covering the experts' opinions and putting forward some recommendations.

This issue, published in both Arabic and English, will be available online for free download on our website www.phi.edu.sd.

We hope this will be the first of a series touching upon serious public health issues in the Sudan. We welcome comments from the readers on the current topic through our email the.evidence@phi.edu.sd and our response will be published in the next issue under the 'Readers' corner'.

Also, we would like to invite you to join our facebook page 'Public Health Institute' and follow us on twitter @PHISudan to get our latest updates and activities.

Nazik M Nurelhuda - Knowledge Plus coordinator - PHI

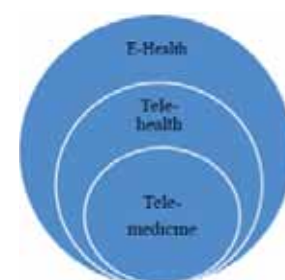
What is eHealth?

The term, despite its wide use, lacks a clear, agreed upon and precise definition. eHealth is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through information and communication technologies (ICTs). In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking directed towards improving health care locally, regionally, and globally (Eysenbach, 2001).

Benefits of ICTs to healthcare in Sudan

The introduction of ICTs saves time and cost, to the patients, their families and the health care services through providing new services and improving the quality of existing services. It provides equity in the access to medical care – the remotely and centrally located patients both gain access to professional care at relatively the same time. The quality of care is improved through second opinions and consultations.

Furthermore, it provides opportunities for Continuous Education and Training for medical staff through Tele-education services. Given the right policies, organization, resources, and institutions, ICTs can be powerful tools in the hands of those working to improve health (Daly, 2003).



eHealth and its basic components

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Challenges in employing ICTs

Developing countries share common challenges such as lack of government commitment in producing policies to nurture national eHealth programmes, the limitation of communication technologies, funding challenges and the training of users and, most importantly, commitment of stakeholders at all levels.

Initiatives in Sudan

In 2005 a Sudanese expert (Dr. Salah Mandil) was commissioned to prepare proposals for a solution. Following a situational analysis, a proposal for an eHealth strategy was made.

Six years on, several scattered “eHealth” projects were found to be running in parallel with evident overlap of efforts and lack of collaboration leading to a waste of resources.

In brief, on the surveillance front, there is the Surveillance project at the Epidemic unit (FMOH), Human Resources Observatory database and the ‘eHealth’ project (a hospital information system) under the E-government project. All are web-based, in the initial pilot stage and each with their own established networks and regrettably again working in isolation.

The present “Tele-medicine” projects include the withheld ‘National Telemedicine HealthNetwork’ and an initiative at the CPD with Karolinska institute (Stockholm) to provide second opinions on diagnostics. Some of the reported shared reasons that brought down the National Telemedicine Network Project are mentioned; the high turnover of cadre trained to operate the apparatus in the remote areas was a major challenge.

The consultants posted in the Khartoum centre were usually non-responsive. Issues involving software licensing, spare parts and maintenance of the equipment hampered the smooth running.

We, thus, invited the author of the 2005 Strategy to comment on the eHealth situation today.

eHealth in Sudan – experimenting for ever!



Salah H Mandil, PhD

Senior Expert Consultant
To the ITU and WHO
On eHealth & eStrategies and,
Former Director
Health Informatics & Telematics
World Health Organisation
Geneva, Switzerland

eHealth in the Sudan is a victim of unresolved managerial challenges and not technical ones.

In my 4 years as a professional and 21 years as the Director of the applications of Information and Communications Technologies (ICT), at the headquarters of the World Health Organisation, we contributed to and often led the drive for the developing countries to acquire and use these technologies. Known today as eHealth, this field gradually evolved from the means to do work faster or better to the means for new methods of delivering essential healthcare.

It took us many years, many proposed drafts and invitations to training courses, to convince the changing Sudan Ministry of Health officials to demand WHO collaboration for the introduction and uses of eHealth in the Sudan health care services. When the request finally came, the initial overall Feasibility Study was carried by me, supported by a very able group of leaders and professionals from the MoH/Sudan. In my report (of 2005, and recalling earlier reports by me in 1989 and by Dr R Chical in 1986), I stressed that the logical start for eHealth is, first, the improvement of the management of the institutions that provide health care services followed by the improvement of the health care services to the remote and under-served areas (TeleMedicine). The point stressed was that improving the management of the hospitals and the primary health care centres would enable these institutions to provide their own local services far better and strengthen them to provide remote services via TeleMedicine links. We strongly urged the start of a simplified and thus cheap Management Information System (MIS) for each of the major hospitals that catered for only 6 out of the 22 functions that cater for a Hospital MIS - and to do so for 12 hospitals and 12 related health centres.

That would have then formed the core of a National Health Network, a National Health Care MIS and a National Patient Data Base of electronic patient records.

Once such a core becomes operational, then the introduction of a National TeleMedicine Network could begin.

The Evidence

Unfortunately, the limitations of resources (mainly financial) led the decision-makers at the time to take the managerial decision to go only for the installation of a Pilot National TeleMedicine Network. This was costed and acquired based on a design by me made in 2003 as part of the ITU-sponsored study. The TeleMedicine Network linked the main hospitals in Al-Damazeen, Kassala, Kosti and Nyala with Khartoum Teaching Hospital. I was honoured by the opportunity to support the actual installation in Kosti, Kassala and Khartoum and to train the staff there. The network functioned smoothly and logs of actual links and tele-services and consultations were produced monthly. I was informed that the uses of the network started slowing down after about a year because the medical staff concerned were overwhelmed with work load and were not rewarded for the extra tele-services they were providing.

Clearly, this was another “managerial” issue that have not been properly addressed.

eHealth is, and remains, both a methodology and technology that can significantly enhance the quality, geographical coverage and scope of health care services in the Sudan.

If it has been done in Ethiopia, Mozambique, South Africa and Egypt, and there are Sudanese who have accumulated the knowledge, the experience and the will to do the same in the Sudan,

what is stopping us? A Sudan National Health Care MIS, supported on a national Health Network (I originally called it Afya-Net), is an essential core for any and all eHealth uses in the Sudan.

Today we can afford it, and a senior bold managerial decision is called for.

However, on the Tele-education front, the progress in Sudan is solid and tangible. Several universities (private and public) are utilizing ICT's efficiently.

The CPD (centre for professional development) has pioneered in distance learning, along side private

centres such as Brain Power. University of Khartoum and Sudan Open University are other commendable examples. Two colleges have programmes producing eHealth specialists: National College and Nile College. aigazeera University started to use remote computer-assisted support for learning sessions around individual patient cases in their programme on family medicine.

Today, a group of enthusiasts form the Sudanese Society of Information Technology. We invited the chairman of the eHealth section to share his thoughts on their activities and challenges facing this field in Sudan.

E-health interest groups: what roles can they play



Prof. Abdelmonim Sahal Elmardi

Chairman of the E-health section of the Sudanese Society of Information Technology

E-health is a rapidly developing field that has positively impacted the health sector worldwide in both the developed and the developing countries. For its roles to have maximum impact, professionals agreed that all stakeholders must be involved in almost all aspects of the process of integration of the concepts and technologies of e-health in health promotion, health education, health professions' education, the provision of healthcare & health research. One of the important stakeholders, often overlooked and forgotten, are e-health interest groups and individuals that include enthusiasts and advocates of different backgrounds, most of whom are merely motivated and driven by their interest and will to contribute in a field that they just have passion for. The type and extent of contribution depends on the room given to them by other stakeholders. In Sudan, e-health enthusiasts and advocates came together with the purpose of helping each other to develop and advance their knowledge, skills and expertise in the various aspects of e-health.



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They started with a forum with the following objectives:

- 1- Organize and conduct an advocacy campaign to spread the project management culture among decision makers, potential users & the public
- 2- Advise & contribute in efforts to integrate e-health in the health field
- 3- Conduct research in the field of e-health
- 4- Exchange of expertise, ideas & resources
- 5- Support of the members and other professionals in their endeavors to specialize or carry out research or postgraduate studies in the field of e-health
- 6- Organize & participate in e-health activities (courses, workshops, seminars, conferences, etc..)
- 7- Other activities that help in establishing and sustaining a strong e-health culture in Sudan.

The forum held a number of meetings addressing the various objectives. A number of the members of the section are now conducting research on issues related to the integration of e-health in Sudan.

Networks and Links:

The e-health section established links with a number of similar organizations to exchange ideas & expertise & establish partnerships and networks. These include:

- Africa telehealth www.africatelehealth.org
- Texas telehealth <http://texastelehealthtech.com/>
- Med-e-Tel <http://www.medetel.eu/>
- Health informatics forum http://www.healthinformaticsforum.com/?xg_source=msg_mes_network
- Bioinformatics group www.bioinformatics.org
- Health imaging hub www.healthimaginghub.com
- Middle East Society of Telemedicine www.mesotel.org
- International Network for the Availability of Scientific Publications www.inasp.info/

Products:

The group in collaboration with the Pharmacists Union conducted a workshop on the establishment of Medicines Information Centres and the use of technology in these centres. The workshop produced a manual to guide the process of establishing such centres.

The group also produced a consensus document defining e-health and categorising its components. The document simply defines e-health as the use of information & communication technology in health practice, research & education. It categorized the components into:

- Health information Management (hospital-based & community-based)
- Telemedicine (including mobile monitoring & electronic health education)
- Tele-education & e-learning
- Decision support systems (including digital resources for evidence-based practice, digital resources for research & medicines Information Systems)

The document also proposes a title for the graduates of e-health programmes (e-health specialist) and the proposed career pathways for them.

The group also developed a digital library containing key publications and books in the field of e-health.

Achievements:

Some of our key members convinced two colleges, so far, to establish programmes that graduate e-health specialists namely the National college & The Nile College. They also helped develop the curricula & courses for these programmes.

Some of the key members of the group developed a research project to study the readiness of the health sector in Sudan for the integration of e-health components. A number of our members are now registered for postgraduate studies working on research relevant to this theme. One of them is about to publish the report.

Participations:

Members of the forum e-health section participated in the Africa telehealth conference in Cairo 2010 and presented two papers, one was about e-health in Sudan, the past, the present & the future. The other was about human resource development plans for e-health.

Currently the e-health interest group has developed into the e-health section of the Sudanese Society of Information Technology.

Deputy Director of PHI had the opportunity to attend a conference last month focusing on the mHealth component of eHealth. The following report is a briefing on the summit.

Mobile Health Summit and Leadership Forum Cape Town, 6-9 June 2011

Conference Report by:

Dr. Muna Ibrahim Abdel Aziz

Deputy Director, Public Health Institute

I was fortunate to be able to attend the GSMA-mHA Mobile Health Summit as official delegate for Sudan Federal Ministry of Health and Ministry of Telecommunications. This conference was a global event bringing together over 600 participants, representing over 230 organisations located in more than 40 countries worldwide. Sudan was one of just ten countries officially taking part in the Leadership Forum on 9 June 2011.

The focus was on mobile health i.e. wireless, satellite enabled or 'on the go' applications. One main theme right through the conference is the 'pilot-itis' or plethora of pilots around the world; and the need to mainstream adoption of new technologies. Another theme was around poor evaluation as only 12% of case studies in the WHO global survey were evaluated or with results published.

It was mentioned many times that mHealth provides a solution to increase access to healthcare in rural and remote areas and is a mechanism to make more efficient use of health workers in shortage countries or areas. Also it was raised that efficient mobile solutions will drive down costs of healthcare which are currently a high cost pressure for governments.

Mobile health penetration is high in all countries. A key question therefore is how to maximise the use of high mobile penetration by using applications that are not limited to one mobile phone operator or a particular device. This interoperability is important and is relevant to equity and access which are core public health principles. This is also relevant to sustainability and mainstreaming of solutions.

While governments are the biggest buyer of mobile health technologies, insurance companies are willing to invest, as are mobile phone companies. The role of governments is emphasised in governance and mainstreaming; telecoms were seen as enablers. User fees are also key with respect to extra traffic/usage of mobiles.

Users of mobile health technology range from individuals, patients/carers, professionals, health managers or machine to machine transfer (e.g. of lab results). A number of case studies were presented. The range of complexity ranged from health call centres to SMS reminders to data management solutions to mobile monitoring, to decision support systems, and even use in emergency /disaster situations. Many of the case studies focused on emerging countries especially in Africa– one key explanation for this is the lack of infrastructure and the investment potential of bringing in new smart technology to Africa i.e. the ability to leapfrog added to the high level of need.

While the participation of Sudan was valued in this conference, further networking opportunities exist with health and telecoms delegates from around the world. Should Sudan wish to embrace and sustain efficiencies in the health system through mHealth, it is recommended to use the experiences of other countries from case studies, and selected priority projects as recommended below. You can read the full Sudan report from the conference online on the PHI website www.phi.edu.sd. The report also includes key terms and definitions in lay terms.

Selected priority solutions for Sudan:

1- Set up a supportive ecosystem

Set up an Inter-Ministerial Committee on e-Governance under which comes a National Stakeholder Forum for mHealth. Develop an e-Health policy before an e or mHealth Strategy. Stimulate competition among operators to drive costs down, and also promote interoperability.

2- Start with data management solutions

Develop an e-patient register (unique person identifiers, and linked to birth/death registrations).

Applications to link the referral system and create data for policy making (Record, remind, refer, report).

Strengthen the health information system and surveillance systems Solutions to measure and record volume and Stock control Use the 'Proof of Concept' approach to check that it can work.

3- Consider efficiencies in health care

Maternal and child health solutions to meet the MDGs (as per case studies from other countries). For prevention, SMS based apps but these need to be backed with talk/images NCDs are a growing problem (prevention to remote monitoring); possibly linked to health insurance Counterfeit medicines and medicines quality assurance are another potential area.

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4- Remember mLearning and mMoney too

As well as mHealth, there are mLearning opportunities e.g. trainee health worker support, and supportive supervision for task shifting. Also opportunities to pay community health workers over the phone remotely!

Public Health Institute Proposed solutions

eHealth as a national policy

According to the World Health Organisation (WHO), "the most favourable approach to the implementation of eHealth at the national level is to have a framework of strategic plans and policies which lay the foundation for development." Strategic plans and policies should protect citizens, promote equity, observe cultural and linguistic issues in cyberspace, ensure interoperability (the ability of different technology systems to work together), and allow for capacity development so that all citizens can access eHealth solutions (Mars and Scott 2010). The existing National Health Policy for Sudan failed to mention eHealth, telehealth nor telemedicine (Health 2007).

Governments play a major role in determining immediate national priorities while also working towards long-term development plans. An example is the *ictQATAR*. The Qatar government through *ictQatar* has proposed modern and sophisticated financing for health plans that are geared toward the advancement of information and communication technologies.

It is stressed that design of a national policy to support the present strategy, directed towards developing eHealth in Sudan, and based on determined needs, with a sustained allocation of funds should be a main focus if the situation is to be improved.

Thinking simple

There is an available infrastructure that is not, as yet exploited. Health promotion through the Television and radio is popular in Sudan but mainly directed towards

providing free consultations to callers. However, health promotion in its classic sense of going beyond a focus on individual behavior towards a wide range of social and environmental interventions is not being delivered through the media.

Similarly, gaining huge momentum in Sudan, among all age groups and people of different socio-economic and geographic background, is surely the use of mobile phones. This advancement is currently neglected in the health sector.

- In South Africa Project Masiluleke (Project M) operates by using mobile technology to bring people with HIV and tuberculosis into the healthcare system earlier and thereby increase chances of living longer and healthier lives. The project was started in 2008, and uses specially developed open source software to send millions of targeted health messages to mobile phone users in the country.

- Another similar successful example is in Uganda, where Text to Change (TTC) was launched in 2008 as a tool to help spread awareness about the effects of HIV/AIDS in Mbarara, Uganda. The program aimed to use mobile phones for HIV education and encouraged the public to voluntarily seek HIV testing and counseling services.

Sudanese internet users are multiplying daily, and social networks such as Facebook are becoming more attractive. As of 2009, 'The World Bank' reported that 9.9% of the Sudanese population use the internet. Tools such as user friendly websites, group or page should be incorporated in planning for health and implementation of health programs. All in all, there is a tendency towards aspiring for complex technologies while allowing the simple ones slip un-explored- We should invest in the simple.

It is recommended that before embarking onto a new program, or for that matter, before implementing the previously mentioned programmes, an effort should be made to involve all stakeholders in product conception, design and testing iterative development. Programmes designed to utilize the already existing infra-structures should be promoted. We should use existing technologies that are widely available before investing in new technologies with an unknown rate of take-up. We stress again that there is a need for improved managerial skills and for user involvement in product conception, design and testing iterative development.

Research

The ideal for setting policy in any area is to rely on a strong evidence base of what does and does not work. In the case of ICTs and health, strong evidence-based information that draws on impact assessments or outcome measurements is not easy to find.