eHealth at WHO: The Mandate and Progress

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Abstract

This paper is the full version of a video presentation that was made at the Conference. The presentation covered the products, services and achievements made by the World Health Organization over the last three years in support of eHealth at a global level. Among these achievements which will be elaborated in the paper are the publication of a special theme issue of the World Health Bulletin on building the evidence for eHealth, the launch of the National eHealth Strategy Toolkit, the launch of the WHO Forum for Health Data Standardization and Interoperability, the adoption of a resolution on eHealth standardization and interoperability and health on the Internet at the 66th session of the World Health Assembly in May 2013, conducting of the 2nd global survey on eHealth as part of the work of the Global Observatory for eHealth and the resulting publication of six key reports covering mHealth, telemedicine, legal frameworks for eHealth, safety and security on the Internet, management of patient information and the Global eHealth Atlas and finally conducting of the 3rdglobal survey on eHealth was completed as part of the implementation of the recommendations of the Commission on Information and Accountability for Women's and Children's Health. Convening of the eHealth Technical Advisory Group as a governance structure for eHealth was discussed. The author called for all eHealth researchers and practitioners to take part in the work of WHO through research, sharing of information and knowledge and best practices, networking, building capacity and utilization of the tools developed to allow for their improvement and sustainability.

1. Introduction

The International Conference on Primary Health Care [1] in 1978 adopted the Alma Ata Declaration which put universal access to primary healthcare services and Health For All as its aspirational goal by year 2000. In 2000, the United Nations General Assembly (UNGA) adopted the Millennium Development Goals (MDGs)[2]. The MDGsare eight goals that UN Member States have agreed to try to achieve by the year 2015. The world committed itself to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. Three of MDGs relate directly to health: Goal 4: reduce child mortality. Goal 5: improve maternal health; Goal 6: combat HIV/AIDS, malaria and other diseases. Other Goals also contribute to achieving health goals: Goal 1: eradicate extreme poverty and hunger; Goal 7: ensure environmental sustainability and Goal 8: develop a global partnership for development (Target 18 stipulates "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications". As health is a

human right, it has been strongly represented in the MDGs and the World Health Organization (WHO) has taken a lead role in the implementation of these goals. WHO works with partners to support national efforts to achieve the health-related MDGs. WHO's activities include:

- setting prevention and treatment guidelines and other global norms and standards;
- providing technical support to countries to implement guidelines;
- analysing social and economic factors and highlighting the broader risks and opportunities for health.

WHO assists national authorities as they develop health policies and plans, and helps governments work with development partners to align external assistance with domestic priorities. WHO also collects and disseminates data on health so countries can plan health spending and track progress. More recently, the UNGA resolution 66/288 [3] which endorsed the RIO+ declaration '***The Future we want'***acknowledged universal health coverage in the post-2015 development agenda as "a key instrument to enhancing health, social cohesion and sustainable human and economic development". The role of health as "a precondition for, an outcome and an indicator of all three dimensions of sustainable development" is also fully recognized. Member States have pledged to strengthen health systems towards the provision of equitable universal health coverage, through involvement of all actors for coordinated multisectoral actions to address urgently the health needs of the world's populations [4]. In May 2013, the 66th World Health Assembly approved the 12th General Programme of Work (GPW) for the six-year period 2014–2019 [5]. The GPW sets out a vision for WHO, describing the six leadership priorities that define the areas in which WHO influences the world of global health. The first of these six priorities is advancing universal health coverage. A prerequisite for achieving universal health coverage is functional health systems. In order for health systems to function, there must be:

- adequate numbers and equitable distribution of qualified and committed health workers;
- effective disease surveillance systems for timely responses to infectious diseases and national, regional and global health security;
- health data and information that guide evidence-informed policy decision-making; and
- availability and affordability of information infrastructure supporting eHealth systems.

Against this background and guided by its mandate, WHO has taken a lead role in adopting eHealth as simply defined"the use of information and communication technology for health". eHealth is about utilization of this technology to make the health sector:

- more cost-effective,
- more efficient,
- empowering people;
- improving equity to access to health information and services;
- improving accountability.

Looking into the different universal and global mandates, we see data collection, use of information and utilization of knowledge to support health and development goals are in their core. This is not unusual as health is a data and information intensive sector.

Progress since 2010

The last four years (2010-2013) have witnessed a number of major achievements in the eHealth area of work at WHO. This part of the paper will cover few major highlights. In addition to these highlights, the six Regional Offices of WHO have also been active and were able to deliver eHealth products and services in member states.

2. Building the Evidence for eHealth

A special issue of the World Health Bulletin was published in 2012 and brought together research from all corners of the world with an attempt to build the evidence that eHealth can reduce cost of healthcare, improve quality and equity of access to services. Three objectives were identified in the call for papers of the special issue:

a) to provide an authoritative, critical and independent overview of knowledge about the appropriate, trans-disciplinary methods and applications in e-health;
b) to include contributors from developing countries who typically do not have the opportunity to publish in international journals;
c) to disseminate the key findings of this theme issue to high-level decision-makers, to promote a stronger commitment on e-health interoperability issues and its wider application.

In addition to the editorials and the news section, the special issue included 12 original articles in five categories: research, systematic reviews, policy and practice, lessons from the field and perspectives This theme issue highlights what we have learnt from e-health projects throughout the world in terms of feasibility, acceptance and impact on processes. The recipe may seem familiar and replicable, but the proof is in the pudding, in the clear demonstration that eHealth can result in economic benefits and improve health outcomes [6].

3. National eHealth Strategy Toolkit

This joint work with the International Telecommunication Union is a milestone in terms of bringing the two major sectors in health and in information and communication technology together. The National eHealth Strategy Toolkit [7] is a resource for developing or revitalizing a country's eHealth strategy, from countries just setting out to those that have already invested significantly in eHealth. The Toolkit is designed in three parts, with each part building on the work of the previous one:

Part 1: Develops a national eHealth vision that responds to health and development goals. Explains why a national approach is needed, what the plan will achieve, and how it will be done.

Part 2: Develops an implementation roadmap that reflects country priorities and the eHealth context. Structures activities over the medium-term, while building a foundation for the long term.

Part 3: Establishes a plan to monitor implementation and manage associated risks. Shows the progress and the results of implementation and aids in securing long-term support and investment.

The Toolkit has beenpublishedthe six official language of WHO (Arabic, English, French, Chinese, Spanish and Russian) in addition to Portuguese. Other language versions will be supported as needed.

4. WHO Forum for Health data Standardization and Interoperability

Standardization and interoperability of health data and eHealth systems are in the core of WHO eHealth strategy. Creating the WHO Forum for Health data Standardization and Interoperability is part of this strategy. The primary objective of the Forum[8] is to facilitate a dialogue among health data standards development organizations, standards maintenance organizations, academic institutions, subject matter experts, and Member States toward a comprehensive roadmap for full implementation of health data standards for interoperability within countries.

WHO as a norm-setting organization considers interoperability as essential to achieving the full potential of seamless data exchange using information and communication technologies (ICTs) and medical devices in support of health systems. Appropriate use of ICTs to deliver quality health services, reduce costs and achieve universal health coverage is integral to advancing health care. Transmitting personal or population data across ICT-driven health information systems requires adherence to health data standards and related technology standards for timely and accurate exchange of data for health care decisions. Whether it is counting of the health workforce by cadre and facilities, providing patient care through review of digital images, managing patient information through electronic medical records or conducting public health surveys and surveillance – all require interoperability of data within and between systems, based on a given set of standards.

The Forum was first convened in December 2012 and brought together stakeholders from the public sector, the private sector, standard development organizations, the academia and the donor community. The Forum has established for a new way of providing support to countries to allow for enforcing interoperability of systems and applications.

The Forum will be convened as a face-to-face meeting on a regular basis. The second planned meeting is in February 2014 which will focus on policy development for interoperability and standardization.

5. eHealth standardization and interoperabilityand Health on the Internet

The 66th session of the World Health Assembly, in May 2013 discussed eHealth standardization and interoperability and health on the internet as it recognizes the role of ICTs

in achieving the MDGs and that a number of Regional Committees adopted resolutions in support of eHealth. The Assembly recognized that the secure, effective and timely transmission of personal data or population data across information systems requires adherence to standards on health data and related technology leading to improve care, to increase the level of engagement of patients in their own care, as appropriate, to offer quality health services, to support sustainable financing of health care systems, and to promote universal access. From technical point of view, it was recognized that the lack of a seamless exchange of data within and between health information systems hinders care and leads to fragmentation of health information systems, and that improvement in this is essential to realize the full potential of information and communication technologies in health system strengthening.

It was emphasized that scientific evaluation of the impact on health care outcomes of health information systems based on information and communication technologies is necessary to justify strong investment in such technologies for health and that is essential to ensure secure online management of health data, given their sensitive nature, and to increase trust in eHealth tools and health services as a whole. In relation to the health on the Internet it was emphasized that health-related global top-level domain names in all languages, including ".health", should be operated in a way that protects public health, including by preventing the further development of illicit markets of medicines, medical devices and unauthorized health products and services;

The WHA in May 2013 adopted a resolution on eHealth standardization and interoperability[9], requesting the Director General of WHO to:

1. to provide support to Member States, as appropriate, in order to integrate the application of ehealth and health data standards and interoperability in their national eHealth strategies through a multi-stakeholder and multisectoral approach including national authorities, relevant ministries, relevant private sector parties, and academic institutions;
2. to provide support to Member States, as appropriate, in their promotion of the full implementation of ehealth and health data standards in all eHealth initiatives;
3. to provide guidance and technical support, as appropriate, to facilitate the coherent and reproducible evaluation of information and communication technologies in health interventions, including a database of measurable impacts and outcome indicators;
4. to promote full utilization of the network of WHO collaborating centres for health and medical informatics and eHealth in order to support Member States in related research, development and innovation in these fields;
5. to promote, in collaboration with relevant international standardization agencies, harmonization of eHealth standards;
6. to convey to the appropriate bodies, including the ICANN Governmental Advisory Committee and ICANN constituencies, the need for health-related global top-level domain names in all languages, including ".health", to be consistent with global public health objectives;
7. to continue working with the appropriate entities, including the ICANN Governmental Advisory Committee and ICANN constituencies as well as intergovernmental organizations, towards the protection of the names and acronyms of intergovernmental organizations, including WHO, in the Internet domain name system;

8. to develop a framework for assessing progress in implementing this resolution and report periodically, through the Executive Board, to the World Health Assembly, using that framework.

6. The Global Survey on eHealth

The second global survey was conducted as part of the work of Global Observatory for eHealth (GOe). Six key reports [10]were published including mHealth, Telemedicine, Legal frameworks for eHealth, Safety and Security on the Internet, Management of patient Information and the Global eHealth Atlas. These publications have been used by many countries, policy-makers and authors as the authoritative source of information on eHealth uptake and trends in countries. These publications are:

- Management of patient information: Trends and challenges in Member States;
- Legal frameworks for eHealth;
- Safety and security on the Internet: challenges and advances in Member States;
- mHealth: New horizons for health through mobile technologies;
- Telemedicine – Opportunities and developments in Member States;
- Atlas - eHealth country profiles.

WHO conducted an evaluation of these publications to measure their usability, impact and value. They were used to inform policy and research, as evidenced by the citation analysis. The evaluation revealed an overall appreciation by the eHealth community especially in terms of the specialised nature of the publications resulting from the survey. These publications provided, in addition to the baseline data on eHealth uptake, an in-depth analysis of the evidence based on the literature.

7. Health and Innovation in Women's and Children's Health: aBaseline Review

The third survey of the GOe[11] focused on eHealth and innovation in the 75 countries covered by the United Nations Commission on Information and Accountability for Women's and Children's Health [12]. The third recommendation of the Commission on innovation stipulated that "*By 2015, all countries have integrated the use of Information and Communication Technologies in their national health information systems and health infrastructure".* To enable better understanding of the current situation in these countries, the Survey aimed to collect and analyse data that would help in planning and implementation of eHealth strategies and activities in support of women's and children's health. The survey was run in 2013 and included a detailed set of questions covering all aspects of eHealth. An impressive response rate of 85% was achieved as 64 of the 75 countries completed the questionnaire.The report has been published by WHO and the International Telecommunication Union (ITU). Over 300 eHealth and maternal and child health experts have contributed to this report under the leadership of WHO and ITU eHealth experts.

Key findings from the survey include:

1. Ninety-four per cent of the countries have a national policy or strategy for women's and children's health;

2. Over 90% of the countries are monitoring six of the 11 key indicators on reproductive, maternal, neonataland child health (RMNCH), and monitoring of all of them is generally widespread in these countries;
3. Sixty-nine per cent of the countries have implemented, at least partially, an electronic information system to registerbirths, deaths, and causes of death;
4. Fifty-six per cent of the countries report that eHealth is supporting major women's and children'shealth initiatives;
5. Forty-eight per cent have adopted at least one type of eHealth initiative for the monitoring andsurveillance of maternal, neonatal and paediatric patients; Telemedicine and tele-consultationservices are the most frequently adopted.
6. Forty-two per cent of the countries have a national eHealth policy or strategy;
7. Thirty-six per cent of national eHealth strategies refer to the use of eHealth for women's and children's health.

The report also examines the barriers to the implementation of eHealth and lessons that can be learned. Themain barriers emerging from the survey are:

1. a lack of suitably qualified or experienced professionals to develop and implement eHealth projects;
2. inadequate infrastructure to support programmes;
3. a lack of adequate business models to support broad and sustainable eHealth delivery; and
4. A lack of political commitment at the national level.

The report presented a set of recommendations based on data collected from the 64 countries for consideration by policy makers and implementation agencies.

8. eHealth Technical Advisory Group (eTAG)

eHealth governance is one of the major challenges to ensure full participation of all stakeholders and better planning and decision-making. The eTAG[13] was established as a mechanism to support the World Health Organization in this area of work and to ensure full engagement of independent experts from the six regions of WHO.

The terms of reference of the eHealth Technical Advisory Group are as follows:

1. To review, from a scientific and technical standpoint, the eHealth activities of the Organization in the context of major areas identified above;
2. To suggest evaluation frameworks and mechanisms and, as part of this, to contribute to independent evaluation of the eHealth activities of the Organization, and their impact in countries;
3. To review and make recommendations on priorities, new areas of work and partnership building in support of the Organization's eHealth programme;
4. To assist in identification of innovations, new frontiers and opportunities in support of the Organization in the eHealth field;

5. To provide guidance and propose mechanisms for resource mobilization in support of WHO eHealth activities in Member States;
6. To provide technical guidance to and liaison with the informal advisory groups in support of eHealth initiatives by technical programmes and regional offices.

The eTAG held its first meeting in December 2013 with participation of 19 members, the eHealth focal points from regional offices, WHO/HQ staff working on information and data management in addition to the eHealth team. The eTAG discussed its methods of work, terms of reference, reports from WHO eHealth teams, future activities and follow up actions. Among the most important decisions made was to establish the following working groups which will work on specific eHealth areas over the coming two years:

1. National eHealth Strategies & planning;
2. eHealth Initiatives;
3. Standards and Interoperability;
4. Evidence and Surveys;
5. eLearning and Innovation;
6. Capacity Building & Networking.

Each working group is composed on an eTAG member, a WHO technical eHealth staff, staff from regional offices and WHO/HQ interested staff.

The working groups will work together using virtual platforms. The eTAG itself will have a virtual meeting towards the end of 2014 and a face-to-face meeting in 2015.

9. Conclusion

The mandate given to WHO to lead global health and consequently to provide the necessary leadership for eHealth required setting up strategies, policies, governance structure, resourcing, actions and accountability. The paper tried to cover all these aspects to demonstrate and document actions taken and products and services delivered. Working with its member states, partnering with the academic institutions, the private sector, the non-government organizations and other United Nations agencies has been one of the strategies used to make sure that all stakeholders are engaged.

This is a call for eHealth researchers, academicians and practitioners to take part in the work of WHO through research, training, sharing of information and knowledge and best practices, networking, building capacity and utilization of the tools developed to allow for their improvement and sustainability. I see this conference as a golden opportunity to build partnership and work as a global team.

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