Successful partnerships for international collaboration in e-health: the need for organized national infrastructures

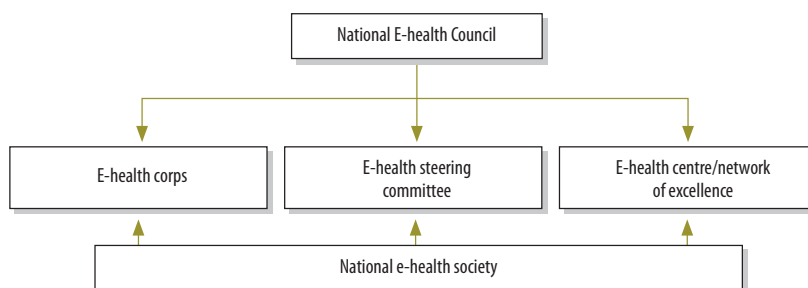S Yunkap Kwankam[a]

Background

It is increasingly evident that information and communication technology (ICT) can transform health systems. In the United States of America, Cebul et al. have shown that the meaningful use of electronic health records could improve the quality of diabetes care, irrespective of the type of health insurance held by the patient.[1] The call for papers for this special theme issue on e-health underscored the need for more documented evidence of this type.[2] The quest for such evidence is justified by the presumption that proven benefits are a key driver in the adoption of new technology for health care.

While evidence of benefit is important in e-health adoption, it represents only the supply or "push" side of the equation. Technological determinism notwithstanding, "pull" forces are needed in many countries if e-health is to be transformed from the passion of a select few individuals to a mainstream activity that affects the entire health system. To achieve such widespread acceptance, ICT has to be woven into the fabric of a national health system at both the policy and practice levels.[3] This singular but fundamental tenet leads, logically, to the requirement that e-health be organized as a profession in every country.

Proposed framework for e-health

A basic conceptual framework for the e-health infrastructure in any country (Fig. 1) has been developed by the International Society for Telemedicine and eHealth (ISfTeH). If e-health is to have its maximum positive impact on a country's entire health system, the institutions shown in Fig. 1 need not only to exist but also to work closely together so that the e-health profession in the country is adequately supported, well organized and efficient.

Fig. 1. **Proposed framework for a national e-health infrastructure[a]**

[a] Developed by the International Society for Telemedicine and eHealth.

National e-health councils

A national e-health council in each country should be an instrument for giving relevant policy advice to the national government. As such, it should include all major stakeholder groups. In many countries, a national AIDS council has been a key instrument in the successful fight against the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS), partly by encouraging multisectoral support for the effort. National e-health councils could similarly facilitate the multisectoral support of e-health in matters beyond the current purview of the national health authority.

E-health corps

An e-health corps composed of a professional category of health worker should be formed in each country. Such "e-health workers" could supplement and facilitate the work of other health professionals, such as doctors, nurses and pharmacists. As an enticement to remain in the health sector, the members of the corps should have career prospects through schemes of service in employing institutions, such as ministries of health.

E-health steering committees

An e-health steering committee in each country should advise the national health authority on setting e-health policy and determining strategic direction. It should also oversee all e-health projects and programmes in the country and be responsible for their efficient coordination.

Centres/networks of e-health excellence

In 2005, the Fifty-eighth World Health Assembly recommended the creation of national centres or networks of excellence for e-health[4] with the aim of encouraging best practices in, and providing policy coordination and technical support for, health-care delivery, health service improvement and capacity building, and health education and surveillance. Such centres or networks could also gather and analyse relevant information, both nationally and internationally, and then distribute the results nationally to support e-health activities.

E-health professional societies

A national e-health society should be created in each country to act as a forum for e-health professionals to exchange ideas and share knowledge. It should be an independent not-for-profit, nongovernmental body. Such a society could develop and store resources for e-health and raise the profiles of e-health experts.

To facilitate the sharing of experience with e-health professionals outside the country, to the mutual benefit of all involved, the society should be affiliated with international e-health federations.

Civil society's contribution

Heeks has shown that the failure of ICT projects in developing countries most often stemmed from generic differences between two key stakeholder groups: the designers and the users.[5] In an attempt to address this issue, the ISfTeH framework added a "fourth dimension", civil society, to previous models of e-health collaboration. The earlier models, such as the Triple Helix Innovation model,[6] tended to focus on just three stakeholder groups: academia, government and industry. Although the Triple Helix model recognized the role of users in civil society as agents who transformed innovation into goods and services, it fell short of incorporating such users into the helix.[6] The ISfTeH framework not only incorporates users but also extends their role beyond transformation to the three preceding stages in the "innovation value chain": (1) identification of the challenges to be resolved (facilitation); (2) research to find solutions (discovery), and (3) dissemination of the results (diffusion).

E-health's grand challenges

The ISfTeH framework is particularly relevant to health systems that have strong central governing structures. Although such health systems are found predominantly in developing countries, the framework can act as an instrument to address the major challenges to efficient e-health activities in any country. The following can be considered e-health's grand challenges:

- creating a knowledge commons for e-health (i.e. a widely available repository of knowledge and information on e-health that is global in scope);
- scaling-up e-health interventions to a size that is commensurate with the magnitude of the problem to be addressed;
- creating integrated e-health systems to resolve the perennial issues of siloed systems and lack of interoperability;
- transforming all health workers into e-health practitioners, thereby developing individual and institutional capacity to use e-health tools and services;

- developing ICT for health by viewing health as a production function and investigating where ICT can support such production (not just through care but also at other points along the pathways influencing health, such as by modifying the social determinants of health);
- building ICT for the health system of the future by anticipating future needs (unfortunately, today's interventions are often designed in response to yesterday's challenges and will not take effect until tomorrow).

International collaboration models

The framework should enable broad-based consultative engagement in e-health collaboration at various levels: individual, institutional, subnational, national and international. It therefore fits with Eysenbach's characterization of e-health as "… a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology".[7] Three examples of collaboration models into which organized e-health professions can tap are those of the Commonwealth, the Rockefeller Foundation and international federations.

The Commonwealth

The Commonwealth is fostering collaboration by promoting the power of e-health to strengthen the health systems of its members. The 2008 Commonwealth Health Ministers Meeting was devoted exclusively to e-health. Common action was endorsed, at country, regional and international levels, to encourage trade agreements and other forms of bilateral and multilateral pacts that should promote e-health collaboration among Commonwealth countries.[8] The ePORTUGUÊSe initiative of the World Health Organization (WHO) is an operational-level implementation of the Commonwealth's e-health model for the world's eight Portuguese-speaking countries.

The Rockefeller Foundation

The defined aims of the series of meetings that the Rockefeller Foundation convened in Bellagio, Italy, in 2008 were to "collectively take stock of the current state of the different thematic areas

of e-health, work on agenda-setting, identify leverage points and next steps…" The meetings focused on eight topics: public health informatics, interoperability, access to information, e-health capacity building, electronic health records, m-health, unlocking the market for e-health, and national e-health policies. In a final gathering, possible mechanisms for collaboration among key e-health players were examined. Reports and planned actions from these meetings have been published on line.[9]

International federations

ISfTeH and the International Medical Informatics Association are nongovernmental organizations engaged in official relationships with WHO. Each is composed of national societies and institutional, corporate and individual members, and each has strong collaborative programmes with WHO in areas such as intelligence gathering, capacity building and service delivery strengthening.[10] In an agreement brokered at the Rockefeller Foundation's e-health meetings in Bellagio, countries lacking the "critical mass" of e-health practitioners to sustain branches of both the ISfTeH and the International Medical Informatics Association were encouraged to form a single e-health association affiliated to both of these federations. Two industry collaborations, the Continua Alliance and Integrating the Health care Enterprise, form important cornerstones in the effort to develop interoperability at the device and systems levels, respectively. Other key organizational players in this area include the American Telemedicine Association and the Health care Information and Management Systems Society.

Conclusion

A well-organized national infrastructure for e-health can help make efficient national e-health systems a reality and develop careers in e-health, particularly through capacity building, the promotion and development of e-health tools and services, and the resolution of e-health's grand challenges.

In any country, the ISfTeH framework could be a powerful tool for supporting the internal transformation of e-health into a mainstream activity of the entire national health system. ■

Competing interests: None declared.

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