The Need for a Strategic Vision for Telehealth

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Abstract
The Brazilian Telehealth Program has been an important step towards the widespread use of Telehealth in the country as a strategy for the construction and consolidation of Sistema Único de Saúde (SUS), the Brazilian National Health System. The Programme created a culture of collaboration and problem solving by connecting together health workers in need of advice from experts who could provide evidence-based answers in a timely fashion. More recently, Telehealth procedures and delivery centres became a formal part of SUS, making it possible for Telehealth Centres to be accredited, providing Telehealth procedures as a formal service to SUS, thus allowing for payment for those services.

As such initiatives evolve, it is important to revisit the recent experience, evaluate the potential that Telehealth technologies bring, draw inspiration from the experience of other countries and plan actions to ensure that Telehealth be widely and suitably used in Brazil, by both public and private sectors. Telehealth is an important means to expand the reach and the regional scope of health services and increase the availability of specialised care, thus strengthening the principles of universality and integrality of care, equity of access and even administrative decentralisation. This paper explores ways to creating a vision for the use of Telehealth in an integrated way.

Keywords: telehealth; eHealth; telemedicine; Brazil.

Introduction
The World health Organization has defined eHealth as “the use of information and communications technologies for health”, and thereby includes telehealth. The Brazilian Telehealth Program was an important step towards the widespread use of Telehealth in the country and opened many opportunities for healthcare-related technology and distance health education as a strategy for the construction and consolidation of Sistema Único de Saúde (SUS), the Brazilian National Health System. Extensively based on formative second opinion and basic technologies, the Programme created a culture of collaboration and problem solving by connecting together health workers in need of advice from experts who could provide evidence-based answers in a timely fashion. As all teleconsultations are recorded, a list of Frequently Asked Questions (FAQs) and sets of cases have been derived from those records and have been made available as a collaboration between the Secretariat of Labour and Education Management for Health (SGTES) and the Latin American and Caribbean Centre on Health Sciences Information (formerly Biblioteca Regional de Medicina, or BIREME). The main motivation for this first Telehealth initiative was to help healthcare workers in remote areas and, at the same time, test and disseminate the culture of teaching and collaborating using Telehealth concepts. Due to the numbers and reach of the Programme, it has been widely recognised and praised as a huge success.

The more recent Brazilian Telehealth Networks Programme has taken several lessons learned from the previous experience and taken steps to make Telehealth a mainstream part of SUS. Telehealth procedures and delivery centres became a formal part of SUS making it possible for Telehealth Centres to be accredited, providing Telehealth procedures as a formal service to SUS, thus allowing payment for those services. This has been the single most important
step towards propagating the use and increasing the reach of Telehealth in Brazil.

More recently, in 2014, Sao Paulo City Department of Health, with 22 million people in its metropolitan area, launched its own Sao Paulo Telehealth Networks Programme. This was largely based on the national experience and created in partnership with the Brazilian Telehealth Networks Programme. The goal was to organise local providers and users around specific issues in this extremely large and hectic city.

As such initiatives evolve, it is important to revisit the recent experience, evaluate the potential that Telehealth technologies bring, draw inspiration from the experience of other countries and plan actions to ensure that Telehealth be widely and suitably used in Brazil, by both public and private sectors. Telehealth is an important means to expand the reach and the regional scope of health services and increase the availability of specialised care, thus strengthening the SUS principles of universality, integrality, equity of access and even administrative decentralisation.

National eHealth Strategies
The World Health Organization (WHO) and the International Telecommunications Union (ITU) have developed an important National eHealth Strategy Toolkit that has been used by several countries. In Brazil, the Toolkit has been used by a group of some 60 people from varying background, under the sponsorship of the Ministry of Health and has raised awareness and led to actions that are feasible and innovative. The resulting document, ‘A National eHealth Strategy for Brazil’ is under discussion within the Ministry of Health and is likely to undergo public consultation in the next few months.

The ultimate goal of such a strategy is to a) identify a Vision that is coherent with the country’s values and expectations and b) set up the actions that will deliver the expected Vision. The strategy aims at delivering the expected vision by aligning projects and initiatives, winning hearts and minds, reducing fragmentation and providing guidance to all stakeholders.

The process of creating a strategy for eHealth and proposing actions to make it a reality involves:

a) defining a Strategic Vision that is coherent with the country’s experience and motivation, and which includes the objectives and the values that should guide the use of eHealth

b) analysing the current eHealth scenario, seeking to understand if and how well the available resources – from an organizational, human and material perspective – fit into the Strategic Vision, thus allowing the identification of missing resources

c) proposing strategic actions that aim to overcome the identified hurdles and provide the required resources.

The National eHealth Strategy Toolkit expands the three types of resources above, into seven major components: leadership and governance; strategy and investment; legislation, policy and compliance; services and applications; standards and interoperability; infrastructure and human resources. (Table 1)

Table 1. The seven components of and eHealth strategy.

<table>
<thead>
<tr>
<th>Leadership and governance</th>
<th>Services and applications</th>
<th>Legislation, policy and compliance</th>
<th>Workforce</th>
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<tbody>
<tr>
<td>Strategy and investment</td>
<td>Standards and interoperability</td>
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<td>Infrastructure</td>
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The method proposed by WHO/ITU Toolkit aims at identifying the required components, step 6, to deliver the initial vision as defined in step 5. (Figure 1) Therefore defining the vision is paramount. Once the vision is defined, it is possible to assess the existing and the missing components, and so define the actions to have them in place.

Inputs for a vision for telehealth
Telehealth will immediately benefit from a National eHealth Strategy. However, whereas the National eHealth Strategy is still under discussion, Telehealth has its national Programme, now in its second generation. Although successful in many regards, the Brazilian Telehealth Networks Programme could benefit from applying a formal and robust set of methods, such as those provided by the National eHealth Strategy Toolkit, in order to define a common and comprehensive Vision. Defining a Strategic Vision for Telehealth is something that should take into account the country’s health needs, the culture of using ICT in general and ICT in health in particular, as well as the country’s experience in dealing with large nationwide projects. In order to get there it is important to assess existing material, current developments and well-established practice, laws and culture.
A well-established piece of legislation, Ordinance 2546 of October 27, 2011 sets out the ground for a strategic vision for the Brazilian Telehealth Networks Programme and provides essential guidelines for the use of information technology to support it. In its Article 3, Ordinance 2546 defines strategic objectives and the major macro-processes:

"Art. 3 The Brazilian Telehealth Networks Programme in primary care aims to develop actions to support healthcare and continuing education of primary care teams, aimed at education for work with a view to improving the quality of care, the expansion of the scope of services offered by these teams, changing care practices and organization of the work process, through the provision of Teleconsulting, Formative Second Opinion and remote diagnostics."

Article 4 sets out a vision of how the objectives will be achieved:

"Art. 4 The Telehealth Brazil Networks in primary care will be structured as a network of services which provides for the creation of inter-municipal or regional projects, managed in a shared manner, with the possibility of participation of state health departments, educational institutions and health services, to ensure the use of technology as a tool for increasing the reach of primary care activities and improving access and quality of care to the citizen."

Article 6 defines some of the key players:

"Art. 6 The Brazilian Telehealth Networks Programme in Primary Care will consist of:

I – Technical-Scientific Centres of Telehealth for Primary Care;
II – Brazilian Telehealth Networks Points of Primary Care;
III – Inter-municipal or regional health management unit; and
IV – Municipal project coordination."

**An Initial Vision for Telehealth**

The information in Ordinance 2546 is very rich and offers material to support at least an initial Strategic Vision for Telehealth. The statement below is an attempt to grasp the Strategic Vision provided by the Ordinance. In strategic planning language, the Ordinance states that:

"Telehealth will materialise as an integrated and shared network of health services and information systems, to contribute to the processes of care and continuing education, as well as to facilitate the creation of regional or inter-municipal health projects, managed in a shared, integrated and coordinated manner, ensuring the use of Telehealth to increase the reach and the quality of care."

**Values**

Likewise, some of the values that are embedded within the Ordinance are:

- Focus on Results: Better health for the population
- Education
Efficiency and effectiveness
Collaboration
Respect and promote the principles of universality, integrality and equity of care
Decentralised Coordination

Extending the vision

Although it is possible to imagine Telehealth procedures performed by analogue means, such as conventional television or even the radio, it is clear that what drives Telehealth is Information and Communication Technologies (ICT) predominantly digital. Unlike other areas of knowledge and even in conventional health care, where ICT is important but is only a supporting tool, there is no Telehealth without ICT. Telehealth and ICT are distinct objects, although they are inseparable and indissoluble.

With rare exceptions, the information generated by the procedures in Telehealth is digital, which means it can be stored, transmitted and processed using resources of ICT. This opens a unique perspective regarding the implementation of patient and information safety mechanisms, warnings against drug-to-drug interactions, decision support systems for the health professional, opportunities for citizen engagement, as well as gathering evidences for permanent and distance education, and promoting integration and interoperability between information systems from different vendors.

Moreover, as Telehealth procedures require some form of digital equipment (computers) at the point of care, it is possible to imagine that all Telehealth procedures will be documented and stored digitally. Clinical summaries should be a natural part of the Electronic Health Record of the individual, family or community. On calls made to the family – typical of the Brazilian Telehealth Networks Programme – it is possible and desirable that the summary of each visit be associated with an individual, a household, or even a community. Obviously, there are many other aspects to consider, but it is important to make it clear that the nature of Telehealth offers an innovative approach to the use of information and to the integration of health services networks.

The above discussion shows that ICT can be a key structural tool as well as an ongoing support instrument to any Telehealth initiative, due to the great synergy between the Telehealth processes (health care and education) and ICT.

Telehealth has attributes that favour its use throughout the country to support SUS. Telehealth can overcome geographical barriers, provided that ICT infrastructure is present. Thus, it is conceivable that Telehealth procedures be carried out across the country regardless of state borders. Health professionals in the far South of Brazil supported by specialists in tropical medicine, based in Manaus, or patients in the hinterlands of the Northeast being assessed by orthopaedic surgeons in Rio de Janeiro, are just two examples of the possibilities offered by the use of Telehealth.

In Telehealth, the referral and counter-referral model loses most of its regional appeal and makes room for a more dynamic logic that takes into account specialties, availability, and costs. As a result, the model of regulation of care for Telehealth should be redesigned in order to identify such skills and availability - not only with regional focus, but in such a way as to increase the efficiency of care and optimise the use of available resources.

The vision of a nationwide network of Telehealth services that integrates the country and allows for the organised, consistent, safe and timely flow of information requires that there be technology and terminology standards for the exchange of information.

Expected benefits

Some of the expected benefits from a Telehealth strategy can be described according to three groupings:

- Patients, families and communities will have direct and immediate access to the dataset and processes within their jurisdiction, using Telehealth as a mechanism of social inclusion and to allow the citizen to take possession of health processes and data.
- Managers will be able to use computerised systems and will have direct and immediate access to data within their competence and grade at different spheres: federal, state and municipal.
- Health professionals will be able to understand and use computerised processes and have access to data available in the Electronic Health Record for the benefit of the patient. They shall have access also to context-based best-practice, evidence, protocols and guidelines, besides decision support and warning systems.

Some resources to be considered

Ministerial Edicts 2546 and 2554, of October 2011, gave key steps in the definition of strategic guidelines for the Brazilian Telehealth Networks Programme, but
the structuring of a true network of Telehealth systems that interoperates as a distributed and integrated network of networks depends essentially on the proper use of information and communication technologies and even more importantly on the organisational arrangements that will support and promote the national network of networks, the referral and counter-referral model for Telehealth.

The items below are a non-exhaustive approach to some of the most evident aspects when considering a strategy for Telehealth in Brazil.

**Infrastructure**
The telecommunications infrastructure, existing equipment, the power supply, diagnostic equipment and the local conditions are compatible with the expectation of the services to be ordered and/or provided. The speed and stability of communication channels are most obvious factors of quality and diversity of Telehealth procedures performed in a region or locality.

Ways of sharing infrastructure (computational power or storage in a public or private cloud, for instance) can bring important gains in terms of costs and moreover in terms of flexibility for expansions.

**Human Resources**
Healthcare professionals responsible for requesting and conducting Telehealth procedures need to have adequate training not only in the technical aspects of their specialty, as teleconsultants, but should also understand the regulatory aspects and the legal frameworks relating to Telehealth as well as the quality criteria, confidentiality and privacy associated with this type of still immature but rapidly evolving service.

Similarly, Telehealth and Health Informatics professionals need be prepared to understand the technical issues and be able to promote best practice and enhance Telehealth as a set of processes, procedures and information.

**Organisational Resources**
Organisational Resources include governance, leadership, sets of policies, legislation and cultures that guide the operation of the Programme. Brazil will require specific sets of operating policies and rules for the widespread use of Telehealth.

The Ministerial Ordinances form an excellent starting point to define structures, functions, responsibilities, funding mechanisms and criteria for decision making. However, a much more detailed set of laws, ordinances and regulations will be required to ensure that stakeholders - patients/individuals, health care professionals and providers, health plan operators and public health managers - will use Telehealth in a safe, reliable, efficient and effective way.

One of the most important policies to be defined is related to the criteria for accreditation of Telehealth services provided by public and private networks. Although there are complex political and regional aspects to be addressed, there are also quality criteria that must be evaluated. Recently, the International Standards Organisation (ISO) TC 215 Committee - International Organization for Standardisation published technical standard ‘ISO TR 13131’ establishing quality criteria for Telehealth services and systems. The standard is related not only to technological criteria but moreover with keeping the patient informed and defining clear criteria for inclusion and exclusion of patients in Telehealth protocols.

**Cultural aspects**
The experience of Telehealth in Brazil reveals that there is little homogeneity between the practices, methods, equipment and processes adopted by groups participating in the existing programmes. Sharing of computer programmes is being pursued but this has little to do with adopting standards and valuing interoperability. Diversity of systems is a good thing, as people have more choices. The key problem is making sure that different systems interoperate with each other in terms of technologies, semantics and functions.

Far from being a defect of the programme, the lack of a formal arrangement was an attribute that enabled Telehealth centres and Telehealth points of care to develop. However, the construction of a national programme requires that there be a minimum set of standards, concepts, methods, policies and practices to be adopted by everyone, that ensures the Telehealth activities in the country takes place in a decentralised, but coordinated way, as a network of independent networks which interoperate among themselves and, obviously, with all existing foundational components such as CNES and the National Health Card.

An additional difficulty to be faced is that apparently there is still little culture to properly register the structured clinical summary of each procedure or encounter.
Summary of Strategic Vision

Ideally, any Telehealth Programme, whether national, regional or municipal, should be based on a set of agreed computing infrastructure, standards, methods, policies, human resources and organisational structures to ensure that the programme operates effectively as a set of several independent networks acting in a coordinated manner. For its enormous affinity with Telehealth, ICT is used in virtually all processes of Telehealth, not only for the procedures themselves, but also to enable the networks’ operation to support the processes of regulation and to ensure the recording of actions taken, that also enables also the administrative and financial management.

The most consistent way of developing a long-term vision and a strategic project would be to commission a group of people – committed with the notion of making Telehealth useful and suitable to the country – and coordinate their work towards understanding the issues, creating a vision, identifying weaknesses and strengths in the current Telehealth scenario, leading to strategic actions. Ideally, the group should count on people from a diversity of backgrounds, including healthcare workers, academics, health managers, technology experts, health informaticians, patient group’s representatives, Telehealth practitioners, opinion-makers and regulators, to name but a few. The National eHealth Strategy Toolkit is an unbiased tool that has proven to be useful in the Brazilian environment.

Developing a strategy is an action that can be taken at a national level, but is also worth doing within a region, a large city or even a large health organisation that intends to venture in Telehealth. Without a strategy, organisations tend to deal with every initiative as a single activity, leading to duplication of effort and lack of synergy. A first step in developing a Telehealth Strategy is ensuring that a clear Vision is developed and embraced.

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Conflict of interest: the author declares no conflict of interest.

Disclaimer
This article reflects my personal views and experience in strategic approaches to eHealth and IT applications to Health, of which Telehealth is an important area. I worked for PAHO – the Pan American Health Organization, as a consultant to the Telehealth Brazil Program, in 2012, and to the Brazilian National eHealth Strategy project, in 2012 and 2013, both at the Ministry of Health. I am not a public servant nor do I speak on behalf of any government or organization. However, I have SUS and SUS-related initiatives in the highest esteem. All comments in this article are well intended and are made taking into consideration the complexity of the tasks ahead of us, when constructing SUS (the Brazilian National Health System) and Telehealth for Brazil.

References