English

Benefits in using the telehealth: a necessary reflection

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Abstract

Nowadays, telehealth appears as possibility of improving healthcare assistance quality, mainly to population living in regions with precarious infrastructure and/or with geographical limitations. This narrative review of literature aims at listing both the main benefits and limitations of using telehealth resources. Databases from Scielo and Lilacs were used in the search of articles published since 1998, either in Portuguese, Spanish or English, which somehow approached benefits and limitations in the use of telehealth system. The following indexing terms were used: telemedicine, public health, access to healthcare services. Literature suggests that telehealth as good prospect in improving care and health services and, also, as good possibility of increasing scientific knowledge from the discussions of clinical cases. And, although there may be limitations, benefits seem to surpass the difficulties found. Anyways, new investigations are still needed to consolidate these practices, thus contributing to optimize people's access to healthcare services.

Keywords: *Telemedicine; Public Health; Health Services Accessibility.*

Resumen:

Beneficios en la utilización de telesalud: una reflexión necesaria

La telesalud surge, actualmente, como una posibilidad de mejorar la calidad de la atención a la salud, sobre todo de las poblaciones que viven en regiones de infraestructura precaria y/o en regiones en que concurran limitaciones geográficas. Esta revisión narrativa de la literatura pretende enumerar los principales beneficios y limitaciones del uso de los recursos de telesalud en los servicios de salud. Se han utilizado las bases de datos Scielo y Lilacs para la búsqueda de artículos publicados desde 1998, en portugués, español o inglés, que describieran las principales ventajas y desventajas de la utilización de telesalud. Para ello, se han empleado los siguientes descriptores: telemedicina, salud pública, acceso a los servicios de salud. La literatura apuntala que telesalud representa una buena perspectiva de mejora de la prestación de cuidados y servicios en salud y de aumento del conocimiento científico a partir de la discusión de los casos clínicos. Aunque haya limitaciones, los beneficios parecen prevalecer sobre las dificultades encontradas. Sin embargo, se hacen necesarias nuevas investigaciones para consolidar tales prácticas y así contribuir hacia mejorías en el acceso de la población a los servicios de salud.

Palabras clave: *Telemedicina, Salud Pública, Acceso a los Servicios de Salud.*

Resumo:

Benefícios na utilização da telessaúde: uma reflexão necessária

A telessaúde surge, atualmente, como possibilidade para melhorar a qualidade da assistência à saúde, principalmente para as populações que vivem em regiões com condições precárias de infraestrutura e/ou naquelas em que existem limitações geográficas. Esta revisão narrativa da literatura pretende enumerar os principais benefícios e limitações do uso dos recursos da telessaúde nos serviços de saúde. Foram utilizadas as bases de dados Scielo e Lilacs para a busca de artigos publicados desde 1998, em português, espanhol ou inglês e que descrevessem os principais benefícios e limitações da utilização da telessaúde, tendo sido empregados os seguintes descritores: telemedicina, saúde pública, acesso aos serviços de saúde. A literatura aponta que a telessaúde representa boa perspectiva na melhora da prestação de cuidados e serviços em saúde e possibilidade de aumentar o conhecimento científico a partir da discussão dos casos clínicos. Embora haja limitações, os benefícios parecem superar as dificuldades encontradas. Entretanto, novas investigações são necessárias para se consolidarem essas práticas e assim contribuir para melhorias no acesso da população aos serviços de saúde.

Palavras-chave: *Telemedicina; Saúde Pública; Acesso aos Serviços de Saúde.*

INTRODUCTION

The international scenario shows that Latin America presents a significant portion of the population with poor access to health services. In several countries, many marginalized communities are not favored with care to quality health care, besides living with the reality of poor infrastructure for assistance[1,2]. Even with a long way to go, the Brazilian context has been achieving great advances and improvements in the health issues of its population. Although the consolidation of the Unified Health System (SUS), public health service, is not yet complete, great achievements were obtained with its implementation. It is observed, currently, in Brazil reduction in infant mortality rates, eradication of some infectious diseases and increase in longevity of the population. The reorganization of a hospital-centered system in a new form of organization, with emphasis on primary care and with a major information system, improved the users´ public access to primary care services near their places of residence[3]. The SUS has shown solid foundations without, however, still represent a system able to remedy the health inequalities so frequent among the many regions of Brazil. One of the important points in this trajectory is to overcome the challenge of providing the health system with greater response capacity and thus intervene in the sanitary reality of the country[4].

A proposal that could help to overcome this challenge is the telehealth, a practice that has been changing the traditional way to provide health care when developing methods to make available medical services at distance.1 The practice of telehealth is the formation of a new paradigm that seeks improve the conditions of the users of health services in developing and underdeveloped countries. This tool advocates assistance to a population whose primary care is precarious or nonexistent, and also access to professional experts under the second opinion format through teleconsulting and continuing education in the form of videoconference[5,6].

The use of care through telehealth is also based on the aging of the population, which represents an increase of patients with chronic and degenerative diseases, with increased demand for specialized care and rising health care costs of these users, which makes that they have difficulties in access and transportation to clinics and hospitals [5,7,8]. This practice is becoming popular mainly due to the development of new communication technologies, as well as a decrease in their implementation costs can be claimed its use for population-based actions and monitoring of diseases [9,10-12].The use of internet has provided favourable environment for the exchange of information enabling diagnostic advice due to the ease of use and low cost of transmission of information, allowing efficient delivery of images, texts and sounds from any computer[13].

The experience with the telehealth has been showing increasing and widespread over several countries, with the use of various tools such as video conferencing, teleconsultation, distance education, telemonitoring, assistance, managing and administrative regulation, among others. In theory, it contributes to greater equality between people, because it offers health care resources to a greater number of people, reinforcing the principle of equity in the proposed legislation that regulates the SUS in Brazil[1,14,15].

All these prerogatives underlie this study, which aims, from narrative review of the scientific literature, list the main benefits and limitations of the use of telehealth resources in health services.

METHODS

The content of this article comes from researches conducted in mainly present journals in Lilacs and Scielo electronic databases, in the period from 1998 to 2016, from the following clinical descriptors: telemedicine, public health, access to health services. Some book chapters and texts were used because they are considered important to complement the discussion. The material was analyzed with regard to their contributions to the topic in question.

RESULTS AND DISCUSSION

Many are the advantages expected and observed with the use of telehealth, and some researches and publications seek to know and prove them.(table 1)

Table 1 – Tools of telehealth and possible benefits for primary health care

Actions	Beneficial products for primary care
Telemonitoring of chronic diseases	• Better control of diseases • Reduction of comorbidities and mortality • Improved quality of life • Reduction of hospitalizations and demand for urgent care services • Reduction of Absenteeism • Reduction of public spending on hospitalization and sequelae
Telediagnostics	• Sending of tests to report and discuss of clinical cases at a distance
Tele-regulation	• Selection of patients for referrals or care support to healthcare professionals for decision making • Avoid transport of patients or unnecessary transfers
Second opinion and / or teleconsulting	• Fixação dos profissionais de saúde em áreas rurais pela segurança na tomada de decisões • Melhoria da assistência ao paciente • Melhor relação profissional de saúde/ paciente • Diminuição do deslocamento dos pacientes • Oportunidade de compartilhar conhecimentos • Acesso à especialistas • Diminuição da fila de espera para consulta com especialistas • Evitar transportes de pacientes ou transferências desnecessárias • Fixation of health professionals in rural areas for security in decision making • Improvement of patient care • Better health professional relationship / patient • Reduction of patients' displacement • Opportunity to share knowledge • Access to specialists • Reduction of the waiting queue for consultation with experts • Avoid patients' transports or unnecessary transfers
Video or web conference / lecture / symposium	• Professional training in service • Opportunity to share doubts and decisions
Distance learning / tele-education	• Training without movement of professionals • Interaction and creation of social network • Shared space of construction and development of knowledge • Constructive and critical support by mentoring • Second formative opinion prepared based on literature review using the best scientific and clinical evidences
Telemanagement	• Improvement of Service Performance • Advice and training of managers and administrators • Health costs reduction • Improvement of monitoring planning activities of actions and indicators

Its applications range from the first contact between the doctor and the patient, the diagnosis, the therapeutic to surgical interventions[13].

The use of technology in the area of health assumes reliable diagnostic accuracy. There are evidences that the diagnoses that use the telehealth tools present extremely satisfactory results[15] In a study with patients attended in dermatology services by the conventional manner and by the telehealth, it was observed that in 59% of cases, there was a record of identical diagnoses in both types of service, and only in 4%, the diagnoses were incorrect. It was established more definitive diagnoses in face-to-face consultations with the dermatologist when compared to those who did it at distance. There was still high level of agreement when it came to a simpler diagnosis for both types of service[16].

A major advantage of telehealth is the elimination of the distance factor, because it is possible to offer specialized attention to patients where the greatest difficulties in accessing live in geographical constraints. The telehealth is an excellent choice to offer health services to people in remote locations, because it appears as a tool able of helping in problem solving as it can bring together multiple remote points and allows the interaction between them. Thus, it is possible to connect reference centers with basic health units on the periphery that can remedy diagnostic questions, guide behavior and promote teaching at distance[6,7,8,11,15,16]. One must also consider that the facility in sending digital files such as clinical data, images and videos, among others, greatly facilitated this interaction[12].

The resoluteness is a way to evaluate health services by those obtained from the user service and related to the final resolution of the problems brought to the service and user's satisfaction and the professional who provided the service[17,18]. Considering the resolution, the advantage offered by the telehealth is the reduction of medical costs and service time, as these consultations are shorter than the face-to-face ones[1,6,19] .It is expected that the higher the resoluteness of a service is, the more prepared we are to meet the needs of population health, even when it is necessary to refer the patient to another service to continue the service[18].

The telehealth can also provide good ability to offer continuity of care [20]. The care and the follow-up care of patients who received conventional care or by telehealth could be performed using teleconsulting, without the supervision of a specialist [16]. It is believed that the computerization of network, with the use of electronic medical record, provides

improvement in the communication and in the realization of the counter-reference to ensure the continuity of assistance [17].

Among the interventions for the care of the elderly, the monitoring of vital signs focused on an automated transmission of data and the monitoring at distance by nurses via telephone were more effective, which provides better resolution of health services[21,22].

Some preliminary results in the medical field suggest that the telehealth provides: breaking of the isolation of solitary clinical decisions in UBS; reduction of the number of referrals to the specialists; increase in the resolution with respect to the release of vacancies in their schedule; reduction in the user's travel costs; good interaction between UBS clinicians and the specialists[6]; and the increase in the users' access to medical specialists[6,15].

One of the most interesting possibilities of telehealth is to offer specialized care to health with low cost[20]. It can be expected reduction in the expenses with displacement of patients and the deinstitutionalization, in the rapid availability of professionals in mass accidents and epidemics [5].On the issue of the costs for the patient and the impact on productivity of citizens, should be considered data about displacements for specialised consultations, time taken to travel and work absenteeism for patients and / or caregivers. On the other hand, a study conducted in England found conflicting results that show total cost higher for the service through teleconsulting but at the same time lower cost with the shift to specialised consultations and registration of reduced absenteeism and positive impact on worker's productivity[23].

An important limitation in health services refers to the records of patients who often are incomplete, conducted on paper and precarious. In pediatric oncology, an interesting practice is the periodic dissemination of treatment protocols for childhood cancer, and the telehealth emerges as a tool able to bring together multiple remote points, allowing the interaction between the services and forming an integrated network. You can still have a database with the registration of tumors in childhood with their basic features, such as diagnosis, diagnostic group, morphology and topography for consultations by professional at distance. The cooperative treatment protocols can also be made available on the web portal to be widespread more easily[24]. A study conducted in Mexico showed that there are costs in the system implementation of telehealth, but these are much smaller than the programs implemented by the State, resulting in increase of the productivity and coverage[15].

There are publications that sought to evaluate the potential benefits and costs of telehealth, and it was observed with a certain frequency that the samples in a large number of studies were reduced in size, resulting in statistical limitations, and moreover, they occurred in short time. The programs are heterogeneous, not allowing the use of standard statistical techniques or meta-analysis. Some gaps in the investigation of such programs must be observed, including lack of: uniform methodology, cost-benefit analyzes, randomized controlled studies, long-term studies, data with quality and appropriate measurements[21,25,26,27]. In addition, the main problems found that in some way compromise the reliability and the validity of the data, include: criteria of selection of the unclear patients, low response rates, use of volunteers, doubts whether the service offered was free or paid, and little clarity on the methodology chosen for evaluate the patient's satisfaction[25].

In addition to the difficulties of the investigations that aim to confirm the reduction of costs with the telehealth, it was realized that there is no accurate reports about the socioeconomic benefits gained from the telehealth to society, except on issues that involve the professional improvement through videoconferences. Although there are earnings estimates with this practice, it is not yet verified its evidence[23,25,26]. The results of the researches in the field of telehealth are still not conclusive, especially in Brazil, requiring randomized clinical trials to produce more definitive information on the clinical outcome[28]. The potential utility in telediagnosis and in second opinion still needs tests and comparison with conventional care to prove its effectiveness[15,28].

Even requiring further investigations, the use of telehealth brings implicit the concept of access, which is very complex and changes over time and can be viewed through the perception of accessibility as the gateway to the health services[29]. A study held in the Amazon forest pointed out that in addition to the difficulties of patients' access, the extreme weather conditions and the difficult displacement do not favor the establishment of these professionals in these regions[30]. The telehealth by expanding the access of the poor population and remote areas, should be seen as an important tool for the promotion and the education in health. In Table 1 the main benefits are presented for the primary care in health[31].

Currently many telemonitoring actions of patients with chronic diseases or in urgent situation or emergency have been developed. Activities involving the telemonitoring of critically ill patients admitted to intensive care units have been termed as e-ICU or Tele-ICU[32].

In Brazil, on October 15, 2015, the technical note number 50/2015-DEGES / SGTES / MS with the guidelines for the provision of services of the National Telehealth Brazil Networks Program was released. The various terms used now have unique concept to the members of the network in order to standardize the actions. The teleconsulting becomes defined as consultation / question and answer registered to clarify doubts broadly based on scientific evidence, but according to the local and regional characteristics and can be developed synchronously or asynchronously. The synchronously occurs via chat, web conferencing or video conferencing. The asynchronously mode occurs via offline message with expected response time up to 72 hours. In addition, the teleconsultations should have as objectives help queue management for priority specialties, support the implementation of protocols and pre-defined clinical guidelines. The second formative opinion is a systematic response to questions considered relevant and originated from teleconsultations based on the SUS (Public Health System of Brazil) guidelines, and built based on literature review using the best scientific and clinical evidence. Remote diagnostics is considered as a support service, with medical examinations sent to a particular location to another using information and communication technologies, and the report issued by an expert linked to the core of telehealth. The tele-education involves educational activities delivered at a distance using information and communication technologies in order to support the training of health professionals linked to SUS, according to the National Policy of Permanent Education in Health. They can be configured as courses, educational modules, web classes / lectures conducted at a distance. Two other methods were described in this technical note as a telehealth tool facilitator of management in primary care. The discussion forum promotes educational process facilitated by social interaction in an environment that allows the discussion of specific theme, exchange of experiences and collaborative learning. The meeting encourages the discussion of various issues raised by health workers and also clinical cases, labor process or management. Both activities can be performed synchronously with the possibility of being recorded and made available in asynchronous format[33].

For the provision of telehealth services, strategically the telehealth cores are oriented to organize their system with the following professionals: tele regulator, teleconsultant, coordinator and field monitor. Each of them with specific duties to respond, compile, raise awareness and train professionals to use the system, besides providing technical and logistics support[33]. The Faculty of Medicine of the Federal University of Minas Gerais (FM / UFMG) in partnership with the Municipal Secretary of Health of Belo Horizonte (SMSA-BH) developed a method to implement and evaluate the impact and cost-effectiveness of a protocol mode of referrals and teleconsulting in orthopedics in Primary Health Care (PHC), in coordination with the assistance regulation through the management of waiting lists. This process contributed to the strengthening and qualification of the care network in addition to expanding the use of spontaneous teleconsultations awakening the interest in applying the model to other specialties[34].

Recently, the core of telehealth of the Medical School conducted a web symposium related to “Dengue”, “Zika” virus and “Chikungunya” in partnership with the Minas Gerais Secretary of State for Health (SES / MG) as a way of combating diseases and transfer of protocols to be used by the health professionals linked to SUS. There were about 10,000 health professionals from 700 municipalities in the state, from other states and other countries of Latin America[35]. The rating action was positive by SES / MG with better approach of patients by health professionals and following of state protocols. The following was carried out a web symposium addressing the flu syndromes, also in partnership with SES / MG, which contributed to the best intervention and for the dissemination of the protocols in our state[36].

Currently the primary care is internationally considered the basis for a new care model of health systems that have at its center the user-citizen. In European countries, the primary care refers generally to first contact outpatient services integrated into a universal access system. In Alma-Ata conference, the primary care was understood as attention to essential health, based on appropriate and cost-effective technologies, first component of an ongoing process of health care, to which access should be guaranteed widely for all population[37]. Nowadays, self-management is considered as an essential component of chronic care by primary care professionals. Huygens et al. (2016) conducted a qualitative research regarding the use of eHealth for self-management in patientes with diabetes and cardiovascular diseases and concluded that telehealth tools play an important role in attendance of the patients’ expectations and needs[38].

The Bangkok Letter[39] identifies the actions, the commitments and the promises required to address the determinants of health in a globalized world through health promotion. It emphasizes that the globalization opens up new

opportunities for cooperation to improve health and reduce its transnational risks. These new opportunities include:

- The optimization of information and communication technologies, and;
- the improvement of governance processes and sharing of experiences.

The incorporation of information and communication technologies to health services can alleviate the shortage of skilled workers in remote and needy regions[40]. One must also consider the limitations of transmission of information and budget constraints[14].

CONCLUSION

The telehealth is a good prospect of improving the provision of health services especially for the populations with access problems to basic and specialized care. Although there are limitations on the deployment of these resources, the potential benefits appear to overcome the difficulties found. There is no way to disregard that the calls through telehealth provide exchange of information between the professionals involved, generating discussions that allow the sharing of information relating to a particular case and contribute to a more informed and safer practice with the qualification of the care to the patient. The future of information and communication technologies in primary care is fruitful and should be present in medical consultations and other health professionals', in prescriptions, in the guidelines and in the telemonitoring. The electronic medical record and the teleconsultations are already a reality. The support for the diagnosis and to the therapeutic decision by mobile telephone equipments, mainly through consultation to electronic documents, is extremely valuable, enabling accesses to protocols and scores, doses and prescriptions of medicines. The telemonitoring is possible with the use of mobile equipment (mHealth) or through home computers with the possibility of verification of tests and adherence to treatment. With so many new actions to be developed, new studies, randomized and controlled are necessary to the analysis of the costs and benefits and effectiveness.

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