

Information and communication technologies for professional training in Dentistry: a Telehealth/ES proposal

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ABSTRACT

Telehealth/ES, aided by Information and Communication Technologies (ICT), promotes the extension of the Permanent Health Education (EPS) for professionals working at the Family Health Strategy (ESF) of Espírito Santo. The aim of this study was to present a proposal of a virtual environment in Dentistry within Telehealth /ES in order to provide a unique space for Oral Health Teams (ESB) to share information. It is an action-research, which is suitable for proposing solutions for the improvement of access and use of Telehealth/ES tools by ESBs. In 2017, Oral Telehealth initiated its activities in the Telessaúde/ES by providing access to web seminars, delivered every last Friday of the month, asynchronous and synchronous teleconsultation and official materials of the area. The suggested virtual environment of Oral Telehealth will be included in the space of "Special Programs", providing access to any service. It was concluded that Oral Telehealth is a service that can promote knowledge and experience exchange for the implementation of EPS, stimulating the increase in the participation of Dentistry professionals.

Descriptors: Telemedicine. Continued Education. Information Technology. Dentistry.

1 INTRODUCTION

One of the competencies of the Unified Health System (SUS) is the organization of human resources training in the Health Area¹. In this perspective, Permanent Education in Health (EPS), understood as work-oriented learning, aims to incorporate the acquired knowledge into the daily life of professionals working at SUS, transforming their daily work practices².

In 2007, the Ministry of Health (MS) developed the pilot project called “Telessaúde Brasil” with modern Information and Communication Technologies (ICT) for the development of distance activities, aiming at strengthening and expanding EPS for professionals working in the Family Health Strategy (ESF). In 2011, the project was redefined as the “Programa Nacional Telessaúde Brasil Redes”, whose purpose was to strengthen the Basic Health Care Networks (RAS), coordinated by Basic Health Care (AB) in the scope of SUS³.

“Telessaúde Brasil Redes” offers services such as synchronous and asynchronous Teleconsultation, Telediagnosis, Second Formative Opinion and Teleducation³. These services promote education for the worker with a view to improving the quality of care and reducing medical referrals and unnecessary patient displacement³⁻⁵.

According to Ordinance No. 2,546 of October 27, 2011³, Teleconsultation, Telediagnosis, Second Opinion and Teleducation services are defined as:

a) Teleconsultation - consultation registered and performed among workers, professionals and Health Area managers through bidirectional telecommunication instruments in order to clarify doubts about clinical procedures, health actions and issues related to the work process,

which can be synchronous (Teleconsultation carried out in real time, usually by chat, web or videoconference) or asynchronous (Teleconsultation carried out by means of offline messages);

b) Telediagnosis - autonomous service that uses ICT to perform support services for remote diagnosis (geographic and temporal);

c) Second Formative Opinion - systematized response based on a bibliographical review on the best scientific and clinical evidences and on the basic role of Primary Health Care, to questions originated from Teleconsultations selected based on criteria of relevance to SUS guidelines; and

d) Teleducation - conferences, classes and courses, taught through the use of ICT.

In 2010, the Telehealth system was implemented in the State of Espírito Santo (NUTES) with the participation of the Espírito Santo State Secretariat (SESA), Federal Institute of Espírito Santo (IFES), Campus Vitória, and Federal University of Espírito Santo (UFES)⁴.

Telehealth/ES provides its services to all professional categories working at SUS. In 2016, another service, specifically aimed at Oral Health Teams (ESB) was implemented, because, through an information survey conducted in 2014, it was found that dentists were the professionals who used the least the services offered by Telehealth/ES.

Teledentistry, an integral field of Telehealth, has evolved with an emphasis on interactive teleducation, teleassistance and production of multicentric research⁶. In addition, it has the capacity to improve the educational quality of ESB, as it offers Oral Health tools and programs and teleconsultations with trained specialists,

being an economically viable method of promoting health care to the population⁷.

Considering the above, the aim of this work was to present and discuss a proposal of a virtual environment of learning directed to Dentistry with the purpose of providing an exclusive space for sharing information and knowledge aiming at strengthening the qualification of ESB in Primary Care.

2 METHODS

This study uses the methodology called action research, whose purpose is to modify a specific situation by means of analyses, reflections and criticisms of practices, enabling intervention and modification of this situation, making it effective^{8,9}.

Action research is composed of four main stages: identification of the situation, in which the researcher analyzes the initial situation and perceives the need for change, motivating himself to act; the projection of solutions, in which the hypothesis of solutions capable of adequately responding to situations identified is sought; implementation of solutions, in which the solution options are put into action, promoting intervention and evaluation of procedures, responsible for the analysis of results⁸.

The first stage of the research began in 2014 through a study carried out with physicians, nurses and dentists, who worked in the Primary Health Care (PSA) network of Espírito Santo, to evaluate the profile of services offered by Telehealth/ES. Espírito Santo is made up of 78 municipalities. At the time, 67 were part of Telehealth/ES, totaling 1,301 professionals registered in the categories studied, of which 16% were dentists, 33% nurses and 51% physicians. The prevalence of the female sex among professionals was verified, with time of

academic graduation and time working at APS for the period of 5 to 10 years. Low participation and registration of dentists in relation to the total number of workers surveyed was observed.

In the second moment, the members of Telehealth/ES carried out another survey, only with ESB to identify their unique demands and the degree of interest in creating a targeted virtual environment. The interest in creating the space was unanimous among workers participating in the survey, and the day, time and subjects to be addressed were also identified and defined.

For both moments, a semi-structured questionnaire elaborated by the research team and approved by the Ethics Research Committee of the Federal University of Espírito Santo (CAAE: 30274814.4.0000.5060) was used.

Based on this technical demand, the development of Teledentistry was proposed, later named as Oral Telehealth. The activities began in the year 2017 within the services already offered by the Program, that is, asynchronous and synchronous teleconsultation, web-based lectures, virtual library, among others.

In this scenario motivated by possible social integrations and sharing of experiences and contents, it is intended to implant a virtual environment for ESBs, inserted in the Telehealth/ES website. The structure of the Oral Telehealth website was developed jointly with professionals from the design and audiovisual area, members of the Telehealth/ES team, through prototyping of screens, and there was no need to change the site immediately.

For the development of this virtual environment, the usability principle was prioritized, that is, the ability of an interactive system to offer its users the ease of learning

and memorizing the operations to be performed, promoting faster use, lower error rate and greater user satisfaction, once their goals are achieved¹⁰.

After implantation of the virtual environment, a semi-structured questionnaire directed to the ESB will be elaborated to evaluate the degree of satisfaction regarding Oral Telehealth. In addition, quantitative data regarding the use of asynchronous and synchronous teleconsultation services, access to, online and offline web-based lectures and participation in distance courses will be constantly monitored.

3 RESULTS

Currently, Telehealth/ES is implemented in 69 municipalities in the State of Espírito Santo and in the implementation process in nine. Since the beginning of its activities, in 2012, ESB professionals have progressively been registering in the Program. Until June 2017, there were a total of 551 registered professionals. Regarding the use of teleducation services, during the period from 2015 to June 2017, there was a growth in the

participation of ESB professionals in web-based online lectures (table 1).

From 2017 onwards, on the last Friday of each month, web-based online lectures on different themes of Dentistry, proposed by the professionals themselves, began to be offered. Web-based lectures that have already been given are monitored and made available on the site for offline access. "Dental care to infants and children at APS" with 233 views, "Primary pathologies affecting the oral cavity" with 233 views, "Self-assessment to improve access and quality of basic care - PMAQ (oral health)" with 660 views, "Dental care for the elderly patient" with 150 views and "Fluoride from "8 to 80?" with 52 views, are the oral health web-based online lectures already delivered in 2017 and available on the YouTube channel.

Regarding the asynchronous and synchronous teleconsultation service, during the period from 2012 to June 2017, 220 asynchronous teleconsultations were carried out by ESB professionals, 195 requests from dentists and 25 from Oral Health Technicians (table 1).

Table 1. Numerical frequency of registered professionals and use of services in "Telessaúde/ES"

Variables	Frequency (years)					
	2012	2013	2014	2015	2016	2017
Professionals registered at Telehealth/ES	47	68	174	60	79	123
Participation in web-based online lectures	-	-	-	19	10	119
Number of professionals who performed asynchronous teleconsultations	5	1	15	12	13	49

Synchronous teleconsultations are carried out together with specialists of the Federal University of Espírito Santo after request and prior scheduling. Until June 2017, the areas available for synchronous teleconsultations were: Collective Oral Health, Oral Pathology and Stomatology and Pediatric Dentistry. During this period, three teleconsultations were carried out.

Currently, 14 archives of Secondary Formative Opinion (SOF) of Dentistry, produced by Telehealth/ES and available on the Teleducation page, are currently published in the Virtual Library on Primary Health Care of the “Telessaúde Brasil Redes” Program.

Finally, the Virtual Library, located in the Teleducation area, provides a folder with official materials of the area, called "Oral

Health". They are booklets, guidelines, manuals, notebooks, pamphlets, protocols and guides, published by the Teleducation team, Ministry of Health and State and Municipal Health Secretariats. The folder reached 155 views.

Proposal of the Telehealth/ ES virtual environment

The Telehealth / ES virtual environment will be included in "Special Programs", a space developed for the offering of services focused on a single area of knowledge. Access to any service will be carried out with just one click, providing faster system usage (figure 1).

The Telehealth / ES website will offer all of its content in the form of "highlights", which provides the automatic highlight of the most current information (figure 2).



Figure 1. Area of Special Programs inserted in the Teleducation page in the Telehealth/ES website



Figure 2. Screens of the Telehealth / ES virtual environment

It is important to highlight that the web-based lecture service, different from the Teleducation page, will be presented in an environment composed of the agenda of web-lectures recorded on You Tube and a field aimed at the public for suggestions of themes for the next web-lectures (figure 3).

The distance learning environment will highlight the course in progress and the course that has open enrollments. The professional can also view the topics of courses in the process of creation (figure 4).

The “TeleEduca” service will also be available, offering materials that cover information in a fast, current and objective way of the daily life of professionals. Materials on the Oral Health of Pregnant Women, Professional Conduct regarding Dental

Avulsion, Injury, Mouth Cancer and Dental Prosthetic Care, are in the final preparation process. Webdrops, short educational videos, will also be offered, providing important information to professionals.

Finally, the inclusion of new teleconsultants in the areas of Minor Oral Surgery, Periodontics, Odontogeriatrics and Dentistry will be proposed.

4 DISCUSSION

Telehealth/ES covers about 90% of the municipalities of the State of Espírito Santo, evidencing that most of the state's ESF professionals are covered by services provided by the Program. ICTs applied to health have contributed to the expansion of the Telehealth Program in Brazil, which are used to improve

EPS, knowledge sharing, health research and access to health services in an appropriate

manner, taking into account the needs of each locality¹¹.



Figure 3. Virtual environment of the Oral Telehealth web-lecture service



Figure 4. Virtual environment of the Oral Telehealth course service

Telehealth is a teaching-learning tool capable of meeting the professionals' knowledge needs, contributing to the effectiveness of the EPS process. The use of ICT provides a perception of the current society, shows the global interconnection and promotes continuous and permanent access to all information¹².

In this study, there was a progressive increase in the participation of BSE after the start of Oral Telehealth activities. This increase may be related to the offer of specific dental activities in Telehealth/ES from 2017, and to the planning and

development of products based on the need for registered ESBs.

Caldarelli and Haddad (2016)¹³ reported that Teledentistry can, in agreement with the National Curricular Guidelines (DCN), expand the insertion of educational institutions in the training actions and EPS of SUS professionals, strengthening teaching-service integration. For these authors, the diffusion of Teledentistry in the national territory becomes an important strategy of improvement of the educational quality, since Dentistry plays a significant role in the health of the population.

However, considering the 418 ESB implanted in the state, the participation of these professionals in Telehealth/ES is still low¹⁴. According to Godoy et al. (2014)¹⁵, the lack of management support, the lack of strategies to incorporate services into health processes and the lack of training of workers are possible causes of the low participation of professionals in the use of services. According to MS, it is the management's responsibility to promote the integration of health professionals with the actions of the program. Another important factor is the turnover of professionals in Basic Health Units (UBS), which may also have an impact on the number of professionals who do not make use of tools¹⁶.

In addition, some professionals find it difficult to deal with ICT, making it necessary to overcome this issue, since the difficulty of managing available tools can limit access, thus reducing the impact of the Program¹⁷. The lack of good technology infrastructure and connectivity also affect its success¹⁵.

In order to increase the use of services offered by Telehealth Programs, the available tools should be able to promote the interest of professionals and approach topics focused on their daily clinical experience, providing educational quality. It is understood that the use of educational materials that prioritize the daily problems of the team and that promote solutions for real problems, are fundamental for the process of permanent education¹⁸.

In addition, many Family Health Teams do not have part of their weekly workload, known as "protected hours," aimed at the development of EPS activities. Its inclusion in the routine of professionals could guarantee their effective participation in the

Telehealth activities.

It is necessary for dentistry workers and managers to understand that Oral Telehealth products, i.e., teleconsultation, web-based lectures, teleducation, distance courses and the virtual library are capable of providing educational knowledge and that this practice should be inserted in its daily life, as it promotes benefits both for professionals themselves and for the assisted population.

For this reason, mobilizations and educational actions have been promoted by the Telehealth/ES team in order to reduce these impacts and promote the dissemination of services. In 2014, mobilizations and educational actions were carried out *in loco*, reproduced in 2017, resulting in significant increases in registration and use of services. Melo et al. (2007), cited by Rendeiro (2012)¹⁷, reported that those involved in telehealth practices must undergo a process of training on the use of tools and on the ethical and legal issues that involve them.

In addition, actions for the dissemination of Oral Telehealth by means of face-to-face meetings with the Coordinators of Oral Health and Primary Health Care through reports in the newspaper of the Regional Council of Dentistry of Espírito Santo (CRO-ES), UFES Health Sciences Center Website, the social network (Facebook), the mobile application (WhatsApp) and informational emails.

In a report on the experience of Teledentistry actions promoted by the Telehealth Program of Mato Grosso do Sul, Correia et al. (2014)¹⁸ reported that, although the participation results are still low, the program has proved to be an important tool for technical-assistance support, increasing workers' access to EPS actions, stimulating interaction between SUS professionals and

from the Program.

To inform professionals that Oral Telehealth is an important tool for the promotion of EPS is essential. Thus, it is important to stimulate the applicability of this service since the academic formation. Haddad et al. (2014)¹² reported that, since 2006, the Faculty of Dentistry of the University of São Paulo (FOUSP) created the Teledentistry Center, which implemented the Teledentistry discipline in undergraduate and graduate courses with the aim of stimulating students to use ICT, both in an educational environment and in the development of citizen action projects and development of training and continuing education actions for SUS professionals.

5 CONCLUSION

Oral Telehealth is a service that can promote, through its specific tools, information, knowledge, exchange of important experiences, EPS for ESB and improve the work process.

The development of the "Special Programs" area is fundamental for the dissemination and use of services offered specifically to ESB workers, thus stimulating the interest of these professionals and, consequently, increasing the number of accesses and registrations.

In addition, this proposal can be applied to other health areas, contributing to the care of the assisted population.

RESUMO

Tecnologias de informação e comunicação para formação profissional em Odontologia: uma proposta do Telessaúde/ES

O Telessaúde/ES, com o auxílio de Tecnologias de Informação e Comunicação (TIC), promove a ampliação da Educação Permanente à Saúde (EPS) aos profissionais atuantes nas equipes de Estratégia Saúde da Família (ESF) do estado do Espírito Santo. O presente estudo objetivou

apresentar uma proposta de um ambiente virtual em Odontologia, no âmbito do Telessaúde/ES, proporcionando um espaço exclusivo de compartilhamento de informações às Equipes de Saúde Bucal (ESB). Trata-se de uma pesquisa-ação, método adequado para propor soluções para a melhoria do acesso e utilização das ferramentas do Telessaúde/ES pelas ESB mediante às necessidades identificadas. Em 2017, o Telessaúde Bucal iniciou suas atividades no Telessaúde/ES, disponibilizando os serviços de *webpalestras*, teleconsultorias assíncronas e síncronas e materiais oficiais da área, ofertados na última sexta-feira de cada mês. O ambiente virtual de Telessaúde Bucal apresentado estará incluso no espaço de "Programas Especiais", permitindo o acesso a qualquer serviço. O Telessaúde Bucal é um serviço que poderá promover conhecimento e troca de experiências para a efetivação da EPS, estimulando maior participação dos profissionais da Odontologia.

Descritores: Telemedicina. Educação Continuada. Tecnologia da Informação. Odontologia.

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