

DISTANCE EDUCATION IN HEALTH: ANALYSIS OF THE ROLE OF THE UNIVERSITY NETWORK OF TELEMEDICINE (RUTE) IN BRAZIL

São Paulo, SP – May, 2012.

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Category

Methods and Technology

Educational Area

Academic Education

Classification of the Research Areas in Distance Education

Macro: C Meso: H Micro: N

Nature:

Planning Models

Class:

Scientific Research

RESUME

This paper deals with distance education in health, doing an analysis of distance learning technologies applied to training of health professionals by the Telemedicine University Network – RUTE (its acronym in Portuguese), in Brazil. It consists of a methodological research that evaluates the paradigms, techniques, methods and scientific procedures applied to the process of distance education in health in Brazil. The theoretical framework used refers to the evolutionary process of distance education in Brazil and abroad, focusing on telemedicine and its application to the study of the role of the RUTE in Brazil. The results show five examples of operation of RUTE in different institutions

from north to south of Brazil. The discussion shows that RUTE has presence and effective functioning throughout the country, spreading a variety of services in education and health care for the whole Brazil, supported by governmental technologies of network connection between institutions.

Key-words: Distance Education; Telemedicine; RUTE.

1 – INTRODUCTION

The current scenario of distance education (EAD) – its acronym in Portuguese – in Brazil and in the whole world shows a promising future for this method of teaching/learning that has existed since the late 20th in Brazil, which currently has a powerful communication technology: the Internet . The current Internet expansion in Brazil has generated a boom of classes of school and Academic formation and professional training, which formed a new context of education in the country, the era of distance learning.

This process of expansion and effectiveness of EAD technologies, especially advances in Information and Communication Technologies (ICTs) that begun in the 70's in the United States, and then the massification of the Internet and the Worldwide Web in the 90, spread the application of ICTs to Medicine, forming a complex network of Telemedicine and Telehealth interconnected world, national and/or locally with a direct influence on health care situations. Among these telemedicine networks appeared in Brazil in 2006 an inter-ministerial work originated at the Ministry of Science and Technology entitled Telemedicine University Network – RUTE (its acronym in Portuguese for Rede Universitária de Telemedicina) focused on health professionals who use Telemedicine/Telehealth resources.

In this context, this work analyzes, considering the general context of distance education in the world: what are the technologies of distance education applied to the training of health professionals by the Telemedicine University Network - RUTE, in Brazil ?

The specific objectives are: to analyze the tools available and accessible for use in distance learning for health care professionals in locations far from large centers in Brazil; to evaluate the level of efficiency of the technologies and methodologies used in the process of distance learning for

healthcare professionals; relate the current tools and techniques of distance education available/accessible in the country with the reality of small Brazilian counties.

2 - METHODOLOGY

This paper is a methodological research that evaluates the paradigms, techniques, methods and procedures, applied to the process of distance education in health in Brazil. The procedures for data collection started from literature searches in books, articles and periodicals in the field of distance education in general and applied to health, by making theoretical interrelations among the various authors who address the subject in order to verify the level of efficiency of distance education in the process of improving the quality of provision of health services in the country.

In this study we considered the direct search of e-books, articles and periodicals in electronic databases, such as Amazon.com for e-books in English and Google for the articles and periodicals in English and Portuguese. The terms used in searches were: Distance Education (Educação à Distância), Telemedicine (Telemedicina), E-health (Telessaúde), Open University of Brazil (Universidade Aberta do Brasil), Telemedicine University Network (Rede Universitária de Telemedicina - RUTE). Articles should be in PDF format (Portable Document Format). The survey was conducted from May to October 2010.

3 – RESULTS

3.1 – The Telemedicine University Network (RUTE) in Rio Grande do Norte.

The four hospitals of the Federal University of Rio Grande do Norte (UFRN) – University Hospital Ana Bezerra (Huab), University Hospital Onofre Lopes (HUOL), Hospital of Pediatrics (HOSPED) and Januário Cicco Maternity School (MEJC) - have joined RUTE since October 2010. ⁹

With these openings, there are 133 institutions distributed throughout Brazilian states integrating RUTE. Forty-two of them already have fully operational centers. The rector of UFRN José Ivonildo do Rego, the national

coordinator of RUTE, Luiz Ary Messina, and representatives of the four hospitals participated in the ceremony, which was also accompanied by video.⁹

The RUTE centers will integrate hospitals to other health units in the country through the use of information and communication technologies, which can be used for remote evaluation of clinical cases, research and continuing education in health, or even in distance pre-diagnostic.⁹

The best example of this integration are the Special Interest Groups (SIG), in which health professionals of the institutions belonging to the network set up an agenda of videoconferences. Besides debates and case discussions, some groups perform diagnostics and remote classes. Across the country, there are over 30 SIGs. The main beneficiaries of these four new centers will be students, residents and professionals of the four hospitals, which may participate in the SIG and have access to information for research and development.⁹

3.2 – The performance of the RUTE in the state of Pará.

In one of the events of tele-education promoted by University Hospital Barros Barreto (HUJBB, its Portuguese acronym), from the Federal University of Pará (UFPA, its Portuguese acronym), this year, 2010, the RUTE transmitted a videoconference on measles, ministered by the pediatric infectious disease physician Orlando Rodrigues. The warning was given because the state of Pará has registered this year's first case of the disease in persons residing in the country. The lecture was given at the studio of RUTE from the hospital and sent to the auditorium of the Center for the Study of the HUJBB, to the Federal University of Espírito Santo, to the Federal University of Amazonas, and to the Health Secretary of State of Pará, in the presence of students, doctors, nurses, social workers and sanitary vigilantes.¹⁰

In an explanation of the history of cases of measles in Brazil, the forms of transmission, symptoms and procedures in the suspect of a possible case of the infecto-contagious virus of the disease, the doctor took many questions from all who participated in the videoconference held on Wednesday, Aug. 25.¹⁰

The University Network of Telemedicine of the Hospital Barros Barreto has a schedule of continuing education, through video courses, for the entire second half of 2010. The video courses have as its target audience health

professionals and students who work in cities where there is presence of UFPA in the state. One goal is to use technology to empower teams that attend to families in the counties of Pará.¹⁰

In the first half of 2010, about 590 health professionals and students participated in the activities of RUTE. "Some of the topics covered are indicated by the professionals of counties according to their daily activities. For the second half, are scheduled the videocourses 'Family Health', 'Health of the elderly', 'neoplasm of Man' and Sexually transmitted infections," explains the physician Teresa Bordallo, coordinator of RUTE-UFPA.¹⁰

3.3 – The RUTE at UFPEL (Federal University of Pelotas-RS)

At the Federal University of Pelotas (UFPEL, its Portuguese acronym) the main benefits intended with the implementation of RUTE achieve thousands of users of basic health units (UBS, its Portuguese acronym). According to Maurício Moraes, the demands resolution capability will be expanded and the academic activities optimized. Academics from all areas of health will benefit, such as medicine, nursing and nutrition.¹¹

The project coordinator in UFPEL, Alessandra Castro, points out that RUTE is an important communication network for professionals in the health area, with a relevant role in distance education and assistance in carrying out diagnostics. The Hospital School of UFPEL is connected to the Basic Health Units and the National Research Network. Thus, the hospital is connected with major national and international health centers.¹¹

In UFPEL, the network will connect the hospital school to the basic health units, so that they get added to the structure of education and research already present in the hospital. The UBS linked to the network are: Santos Dumond, Areal Fundos and Areal Urban Social Center, which interact with the center installed in the Hospital School, which will mean high advances in diagnostic accuracy, cost-cutting and in the learning processes.¹¹

3.4 – The performance of the RUTE in Minas Gerais

The projects members of RUTE integrate at the moment 158 healthcare institutions. Today there are 36 centers and 31 embryos centers connected and fully operational.¹³

The RUTE organizes and runs daily sessions of web and videoconferencing, and at least once a month on each specialty: pediatric radiology, oncology, urology, children and adolescents health, dermatology, cardiology, ophthalmology, etc. Today there are 30 SIGs (Special Interest Groups) operational and it is estimated that another 12 to organize in 2010. In 2009, over 250 were executed using video or web conferencing sessions in various specialties.¹³

There was an increase of 137% of participation of the institutions in the SIGs in 2009 (from 89 to 211 institutions). Some groups involved over 400 people in remote areas, in specific nursing intensive sessions.¹³

Additionally, in collaboration with the Program Tele Minas Health, second formative opinion in electrocardiogram is guaranteed to more than 600 counties, in 12 hours shift, seven days a week - a service shared with hospitals of the federal universities UFMG, UFU, UFTM, UFJF, Unimontes, answering over 900 medicals per day. All these hospitals are members RUTE.¹³

The stimulus for the continued development in this area is based on the following milestones:¹³

- The Cooperation Agreement between the Internet 2 and RNP in health;
- Participation in the Program for Innovative Continuing Medical Education in Dermatology, a partnership with the American Academy of Dermatology and the University of Miami;
- The operation of the Laboratory of Excellence and Innovation in Telehealth - America and Europe, in Belo Horizonte;
- The establishment of an Education Centre from SICOT (Société Internationale de Chirurgie et de orthopédie traumatologie) in orthopedics and trauma in Rio de Janeiro;
- Participation in the project Telehealth Public Policy in Latin America, an initiative of the Inter American Development Bank, beginning in March 2010, which includes the following countries: Brazil, Colombia, Ecuador, El Salvador, Mexico, Uruguay; and RedCLARA (Latin American Connection of Advanced Networks).¹³

The main reasons for the continuity and success of the network are the initiative and federal coordination, state initiatives, as well as integration and

synchronization of actions between the two main complementary projects, sharing common members: RUTE (MCT) and Telehealth Brazil (MS).¹³

4 – DISCUSSION

As it can be seen throughout this paper, distance education is a methodology of teaching and learning that goes beyond the traditional boundaries of education, reaching levels of highly complex, as it is the case of their applications through telemedicine. What was once a closed system in which an educational institution programmed the life of the student or professional, so that the teacher was a transmitter of technical content from a place unimaginably distant, became a model of open system interconnected by networks of institutions around the world, where you can get instant knowledge exchange with professionals from various fields of knowledge in a dynamic and fluid process.

In this environment of interconnections and immediate exchange of experiences and techniques, the Telemedicine University Network - RUTE, through more than 130 institutions, operates in Brazil as a disseminator of knowledge to a public of health professionals and other areas.

The RUTE is an interdepartmental initiative that has features related to both distance education and the provision of diagnostic and other health services at a distance, in a wide capillary, with coverage in all states in the nation, as shown in the backbone of RNP in Graph 02.¹³

The main purpose of this study, to analyze the technologies of distance education used by RUTE applied to the formation of health professionals by the Telemedicine University Network - RUTE, in Brazil, is answered in the results, with several examples of innovative technological applications, performed specially by the university hospitals members of the RUTE. The main tool used by RUTE are the tele/web /video conferencing, broadcasted weekly by university hospitals in their regions or throughout Brazil and even in Latin America and the world, such as SIGs, through the Ipê RNP Network⁸, approaching topics that include family health, elderly health, man's neoplasia, sexually transmitted diseases, malaria, dengue, pediatric radiology, oncology, urology, dermatology, among others.

There are differences in the technologies and methodologies used by RUTE, which vary according to the capacity that the institutions of each region have for the network activities. The contribution of each member of the RUTE lies in its educational and care ability in their specialties of higher domain in the institution.⁷

In Pará, for example, RUTE acts through the UFPA, with Barros Barreto and Betina Ferro University Hospitals, mainly focused on providing services of primary care, the Family Health Program (PSF) in actions to combat endemic diseases, such as malaria and infectious diseases such as measles.¹⁰

In São Paulo, RUTE has programs that reach higher levels of complexity, some of whom are Telederma Project, from FMUSP, which was the first experience in tele-dermatology service in Brazil. The FMUSP also promotes the Telemedhansen with purpose training for health professionals and the public recognition of leprosy cases in the Amazon. The same institution has created the virtual human, for use in studies of dermatology, audiology, urology, orthopedics, among others.⁶

The Federal University of Rio Grande do Sul created the Cybertutor, that complements the teaching of dermatology through an interactive website.⁶

In Minas Gerais, Minas Telecardio and Minas Telehealth Projects became telehealth services, in Which the State Government has distributed measurement equipments, such as an electrocardiograph for each county.⁷

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Given these and other examples cited in the work, responding to the specific objectives of this research, RUTE is efficient and effective in the dissemination of knowledge and provision of health services, with an outstanding performance in the insertion of small Brazilian counties from the further regions from major centers, such as counties in the state of Para, Amazonas and Rio Grande do Norte, in the technological process of exchange of experiences in health, promoted by specialized centers throughout Brazil.

6 – CONCLUSIONS

The approach of this paper considers the model of distance education applied by the technologies of Telemedicine, in Brazil, in which the University

Telemedicine Network - RUTE demonstrates satisfactory performance as a tool for education and health care, within technological limits that still exist in Brazil, working as driving a process of institutional connections that promotes education and training in health across the country. The RUTE is still in early stages, and has a range of opportunities that can be better exploited, moving, for example, from the primary attention, in Pará, for more complex medical activities, such as radiology and cardiology services, and distance education for students in university courses. We suggest as future studies, that it is evaluated the internal potentialities and technological, economic and social opportunities of RUTE, for this tool of education and health care to improve its performance and achieve increasingly higher levels of complexity and quality.

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