

Revista de la Facultad de Medicina

ISSN: 2357-3848 ISSN: 0120-0011

Universidad Nacional de Colombia

Rodrigues do Prado De-Carlo, Marysia Mara; Figueiredo-Frizzo, Heloisa Cristina; Kudo, Aide Mitie; Muñoz-Palm, Rosibeth del Carmen Videoconferencing in occupational therapy in hospital contexts and palliative care Revista de la Facultad de Medicina, vol. 66, no. 4, 2018, October-December, pp. 575-580 Universidad Nacional de Colombia

DOI: 10.15446/revfacmed.v66n4.64046

Available in: http://www.redalyc.org/articulo.oa?id=576364271009



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#### ORIGINAL RESEARCH

DOI: http://dx.doi.org/10.15446/revfacmed.v66n4.64046

# Videoconferencing in occupational therapy in hospital contexts and palliative care

Videoconferencia en terapia ocupacional en contextos hospitalarios y cuidados paliativos

Received: 17/04/2017. Accepted: 22/10/2017.

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#### | Abstract |

**Introduction:** Communication and information technologies in the health context allow optimizing inter-institutional activities in continuing education.

**Objectives:** To describe the activities performed by of the Special interest group on Occupational Therapy in hospital contexts and palliative care and to discuss the importance of videoconferencing in the continuing education process of Occupational Therapy students and health professionals in this field.

Materials and methods: A documentary, retrospective, and descriptive study was conducted. The special interest group was created through the Telemedicine University Network, which is a high-speed network connecting university hospitals and health teaching centers in Brazil. There are 34 operating centers from 15 Brazilian states and one Chilean university registered in the group.

Results: 36 videoconferences were made between August 2013 and December 2017, where relevant topics for the practice of occupational therapists in hospital contexts and palliative care were presented. Videoconferencing allows occupational therapists to access updating material on specific topics through interactive communication sessions in virtual spaces regardless of their current location, thus overcoming geographical barriers.

**Conclusion:** Videoconferencing contributes to the updating and spreading of knowledge and professional practices among students and occupational therapists in their professional field.

**Keywords:** Occupational Therapy; Telemedicine; Videoconferencing (MeSH).

#### Resumen

**Introducción.** Las tecnologías de la información y de la comunicación en la salud permiten la optimización de actividades interinstitucionales en educación a distancia.

**Objetivos**. Describir las actividades del Grupo de interés especial en terapia ocupacional en contextos hospitalarios y cuidados paliativos y discutir la importancia de la videoconferencia para la educación continua de los profesionales y estudiantes de terapia ocupacional en este ámbito.

**Materiales y métodos.** Estudio documental y retrospectivodescriptivo. El grupo de interés especial fue creado a través de la Red Universitaria de Telemedicina, que consiste en una red de alta velocidad que conecta hospitales universitarios y centros de enseñanza de salud en Brasil. El grupo incluye 34 centros operativos registrados en 15 estados brasileños y una universidad de Chile.

**Resultados.** Se realizaron 36 videoconferencias entre agosto de 2013 y diciembre de 2017 con temas relevantes para la práctica de los terapeutas ocupacionales en contextos hospitalarios y cuidados paliativos. La videoconferencia permite la actualización científica de terapeutas ocupacionales en temas específicos de la especialidad a través de comunicaciones interactivas en espacios virtuales sin importar la distancia, superando así barreras geográficas.

**Conclusión.** La videoconferencia contribuye a la actualización y difusión de conocimientos y prácticas profesionales entre estudiantes y terapeutas ocupacionales en el ámbito profesional.

**Palabras clave:** Terapia ocupacional; Telemedicina; Videoconferencia (DeCS).

**De-Carlo MMRP, Figueiredo-Frizzo HC, Kudo AM, Muñoz-Palm RC.** Videoconferencing in occupational therapy in hospital contexts and palliative care. Rev. Fac. Med. 2019;66(4):575-80. English. doi: http://dx.doi.org/10.15446/revfacmed.v66n4.64046.

# Introduction

The emergence of modern interactive technologies has changed the conception of health care, especially when it comes to overcoming geographical barriers and achieving remote connectivity between users and health professionals. Information and communication technologies help optimizing services and processes that generate a convergence of technological solutions and quality health services, which enables improvements in activities related with health education, health logistics planning, teleassistance regulation, and the implementation of methods required to enable multi-institutional activities.

Teleconferencing or videoconferencing emerged in the 1960s as a business communication tool for facilitating remote business meetings. Nowadays it is widely used due to video technology development and the acceptability of international telecommunication standards.

The Brazilian National Research and Educational Network (RNP for its acronym in Portuguese) is an institution created by the Ministry of Science, Technology, and Innovation (Ministério da Ciência, Tecnologia e Informação - MCTI) in 1989 in order to promote integration and collaboration among health professionals working in institutions dedicated to telehealth, as well as to operationally support multi-institutional discussion groups and permanent education. In this sense, the Telemedicine University Network (Rede Universitária de Telemedicina - RUTE), a project created in Brazil in 2005, has allowed research groups to have exchange sessions between them through a high-speed network.

As of 2007, the National Telehealth Program was implemented as a Brazilian government intersectoral strategy (linking the MCTI, the Ministry of Health and the Ministry of Education) in order to coordinate tele-education and teleassistance initiatives, together with interconnection infrastructures of university hospitals and health teaching centers in Brazil. (1-3) By the end of the second semester of 2017, the RNP comprised 134 operating centers and over 300 institutions with approximately 50 full operation Special interest groups (SIGs) in several health professions, specialties, or subspecialties such as Psychiatry, Cardiology, Ophthalmology, Dermatology, Nursing, Occupational Therapy, and others. (4)

SIGs are virtual spaces where professionals from linked institutions promote activities such as debates, case discussions, lessons, diagnosis, researches, and distance assessment, by addressing several medical specialties and subspecialties for a number of health professionals in different levels of professional training. These groups provide the opportunity of interaction between partners involved in the implementation of computing and telecommunication technologies, thus promoting and supporting the application of telemedicine in their respective specialty.

The creation of SIGs is an interesting and effective strategy for disseminating information and producing exchange opportunities between professionals and students of Occupational Therapy. According to the Canadian Association of Occupational Therapists in British Columbia:

"Special interest groups and practice networks provide a forum for sharing expertise and experience in occupational therapy in particular areas of professional interest [...] provide opportunities for [...] networking, information exchange, and

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resource sharing for occupational therapists through meetings, newsletters and document sharing. They promote and facilitate continued education through informal education events or conferences and publications." (5)

The SIG on Occupational Therapy in hospital contexts and palliative care was established in August, 2013. Its purposes consist of promoting technical and scientific knowledge and exchanging information, experiences and educational programs between professionals working in occupational therapy services of hospitals and universities in several states of Brazil, as well as between students, residents, and researchers interested in this health specialty. Presentations and discussions of topics, methods, technical and scientific approaches, clinical cases, researches, and issues on occupational therapy are held in monthly meetings through the RUTE. (4,6)

This SIG is an initiative of the Scientific Association of Occupational Therapy in Hospital Contexts and Palliative Care (Associação Científica de Terapia Ocupacional em Contextos Hospitalares e Cuidados Paliativos - ATOHosP), the first Occupational Therapy Specialty scientific society of Brazil, created in August, 2012. The professional specialty of occupational therapy in hospital contexts was officially recognized by the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) by means of Resolution N° 366 of May 2009, Resolution N° 371 of November 2009, and is regulated by Resolution N° 429 of July 2013. (7-9) Competences of this type of occupational therapist specialist include the direction, coordination and supervision of occupational therapy services, technical responsibility, leadership, counseling, auditing, teaching and research in general or specialized hospitals of medium or high complexity health care and in all phases of ontogenetic development.

The purpose of this study is to describe the operational dynamics of this SIG and the importance of videoconferencing for continuing education in occupational therapy in hospital contexts and palliative care.

#### Materials and methods

A documentary, retrospective, and descriptive study using RUTE electronic documents, ATOHosP records and the information available in both of their websites was conducted. (4,6)

Technological advances have allowed transmitting digital videoconferencing in narrower bands without losing image quality. Currently, it only requires a computer, a mobile phone or a tablet with internet connection and an internet browser, as well as a microphone and headphones set, to benefit from the integration and interactivity made possible by videoconferencing, since there is no need for additional hardware or software. This service also enables meetings recording, which are later made available for streaming or downloading in the website of RUTE.

Between August 2013 and December 2017, 36 video conferences were made on a monthly basis. These video conferences follow an annual scheduling, are carried out on the second Friday of each month, last 90 minutes, and involve the live participation of the operating centers registered in the SIG. The video conference signal is also open for internet users to watch it through the RUTE website connection tool, which enables any user to join the conference as a spectator, but not as a participant able to interact with the participating operating centers, for it is not possible to estimate the total number of virtual users.

Video conferences are performed as follows: during the first 15 minutes, representatives of all connected operating centers introduce the people participating in the conference; then, during 30 minutes, a professional occupational therapist explains the previously determined topic for the current month, and finally, for about 45 minutes, all participants are able to speak, raise questions, clarify doubts, make comments, and share experiences.

# Results

Over its 4 years of existence, there has been a progressively increased interest in the activities of the SIG, which is evidenced when comparing the institutions registered (6) when it was established in August 2013 and the number of registered centers (34) by December, 2017, which are presented in Table 1.

Table 1. Registered institutions in the Special interest group of occupational therapy in hospital contexts and palliative care according to their place of origin (December, 2017)

Location / State	Number of institutions	Institutions registered at RUTE	
Amazonas (AM)	1	Getúlio Vargas University Hospital - Federal University of Amazonas (UFAM);	
	3	Roberto Santos General Hospital (HGRS);	
Bahia (BA)		Ana Nery Hospital (HAN); Federal University of Bahia (UFBA);	
Brasília - DF	1	University Hospital of Brasília (HU/UnB);	
Ceará (CE)	1	General Hospital of Fortaleza (HGF);	
Espírito Santo (ES)	1	Cassiano Antonio de Moraes University Hospital of the Federal University of Espírito Santo (HUCAM / UFES);	
Maranhão (MA)	1	University Hospital of the Federal University of Maranhão (UFMA);	
Mato Grosso do Sul (MS)	1	Maria Aparecida Pedrossian University Hospital (HUMAP);	
Minas Gerais (MG)	3	Clinics Hospital of the Federal University of Minas Gerais (UFMG); Risoleta Tolentino Neves Hospital (UFMG); Clinics Hospital of the Federal University of Triângulo Mineiro (HC/UFTM);	
Pará (PA)	3	Federal University of Pará (UFPA); João B. Barreto University Hospital - Federal University of Pará (HUJBB / UFPA); Santa Casa de Misericórdia do Pará (SCMPA);	
Paraná (PR)	1	Clinics Hospital of the Federal University of Paraná (HC/UFPR);	
	3	Osvaldo Cruz University Hospital of Recife (HUOC / PE);	
Pernambuco (PE)		Cardiology Emergency Hospital of Pernambuco (PROCAPE); Clinics Hospital of Federal University of Pernambuco (UFPE);	
Rio de Janeiro (RJ)	2	Galeão Air Force Hospital (HFAG); Bonsucesso Federal Hospital (HFB);	
Rio Grande do Sul (RS)	3	University Hospital of Santa Maria (HU/UFSM); Franciscan University Center (UNIFRAN); University Hospital of the Federal University of Pelotas (HU/UFPel);	
Santa Catarina (SC)	1	São José City Hospital of Joinville (HMSJ);	
São Paulo (SP)	8	Clinics Hospital of the Ribeirão Preto Medical School of University of São Paulo (FMRP-USP): campus unit, Emergency Unit (UE) and Américo Brasiliense State Hospital (HEAB); Children's Institute of the Medical School of the University of São Paulo (ICr / FMUSP), in partnership with the Emílio Ribas Institute of Infectious Diseases (IIER); Hospital for Rehabilitation of Craniofacial Anomalies - University of São Paulo (HRAC-USP); Federal University of São Paulo (UNIFESP) Barretos Cancer Hospital (HC Barretos); Federal University of São Carlos (UFSCar); University Hospital of the Federal University of São Carlos (HU / UFSCar);	
Chile	1	Central University of Chile (UCC).	
Total:	34 operating centers		

Source: ATOHosP (6)

Therefore, this study covered three types of hospitals: general hospitals, university hospitals and specialized hospitals. Furthermore, operating centers from universities (not hospitals) are also registered members. The participating groups were composed of occupational therapists, residents enrolled in multi-professional health residency programs in hospitals accredited in the SIG, as well as faculty members and undergraduate students. It is also worth noting the wide reach this SIG has from a geographical point of view: its participating institutions represent 14 Brazilian states and Brazil's Federal District,

besides it expanded its coverage to international dimensions when one video conference was held by a Chilean institution.

36 video conferences were carried out during the study period (Table 2); topics discussed were determined by the group responsible for each presentation and in agreement with the ATOHosP. Although video conferences are live streamed, presentations are publicly available on the website of RUTE, which contributes to continuing education.

The subjects related to the occupational therapy specialty in hospital contexts presented in said video conferences, as well as their work

fields, were as follows the skills and competences the occupational therapy specialist is required to have, the different practices in different hospital contexts and in palliative care, and the administration of occupational therapy services in hospitals.

**Table 2.** Topics discussed in the video conferences made by the Special interest group on Occupational Therapy in hospital contexts and palliative care through the tools provided by RUTE.

#	Topics	Responsible (*)
1	Presentation and planning of the activities of the Scientific interest group	FMRP-USP
2	Occupational therapy specialty in the hospital context	UNIFESP
3	Professional competence of the occupational therapist in hospital contexts and palliative care	UFPR
4	The grieving process in the hospital context, which included a debate on occupational therapeutic assistance	UFPA
5	Occupational therapy in palliative care	ICr-USP/ IIER
6	Occupational Therapy actions in a high complexity hospital - General Hospital of Fortaleza (HGF) challenges and limitations	HGF
7	Palliative care and rehabilitation: reviewing concepts and practices in the health care network	FMRP-USP
8	Occupational therapy in oncology	Barretos HC
9	Assessment of occupational therapy in hospital contexts	UnB
10	Elaboration and indicators of the Occupational Therapy Service in hospital contexts and palliative care	ICr-USP/ IIER
11	Early and intensive intervention of occupational therapy in the prevention of delirium in the elderly in intensive care units. A randomized clinical study	Universidad Central de Chile
12	Billing of occupational therapy procedures in hospital contexts at the Clinics Hospital of Federal University of Triângulo Mineiro (UFTM)	UFTM
13	Evaluation of the First congress on Occupational Therapy in hospital contexts and palliative care	FMRP-USP
14	Occupational therapy intervention in both an adult and a pediatric intensive care unit	ICr and IIER
15	Occupation and palliative care in geriatrics	UFPA
16	Occupational Therapy in Hospital Contexts	FMRP-USP
17	Systemization of the assistance to the Occupational Therapy Service in the A. C. Moraes University Hospital	HUCAM / UFES
18	Homecare program for discharging patients in the Clinics Hospital of Federal University of Triângulo Mineiro (HC-UFTM)	HC/UFTM
19	Occupational therapy in a hospital context and its implementation in multi-professional residency	HU/UnB
20	Occupational therapists involved in the production of health of the Bonsucesso Federal Hospital (HFB)	HFB
21	Occupational therapy clinical records: Indicators of the documentation in an ambulatory context	UFSCar
22	Using video conference for continuing education in Occupational Therapy specialty in hospital contexts	UFPR
23	From clinical practice to research and teaching and from research and teaching to clinical practice	UFMG
24	Thoughts on the practice of OT in a hospital context and the 445/ 2014 Resolution	UFTM
25	Occupational therapy in cardiology: focus on heart failure and cardiac surgery	IIER
26	Occupational therapy in a cardiology hospital	PROCAPE

27	Constructive process of indicators of occupational therapy	HU/UFSCAR
28	Multi-professional reception in oncology	UHB
29	Occupational therapy intervention in the Bone Marrow Transplant Unit	ICr-USP
30	Construction of the Wound protocol by the Occupational Therapy Service	HRTN/UFMG
31	Research in occupational therapy in hospital contexts and palliative care	FMRP-USP
32	Quality of life and use of alternative communication technologies in head and neck cancer cases	FMRP-USP
33	Prescription and wheelchair adaptation experience in a hospital context: challenges for its implementation	HUPES/BA
34	Occupational therapy approach in the Burn Treatment Center of the Galeão Air Force Hospital (HFAG)	HFAG
35	Occupational therapy intervention in congenital heart disease (Edwards syndrome)	PROCAPE
36	Grief and occupational therapy	HU/UFSCAR

(\*) Acronyms have been previously described in Table 1 Sources: ATOHosP (6); RUTE (4)

The average number of operating centers participating in the video conferences is presented in Table 3:

Table 3. Average participation in the video conferences.

Period	Period Months		Groups participation average
2nd semester, 2013	August September October November December	02 08 09 07 09	7
1st semester, 2014	March April May June	10 15 16 16	14.3
2nd semester, 2014	August September October	17 16 15	16
1st semester, 2015	March April May June	16 16 12 13	14.3
2nd semester, 2015	July September October November December	12 12 10 11 09	10.8
1st semester, 2016	March April May June	14 17 12 14	14.3
2nd semester, 2016	August September October November December	17 15 16 15 10	14.6
1st semester, 2017	1st semester, 2017 May		15
2nd semester/2017	July August September November December	11 19 19 17 15	16.2
Total average	13.6		

Continues. Source: Own elaboration.

Video conferences held from 2013 to 2017 were evaluated through an internet survey sent to those who had participated in any of the video conferences organized by ATOHosP. (10) 25 people from several states of Brazil completed the survey. 100% of the respondents considered that these video conferences had contributed to their professional training and practice through the updating process and the experiences exchange in occupational therapy care in different hospital contexts and in different regions of the country, which in turn strengthened their theoretical repertoire, and increased the possibilities of assistance protocols and management, and qualification of occupational therapy practices, among other benefits.

## **Discussion**

An actions network can facilitate health care in Brazil through specialized remote assistance; furthermore, it has the potential to create spaces to carry out new distance and continuing education processes, as well as to promote the development of education and research activities. However, telehealth practices in occupational therapy are not common, for they require the systemization of the services that are offered.

In this sense, different concepts have been described in the literature addressing this topic (11-16):

- 1. Telemedicine is the use of medical information that is exchanged via digital communication means in order to promote health education, prevent and treat diseases, manage chronic illnesses and arrange rehabilitation procedures. (13) Telemedicine or Tele-assistance means the provision of healthcare services by health professionals in situations where distance is a critical factor; in addition, it is also used for health providers and health professionals' continuing education purposes. (17)
- Telerehabilitation is a service model provided by means of interactive telecommunication technologies that helps delivering evaluation, preventative, diagnostic, and therapeutic services, and implementing assistive technologies and adaptive techniques, among other objectives;
- 3. Teleconferencing or videoconferencing is a tele-education or distance education modality that uses specific software to create virtual interaction channels to be used in in continuing education in health areas at both undergraduate and graduate levels. (18)
- 4. Telehealth encompasses both telemedicine and telerehabilitation to provide distanced based health-related services. This term describes the scope of occupational therapy, since it integrates a broad definition of distance based health care activities such as consultations through videoconferencing, image transferring, remote monitoring of chronic conditions, and continuing education.

Telemedicine and telehealth are interchangeable terms involving several actions based on information and communication technologies that are used in order to improve clinical health conditions of patients in hospitals, specialized health units, health care centers, private medical practices, at home, and in other assistance contexts.

According to the World Federation of Occupational Therapists, telehealth can be an appropriate service delivery model for occupational therapy, and may improve access to occupational therapy services (19-21).

On the other hand, the purpose of telerehabilitation is to improve access to rehabilitation services through the use of telehealth technologies; in addition, it also works as a basis to develop innovative tools and systems to facilitate access to rehabilitation and independent

life support services. For its appropriate implementation and use it requires rehabilitation engineers, support technicians, rehabilitation doctors, occupational therapists, physiotherapists, speech-language therapists, educators, rehabilitation nurses, neuropsychologists, and specialists on health policies. (22)

Augestad and Lindsetmo (23) conducted a literature review in 2009 where they analyzed 51 manuscripts and concluded that videoconferencing is an educational tool widely used to overcome knowledge gaps and distance-based challenges among trauma surgeons, with a good cost-effectiveness outcome regarding the treatment and follow-up of surgical patients. (24)

Videoconferencing in occupational therapy includes the facilitation of aspects such as occupational performance, occupational adaptation, health care and well-being provision, disease prevention and a better quality of life. It also provides people living in remote or disadvantaged areas with access to occupational therapy services, and lets health providers and health specialists reach people who, otherwise, would be impossible to make contact with. Moreover, videoconferencing allows preventing unnecessary delays in the provision of care, reducing professional isolation through distance education, team research and team consultation, and other activities. (12,14,24)

To refine a low vision assessment, a study conducted in USA by Smith (25) examined video conferencing experiences of occupational therapists and occupational therapy students participating in online focus groups by using communications and information technologies. The focus group was conducted as an online discussion forum through interactive videoconferencing. Smith discussed the benefits and challenges derived from using these technologies and concluded that students had a satisfactory experience since communication was facilitated, as well as therapists, who valued communication with their peers as one of the most significant benefits of the experience. (25)

Further studies on learning, performance and satisfaction, as well as measures of quality and preferences, benefits and challenges, including privacy and safety practices during and after telehealth sessions, are necessary to determine the success rate of this type of programs. (26)

Results obtained in the present study are consistent with what the SIG has proposed regarding the discussion of topics, methods, and specific technical and scientific approaches of clinical cases, researches, and issues related with the occupational therapy specialty in hospital contexts and palliative care between the participating institutions.

Video conferences made through the SIG on occupational therapy in hospital contexts and palliative care have a major role in strengthening this profession, for they focus on promoting group actions between institutions offering occupational therapy education programs and hospitals, so that activities related with knowledge acquisition and professional practices in this context are encouraged.

Likewise, these video conferences have allowed occupational therapists and occupational therapy students from all over the country to meet, regardless of the distance between them, to discuss relevant topics in relation with their field of action.

Given that Brazil is a continental country (with a territorial area of 8 515 767.049 km²) and that traveling long distances sometimes hinder participation in scientific events, a growing interest in continuing education activities through teleconference has been recently observed in occupational therapy students and professionals attending universities and hospital institutions in different states of Brazil. This type of knowledge sharing experience has also called the attention of occupational therapy scientific and professional associations, and federal and regional boards, for it favors national

integration, as well as the consolidation of the occupational therapy specialty in hospital contexts and palliative care.

Videoconferencing in telemedicine can be used as a strategy for reducing regional disparities in health care and health education, while in telehealth it can be used as a mean of approximation between professionals, institutions and services.

# **Conclusion**

Videoconferencing through the SIG on occupational therapy in hospital contexts and palliative care allowed the progressive creation of a collaboration network made of occupational therapists working in general hospitals, specialized units and similar institutions, which has made possible the active interaction and participation between professionals from several institutions and services located in different parts of Brazil. In addition, this tool enabled enhancing clinical practices and stimulating social actors involved in teaching, care, and research in occupational therapy.

Occupational therapists and people in need of their services can benefit from the use of emerging communications and information technologies in different practical scenarios. By removing barriers to health care such as social stigmas, long distances and socioeconomic and cultural issues, videoconferencing in occupational therapy may lead to reduce the impact of staff scarcity in poor or disadvantaged areas.

Videoconferencing has a growing potential in terms of professional training and provision of services in hospitals and palliative care for occupational therapists working in different fields of action, such as mental health promotion, rehabilitation, occupational health, among others.

Limitations: Although this program has the potential to be expanded to several areas of knowledge in occupational therapy, there are some limitations, including the definition of the fixed weekly schedule for video conferences to be made and the lack of an effective system for keeping track of attendance and conducting a systematized evaluation. More systematized studies on the potentialities and weaknesses of this strategy on continuing education are required to show the potential and advantages videoconferencing in occupational therapy has to offer.

## **Conflicts of interest**

None stated by the authors.

# **Funding**

None stated by the authors.

#### Acknowledgements

None stated by the authors.

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