

# Communication and information processes in telehealth: interactions between the environment of specialists and the primary care in the Unified Health System – SUS

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## Abstract

*Investigates the communication and information processes in Telehealth, resulting from interactions between specialist environment and Basic Health Units. The goal: identify and analyze the communication and information processes in telehealth from interactions mediated by technology, between the environment specialists and primary care in the SUS. The methodology: triangulation methods, which included the combination and analysis of qualitative and quantitative data. The research strategy, triangulation methods used was through observation, interviews and document analysis. The results: shown that the demand of SUS primary care, targeted to specialist environment, causes changes in the processes, diffusion, dissemination and appropriation of information and knowledge by teachers, researchers, students, technicians and professionals of the Telehealth Center. These subjects are involved in the development of new forms of shared production of knowledge within the telehealth*

**Keywords:** Telemedicine; Health Communication; Information Services; Primary Health Care.

## Resumen

### Procesos comunicacionales e informacionales en la telesalud: interacciones entre el entorno de especialistas y la atención primaria en el Sistema Único de Salud – SUS

*Investiga los procesos de comunicación e información en Telesalud, que resulta de la interacción entre expertos ambiente y Unidades Básicas de Salud. El objetivo –. Identificar y analizar los procesos de comunicación e información en la telesalud de interacciones mediadas por la tecnología, entre el medio ambiente especialistas y de atención primaria en el SUS. La metodología – métodos de triangulación, que incluye la combinación y el análisis de datos cualitativos y cuantitativos. La estrategia de investigación, métodos de triangulación utilizado fue a través de la observación, entrevistas y análisis de documentos. Los resultados – muestran que la demanda de la atención primaria del SUS, dirigido a expertos en medio ambiente, provoca cambios en los procesos, difusión, difusión y apropiación de la información y el conocimiento de profesores, investigadores, estudiantes, técnicos y profesionales del Centro Técnico científica. Estos sujetos están implicados en el desarrollo de nuevas formas de producción compartida de conocimiento dentro de la Telesalud*

**Palabras-clave:** Telemedicina; Comunicación en Salud; Servicios de Información; Atención Primaria de Salud.

## Resumo

### Processos comunicacionais e informacionais em saúde: interações entre o ambiente de especialistas e a atenção primária no Sistema Único de Saúde

*Investiga os processos comunicacionais e informacionais na telessaúde, decorrentes das interações entre o ambiente de especialistas e as unidades básicas de saúde. O objetivo: identificar e analisar os processos comunicacionais e informacionais na telessaúde a partir das interações, mediadas por tecnologias, entre o ambiente de especialistas e a Atenção Primária no SUS. A metodologia: a triangulação de métodos, que incluiu a combinação e análise de dados qualitativos e quantitativos. A estratégia de investigação, triangulação de métodos, utilizada se deu por meio de observação, entrevistas e análise de documentos. Os resultados: mostraram que a demanda da Atenção Primária no contexto da telessaúde, provoca mudanças nos processos de construção, difusão, disseminação e apropriação de informação e conhecimento no ambiente de especialistas. Esses sujeitos estão envolvidos na elaboração de novas formas compartilhadas de produção de conhecimentos no âmbito da telessaúde.*

**Palavras-chave:** Temedicina; Comunicação em Saúde; Serviços de Informação, Atenção Primária à Saúde.

## INTRODUCTION

The info-communication modalities in the telehealth imply the disjunction of their actors in passive and active poles. The study of the information and communication processes considers that the information “is not just a ‘thing’ to be physically observed, but historically constructed. The subjects of this field create mechanisms to recognize, interpret and transmit meanings. In other words, act.”<sup>1</sup>.

The information, place of interlocution and change factor of social practices explains the size of their social production, but the basic position of the official discourse and the scientific discourse of telehealth points to a mode info-communication unidirectional, bipolar and decontextualized. This position, although recurrent it is not unanimous, other forms of shared production of knowledge are constantly present.

Considering that the practice of primary care of Unified Health System (SUS) in the context of the demand for telehealth is not restricted to a receiving position of information, it asks how the environment of specialists in a telehealth center is organized to build knowledge and meet info-communication demand of SUS primary care?

### Conceptual aspects of telehealth

For Melo e Silva<sup>2</sup> telehealth is equalizer of demands because it provides transmission of knowledge, assists in improving care and health care, contributes to the reduction of mortality and morbidity rates, generates bolder and quicker interventions, avoids displacement to urban centers and provides access to health care in remote locations.

Sood *et al*<sup>3</sup> define the telehealth as an important multidisciplinary and efficient tool for health care provision. The telehealth is the use of communication networks for the exchange of health information and to allow clinical care in remote locations.

The telehealth is the use of advanced communication technologies, within the context of clinical health, which is the provision of care through a considerable physical distance<sup>4-6</sup>. As such, the use of technology enables and ensures the health information transmission specifically to benefit the patients that require medical care<sup>7-9</sup>.

The communication technologies encompass a wide range of equipment allowing health professionals to provide health care to thousands of kilometers away from the service location<sup>7,10,11</sup>. The Telehealth can enlarge the interactive spaces and form more intense and consistent bonds between the environment of specialists and primary care.

## METHOD

### The triangulation methods

In order to meet the informational and communicational processes in telehealth we chose to combine qualitative and quantitative data, the triangulation methods. The triangulation can be obtained in several ways:

- data triangulation;
- triangulation of the researcher;
- triangulation of theory;
- methodological triangulation.<sup>12-14</sup>

In this study we are interested in the theory of triangulation and the methodological triangulation.

### Empirical field of research and research subjects

The data collection occurred in a Telehealth Center which operates in the Network Brazil Telehealth Program. It was interviewed two computer and telehealth technicians and three sub-coordinators of the center, where one is responsible for managing the project and two are responsible for the videoconferences.

### Procedures for data collection and analysis

In order to achieve the purpose of the work in question, it was carried out field observation, data collection in printed and digital documents and semi-structured interviews. The data were analyzed in accordance with the theories of communication and health information noting that the interactions between the actors of telehealth occur through information and communication technologies. The focus of the analysis was directed to the interactions between the professionals of the environment of specialists and the professionals of primary care from SUS.

## RESULT AND DISCUSSION

### Results and analysis of documents and direct observation

From 56 videoconferences held in 2012, the themes chosen by the primary care and presented in the schedule were, as shown in Table 1:

**Table 1 - Categorization of the demands from Primary Health Care**

Demands of Primary Health Care	Videoconferences
Accident	10.0%
Drugs	8.0%
Promotion and Health Protection	8.0%
Cardiology	6.0%
Care in Old Age	6.0%
Comprehensive Care	6.0%
Nutrition	6.0%
Medical Clinic	4.0%
Emergency	4.0%
Adult's Health	4.0%
Worker's Health	4.0%
Diagnosis	4.0%
Women's Health and Pregnancy	4.0%
Health of People with Special Needs	4.0%
Pharmacology	4.0%
Propaedeutics	4.0%
Care with Cancer in Primary Care	2.0%
Management	2.0%
Adolescent Health	2.0%
Sexually Transmitted Diseases	2.0%
Child Health	2.0%
Immunization	2.0%
Hypertension	2.0%

Source: Network Brazil Telehealth Program – Estadual Core – 2012.

The priority themes were: accidents 10.0%; drugs and promoting and protecting health 8.0%; cardiology, care in old age, comprehensive care and nutrition were the third option with 6%. In fourth position with 4% medical clinic, emergency, adult health, occupational health, diagnostics, women's health and pregnant women, health of people with special needs, pharmacology and propaedeutics. Finishing the table, 2% of people chose the topics related to care with cancer in primary care, management, adolescent health, sexually transmitted diseases, child health, immunization and hypertension.

### Results and analysis of interviews with technicians and specialists from the Telehealth Center

The interviews highlight the info-communication organization of the Telehealth Center to build knowledge and meet the primary care of SUS.

Regarding the demand of the primary care of SUS directed to the Telehealth Center, the respondent believes that:

*[...] The demand of primary care is low [...] we have fifty municipalities in tele-dentistry and the participation is on average twenty municipalities by videoconference [...] in the town hall of Belo Horizonte the participants is about 1/3 [...].*

In relation to the demand of primary care of SUS directed to the Telehealth Center and the changes in the work processes of the University as a whole:

*[...] I think that the material produced for web conferencing [...] turns out to be more elaborate than for a class, has to be more thought [...] you are all the time thinking that the student is alone in front of a screen and can leave at any time. It is not equal in the classroom that has a door to get in and get out [...] the content, the information in terms of writing should be more elaborate, must contain the essential elements [...] we must be careful not to let anything too open, pass all information quickly [...] the web class changes the interaction [...].*

The telehealth changed the working process in that university and was able to mobilize the professors transforming the building condition, dissemination and appropriation of information and knowledge. *"[...] One of the difficulties is related to the training process [...] the professors are the ones who train students and are entrenched in the university [...] with little interaction with the system peak [...]" (Interview 3).*

He argues:

*[...] Our doctors leave here [...] they do not know dermatology, do not know how to solve basic dermatological problems [...] they are leaving without knowing how to analyze the electrocardiogram [...] the Telehealth provides us with this feedback, maybe not yet systematized [...]. (Interview 3).*

Still commenting about the process of work at the university studied:

*The University is a university that has a great relationship with the service [...] and this is not a reality in most Brazilian Universities [...] even in college, we had this group of professors in this situation [...] with-*

out relating to the primary care [...] then the gain produced by the National Telehealth Project is very relevant because it enabled to put the professor in direct relation with the family health teams, but he is helping not only health teams of the family, but he is also helping the professor [...] today the professor knows what the telehealth is and relating to the product which he formed [...] so we have several testimonials from our professors that state categorically: this university is not forming for primary care [...] (Interview 3).

**Analysis and results of Triangulation Methods – interviews, observations and analysis of documents**

In the literature review was possible to identify that the official and scientific discourse about telehealth highlights an informational and communicational modality decontextualized, linear and unidirectional. It is observed, from that nuance, that the prevalent info-communication process in telehealth points to the existence of a polarization where a term overlaps as a passive and the other as an active term of the interaction.

This speech, despite being consensual presents itself disparate, heterogeneous and discrepant, once they were also present on the practices and current studies, other positions that showed sharing production modalities of knowledge in a situation where the poles of communication altered the functions depending on the context.

In the field research the observations suggest that the interaction resulting from informational and communication processes of telehealth are not harmonics. The constant attempts to involve primary care indicate that the demand is the driving force of all Telehealth Center process. On the other hand, one can infer that the informational and communicational processes in telehealth present themselves as a building of a social practice shot from the demand of primary care, a type of demand that could contribute to the production of new shared ways of building of knowledge both theoretical and practical within the telehealth. (Figure 1)

As we go forward we can deduce that the attempt to overcome this linear, unidirectional and hierarchical flow model, highlighted the demand of primary care as a driving force of changes in the processes of building, production, distribution, dissemination and appropriation of information and knowledge in telehealth.

In this context, the info-communication circumstance is marked by the context of the production and believes that it

is the social meeting mediated by information and communication technology that occur new shared forms of knowledge building. In Figure 2 the one way and two-way arrows suggest the communication flow propelled by demand that is born in primary care.



Figure 1 - Environment of specialists and primary care in the Unified Health System: the information flow in the telehealth.



Figure 2 - Environment of specialists and primary care in the Unified Health System: the information flow in the telehealth.

The inclusion of demand as a condition of membership of the municipality to telehealth and the listening environment while a fourth element that provides equate the interaction between the environment of specialists and primary care, it begins a new cycle that could contribute to the production of new shared forms of information and knowledge in telehealth. (Figure 3)

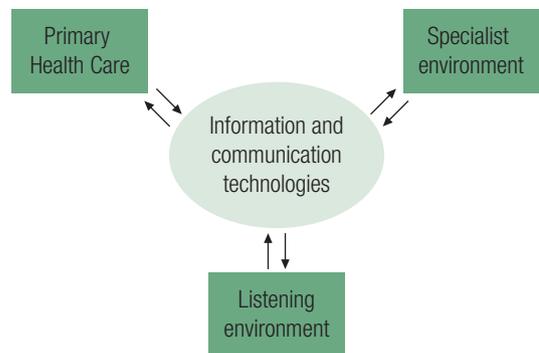


Figure 3 - Environment of specialists and primary care in the Unified Health System: the information flow in the telehealth.

In relation to the professors, when they interact and understand the reality of health in remote locations, they transform and reorganize their practices, both in communication and informational perspective, as for the construction of knowledge and knowledge about health.

The ongoing changes in the telehealth expansion policy put the demand of the municipality as a condition for joining the Network Brazil Telehealth Program and it provides accountability of primary care on the use of telehealth. Thus it

is possible to realize the importance of the problem worked in this study. By highlighting the demand of primary care as a driving force of informational and communicational processes in telehealth, it was possible to notice the ongoing changes in telehealth.

## CONCLUSION

The initial purpose of this study was to identify and analyze the communication and information processes in telehealth from interactions between the environment of specialists of a Telehealth Center of Network Brazil Telehealth Program and the primary care of the Unified Health System.

It was concluded that the Telehealth Center is contingent by the demand of primary care. This acts as a driving force of the processes that transform the construction, production, distribution, dissemination and appropriation of information and knowledge. So it is confirmed the assumption of this work and it is possible to deduce that the practice of primary care in the context of Telehealth demand is not restricted to a receiving position of information offerings which produces qualification to the service.

Secondly, specialists of the Telehealth Center bet on telehealth as a possibility for expansion and renewal of traditional modalities of knowledge building within the University as a whole. For them the various communication and information modalities arising from telehealth affect not only the habits, customs and behavioral patterns, but also the social structure of distribution of power.

In an attempt to understand the information processes of a Telehealth Center, it was observed how this environment is organized to occupy the demand of primary care. It was found that this demand is a driving force of the production process of information and knowledge. It was also observed the notions of interaction, encounter and exchange of knowledge and information arising from the practice and concept of telehealth proposed by the professionals of the Telehealth Center.

On a recurring basis and other bias, both in interviews and in observation, it was found that the demand for primary care of SUS directed to the Telehealth Center provides changes in health work processes, confirming that the telehealth actors are involved in a work process that reconfigures the production of knowledge in the university. The professionals of the Telehealth Center are constantly in a qualification process to deal with the demands of primary care professionals and this experience is replicated to the formation of new health professionals.

The considerations here exposed, as well as identify and analyze the communication and information processes in telehealth corroborate the understanding of these processes on the environment of specialists and detect the communication processes with a view to access to information and knowledge. By pointing out that, the demands of primary care directed to the environment of specialist of the Telehealth Center contribute both to the specialist and for doctors the primary care, it is necessary to change the understanding of telehealth and its basic concept. This has already been picked up by the environment of specialist of the Telehealth Center.

The new perspectives in progress in the telehealth expansion policy put the demand of the municipality as a condition for joining the Network Brazil Telehealth Program, that, according to the specialists of the Telehealth Center, provides the accountability of primary care on the use of telehealth.

The respondents stated that a new perspective of telehealth puts the listening environment as a fourth element of the info-communication complex in telehealth. This reveals that both the demand of primary care addressed to the environment of specialists in relation to the health condition detected from the direct demand to the average complexity of the Health System, implies a process that transform the building, production, distribution, dissemination and appropriation of information and knowledge in telehealth, in the Telehealth Center and in the University.

In the representation by part of the specialists of the Telehealth Center in telehealth, it was observed that, when they interacted and understood the reality of health in remote locations, they begin to organize, in the communicational and informational perspective, from new shared ways of knowledge production both theoretical and practical in the context of telehealth.

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