

# Conduct of Professionals' Primary Care After Replies of the Requested Teleconsultings: an initial evaluation

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## Abstract

*The process of incorporation of telehealth resources in Brazil is under way and few studies have been carried out to evaluate it. The article proposes to verify if the use of telehealth through teleconsulting is reducing the referral of patients to other levels of health care. 2,442 teleconsulting were evaluated. It was observed that in 74.6% of teleconsultings performed, the patients remain in the unit itself, having a distinct distribution depending on the medical specialty. The applicants have 90.1% of their doubts solved and 92.4% are satisfied with the system. The study points out that teleconsulting helps patients stay in primary care.*

*Keywords: Telehealth, Teleconsulting, eHealth.*

## Resumen

**Conducta de los profesionales de la atención primaria tras las respuestas de las teleconsultas solicitadas: una evaluación inicial**

*El proceso de incorporación de recursos de telesalud en Brasil está en curso después de haber sido realizado pocos estudios para evaluarlo. El artículo tiene como objetivo verificar si el uso de la telesalud a través de la teleconsulta está reduciendo la derivación de pacientes a otros niveles de atención de la salud. Se evaluaron 2442 teleconsultorias. Se encontró que 74,6% de las teleconsultorias realizadas, los pacientes permanecen en la unidad y tienen una distribución distinta en función de la especialidad médica. Los solicitantes tienen un 90,1% de sus dudas resuelto y el 92,4% están satisfechos con el sistema. El estudio indica que las teleconsultas contribuyen a que los pacientes permanecen en la atención primaria.*

*Palabras clave: Telesalud, Teleconsulta, Salud Electrónica.*

## Resumo

**Conduta dos profissionais da atenção primária após respostas das teleconsultorias solicitadas: uma avaliação inicial da telessaúde**

*O processo de incorporação de recursos de telessaúde no Brasil está em curso tendo sido realizados poucos estudos para avaliá-lo. O artigo se propõe a verificar se a utilização do telessaúde por meio das teleconsultorias está reduzindo o encaminhamento dos pacientes para outros níveis de atenção à saúde. Foram avaliadas 2442 teleconsultorias. Observou-se que em 74,6% das teleconsultorias realizadas os pacientes permanecem na própria unidade, tendo uma distribuição distinta a depender da especialidade médica. Os solicitantes possuem 90,1% de suas dúvidas solucionadas e em 92,4 % estão satisfeitos com o sistema. O estudo aponta que as teleconsultorias contribuem para que os pacientes permaneçam na atenção básica.*

*Palavras chaves: Telessaúde, Teleconsultorias, eHealth.*

## INTRODUCTION

The complexity of actions involving health care increasingly requires trained professionals with skills and attitudes that can readily meet the needs of the population, both individually and collectively. With the aim of meeting these demands and overcoming the inherent deficiencies in training, mainly the physicians', the training institutions are seeking ways to integrate humanistic contents aiming at the completeness and the interdisciplinarity of traditional forms of teaching, as well as to introduce new didactic-pedagogical tools that accompany the technological and scientific progress of the world<sup>1</sup>.

One of the strategies used to minimize the deficiencies in the professionals' training is the use of information technologies, which greatly facilitates the dissemination and the access to information from the health area, among them we can highlight the telemedicine that through electronic communication is providing a more active and integrated participation among professionals that work in the health area<sup>1,2</sup>.

The terms telemedicine, telehealth, eHealth, telecare, eCare and mobile health, are used by several authors within the same context, however, their definitions often overlap or complement each other, in a general way, we can say that they all use the technology to carry out health activities at a distance<sup>3,4</sup>.

In his study, Oliveira clarifies that the telehealth is a broader concept because, in addition to encompassing the telemedicine, it extends its services to the use of other health professionals<sup>4</sup>.

As Brazil is a country with continental dimensions and great social, economic and financial differences, the Telehealth is being used as an important tool to disseminate knowledge and the integration of health professionals from various institutions and localities, contributing to the improvement of health quality in our country<sup>2</sup>.

Precisely, because its main objective is to improve the quality of care and basic care in the Unified Health System (SUS), the Ministry of Health of Brazil implemented in 2007 the Telehealth Brazil Networks Program, whose main services offered are: teleconsulting, telediagnosis, tele-education and the second formative opinion (SOF)<sup>5</sup>.

This program has as basic structure, the Center of Technical-Scientific Telehealth composed of the training institutions responsible for the formulation and management of teleconsulting, telediagnostic and the second formative opinion (SOF) and the telehealth points that are the

services where primary care professionals have access to the services provided by the program<sup>5</sup>.

The Center of Telehealth of Minas Gerais, since 2007, develops actions of teleconsultings, formative videoconferences, distance courses, emission of electrocardiogram reports. The following are part of this Center: The Clinics Hospital (HC), the Faculty of Medicine (FM) through the Center of Health Technology (CETES), the Faculty of Nursing and the Faculty of Dentistry.

In this article, we will focus on the activities of Telehealth coordinated by "Health Technology Center of the Faculty of Medicine (CETES/FM) in particular, the teleconsultings. The article proposes to verify if the use of telehealth through teleconsultings is reducing the referral of patients to other levels of health care.

## METHOD

This is a descriptive study using secondary data contained in the reports obtained through the telehealth platform<sup>6</sup> of the Technical Scientific Center of the Federal University of Minas Gerais, headquartered at the Health Technology Center of the Faculty of Medicine (CETES/FM) and which is used by the professionals from the municipalities of the state of Minas Gerais accompanied by this Center.

This platform allows the access to several important data for the monitoring of the municipalities by the Center related to Telehealth, among them, we can highlight: final conduct, doubts resolved and degree of satisfaction.

For this article, it will be used 2,442 teleconsultings whose health professionals filled the field final conduct and who were requested during the period from January/2015 until January/2017. This number corresponds to 34.6% of the total number of teleconsultings corresponding to the same period, that is, 7,053.

Initially, the teleconsultings made by professional category were distributed. Afterwards, it was sought to analyze the professionals' behavior after teleconsulting, in relation to the referral to the different levels of complexity of the system (primary, secondary and tertiary). These data were detailed considering the medical specialties and the different professionals.

Next, it focused on the understanding of the quality of the responses received, through the analysis regarding the satisfaction of the answers received from the teleconsultings and regarding the clarification of the doubt that generated the teleconsulting.

The data obtained by this report were transferred to the excel software and for the final analysis of the data, the SPSS software, version 18.0, was used.

## RESULTS

In the analysis of the type of professional that requests teleconsultings, it can be seen in Table 1 that the doctors were responsible for 57% of the teleconsultings, followed by nurses and dentists, respectively 28.3% and 9.9%.

**TABLE 1 - Distribution of teleconsultings according to professional category - Minas Gerais - 2015-2016**

Professional Category	Teleconsultings	
	N	%
Doctor	1393	57,0
Nurse	691	28,3
Dentist	241	9,9
Others	117	4,8
Total	2442	100,0

Source: Telehealth Platform FM/CETES/UFMG

The table 2 shows the professional's behavior regarding the referral to other levels of complexity of the health system after teleconsulting. From the total number of teleconsultings that are part of this study, in 74.6% the conduct of the requesting health professional was to continue the patient's treatment in the Basic Health Unit (UBS); while 22.5% were referred to the secondary level and only 2.9% to the tertiary level.

**Table 2 - Distribution of teleconsulting according to the professional's conduct after teleconsulting. Minas Gerais 2015-2016**

CONDUCT AFTER TELECONSULTING	N	%
Refer secondary levels	549	22,5
Refer tertiary levels	72	2,9
Keep in the unit	1821	74,6
Total	2442	100,0

Source: Telehealth Platform FM/CETES/UFMG

In table 3, the teleconsultings were unfolded on the most demanded specialties and then distributed for routing to other levels of complexity of the system. In general, it is observed that most of the specialties keep the patient in the basic care of about 70% of the cases, with the exception of the general surgery (whose patients remain in the unit in only 50%).

It is observed that the specialties general surgery, neurology, orthopedics and pediatrics were the ones that had the most cases whose patients had to be referred to both the secondary level and the tertiary level.

The dermatology presented 79.8% of its cases solved in the UBS itself, despite having sent 18.4% of its cases to the secondary level and only 1.8% to the tertiary level. Secondly, almost tied, we have cardiology and medical clinic with 77% and 77.6%, respectively, of their cases solved in the UBS, presenting a good resolution, even presenting cases that had to be sent to the other levels.

**Table 3 - Distribution of teleconsultings by specialty according to the professional's behavior after teleconsultings. Minas Gerais - 2015-2016**

Specialty	Conduct after teleconsulting						N	Total %
	Refer secondary levels		Refer tertiary levels		Keep in the unit			
	n	%	n	%	n	n%		
DERMATOLOGY	70	18,4%	7	1,8	304	79,8	7	100,00
ORTHOPEDICS AND TRAUMATOLOGY	34	28,3%	6	5,0	80	66,7	6	100,00
NEUROLOGY	27	26,7%	7	6,9	67	66,3	7	100,00
CARDIOLOGY	25	18,0%	7	5,0	107	77,0	7	100,00
GYNECOLOGY	24	22,4%	4	3,7	79	73,8	4	100,00
GYNECOLOGY AND OBSTETRICS	20	25,3%	3	3,8	56	70,9	3	100,00
MEDICAL CLINIC	19	22,4%	0	0,0	66	77,6	0	100,00
UROLOGY	17	23,0%	2	2,7	55	74,3	2	100,00
PEDIATRICS	16	21,6%	6	8,1	52	70,3	6	100,00
GENERAL SURGERY	14	41,2%	3	8,8	17	50,0	3	100,00
OTHER SPECIALTIES	283	22,7%	27	2,2	938	75,2	27	100,00

Regarding the final conduct by professional category, it can be seen from table 4 that 75.2% of the cases attended by physicians remained their follow-up or their resolution at the UBS itself. However, 21.8% and 2.9% of other cases had to be referred respectively to the secondary level and tertiary level.

Regarding the nurses, 71.1% of the cases had resolution in the UBS and 25.3% and 3.6% of the cases, respectively, were referred to the secondary and tertiary levels. For the dentists, 71% were solved in the unit and, for 27.4% and 1.7% of the cases, there was a need to refer patients to the secondary and to the tertiary levels, respectively.

**Table 4 - Distribution of teleconsultings by professional category, according to the conduct after teleconsultings. Minas Gerais 2015-2016**

CBO	Conduct after teleconsulting						Total	
	Refer Second Levels		Refer Tertiary Levels		Keep in the unit			
	N	%	N	%	N	%	N	%
Health community agent	1	50,0	0	0,0	1	50,0	2	100,0
Auxiliary in oral health	0	0,0	0	0,0	11	100,0	11	100,0
Dentist	66	27,4	4	1,7	171	71,0	241	100,0
Nurse	175	25,3	25	3,6	491	71,1	691	100,0
Pharmacist	0	0,0	0	0,0	10	100,0	10	100,0
Physiotherapist	0	0,0	0	0,0	12	100,0	12	100,0
Doctor	304	21,8	41	2,9	1048	75,2	1393	100,0
Nutritionist	1	3,4	0	0,0	28	96,6	29	100,0
Professional of physical education in health	0	0,0	0	0,0	20	100,0	20	100,0
Clinical psychologist	1	9,1	0	0,0	10	90,9	11	100,0
Nursing Technician	1	4,5	2	9,1	19	86,4	22	100,0

Source: Telehealth Platform FM/CETES/UFGM

To analyze the quality of the teleconsulting offered, two aspects were described: if the teleconsulting applicants' doubts were solved and the applicants' satisfaction regarding the answers obtained. In the table 5, it is observed that among the health professionals whose teleconsultings are being studied in this article, only 68.9% completed the field solved doubt. Of these, 90.1% said they had their doubts solved by the teleconsultant's response and only 2.4% said they did not have their doubts solved.

**Table 5 - Distribution of teleconsultings regarding the doubts solved. Minas Gerais 2015-2016**

SOLVED DOUBT	N	%
Not solved	41	2,4
I don't know	4	0,2
Partially	122	7,2
Yes	1517	90,1
TOTAL	1684	100,0

Source: Telehealth Platform FM/CETES/UFGM

The health professionals who filled this field, also, correspond to 68.9% of the total of teleconsultings studied. It can be seen in table 6 that 95.1% are very satisfied or satisfied and only 1.8% are dissatisfied or very dissatisfied.

**Table 6 - Distribution of teleconsultings regarding the satisfaction of teleconsulting responses in Minas Gerais 2015-2016**

	N	%
Indifferent	54	3.2%
Unsatisfied	16	1.0%
Very unsatisfied	13	0.8%
Very satisfied	1,002	59.5%
Satisfied	599	35.6%
Total	1,684	100.0%

It can be observed from the results obtained that the teleconsultings contribute to the fact that approximately 74% of the patients remain in the basic health unit, being that most of the applicants positively evaluate the quality of teleconsultings offered. There is also a different distribution between the specialties and the professional categories regarding the referral to the other levels of complexity of the system.

## DISCUSSION OF THE RESULTS

Improving the quality of service in Primary Care and solving the user's health problem at the primary level, avoiding shifts and referrals to queues of waiting for consultation with a specialist is one of the premises of the Telehealth Brazil Networks Program<sup>5</sup>.

Several studies point in this direction<sup>7-11</sup>, with telehealth programs presenting a good acceptance by the professionals, enabling changes in clinical behaviors and reducing patients' referrals.

The results of this article, especially regarding the final behavior of the health professional after the request of teleconsulting, may indicate a tendency that a significant portion of the cases attended in Primary Care referring to the municipalities of the State of Minas Gerais that are accompanied by the Scientific Technician Center of UFGM/FM/CETES, are being kept at the UBS, without the need to refer the patient to other levels, that is, 74.6%.

The results above may indicate a more optimistic scenario regarding the use of teleconsulting, as Dantas et al points out in his review article on the subject. For him, Telehealth is a promising technology

that contributes to the improvement of health professionals<sup>2</sup>. Other recent studies carried out in the state of Minas Gerais indicate that the use of new information technologies in the health area, among them, the use of teleconsultings, were not routinely incorporated into the day-to-day work of health workers, for various reasons, either due to lack of connectivity, lack of adequate training on the platforms, or by the characteristics of the municipalities and professionals, among other reasons<sup>12,13</sup>.

Regarding the users' satisfaction of the teleconsulting system, it was observed that 90.1% of teleconsulting responses were evaluated by the requesting professionals as doubts solved and 95.1% of these requesting professionals were satisfied or very satisfied with the response received from the teleconsultant concerning the question demanded. A teleconsulting study for general practitioners working in primary health care in a rural area of Italy<sup>14</sup> also found a widespread satisfaction among physicians in relation to teleconsulting, a reduction in the number of demands and the quality of the specialists in clinical problems was considered good.

In this study, there was a tendency for doctors, nurses and dentists to perform more teleconsultings than other health professionals who are part of the family health team (ESF).

This finding may suggest that professionals who use this tool, perceive it as "less complex" than those who do not use it. This greater use may also be related to the prior knowledge of technology and the perception of the usefulness of the system among other factors pointed out by the study carried out by Alkmim<sup>12</sup>.

Vallejos et al.<sup>15</sup> evaluated a teleconsulting system in dermatology performed by primary health professionals in North Carolina, the USA and found that out of 79 teleconsultings, 68 were sent by nurses, 6 by doctors and 5 by medical assistants.

Also in the area of nursing, particularly with regard to wounds, studies are it is observed studies<sup>16,17,18</sup> which conclude that teleconsultings contribute to the increase of the quality of the attention received by the patients as well as can reduce costs.

Another data pointed out in this article is related to the most requested specialties and the type of conduct taken by the professional to solve the case. The dermatology has had its cases resolved more in the unit itself, although some cases have been referred to the secondary and ter-

tiary levels. From the consultation of other articles, the research carried out by Alkmim clarifies that the dermatology is one of the most demanded specialties and that it has a high resolution of its cases to the distance<sup>12</sup>.

Regarding the other specialties, a certain balance is observed between referrals to the secondary and tertiary levels, except for the general surgery specialty, 41.2% for the secondary level and 8.8% for the tertiary level.

This article presents some limitations, among them, it is important to point out that of the professionals who requested teleconsulting, 65.4% did not fill the final conduct field, moreover, of the 34.6% teleconsulting whose requesting professionals filled this field, many failed to fill the fields referring to doubts solved and satisfaction of the answer. Thus, it was not possible to study all teleconsultings carried out during the period from January/2015 to January/2017. The existence of underreporting of data makes it difficult to understand the scenario regarding the resolution or not of the patient's health problem in the ub.

## FINAL CONSIDERATIONS

Based on the results obtained there is a trend that health professionals, mainly doctors, nurses and dentists are satisfied with the answers of the teleconsultants, because their doubts are being solved to the content. As a result, it can be inferred that these health professionals, more frequently, and others, less frequently, are more confident in carrying out their patients' follow-up within the UBS itself, thus avoiding referral from the user to other levels of attention.

According to several studies that were used in this article, it is known that the use of so-called information and communication technologies (ICT), among them, the Telehealth, still face several problems, from the professionals' adhesion, lack of structure and adequate equipment, lack of time for the use of the tool, lack of connectivity, etc., presenting itself as a constant challenge for the managers, for the professionals, for the Scientific Technical Centers. This requires a change of culture, a change of attitude of all the actors involved in order to achieve the objectives of the Telehealth Brazil Networks Program as recommended.

In order to conclude that "not forwarding the user" to other levels more complex means that the patient's health problem has in fact been solved at UBS itself, it will be necessary to carry out new researches on the subject, preferably qualitative and involving both health professionals and users. Still, we have a long way to go.

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