

# Profile of teleconsultancies answered by doctors of the Telehealth Center of the Clinics Hospital of the Federal University of Pernambuco

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## Abstract

*Introduction: This article describe the profile of the teleconsulting firms sued by professionals of the Unified Health System of Pernambuco to the teleconsulting doctors of the Telehealth Center of the Clinics Hospital of the Federal University of Pernambuco in the period from January 1, 2015 to December 31, 2016. Method: This is a cross-sectional, quantitative and descriptive cohort study in which anonymized secondary data from the Telehealth Center of the Clinics Hospital of the Federal University of Pernambuco were used. The Statistical Package for the Social Sciences 13.0 software for Windows and Excel 2016 were used. All statistical tests were applied with 95% confidence. The Mann-Whitney (Non-Normal) test was applied to compare the response time of teleconsultants in the area of family and community medicine with other medical specialties. Results: 469 teleconsultancies were analyzed. In 87% of the cases there was use of asynchronous communication channel. Discussions of clinical cases corresponded to 54.6% of the demand. Nurses (34.5%), doctors (29.9%) and community health agents (20.7%) stood out among the applicants. Among the medical teleconsultants, professionals with expertise in family and community medicine answered 76.4% of the demands and the median response time (40.22 hours) was significantly lower than that of other specialties (70.42 hours). The satisfaction of applicants was 96.1%. Regarding the content, the requests were mostly related to chronic diseases (22.5%), transmissible diseases (15.8%), skin (13.6%) and mental health (6.2%). In the metropolitan region the requests from doctors (50.2%) and questions related to chronic diseases prevailed. In the other health macro-regions, the nurses stood out as solicitors and the demands on transmissible diseases and skin diseases stood out in terms of content. Conclusion: The research points out the relevance of family and community medicine in the context of teleassistance in Pernambuco. The study also raises the need for new research to evaluate the impact of teleassistance in the epidemiological profile of the state and suggests the expansion of the use of the service in the practice of medical assistance.*

*Keywords: Primary Health Care; continuing education; telemedicine.*

## Resumen

*Perfil de las teleconsultas atendidas por los médicos del Centro de Telesalud del hospital de la Universidad Federal de Pernambuco*  
*Introducción: El artículo describe el perfil de las empresas de teleconsulta demandadas por profesionales del Sistema Único de Salud de Pernambuco a los médicos teleconsultores del Centro de Telesalud del Hospital de las Clínicas de la Universidad Federal de Pernambuco en el período comprendido entre el 1° de enero de 2015 y el 31 de diciembre de 2016. Método: Se trata de un estudio de cohorte transversal, cuantitativo y descriptivo en el que se utilizaron datos secundarios anonimizados del Centro de Telesalud del Hospital de las Clínicas de la Universidad Federal de Pernambuco. Se utilizó el paquete estadístico para las Ciencias Sociales 13.0 para Windows y Excel 2016. Todas las pruebas estadísticas se aplicaron con un 95% de confianza. Se aplicó la prueba Mann-Whitney (no normal) para comparar el tiempo de respuesta de los teleconsultores en el área de la medicina familiar y comunitaria con otras especialidades médicas. Resultados: Se analizaron 469 teleconsultas. En el 87% de los casos, se usó un canal de comunicación asíncrono. Las discusiones de casos clínicos correspondieron al 54,6% de la demanda. Entre los solicitantes destacaron las enfermeras (34,5%), los médicos (29,9%) y los agentes de salud comunitarios (20,7%). Entre los teleconsultores médicos, los profesionales con experiencia en medicina familiar y comunitaria respondieron al 76,4% de las demandas y el tiempo medio de respuesta (40,22 horas) fue significativamente inferior al de otras especialidades (70,42 horas). La satisfacción de los solicitantes fue del 96,1%. En cuanto al contenido, las solicitudes se referían principalmente a enfermedades crónicas (22,5%), enfermedades transmisibles (15,8%), piel (13,6%) y salud mental (6,2%). En la región metropolitana prevalecieron las solicitudes de los médicos (50,2%) y las cuestiones relacionadas con las enfermedades crónicas. En los demás macrorregiones de salud, las enfermeras se destacaron como solicitantes y las demandas sobre enfermedades transmisibles y enfermedades de la piel se destacaron en términos de contenido. Conclusión: La investigación señala la relevancia de la medicina familiar y comunitaria en el contexto de la teleasistencia en Pernambuco. El estudio también plantea la necesidad de nuevas investigaciones para evaluar el impacto de la teleasistencia en el perfil epidemiológico del Estado y sugiere la expansión del uso del servicio en la práctica de la asistencia médica. Palabras clave : Atención Primaria de la Salud; Educación Permanente; Telemedicina.*

*Perfil das teleconsultas atendidas pelos médicos do Centro de Telessaúde do hospital da Universidade Federal de Pernambuco*

*Introdução:* O artigo descreve o perfil das empresas de teleconsulta demandadas por profissionais do Sistema Único de Saúde de Pernambuco aos médicos teleconsultores do Centro de Teleconsulta do Hospital de las Clínicas da Universidade Federal de Pernambuco no período entre 1º de janeiro 2015 e 31 de dezembro de 2016. *Método:* trata-se de um estudo de corte transversal, quantitativo e descritivo no qual foram utilizados dados secundários anônimos do Centro de Telessaúde do Hospital de las Clínicas da Universidade Federal de Pernambuco. Foi utilizado o pacote estatístico Social Sciences 13.0 para Windows e Excel 2016. Todos os testes estatísticos foram aplicados com 95% de confiança. O teste de Mann-Whitney (não normal) foi aplicado para comparar o tempo de resposta dos teleconsultores da área de medicina familiar e comunitária com outras especialidades médicas. *Resultados:* foram analisadas 469 teleconsultas. Em 87% dos casos, foi utilizado um canal de comunicação assíncrono. As discussões de casos clínicos corresponderam a 54,6% da demanda. Entre os candidatos, destacaram-se enfermeiros (34,5%), médicos (29,9%) e agentes comunitários de saúde (20,7%). Entre os teleconsultores médicos, os profissionais com experiência em medicina de família e comunidade responderam a 76,4% das solicitações e o tempo médio de resposta (40,22 horas) foi significativamente inferior ao das outras especialidades (70,42 horas). A satisfação do requerente foi de 96,1%. Em relação ao conteúdo, as solicitações referiam-se principalmente a doenças crônicas (22,5%), doenças transmissíveis (15,8%), pele (13,6%) e saúde mental (6,2%). Na região metropolitana prevaleceram solicitações de médicos (50,2%) e dúvidas relacionadas a doenças crônicas. Nas demais macrorregiões de saúde, os enfermeiros se destacaram como demandantes e as demandas por doenças transmissíveis e dermatológicas se destacaram em termos de conteúdo. *Conclusão:* a pesquisa aponta a relevância da medicina de família e comunidade no contexto do teleatendimento em Pernambuco. O estudo também levanta a necessidade de novas pesquisas para avaliar o impacto do tele-atendimento no perfil epidemiológico do Estado e sugere a ampliação da utilização do serviço na prática da assistência médica. *Palavras-chave:* Atenção Primária à Saúde; Educação permanente; Telemedicina.

## Introduction

For many years, Primary Health Care (PHC) has existed in Brazil in the form of punctual health services. Since the health reform and creation of the Unified Health System (SUS), services in Primary Health Care have expanded with great speed, culminating in the consolidation of the Family Health Strategy (ESF).<sup>1</sup>

Some aspects described in the literature point out expressive advances achieved with the implementation of ESF. The strengthening of PHC aimed at by the Strategy impacts on several health indicators: reducing total expenditures; improving access to health services and overall quality of care; promoting health; preventing risks; facilitating early detection of diseases; promoting the reduction of hospitalizations and reducing the use of unnecessary specialized health care.<sup>2,3,4</sup>

Despite this, many structural problems that have presented themselves since the Strategy's inception have remained, thus compromising its full effectiveness. Important issues such as difficult access, low resolving capacity, scarcity of qualified human resources, difficulty in teamwork, economic, social and political discrepancies in Brazil, precarious infrastructure especially in small cities, and low government investment in health, are a source of instability at the basis of this model of care.<sup>5,6,7,8</sup>

According to Mendes<sup>9</sup>, the solution to this extremely complex situation would be to strengthen the APS in order to make its action effectively ordering care and resolving. For this, a set of measures should be taken, such as the development of strategies to ensure accessibility to the user, optimization of the articulation of the assistance network and the training and continuous development of professionals. The latter, considered as a strategic axis for increasing the resoluteness and qualification of PHC, is a necessity for all professional categories in order to update knowledge, develop new skills, build new knowledge and structure an interdisciplinary work.<sup>10</sup>

Motivated by the issue, the Ministry of Health has invested in the last years in the multiplication of alternatives to qualify these professionals working in SUS. Besides developing policies to encourage the formation of specialists linked to the practice, ways were also sought for capacity-building and updating of professionals who were already working in the field. According to Peduzzi et al.<sup>11</sup> permanent health education is directly related to the effectiveness of care and is based on the:

[...] conception of education as meaningful transformation and learning, focused on: the daily exercise of the work process, the valorization of work as a source of knowledge, the valorization of articulation with health care, management and social control, and the recognition that practices are defined by multiple factors; focused on multiprofessionality and interdisciplinarity, with contextualized and participative teaching strategies, and oriented to the transformation of practices.

Considering the urgent need to provide this qualification support on a large scale, including for locations of difficult access, and at the lowest possible cost, new strategies to meet these demands needed to be created. In this scenario, the development and use of technological resources has become crucial, and is also guided by the Ministry of Health's National Policy on Permanent Health Education<sup>12</sup>. According to her, professional updating through technological resources is of great importance because it is more dynamic, timely and customized than classroom teaching. Furthermore, it generates openness and flexibility in access to knowledge, facilitates sharing and circulation of information, overcomes problems of distance and access to references, and enhances the development of debates.

One of the ways to offer this qualification to SUS professionals, using technology as a means of massification and access, is by providing quality distance education services. The National Telehealth Brazil Networks Program appears in this context having as one of its objectives to provide, through telehealth services, permanent health education.

According to the World Health Organization<sup>13</sup>, telehealth is defined as the use of information and communication technologies (ICTs) for the exchange of information between health professionals where distance is a critical factor. Its objective would be to promote discussions on prevention, diagnosis and treatment of pathologies, research, evaluations and continuing education processes. Telehealth provides several modalities of health education actions and assists in obtaining the minimum 85% resoluteness intended by APS.<sup>14</sup>

The needs and demands in health found in various regions, states and municipalities of Brasil are characterized by great heterogeneity, which is reflected in the structuring and organization of the services offered by each Nucleus of Telehealth. All the Nuclei, however, develop support actions and permanent education, especially for the APS teams, aiming at improving the quality of care, expanding the scope of actions offered by the teams and increasing clinical capacity, based on the services offered by Telehealth. Tools and ICTs are also commonly used to develop technical, scientific and administrative activities to structure teleassistance services such as teleconsulting and Second Opinion (SOF), telediagnosis and tele-education.<sup>15</sup>

Among these services, teleassistance stands out for its potential for timely qualification of assistance, stimulation of the applicant's search for permanent education, reduction of unnecessary costs in health care, avoidance of referrals and optimization of the flow of the assistance network<sup>16</sup>. Regarding the activity of teleconsulting, which will be the focus of the evaluation of this evaluation, Article 2 of Ordinance GM/MS 2,546 of 2011 defines the practice as:

Consultation registered and conducted among workers, professionals and managers in the health area, through two-way telecommunication tools, in order to clarify doubts about clinical procedures, health actions and issues related to the work process [...] (BRASIL, 2011a, p.50).

The process of requesting and responding to a teleconsultancy occurs between one or more requesting professionals primarily linked to APS teams and one or more teleconsultants linked to a Telehealth Center. The mediation of this interaction takes place through a tele-regulator with training and work experience in APS, who will define the best tele-consultant for each case.<sup>15,17</sup>

As for the temporal distance, the teleconsulting services can be classified in synchronous and asynchronous. When the requesting professional and the teleconsultant participate simultaneously in a discussion - be it by chat, web or videoconference - it is a synchronous action. If, in any other way, the interactions occur through off-line messages, it is an asynchronous teleconsultancy and must be answered within a maximum of 72 hours<sup>15,17</sup>. When the content of an

asynchronous teleconsultancy response is pertinent and replicable in regional and/or national health contexts, it may become, after a process of anonymization and review, an SOF, and be made available by the Virtual Health Library<sup>17</sup>.

The structuring of the team to support these teleassistance activities should be compatible with the local needs of each Nucleus. It is recommended, however, that this team have extensive knowledge and experience in working on PHC at SUS, since the practice of large services indicates that most requests are answered by specialists in this area. The need to use teleconsultant focal specialists would be restricted to less than 10% of cases.<sup>17</sup>

In this context, the participation of the teleconsultant doctor is extremely important, since -especially among its peers- it has great potential to train, increase solubility and autonomy and avoid referrals and other unnecessary conduct. This professional acting in the scope of the telescope, besides having his practice respeded by several Ordinances and Protocols of the Ministry of Health, acts in accordance with the attributions foreseen in the resolutions of his class council.<sup>18,19</sup>

In Pernambuco, SUS started to experiment with telehealth projects since 2003, through a pioneer strategy idealized by the Health Information Technology Group of the Federal University of Pernambuco (UFPE) and financed by the Ministry of Health. On that occasion, the Telehealth Center based at Clinics Hospital of UFPE (NUTES-HC-UFPE) began its activities with the development of the project "Telehealth in Family Health Strategy, Network of Telehealth Centers" (Telehealth Centers Network) which provided support to 4 municipalities in the metropolitan region of Recife.<sup>20</sup> In 2005 NUTES Network participated in the first discussions that culminated with the implementation of the Permanent Commission on Telehealth in 2006<sup>21</sup> from which the Pilot Project on Telehealth Applied to Primary Care was developed in 2007<sup>22</sup> and in 2010 establishing the Program Telehealth Brasil Networks nationwide<sup>23</sup>. Currently, NUTES-HC-UFPE is the Telehealth Center installed in Pernambuco with a more robust coverage<sup>24</sup>, however, it has a still incipient performance of doctors with training focused on APS and, for this reason, was chosen for this study.

Thus, knowing the profile of use of the teleassistance service would allow to focus on the main demands, facilitating the planning of training actions and structuring the composition of the support team of teleconsultants. The objective of this work is to evaluate the teleconsultancies demanded by health professionals of the State of Pernambuco linked to SUS to the teleconsultants' doctors of NUTES-HC-UFPE in the period between January 1, 2015 to December 31, 2016.

## Method

This is a cross-sectional, quantitative and descriptive cohort study whose object of evaluation is a historical series of 24 months (January 2015 to December 2016) of teleconsultancies demanded from medical teleconsultants via the HealthNet Telehealth Platform by users from Pernambuco. To achieve the objective, anonymized secondary data provided by the HC-UFPE Telehealth Center were used.

Statistical Package for the Social Sciences (SPSS) 13.0 for Windows and Excel 2016 were used. All statistical tests were applied with 95% confidence. The results are presented in table form with their respective absolute and relative frequencies. The numerical variables are represented by measures of central tendency and measures of dispersion.

The usage profile was evaluated in relation to the professional category, health care level of the work establishment and location (considering the health macro-regions) of the applicant. In the same way, area of activity/specialty of the teleconsultant, time elapsed to answer, nature of the question (clinical case, clinical question and work process) communication channel (synchronous or asynchronous), degree of satisfaction and subject of the questioning were examined. The latter was classified as to the general subject of the question via Health Science Descriptors (DeCS), according to the service completion guide.

To compare the response time of asynchronous teleconsultancies between family and community medicine (CFM) doctors and other specialties, the Kolmogorov-Smirnov Normality Test for quantitative variables was applied, and later the Mann-Whitney (Non-Normal) test for comparison with both groups.

Considering that the characterization of the teleconsultancy is based on the main focus of the questioning, further discussion on the same question was excluded from the evaluation. Two teleconsultancies sent from other states (Paraná and Alagoas) were also excluded, since the objective of the study is focused on the demands of Pernambuco.

## Results

The 469 teleconsultancies analyzed originated from 69 municipalities, which represent 37.3% of the municipalities in Pernambuco. In this context, as shown in Table 1, the metropolitan region stood out with the highest number of requests.

In accordance with Ordinance 2,546 of the Ministry of Health<sup>25</sup>, which foresees the expanded action of the National Telehealth Brasil Networks Program for all levels of health care in SUS, points registered in secondary or tertiary care, such as Psychosocial Care Centers and hospitals, totaled only 5% of the demands in this sample.

It is evident that in 87% of the cases there was use of the asynchronous communication channel. Discussions of clinical cases corresponded to 54.6%, clinical questions to 39.9% and questions of work process comprised only 5.5% of the cases.

Regarding the professional category, it was observed that nurses (comprising 34.5% of the cases, with n=162), doctors (29.9% with n=140) and community health agents (20.7% with n=97) stood out among the applicants. The other 14 professional categories requesting added up 14.9% of the demands (with n=70), and no category exceeded 4.6% of the requests alone.

In 2015-2016, the HC-UFPE Telehealth Center had the support of 7 physicians on duty, being 1 specialist in internal medicine, 1 psychiatrist, 1 geriatrist, 1 specialist in cardiology research and extension project scholarship holder, 1 family medicine resident doctor and community research and extension project scholarship holder and 2 family and community doctors (the 1st acting from June to August 2016 and the 2nd from July to December 2016). The team also had the support of several doctors with focal specialties registered in the service, such as gynecology, dermatology, general surgery and pediatrics. Among the medical teleconsultants, CFM professionals accounted for 76.4% of the demands. Cardiology professionals contributed with 8.7% and psychiatry 6%. The 9 remaining medical areas answered the other questions with percentages that did not exceed 3.2% of the total number of teleconsultants evaluated in the period.

As for the satisfaction declared by the applicants, it was verified that the good and optimal levels totaled 96.1%, with only 2.6% of dissatisfaction in the services provided.

**Table 1.** Profile of the Teleconsultancies answered by doctors of NUTES-HC-UFPE, from January/2015 to December/2016. Telehealth Center HC/UFPE, Recife, 2017.

<b>Variables</b>	<b>N</b>	<b>%</b>
Health MacroregionsMetropolitan	263	56,0
Hinterland	110	23,5
Wild	110	23,5
San Francisco Valley and Araripe	29	6,2
Total	469	100,0
Communication Channel	110	23,5
Asynchronous	408	87,0
Synchronous	61	13,0
Total	469	100,0
Nature		
Clinical Case	256	54,6
Clinical Issue	187	39,9
Working Process Issue	26	5,5
Total	469	100,0
Institution	110	23,5
Primary health care	445	95,0
Secondary/tertiary care	24	5,0
Total	469	100,0

<b>Occupation of the Teleconsultant</b>	<b>N</b>	<b>%</b>
Family and Community Medicine	358	76,4
Cardiology	41	8,7
Psychiatrist	28	6,0
Gynecology and Obstetrics	15	3,2
Pediatrics	10	2,1
Medical Clinic	5	1,1
Dermatology	5	1,1
Geriatrics	3	0,6
Otolaryngology	1	0,2
Occupational Medicine	1	0,2
Urology	1	0,2
Total	496	100,0
Occupation of the Applicant		
Nurse	162	34,5
Physician	140	29,9
ACS	97	20,7
Other	70	14,9
Total	469	100,0

<b>Evaluated by the applicants as to the degree of satisfaction</b>	<b>N</b>	<b>%</b>
Evaluated	78	16,6
Not evaluated	391	83,4
Total	469	100,0
<b>Degree of satisfaction of the applicant with the service</b>		
Good	16	20,5
Great	59	75,6
Regular	1	1,3
Bad	2	2,6
Terrible	0	0,0
Total	78	100,0

Regarding the content, according to Table 2, the requests were mostly related to chronic diseases (22.5%), transmissible diseases (15.8%), skin (13.6%) and mental health (6.2%).

**Table 2.** Number of teleconsultancy classified through the Health Sciences Descriptors in the period from January/2015 to December/2017. Telehealth Center HC/UFPE, Recife, 2017.

<b>DeCS</b>	<b>N</b>	<b>%</b>
Chronic illness	106	22,5
Transmissible diseases	74	15,8
Skin	64	13,6
Mental health	29	6,2
Diseases of the nervous system	22	4,7
Urogenital diseases	21	4,5

Pre-operative	21	4,5
General symptoms	20	4,3
Sexual and reproductive health	16	3,4
Hematological diseases	13	2,8
Respiratory diseases	13	2,8
High risk pregnancy	11	2,3
Food/diet/nutrition	10	2,1
APS	9	1,9
Skeletal muscle diseases	7	1,5
Diseases of the digestive system	6	1,3
Accident prevention	6	1,3
Integral health care	5	1,1
Growth and development	5	1,1
Physical exercise	4	0,9
Endocrine system diseases	3	0,6
Ophthalmology	2	0,4
Immunization	2	0,4
Total	469	100,0

Table 3 shows that in the metropolitan region physicians' referrals (50.2%) and issues related to chronic diseases prevailed. In the other health macro-regions, the nurses stood out as applicants and the demands on communicable diseases and skin diseases stood out in terms of content.

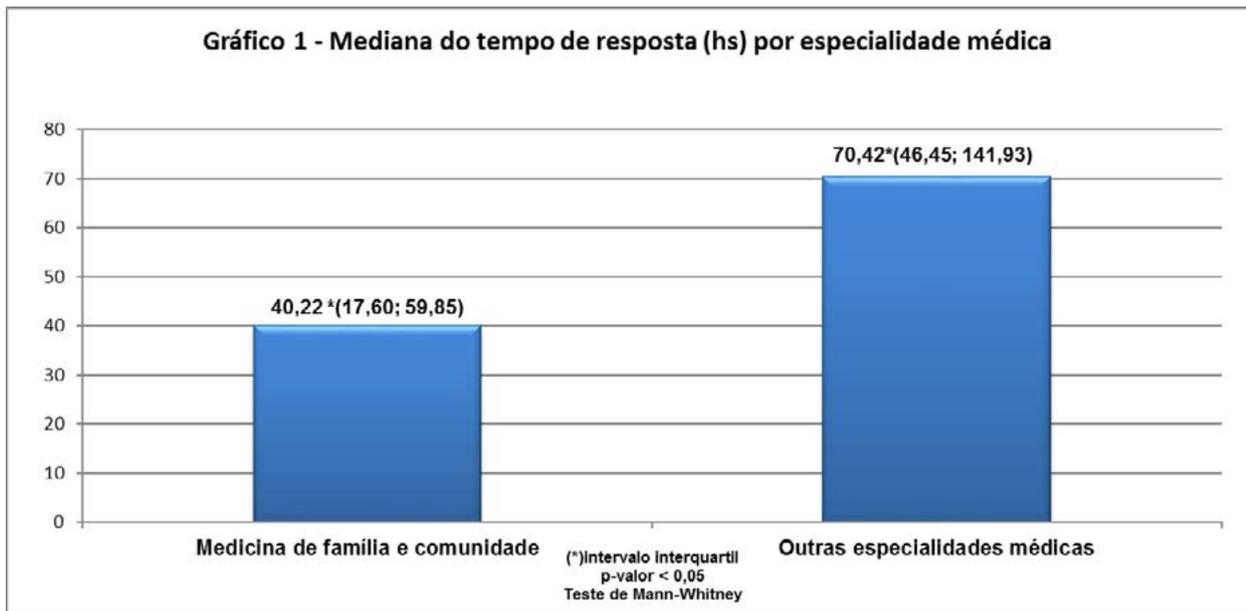
**Table 3.** Profile of teleconsulting by health macroregion of the state of Pernambuco, from January/2015 to December/2016. Telehealth Center HC/UFPE, Recife, 2017.

Health Macroregions				
Occupation	Variables			
	Metropolitan n (%)	Wild n (%)	Hinterland n (%)	San Francisco Valley and Araripe n (%)
Nurse	56 (21,3)	36 (53,7)	54 (49,2)	16 (55,3)
Physician	132 (50,2)	3 (4,5)	4 (3,6)	1 (3,4)
ACS	34 (12,9)	22 (32,8)	36 (32,7)	5 (17,2)
Other	41 (15,6)	6 (9,0)	16 (14,5)	7 (24,1)
Total	263 (100,0)	67 (100,0)	110(100,)	29 (100,0)
DECS				
Chronic illness	85 (32,3)	5 (7,5)	14 (12,7)	2 (6,9)
Transmissible diseases	33 (12,5)	7 (10,4)	25 (22,7)	9 (31,0)
Mental health	17 (6,5)	9 (13,4)	2 (1,8)	1 (3,4)
Skeletal muscle diseases	6 (2,3)	0 (0,0)	1 (0,9)	0 (0,0)
Diseases of the nervous system	9 (3,4)	5 (7,5)	7 (6,4)	1 (3,4)
Urogenital diseases	11 (4,2)	2 (3,0)	7 (6,4)	1 (3,4)
Hematological diseases	8 (3,0)	1 (1,5)	2 (1,8)	2 (6,9)
Respiratory diseases	7 (2,7)	3 (4,5)	3 (2,7)	0 (0,0)
General symptoms	12 (4,6)	5 (7,5)	1 (0,9)	2 (6,9)

<b>Health Macroregions</b>				
<b>Occupation</b>	<b>Variables</b>			
	Metropolitan n (%)	Wild n (%)	Hinterland n (%)	San Francisco Valley and Araripe n (%)
Growth and development	4 (1,5)	1 (1,5)	0 (0,0)	0 (0,0)
High risk pregnancy	2 (0,8)	4 (6,0)	4 (3,6)	1 (3,4)
Skin	29 (11,0)	16 (23,9)	16 (14,5)	3 (10,3)
Food/diet/nutrition	4 (1,5)	0 (0,0)	6 (5,5)	0 (0,0)
Sexual and reproductive health	2 (0,8)	5 (7,5)	6 (5,5)	3 (10,3)
Ophthalmology	0 (0,0)	0 (0,0)	1 (0,9)	1 (3,4)
Immunization	1 (0,4)	0 (0,0)	1 (0,9)	0 (0,0)
Diseases of the digestive system	2 (0,8)	0 (0,0)	3 (2,7)	1 (3,4)
APS	4 (1,5)	2 (3,0)	2 (1,8)	1 (3,4)
Endocrine system diseases	3 (1,1)	0 (0,0)	0 (0,0)	0 (0,0)
Pre-operative	19 (7,2)	1 (1,5)	0 (0,0)	1 (3,4)
Physical exercise	4 (1,5)	0 (0,0)	0 (0,0)	0 (0,0)
Accident prevention	1 (0,4)	0 (0,0)	5 (4,5)	0 (0,0)
Integral health care	0 (0,0)	1 (1,5)	4 (3,6)	0 (0,0)
Total	263 (100,0)	67 (100,0)	110(100,)	29 (100,0)

As for the response time, demonstrated in Graph 1, it is observed that professionals working in family and community medicine have a significantly lower median response time than other specialties.

**Graph 1.** Response time by medical specialty (p-value < 0.05 by Mann-Whitney test).



\*Family Medicine and Community

\*Other Medical Specialties

All SOF originated from inquiries sent to medical teleconsultants published in the period evaluated (n=23) had their content extracted from asynchronous teleconsultants answered by teleconsultants connected to CBM.

## Discussion

Although it is the Telehealth Center installed in Pernambuco with a more robust coverage<sup>24</sup>, NUTES-HC-UFPE acts in a shared manner in the State with other Centers (BRASIL, 2017), which could influence a possible extrapolation of these results for the establishment of a general state panorama of the use of teleassistance.

The preponderance of asynchronous requests, already reported in other works<sup>17,26,36</sup> was repeated in this evaluation evidencing that 87% (n=408) of NUTES-HC-UFPE demands used this communication channel. However, it should be noted that in relation to the nature of the issues addressed, 54.6% referred to clinical cases, which according to the recommendations of the Ministry of Health<sup>27</sup>, should be discussed primarily by the synchronous communication channel.

This inadequacy between the communication channel and the nature of the issue may reflect processes such as the difficulty of conciliation between the agenda of the requesting professionals and the agenda of synchronous teleconsulting offered by the on-duty teleconsultants registered in the Nucleus. Another possible justification would be the difficulty in accessing points with good internet connection, already verified in Pernambuco by Novaes et al.<sup>28</sup> and Silva<sup>24</sup>, which would make more dynamic interactions via web or videoconference impossible.

Regarding the applicant's professional category, only in the metropolitan macro-region doctors stood out, although discreetly (50.2%). Inside the state, nurses and community health agents stood out. The low adherence of doctors to the service of teleconsultancy has already been reported in other works<sup>29,26,36</sup> and is a problem of a multifactorial nature. Besides the preference for referring patients for consultations at other levels of attention due to the low clinical acceptance of the service, factors such as lack of familiarity with information technology, little stimulus to technical improvement, work overload and lack of stimulus to fixation of professionals can also influence the process.

On this issue, it is important to emphasize that the evaluation of this work is restricted to teleconsultants answered by doctors and that, generally, the questions are forwarded to teleconsultants of the same professional category of the applicant. However, considering the content of the requests, according to the guidelines of the Teleregulation Protocol of the Ministry of Health<sup>30</sup>, the question may be forwarded to professionals of different categories. An expressive demand of teleconsultancy requested by other health professional categories could then be interpreted as an indicator of the difficulty of articulation and integration among Primary Health Care professionals. On the other hand, it could signal engaged professionals willing to increase the resolution/autonomy of their services and improve their technical knowledge, according to their professional competencies and attributions, regardless the

context of local integration of their Team. In the first case, however, it could suggest the need for complementary health education actions in relation to the integration of these teams and incorporation into the routine of Therapeutic Project services shared among all those involved in patient care.

Regarding teleconsultants, doctors with CBM expertise/action stood out for answering most of the questions sent (76.4%). From this, it is understood that the professional presents a high resolving power in several areas of knowledge and a special ability to dialogue with other health professionals. The family doctor and the community doctor develop, since his formation,<sup>31,32</sup> several activities in multiprofessional teams and learns the importance of this integration for a better planning of care and increase in the resoluteness of cases in SPA. It also has great familiarity with the professional assignments and the most appropriate language for clarification of each category.

The expectation of resolution by the specialty of more than 85% of the requests of teleconsultancy, suggested in the experience of the Telehealth Center of Rio Grande do Sul<sup>14</sup> however, was not achieved in this case. This fact seems to be influenced by administrative issues (such as greater availability of workload and prioritization of referrals to certain specialists linked to specific projects) and may be related to the level of complexity of the assistance of the applicant's performance.

The exclusive elaboration of responses with the potential to assist professionals in other contexts and places of the APS, the SOF, exalts the relevance of the participation of this medical professional in the context of teleassistance. In-depth knowledge about the attributes of PHC, about the structural resources and assistance networks available, and about tools that assist in a more resolute and expanded patient care are fundamental in the elaboration of materials that expand the resolute capacity of the applicant and can be extrapolated to other contexts.

The time for the response of these professionals was also significantly shorter and more appropriate to the deadline recommended by the Ministry of Health, which reinforces its degree of commitment to the proposal of teleassistance due to the practical knowledge of the importance of using the service. These reasons reinforce the importance of the participation, for many years well established in other states, of doctors with this specialization in the NUTES-HC-UFPE teleassistance.

The diversity in the topics of questioning, in general terms, seems to reflect the process of epidemiological transition through which Brazil is going through a triple burden of disease: an unsurpassed agenda of infectious diseases, malnutrition and reproductive health problems; an important burden of external causes and a strong presence of chronic conditions and their risk factors, such as smoking, overweight, obesity, physical inactivity, stress and inadequate nutrition<sup>9,33,34</sup>.

ship with patterns of morbidity and mortality, patterns of access to health services, and technical vulnerabilities resulting from lack of training that could be deepened in other studies.

The degree of satisfaction, reported optionally by the applicant, was evaluated in only 16.6% of the requests, which limits its interpretation and raises reflections on the need to elaborate new strategies for the collection of information. This same difficulty of measurement was demonstrated in other studies<sup>35,26,36</sup>.

## Conclusion

The results of this research indicate the relevance of family and community medicine in the context of teleassistance in Pernambuco and ratify the aptitude of the professional with this training to contribute in several fields of medical knowledge both for the training of peers and for the training of other professional categories. Despite this, the participation of telehealth in the training of these specialists is currently incipient in Pernambuco, which contributes to the lack of knowledge and distance from the practice by the category. This being said, there would be great relevance in creating well-structured internships in CBM residency programs that would enable new professionals in the field to become familiar with the work and have greater ownership of space - as already occurs in other national centers.

The study also raises the need for new research to evaluate the impact of teleassistance in the resolution of services, morbidity and mortality profiles, and reduction of referrals to other levels of assistance. It is also suggested the structuring of epidemiological monitoring systems from the questions sent.

It is concluded that teleassistance is a tool with great potential to provide permanent education in health, updating and therefore expanding the resoluteness of PHC, but that it needs to extend its reach and consolidate itself in the daily practice of medical care.

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