



Use of Maranhão Telehealth Program as a tool to support continuing health education*

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ABSTRACT

Objective. To assess the usage of services provided by the State of Maranhão Telehealth Program, Brazil, as a tool to support continuing health education for primary care workers.

Method. This quantitative, descriptive study used data from the Brazilian National Telehealth Platform for the years 2015 and 2016. To assess teleconsultations requested by municipalities and health care units in the state of Maranhão, the monthly system usage rate and the mean monthly request rate per municipality and primary health care unit were calculated. Teleconsultations were described regarding the requester's profession, most frequent topics, and satisfaction with/usefulness of the response provided. Tele-education activities were classified according to the number of computers and users logged into the activity.

Results. From January 2015 to December 2016, 13,976 teleconsultations were provided, requested by 47 municipalities. Most municipalities were small (up to 40,000 residents) and scored low on the municipal human development index (0.512 to 0.768). The mean overall usage rate and the monthly usage rate by municipality and unit were higher than those reported in the literature. Nurses and community health workers were the most active requesters. Of the users who completed the optional evaluation, over 80% stated that their question was answered.

Conclusions. The usage indicators for the state of Maranhão Telehealth Program were more positive than those reported by other telehealth services in Brazil and abroad. This indicates that the Program is sustainable, with good potential to support primary care and be used as a tool for continuing health education.

Keywords

Telemedicine; education, continuing; primary health care; Brazil.

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Telehealth is the use of information technologies for distance communication between health professionals to increase access to quality health services, overcoming temporal, social, cultural, and geographical barriers, as well as the shortage of health workers and resources (1, 2). However, in Brazil as elsewhere,

studies show that the use of telehealth services is still low (3, 4).

The Brazilian National Telehealth Network Program was created in 2007 by Brazil's Ministry of Health to improve health care and continuing health education (CHE) for primary care teams. The Program's activities are implemented by

telehealth hubs, which plan, execute, monitor, and evaluate the performance of technical, scientific, and administrative activities, especially the production and availability of teleconsultation, tele-diagnosis, and tele-education services (5). The CHE activities conducted by the Program are aimed at providing education for the workplace to improve the quality of care, broaden the scope of the services offered by primary care teams, change health care practices, improve the organization of work procedures, and strengthen primary care, which should be the organizer of services in Brazil's Unified Health System (SUS) (6–8).

A salient feature in the delivery of tele-education is webinars, which discuss topics arising from the demand from health professionals and the strategies of the Ministry of Health. They are conducted by subject specialists, transmitted via web conferencing using Mconf software, and are open-access, allowing health educators and professionals who are not linked to the Telehealth Hub to participate. Each webinar is recorded, edited, turned into a learning tool, and made available as an open-access audiovisual document through the Health Education Resources Collection (*Acervo de Recursos Educacionais em Saúde*) (ARES, <https://ares.unasus.gov.br/collection/>) and YouTube.

A survey conducted in Brazil (9) showed that telehealth services were provided through 42 hubs in 1,917 municipalities in 14 states in the country's five regions in 2015. One of these states is Maranhão, located in the Northeast region, with an area of 331,983 km² and a population of 7,000,229 spread across 217 municipalities (10). In 2014, all municipalities in Maranhão offered primary care services; 67.7% of the population received family health care from the teams of the Primary Care Strategies, including 2,014 registered teams of the Family Health Strategy (known as the ESF) and 1,258 oral health teams. That same year, 15,766 community health workers (CHW) were on the ground. Notwithstanding, the state suffers from persistent deficiencies in basic sanitation and poor epidemiological indicators – for example, the infant mortality rate and maternal mortality ratio, which in 2014 were 24.8/1,000 live births and 79.4/100,000 live births, respectively (10). The academic training of health professionals, grounded in the biomedical

model and the fragmentation of knowledge, ignores the needs of the health services, especially when these professionals join primary care teams. CHE, as a SUS policy focused on the management and education of health workers, can lead to positive changes in municipal health indicators by promoting activities and services focused on the health needs of the population (11, 12).

In Maranhão, the State Telehealth Hub at the University Hospital of the Federal University of Maranhão (HUUFMA), which has operating since late 2014, offers teleconsultation and tele-education services to 47 municipalities in the state. The objective of this study was to evaluate the usage indicators of the services offered by the State of Maranhão Telehealth Hub, based on the guidelines for teleconsultations and tele-education, as a tool to support CHE for professionals working in primary care.

MATERIALS AND METHODS

This is a descriptive study with a quantitative approach that used secondary data from Brazil's National Telehealth Platform and information from the monitoring conducted by the Tele-education Activities Management System and the Teleconsultation Monitoring System of the Maranhão Telehealth Hub (<http://telessaude.huufma.br/portal/>). The data refer to the years 2015 and 2016.

Brazil's National Telehealth Platform, the product of a partnership between the Ministry of Health and the Federal University of Rio Grande do Sul (UFRGS), can be used by any telehealth hub in the country. It has a simple data entry system that facilitates access to the services, combined with complex data output consisting of structure and process matrices containing request, teleregulation, response, and teleconsultation evaluation variables (9).

Teleconsultation can be defined as contact between a health professional and a teleconsultant to discuss questions concerning management, behavior, and clinical procedures, health action, and work procedures in primary care. The teleconsultation is always initiated by health professionals and motivated by their day-to-day needs. To secure a teleconsultation, any primary care health professional who is linked and registered with a telehealth hub can send an off-line message through the National

Telehealth Platform. The message is received and assessed by a teleregulator, who identifies the best teleconsultant to respond to the query (5). For example, a health professional is providing care to a pregnant woman living with a partner who has been diagnosed with tuberculosis. The health professional wishes to know whether the pregnant patient can be given a tuberculin test (P.P.D.) to determine the presence of latent *M. tuberculosis* infection and submits a request for a teleconsultation on how to manage the situation.

The teleregulator is a highly trained professional with experience in primary care who analyzes and classifies the teleconsultation requests from health professionals. The teleregulator also performs internal audits of the responses to guarantee the quality of the information provided. The teleconsultant is also a highly trained health professional who provides an evidence-based response to requestors' queries that is appropriate to the local and regional context and educational in nature (7).

In order to evaluate the use of teleconsultation services, the system's monthly usage rates were calculated. The monthly usage rate is defined as the ratio between the number of municipalities active during the period ("active" meaning that they had made at least one request during the month) and the total municipalities with the system implemented. This indicator was calculated using the ratio between the number of basic health units (UBS) active during the period and the total UBS registered in the Maranhão Telehealth Hub.

The average monthly requests per municipality with an implemented and active system were also calculated, separately considering the total monthly queries answered as the numerator and the total active municipalities with the system implemented as the denominator. This indicator was calculated considering both the registered and active UBS.

The teleconsultations during the period were classified by the requesting professional, the municipality of origin (with the respective population and municipal human development index - MHDI), the classification of the topics that generated the most requests, the professionals' satisfaction, and the teleconsultation's effectiveness in solving the problem that motivated the request. The population data was obtained from

the 2010 Census (13), and the MHDI scores, from the *Atlas of Human Development in Brazil* (14). The ability of the teleconsultations to provide an effective response to the queries and health professionals' overall satisfaction with the system were verified through a standardized online questionnaire that users who request a teleconsultation have the option of completing.

The topics that generated the most teleconsultations were categorized according to the International Classification of Primary Care, Second Edition (ICPC-2), which is considered the best classification for use in primary care. It has a simple two-level coding system: the first level indicating the body system, represented by 17 chapters, and the second, with seven components, represented by numbers that differentiate complaints and symptoms, triage and preventive diagnoses, medicines, treatments and therapies, test results, the administrative component, support and

other reasons for consultation, and diagnoses and diseases (15). Tele-education activities were classified by the number of computers and participants logged into the tele-education activity.

The statistical analysis was performed using Stata 11.0. Categorical variables were expressed as absolute numbers and percentages. For data analysis, the frequency distribution of the selected variables in the study years was compared. The research was approved by the Research Ethics Committee of the University Hospital of the Federal University of Maranhão (CAAE No. 72765317.0.0000.5086, Opinion No. 2,315,668).

RESULTS

In 2015, the Maranhão Telehealth Hub provided services to 45 municipalities in Maranhão; in 2016, this number increased to 47. The majority of these municipalities (32) are small, with populations of up to 40,000 and a low MHDI

ranging from 0.512 to 0.768 (data not presented in table).

In 2015, 6,075 teleconsultations were requested by 261 UBS and 313 registered health teams; and in 2016, 7,901 teleconsultations were requested by 270 UBS and 356 registered teams, for a total of 13,976 teleconsultations. The average teleconsultation usage rate in the period analyzed was 35.6% for the municipalities versus 19.8% for the UBS. The average general usage of teleconsultation per municipality with the implemented system and per active municipality was 13 and 38 teleconsultations/municipality/month, respectively. With regard to the average usage by registered vs active UBS, the average was 2 and 10 teleconsultations/health unit /month, respectively (Table 1).

In 2015, 2,479 health professionals were registered in the Platform, 42% of them CHWs, 14.3% physicians, 14% nurses, 9.7% nursing technicians, and 4% dental surgeons. The other professionals,

TABLE 1. Evolution of teleconsultation usage in the State of Maranhão Telehealth Hub, by situation of the municipalities and health units in the state, Brazil, 2015 and 2016

Period	No. of requests	Information on municipalities					Information on health ^a units				
		Registered municipalities	Active municipalities	Monthly usage rate	Average general usage	Average usage per active municipality	Registered UBS	Active UBS	Monthly usage rate	Average general usage	Average usage per active UBS
Jan/15	8	10	3	30,0	0,8	2,7	143	4	2,8	0,1	2,0
Feb/15	13	12	4	33,3	1,1	3,3	166	6	3,6	0,1	2,2
Mar/15	61	17	10	58,8	3,6	6,1	187	14	7,5	0,3	4,4
Apr/15	138	17	9	52,9	8,1	15,3	188	19	10,1	0,7	7,3
May/15	335	44	10	22,7	7,6	33,5	257	31	12,1	1,3	10,8
Jun/15	485	44	11	25,0	11,0	44,1	257	43	16,7	1,9	11,3
Jul/15	733	44	14	31,8	16,7	52,4	257	58	22,6	2,9	12,6
Aug/15	854	44	29	65,9	19,4	29,4	257	124	48,2	3,3	6,9
Sep/15	1 198	45	21	46,7	26,6	57,0	261	87	33,3	4,6	13,8
Oct/15	953	45	19	42,2	21,2	50,2	261	72	27,6	3,7	13,2
Nov/15	668	45	18	40,0	14,8	37,1	261	71	27,2	2,6	9,4
Dec/15	629	45	18	40,0	14,0	34,9	261	65	24,9	2,4	9,7
Jan/16	704	46	16	34,8	15,3	44,0	268	57	21,3	2,6	12,4
Feb/16	621	47	13	27,7	13,2	47,8	270	53	19,6	2,3	11,7
Mar/16	640	47	14	29,8	13,6	45,7	270	51	18,9	2,4	12,5
Apr/16	849	47	12	25,5	18,1	70,8	270	68	25,2	3,1	12,5
May/16	704	47	17	36,2	15,0	41,4	270	68	25,2	2,6	10,4
Jun/16	1 198	47	18	38,3	25,5	66,6	270	67	24,8	4,4	17,9
Jul/16	728	47	15	31,9	15,5	48,5	270	58	21,5	2,7	12,6
Aug/16	716	47	15	31,9	15,2	47,7	270	55	20,4	2,7	13,0
Sep/16	250	47	13	27,7	5,3	19,2	270	39	14,4	0,9	6,4
Oct/16	576	47	15	31,9	12,3	38,4	270	50	18,5	2,1	11,5
Nov/16	655	47	13	27,7	13,9	50,4	270	48	17,8	2,4	13,6
Dec/16	260	47	11	23,4	5,5	23,6	270	32	11,9	1,0	8,1

Source: National Telehealth Platform and Teleconsultation Monitoring System of the Maranhão Telehealth Hub.

^a "Registered" denotes registration in the Telehealth Program. "Active" denotes use of the teleconsultation service during the month; usage rate: active municipalities/registered municipalities and active UBS/registered UBS; average general usage: total monthly requests handled/total registered municipalities and total monthly requests handled/total registered UBS; average usage per active municipality and UBS: total monthly requests handled/total active municipalities and total monthly requests handled/total active UBS.

who accounted for 16%, were oral health assistants, social workers, and administrative assistants. By 2016, 2,974 professionals were registered, with virtually the same predominance of professional categories registered in the Platform,

with a slight increase in the number of physicians registered (Table 2).

Half of the teleconsultation requests in the two years of the study were made by CHWs. However, nurses were the professionals who used the service the most,

with an average of 4.4 requests in 2015 and 4.9 in 2016 (Table 2).

The topics discussed in the teleconsultations covered all chapters and components of the ICPC-2. With regard to the components, the majority of the requests

TABLE 2. Teleconsultation requests per health registered professional in the State of Maranhão Telehealth Hub in Brazil, 2015 and 2016

Profession	2015			2016		
	Registered professionals (%)	Requests (%)	Request/profession	Registered professionals (%)	Requests (%)	Request/profession
Community health worker	1 042 (42,0)	3 240 (53,3)	3,1	1 224 (41,1)	3 891 (49,2)	3,1
Nurse	345 (14,0)	1 544 (25,4)	4,4	414 (14,0)	2 041 (25,9)	4,9
Nursing technician	239 (9,7)	388 (6,4)	1,6	288 (9,7)	955 (12,1)	3,3
Clinical physician	356 (14,3)	231 (3,9)	0,6	521 (17,5)	76 (1,0)	0,1
Dental surgeon	97 (4,0)	115 (2,0)	1,1	105 (3,5)	313 (4,0)	2,9
Administrative assistant	51 (2,1)	62 (1,0)	1,2	52 (1,7)	106 (1,3)	2,0
Oral health assistant	50 (2,0)	59 (0,9)	1,1	47 (1,6)	86 (1,1)	1,8
Social worker	44 (1,7)	32 (0,5)	0,7	64 (2,1)	25 (0,3)	0,3
Other professions	255 (10,2)	404 (6,6)	1,5	259 (8,8)	408 (5,1)	1,5
Total	2 479	6 075		2 974	7 901	

Source: National Telehealth Platform and Teleconsultation Monitoring System of the Maranhão Telehealth Hub.

TABLE 3. Topics most addressed in teleconsultations by chapter and component of the International Classification of Primary Care, Second Edition (ICPC-2), Maranhão, Brazil, 2015 and 2016

ICPC-2 classification	2015		2016		Total
	No.	%	No.	%	
By Chapter					
A. General and Unspecified	2 935	49,9	4 501	59,3	7 436
B. Blood, Hemopoietic and Lymphatic System, Spleen	183	3,1	142	1,9	325
D. Digestive	517	8,8	589	7,8	1 106
F. Eye	70	1,2	81	1,1	151
H. Ear	22	0,4	39	0,5	61
K. Circulatory	241	4,1	200	2,6	441
L. Musculoskeletal	96	1,6	94	1,2	190
N. Neurological	181	3,1	166	2,2	347
P. Psychological	122	2,1	100	1,4	222
R. Respiratory	107	1,8	220	2,9	327
S. Skin	223	3,8	312	4,1	535
T. Endocrine/Metabolic and Nutritional	203	3,5	140	1,8	343
U. Urological	70	1,2	79	1,0	149
W. Pregnancy, Childbearing, Family Planning	396	6,7	402	5,3	798
X. Female Genital	428	7,3	441	5,8	869
Y. Male Genital	84	1,4	78	1,0	162
Z. Social Problems	8	0,1	2	0,0	10
By component					
Symptoms/Complaints	1 322	22,5	1 367	18,0	2 689
Diagnostic and preventive procedures	1 776	30,3	2 785	36,7	4 561
Medication, treatment, and therapies	260	4,5	302	4,0	562
Results	2	0,0	1	0,0	3
Administrative	84	1,5	132	1,7	216
Referrals and other reasons for the consultation	3	0,1	0	0,0	3
Diagnoses and diseases	2 419	41,2	2 999	39,5	5 418
Total	5 886	100,0	7 586	100,0	13 472 ^a

Source: National Telehealth Platform and Teleconsultation Monitoring System of the Maranhão Telehealth Hub.

^a Total requests in the 2 years: 13,976; of these, 13,472 were classified according to the ICPC-2.

fell under the diagnosis and disease component and the diagnostic and preventive procedures component (Table 3). The chapters with the most requests were A and D. Under Chapter A – General and Unspecified, there were 1,370 (23.2%) requests in 2015 and 2,367 (31.2%) in 2016, classified under the heading Health Education/Advice/Diet. There was an increase in the requests classified as Dengue and Other Viral Diseases from 4.8% in 2015 to 11.2% in 2016. Under Chapter D – Digestive, there were 102 (1.7%) requests in 2015 and 117 (1.5%) in 2016, classified under the heading Signs/Symptoms of the Teeth/Gums (data not presented in table).

Since evaluation of the services is optional, only around 75% of the requests for teleconsultations were evaluated. Of these, more than 80% of the requestors

indicated that their questions had been fully answered. Concerning the professionals' satisfaction with the responses received in the teleconsultation, in 2015, nearly 58.8% indicated that they were very satisfied, followed by 37.9% satisfied. In 2016, 44.6% were very satisfied and 52.8% satisfied. The degree of dissatisfaction with the responses in the teleconsultation in the very unsatisfied and unsatisfied categories was 2.3% in 2015 and 1.5% in 2016 (Table 4).

Tele-education activities were held through 151 webinars (96 in 2015 and 55 in 2016), with the execution of three projects on different topics in the areas of primary care, mental health, and e-SUS. These activities had 5,745 participants in 1,921 computers logged in in 2015 and 4,596 participants on 1,578 computers logged in in 2016 (Table 5).

In 2015, 96 tele-education activities were reported, with 4,248 participants from Maranhão and others from the 21 remaining Brazilian states. During this period, the monitoring system did not yet provide information on the professional category of the participants. In 2016, 55 tele-education activities were reported, with participants from 24 Brazilian states, 3,364 of them from Maranhão. The majority of the participants in the webinars on primary care were nurses and students in the field of health. In mental health, the participants were psychologists, occupational therapists, and social workers. The participants in the e-SUS webinars were, for the most part, data coders and nurses (data not presented in table).

The primary care topics that attracted the greatest participation in 2015 were women's rights in health, vertical transmission of HIV, tuberculosis, basic skin lesions, and chikungunya; in 2016, they were early stimulation for children with microcephaly, the Zika virus and microcephaly, rapid testing in the diagnosis of viral hepatitis, prenatal care, and the national vaccination campaign. In mental health, the topics that attracted the greatest participation in 2015 were harm reduction, mental health education and drugs in primary care; in 2016, they were the work of psychologist in mental health, drugs and suicide, and the mental health challenges in Brazil (data not presented in table).

DISCUSSION

Analysis of the usage indicators obtained in this study for teleconsultation and tele-education services in Maranhão yielded important information about support for primary care in the State of Maranhão, especially with respect to continuing education for health professionals. The results for teleconsultation services during the period show higher average teleconsultation usage (number of teleconsultations/municipality/month and number of teleconsultations/UBS/month) than that found in studies evaluating other Brazilian telehealth hubs (3, 9) and international experiences (4). Monthly usage per municipality and health unit was also found to be higher than indicated in the literature (3, 9). Nevertheless, only 36% of the municipalities with the system implemented and 20% of the registered health units used the teleconsultation service.

TABLE 4. Resolution of the issue and degree of satisfaction with the responses received in the teleconsultation, Maranhão, Brazil, 2015 and 2016

Resolution/satisfaction	2015		2016		Total
	No.	%	No.	%	
Response to the question					
Fully resolved	4 057	88,8	4 920	82,9	8 977
Partially resolved	464	10,1	963	16,2	1 427
Not resolved	49	1,1	52	0,9	101
Total	4 570	100,0	5 935	100,0	10 505 ^a
Degree of satisfaction					
Very satisfied	2 698	58,8	2 646	44,6	5 344
Satisfied	1 736	37,9	3 134	52,8	4 870
Very unsatisfied	54	1,2	44	0,7	98
Unsatisfied	50	1,1	45	0,8	95
Indifferent	47	1,0	68	1,1	115
Total	4 585	100,0	5 937	100,0	10 522 ^a

Source: National Telehealth Platform and Teleconsultation Monitoring System of the Maranhão Telehealth Hub.

^a Other requests not evaluated by the health professionals.

TABLE 5. Computers and participants logged into 151 webinars held in Brazil by the State of Maranhão Telehealth Hub on topics related to primary care, e-SUS, and mental health, 2015 and 2016

Participation in webinars	2015		2016		Total
	No.	%	No.	%	
No. of computers logged in	322	16,8	169	10,7	491
Mental health topics	322	16,8	169	10,7	491
Primary care topics	652	33,9	603	38,2	1 255
e-SUS topics	947	49,3	806	51,1	1 753
Total	1 921	100,0	1 578	100,0	3 499
No. Participants					
Mental health topics	947	16,5	436	9,5	1 383
Primary care topics	2 574	44,8	2 327	50,6	4 901
e-SUS topics	2 224	38,7	1 833	39,9	4 057
Total	5 745	100,0	4 596	100,00	10 341

Source: Tele-Education Activities Management System of the Maranhão Telehealth Hub.

It should be noted that one of the criteria set by the Maranhão State Telehealth Management Committee for selecting municipalities and UBS for inclusion in the Telehealth Project was their participation in the Primary Care Professional Valorization Program (PROVAB) and/or the *Mais Médicos* program. PROVAB was introduced in Brazil in 2011 to take advantage of the skills of highly trained professionals, encouraging them to participate in multidisciplinary primary care teams in municipalities located in remote, hard-to-reach areas with higher percentages of poverty. The purpose of the *Mais Médicos* program is to alleviate the shortage of physicians in priority SUS regions with the goal of reducing regional inequalities in health and promoting the reorientation of medical education in Brazil. However, in Maranhão, it was observed that there was less use of telehealth services by physicians in comparison with other states in Brazil (9). It should be noted that Maranhão has the lowest physician-to-population ratio in the country (0.87 physicians per 1,000 population); moreover, the number of physicians per 1,000 population is at least 11 times higher in the country's capital than in the state (16).

Earlier studies (17, 18) on teleconsultation usage by physicians reveal that factors related to the IT infrastructure of the UBS, lack of information about the teleconsultation service, and lack of training in the use of the teleconsultation service were independent variables associated with non-use of the services by physicians. They also indicate that physician's unfamiliarity with computer systems is one of the factors influencing their decision not to use this service. Finally, cultural resistance and resistance to changes in daily practice limit their embrace of new technologies (19, 20).

In the analysis of average usage per active municipality, two peaks were found (in April and June 2016), due to greater use of the service by a particular municipality, the number of municipalities active during this period remaining low. The analysis of average usage per active health unit revealed a peak in June 2016, due to greater use of the service by a particular UBS. This higher demand was due to the use of new routines in the implementation and monitoring of the service as a result of training and strengthening activities, with emphasis not only on greater use of the system, but on raising

awareness and motivating inactive municipalities and UBS to participate.

Although various studies (3, 21–23) report the low use of teleconsultations as a problem and a national and international phenomenon, the indicators found in this study enable us to positively evaluate services in the State of Maranhão. The justification for this finding is the training provided since the introduction of the system in the municipalities, as well as the routine strengthening and awareness-raising activities conducted in the municipalities and UBS, especially in those that had gone a long time without using the tool. Furthermore, the ease of use may also have influenced teleconsultation usage, as cited in study by Gagnon et al. (24).

Lack of training or poor training is a factor negatively correlated with the implementation of information and communication technologies. Thus, training in how to use the teleconsultation service should involve an introduction to the service, practical exercises in its use, explanations of its advantages and disadvantages, legal aspects of using teleconsultations, and evidence of the need to change work procedures to integrate the service into the work routine (24). Studies (22, 25) have reported that teleconsultations contribute to skill- and competency building, promote greater safety, reduce the sense of professional isolation imposed by distance, and give patients in small remote municipalities access to more skilled and effective primary care, especially in Latin America and the Caribbean.

Nurses, followed by CHWs, were the professionals most active in requesting teleconsultations. Studies of different telehealth hubs in Brazil show extensive participation of nurses in teleconsultations, which have gradually increased over the years in states such as Pernambuco (26), Minas Gerais (3), and Rio Grande do Sul (23). In the Schmitz and Harzheim study (9), which looked at all the teleconsultations conducted by the telehealth hubs operating in Brazil, nurses stood out in terms of both the absolute number of requests and the percentage of active users. It should be pointed out that health education is one the duties of primary care nurses. Through this activity, nurses try to improve the health and living conditions of the population to prevent disease,

improve health and living conditions and, thus, promote the health of the population (27).

The topics discussed the most in teleconsultations in Maranhão were classified under Chapter A of the ICPC-2, General and Unspecified, particularly under the heading Health Education/Advice/Diet. Since the ICPC-2 is centered on the patient and not on the disease or etiological diagnosis, this characteristic of few diagnoses, or even classifications without a definite target system, accounts for a significant portion of the demand in primary care, already reported in another study. Furthermore, it underscores the importance of general practice in primary care as a filter for the health network (28).

Satisfaction indicators are essential for evaluating the quality of the service. In this study, it was important to aim for a high percentage of evaluations, despite their optional nature. The high degree of satisfaction with the teleconsultations and their ability to solve problems, as confirmed in other national studies, is worth noting (22, 23, 29). Based on these data, it can be said that this service contributed to the continuing education and empowerment of the professionals who used the service and their effectiveness in resolving health issues.

With regard to tele-education, despite a decrease in the availability of this service in 2016, resulting in a reduction in the absolute number of computers logged into and participating in webinars that year, it should be noted that there was an expansion in the area covered by the logged-in computers in Brazilian states and cities.

In Brazil, a country of vast territorial dimensions and social, economic, and cultural contrasts, tele-education is an important tool for knowledge dissemination, fostering empowerment, active participation, and interaction between academics and health professionals from different institutions and contributing to an improvement in the quality of care and health education (30, 31). Introducing telehealth strengthens continuing education programs, facilitating the development of health professionals with a critical and thoughtful perspective who are committed to quality in health practices (32, 33).

According to Godoy et al. (34), the use of IT tools and instruments is a positive strategy for training professionals in their

health care practices, as it allows for information exchange between professionals and teaching and research institutions, assists workers in the practice of their profession, and facilitates care, boosting the capacity to solve health problems at the local level. It is therefore essential to encourage greater participation, not only by the nursing team but by all professionals who are part of the health care team.

One limitation of this study was the difficulty of effectively comparing the use of the different telehealth services,

since precise production indicators and numbers are not easily found in the literature. The lack of detailed information in the publications and the use of different methodologies for constructing the indicators hindered the analysis. Nevertheless, its results yielded important information for the Maranhão Telehealth Hub.

In conclusion, the data presented here point to the need for more telehealth research on the factors associated with telehealth usage in Maranhão and Brazil as a whole. Studies of this

type would lead to a better understanding of the problems associated with the use of telehealth services, so that strategies could be developed to overcome them.

Conflicts of interest. None declared.

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RESUMEN

Utilización del Programa de Telesalud en el estado de Maranhão como herramienta para apoyar la educación permanente sobre la salud

Objetivo. Evaluar la utilización de los servicios ofrecidos por el Núcleo Estatal de Telesalud de Maranhão como herramienta para apoyar la educación permanente. Utilización del Programa de Telesalud en el estado de Maranhão como herramienta para apoyar la educación permanente sobre la salud de los profesionales que prestan atención primaria.

Métodos. En esta investigación descriptiva con enfoque cuantitativo se utilizaron datos de la Plataforma Nacional de Telesalud referentes a los años 2015 y 2016. Con el fin de evaluar la utilización de las teleconsultas en los municipios y unidades de atención primaria de dicho estado, se calcularon la tasa de utilización mensual del sistema y el promedio mensual de solicitudes por municipality y por unidad de atención primaria. Las teleconsultas se describieron según el profesional solicitante, los temas más frecuentes, la satisfacción con las respuestas y el carácter resolutivo de estas últimas. Las actividades de teleeducación se clasificaron según el número de puntos y de participantes conectados.

Resultados. Entre enero del 2015 y diciembre del 2016 se realizaron 13 976 teleconsultas provenientes de 47 municipalities, en su mayoría de tamaño pequeño (con una población máxima de 40 000 habitantes) y con índice bajo de desarrollo humano (de 0,512 a 0,768). El promedio de utilización general de las teleconsultas y la tasa de utilización mensual por municipality y por unidad de atención primaria fueron superiores a los citados en las publicaciones pertinentes. Los miembros del personal de enfermería y los agentes de salud comunitarios fueron los profesionales más activos. Se aclararon las dudas, según lo expresado por más de 80% de quienes hicieron la evaluación (opcional) del servicio.

Conclusiones. Los indicadores de utilización del Núcleo de Telesalud de Maranhão son más positivos que los de otros servicios de telesalud en Brasil y otros países. Es una muestra que el servicio es sostenible y tiene potencial para apoyar la atención primaria de salud, así como para servir de herramienta de educación permanente sobre la salud.

Palabras clave

Telemedicina; educación continua; atención primaria de salud; Brasil.

Utilização do Programa Telessaúde no Maranhão como ferramenta para apoiar a Educação Permanente em Saúde

RESUMO

Objetivo. Avaliar a utilização dos serviços ofertados pelo Núcleo Estadual de Telessaúde do Maranhão como ferramenta para apoiar a Educação Permanente em Saúde (EPS) para os profissionais de saúde da atenção básica.

Métodos. Esta pesquisa descritiva com abordagem quantitativa utilizou dados da Plataforma Nacional de Telessaúde referentes aos anos de 2015 e 2016. Para avaliar a utilização das teleconsultorias nos municípios e unidades de saúde maranhenses, foram calculadas a taxa de utilização mensal do sistema e a média mensal de solicitações por município e unidade básica de saúde. As teleconsultorias foram descritas quanto ao profissional solicitante, assuntos mais solicitados, satisfação e resolutividade das respostas. As atividades de tele-education foram classificadas pelo número de pontos e participantes conectados.

Resultados. No período de janeiro de 2015 a dezembro de 2016 foram realizadas 13 976 teleconsultorias oriundas de 47 municípios, a maioria de pequeno porte (até 40 mil habitantes) e com baixo índice de desenvolvimento humano municipal (de 0,512 a 0,768). A média de utilização geral das teleconsultorias e a taxa de utilização mensal por município e unidade de saúde foram superiores às encontradas na literatura. Os enfermeiros e os agentes comunitários de saúde foram os profissionais mais ativos. Dos profissionais que fizeram a avaliação do serviço (opcional), mais de 80% informaram ter suas dúvidas atendidas.

Conclusões. Os indicadores de utilização do Núcleo de Telessaúde do Maranhão são mais positivos do que os de outros serviços de telessaúde no Brasil e em outros países. Isso demonstra que o serviço é sustentável, com potencial para apoiar a atenção básica e ser utilizado como ferramenta de EPS.

Palavras-chave

Telemedicina; educação continuada; atenção primária à saúde; Brasil.
