REVISTA BRASILEIRA DE MEDICINA DE FAMÍLIA E COMUNIDADE
RBMFC

www.rbmfc.org.br
ISSN 2197-7994

Research Article

Profile of assistance performed by telehealth-Pará from 2018 to 2019

Perfil dos teleatendimentos realizados pelo núcleo telessaúde-Pará de 2018 a 2019

Perfil de los teleservicios realizados por el núcleo telesalud-Pará de 2018 a 2019

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Abstract

Introduction: The *Programa Telessaúde* (Telehealth Program) performs its role in health care, especially in area that do not offer specialized structure or medical care in Brazil. In Pará, this center provides assistance to 144 cities in the state. **Objective:** Outline the profile of the teleassistance carried out in the state of Pará. **Methods:** The study design was a retrospective, quantitative, observational analysis of the program's database. The source consulted was the *Telessaúde-Pará* platform with the consultations carried out between 2018 and 2019. **Results:** It was found that, in this period, 208 teleconsultations were carried out. Medical Doctors were the professionals who most frequently requested the assistance. The specialists who responded to requests most frequently were Family Physicians, Neurologists, and Dermatologists. The most frequent questions were related to pharmacological treatment and diagnosis. The use of teleconsultation prevented referrals in 76.9% of cases. Among the professionals who use the platform, over 90% declare being satisfied with the service. **Conclusions**: The data demonstrate the importance of the program in assisting the resolvability of Primary Health Care, even though there is still little adherence to it and underutilization by users.

Keywords: Telehealth; Telemedicine; Telemonitoring; Primary health care.

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E-mail: mgehrke367@gmail.com
Funding:
No external funding.
Ethical approval:
CAAE 23680619.4.0000.5174.
Provenance:
Not commissioned.
Peer review:
external.
Received: 02/15/2022.
Approved: 11/07/2022.
Guest editor:
Claunara Schilling Mendonça

How to cite: Gehrke MA, Dias PS, Natividade TSS, Magalhães ACC, Braun N, Pessoa MS. Profile of assistance performed by telehealth-Pará from 2018 to 2019. Rev Bras Med Fam Comunidade. 2023;18(45):3364. https://doi.org/10.5712/rbmfc18(45)3364

Resumo

Introdução: O Programa Telessaúde desempenha seu papel na assistência à saúde, especialmente nas regiões que não possuem estrutura ou atendimento médico especializado no Brasil No Pará esse núcleo presta assistência aos 144 municípios do estado. **Objetivo:** Delinear o perfil dos atendimentos realizados no estado do Pará. **Métodos:** O desenho do estudo foi observacional, retrospectivo e quantitativo, com análise da base de dados do programa. A fonte consultada foi a plataforma do Telessaúde-Pará com as consultorias realizadas entre 2018 e 2019. **Resultados:** Verificou-se que, nesse período, 208 teleconsultorias foram realizadas. Médicos foram os profissionais que mais as solicitaram. Os especialistas que responderam às solicitações com maior frequência foram médicos de família e comunidade, neurologistas e dermatologistas. As dúvidas mais frequentes foram as relacionadas a tratamento farmacológico e diagnóstico. A utilização de teleconsultorias evitou potenciais encaminhamentos em 76,9% dos casos. Entre os profissionais que utilizaram a plataforma, mais de 90% afirmaram satisfação com o serviço. **Conclusões:** Os dados demonstram a importância do programa na resolubilidade da Atenção Primária à Saúde, muito embora ainda haja pouca adesão e subutilização pelos usuários.

Palavras-chave: Telessaúde; Telemedicina; Telemonitoramento; Atenção primária à saúde.

Resumen

Introducción: El Programa de telesalud desempeña su papel en la atención de la salud, especialmente en regiones que no tienen una estructura o atención médica especializada en Brasil. En Pará, ese centro brinda asistencia a los 144 municipios del estado. **Objetivo:** Delinear el perfil de la atención brindada en el estado de Pará. **Métodos:** El diseño del estudio fue observacional, retrospectivo y cuantitativo, con análisis de la base de datos del programa. La fuente consultada fue la plataforma *Telessaúde-Pará* con consultorías realizadas entre 2018 y 2019. **Resultados:** Se constató que en el período se realizaron 208 teleconsultas. Los médicos fueron los profesionales que más solicitaron teleconsulta. Los especialistas que respondieron a las solicitudes con mayor frecuencia fueron médicos de familia y comunitarios, neurólogos y dermatólogos. Las preguntas más frecuentes estaban relacionadas con el tratamiento farmacológico, la orientación y el diagnóstico. El uso de teleconsultas evitó posibles derivaciones en el 76,9% de los casos. Entre los profesionales que utilizaron la plataforma, más que 90% manifestó su satisfacción con el servicio. **Conclusiones:** Los datos demuestran la importancia del programa en la resolución de la Atención Primaria de Salud, aunque todavía hay poca adherencia y subutilización por parte de los usuarios.

Palabras clave: Telesalud; Telemedicina; Telemonitorización; Atención primaria de salud.

INTRODUCTION

Primary Health Care (PHC) is the gateway to health care, often being the first contact with the system; therefore, it should consider health not only as the absence of illness, but as a process of full development of the human being, which permeates issues of physical, mental, and social well-being.[1] This new scenario established by the Declaration of Alma Ata encouraged deep changes in the health system, culminating in the establishment of the Unified Health System (*Sistema Único de Saúde* – SUS) by the Federal Constitution of 1988 and its regulation by Law 8080/90. PHC aims to promote health, disease prevention, and a unique look at each individual who attends it. In addition, in its ideal functioning, it presents a high degree of solvability, since about 85% of health problems can be completely addressed and finalized even at the primary health level.[2]

From the great modernization of the health system, telemedicine has demonstrated its use as a care and continuing education tool.[3,4] In Brazil, Telehealth has as main objectives to increase the resolution of primary care, reduce service inequalities, and costs of public health. It operates by offering teleconsulting, tele-education, telediagnosis, and Formative Second Opinion modalities through *Plataforma Telessaúde Brasil Redes*.[5-8]

In the state of Pará, all municipalities are registered on the platform, and teleconsulting and tele-education services are available through the platform's website. In the case of teleconsultation, a doctor who works in an isolated region in the countryside of Brazil can discuss clinical cases

directly with a specialist and establish the management of complex conditions or manage the patient in PHC while the patient awaits a face-to-face consultation with a specialist. Tele-education also helps in the continuing education of professionals located in remote regions, without the need to travel.[7]

Thus, it becomes relevant to verify whether the installation of the service in the municipalities was enough to allow access to these technologies and, with this, to achieve one of the main objectives of Telehealth: to reduce inequalities and to grant access to care regardless of the distance between reference centers and patients located in the interior of the state, in order to identify the cities where there was less use to seek ways to stimulate it.[9] Furthermore, knowledge of the main diagnostic doubts can also generate demands related to tele-education, making the content of the main questions available asynchronously and contributing to the ongoing training of applicants.

In this way, the intention here was to outline a profile of the main requests on the *Plataforma Telessaúde* (Telehealth Platform), in order to identify which cities used the service and which were the main diagnoses in the period from 2018 to 2019, the professional demand and the number of referrals avoided with the use of the *Plataforma Telessaúde*.

METHODS

This research complied with the norms of Resolution No. 466/12 of the National Health Council, which deals with research involving human beings. By waiving the signing of the Informed Consent, the Data Use Commitment Term was used for collection purposes. The project was submitted to the Research Ethics Committee of *Universidade do Estado do Pará* and approved under Opinion No. 3.677.400.

The methodological strategy adopted was a retrospective and quantitative observational study. The information was analyzed based on data from the electronic database of *Telessaúde Pará*. All consultations requested and registered by *Núcleo Telessaúde Pará* from January 1st, 2018 to December 31st, 2019 were included in the study, excluding those consultations that did not have their complete information registered in *Plataforma Telessaúde Brasil Redes* or those canceled before finalization. The platform accepts requests from doctors, nurses, community health agents, and dentists, as they are the specialist professionals available to discuss cases. The research was carried out between November 2019 and January 2020, being carried out at the headquarters of *Núcleo de Telessaúde do Pará*, at *Universidade do Estado do Pará*, Biological and Health Sciences Campus (*Centro Ciências Biológicas e da Saúde*).

The data were analyzed descriptively and presented in absolute and percentage values. With such data, it became possible to effectively analyze and evaluate the frequency of doubts of the requesting professionals, the most frequently requested specialty, and whether there was a need for referral after the teleconsultation, as well as the degree of satisfaction with the platform service. These data were obtained from services to the population of all requesting municipalities in the state of Pará.

Núcleo Telessaúde Pará provides an asynchronous teleconsulting service, in which requesting professionals enter their doubt through the *Plataforma Telessaúde Brasil Redes,* used in the state of Pará — provided by the state of Rio Grande do Sul, since the first state has no platform of its own. In this step,

professionals describe the clinical case and the reason for the request and can attach files such as photos and reports. Then, the teleregulator doctor receives, classifies, and forwards the doubt to the teleconsultant specialist professional. Remote professionals answer the question within 72 hours. When teleconsulting requesters receive their answer, they proceed with the satisfaction assessment of the service provided, all via the platform.

The study classified the requests made in 2018 and 2019 according to the professional who requested the service (doctor, nurse, dentist, among others), their municipality of operation, the professional who answered the question, as well as their specialty.

The type of doubt in each request was also analyzed and classified according to the CIAP code of the Telehealth platform — inserted by the regulator —, after a detailed reading of each request to ascertain the applicants' needs. Thus, 11 categories were classified according to the nature of the questioning, for example: "assistance to pregnant women" regards doubts related to the management of pregnant patients; "growth and development" indicates teleconsultations on the subject, mainly in pediatric care; "diagnosis" talks about requests for help to diagnose the case in question; "non-specific doubt" occurs when there is a description of the case, but without indication of the type of assistance required in the situation; "cytopathological examination of the cervix" deals with doubts related to the program to combat cervical cancer. Thus, all requests were grouped according to their demand.

Satisfaction and resolution were verified using a questionnaire available on the platform. The questionnaire is presented at the end of the teleconsultation process that occurs after the specialist answers the PHC professional. At that moment, three questions are generated that must be answered by the applicants: "What is your overall satisfaction with the teleconsultation response?", with the options: satisfied, indifferent, dissatisfied, and very dissatisfied; "Was the main question answered?"; and "Was there avoidance of referrals?", both with only "yes" or "no" answer options. However, requesting professionals may ignore the questions and not provide an answer to the platform's survey.

After the collection was completed, the tables were organized according to the aforementioned variables. For the descriptive analysis, the Excel 365®, Office 365® program was used, and data were described according to numbering and percentage.

RESULTS

In this study, a total of 208 teleconsultations carried out on the *Plataforma Telessaúde Brasil Redes*, in the state of Pará, in the years 2018 and 2019, were evaluated. Teleconsultations gathered several questions related to case management, especially related to general guidelines on the management of clinical cases in PHC, pharmacological treatment, request for exams, and diagnostic assistance provided by the platform.

Table 1 describes the main findings, showing the types of questions most requested in the period. This description indicates the main doubts and was adapted from the study by Marcolino et al.[10]

As for the requesting professional, it was found that there is greater adherence to the platform by doctors in relation to other professionals, although *Plataforma Telessaúde* provides multidisciplinary assistance. Both dentists and community health agents (CHA) made, each, only one request for teleconsultation in the period (Table 2).

Table 1. Description of the type of doubt according to the professional demand.

Type of doubt	No. of teleconsultations			
	Doctor	Nurse	Community Health Agent	Dentist
Pregnancy assistance	10	1	-	-
Growth and development	9	-	-	-
Diagnosis	42	6	-	-
Unspecified query	68	8	1	-
Cytopathological examination of the cervix	2	2	-	-
Immunization	1	5	-	-
Propaedeutics	2	2	-	-
Exam request	22	2	-	-
Surgical treatment	4	1	-	-
Pharmacological treatment	76	4	-	1
Non-pharmacological treatment	6	1	-	-
Total	242*	32	1	1

*Due to the fact that, in a teleconsultation, professionals can request clarification of more than one type of doubt, one may observe a total number of doubts (242) greater than the total number of teleconsultations carried out in the period (208).
Source: Telessaúde Redes Pará; 2020.

Table 2. Professional demand profile of teleconsultations carried out on *Plataforma Telessaúde Redes Pará*.

Requesting professional	No. of teleconsultations	Percentage (%)
Doctor	179	86.05
Nurse	27	12.99
Community Health Agent	1	0.48
Dentist	1	0.48
Total	208	100

Source: Telessaúde Redes Pará; 2020.

With regard to problem resolution, it was found that 76.9% of the consultations were resolved still in PHC. However, it is worth noting that a considerable number of cases did not have information regarding the need for referral, and these teleconsultations were excluded from the calculation as it is unknown whether or not they avoided referral. Finally, 23.1% of the teleconsultations carried out were referred to another level of care, as described in Table 3.

In the case of the professional satisfaction measure, this is based on automatic questions generated by the platform. The general purpose is to ask the applicants if the platform helped in the handling of the case and, therefore, fulfilled its goals of resolvability of the system. The description of this variable can be found in Table 4, where it is possible to verify a greater predominance of teleconsultations that present an outcome of “very satisfied”, followed by “not evaluated” and “satisfied”, in absolute numbers. As for the percentage, once again the unassessed consultancies were excluded, demonstrating a higher percentage of consultancies assessed as “very satisfied”, followed by “satisfied”.

The specialties most demanded by the regulator are: Family Practice (27.89%) and Neurology (21.15%), followed by Dermatology, Pediatrics, and Gynecology and Obstetrics. The complete list below demonstrates the other specialties requested less frequently (Table 5).

Table 3. Number of references made and avoided according to the request of *Plataforma Telessaúde Redes Pará*.

Referraling	No. of teleconsultations	Percentage (%)
Yes	32	23.1
No	107	76.9
No information	69	-
Total	208	100

Source: Telessaúde Redes Pará; 2020.

Table 4. Professional assessment regarding satisfaction with the response of teleconsultations carried out on *Plataforma Telessaúde Redes Pará*.

Degree of satisfaction	No. of teleconsultations	Percentage (%)
Very satisfied	78	53.4
Satisfied	56	38.3
Indifferent	4	2.8
Dissatisfied	4	2.8
Very dissatisfied	4	2.8
Not evaluated	62	-
Total	208	100

Source: Telessaúde Redes Pará; 2020.

Table 5. Specialties most demanded by the regulator in teleconsultations carried out on *Plataforma Telessaúde Redes Pará*.

Specialties	No. of teleconsultations	Percentage (%)
Family Practice	58	27.89
Neurology	44	21.15
Dermatology	29	13.94
Gynecology and Obstetrics	24	11.54
Pediatrics	23	11.06
Cardiology	8	3.86
Nursing	5	2.40
Pneumology	5	2.40
Endocrinology	3	1.44
Infectology	3	1.44
Not specified	2	0.96
Dentistry	2	0.96
Psychiatry	2	0.96
Total	208	100

Source: Telessaúde Redes Pará; 2020.

Regarding the geographic distribution of use, it can be seen that, of the 144 municipalities in the state of Pará, only 36 (25%) made use of the Telehealth service during the period studied. The cities where the greatest adherence to the program is verified are: Tucuruí, Santarém, Bragança, and São Francisco do Pará, with, respectively, 55, 23, 14, and 14 absolute numbers of teleconsultations. There is also a disparity regarding the use of the service, as the cities that made only one or two requests add up to a total of 24. There are also 23 requests without origin information, as described in Table 6.

Table 6. Cities that carried out teleconsultations on *Plataforma Telessaúde Redes Pará*.

Cities	No. of teleconsultations	Percentage (%)
Altamira	7	3.36
Ananindeua	4	1.92
Augusto Corrêa	12	5.77
Belém	6	2.89
Bragança	14	6.73
Castanhal	8	3.85
Medicilândia	3	1.45
Nova Ipixuna	5	2.40
Santarém	23	11.06
São Francisco do Pará	14	6.73
Tracuateua	4	1.92
Tucuruí	55	26.44
No information	23	11.06
Other cities	30	14.42
Total	208	100

Source: Telessaúde Redes Pará; 2020.

DISCUSSION

Summary of main findings

The present work verified the demand for teleconsultations on the *Telessaúde Núcleo Pará* platform, in order to elucidate who are the professionals who most use the service, what are their doubts, which specialty there are more requests for assistance, what is the rate of avoided referrals and the degree of satisfaction of those who use the service, through the analysis of each request made in the years 2018 and 2019. These questions help to understand the main demands and, in this way, plan tele-education training aimed at the main requests in the platform, seeking to optimize the service provided. It was found that the absolute majority of requests were made by physicians who requested assistance, via the *Telessaúde Brasil Redes* platform, from professionals from different specialties, mainly from Family Practice (27.89%), Neurology (21.15%) , Dermatology (13.94%), Gynecology and Obstetrics (11.54%), and Pediatrics (11.06%). In addition, platform users were predominantly from the city of Tucuruí, southeastern Pará, and Santarém, Lower Amazon region — a mesoregion located northwest of the state of Pará. According to structured questions on the platform itself, satisfaction was verified, with a satisfaction rate greater than 90% of all requests. It was also observed that most of the queries sent were about pharmacological treatment and diagnostic assistance.

Literature comparison

Telemedicine emerges as a pillar of information and communication technologies (ICT) to assist in the process of promoting and maintaining the health of different communities in Brazil, especially in

remote areas, where there is greater difficulty in accessing specialized health services, helping the large centers that cannot absorb the massive demand of SUS users.[11-13] Among the attributions of the program are telediagnosis, teleconsulting, and tele-education, whose objective is to avoid PHC referrals to more complex services.[14]

The *Telessaúde Brasil Redes* program is related to establishing contact between requesting professionals and specialist professionals through the platform, that is, PHC professionals send their doubt to the platform, preventing the complex case from being physically referred to the specialist and increasing the resolvability of PHC. Thus, only cases in which management requires more specific knowledge and technologies are referenced to levels of different complexity, which cannot be solved at the first level of care, since the availability of these resources influences the resolution of PHC.[15]

However, when referrals are not avoided, large hospital centers or tertiary care networks, even with adequate infrastructure, may be delayed to meet the high demand. Thus, the failures in the hierarchization and resolvability of the system are explicit in the deregulation of logistics and outpatient resources, reflecting in extensive waiting lists and absenteeism in the vacancies offered.[16]

Health technologies are also relevant in the context of care, as they also demonstrate the possibility of avoiding potential hospitalizations.[17] Furthermore, the literature describes the application of telemedicine in various specialties and the high resolution of assistance in dermatological, cardiological, and psychiatric services.[18]

In this perspective, adherence to the use of Telehealth can contribute to the reduction of unnecessary referrals, but for this, PHC health professionals must be trained in the proper use of the platform, since this is considered a support platform for drug and non-drug interventions, solving doubts about clinical signs or even exams, providing access to different services of different specialties.[19,20]

Results show that one of the most requested specialties was Family Practice, which reinforces the platform's commitment to PHC.[13] Neurology was the second most requested specialty in the platform and corroborates the growing interest in telemedicine in this are, as there is a great lack of this specialty in the countryside of the states.[21] Andrade et al.[22] evaluated the use of telemedicine in the encephalogram diagnosis and showed satisfactory results, indicating a significant increase in the patient's quality of life.

Data analysis also reveals great demand in the field of Dermatology and suggests difficulty in accessing this specialty outside large centers, which leads to long queues. In this sense, Ferreira et al.[23] verified the successful implementation of telemedicine in the specialty, with a consequent reduction in waiting lines, expansion of access, and organization of flows. Marcolino et al.[10] also point out that, in the case of a medical area with often visual diagnosis, the possibilities of classifying the risk of injury and resolution without the need for referral are wide.

Although the literature demonstrates extensive application, there are still difficulties in maintaining a quality service that expands to other regions, since many professionals do not adhere to *Programa Telessaúde*. However, it is worth mentioning that there have been improvements in this area, with a growing number of telehealth services and participating states.[24]

The study of the main doubts also serves to direct activities such as the creation of new tele-educations for the requested demand. In the case of this study, questions about diagnosis, pharmacological treatment, and request for tests are the most frequent. It is also common to have more than one doubt in the same request, which has already been demonstrated in the study by Marcolino et al.[10] and suggests the possibility of interaction in different areas of health.

Furthermore, the low use of teleconsultations at the national level is emphasized, as previously described by Maeyama and Calvo[25] and Castro Filho et al.,[26] who define as ideal that two to three teleconsultations are carried out by each basic health unit each month. This is in line with data from this research, since the discrepancy of requests among the 144 municipalities of Pará can be mentioned, among which only 36 sent teleconsultations to *Telessaúde*. This is what Table 6 demonstrates, which indicates the low use of the service.[27,28]

Although the literature does not fully explain the current low utilization of the program in the state, some factors that contribute to the underutilization of the Telehealth program in Brazil are described, including the installation of information technologies without adequate training. This is because, in order to involve and encourage its use, training and clarification of doubts should be offered, as well as the demonstration of evidence that corroborates the increase in resolvability, with the aim of increasing the adherence of the platform.[29] Furthermore, Maeyama and Calvo[25] also indicate in their study an option to encourage the use of the platform, which would be to install teleconsultation as mandatory to reduce the number of referrals to other levels of care. On the other hand, Sarti et al.[30] propose greater structural investments and reduction of subjection to intermediate management so that there is more user participation and consequent consolidation of the program.

Implications for research and/or professional practice

This study demonstrated the regional discrepancies regarding the use of the *Programa Telessaúde Brasil Redes*, since the Amazon region is known for being large in size, but with low population density — according to the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*),[31] the area is 3,853.575.6 km and the population density is the lowest in the country, with 4.12 inhabitants/km^2.

In addition, historically, the Amazon region of the country has the lowest telecommunications coverage, such as internet access and services, due to the high cost of implementing projects that consolidate the communication sector in the region.[32] This fact, added to the absence of training and presentation of evidence that corroborate the increase in resolution with the platform, can contribute to the lack of adherence of several municipalities, as was demonstrated in this study regarding the availability of the program to the 144 municipalities of Pará, but with its use only by 36 of them.

Despite this, data from requests made by *Núcleo Telessaúde* of the state of Pará, an important region in the Amazon scenario, allow for greater knowledge of the local reality, PHC.

Furthermore, doors are opened for further studies on the particularities of public health in the Amazon, both with regard to the use of Telehealth at the level of management of adherence strategies, use and training on the platform, and in the improvement of effective communication between the different regions covered by it.

Strengths and limitations

Despite the importance of instant communication and the use of communication networks for health promotion, the limitation of interregional communication is highlighted, since there is a shortage of adequate equipment. This illustrates the digital inequality in several Brazilian regions, especially in Pará, a territory of great extension but with low population density.

In addition, it is necessary to deepen this theme in new research, with the aim of verifying the resolution of PHC achieved through telemedicine, since this study has limitations such as: low number of consultations carried out, satisfaction being linked to an automatic question of the system, in addition to the fact that some responses are not mandatory on the platform. It is also worth emphasizing that the decision for the required specialty is made by the regulator and not by the requester, who is thus dependent on the clinical interpretation of the former, which can generate disagreements in the response to the request.

However, despite the limitations, this investigation was able to demonstrate the main doubts resolved, in order to optimize access to information for professionals who are far from large, specialized centers — but who found help via digital communication, a fact demonstrated by the 76.9% of referrals avoided —, providing evident assistance to the health of the population.

CONCLUSION

In short, *Programa Telessaúde Brasil Redes* emerges as a telecommunication tool that assists in the resolution and hierarchization of SUS, at the same time that it avoids unnecessary displacements and facilitates access to scarce specialties in remote locations in Brazil, more specifically in Pará. At *Núcleo Telessaúde Pará*, the most popular specialties in 2018 and 2019 were Family Practice and Neurology, followed by Dermatology, Pediatrics, and Gynecology and Obstetrics.

Furthermore, 51.46% of referrals were avoided, facilitating PHC resolvability and user satisfaction. Of these, 53.4% said they were very satisfied with using the platform and 38.3% were satisfied. However, it is worth mentioning that the platform has some weaknesses, such as adherence and adequate logistics to encourage its use among health professionals, making resolvability less effective.

Therefore, the implementation of specific national policies on Telehealth, as well as the initiative for greater use and research in this area of knowledge, can help to improve the platform, further strengthening primary care policies and access to SUS.

CONFLICT OF INTERESTS

Nothing to declare.

AUTHORS' CONTRIBUTIONS

MAG: Project administration, Conceptualization, Formal analysis, Data curation, Writing – first draft, Writing – review & editing, Investigation, Methodology, Resources, Software, Visualization. PSD: Formal analysis, Data curation, Writing – first draft, Writing – review & editing, Investigation, Methodology, Resources, Software, Visualization. TSSN: Formal analysis, Data curation, Writing – first draft, Writing – review & editing, Investigation, Methodology, Resources, Software, Visualization. ACCM: Supervision, Validation. NB: Supervision, Validation. MSP: Supervision, Validation.

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