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Diagnosis of the incorporation of telehealth resources in Primary Health Care in Brazil

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ABSTRACT
The diagnosis of the national telehealth project, drawn up based on normative legal frameworks, the process of incorporating ICT in PHC and development of the national project, shows a continuous increase in the ICT infrastructure in PHC in Brazil and a decrease in the scope of telehealth activities in the country, despite continued investments

Keywords: Telehealth, ICT, primary care.

1 INTRODUCTION

The process of incorporating telehealth resources in Brazil is ongoing, with the implementation of the national telehealth project (PNT) since 2007, centered on PHC, having been initiated by 9 telehealth centers, inserted in the main Brazilian universities. This incorporation expands over time. There are no articles in the literature that analyze the evolution of telehealth actions in parallel to the ICT development process in Brazil. This study aims to diagnose the incorporation of telehealth resources in PHC in Brazil, in parallel to the incorporation of ICT.

2 MATERIALS AND METHODS

Initially, a group of specialists was structured involving 15 educational institutions, representative of the process of implementation of telehealth resources in PHC throughout this period. This group operated from June to September 2021. From this group, a methodology was elaborated for the diagnosis, involving the following steps: documentary analysis of resolutions, ordinances and reports of the Ministry of Health involving the incorporation of ICT and telehealth in PHC since the implementation of the project; identification of scientific articles and reports of national scope related to the development of ICT and telehealth in PHC in the country, from 2007 to 2021 and finally, analysis of exposures in congresses of the Ministry of Health related to the most recent period with regard to telehealth (since no current reports on the subject were identified). Next, the results were presented in 9 meetings

of the group of specialists, who chose the most relevant events and made the choice to structure the diagnosis in three dimensions: legal-normative framework for the development of the incorporation of ICTs in PHC; analysis of the results of the incorporation of telehealth in PHC and development of the national telehealth project until July 2021. The results were systematized by dimension and discussed by the specialists, resulting in the diagnosis of the incorporation of telehealth resources in PHC in Brazil.

3 FINDINGS

They shall be presented in three dimensions.

3.1 LEGAL AND NORMATIVE FRAMEWORK FOR THE DEVELOPMENT OF THE INCORPORATION OF ICTS IN PHC

Regarding the incorporation of ICT in PHC in Brazil, Ordinance No. 589, of May 20, 20151 established the National Policy on Health Information and Informatics, which seeks to structure an E-Health policy. The following series of resolutions seek the development of this policy, which from the beginning places PHC as its main focus. In table I below, the main ordinances and resolutions with their most relevant characteristics.

Table I – Main regulations related to the incorporation of ICT in PHC in Brazil

Ordinances/resolutions	Year	Main feature
Ordinance 589	2015	Established the National Policy on Health

		Information and Informatics
Ordinance Cit 19	2017	approves the e-Health Strategy for Brazil, which proposes a vision of e-Health and describes contributory mechanisms for its incorporation into the Unified Health System (SUS) by 2020.
Ordinance 5 and 6; 2920	2017	establish the Program for the Computerization of Basic Health Units - PIUBS, within the scope of the National Policy of Primary Care - PNAB and the National Policy of Health Information and Informatics - PNIIS. The PIUBS consists of technological infrastructure, in addition to Information Technology services, for the electronic medical record in the Basic Health Units - UBS
Ordinance 2983	2019	establishes the Support Program for the Computerization and Qualification of PHC Data - Informatiza APS7. This program aims to support the process of

		computerization of PHC units.
Ordinance 2984	2019	establishes the Pilot Project to Support the Implementation of Computerization in PHC. The central objective was to implement the computerization of the eSF to accelerate the sending of information to the Ministry of Health and to structure a model of training task force for implanters of the e-SUS PHC system.
Ordinance 1434	2020	Establishes the Connect SUS program. Objectives: To implement the national health data network; II support computerization starting with PHC; III – promote citizen access to health information.
Ordinance 3632	2020	updates *the digital health strategy for Brazil 2020-2028.*

In 2017, ordinances2 detail that the Ministry of Health will promote the monthly costing of resources destined to the Computerization Program of Basic Health Units, through companies accredited by the Ministry of Health, being deducted from the Floor of Variable Primary Care monthly percentages. This process is not authorized by the Court of Auditors of the Union. In 2019, Ordinance 29833 allows the costing of computerization by team monthly with values ranging from 1700.00 to 2000.00 upon proof of submission of use of electronic medical records by doctors and nurses. The Pilot Project to Support the Implementation of Computerization in PHC 4 is also instituted, whose

objective was to implement the computerization of Primary Care Teams (EAB) to accelerate the availability of equipment, with unique values of 8500.00 to 10,000.00 per team. According to the Monitoring and Evaluation Report of the Digital Health Strategy for Brazil 2020-20285, 65.5% of the EAB were computerized in September 2020. Regarding connectivity, still 16,000 units need to be connected or have their connectivity improved. Of these, only 1150 were connected as of October 2020. Regarding the structuring of the National Health Data Network (RNDS), in October 2019 - only the municipality of Arujá/SP already had EAB integrated to RNDS through the new PEC e-SUS APS version.

3.2 ANALYSIS OF THE RESULTS OF THE INCORPORATION OF TELEHEALTH IN PHC

In the UBS in Brazil, the process of incorporation of ICT is also uneven. Analyzing data collected in the Quality and Access Improvement Program (PMAQ) in its different cycles (2012, 2014 and 2019) it is observed in table 1 that there is, over time, an improvement in the allocation of resources linked to ICT, but in 2019 there were still 25.5% of units without internet access and 10.5% of the UBS did not have any computer – an evolution close to 2012, when 49.5% of the units presented this reality. Regarding the implementation of the electronic medical record, in 2019, 36.6% already have it and 56.5% have access to telehealth resources.

Table 1 - Distribution of computers, internet, electronic medical records of the citizen and telehealth in the UBS

Items		**Cycle 1 -2012**		**Cycle 2-2014**		**Cycle 3 - 2019**	
		N	**%**	**N**	**%**	**N**	**%**
With-pu-ta-pain	0	9116	43,7	6363	30,5	1756	8,4
	1	5036	24,1	5670	27,2	2925	14,0
	2 a 4	3827	18,3	5315	25,5	6018	28,8
	+ 4	2782	13,3	3485	16,7	9892	47,4
Internet	No	12657	60,7	10451	50,1	4760	22,8
	Yes	8173	39,2	10382	49,8	15831	75,9
PEC	No	10700	89,7	18651	89,6	17988	61,9
	Yes	1205	10,1	2150	10,3	10646	36,6
TS	No	17287	82,9	15065	72,3	12355	42,5
	Yes	3543	17,0	5768	27,6	16416	56,5

Source: PMAQ cycles I, II and III

Several studies6,7 confirm this availability. The 2020 Regional Center for Studies for the Development of the Information Society (CETIC) report, in the analysis of data related to telehealth in UBS, details what types of telehealth resources are available to physicians. They demonstrate that there is an availability of resources to which the physicians of the UBS can have access: 47% of the physicians had available telehealth resources linked to distance education; 34% to teleconsultancies; 29% to the second formative opinion and 22% to telediagnosis. However, only 7% report availability of resources for remote monitoring of patients.

3.3 DEVELOPMENT OF THE NATIONAL TELEHEALTH PROJECT BY JULY 2021

The PNT was implemented in 2007, involving telehealth resources in the areas of distance education, teleconsulting and telediagnosis. By the end of 2016, there were 25 telehealth centers, articulating Universities and States in almost the entire national territory8, encompassing 24 States and the Federal District. Only the states of Amapá and Paraíba did not receive resources from the PNT. A study by the German hospital Oswaldo shows the production of the program's activities in these three areas from 2016 to 2018, totaling 2,050,084 activities. Below are the resources passed on by the Ministry of Health from the beginning of the program in 2007 until December 20209. There is a very unequal distribution of resources considering the population base. The states that received the most resources per capita were Rio Grande do Sul, Acre, Pernambuco and Santa Catarina and the ones that received the least were São Paulo, Paraná and Alagoas. It should be considered that this was not the criterion defined in the implementation of the PNT and some centers offer national activities.

Table 2 – Distribution of resources spent in the PNT by State and per capita. 2007 to 2020. Brazil

State	Values	Population	Per capita
RS	42.136.000,00	11.466.630	3,675
AC	2.810.000,00	906.876	3,099
PE	27.927.000,00	9.674.793	2,887
SC	18.834.000,00	7.338.473	2,566
RN	8.076.000,00	3.560.903	2,268
GO	13.711.000,00	7.206.589	1,903
AM	7.422.000,00	4.269.995	1,738
RR	1.000.000,00	652.713	1,532
TO	2.309.000,00	1.607.363	1,437
PI	4.023.000,00	3.289.290	1,223
MG	21.910.000,00	21.411.923	1,023
ES	4.159.000,00	4.108.508	1,012
Too	47.873.000,00	132.866.065	0,36
Total	2020.190.000,00	213.317.639	0,9948

Source: National Telehealth Project – 2021. Coordination of the national telehealth project. XXVII National Meeting of UNASUS. Per capita – own production

Until 2016, the PNT was present in 24 states and the Federal District. Also in 2013, an attempt was made to enable 47 intermunicipal telehealth centers, in addition to the centers with state and university coverage. These intermunicipal nuclei in most cases could not be structured, becoming very dependent on the university nuclei.

Currently, as of August 2021, PNT9 is present in 11 states, with their respective nuclei: MG (3 cores), Go (2), SC (2), PE (2), AC, AM, CE, MT, PA, PI and SE. The services performed by the centers are distributed as follows: 44% teleconsultancies, 26% telediagnostics and 30% tele-education. The following centers are involved in national telediagnosis offerings: ECG offer by the HCUFMG nucleus for the States of MG, BA, CE, AC, MT, RR; offer of teledermatology by UFSC for the States of SC, MT and MS and offer of retinography by the nucleus of UFGo for the State of Go and RR.

4 CONCLUSIONS

Brazil continues to advance in the infrastructure process of the UBS, with different policies happening over time, allowing the advancement of the ICT incorporation process. About the PNT, despite the continuity of investments, there was a reduction in its scope, with fewer telehealth centers involved in these activities. In both situations, there is still a fragmented process of these initiatives, without linking them to the process of structuring the care model implemented in the scope of PHC.

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