

# Investments of the Brazilian Unified Health System in vocology in the period from 2008 to 2022

## Investimentos do Sistema Único de Saúde do Brasil em vocologia no período de 2008 a 2022

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### ABSTRACT

**Purpose:** To analyze the investments of the Unified Health System in Brazil destined to vocology. **Methods:** Ecological, quantitative study with public, secondary data, available on the DataSUS/TABNet digital platform. The data refer to the quantity and values of the vocology procedures, presented and approved during the period from 2008 to 2021 in Brazil. After data collection and descriptive analysis, absolute and relative values, growth rates and deficit were adopted. **Results:** In the analyzed period, 4,6 million procedures were carried out at a total cost of R\$18,350 million. Of these, 2,4 million procedures were approved to be paid by state and municipal health departments at a total cost of R\$10,617 million to public coffers. These transferred values represented a growth rate in investments destined to vocology procedures of up to 491%, if compared to 2008, however, a financial deficit rate of up to 360% was accumulated throughout the studied period. **Conclusion:** It was verified that the public investments destined to vocology had a significant growth in all the indices analyzed, despite not having been passed on the totality of the values referring to the procedures carried out.

**Keywords:** Unified Health System; Speech, Language and hearing sciences pathologist; Voice disorders; Health services research

### RESUMO

**Objetivo:** Analisar os investimentos do Sistema Único de Saúde do Brasil destinados à vocologia. **Métodos:** Estudo ecológico, de caráter quantitativo com dados públicos, secundários, disponibilizados na plataforma digital DataSUS/TABNet. Os dados referem-se à quantidade e aos valores dos procedimentos da vocologia, apresentados e aprovados durante o período de 2008 a 2022 no Brasil. Após a coleta e análise descritiva dos dados, foram adotados os valores absolutos, relativos, taxas de crescimento e déficit. **Resultados:** No período analisado foram realizados 4,6 milhões de procedimentos realizados a um custo total de R\$18.350 milhões. Destes, 2,4 milhões de procedimentos foram aprovados a receberem o pagamento pelas secretarias de saúde dos estados e municípios a um custo total de R\$ 10.617 milhões aos cofres públicos. Estes valores repassados representaram uma taxa de crescimento nos investimentos destinados aos procedimentos da vocologia em até 491%, se comparado ao ano de 2008, porém acumulou-se uma taxa de déficit financeiro de até 360% em todo o período estudado. **Conclusão:** Constatou-se que os investimentos públicos destinados à vocologia passaram por crescimento significativo em todos os índices analisados, apesar de não terem sido repassados a totalidade dos valores referentes aos procedimentos realizados.

**Palavras-chave:** Sistema Único de Saúde; Fonoaudiologia; Distúrbios da voz; Pesquisa sobre serviços de saúde

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## INTRODUCTION

Specialized outpatient care has gained important attention in recent decades in the provision of services through the Unified Health System (SUS)<sup>(1-3)</sup> These are registered and able to provide assistance in the private network and in the public network via SUS and are characterized as a fundamental offer of procedures aimed at rehabilitation<sup>(4-6)</sup>. Among rehabilitation services, speech therapy procedures have gained notoriety, in terms of search and offer, already described in the literature, and previously not offered in the public health system<sup>(7-10)</sup>.

Currently, there is a growing demand for the supply and search for these services that include the assistance provided by the speech therapist to conduct assessments, exams, diagnoses and rehabilitations<sup>(9-12)</sup>. Procedures focused on vocology, with codification for requesting transfer from the SUS “0211070114 – vocal evaluation”, “0211070017 – acoustic analysis of the voice by means of a voice laboratory”, “0701030356 – electronic larynx for vocal rehabilitation”, carried out to qualification, training and voice therapy. In addition to these, the system has two more codes registered - “0301040044 - individual therapy” and “0301070113 - speech therapy”, which in turn are universal codes in speech therapy and not exclusive to the voice area. Are registered in the Management System according to the SUS Table of Procedures, Medications and OPM (SIG-TAP/DATASUS)<sup>(13)</sup>. These interventions are not contemplated at the hospital level, they are only carried out in an outpatient clinic specialized in voice speech therapy or oncology and have been published since 2008 on the DataSUS/TABNet platform, as a portal for transparency of information on Health Care for the population<sup>(7,13-15)</sup>.

According to SIGTAP, each procedure must be exclusive to an activity and must not give rise to doubts about its applicability. Thus, each code has specific attributes that are established according to the criteria of the National Register of Health Establishments (CNES), the Outpatient and Hospital Health Information Systems (SIA and SIH), in accordance with the Financing Blocks defined in the SUS Management Pact. These can be divided into general attributes, with the characteristics of the structure for composing the procedure code, or complementary attributes, which are additional properties that make up the rules for applying the procedure by the systems<sup>(13,15)</sup>.

In this context, investments in specialized assistance and expenses related to the provision of outpatient services related to vocology began to be studied with a focus on auditing procedures aimed at analyzing parameters linked to the SUS. Thus, these data need to be directed to the management of investments, as well as the search for standardized instruments, effective to maintain the quality of the offer of Speech Therapy Services<sup>(4-6,8-10)</sup>. There are still few studies in speech therapy aimed at auditing health systems, which analyze investments focusing on management and control measures<sup>(7,11-12,14)</sup>.

These factors, associated with specific auditing techniques in speech therapy<sup>(9,10,16)</sup> not contemplated by the National Audit Department of the SUS (DE-NASUS), in the National Audit System (SNA)<sup>(17)</sup>, collaborate with the difficulty of keeping systematized the data from the indicators of the services offered, which makes transfers of funds from the SUS difficult<sup>(7,9,10,18)</sup>. Therefore, the present study analyzed SUS investments destined to vocology in Brazil from 2008 to 2021.

## METHODS

This is an ecological, descriptive study, with a quantitative approach, with secondary data, publicly available in the Ambulatory Information System (SIA), on the DataSUS/TABNet digital platform<sup>(19)</sup>, linked to the Ministry of Health of Brazil, considering the principles and ethical norms of the Resolution of the National Health Council No 510/2016, which waives its submission to the Human Research Ethics Committee – CEP.

Were selected as inclusion criteria for this study: 1) number of procedures and values in reais presented by speech therapy services; 2) number of procedures and amounts in reais approved by the health departments. These criteria were applied to the vocology procedures registered in the Table (SIG-TAP/DATASUS)<sup>(19)</sup> with the following codes: “0211070114 – vocal evaluation”, “0211070017 – acoustic voice analysis through voice laboratory”, “0701030356 – electronic larynx for vocal rehabilitation”. This study had a time limit from 2008 to 2022, which includes the entire period published on the DataSUS/TABNet platform until the moment of collection in July/2023.

The following procedures were considered as exclusion criteria: 1) “0301040044 - individual therapy”; 2) “0301070113 – individual speech therapy”, because they are not specific vocology codes. Figure 1 shows the flowchart for accessing data on the DataSUS/TABNet platform.

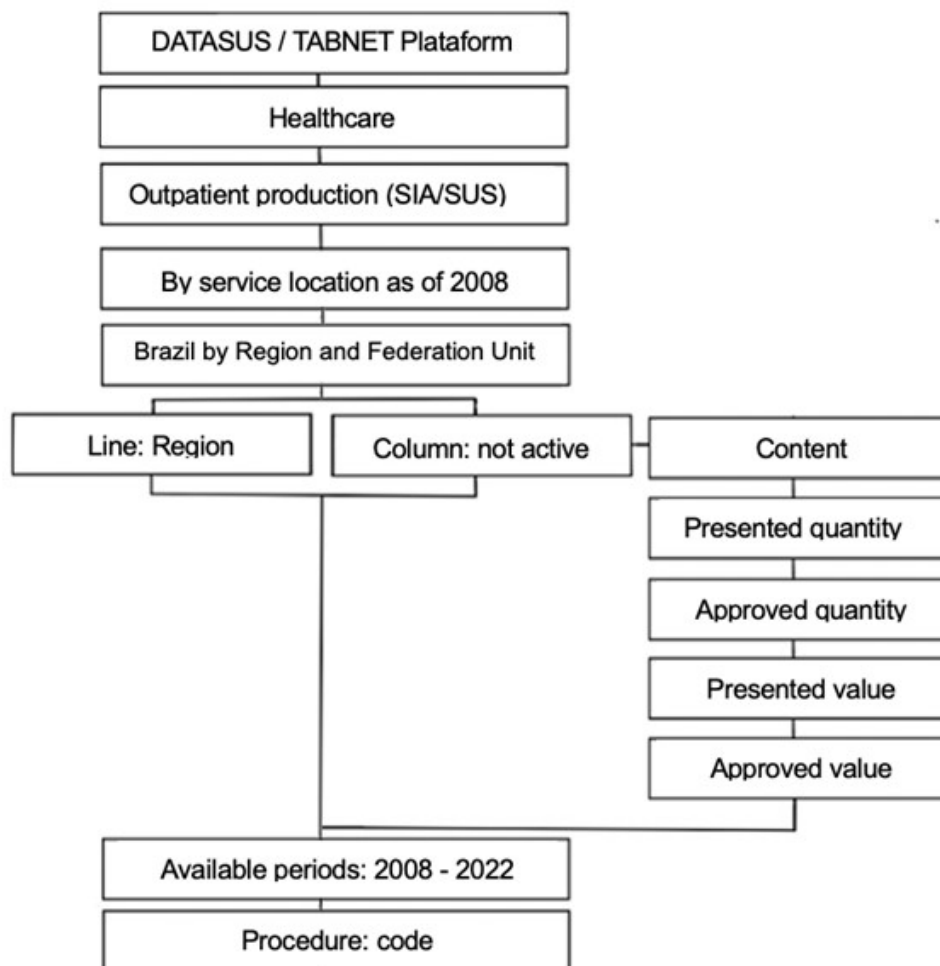
For the analysis of the data selected for this study, the Microsoft® Office Excel® program was used, in which data were grouped and descriptive statistics were performed, through relative and absolute frequency, rate of variation and growth. For this calculation, the difference between the values presented and approved in reais, for the previous and subsequent years, starting in 2008, was considered. As for the deficit rate, the difference between the values presented was adopted. seated by the speech therapy services and forwarded by the health secretariats.

## RESULTS

The data categorized in Table 1 refer to the number of procedures performed by the speech therapy services and approved to receive payment, in reais, by the health departments. It is possible to observe the existence of a significant difference between the two compared parameters, which represents a deficit of amounts approved for payment in all the Federative Regions of Brazil, in SUS investments during the period from 2008 to 2022.

Regarding the offer of assistance in the SUS, it was identified that 4,6 million procedures were carried out for vocology during the period studied, which corresponds to an average of 328,571 thousand procedures per year. The highest values were for the Southeast Region, 42.7% of the procedures, and the lowest for the South Regions 8.2% (Figure 2).

The order of values presented by the speech therapy services and approved, in reais, by the health secretariats, referring to the vocology procedures in the period studied, is shown in table 2, in that order, and in figure 3, in percentage. During this period, it was designated that the financial investment of the SUS was ten million reais, for all the Federative Regions of Brazil. Among these, it is worth noting that the Southeast Region received the highest percentage of value – 45.5% and the North Region, the lowest value – 8%.



**Figure 1.** Flowchart for accessing data on the DataSUS/TABNet platform<sup>(19)</sup> Details for obtaining data from vocology procedures on the DataSUS/TABNet platform

**Source:** elaboration of the authors

**Table 1.** Distribution of vocology outpatient procedures by Federative Region of Brazil, quantity presented and approved by the health secretariats, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>

Year	Federative Region of Brazil											
	North		Northeast		Southeast		South		Midwest		Total	
	A	B	A	B	A	B	A	B	A	B	A	B
2008	15,623	12,925	422,026	76,540	291,730	65,104	9,488	8,186	30,637	27,403	769,504	190,158
2009	13,987	9,782	67,139	63,147	69,296	65,410	8,905	8,087	44,127	31,769	203,454	178,195
2010	17,131	11,955	70,646	64,161	76,029	71,800	9,424	8,372	36,780	30,193	210,010	186,481
2011	19,102	17,705	65,446	63,790	86,039	83,205	11,849	10,840	30,656	23,304	213,092	198,844
2012	53,454	23,449	50,570	48,604	71,204	69,403	11,167	10,420	32,366	24,876	218,761	176,752
2013	43,172	24,046	57,269	55,640	580,131	77,858	9,646	9,439	27,716	20,229	717,934	187,212
2014	17,994	16,611	58,480	57,271	79,349	77,874	13,274	12,583	18,627	13,708	187,724	178,047
2015	9,495	8,615	63,221	60,940	76,979	76,129	13,602	13,372	12,544	12,163	175,841	171,219
2016	10,563	9,166	122,886	50,402	76,555	73,657	12,305	11,734	11,007	10,738	233,316	155,697
2017	7,558	6,735	39,171	37,245	74,982	72,293	17,419	16,110	11,706	11,126	150,836	143,509
2018	8,046	6,795	33,436	32,150	72,412	71,468	922,017	18,035	10,440	10,231	1,046,351	138,679
2019	9,228	7,895	32,226	29,787	79,747	75,099	24,173	22,997	10,028	9,820	155,402	145,598
2020	8,922	8,630	15,767	15,720	62,046	41,449	13,999	12,815	5,039	4,949	105,773	83,563
2021	14,105	13,856	33,977	33,267	59,868	57,755	16,424	16,064	8,728	8,693	133,102	129,635
2022	23,514	22,419	61,061	57,893	62,778	60,792	20,193	20,122	9,078	9,015	176,624	170,241
Total	271,894	200,584	1,193,321	746,557	1,819,145	1,039,296	1,113,885	199,176	299,479	248,217	4,697,724	2,433,830

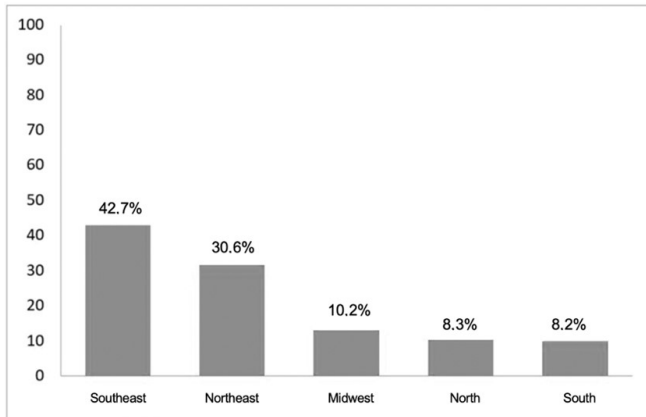
**Source:** elaboration of the authors

**Subtitle:** A - Number of procedures presented to the health secretariats; B - Number of procedures approved for payment by the health secretariats.

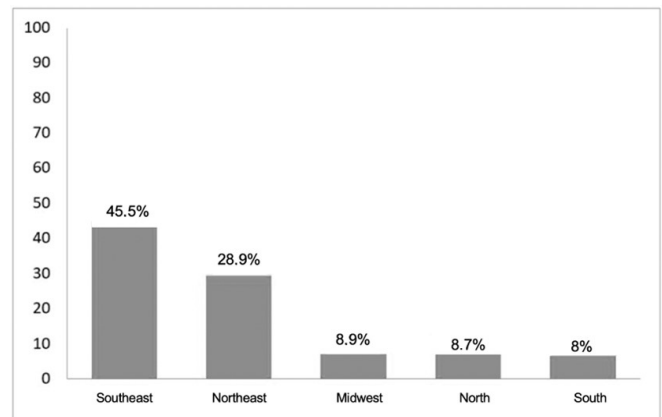
In table 3, it is possible to verify that the difference between the value, in reais, presented by the speech therapy services and the one approved to receive payment by the health secretariats, in the period studied, was R\$ 8 million, which represents 75.5% more than the total amount of procedures approved by the health departments. Of this total number of procedures performed, 51.8% were not approved to receive payment by the health departments, which represents in Reais an amount of R\$ 7,5 million.

In table 4, it is observed that the investments in SUS financial resources, referring to the studied procedures, reached growth

rates of up to 223% in 2021. It is emphasized that this rate suffered positive and negative variations from the point of view of increase in investment in reais over the years, and ended the period studied with rates of up to 491%. It is worth mentioning that the South Region had a record growth and reached rates of up to 491%. However, during this same period, all regions of Brazil experienced a shortfall in the transfer of funds from the SUS in relation to the procedures carried out (table 5). It is noteworthy that the Midwest region suffered the greatest losses, losing up to 360% of the amounts that would have gone to speech therapy services compared to the total value of the procedures carried out.



**Figure 2.** Distribution of the number of outpatient procedures performed by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>  
**Source:** elaboration of the authors



**Figure 3.** Percentage distribution of values for procedures approved for payment by health secretariats by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>  
**Source:** elaboration of the authors

**Table 2.** Arrangement of values, in reais, of procedures presented by speech therapy services and approved by health secretariats by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>

Year	Federative Region of Brazil											
	North		Northeast		Southeast		South		Midwest		Total	
	A	B	A	B	A	B	A	B	A	B	A	B
2008	26,237	22,335	592,626	117,957	415,321	103,731	14,591	11,831	52,640	45,091	1,101,415	300,945
2009	57,487	40,204	275,941	259,534	284,807	268,835	36,600	33,238	181,362	130,571	836,197	732,382
2010	70,408	49,135	290,355	263,702	312,479	295,098	38,733	34,409	151,166	124,093	863,141	766,437
2011	78,509	72,768	268,983	262,177	353,620	341,973	48,699	44,552	125,996	95,779	875,807	817,249
2012	219,696	96,375	207,843	199,762	292,648	285,246	45,896	42,826	133,024	102,240	899,107	726,449
2013	177,437	98,829	235,376	228,680	2,384,338	319,996	39,645	38,794	113,913	83,141	2,950,709	769,440
2014	73,955	68,271	240,353	235,384	326,124	320,062	54,556	51,716	76,557	56,340	771,545	731,773
2015	39,024	35,408	259,838	250,463	316,384	312,890	55,904	54,959	51,556	49,990	722,706	703,710
2016	43,414	37,672	505,061	207,152	314,641	302,730	50,574	48,227	45,239	44,133	958,929	639,914
2017	31,063	27,681	160,993	153,077	308,176	297,124	71,592	66,212	48,112	45,728	619,936	589,822
2018	33,069	27,927	137,422	132,137	297,613	293,733	3,789,490	74,124	42,908	42,049	4,300,502	569,970
2019	37,927	32,448	132,549	122,525	327,760	308,657	99,351	94,518	41,215	40,360	638,802	598,508
2020	36,669	35,469	65,120	64,927	255,009	170,355	57,536	52,670	20,710	20,340	435,044	343,761
2021	57,972	56,948	213,276	210,358	430,571	421,886	71,949	70,469	35,872	35,728	809,640	795,389
2022	134,435	129,934	377,952	364,931	807,110	790,056	209,707	209,415	37,348	37,089	1,566,552	1,531,425
Total	1,117,303	831,406	3,963,689	3,072,766	7,426,602	4,832,374	4,484,822	927,960	1,157,618	952,674	18,150,034	10,617,180

**Source:** elaboration of the authors

**Subtitle:** A – Values presented, in reais, referring to the procedures carried out by speech therapy services; B – Amounts approved to receive payments, in reais, from health secretaries, referring to procedures carried out by speech therapy services.

**Table 3.** Distribution of the difference between the values, in reais, presented by the speech therapy services and approved to receive payment, by the health secretariats by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>

Federative Region of Brazil						
Year	North	Northeast	Southeast	South	Midwest	Total
2008	3,901	474,669	311,590	2,759	7,548	800,467
2009	17,282	16,407	15,971	3,361	50,791	103,812
2010	21,273	26,653	17,381	4,323	27,072	96,702
2011	5,741	6,806	11,647	4,146	30,216	58,556
2012	123,320	8,080	7,402	3,070	30,783	172,655
2013	78,607	6,695	2,064,342	850	30,771	2,181,265
2014	5,684	4,968	6,062	2,840	20,217	39,771
2015	3,616	9,374	3,493	945	1,565	18,993
2016	5,741	297,909	11,910	2,346	1,105	319,011
2017	3,382	7,915	11,051	5,379	2,383	30,110
2018	5,141	5,285	3,879	3,715,366	858	3,730,529
2019	5,478	10,024	19,103	4,833	854	40,292
2020	1,200	193	84,653	4,866	369	91,281
2021	1,023	2,918	8,684	1,479	1,438	15,542
2022	4,501	13,021	17,054	292	259	35,127
Total	285,897	890,922	2,594,228	4,048,570	204,943	8,024,560

Source: elaboration of the authors

**Table 4.** Distribution of the growth rate of SUS financial investments in vocology, by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>

Federative Region of Brazil					
Year	North	Northeast	Southeast	South	Midwest
2008	0%	0%	0%	0%	0%
2009	80%	120%	159%	180%	189%
2010	22%	1%	9%	3%	-4%
2011	48%	-0.5%	15%	29%	-22%
2012	32%	-23%	-16%	-3%	6%
2013	2%	14%	12%	-9%	-18%
2014	-30%	2%	0%	33%	-32%
2015	-48%	6%	-2%	6%	-11%
2016	6%	-17%	-3%	-12%	-11%
2017	-26%	-26%	-1%	37%	3%
2018	0%	-13%	-1%	11%	-8%
2019	16%	-7%	5%	27%	-4%
2020	9%	-47%	-44%	-44%	-49%
2021	60%	223%	147%	33%	75%
2022	128%	73%	87%	197%	3%
Total	301%	307%	367%	491%	116%

Source: elaboration of the authors

**Table 5.** Distribution of the deficit rate of amounts not transferred by the health secretariats referring to the procedures carried out by speech therapy services by Federative Region of Brazil, in the period from 2008 to 2022, according to SIA/SUS – DATASUS<sup>(19)</sup>

Federative Region of Brazil					
Year	North	Northeast	Southeast	South	Midwest
2008	15%	80%	75%	19%	73%
2009	30%	6%	6%	9%	12%
2010	30%	9%	6%	11%	11%
2011	7%	3%	3%	9%	7%
2012	56%	4%	3%	7%	19%
2013	44%	3%	87%	2%	74%
2014	8%	2%	2%	5%	5%
2015	9%	4%	1%	2%	3%
2016	13%	59%	4%	5%	33%
2017	11%	5%	4%	8%	5%
2018	16%	4%	1%	98%	87%
2019	14%	8%	6%	5%	6%
2020	3%	0%	33%	8%	21%
2021	2%	1%	2%	2%	2%
2022	3%	3%	2%	0%	2%
Total	262%	191%	233%	189%	360%

Source: elaboration of the authors

## DISCUSSION

The results of this research show that vocology, as one of the fields of speech therapy, covers a considerable portion of financial investments in specialized care and in the context of public health. Expenses related to the procedures analyzed in this context reached approximately R\$ 10,617 million reais, distributed in all the Federative Regions of Brazil, with growth indicators over the period, directly related to the search and supply of services via public policies of specialized care in rehabilitation<sup>(1-3,8-10,12,15)</sup>. This demand is already presented in the literature, and it is possible to find more than 25 thousand speech therapy services in the National Register of Health Establishments (CNES/SUS) of the SUS, distributed in the main areas: generalist, audiology, language, orofacial motricity, voice, dysphagia, educational and collective health<sup>(10,15,19-21)</sup>.

According to data from this research, the growth in demand and offer of specialized procedures in vocology is undoubted, however, there is also a significant difference between the offer and distribution of investments destined to specialized speech therapy assistance by SUS. Research indicates the Southeast and Northeast regions have the highest population concentrations, which, in turn, provide more resources for health, while the North Region has the lowest concentrations of inhabitants, which justifies lower financial transfers due to a reduced number of services found<sup>(10,15,18,19,22)</sup>. According to CFFa data, the number of speech therapists specializing in voice increased significantly from 767 in 2008 to more than 1161 in 2022, an increase of 395 specialist professionals, with a greater concentration in the South-East, which is in line with the results of the survey that highlight the greater supply of procedures and greater investment in this region<sup>(23)</sup>.

Public investments have increased in all Federal Regions over the years, such as in the South Region, with growth rates reaching up to 491%. On the other hand, it was also observed the deficit of amounts not passed on to speech therapy services that correspond to procedures performed. These values refer to the difference in procedures presented by services and procedures approved to receive payment by government institutions, which reached 360% in the Midwest and 262% South Regions in Brazil, during the analyzed period. In view of this, the need to implement inspection techniques and norms to systematically study this regulatory process is evident, as well as to improve the rates of procedures and investments destined for speech therapy services.

Vocology, consolidated as a science of habilitation, training and voice therapy, has procedures that require specific technologies<sup>(24)</sup>, as well as other evaluative processes in the health area<sup>(16,21,25-27)</sup>. In agencies linked to speech therapy, such as the Federal Council of Speech Therapy (CFFa) and the Brazilian Society of Speech Therapy (SBFa), there are subdivisions of voice procedures that are performed, but are not yet contemplated in the SUS, through procedure codes, although the literature attests to the need for this systematization, as well as the differentiation of procedures that are performed in specific outpatient clinics focused on speech therapy<sup>(7,8,10,11,15)</sup>.

It is worth mentioning that, in this study, other procedure codes were not included, such as: “0301040044 -

“individual therapy” and “0301070113 – individual speech therapy”, as these codes are used in other areas of speech therapy, in addition to vocology<sup>(20,21)</sup>. The results of this work show the need to implement new codes to add to the existing ones in the contemplation of vocology procedures. In this way, it is suggested that these divisions contemplate the nature of the procedures performed in the rehabilitation process, such as, for example: 1) evaluation and exams, 2) management; 3) speech therapy intervention, which includes habilitation and rehabilitation; 4) guidance and vocal hygiene and 5) vocal examination.

That said, it is noted that it is urgent to implement specific codes, intended for the area, and not in the form of universal codes that allow use by more than one specialty, as in the codes mentioned above that were not used in this study. Thus, the following are suggested: a) clinical examination of the voice; b) instrumental evaluation of voice clinic; c) vocal speech therapy; d) instrumental voice rehabilitation; e) vocal electrotherapy, g) vocal photobiomodulation, as well as those of phononcology need to be coded differently, it is suggested: i) vocal clinical examination in phononcology; ii) instrumental voice assessment in phononcology; iii) vocal speech therapy in oncology; iv) instrumental voice therapy in oncology; v) laryngeal electrotherapy in oncology; vi) laryngeal photobiomodulation in oncology; vii) electronic larynx for vocal rehabilitation; viii) esophageal vocal rehabilitation; ix) speech therapy with voice prosthesis; among other procedures according to the demands and needs assessed by the professional and intended for the patient’s health<sup>(10)</sup>.

In the literature, authors<sup>(10,15)</sup> reported in their research regarding the emergency demand of the audit in all actions of the speech therapist in the SUS, whether performed in primary, intermediate and in high complexity<sup>(10,12,15,21,24,25,28,29)</sup>, as the systematization of actions that standardize the audit in speech therapy is not yet available in the SNA, as found in medicine, nursing, dentistry, among others<sup>(21,22,26)</sup>. It is important to highlight the crucial role of other studies that address the topic, in addition to the urgency of these and other strategies that may strengthen this demand among speech therapy professionals.

Therefore, the importance of auditing in speech therapy is indisputable, not only as a possible area of activity<sup>(28)</sup>, but at the level of professional expertise, because specific training and updates in this area are necessary<sup>(10)</sup>. Given the above, the results of this work, especially the amounts not passed on to the speech therapy services, may not have been approved and passed on by the public management, due to a series of factors, such as: i) inconsistencies in filling out data indicators or the non-completion of these; ii) absence of pertinent information, among other essential information, which should be minimized, as this database finances specialized health care and guides the transfer of resources through the use of SUS funds<sup>(10)</sup>.

In view of the results of this study, it appears that this demand already exists, and it is necessary to improve the management of care and SUS resources. In this way, it is important to emphasize that the collaboration of professionals and class councils is also necessary, at the federal and regional level, to strengthen the professional performance with SUS managers, in order to consolidate the area of auditing in speech therapy.

## CONCLUSION

SUS investments destined to vocology, through the provision of procedures in specialized public health, registered an exponential growth in services and reached rates of up to 491% destined to health care. However, the payment deficit is also expressed, which reached up to 360% of amounts not passed on to speech therapy services, referring to procedures performed, which ratifies the need to systematize auditing techniques in speech therapy.

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