Public Health Policies to Fight Cancer in Brazil: Analysis of State Plans of Oncologic Attention

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Políticas Públicas de Saúde para o Enfrentamento do Câncer no Brasil: Análise dos Planos Estaduais de Atenção Oncológica

Políticas de Salud Pública para Combatir el Cáncer en Brasil: Análisis de los Planes Estatales de Atención al Cáncer

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ABSTRACT

Introduction: The growing number of deaths by neoplasms has indicated the necessity to adopt sustainable, regionally-based measures to prevent and control cancer. Along more than 30 years of existence of the National Health System (SUS), cancer care policies have evolved from a fragmented model towards a concept of integrality and qualification of the cancer care network. **Objective:** Review Brazilians' State Oncology Care Plans according to Ordinance 874 of 2013 and Ordinance 1,399 of 2019, and to describe care data and health indicators of the States that comply with these two Ordinances. **Method:** Qualitative document-review of the States' Cancer Care Plans and quantitative approach study describing cancer epidemiological data in Brazil. **Results:** Only 63% of Brazilian States (n = 17) have implemented oncology care plans and of these, most does not comply with Ordinance 874. **Conclusion:** The lack of State oncology care plans highlights the urgency to establish nation-wide efforts for the States to engage in developing action planning and programmes to tackle cancer as a public health problem.

Key words: Health policy/Brazil; State Health Plans; Health Management; Neoplasms/epidemiology; Unified Health System.

RESUMO

Introdução: O crescente número de mortalidade por neoplasias tem apontado para a necessidade de adoção de medidas sustentáveis e regionalmente situadas para prevenção e controle do câncer. Ao longo dos mais de 30 anos de existência do Sistema Único de Saúde (SUS), as políticas de Atenção Oncológica evoluíram de um modelo fragmentado rumo à noção de integralidade da assistência e qualificação da rede de atenção à pessoa com câncer. **Objetivo:** Analisar os Planos Estaduais de Atenção Oncológica dos Estados brasileiros, conforme previsto pelas Portarias n.º 874 de 2013 e n.º 1.399 de 2019, e descrever os dados de assistência e indicadores de saúde relacionados aos Estados que contemplam o planejamento da referida assistência. **Método:** Estudo de caráter misto com abordagem qualitativa baseada em revisão documental dos Planos Estaduais de Atenção Oncológica, e abordagem quantitativa realizada a partir de um estudo descritivo dos dados epidemiológicos relacionados ao câncer no Brasil. **Resultados:** Apenas 63% dos Estados brasileiros (n = 17) têm operacionalizado Planos Estaduais de Atenção Oncológica; destes, a maioria possui Planos em desacordo com a Portaria n.º 874. **Conclusão:** A ausência de Planos Estaduais para Atenção Oncológica aponta para urgência em estabelecer nacionalmente esforços para que os Estados assumam o compromisso de desenvolver o planejamento e a programação de ações em serviços para o enfrentamento do câncer como um problema de saúde pública.

Palavras-chave: Política de saúde/Brasil; Planos Governamentais de Saúde; Gestão em saúde; Neoplasias/epidemiologia; Sistema Único de Saúde.

RESUMEN

Introducción: El creciente número de muertes por neoplasias ha señalado la necesidad de adoptar medidas sostenibles y de base regional para prevenir y controlar el cáncer. A lo largo de los más de 30 años de existencia del Sistema Único de Salud (SUS), las políticas de atención oncológica evolucionaron de un modelo fragmentado hacia la noción de atención integral y cualificación de la red de atención a las personas con cáncer. **Objetivo:** Analizar los Planes Estaduales de Atención Oncológica de los Estados brasileños, previstos en la Ordenanza n.º 874 de 2013 y en la Ordenanza n.º 1.399 de 2019, y describir los datos asistenciales e indicadores de salud relacionados con los Estados que contemplan la planificación de esta atención**. Método:** Estudio de método mixto, con un enfoque cualitativo basado en una revisión documental de los Planes Estatales de Atención Oncológica y un enfoque cuantitativo basado en un estudio descriptivo de los datos epidemiológicos relacionados con el cáncer en Brasil. **Resultados:** Sólo el 63% de los Estados brasileños (n = 17) tienen Planes Estaduales de Atención Oncológica operacionalizados y, de ellos, la mayoría tiene Planes que no están alineados con la Ordenanza 874. **Conclusión:** La ausencia de planes estaduales de atención oncológica señala la urgente necesidad de establecer esfuerzos nacionales para que los Estados asuman el compromiso de desarrollar la planificación y programación de acciones en los servicios para enfrentar el cáncer como problema de salud pública.

Palabras clave: Política de salud/Brasil; Planes Estatales de Salud; Gestión en Salud; Neoplasias/epidemiología; Sistema único de Salud.

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INTRODUCTION

Cancer is a world public health problem with an expected gradual increase of the morbimortality by the disease in the upcoming years[1]. In Brazil, it is the second cause of death since 2023, a high complexity and challenging disease to the National Health System (SUS), due to difficulties of access to timely diagnosis and treatment[2].

Oncologic attention policies along more than 30 years of life of SUS moved from a fragmented perspective scattered in different prevention programs, early detection and access to oncologic treatment in specialized hospitals to a scenario of integrality and qualification of the attention to individuals with cancer[3]. In 2005, the Ministry of Health through Ordinance GM/MS 2,439[4], created the National Policy of Oncologic Attention (PNAO), a landmark in overcoming the initial fragmented scenario towards an array of actions involving not only the diagnosis, treatment, rehabilitation and palliative care but also health promotion and prevention.

In 2013, PNAO was replaced by Ordinance 874[5], which created the National Policy of Cancer Prevention and Control (PNPCC) within the Network of Attention to Individuals with Non-Communicable Diseases. In addition to reaffirming the objective of reducing the incidence and morbimortality by cancer, PNPCC established the definition of strategies of articulation between State Health Secretaries and Municipal Health Secretaries to develop regional plans to ensure prevention and full care and coordinate the organization and implementation of regional plans and of the Network of Attention to Individuals with Chronic Diseases in SUS[5].

More recently in 2019, the Ministry of Health redefined the reference criteria and standards to validate high complexity oncologic hospitals within SUS through Ordinance number 1,399[6]. The main topics to be addressed in the Plan of Attention for the Diagnosis and Treatment of Cancer are found in annex II within the actions to prevent and control cancer further to articulations between specialized attention and primary health attention.

Although PNPCC is in force for ten years and five years ago the Ministry of Health has published Ordinance 1,399[6], scarce are the studies analyzing State Cancer Care Plans. Despite the expansion of oncologic care in Brazil in the last five years, challenges of qualified access to diagnosis and treatment remain in view of the different locoregional realities[7].

It is necessary to understand which health-related strategies, actions and policies have been implemented by the Brazilian States to tackle cancer as a public health problem to overcome these challenges. The objective of this article is to analyze Brazilian State's Cancer Care Plans as determined by Ordinances 874[5] of 2013 and 1.399[6] of 2019 and describe cancer health indicators and health care data in States that have State Cancer Care Plans in place.

METHOD

Quali-quantative study with multiple techniques to produce and analyze the data. The quantitative data consisted in epidemiologic indicators to analyze oncologic attention. Based in the identification and analysis of State Plans, qualitative data were investigated.

The objective was to discuss the potential impact of the future format of oncologic attention, under the perspective of the indicators and planning instruments, in special Health State Plans, with the strategic arrangement of independent State leaderships articulated by Federal managers.

The State's Cancer Care Plans were reviewed for the qualitative analysis. The data were collected for 26 Brazilian States and Federal District (FD) at the government sites of the respective health secretaries with the terms Oncologic Attention, Cancer Attention Plan, Oncology and Cancer (Figure 1).

If State Plans were not found at the sites, Google Scholar was utilized with the combination of the words: "Oncologic Attention" AND "name of the State"; "Cancer Attention Plan" AND "name of the State" found in any part of the text, scanning the first 100 results (Figure 1).

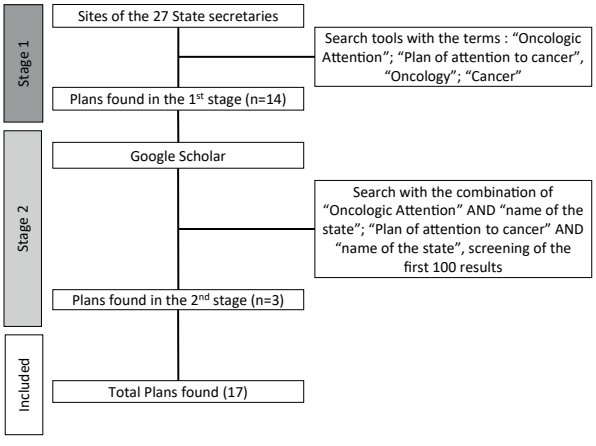

Figure 1. Data collection of State Oncologic Care Plans
Source: Adapted from PRISMA 2020[8].

The eligibility criteria were State Plans addressing specifically cancer control since 2013 – year of publication of Ordinance 874, May 16, 2013 – until 2023, when data were collected. State Plans without exclusive cancer control and unofficial plans were excluded.

Further, the data were systematized through 1) prior reading of the documents; 2) selective reading; 3) categorization of portions identified from selective reading and 4) descriptive and reflexive analysis of the data[9]. An Excel spreadsheet was elaborated with the elements of the State Plans according to articles 21 and 23 of Ordinance 874 of 2013[5] and Ordinance 1,399[6] of 2019: 1) epidemiological data of the regional oncologic context based on Hospital Cancer Registries (HCR) and Population-Based Cancer Registries (PBCR); 2) description of the attention network and lines of care of specific tumors; 3) evaluation and monitoring of the services; 4) goals and indicators for progressive improvement of the care[5].

A descriptive analysis of oncologic care and health indicators was performed for the stage of quantitative analysis to complement the review of the State Plans. The absolute number of hospitals approved to perform oncologic treatment according to the National Registry of Hospitals (CNES), including High Complexity Oncologic Centers (Cacon), High Complexity Oncologic Clinics (Unacon), Cancer Hospitals, Services of Oncologic Surgery and Radiotherapy Services, the number of oncologists working for SUS in December 2022 divided by the total population of each State multiplied by 100 thousand inhabitants and the number of CAT scans, magnetic resonance imaging (MRI) and mammograms equipment available at SUS in December 2022 divided by the total population of each State multiplied by 100 thousand inhabitants were evaluated to design the profile of care provided by each State.

The State's population was obtained from the Census of 2022[11] of "*Instituto Brasileiro de Geografia e Estatística* (*IBGE*)". The absolute number of hospitals and oncology clinics were obtained from the National Cancer Institute (INCA)[12] and CNES[10]. The number of mammograms equipment and the number of physicians were obtained from SUS Computer Department (DATASUS)[13].

Health indicators were based in the mean annual rate of mortality by cancer having as numerator the number of deaths by cancer (Chapter II of the International Classification of Diseases and Related Health Problems – ICD-10)[14] available at the Mortality Information System (SIM)[15] between 2013 and 2022 for each State and the denominator was the total population of each State according to the National Research by Sampling of Domiciles (PNADC) of IBGE for each year multiplied by 100 thousand inhabitants as denominator; the number of cases diagnosed and treated within 60 days and percent of cases diagnosed in compliance with Law 12,372 of 2012[16] were obtained from DATASUS' Oncology Panel[13].

The approval by the Institutional Review Board was waived because only public deidentified data were utilized in compliance with Ordinance 466 of 2012[17] of the National Health Council.

RESULTS

Of the 27 Brazilian States, 17 had specific cancer care plans for the period 2013-2023. The totality of South (n = 3) and Southeast (n = 4) States (100%), 78% (n = 7) of the Northeast States, 50% (n = 2) of the Midwest States and only 14% (n = 1) of the North States published specific plans to fight cancer[18-34].

No official plan was found for the States of Tocantins and Alagoas at the health secretaries' sites, they were classified as States without specific cancer plans[35,36]. Nine of the 17 plans were dated before 2018, prior to Ordinance 1,399 of 2019. The most updated was from State of Santa Catarina of 2022 and the most outdated was Piauí, of 2014.

Of the 17 plans found, only two, of Rio Grande do Sul and Minas Gerais followed fully the recommendations of Ordinance 874 of 2013[5], containing 1) epidemiologic data of the regional oncologic context based in HCR and PBCR; 2) description of the attention network with definition of flows and lines of care of specific tumors; 3) evaluation and monitoring of the services; 4) goals and indicators for progressive improvement of the care as shown in Chart 1[29,31].

The State Plans of Bahia, Rio de Janeiro and Espírito Santo were complete regardless of a generalist oncologic attention with lines of care for specific tumors, missing in 65% (n = 11) of the plans analyzed[18,20,23]; in addition, 53% (n=9) had no HCR and PBCR-based epidemiologic data collected and managed on the State. Evaluation and monitoring services systems were missing in 53% (n = 9) of the plans, consistent with States which had no control of their epidemiologic data. Chart 1 portrays the lack of goals and indicators in 41% (n=7) of the State Plans.

The evaluation of the health care revealed that the number of oncologic services varied significantly among the States with high concentration in the Southeast and South Regions with 51.9% and 23.1%, respectively and lower concentration on the North and Midwest regions with 1.82% and 4.86%, respectively.

The national mean is 1.38 oncologists per 100 thousand inhabitants, none of the North States has reached the national mean, only four States of the Northeast Region (Rio Grande do Norte (2.6), Pernambuco (2.0), Alagoas (1.6) and Sergipe (2.0) met this goal; most of the States of the Southeast, South and Midwest regions reached the mean, except Espírito Santo (1.0) in the Southeast Region

and Mato Grosso (0.7) and Goiás (0.9) in the Midwest. The national mean of CAT scans is 1.3 scans per 100 thousand inhabitants, with only two states, Acre and Amazonas, with less than one CAT scan per 100 thousand inhabitants, the same pattern for MRI and mammograms with respective means of 0.6 and 0.4 per 100 thousand inhabitants but most of the States reached the national mean (Chart 1).

Elevated mortality rates were found for most of the Brazilian States, the highest rates concentrated in the South, standing out Rio Grande do Sul with 168.99, the highest Brazilian rate. The lowest rates were found in the North and Northeast regions, the State of Pará with a rate of 58.86 (Chart 1).

The three States with high percentage of treatment within 60-days were Paraná (48.95%), Piauí (47.89%) and Mato Grosso (45.19%). The States of Maranhão (28.90%), Rio de Janeiro (29.03%) and Paraíba (31.26%) presented the lowest number of patients whose treatment was initiated within 60-days from diagnosis. No causal relation since the implementation of PNPCC in 2013 and the direct impact of the reduction of the percentage time-treatment within 60-days was found.

DISCUSSION

State and Municipal Health Plans are an important component of SUS management together with other public management tools as the Pluri-Annual Plan, Budget Guidelines Plan and Annual Budget Laws, formalizing and validating management priorities. The analysis of the State Health Plans revealed that cancer is gaining relevance in managers plans with some important advances in the period.

The analysis of the recommendations of Ordinance 874 of 2013[5] revealed the heterogeneity of the documents analyzed and the results showed quite different profiles of the regions investigated regarding the relation autonomy/dependence.

Chart 1. Analytical chart of State Oncologic Plans according to the recommendations of PNPCC and Ordinance 1,399 of 2019

Region	Recommendations prioritized by PNPCC and Ordinance number 1,399 of 2019				
	States with Cancer Plans	HCR and PBCR based epidemiology in regional oncological context	Description of the network attention with definition of flows and lines of care of specific tumors	Evaluation and monitoring of services	Goals and indicators for progressive improvement of care
North	**Pará**	No	Yes*	No	No
Northeast	**Maranhão**	No	Yes*	Yes	No
	Piauí	No	Yes*	Yes	No
	Rio Grande do Norte	No	Yes*	No	No
	Paraíba	No	Yes	No	No
	Pernambuco	No	Yes*	No	Yes
	Sergipe	Yes	Yes*	Yes	Yes
	Bahia	Yes	Yes*	Yes	Yes
Southeast	**Minas Gerais**	Yes	Yes	Yes	Yes
	Espírito Santo	Yes	Yes*	Yes	Yes
	Rio de Janeiro	Yes	Yes*	Yes	Yes
	São Paulo	Yes	Yes*	No	No
South	**Paraná**	Yes	Yes	No	No
	Santa Catarina	No	Yes*	No	No
	Rio Grande do Sul	Yes	Yes	Yes	Yes
Midwest	**Mato Grosso**	No	Yes	Yes	Yes
	Distrito Federal	No	Yes	Yes	No

Source: Adapted from Ordinance number 1,399 of 2019[6].

Captions: PNPCC = National Policy for Cancer Prevention and Control; HCR = Hospital Cancer Registry; PBCR = Population Based Cancer Registries.
* States offering attention network but without lines of care for specific tumors.

Table 1. Indicators of health care in the States with Oncologic Plans, Brazil, 2022

Region/ Federative Unit	Number of oncology services[1]	Oncologists[2]	CAT Scan[2]	MRI[2]	Mammogram equipment[2]	Mortality by cancer[2]	Cases treated within 60 days[3]	% of cases treated within 60 days[3]
North								
Pará	6	0.4	1	0.4	0.2	58.86	16,218	34.62%
Northeast								
Maranhão	10	0.4	1.2	0.2	0.3	59.92	23,555	28.90%
Piauí	4	0.5	1.5	0.4	0.3	84.72	16,863	47.89%
Rio Grande do Norte	6	2.6	1	0.5	0.6	98.51	31,165	36.47%
Paraíba	5	1.2	1.5	0.5	0.6	99.76	18,398	31.26%
Pernambuco	13	2	1	0.6	0,4	95.55	43,814	32.10%
Sergipe	3	2	1	0.3	0,5	78.05	7,964	35.35%
Bahia	19	1	1.1	0.6	0,3	84.59	54,554	36.64%
Southeast								
Minas Gerais	40	3.3	1.5	0.6	0,4	111.21	157,037	39.25%
Espírito Santo	7	1	1.2	0.7	0,7	108.71	29,786	37.39%
Rio de Janeiro	32	1.5	1.4	0.5	0,4	128.11	58,681	29.03%
São Paulo	92	2.3	1.0	0.5	0,2	121.82	263,839	33.73%
South								
Paraná	26	1.9	1.4	0.7	0,3	126.46	140,303	48.95%
Santa Catarina	19	1.7	2	1.1	0,6	126.30	64,665	33.17%
Rio Grande do Sul	31	2.2	1.7	0.9	0,4	168.99	125,037	38.64%
Midwest								
Mato Grosso	5	0.7	2.1	1	0.8	81.04	18,106	45.19%
Distrito Federal	11	3.3	1.1	1	0,2	88.29	11,332	42.58

Source: Elaborated from DATASUS and CNES.
[1]Hospitals approved for oncologic treatment according to CNES.
[2]Per 100 thousand inhabitants.
[3]Recommnended by Law 12,73216 November 22, 2012.

The differences were found in the structure of oncologic assistance for lines of care of specific tumors. Even for the States of Bahia, Rio de Janeiro and Espírito Santo, the most complete plans, the lines of care were not addressed.

Pará's plan described fully the referral flows within the attention network for most prevalent tumors in the North region, identifying each municipality, the flows were clear either for the user or the health professional[24].

Most of the documents failed to present goals and indicators to improve cancer care. Former considerations gain new light when the State's reorganization of cancer care is analyzed, a high percentage of States did not implement specific plans as recommended by Ordinances 874 of 2013[5] and 1,399 of 2019[6].

Regardless of the fluctuation of the political setting, some concepts built up historically need to be consolidated. Cancer is a social problem and its control goes beyond health care. The reduction of mortality rate and increase of survival hinge on non-clinical factors, directly influenced by social determinants. Socioeconomic status, ethnicity disparities and access to health insurance, for instance, were deemed as determinants of cancer patients survival[37-39].

The recent enacting of Law 14,758 of 2023 which created the new PNPCC within SUS and the patient-centered national program of cancer prevention and screening corroborates this new perspective[40]. The new law incorporates former policies, including actions against carcinogenic agents, incorporation of new technologies and palliative care.

Of the States analyzed, 63% (n = 17) had their own plans, many failed to address all the aspects recommended by PNPCC (regional epidemiological data, description of the health attention network, evaluation and monitoring of the services, goals and indicators of care)[5]. In addition, only a small portion of the State plans was updated frequently, leaving the current scenario of the health systems uncertain.

Despite their importance, it is necessary to notice that the actions of management planning of federative entities within SUS are not limited to health insurance, there are other planning instruments that can and are actually utilized for that purpose. State plans prioritize cancer, acknowledging the analysis of epidemiologic data.

Oncology services are concentrated in the Southeast and South regions as the analysis of the data revealed, reflecting the historical cycle of economic convergence which reviews in first place the public agenda during the initial phases of Definition and Organization of oncologic attention policies post-SUS[41].

Efforts to increase the decentralization of oncologic attention, marked by the creation of the first PNAO through Ordinance number 2,439 of 2005[4], in the phase of Expansion, are quite contemporary, considering that the debates about cancer control initiated in the 1990s with Ordinance number 3,535 of 1998[42] and implementation of Reference Centers (RC) approved to manage any neoplasm.

The scarcity of expert physicians in the North region stand out in the present investigation. The issue was not directly addressed in the 2013 policy with strategies of incentive to migration and permanence of these professionals or goals to expand the human resources[5], although it results from the necessity of supporting the municipalities in their demands of continuous education and health clinics should ensure proper technologies and skilled professionals to meet the demands of the health region.

CAT scans, MRI and mammogram equipment were available on every State homogeneously, a mandatory resource for the diagnostic investigation of a wide range of neoplasms, although their availability does not warrant the implementation of early diagnosis and difficulties to consolidate screening were still found.

Some aspects depending on the equipment, on professionals who run them and reports of tests and the own management of the health system could potentially justify the disparity of having the equipment and difficulty of screening. The mere existence of the equipment is not enough, it needs to be operational, which requires periodic and corrective maintenance, in addition to the necessity of being associated with a good software that allows refined cuts and more accurate images. In addition, MRI and CAT scan are diagnostic resources for non-oncologic pathologies, which makes the actual evaluation of the access of oncologic patients to these resources difficult.

There is a great demand for skilled physicians and technicians who prepare the report of the tests, and identify even the slightest changes. Given that screening and follow-up of relapses depend on serial exams, it is required that patients are able to attend the scheduled visit for early diagnosis. Available equipment are but a part of the effective access to these resources.

Despite better infrastructure for diagnosis, the highest mortality rates are concentrated in the South, standing out the State of Rio Grande do Sul and the lowest rates were found in the North and Northeast, an important aspect of the discussion, possibly reflecting subnotification due to the scarcity of resources in these two regions. Apparently, there is still a long way to implement safer and more appropriate pathways for early diagnosis and reduction of morbimortality.

States' Health Plans were not reviewed, which is one of the study limitations. Although none of the two Ordinances (874 of 2013[5] and 1,399 of 2019[6]) determine the formalization of the plan in a specific document for cancer control, it is understood that a specific cancer care plan strengthens the fight against cancer especially in the scenario of high mortality and incidence of neoplasms in the Brazilian States.

Another topic deserving attention is the association of State Cancer Care Plans with other public state policies related with the incidence of neoplasms and diagnosis as women's health and immunization programs. Even with these limitations, the national literature is poor in studies addressing cancer care policies as the present study proposed.

CONCLUSION

The goals proposed by the guiding policies to reorganize cancer care have not been achieved by the States and municipalities.

It is noticeable that most of cancer patients takes more than 60 days yet since diagnosis and treatment initiation, as health indicators show. Services, technical and human deficits persist in the majority of the States, a clear obstacle for proper treatment by SUS, standing out the North and Northeast regions as the most underserved, although Bahia and Pará have plans available; high incidence and mortality rates by cancer, consequently, are found in the whole country.

The existence of State Cancer Care Plans follows the historical concentration of better health services in regions with higher income and technologic density. The potential perpetuation of a poor health-disease setting is a clear consequence of neglect by the States with worse epidemiologic indicators and less access to health services which fail to present oncologic plans.

There are still obstacles to ensure the Brazilian population access and effective oncologic treatment by SUS. Regular evaluation studies could potentially help to understand quantitative aspects and find which actions foreseen in the plans were more successful or had more or less impact for each State, contributing for the continuous systematization of the necessities and improvement of strategic planning at every site.

CONTRIBUTIONS

All the authors contributed to the study design, acquisition, analysis and interpretation of the data, wording and critical review. They approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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