IMPACTO CIENTÍFICO EDITORA

AGREED AND INTEGRATED PROGRAMMING (AIP) AS A TOOL FOR ENSURING COMPREHENSIVE HEALTH CARE IN THE SUS: A CASE STUDY ON IMPROVING CANCER CARE IN THE HEALTH REGION OF FORTALEZA, CEARÁ

A PROGRAMAÇÃO PACTUADA E INTEGRADA (PPI) COMO INSTRUMENTO DE GARANTIA DA INTEGRALIDADE DA ATENÇÃO À SAÚDE NO SUS: UM ESTUDO DE CASO NO APRIMORAMENTO DA ASSISTÊNCIA ONCOLÓGICA NA REGIÃO DE SAÚDE DE FORTALEZA, CEARÁ

LA PROGRAMACIÓN ACORDADA E INTEGRADA (PPI) COMO INSTRUMENTO PARA GARANTIZAR LA INTEGRIDAD DE LA ATENCIÓN SANITARIA EN EL SUS: UN ESTUDIO DE CASO SOBRE LA MEJORA DE LA ASISTENCIA ONCOLÓGICA EN LA REGIÓN SANITARIA DE FORTALEZA, CEARÁ

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ABSTRACT

Cancer is one of the leading causes of morbidity and mortality worldwide. The complexity of treatment and the need for specialized resources pose significant challenges for public health. In this perspective, this study addresses the Integrated Agreed Programming (PPI), an essential process in the Unified Health System (SUS) that aims to organize and quantify health actions for the population, ensuring access to services through inter-managerial agreements. The action research, conducted in partnership with managers and technicians, focuses on updating the PPI to improve cancer care in the Health Region of Fortaleza, Ceará, Brazil. The project, carried out at the Ceará State Health Secretariat (SESA/CE), involved workshops to demystify the PPI and question-and-answer meetings with municipal technicians, aiming at a clear and efficient understanding of the programming process. The analysis of the PPI spreadsheets by the technical area sought to verify the adequacy of

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procedures and consultations with the agreed values, ensuring the equitable distribution of resources. The results highlight the importance of regionalization and decentralization of health services to promote equity and efficiency. Updating the PPI proved crucial to optimizing care for cancer patients, ensuring that resources are properly directed and used. In this sense, this study reinforces the need for situational strategic planning to address challenges in public health management, contributing to the continuous improvement of the services offered and the enhancement of cancer care.

Keywords: Oncology Care. Integrated Agreed Programming (PPI). SUS. Regionalization. Decentralization.

RESUMO

O câncer é uma das principais causas de morbidade e mortalidade em todo o mundo. A complexidade do tratamento e a necessidade de recursos especializados representam desafios significativos para a saúde pública. Nessa perspectiva, este estudo aborda a Programação Pactuada Integrada (PPI), um processo essencial no Sistema Único de Saúde (SUS) que visa organizar e quantificar as ações de saúde para a população, garantindo acesso aos serviços através de pactos intergestores. A pesquisa-ação, conduzida em parceria com gestores e técnicos, foca na atualização da PPI para melhorar a assistência oncológica na Região de Saúde de Fortaleza, Ceará, Brasil. O projeto, realizado na Secretaria da Saúde do Estado do Ceará (SESA/CE), envolveu oficinas para desmistificar a PPI e reuniões de tira-dúvidas com técnicos municipais, visando uma compreensão clara e eficiente do processo de programação. A análise das planilhas da PPI pela área técnica buscou verificar a adequação dos procedimentos e consultas aos valores pactuados, garantindo a distribuição equitativa dos recursos. Os resultados destacam a importância da regionalização e da descentralização dos serviços de saúde para promover equidade e eficiência. A atualização da PPI se mostrou crucial para otimizar a assistência aos pacientes oncológicos, assegurando que os recursos sejam adequadamente direcionados e utilizados. Nesse sentido, esse estudo reforça a necessidade de um planejamento estratégico situacional para enfrentar desafios na gestão da saúde pública, contribuindo para a melhoria contínua dos serviços oferecidos e no aprimoramento da assistência oncológica.

Palavras-chave: Assistência Oncológica. Programação Pactuada Integrada (PPI). SUS. Regionalização. Descentralização.

RESUMEN

El cáncer es una de las principales causas de morbilidad y mortalidad en todo el mundo. La complejidad del tratamiento y la necesidad de recursos especializados representan retos significativos para la salud pública. En esta perspectiva, este estudio aborda la Programación Pactada Integrada (PPI), un proceso esencial en el Sistema Único de Salud (SUS) que tiene como objetivo organizar y cuantificar las acciones de salud para la población, garantizando el acceso a los servicios a través de pactos intergestores. La investigación-acción, realizada en colaboración con gestores y técnicos, se centra en la actualización de la PPI para mejorar la asistencia oncológica en la Región Sanitaria de Fortaleza, Ceará, Brasil. El proyecto, realizado en la Secretaría de Salud del Estado de Ceará (SESA/CE), incluyó talleres para desmitificar la PPI y reuniones para aclarar dudas con técnicos municipales, con el objetivo de lograr una comprensión clara y eficiente del proceso de programación. El análisis de las hojas de cálculo de la PPI por parte del área técnica buscó verificar la adecuación de los procedimientos y consultas a los valores acordados, garantizando la distribución equitativa de los recursos. Los resultados destacan la importancia de la regionalización y la

descentralización de los servicios de salud para promover la equidad y la eficiencia. La actualización de la PPI resultó crucial para optimizar la atención a los pacientes oncológicos, garantizando que los recursos se destinen y utilicen adecuadamente. En este sentido, este estudio refuerza la necesidad de una planificación estratégica situacional para afrontar los retos en la gestión de la salud pública, contribuyendo a la mejora continua de los servicios ofrecidos y al perfeccionamiento de la asistencia oncológica.

Palabras clave: Asistencia Oncológica. Programación Pactada Integrada (PPI). SUS. Regionalización. Descentralización.

1 INTRODUCTION

According to the National Cancer Institute (INCA, 2023), cancer is a chronic non-communicable disease characterized by the disordered growth of cells, standing out in public health as one of the main causes of global morbidity and mortality. Several risk factors, both modifiable and non-modifiable, influence their development, including gender, ethnicity, age, socioeconomic conditions, inadequate diet, and risky nutritional status, such as malnutrition, overweight, and obesity. Care[8] for cancer patients covers promotion, prevention, diagnosis and treatment actions at all levels of care, from Primary Care to High Complexity. The objective is to articulate the points of care in the health network, ensuring comprehensive care with services that include regular consultations, diagnostic support with complementary and confirmatory tests, as well as prolonged treatments of medium and high complexity (Brasil, 2018).

The importance of reviewing the Integrated Agreed Programming (PPI) becomes evident with the recent allocation of resources specified by Ordinance GM/MS No. 593, of May 18, 2023. This ordinance establishes resources from the Maintenance Block of Public Health Actions and Services - Specialized Care Group, which will be incorporated into the financial limit of Medium and High Complexity (MAC) of the State of Ceará and its municipalities (Brasil, 2023). The Agreed and Integrated Programming (PPI) is an essential process within the scope of the Unified Health System (SUS). In line with the strategic planning, the PPI defines and quantifies the health actions for the population residing in each territory, establishing inter-management pacts that guarantee the population's access to the necessary health services (Brasil, 2011).

The main objective of the PPI is to organize the health service network, ensuring the transparency of the established flows. In addition, the PPI defines the financial limits for the assistance of the local population and the references received from other municipalities, based on criteria and parameters agreed between the managers. This process guides the programming of health actions in each territory and guides the allocation of financial resources, ensuring an equitable and efficient distribution of health services (Brasil, 2011).

The PPI, together with the Terms of Commitment for Guaranteed Access, are essential tools to ensure that the population has access to medium and high complexity services. Regionalization, a fundamental principle of the Unified Health System (SUS), aims to decentralize health services to promote equity and efficiency (Brasil, 2011). In this scenario,

[8] Considering Official Letter No. 338/2023, of April 13, 2023, from the Health Department of the State of Ceará, which requests financial support for the restructuring of the Health Care Network, with a focus on the care of cancer patients in the State of Ceará, in order to guarantee cancer care within the legal deadline, as provided for by law (Ceará, 2023).

this study aims to present a diagnostic synthesis of the spatial dynamics of the number and rate per 100 thousand inhabitants of mortality due to malignant neoplasms in the State of Ceará, the health region of Fortaleza and the 184 municipalities of Ceará. In addition, this study proposes the updating of the local PPI to optimize care for cancer patients in the health region of Fortaleza/CE, aiming at improving oncological care. Such updating is crucial to ensure the effectiveness of cancer care, ensuring that resources are appropriately directed and used, benefiting public health and meeting the needs of the population in an efficient and equitable manner (Brasil, 2011; 2023).

2 AGREED AND INTEGRATED PROGRAMMING (PPI) AS AN INSTRUMENT FOR PLANNING AND MANAGING THE GUARANTEE OF COMPREHENSIVE HEALTH CARE IN THE SUS

According to the Federal Constitution of 1988 (FC, 88), the care network of the Unified Health System (SUS) must be organized in a regionalized and hierarchical manner, guaranteeing the principles of universality, equity and integrality of health care (Brasil, 1988). The main instruments for regionalization planning are: the Regionalization Master Plan (PDR); the Investment Master Plan (PDI) and the Agreed and Integrated Health Care Programming (PPI), which is the object of study in this article (Brasil, 1996, 2000, 2006; Menicucci, 2014; Menicucci; Marques, 2016; Silva, 2016; Saldanha, Jorge, Linard, 2022).

There are two basic principles that preponderate in the consolidation of the PPI as a planning and management instrument: the decentralization of services and regionalization/hierarchization of the network. To this end, it is salutary to highlight these principles, as they constitute the basis for the emergence of these planning and management instruments addressed in this study (Brasil, 1996, 2000, 2006; Moreira, 2017; Moreira; Tamaki, 2017; Morais, 2019; Saldanha, Jorge, Linard, 2022).

In view of its importance, the SUS from its creation to the present day has been in a growing process of improvement and strengthening, and in order for it to be consolidated – executing the constitutional precepts more easily – it is necessary that the work and systematization processes become increasingly faster and more resolute (Pordeus *et al*., 2023). It was in this context that management instruments, the subject of this study, were developed. The PPI, as a planning and management instrument, can contribute to the improvement of hospital management (Moreira, 2017; Moreira; Tamaki, 2017; Morais, 2019; Saldanha, Jorge, Linard, 2022).

Moreira (2017) sought to investigate the PPI process of the municipalities of the State of Mato Grosso do Sul, an integral part of the Organizational Contract for Public

Health Action (COAP), for the period 2012-2015. To identify the care parameters and the factors that influenced the agreement process in the municipalities, secondary data from various sources of information were used, such as COAP, health plans, management reports, manuals, laws, decrees and ordinances of the Ministry of Health, as well as primary data obtained through interviews with managers/technicians of the Municipal Health Secretariats (SMS).

In addition, the author analyzed the agreements of 78 municipalities in Mato Grosso do Sul, identifying, among these, those municipalities whose parameters of coverage of the target population, concentration of procedures, and care coverage, presented differences in relation to that established by the Bipartite Interagency Commission (CIB) for the State, which constituted the target population of the interviews. All the municipalities surveyed prepare the formal planning instruments prescribed in the legislation - Health Plan, Annual Programming and Management Reports (Moreira, 2017).

According to Moreira (2017), the results reveal a high influence of financial resources on the agreement of the municipalities, which are subordinated to the established financial ceilings, not reflecting the agreements, the demands of the municipalities of Mato Grosso do Sul, but rather an adaptation of the procedures to the available resources. Therefore, the study also allowed us to conclude that in the agreement on the parameter of coverage of the hypertensive population, the municipalities sought to maintain the percentage of coverage already practiced with their population, the author points out.

Moreira and Tamaki (2017) analyzed PPI as an instrument to guarantee the population's access to health actions and services in only 8 municipalities in Mato Grosso do Sul, using an exploratory qualitative approach. Data were collected through semi-structured interviews and document analysis. The results allowed us to conclude that the PPI is not playing its role as an instrument to guarantee the population's access to more complex services. Morais (2019) studied the dynamics of the regionalization process for the State of Minas Gerais (MG) and, through the indicator of problem-solving capacity of medium-complexity hospital care, sought to identify the level of regionalization achieved. The care flows between health regions of the lists of medium complexity hospital procedures (MCH1/MCH2), established by the Master Plan for Regionalization of Minas Gerais (PDR/MG), as a portfolio of hospital services attributed to the territory of the 77 (seventy-seven) health regions of the State, as well as the origin of the migrant patient, were analyzed.

In addition, through statistical analyses, the author analyzed the cause-and-effect

relationships between the problem-solving rate achieved by the health regions and a set of variables that favored the understanding of the results. As a result, it was observed that more than 50% (fifty percent) of the health regions of MG have a resolution considered to be between critical and regular, demonstrating the low response capacity of the health regions to the medium complexity hospital demand of resident patients, and pointing to a high migratory flow of patients between regions and, in many cases, among expanded health regions as well (Morais, 2019).

Saldanha, Jorge and Linard (2022) in their study describing through a *Scope Review* of the literature how the PPI, as a planning and management instrument, can contribute to the improvement of hospital management. The RE showed as a result that of the eleven articles analyzed, four were qualitative, six retrospective and descriptive, and only one was cross-sectional descriptive. The authors concluded that although the PPI expresses the agreement between managers, guaranteeing universal access and integrality of health care; The level of regionalization is insufficient, with low rates of resolvability of hospital care, in addition to the fragility in the cooperation process among managers.

In Table 1 below, adapted from Saldanha, Jorge, and Linard (2022, p. 6-7), we can analyze the information containing the results of the articles included in the scoping review, carried out by the authors, regarding PPI as an instrument for "Planning and Management" of Health Care in the SUS.

Table 1

Scope Review regarding PPI as an instrument of "Planning and Management" in the SUS

Author/Year	Title	Database/Journal	General Objectives	Methodological Strategy
Silva (2016)	The agreed and integrated programming as a strategy for expanding access and qualification of health care networks	Capes Journal Portal/ Public Policies and Development	To investigate its effectiveness in organizing the service network, expanding access and strengthening health care networks with equity and transparency.	Qualitative
Moreira and Tamaki (2017)	Agreed and Integrated Programming as an instrument to guarantee the integrality of health care in the SUS	Capes Journal Portal/Interactions	OBJECTIVE: To analyze the PPI as an instrument to guarantee the integrality of health care for the population in eight municipalities belonging to the four health regions of the state of Mato Grosso do Sul, from the perspective of the social actors involved in its elaboration and execution.	Qualitative
Silveira Filho *et al.* (2016)	Actions of the Regional Interagency Commission for shared management of	Scielo/Physis Journal of Collective Health	To identify how the regulation of the supply of specialized services is addressed in the	Qualitative

	specialized services in the Unified Health System		CIR debates and what are the main referrals.	
Feliciello and Villalba (2016)	Health regulation in Brazil: a reflection on this process	Capes Journal Portal	To reflect on how the various elements that characterize the forms of organization of Brazilian society and the process of implementation of the Unified Health System influence the creation of inadequacies, present both in the formulation of public policies for health regulation, as well as in their implementation.	Retrospective and Descriptive
Souza *et al.* (2018)	Hospital management in the SUS: correlations between the care network and service management capacity	Capes Journal Portal/Health Dissemination for Debate	To understand the aspects related to hospital management in the Unified Health System – SUS Bahia – that facilitate or hinder the functioning of the networks, based on the perception of managers.	Qualitative
Abi Rached and Mathias (2018)	Monitoring of billing in the urgency/emergency sectors in the unified health system: proposal of a roadmap to assist the manager	VHL	To develop an instrument to facilitate the monitoring of the accuracy of some essential procedures to be included in the database of the Outpatient Information System in the urgent and emergency service.	Retrospective and Descriptive
Moreira (2017)	Health planning: the agreed and integrated programming of health care in the state of Mato Grosso do Sul	Capes/UFMS Journal Portal	To investigate the process of Agreed and Integrated Programming (PPI) of the municipalities of the state of Mato Grosso do Sul, an integral part of the Organizational Contract for Public Health Action (COAP), for the period 2012-2015.	Cross-sectional and descriptive
Days (2015)	Planning in the operationalization of the Integrated Agreed Programming - PPI	VHL/ Electronic Journal Health Collection	To find out which factors hinder the implementation of PPI for highly complex MRI-type procedures in the municipality of Palmeiras de Goiás.	Descriptive
Morais (2019)	Regionalization of health care in the state of Minas Gerais: capacity to provide medium-complexity hospital services	Capes/ FJP Journal Portal	To study the dynamics of the regionalization process achieved by the State of Minas Gerais between the years 2009 and 2017.	Descriptive
Gonçalves (2015)	Integrated agreed programming of care and the State Regulation System: limits and possibilities in ensuring the access of the population of Rio de Janeiro to health actions and services in highly complex cardiac surgery	Capes/ Fiocruz Journal Portal	To analyze the relationship between the agreed and integrated programming (PPI) of care and the state regulatory system as possible inducers of the access of the population of the State of Rio de Janeiro to health services	Retrospective and Descriptive
Siqueira (2011)	Regionalization of health care in the North of Rio de Janeiro: an evaluation of hospital care	Capes/ Fiocruz Journal Portal	OBJECTIVE: To evaluate the impact of this model on access to hospital care in the Northern Region of the State	Retrospective and Descriptive

			of Rio de Janeiro between 2002 and 2007.	

Source: Adapted from Saldanha, Jorge and Linard (2022, p. 6-7).

As for the objectives, Saldanha, Jorge, and Linard (2022, p. 6-7) divided the studies according to the main thematic axes addressed by the authors:

Table 2

Thematic axes found in the articles included in the Scope Review

Thematic Axis	Authors	No. of items
Access and Comprehensiveness	Gonçalves (2015); Silva (2016); Siqueira (2011); Moreira and Tamaki (2017); Moreira (2017); Morais (2019)	6
Evaluation of the PPI by the perception of managers	Feliciello, Vilalba (2016); Silveira Filho *et al.* (2016); Souza *et al.* (2018)	3
Billing monitoring	Abi Rached and Mathias (2018)	1
Difficulties faced by PPI	Days (2015)	1

Source: Adapted from Saldanha, Jorge and Linard (2022, p. 6-7).

3 METHODOLOGICAL STRATEGY

3.1 DATA SOURCE, BIBLIOGRAPHIES, MORTALITY AND DEMOGRAPHIC VARIABLES

The present study aims to present a diagnostic synthesis of the spatial dynamics of the number and rate per 100 thousand inhabitants. mortality from malignant neoplasms in the state of Ceará, the health region of Fortaleza and the 184 municipalities of Ceará for the period between 2000 and 2023. In addition, this work proposes the updating of the local PPI to optimize care for cancer patients in the health region of Fortaleza/CE, aiming at improving oncological care.

For this, a bibliographic and documentary survey of laws, decrees, norms and ordinances related to the theme was carried out together with government reports, especially those carried out by the Ministry of Health (MS), the Health Secretariat of the State of Ceará (SESA/CE) and some scientific articles. For these, the research was consolidated through the collection and selection of scientific papers found in the electronic databases: Virtual Health Library (VHL), Scientific Eletcronic Library Online (SciELO) and Latin American and Caribbean Literature on Health Sciences (Lilacs), over a period of fifteen years (2010-2024). Meanwhile, the search for studies in the gray literature included: Google Scholar and CAPES Journal Database.

To calculate the mortality rates per 100 thousand inhabitants, two related indicators were collected, namely: census resident population extracted from the databases of the Demographic Census (Census, 2010, 2022) of the Brazilian Institute of Geography and Statistics (IBGE); estimated resident population (2000-2021) available at DATASUS/MS.

Finally, the number of deaths from malignant neoplasms was extracted from the records recorded in the Mortality Information System (SIM/DATASUS), according to the following codes recorded in the 10th International Statistical Classification of Diseases and Related Health Problems (ICD-10: C00 to C97) for the period 2000-2023.

3.2 EXPLORATORY SPATIAL DATA ANALYSIS (AEDE)[9]

The data on occurrence, number and rates of deaths from malignant neoplasms were spatialized using the thematic map in the Qgis software. In the next stage, the spatial statistical techniques of the Exploratory Analysis of Spatial Data (AEDE) were used. According to Anselin (1998), Almeida (2012) and Golgher (2015), the AEDE method helps to understand spatial phenomena through a set of techniques used to describe the spatial distributions of variables, in addition to pointing out patterns of spatial correlation, which can evidence the presence of *clusters* and *outliers*.

To verify the spatial dynamics of mortality by Malignant Neoplasms, the analysis will be made from the use of two measures of spatial dependence described in Anselin (1998), Almeida (2012) and Golgher (2015). The 1st measure is called the univariate Global I-Moran, represented by the scatter plot. In this it is possible to find four patterns of spatial association distributed among their quadrants (Q1: High-High, Q2: High-Low, Q3: Low-Low and Q4: Low-High). Through this statistical procedure it is possible to identify general trends in data clustering and reveal the possible existence of spatial association patterns.

According to Anselin (1998), Almeida (2012) and Golgher (2015), Moran's global index (I) varies between –1 and +1, providing a general measure of the linear (spatial) association between vectors at time t and the weighted average of neighborhood values, or spatial lags. Values close to "0" indicate the absence of significant spatial autocorrelation (randomness), the closer to the value "1", the more autocorrelated it will be. If the value of this statistic is positive, the autocorrelation will be positive, if the value is negative, the autocorrelation will be negative.

The 2nd measure is the univariate local I-Moran (LISA), which tests the hypothesis of random distribution of the phenomenon in question in each municipality of Ceará, and, consequently, identifies the possible existence of *local spatial clusters* and *outliers* .

[9] Moran's index (I) is one of the most widely used ways to measure spatial autocorrelation. This statistic ranges between –1 and +1, providing a general measure of the linear (spatial) association between vectors at time t and the weighted average of neighborhood values, or spatial lags. In addition, for the authors, the value of the I-Moran statistic represents precisely the slope of the regression line. For more details of this methodological section, see Anselin (1998), Almeida (2012) and Golgher (2015).

4 DIGNOSTIC SYNTHESIS OF CANCER IN THE STATE OF CEARÁ (2000-2023)

4.1 HISTORICAL EVOLUTION OF DEATHS FROM MALIGNANT NEOPLASMS IN CEARÁ

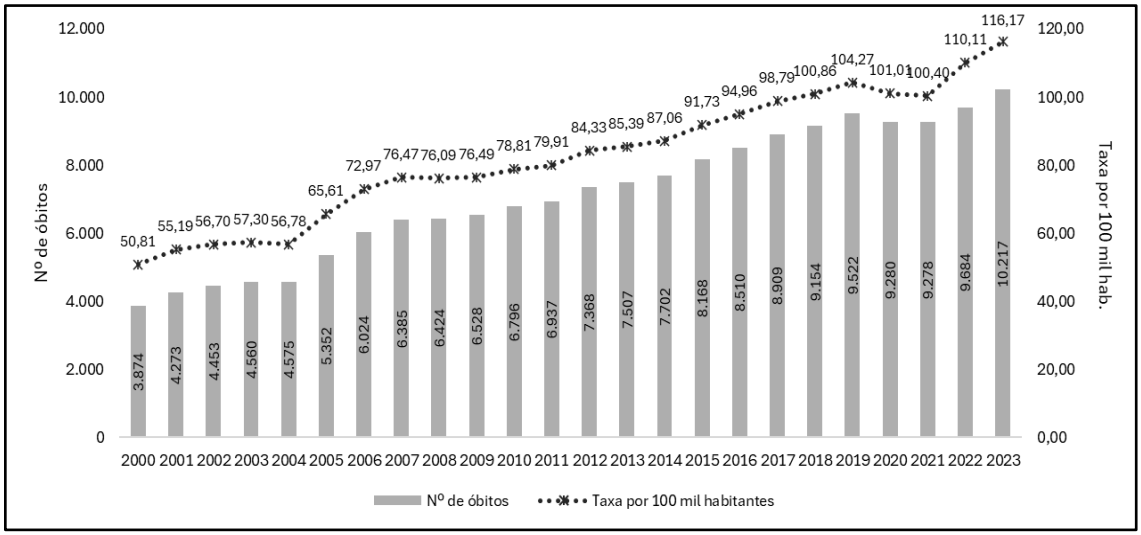
The State of Ceará registers a population of 8,791,688 inhabitants according to the last IBGE Census of 2022. Only 15.59% of the population of Ceará has access to the private health system, which corresponds to 1,341,793 people in June 2023, according to data from the National Supplementary Health Agency (ANS). As a result, most cancer patients are treated by SUS (IBGE, 2022).

Based on current legislation, such as Law No. 17,006 of September 2019, which deals with the integration of health actions in the SUS, and Ordinance No. 2,108 of November 2019, which defines the organization of the health regions of Ceará, the State is divided into five health regions: Fortaleza, Norte (Sobral), Cariri, Litoral Leste/Jaguaribe and Sertão Central (Brazil, 2019).

Figure 1 shows the historical series of the number of deaths and the rate per 100 thousand inhabitants. mortality from malignant neoplasms in the State of Ceará for the last two decades (2000-2023), according to data from the Mortality Information System (SIM/DATASUS). According to the data, approximately 184 thousand deaths from malignant neoplasms were recorded, with the year 2023 showing the highest number of deaths (n=10,217), as well as the year with the highest mortality rate, 116.27 deaths per 100 thousand inhabitants.

Figure 1

Number of deaths and rate per 100 thousand inhabitants of deaths from malignant neoplasms, Ceará, 2000 to 2023.[(1) (2) (3) (4) (5)]



Source: MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 – Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Prepared by the authors (2024). Note: (1) data from 2014 to 2021 consulted on 09/09/2024. (2) Final data available up to 2000-2022 and preliminary data for 2023. (4) Data update date 08/2024 and data extraction date 09/01/2024. (5) Deaths classified with the following ICD-10 codes were considered: malignant neoplasms (C00-C97).

In the period analyzed, there was a constant growth in this mortality until 2019 (+4.02%). However, from 2020 onwards, there was an oscillation in the behavior of deaths from malignant neoplasms, with reductions in 2020 (-2.54%) and 2021 (-0.02%), interrupted in the biennium of 2022 (+4.38%) and 2023 (+5.50%). According to SESA/CE (2024), this behavior in the last four years (2020-2023) may be related to the effects caused by the Covid-19 pandemic.

4.2 RANKING OF DEATHS DUE TO THE MAIN TYPES OF MALIGNANT NEOPLASMS IN CEARÁ

Incidence and mortality are crucial for epidemiological analysis, allowing us to understand the occurrence and evolution of diseases. Knowledge of the profile of different types of cancer and possible changes over time are essential for disease surveillance (Inca, 2023). The data reveal that, in Ceará, prostate neoplasia is more common among men (31.68%), while breast neoplasia stands out among women (27.57%). These numbers are part of INCA's projections for 2023, pointing to about 31,390 new cases in the state (Inca, 2023).

Table 1 presents the ranking of deaths from malignant neoplasms and the absolute number of deaths that occurred between 2000 and 2023. In the state of Ceará, according to

the period analyzed, malignant neoplasms of the bronchi and lungs ranked first in number of deaths, followed by malignant neoplasms of the stomach and prostate. Deaths from malignant breast neoplasms occupy the third place in most of the years analyzed. In the fifth position, in addition to these last neoplasms, deaths from malignant neoplasms of the esophagus predominated.

4.3 SPATIAL DYNAMICS OF DEATHS FROM MALIGNANT NEOPLASMS ACCORDING TO MUNICIPALITIES, CEARÁ

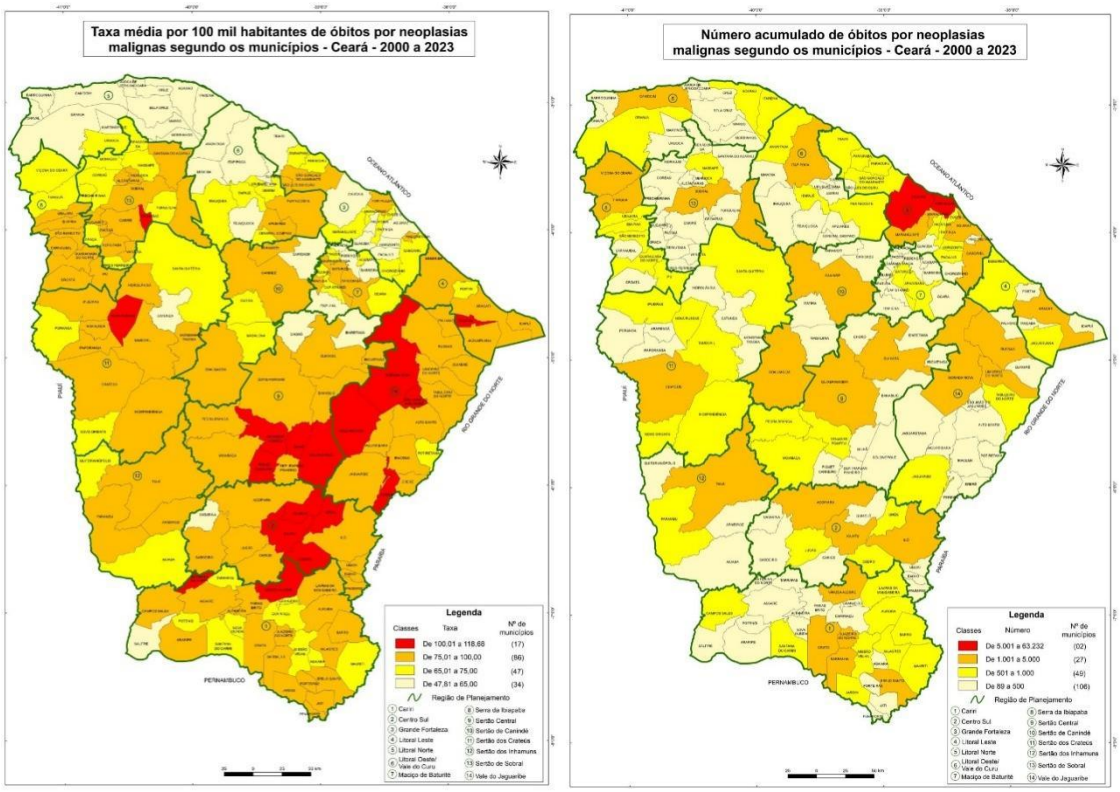
Figure 2 shows the cumulative number and average rate of deaths from malignant neoplasms, according to municipalities, between the years 2000 and 2023. The cumulative distribution of deaths and mean death rates from malignant neoplasms is not spatially uniform, indicating that some municipalities were more severely impacted by such morbidity. The Center-South region of the state has several critical areas, as well as regions close to it, namely: Vale do Jaguaribe and Sertão Central regions.

Municipalities such as Fortaleza (63,232), Caucaia (5,268), Juazeiro do Norte (4,963), Maracanaú (3,932), Sobral (3,905), Iguatu (2,611), Crato (2,608), Maranguape (2,061), Quixeramobim (1,805) and Itapipoca (1,802) are critical in absolute number of deaths, accounting for almost 50% of the cases throughout the state over the 25 years, which indicates a significant impact of malignant neoplasms in these regions. with critical mortality statistics.

On the other hand, municipalities such as São João do Jaguaribe (118.68), Cedro (112.61), Quixelô (112.53), Orós (110.8), Groaíras (110.17), Nova Russas (110.14), Solonópole (108.41), Morada Nova (105.98), Senador Pompeu (105.91) and Várzea Alegre (105.84) are critical in average rate.

Figure 2

Accumulated number and average rate per 100 thousand inhabitants of deaths from malignant neoplasms, according to municipalities, Ceará (2000-2023)



Source: MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 – Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Prepared by the authors (2024). Note: (1) data from 2014 to 2021 consulted on 09/09/2024. (2) Final data available up to 2000-2022 and preliminary data for 2023. Data update date 08/2024. (3) Deaths classified with the following ICD-10 codes were considered: malignant neoplasms (C00-C97).

In addition, the map makes it explicit that lethality by malignant neoplasms was significantly present in the Center-South, Vale do Jaguaribe, and Sertão Centrale regions of the State of Ceará. While the Eastern region presented relatively more moderate statistics.

4.4 SPATIAL DEPENDENCIES OF DEATHS FROM MALIGNANT NEOPLASMS ACCORDING TO MUNICIPALITIES, CEARÁ

The spatial analysis makes it possible to establish whether the dynamics of deaths in the 184 municipalities of Ceará happen randomly or if there is evidence of some type of dependence, in addition to being possible to analyze some determinants of the distribution of mortality in the territory of Ceará. Table 1 presents the first of the tests performed in the present study, which was the Global Moran's I scatter plot. The results of Moran's Global I test for the sample period 2000 to 2023 are in the following table, and both have a *p-value* close to zero, therefore, the null hypothesis that the distribution of deaths in the urban perimeter of the municipalities of Ceará follows a random distribution is rejected.

Consequently, there is evidence of the spatial influence on the dynamics of mortalities throughout the municipal territory.

Table 3

Univariate global Moran's I index coefficient for the logarithm of the rate per 100 thousand inhabitants. of deaths due to malignant neoplasms (ICD-10: C00-C97), according to municipalities, Ceará, 2000-2023

Year	I-Moran Univariate	Expected Value	*p-value*	Permutations
2000	0,116***	-0,0055	0,000	999
2000-2004	0,283***	-0,0055	0,000	999
2005-2009	0,354***	-0,0055	0,000	999
2010-2014	0,375***	-0,0055	0,000	999
2015-2019	0,381***	-0,0055	0,000	999
2020-2023	0,479***	-0,0055	0,000	999
2000-2023	0,499***	-0,0055	0,000	999
2023	0,294***	-0,0055	0,000	999

Source: Prepared by the authors based on data from the MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 - Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Note: p-value < 0.01; ** p-value < 0.05; * p-value < 0.1

Figures 3 (A, B, C, D, E, F, H) below present the global and local indicators of univariate spatial autocorrelation (I-Moran), for the natural log of the average rate of deaths from malignant neoplasms for the years 2000, 2023 and the 2000-2023, 2000-2004, 2005-2009, 2010-2014, 2015-2019, 2020-2023 indicators, according to the urban perimeter of the municipalities of Ceará.

These maps (Figures 3A, 3B, 3C, 3D, 3E, 3F, 3H) represent the univariate Global I-Moran scatter plot, in which, on the vertical axis, the spatial lag of the variable of interest (Wy) is observed, and on the horizontal axis, the value of the variable of interest is obtained, in this case, the rate of deaths from malignant neoplasms.

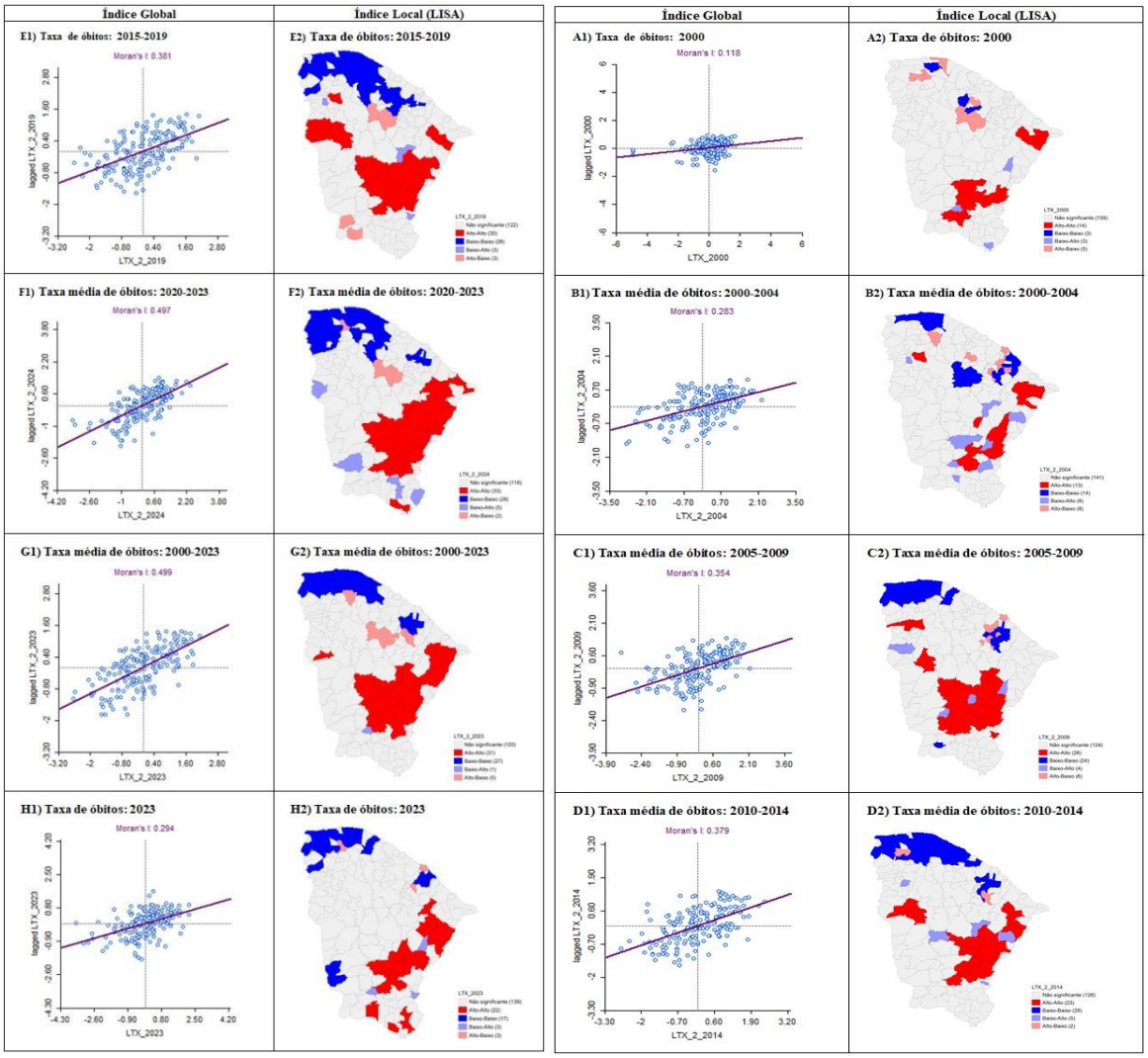
When verifying the dispersion of the variables between the quadrants, it is noted that the municipalities are predominantly in quadrants I and III, that is, in the quadrants in which a municipality with a high rate of deaths is surrounded by a municipality or with similar characteristics, as well as a municipality with a low mortality rate, surrounded by regions of locations in similar situations.

In this scenario, it is noted that the positive and significant result of the statistics allows us to conclude that there are indications of positive spatial dependence on these indicators,

i.e., municipalities that presented, on average, high levels of deaths and very poor social and economic characteristics in the period, roughly speaking, are geographically close to those that also showed high average mortality and very poor socioeconomic levels (Figures 3A, 3B, 3C, 3D, 3E, 3F, 3H).

Figure 3

Clustering of the univariate I-Moran spatial autocorrelation index, global and local, for the variables death rate from malignant neoplasms (ICD-10: C00-C97) considering the years 2000 (A), 2023 (B) and average rate for the period 2000-2021 (C), according to the urban perimeter of the municipalities of Ceará



Source: Prepared by the authors based on data from the MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 – Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Note: (1) Data from 2014 to 2021 consulted on 09/09/2024. (2) Final data available up to 2000-2022 and preliminary data for 2023. Data update date 08/2024. (3) Deaths classified with the following ICD-10 codes were considered: malignant neoplasms (C00-C97).

On the other hand, municipalities that recorded, on average, low death rates and poor socioeconomic conditions are usually surrounded by neighborhoods that also have low

mortality rates and poor conditions of social vulnerability in the period analyzed (2000-2023).

To refine this result and in order to identify processes underlying it, the Local I-Moran Index (LISA) was applied, as can be seen in Figures 3A, 3B, 3C, 3D, 3E, 3F, 3H, using the same matrix of spatial weights. This indicator allowed the identification of *clusters* (i.e., regions of municipalities with similar mean values of deaths and socioeconomic conditions, represented by the High-High and Low-Low values) and *outliers* (areas with mean mortality values and discrepant socioeconomic characteristics of their neighborhood, represented by the High-Low and Low-High values).

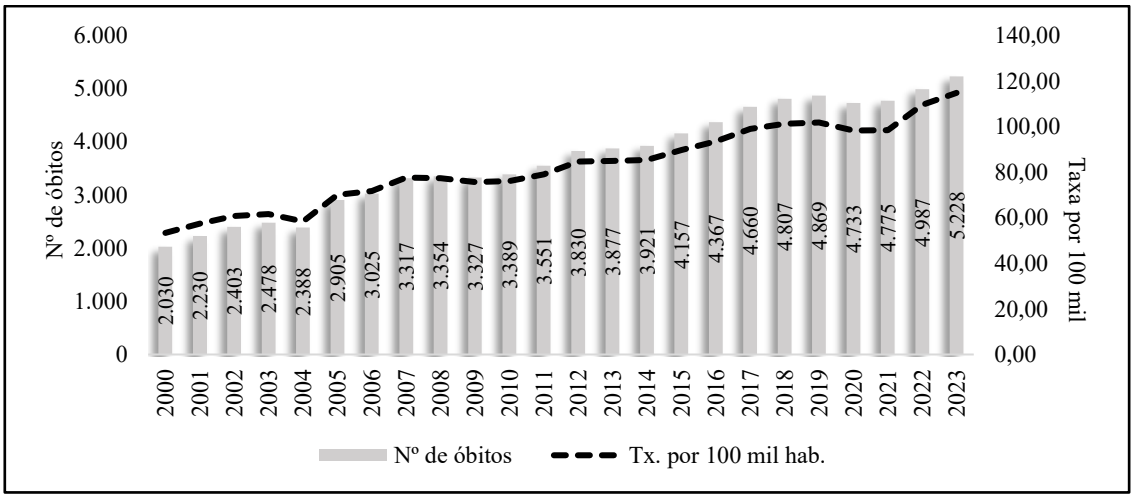
According to the results from the LISA Cluster Map, it was found that the existence of positive global spatial autocorrelation is also confirmed locally. The existence of four *clusters* representing those municipalities with high average mortality is demonstrated, and which are surrounded by others that also have high average death rates in the analyzed period (2000-2023). Such clusters are scattered among the planning regions of the State of Ceará, especially the Center-South, Vale do Jaguaribe and Sertão Central regions.

4.5 SPATIAL DYNAMICS OF DEATHS FROM MALIGNANT NEOPLASMS ACCORDING TO THE DECENTRALIZED HEALTH AREAS (DS) OF THE FORTALEZA HEALTH MACRO-REGION, CEARÁ

Figure 4 shows the distribution in absolute numbers and the rate per hundred thousand inhabitants of deaths from malignant neoplasms for the Fortaleza Health Macro-region, during the period from 2000 to 2023.

Figure 4

Spatial distribution of the number and rate (per 100 thousand inhabitants) of deaths from malignant neoplasms for the Health Macro-region of Fortaleza, Ceará, 2000 to 2023 (1) (2) (3) (4)



Source: Prepared by the authors based on data from the MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 - Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Note: (1) data from 2014 to 2021 consulted on 09/09/2024. (2) Final data available up to 2000-2022 and preliminary data for 2023. Data update date 08/2024. (3) Deaths classified with the following ICD-10 codes were considered: malignant neoplasms (C00-C97).

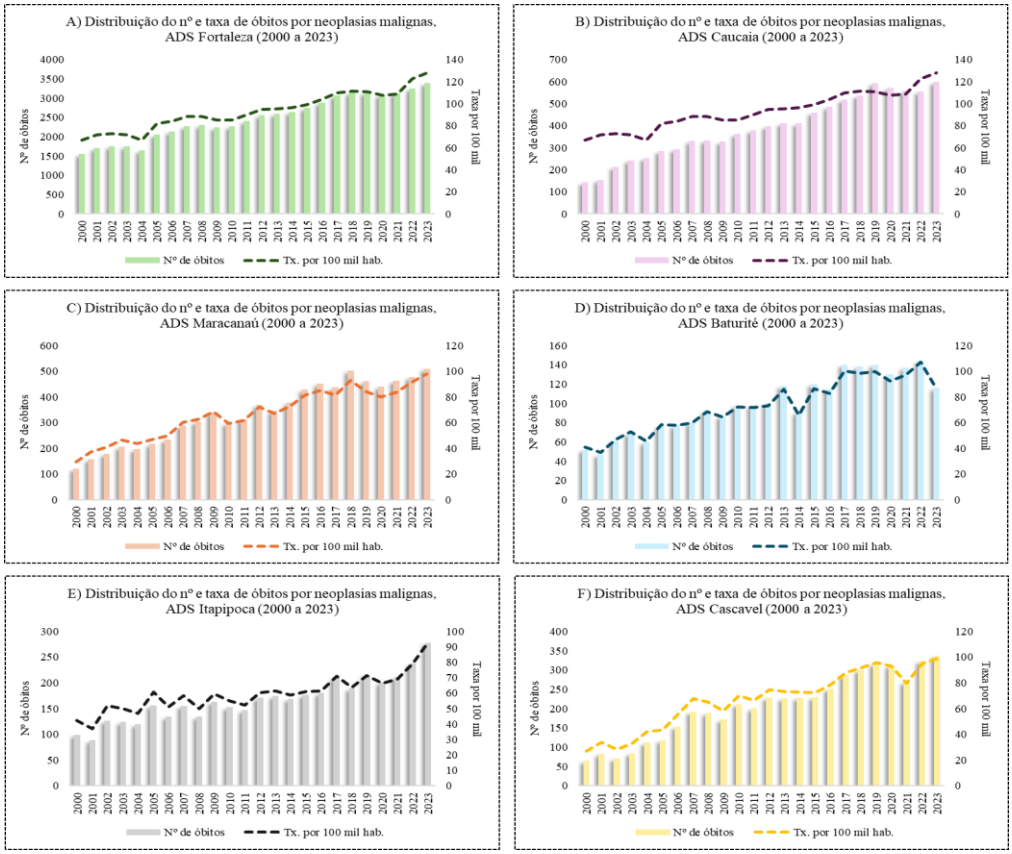
The results obtained show the dynamics of growth and decrease in deaths from malignant neoplasms between the period analyzed. Checking the behavior of mortality, there is a constant growth in the number of deaths from malignant neoplasms that occurred until 2019, and oscillation in the last four-year period (2020-2023).

The years 2019 and 2020 were marked by a strong change in the behavior of this rate, with a significant drop from 102 to 98 deaths per hundred thousand inhabitants in 2020. And approximately 98 deaths per hundred thousand inhabitants in 2021. On the other hand, it can be seen that between the years 2022 and 2023 were the most critical in the analyzed scenario, with a peak in 2023, when the number of deaths approached 5.3 thousand (115 deaths per hundred thousand inhabitants).

Figure 5 shows the distribution in absolute numbers and the rate per hundred thousand inhabitants of deaths from malignant neoplasms according to the Decentralized Health Areas (ADS) of the Fortaleza Health Macro-region, during the period from 2000 to 2023. The DSDs with the highest notifications were those of Fortaleza (Figure 5A), Caucaia (Figure 5E), and Maracanaú (Figure 5B), respectively.

Figure 5

Spatial distribution of the number and rate (per 100 thousand inhabitants) of deaths from malignant neoplasms, according to the Decentralized Health Areas (ADS) of the Fortaleza Macro-region, Ceará, 2000 to 2023 (1) (2) (3) (4)



Source: Prepared by the authors based on data from the MS/SVS/CGIAE - Mortality Information System - SIM; 2000 to 2020 - Preliminary estimates prepared by the Ministry of Health/SVS/DASNT/CGIAE; IBGE - Population Census 2022. Note: (1) data from 2014 to 2021 consulted on 09/09/2024. (2) Final data available up to 2000-2022 and preliminary data for 2023. Data update date 08/2024. (3) Deaths classified with the following ICD-10 codes were considered: malignant neoplasms (C00-C97).

Similar to the scenario seen for Ceará and the Fortaleza Macro-region, the most critical year in terms of the death rate of ADS Fortaleza was in the last year of the pandemic (2023), in which this ADS reached the mark of 129 deaths per hundred thousand inhabitants. Likewise, this behavior was seen in the ADS Cascavel, with a peak of 100 deaths per hundred thousand inhabitants in 2023, being the most critical ADS on the east coast (Figure 5C).

Table 2 expands the analysis of descriptive information on official mortality rates from malignant neoplasms, divided by five-year period (2000-2023), according to the municipalities in each ADS. As expected, the ADS Fortaleza has the highest death rates due to the strong influence in absolute numbers of the city of Fortaleza in all five-year periods.

Also with regard to this ADS, it is verified that the municipality of Eusébio had an average death rate above 90 in the 2015-2019 and 2020-2023 five-year periods, however in the 2000-2004 and 2005-2009 five-year periods, the municipality registered, at most, an

average death rate of 40, exceeding the average rates observed in Itaitinga, and in the same five-year period, this respective municipality had a rate of 59 deaths (lower than Fortaleza, average rate of 80 deaths).

As shown in Figure 5, the SDAs of Caucaia (Figure 5C) and Maracanaú (Figure 5C) also reached critical levels of deaths from malignant neoplasms. It is worth noting that these two ADS contain municipalities that stand out with large commercial and industrial centers, in addition to bordering the capital Fortaleza, with a high population density and consequently were more prone to the accounting of deaths. In addition to the municipalities of Caucaia and Maracanaú, other municipalities present in these two ADS had high repercussions of deaths in the period analyzed, such as Itapajé, Paracuru, Pacatuba and Barreira. These municipalities, despite having a smaller population contingent compared to the cities of the ADS Fortaleza, accounted for high numbers of deaths in relation to their population in absolute value.

The ADS of Itapipoca also drew attention to the high death rates of some municipalities in the period, especially Itapipoca, Tururu and Umirim. These last two municipalities mentioned have a population of less than 20 thousand people in the period analyzed. In this direction, ADS Cascavel also drew attention. Mainly with the municipalities of Cascavel, Beberibe and Chorozinho, which reached rates above 80 per hundred thousand inhabitants, between 2020 and 2021.

Finally, the ADS Baturité was the one that presented a relatively more moderate scenario among its municipalities than the other ADS. The city of Baturité had the highest sum of deaths from malignant neoplasms in the period, with 34 deaths.

5 ACTIONS AIMED AT MONITORING & EVALUATION (M&E) OF TYPES OF CANCER IN CEARÁ

5.1 AGREED AND INTEGRATED PROGRAMMING (PPI)

The Agreed and Integrated Programming (PPI) is a fundamental process in the planning and management of public resources within Brazilian municipalities. This process involves coordination between different levels of government (federal, state, and municipal) and civil society to ensure that resources are allocated efficiently, equitably, and transparently. The integrated agreement is especially relevant in the areas of health, education and social assistance, where the demands of the population are dynamic and vary according to the characteristics of each location (Brasil, 2010).

The integrated agreement promotes the active participation of civil society and the different levels of government in the planning and definition of investment priorities. This

ensures that the decisions made reflect the real needs of the population (Pordeus; Santos, 2024). Through a well-structured agreement process, it is possible to optimize the use of public resources, avoiding waste and ensuring that investments are directed to areas of greater need.

The integrated agreement seeks to reduce regional and social inequalities, ensuring that all citizens have access to essential public services, regardless of their geographic location. In addition, the agreement process makes the management of resources more transparent, allowing society to monitor and supervise the application of public resources. This increases the accountability of public managers and strengthens democracy (Souza, 2006).

The integrated agreement is based on several theoretical concepts of public administration and participatory management. Governance theory emphasizes the importance of collaboration between government, the private sector, and civil society in the management of public resources. Collaborative governance is one of the pillars of integrated agreement, promoting cooperation and the co-creation of public policies (Peters; Pierre, 2012). The Theory of Managerial Public Administration defends efficiency and effectiveness in the management of public resources, focusing on results and meeting the needs of citizens. The integrated agreement incorporates managerial principles by aligning the objectives of the different actors involved in the process of planning and executing public policies (Bresser-Pereira, 1996).

The theory of social participation, based on the idea that citizen participation is essential for the legitimacy and effectiveness of public policies, maintains that integrated agreement should be an inclusive and democratic process, allowing different voices to be heard and considered (Souza, 2006; Pordeus *et al*., 2025).

In Brazil, the integrated agreement is applied in several contexts. An example is the Unified Health System (SUS), in which the integrated agreement is used to define the goals and resources allocated to health services in each municipality. The process involves the participation of health councils, public managers and representatives of civil society, ensuring that health policies are aligned with local needs (Brasil, 2010).

The programming of the integrated agreement is a crucial mechanism for the correct and efficient distribution of resources within the municipalities. By promoting participation, transparency, and equity, integrated agreement contributes to the construction of a more democratic and efficient public management (Pordeus *et al*., 2025). The use of theoretical frameworks such as governance, managerial public administration, and social participation

provide a solid basis for understanding and implementing this process effectively (Peters; Pierre, 2012; Bresser-Pereira, 1996; Souza, 2006).

The Agreed and Integrated Programming (PPI) is a fundamental instrument in the planning and management of public resources in Brazilian municipalities. This process involves the articulation between the different levels of government – federal, state and municipal – and civil society, with the objective of ensuring an efficient, equitable and transparent allocation of resources. The integrated agreement is especially relevant in areas such as health, education and social assistance, sectors in which the demands of the population are dynamic and vary according to territorial specificities (Brasil, 2010).

The integrated agreement promotes the active participation of representatives of civil society and public managers in the definition of priorities and in the planning of government actions. Such an approach favors the adaptation of decisions to the real needs of the population, allowing the optimization of the application of public resources, the reduction of waste and the strategic direction of investments to the areas of greatest vulnerability. Among the central objectives of the integrated agreement, the reduction of regional and social inequalities stands out, promoting universal access to essential public services, regardless of the geographic location of citizens. In addition, by incorporating social control mechanisms, the process contributes to the transparency of public management, expanding the *accountability* of managers and strengthening democratic principles (Souza, 2006).

From a theoretical point of view, the integrated agreement is based on different currents in the field of public administration and participatory management. The theory of governance highlights the importance of cooperation between the State, the private sector, and civil society in the formulation and implementation of public policies. In this context, collaborative governance emerges as one of the pillars of integrated agreement, by promoting spaces for dialogue and (co)construction of solutions (Peters; Pierre, 2012).

The Theory of Managerial Public Administration, in turn, values efficiency, effectiveness and focus on results in state management, guided by the search for the satisfaction of the needs of citizens. The integrated agreement incorporates these principles by aligning the objectives of the various actors involved in the processes of planning, execution and evaluation of public policies (Bresser-Pereira, 1996). In addition, the theory of social participation maintains that the inclusion of citizens in the formulation of policies is an indispensable condition for its legitimacy and effectiveness. In this sense, the integrated agreement must be understood as a democratic and inclusive process, which ensures the listening and consideration of multiple voices, especially those from historically marginalized groups (Souza, 2006).

In Brazil, the integrated agreement is widely applied in different public policies. Within the scope of the Unified Health System (SUS), for example, the agreement is used to define goals and the distribution of resources among federated entities. The process involves the work of health councils, public managers and representatives of civil society, enabling the alignment of health policies with local needs and realities (Brasil, 2010). In this way, the agreed programming represents an essential mechanism for the rational and efficient distribution of resources, contributing to the construction of a more democratic, transparent and responsive public management.

The use of theoretical frameworks such as governance, managerial public administration, and social participation provide a robust conceptual basis for the understanding and effective implementation of this process (Peters; Pierre, 2012; Bresser-Pereira, 1996; Souza, 2006).

5.2 PRIMARY HEALTH CARE (PHC): THE CONTEXT OF THE FAMILY HEALTH STRATEGY (FHS) TEAMS

In the context of Primary Health Care, the Family Health Strategy (FHS) teams are responsible for carrying out actions aimed at controlling various types of cancer, especially cervical and breast cancer. These actions aim to ensure comprehensive care, combining early detection with timely and quality access to diagnostic and therapeutic procedures (Brasil, 2015).

Primary prevention encompasses measures aimed at preventing the manifestation of diseases, acting in the period prior to the onset of the pathological process and involving actions in relation to the causative agents of diseases and their vectors. This approach is subdivided into two levels: health promotion and specific protection (Brasil, 2015). Both Health Promotion and Primary Prevention take place before the onset of cancer, when only risk factors are present. These factors can be classified as modifiable or non-modifiable, including elements such as genetic predisposition and age. By focusing on risk factors that can change, the objective is to prevent the development of certain types of cancer (Brasil, 2015).

The lifestyle, which encompasses habits related to food, nutrition, physical activity, among others, is recognized as a protective factor against cancer. Studies suggest that between 30% and 50% of all cancer cases can be prevented by adopting a healthy lifestyle and avoiding exposure to carcinogens, environmental pollutants, and certain chronic infections (WHO, 2017).

5.3 SPECIALIZED HEALTH CARE

The purpose of Specialized Outpatient Care is to support and complement primary care services with regard to diagnostic investigation, cancer treatment and emergency care related to complications and progression of the disease, aiming at the integrality of care within the Health Care Network. The presence of specialized professionals is essential for the provision of highly complex technologies and procedures, which requires a structural redesign aimed at caring for cases of suspected or diagnosed cancer, with standardized work processes (Brasil, 2022).

Early detection of cancer is based on the principle that the earlier the disease is identified, the greater the chances of cure, survival, and quality of life for the patient, in addition to making the treatment more cost-effective. The emphasis is on identifying precancerous lesions or early-stage cancers, still located in the organ of origin, before they spread to nearby tissues. Through medium-complexity procedures, such as biopsies, imaging exams, and other diagnostic methods, it is possible to perform this early detection effectively (WHO, 2017).

With regard to the early detection of Prostate Cancer, the guidelines of the Ministry of Health and the WHO currently advise against population screening for this pathology. Individuals who express interest in undergoing this test should be advised about the possible benefits and associated risks, debating with the health team the decision to perform or not individualized screening (Brasil, 2022). The State of Ceará implements a comprehensive early detection strategy, including the dissemination of warning signs to the population and health professionals, referral for evaluation and diagnosis in Secondary Care, and timely access to quality treatment. Polyclinics play a crucial role as Specialized Care points, offering diagnostic and therapeutic assistance and ensuring the appropriate referral of patients with suspected or diagnosed cancer to specialized units (Ceará, 2024).

During the 2017 Bipartite Interagency Commission, the State identified 23 reference services able to be recognized by the Ministry of Health as Oncology Reference Services (SRC), and 24 as Mammography Diagnostic Service (SDM), mainly in polyclinics, in addition to entities such as the Cancer Prevention Institute, the Medical Specialties Center in Sobral and the Oncological Education and Studies Group, aiming to expand care coverage in accordance with national guidelines (Ceará, 2017).

6 DESIGN OF THE INTERVENTION PROJECT

This intervention project is anchored in the concepts of Action Research. This method is defined as research conducted in partnership with participants to solve concrete problems,

with the aim of improving practices and generating applicable knowledge. The action research was carried out with managers and technicians responsible for the programs to develop strategies to improve the Integrated Agreed Programming (PPI) in the municipalities.

6.1 DESCRIPTION AND ANALYSIS OF THE PROBLEM-SITUATION

The problem-situation identified was the evident outdated PPI in the line of care for cancer patients in the Health Region of Fortaleza, in the State of Ceará. In 2023, all 44 municipalities that make up this region have an outdated PPI, not including a specific line of care for cancer patients. This outdated results in a decrease in the coverage of cancer preventive exams and the absence of indicators to assess the response time of oncological procedures, causing low access for cancer patients, both from the countryside and the capital, to the necessary care.

The critical causes of this situation include the lack of adherence and understanding of municipal managers in updating the PPI and the lack of a team or coordination dedicated to the control, evaluation and monitoring of PPI. These failures result in delays in diagnosis and treatment, increasing the morbidity and mortality associated with cancer. Reviewing the PPI is crucial to redistribute resources, decentralize services, and implement performance indicators that improve the management of care flows, ensuring timely diagnoses and treatments, and reducing cancer-related morbidity and mortality.

The problem-situation identified refers to the evident outdated Integrated Agreed Programming (PPI) in the line of care for cancer patients in the Health Region of Fortaleza, in the State of Ceará. In 2023, the 44 municipalities that make up this region had outdated PPI, without contemplating a specific line of care focused on oncological care. This gap compromises the coverage of preventive exams for early detection of cancer and prevents the monitoring of the response time of oncological procedures, resulting in significant restrictions on the access of patients, both in the capital and in the countryside, to the necessary care.

Among the critical factors for this situation, the low adherence and limited understanding by municipal managers about the importance of updating the PPI stand out, as well as the lack of a specific technical or coordination team focused on the control, evaluation and monitoring of this tool. These structural flaws contribute to the delay in diagnosis and treatment initiation, directly impacting cancer morbidity and mortality indicators. The revision of the PPI is, therefore, an essential measure for the adequate allocation of resources, decentralization of services and implementation of performance indicators that optimize the management of care flows. This update aims to ensure faster

diagnoses, timely initiation of treatments, and, consequently, the reduction of adverse outcomes associated with neoplasms.

6.2 ACTION PROGRAMMES

Table 4

Programming Matrix of Actions

Problem situation:	Lack of updating of the Integrated Agreed Programming - PPI in the line of care for cancer patients in the Health Region of Fortaleza in the State of Ceará
Descriptor:	100% of the municipalities in the Fortaleza Health Region have an outdated PPI in 2023, which does not include a line of care for cancer patients.
Indicator:	% of municipalities that have their PPI updated in the line of care for cancer patients.
Goal:	90% of the municipalities with up-to-date PPI in the line of care for cancer patients.
Expected result:	Update of the PPI in the line of care for cancer patients in the municipalities that make up the Fortaleza Health Region.

Source: Prepared by the authors (2024).

Table 5

Critical Causes

Critical cause 1: Lack of adherence and understanding of municipal managers to update the PPI				
Actions	Resources Needed	Products to be achieved	Completion time frame	Accountable
Prepare a workshop to demystify the Integrated Agreed Programming (PPI), addressing its definition, importance and programming procedures, aimed at municipal managers and technicians.	Cognitive and Organisational	Workshops held	June/2024	Nathalie, Elvis and Alexandre
Hold online and face-to-face meetings with technicians to answer questions about schedules and agreements.	Cognitive and Organisational	Meetings held and clarification of doubts on the subject	June/2024	Nathalie, Elvis and Alexandre
Critical cause 2: Lack of a team or coordination for the control, evaluation and monitoring of PPI				
Actions	Resources Needed	Products to be achieved	Completion time frame	Accountable

Create a working group for control, evaluation and monitoring of PPI	Cognitive and organizational	Creation of the working group	June/2024	Nathalie, Elvis, Alexandre and Helena
Hold online and face-to-face meetings with technicians to answer questions	Cognitive and organizational	Meetings held and clarification of doubts on the subject	June/2024	Nathalie and Municipal Managers or Technicians
Evaluate the PPI forwarded	Cognitive and organizational	PPI Assessed	July-August/2024	Nathalie and Alexandre

Source: Prepared by the authors (2024).

6.3 PROJECT MANAGEMENT

The management of the actions in the context of the update of the Integrated Agreed Programming (PPI) involved a series of activities planned and monitored to ensure that the project objectives were achieved. The technical programming area of the Ceará State Health Department is currently analyzing the PPI spreadsheets to verify that the number of procedures and consultations is adequate to the values agreed for each municipality, ensuring that these values are not exceeded. Below, we detail the actions carried out and how they are monitored.

Technical Analysis of PPI: the first action is the technical analysis of PPI spreadsheets. This analysis is carried out by the technical area of the Superintendence of the Health Region of Fortaleza (SRFOR) and the Health Services Programming Cell (CEPSA), with the objective of verifying whether the number of procedures and consultations is adequate to the values agreed for each municipality. This action is crucial to ensure that resources are distributed efficiently and equitably, without exceeding the established values. Continuous analysis of these spreadsheets allows for adjustment and reallocation of resources as needed, ensuring that municipalities receive the appropriate support for their specific needs.

Training workshops: a fundamental action for updating the PPI is the holding of training workshops for municipal managers and technicians. These workshops aim to demystify PPI, explaining its definition, importance and programming procedures. Using a methodology that combines face-to-face and online sessions, thus providing a practical understanding of PPI.

Doubt-solving meetings: to provide continuous support to municipal technicians, periodic doubt-solving meetings are held. These meetings, both face-to-face and online, aim to help technicians solve specific questions and adapt the PPI to the particularities of their municipalities. SRFOR and CEPSA technicians participate in these meetings to guide and solve doubts in real time. The most common questions and solutions presented are recorded for future consultation, promoting a continuous improvement of guidance and technical support.

Creation of a working group: another important action is the creation of a working group dedicated to the control, evaluation and monitoring of PPI in each municipality. This group is composed of selected members with relevant expertise, with clearly defined roles and responsibilities. A schedule of meetings and activities is established to ensure that the group operates effectively. The monitoring of the group's activities is carried out through regular reports and evaluation of the results obtained, ensuring that the planned actions are executed as planned.

Evaluation of the PPI submitted: the last step of the process is the evaluation of the updated PPI sent by the municipalities. This review is carried out to ensure that the PPIs comply with the established criteria. The detailed technical analysis is followed by structured feedback to the municipalities, allowing for necessary adjustments to meet quality and efficiency standards. A continuous feedback system and database are created to keep track of PPI updates and revisions, promoting transparency and continuous improvement of processes.

Monitoring and Monitoring & Evaluation (M&E) tools: to monitor all these actions, spreadsheets are used for control and management. Control spreadsheets record and monitor the progress of actions, deadlines and those responsible. Periodic progress reports detail the progress of actions, identify challenges, and propose solutions, ensuring that the project stays on track and achieves its objectives efficiently and effectively.

Effective follow-up of an action research project, such as the PPI update, requires detailed planning, continuous monitoring, and rigorous evaluation of activities. With these practices, it is possible to ensure that the products are delivered on time and that the goals are achieved, contributing to the improvement of health services and efficiency in the management of resources.

The management of the actions aimed at updating the Integrated Agreed Programming (PPI) involved a set of systematically planned and monitored activities, with the objective of ensuring the achievement of the proposed results. The technical programming area of the Health Department of the State of Ceará (SESA/CE) is currently engaged in the analysis of the PPI spreadsheets, verifying the adequacy of the number of procedures and consultations to the values agreed for each municipality, in order to avoid overtaking and ensure compliance with the established parameters.

Technical analysis of the PPI: the initial stage consists of the technical analysis of the PPI spreadsheets, conducted by the team of the Superintendence of the Health Region of Fortaleza (SRFOR), in partnership with the Health Services Programming Cell (CEPSA). The main objective of this analysis is to verify the compatibility between the offer of procedures

and the ceiling agreed for each municipality. This action is essential to ensure an efficient and equitable distribution of resources, also allowing adjustments and reallocations according to the identified demands. The continuous analysis of the spreadsheets allows for more agile and accurate responses, promoting greater effectiveness in regional management.

Training workshops: the holding of training workshops for municipal managers and technicians represents an essential strategy for strengthening the understanding and proper use of the PPI. These workshops aim to demystify the concepts and processes related to the agreed programming, addressing its definition, importance and operational flows. The methodology adopted combines face-to-face and online sessions, favoring the practical assimilation of the content and immediate application in local contexts.

Doubt-solving meetings: as a form of continuous support, periodic doubt-solving meetings are promoted with municipal technicians. Held in a hybrid way (face-to-face and online), these meetings aim to clarify specific doubts and guide municipalities on the adequacy of the PPI to their realities. SRFOR and CEPSA teams actively participate in these meetings, providing guidance in real time. The main doubts and respective solutions are systematically recorded, constituting a repository of knowledge that contributes to the continuous improvement of the process.

Creation of a working group: another relevant measure was the creation of local working groups (WG), aimed at the control, evaluation and monitoring of PPI. These WGs are composed of professionals with expertise in the area and with clearly defined responsibilities. To ensure its effectiveness, schedules of activities and periodic meetings are prepared. The monitoring of the actions carried out by the group is done through systematic reports and analysis of results, ensuring the execution of activities according to the initial planning.

Evaluation of the updated PPI: the final stage of the process consists of the technical evaluation of the updated versions of the PPI sent by the municipalities. This review aims to ensure compliance with the established criteria and the quality of the information agreed. After the analysis, structured feedback is provided, enabling adjustments and corrections when necessary. To facilitate continuous monitoring, a feedback system was established and a specific database was built, promoting greater transparency and traceability of information.

Monitoring and Evaluation (M&E) tools: to enable the monitoring of activities, tools such as control spreadsheets are used, which record the progress of actions, those responsible for and deadlines. Periodic progress reports support the identification of challenges, allowing the proposition of timely solutions and ensuring that the project advances as planned.

Close follow-up of an action research project such as the PPI update requires detailed planning, continuous monitoring, and systematic evaluation of activities. The adoption of these practices enables the delivery of products within the established deadlines, the achievement of goals and the qualification of the services provided within the scope of the Unified Health System (SUS), promoting greater efficiency in the management of resources and improvement in the provision of care.

7 CONCLUSION

The main objective of this study was to improve oncological care in the Health Region of Fortaleza, Ceará, through the updating of the Integrated Agreed Programming (PPI). The revision and modernization of the PPI are essential to improve the distribution of resources, optimize services, reduce waiting times and increase the coverage of preventive exams and treatments. This intervention project highlighted the importance of an integrated and decentralized approach to ensure equity in access to cancer services.

In fact, actions are being employed to achieve the objectives, but there is still a long way to go until considerable success, given that there is some resistance to understanding the updating of the PPI, with the identification of the main flaws in the current configuration of the PPI and the proposal of specific actions to remedy these problems. The creation of a working group dedicated to the control, evaluation and monitoring of PPI, as well as the holding of workshops and meetings to clarify doubts of municipal managers, are crucial steps to ensure adherence and the necessary understanding for the effective updating of the PPI.

The expected results from the implementation of this project include better management of resources, earlier diagnosis, more effective treatments and, consequently, a reduction in the morbidity and mortality associated with cancer. In addition, the appropriate redistribution of resources and the decentralization of services are expected to promote greater equity in access to cancer care.

It is recommended that updating the PPI be an ongoing process, with periodic reviews to keep up with changing population needs and public health guidelines. It is essential that health managers maintain a constant dialogue with technical teams and that health policies are adapted according to the epidemiological data and best practices identified.

In conclusion, this study reinforces that changes in cancer care are not only necessary, but also possible, since, through coordinated and well-planned actions, it is possible to promote a significant improvement in the quality of services provided and in the health of the population served. In addition, in the State of Ceará, through the update of the Integrated Agreed Programming (PPI). The revision and modernization of the PPI are strategic to

optimize the allocation of resources, qualify the services provided, reduce the waiting time for procedures and expand the coverage of preventive exams and cancer treatments. This intervention project highlighted the relevance of an integrated and decentralized approach, as a fundamental condition to ensure equity in access to cancer care.

As mentioned above, the initially proposed objectives are being progressively achieved, despite some resistance, especially related to the understanding and adherence of municipal managers regarding the importance of updating the PPI. The identification of structural flaws in the current configuration of the PPI made it possible to propose specific actions to overcome them. Among them, the creation of a working group focused on the control, evaluation and monitoring of PPI, as well as the holding of training workshops and periodic technical support meetings, strategies considered essential for strengthening local and regional management, stand out.

It is expected that the full implementation of this project will contribute to a more efficient management of resources, favoring early diagnosis, timely initiation of treatment and, consequently, the reduction of cancer morbidity and mortality. In addition, the equitable redistribution of resources and the decentralization of health services are expected actions to promote greater justice in access to cancer care, especially among the most vulnerable municipalities. It is recommended that the updating of the PPI be instituted as a continuous process, with periodic reviews that consider changes in the epidemiological profiles of the population, updates in clinical guidelines, and evidence produced in the field of public health. The permanent articulation between managers and technical teams, combined with the adoption of practices based on data and evidence, is essential for the consolidation of public policies that are more responsive to local needs.

Therefore, it is concluded that transformations in cancer care are not only necessary, but also feasible. Through coordinated, planned, and technically grounded actions, it is possible to promote significant improvements in the quality of cancer care offered, with a direct impact on the health of the population.

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