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Article

When cancer reaches the courts: oncological claims in the public health system of Belo Horizonte (2014–2019

Quando o câncer chega aos tribunais: demandas oncológicas do sistema público de saúde de Belo Horizonte (2014–2019)

Cuando el cáncer llega a los tribunales: demandas oncológicas del sistema público de salud de Belo Horizonte (2014–2019)

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Abstract

Objective: To identify the types of cancer most frequently referred to court by Unified Health System patients in Belo Horizonte, compared with the state of Minas Gerais, from 2014 to 2019. **Methodology:** This is a cross-sectional study, linking data on care provided and deaths. The proportion of cases of legal proceedings for the most common cancers treated by the Unified Health System was analyzed and compared with the frequency of these cancers in the population using SUS-BH. The most

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frequently requested cases were also identified. **Results:** A total of 116,844 different patients treated for oncological diseases were identified. The most frequently treated cancers were breast, prostate, and colon, and those that led to the highest percentage of deaths were pancreatic, bronchial, lung, esophageal, and stomach cancers. Patients with cancer of the bronchi and lungs, brain, liver and intrahepatic bile ducts, kidneys except renal pelvis, and others filed more lawsuits than all cancer patients combined, while patients with breast cancer filed fewer lawsuits. Medications were the most frequently filed lawsuits, with a high concentration of requests for a few active ingredients, especially for brain, liver, rectal, and breast cancer, with the highest proportion of requests for temozolamide, sorofanib tosylate, cetuximab, and transtuzumab, respectively. The lack of standardization in petitions and judicial systems hinders the analysis of healthcare cases, making connection with Unified Health System data laborious. **Conclusion:** The differences may be related to the severity of the cancer, difficulty in accessing treatments, and the existence of therapeutic alternatives not yet available.
Keywords: Health Information Systems; Judicialization of Health; Neoplasms; Antineoplastic Agents.

Resumo

Objetivo: identificar os tipos de câncer mais judicializados por pacientes do Sistema Único de Saúde em Belo Horizonte, contra o estado de Minas Gerais, de 2014 a 2019. **Metodologia:** tratou-se de estudo transversal, com *linkage* dos dados dos atendimentos realizados e dos óbitos. Foi analisada a razão de proporção de judicialização das neoplasias mais frequentes tratadas pelo Sistema Único de Saúde e comparada com a frequência destas neoplasias na população que usou o Sistema Único de Saúde em Belo Horizonte. Foram, também, identificados os pedidos mais demandados. **Resultados:** foram identificados 116.844 pacientes distintos que tiveram tratamento por doenças oncológicas. Os cânceres mais frequentemente tratados foram: mama, próstata e cólon, e os que levaram a maior percentual de óbitos foram pâncreas, brônquios e pulmões, esôfago e estômago. Os pacientes com neoplasia de brônquios e pulmões, encéfalo, fígado e vias biliares intra-hepáticas, rim, exceto pelve renal, e outros judicializaram mais do que o conjunto de todos os pacientes com câncer, enquanto as pacientes com neoplasia de mama judicializaram menos. Os medicamentos foram os pedidos mais judicializados, com grande concentração de pedidos em poucos princípios ativos, especialmente para o câncer de encéfalo, fígado, reto e mama, com maior proporção de pedidos para Temozolamida, Tosilato de Sorofanibe, Cetuximabe e Transtuzumabe, respectivamente. A ausência de padronização nas petições e sistemas judiciais dificulta a análise de processos em saúde, tornando trabalhosa a conexão com dados do Sistema Único de Saúde. **Conclusão:** as diferenças podem estar relacionadas à gravidade do câncer, à dificuldade de acesso aos tratamentos, à existência de alternativas terapêuticas ainda não disponibilizadas.
Palavras-chave: Sistemas de Informação em Saúde; Judicialização da Saúde; Neoplasias; Antineoplásicos.

Resumen

Objetivo: Identificar los tipos de cáncer más frecuentemente referidos a la corte por pacientes del Sistema único de Salud en Belo Horizonte, en comparación con el estado de Minas Gerais, de 2014 a 2019. **Metodología:** Este es un estudio transversal, que vincula datos sobre la atención prestada y las muertes. La proporción de casos de procedimientos legales para los cánceres más comunes tratados por el Sistema Único de Salud se analizó y se comparó con la frecuencia de estos cánceres en la población utilizando Sistema único de Salud en Belo Horizonte. También se identificaron los casos solicitados con mayor frecuencia. **Resultados:** Se identificó un total de 116.844 pacientes diferentes tratados por enfermedades oncológicas. Los cánceres tratados con mayor frecuencia fueron el de mama, próstata y colon, y los que llevaron al mayor porcentaje de muertes fueron los cánceres de páncreas, bronquios, pulmón, esófago y estómago. Los pacientes con cáncer de bronquios y pulmones, cerebro, hígado y vías biliares intrahepáticas, riñones excepto pelvis renal y otros presentaron más

demandas que todos los pacientes con cáncer combinados, mientras que los pacientes con cáncer de mama presentaron menos demandas. Los medicamentos fueron las demandas presentadas con mayor frecuencia, con una alta concentración de solicitudes para unos pocos principios activos, especialmente para cáncer de cerebro, hígado, recto y mama. La mayor proporción de solicitudes se dirigió a temozolamida, tosilato de sorofanib, cetuximab y transtuzumab, respectivamente. La falta de estandarización en las peticiones y los sistemas judiciales dificulta el análisis de los casos de atención médica, lo que dificulta la conexión con los datos del Sistema único de Salud. **Conclusión:** Las diferencias pueden estar relacionadas con la gravedad del cáncer, la dificultad para acceder a los tratamientos y la existencia de alternativas terapéuticas aún no disponibles.
Palabras clave: Sistemas de Información en Salud; Judicialización de la Salud; Neoplasias; Antineoplásicos.

Introduction

The judicialization of health, which is the use of the judiciary to obtain medicines, supplies, and other health-related products, is an important health issue in Brazil and a subject of research of interest to both public health and health law[1,2].

Considered a multifaceted phenomenon, the judicialization of health has both positive and negative consequences[3]. Among the positive aspects is the fact that citizens can access justice when their right to health is violated and that judicialization can point out flaws that represent opportunities for improving public health policies. By ensuring rights and promoting greater access to health, the consequences of this measure may pose challenges or losses to the management of the health system. Among the negative effects is the impact on budget planning, as there is no way to predict supplies via court order in annual budgets, and it may be necessary to reallocate resources from planned demands to emergency response to legal actions[4].

Among the various health conditions that drive judicialization, cancer has stood out due to the volume of lawsuits[5]. Cancer is currently one of the most frequent causes of morbidity and mortality, with more than 18 million new cases and more than nine million deaths per year worldwide[6]. The increase in cancer incidence and mortality is proportional to population growth, population aging, and socioeconomic development[7]. In addition, cancer is often a rapidly progressing disease, in which treatment cannot be delayed. When faced with delays or refusals of treatment, patients, who find themselves at risk of death and under high psychosocial stress, become plaintiffs in lawsuits, requesting treatment that they may recognize as their "salvation"[8,9].

To address the excess of lawsuits for cancer treatment, it is necessary to analyze practical occurrences and discuss the results in light of existing public policies in order to reformulate public policies to reduce judicialization[10]. However, due to the lack of standardization in the completion of information in initial petitions and in judicial information systems[11], it is very difficult to work with data from health-related lawsuits. This poses a major challenge for jurimetrics, which is the approximation of legal and statistical knowledge for the measurement of legal facts[12,11]. It is based on this challenge that this research was constructed.

The objective of this study was to identify the types of cancer most frequently litigated by patients undergoing treatment in the city of Belo Horizonte (BH) against the state of Minas Gerais during the years 20 2014 to 2019. The ratio of litigation of the most frequent neoplasms treated by the Unified Health System (SUS) was analyzed to identify the most litigated ones, and the frequency of litigation was compared with the frequency of these neoplasms in the population that used the SUS in

Belo Horizonte (SUS-BH). The most frequently requested cases were also identified, according to the type of neoplasm.

This study is part of a project by the Health and Social Protection Policy Study Group of the Renê Rachou Institute (GPPSPS), Fiocruz Minas, whose main objective is to analyze the judicialization of health in the Belo Horizonte Metropolitan Region (RMBH), focusing on the judicialization of oncological medications.

Methodology

A cross-sectional study was conducted using data from patients who received cancer treatment at SUS-BH, were residents of the municipality, and were diagnosed with malignant neoplasms between 2014 and 2019.

Information on hospital admissions and outpatient procedures obtained in December 2020 was used, through consultations in the databases made available by those responsible for the Hospital Admission Authorization (AIH) and High-Cost Procedure Authorization (APAC) systems at the Belo Horizonte Municipal Health Secretariat (SMSA-BH). Death records were extracted and made available directly by those responsible for such data at SMSA-BH, from the Mortality Information System (SIM). Information on lawsuits filed against the State of Minas Gerais was accessed in the Case Management System of the Minas Gerais State Health Department (SIGAFJUD)[13] in February 2021, through the Analytical Report on Legal Claims per Patient.

The data relating to hospital information, high-complexity outpatient care, and deaths were linked using linkage techniques from the AIH, APAC, and SIM databases and from health-related lawsuits against the State of Minas Gerais, recorded in the SIGAFJUD system. The data were obtained through technical cooperation with the SMSA-BH and the Health Judicialization Service Center (NAJS) of the Minas Gerais State Health Secretariat (SES-MG).

After the linkage was performed, a total of 96,466 patients were found to have filed lawsuits against the State of Minas Gerais. Of these, 91,764 were not treated for cancer in the SUS in Belo Horizonte nor did they die from cancer in the capital, with 22,315 cases that only had mortality data being excluded. This left 94,529 patients treated in Belo Horizonte, of whom 53,007 resided outside the capital and were therefore excluded. This left 41,522 residents of Belo Horizonte. Among these, 10,373 patients whose diagnosis occurred before 2014 or after 2019 were excluded, leaving 31,149 patients diagnosed between 2014 and 2019.

Patients were uniquely identified by the following attributes: name, date of birth, mother's name, document number, and National Health Card (CNS) number. The patient's document is only available in the AIH and SIGAFJUD processes, whereby the AIH could present the General Registry (RG), the Individual Taxpayer Registration Number (CPF), or the Birth Certificate as a document, and SIGAFJUD could only present the CPF.The patient's name and mother's name were analyzed by phonetic code, using the “Metaphone” algorithm[14]. The phonetic code disregards variations in the spelling of the name and minor spelling errors that do not interfere with the sound. Such errors may occur as a result of human error in the process of registering the patient in the database. For the ID number, only numeric digits were considered.

For two records to be considered as the same person, they had to have two identical attributes and one similar attribute. In addition, a third attribute of the two patients must have at least one very similar content.

The concepts used for identical attibutes and similar attributes were follows

- Identical Attributes

If the names or mothers' names of two patients resulted in the same phonetic code, the names were considered identical. The other attributes were considered identical if they had exactly the same spelling.

- Similar Attributes

The name or mother's name was considered similar if the name of one patient was an abbreviation of the other patient's name. A name is considered to be made up of several words, so to be considered an abbreviation, all the words in one of the names must be contained in the other name. The words must be in the same order in both names.

Two names were still considered similar if they differed by up to two characters in the phonetic code. The other attributes were considered similar if they differed by up to two digits.

The analysis was stratified by type of neoplasm, with the group of patients studied classified into two strata according to diagnosis (yes, no) in each of the twenty most frequent neoplasms in Belo Horizonte, using the International Classification of Diseases – Tenth Revision (ICD-10).

The distribution of patients was presented in contingency tables of the diagnosis of the 20 cancers (yes, no) in relation to the outcomes death, using ICD-10 (no, yes, death from other ICDs) and judicialization (no, yes). People who died from the underlying cause corresponding to the ICD-10 of the diagnosed neoplasm were included in the “yes” category, and those who died from other causes were counted in the “deaths from other ICDs” category. The judicialization variable, in turn, was considered “yes” for individuals who filed lawsuits against the State of Minas Gerais between 2014 and 2019. Some patients were diagnosed with more than one type of neoplasm and were therefore counted in more than one row.

The indicators for people not diagnosed with each type of neoplasm were removed from the contingency table rows for better visualization of the results, but were used to calculate the ratio of judicialization proportions. This measure represents the proportion of people diagnosed with a given ICD-10 who filed lawsuits against the state divided by the proportion of judicialization among patients identified with other types of neoplasms. The 95% confidence interval of the ratio of judicialization proportions was obtained using the Koopman Asymptotic Score, considered one of the most efficient for estimating the ratio between two proportions[15].The Chi-square test was used to evaluate the null hypothesis of equality of the proportion of lawsuits among people diagnosed and not diagnosed with each ICD, with a significance level of 5%.

For patients who took legal action, a table was created showing the proportion of people diagnosed according to the object requested in the lawsuit, organized into five categories: 1) medications, 2) consultations, exams, surgeries, or treatments, 3) administrative requests, 4) vitamins, minerals, proteins, extracts, or oils, and 5) unspecified object requested. As each person can request more than one item and/or have more than one lawsuit, the sum of people in the row may exceed the number of people who sued the State, shown in the Total column. The ratio of the proportion of people who requested medications among those diagnosed with each ICD and those not diagnosed was calculated. The 95% confidence interval for this measure was obtained using Koopman's Asymptotic

Score. The null hypothesis of equal proportions of medication requests between people diagnosed and not diagnosed with each ICD was evaluated using Fisher's Exact Test, since most of the cells in the table did not meet the Chi-Square Test assumption of having an expected number greater than or equal to five observations.

For people who requested medications, the concentration of requests by active ingredient was presented using a line graph showing the proportion of people who made the request, in the form of a ranking, for each of the ten ICDs with the most medication requests. Additionally, the names of the active ingredients most requested by ICD were presented alongside a bar chart showing the concentration of active ingredients that occupied positions 1 and 2 for the ten ICDs with the most medication requests.

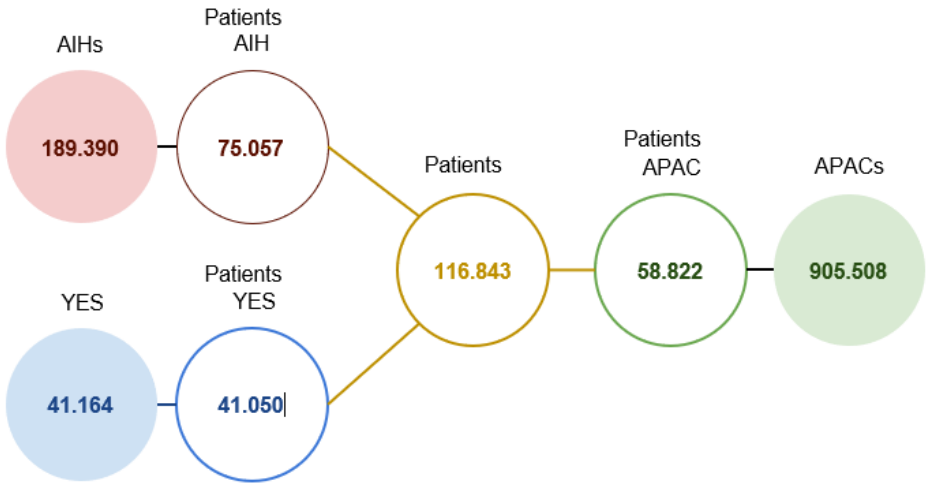
The analyses were performed using R software version 4.0.2 through the dplyr, tidyr, purrr, and DescTools packages.

The study was approved by the Comitê de Ética em Pesquisa do Centro de Pesquisas Renê Rachou / Fundação Oswaldo Cruz. The opinions regarding health data and judicialization data are registered on the Brazil Platform under numbers 3,836,359 and 3,078,839, respectively.

Results and discussion

A total of 116,843 unique patients were identified in the health database, based on the correlation of information available in the AIH, APAC, and SIM databases (Figure 1). In the SIGAFJUD database, 96,466 unique patients were identified. Of these, 2,702 patients were identified in both databases, meaning that these patients were registered in the Belo Horizonte SUS database with an ICD code for neoplasia and filed lawsuits against the state of Minas Gerais, with cases involving health and registered in SIGAFJUD. Of the 116,843 patients identified, 94,529 underwent some type of cancer treatment in the SUS in the municipality of Belo Horizonte, 72,432 underwent treatment and were diagnosed between 2014 and 2019, and 31,149 underwent treatment, were diagnosed during this period, and resided in Belo Horizonte (Table 1).

Figure 1. Number of patients identified in the SUS-BH databases from each database, 2014 to 2019



Source: own elaboration.

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Regarding diagnosis, Table 1 shows the most frequent ICD codes for patients who had and did not have health lawsuits against the State of Minas Gerais. The most frequently treated and diagnosed neoplasms by SUS-BH were: breast, prostate, and colon, with 4,649, 3,652, and 2,131 cases, respectively. Breast cancer occurs mainly in women, while prostate cancer is exclusive to men. The cancers with the highest percentage of deaths due to diagnosed cancer were pancreas, bronchi and lungs, esophagus, and stomach, with 58.6%, 57.2%, 55.6%, and 51.6% of deaths recorded for the disease, respectively. Some types of cancer had more than 20% of deaths recorded from other causes, namely: oropharynx, diffuse non-Hodgkin lymphoma, liver and intrahepatic bile ducts, and brain, with 27.5%, 26.9%, 23.8%, and 22.0% of deaths recorded from other causes, respectively.

Table 1. Distribution of cancer patients residing in Belo Horizonte for the 20 most frequent ICDs, according to death and judicialization

Type of cancer	Death				Judicialization		Ration of judicialization proportions	p9	Total
	Nº	Sim		Total	No	Yes			
		Diagnostic ICD							
		Yes	Np						
Breast	3958(85,1%)	613(13,2%)	78(1,7%)	691(14,9%)	4576(98,4%)	73(1,6%)	0,65 (0,51-0,83)	0,00*	4649(100,0%)
Prostate	3183(87,2%)	363(9,9%)	106(2,9%)	469(12,8%)	3579(98,0%)	73(2,0%)	0,86 (0,68-1,10)	0,25	3652(100,0%)
Brain	363(53,9%)	162(24,1%)	148(22%)	310(46,1%)	604(89,7%)	69(10,3%)	4,87 (3,84-6,14)	0,00*	673(100,0%)
Colon	1427(67,0%)	516(24,2%)	188(8,8%)	704(33%)	2072(97,2%)	59(2,8%)	1,23 (0,95-1,60)	0,14	2131(100,0%)
Bronchi and	454(33,5%)	774(57,2%)	126(9,3%)	900(66,5%)	1310(96,8%)	44(3,2%)	1,45 (1,08-1,96)	0,02*	1354(100,0%)
lungs	378(72,1%)	111(21,2%)	35(6,7%)	146(27,9%)	484(92,4%)	40(7,6%)	3,49 (2,56-4,72)	0,00*	524(100,0%)
Kidney	184(34,2%)	226(42%)	128(23,8%)	354(65,8%)	514(95,5%)	24(4,5%)	1,99 (1,34-2,94)	0,00*	538(100,0%)
except pelvis	934(91,7%)	39(3,8%)	45(4,4%)	84(8,2%)	1001(98,3%)	17(1,7%)	0,73 (0,45-1,16)	0,22	1018(100,0%)
Liver and	545(60,7%)	241(26,8%)	112(12,5%)	353(39,3%)	883(98,3%)	15(1,7%)	0,73 (0,44-1,20)	0,26	898(100,0%)
biliary tract	396(61,5%)	168(26,1%)	80(12,4%)	248(38,5%)	631(98,0%)	13(2,0%)	0,88 (0,52-1,51)	0,75	644(100,0%)
Skin	856(71,6%)	261(21,8%)	78(6,5%)	339(28,3%)	1183(99,0%)	12(1,0%)	0,43 (0,25-0,75)	0,00*	1195(100,0%)
Rectum	323(34,1%)	527(55,6%)	97(10,2%)	624(65,8%)	937(98,9%)	10(1,1%)	0,46 (0,25-0,84)	0,01*	947(100,0%)
Larynx	356(63,1%)	151(26,8%)	57(10,1%)	208(36,9%)	554(98,2%)	10(1,8%)	0,77 (0,42-1,42)	0,5	564(100,0%)

[9] Statistical tests were performed by comparing the specific ICD with all other observations without that ICD.

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Cervix	275(64,3%)	38(8,9%)	115(26,9%)	153(35,8%)	420(98,1%)	8(1,9%)	0,82 (0,41-1,60)	0,68	428(100,0%)
Esophagus	548(72,1%)	163(21,4%)	49(6,4%)	212(27,8%)	753(99,1%)	7(0,9%)	0,40 (0,19-0,82)	0,02 *	760(100,0%)
Ovary	563(94,8%)	27(4,5%)	4(0,7%)	31(5,2%)	587(98,8%)	7(1,2%)	0,51 (0,25-1,05)	0,09	594(100,0%)
Stomach	517(40,1%)	665(51,6%)	107(8,3%)	772(59,9%)	1283(99,5%)	6(0,5%)	0,20 (0,09-0,43)	0,00 *	1289(100,0%)
Pancreas	183(29,9%)	359(58,6%)	71(11,6%)	430(70,2%)	607(99,0%)	6(1,0%)	0,42 (0,19-0,92)	0,04 *	613(100,0%)
Uterine body	420(74,9%)	77(13,7%)	64(11,4%)	141(25,1%)	556(99,1%)	5(0,9%)	0,39 (0,16-0,90)	0,04 *	561(100,0%)
Oropharynx	257(48,0%)	131(24,5%)	147(27,5%)	278(52%)	530(99,1%)	5(0,9%)	0,41 (0,17-0,95)	0,05 *	535(100,0%)
Others	5576(71,4%)	1090(14%)	1155(14,8%)	2245(28,8%)	7598(97,3%)	212(2,7%)	1,27 (1,08-1,49)	0,00 *	7810(100,0%)
Total	21584(69,3%)	6702(21,5%)	2964(9,5%)	9666(31%)	30439(97,7%)	710(2,3%)			31149(100,0%)

Source: own elaboration.

When compared to other patients, considering the ratio of judicialization proportions, patients with neoplasms of the bronchi and lungs (CI 1.08-1.96), brain (CI 3.84.1-6.14), liver and intrahepatic bile ducts (CI 1.34-2.84) and kidney except renal pelvis (CI 2.56-4.72) litigated more than the other cancer patients as a whole, while patients with breast neoplasia (CI 0.51-0.83) litigated less against the state of Minas Gerais. Patients with stomach, cervix, esophagus, bladder, pancreas, and uterus neoplasms also had a significantly lower proportion of lawsuits compared to other neoplasms.

Table 2. Distribution of cancer patients residing in Belo Horizonte for the 20 most frequent ICDs, according to the type of claim

Type of cancer	Subject of the lawsuit				Ratio of medicatio n proportions	p[10]	Total
	Medicati on	Consultation/Examination/Surgery/Tr eatment	Administrative/Sup plies/ Vitamins	No informati on			
Breast	64(87,7 %)	5(6,8%)	5(6,8%)	4(5,5%)	1,22 (1,08-1,33)	0,0 0*	73(100,0 %)
Prostate	53(72,6 %)	10(13,7%)	5(6,8%)	11(15,1%)	0,99 (0,83-1,12)	0,8 9	73(100,0 %)
Brain	62(89,9 %)	4(5,8%)	4(5,8%)	3(4,3%)	1,26 (1,12-1,36)	0,0 0*	69(100,0 %)
Colon	46(78%)	4(6,8%)	3(5,1%)	8(13,6%)	1,07 (0,90-1,21)	0,4 5	59(100,0 %)
Bronchi and lungs	36(81,8 %)	1(2,3%)	6(13,6%)	3(6,8%)	1,13 (0,93-1,26)	0,2 2	44(100,0 %)
Kidney except	36(90%)	1(2,5%)	2(5,0%)	2(5,0%)	1,25 (1,06-1,36)	0,0 2*	40(100,0 %)
pelvis	15(62,5 %)	2(8,3%)	3(12,5%)	6(25,0%)	0,85 (0,58-1,08)	0,2 4	24(100,0 %)
Liver and biliary	13(76,5 %)	2(11,8%)	1(5,9%)	4(23,5%)	1,04 (0,72-1,25)	1	17(100,0 %)
tract	11(73,3 %)	3(20,0%)	1(6,7%)	2(13,3%)	1,00 (0,65-1,23)	1	15(100,0 %)
Skin	2(15,4%)	0(0,0%)	1(7,7%)	10(76,9%)	0,21 (0,06-0,57)	0,0 0*	13(100,0 %)
Rectum	5(41,7%)	2(16,7%)	4(33,3%)	3(25,0%)	0,56 (0,26-0,93)	0,0 2*	12(100,0 %)
Larynx	4(40%)	0(0,0%)	4(40,0%)	3(30,0%)	0,54 (0,23-0,94)	0,0 3*	10(100,0 %)
Cervix	6(60%)	2(20,0%)	1(10,0%)	1(10,0%)	0,82 (0,43-1,14)	0,4 7	10(100,0 %)

[10] Statistical tests were performed by comparing the specific ICD with all other observations without that ICD

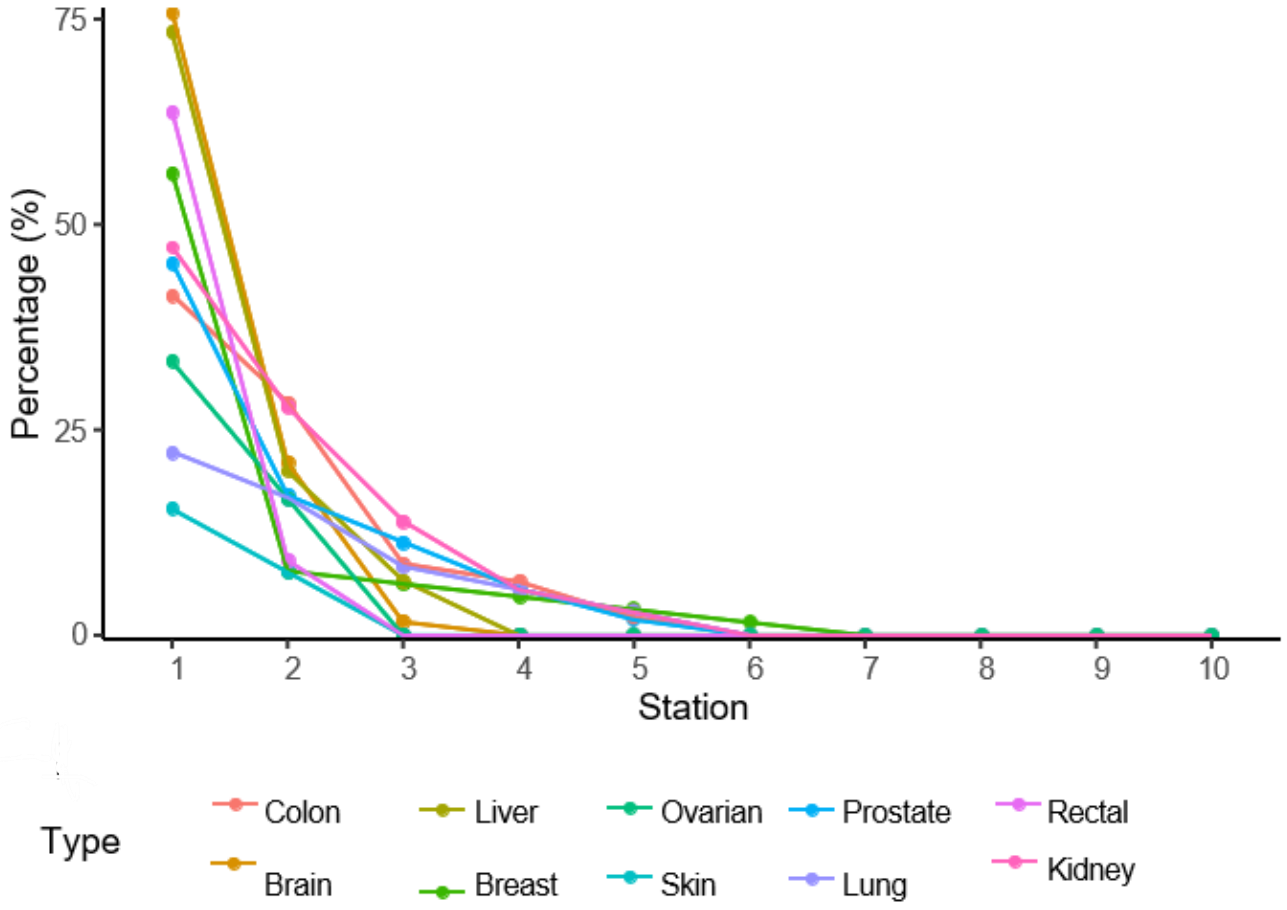
Esophagus	5(62,5%)	0(0,0%)	1(12,5%)	2(25,0%)	0,85 (0,42-1,18)	0,45	8(100,0%)
Ovary	3(42,9%)	0(0,0%)	2(28,6%)	2(28,6%)	0,58 (0,21-1,02)	0,09	7(100,0%)
Thyroid	5(71,4%)	1(14,3%)	1(14,3%)	1(14,3%)	0,98 (0,49-1,26)	1	7(100,0%)
Stomach	3(50%)	0(0,0%)	2(33,3%)	3(50,0%)	0,68 (0,26-1,11)	0,2	6(100,0%)
Pancreas	3(50%)	0(0,0%)	2(33,3%)	1(16,7%)	0,68 (0,26-1,11)	0,2	6(100,0%)
Uterine body	0(0%)	2(40,0%)	0(0,0%)	3(60,0%)	0,00 (0,00-0,59)	0,00*	5(100,0%)
Oropharynx	1(20%)	3(60,0%)	0(0,0%)	1(20,0%)	0,27 (0,05-0,85)	0,02*	5(100,0%)
Others	151(71,2%)	20(9,4%)	19(9,0%)	43(20,3%)	0,96 (0,86-1,06)	0,46	212(100,0%)
Total	520(73,2%)	62(8,7%)	66(9,3%)	116(16,3%)			710(100,0%)

Source: own elaboration.

Medications were requested by 73.2% of the people who filed lawsuits (Table 2), with emphasis on malignant neoplasms of the kidney, malignant neoplasms of the brain, and malignant neoplasms of the breast, in which the proportion of people for each type of neoplasm who requested medications was significantly different, with 90.0%, 89.9%, and 87.7% of people requesting medications, respectively. Other items, such as consultations, exams, procedures, various nutrients, various supplies, and administrative requests were requested in a minority of cases.

Since medications are the most frequently requested item, it is important to analyze which medications these are. Figure 2 shows that there is a significant concentration up to the third most requested medication, regardless of the type of cancer.

Figure 2. Most requested medications for the ten ICDs with the most medication requests among cancer patients residing in Belo Horizonte[11]



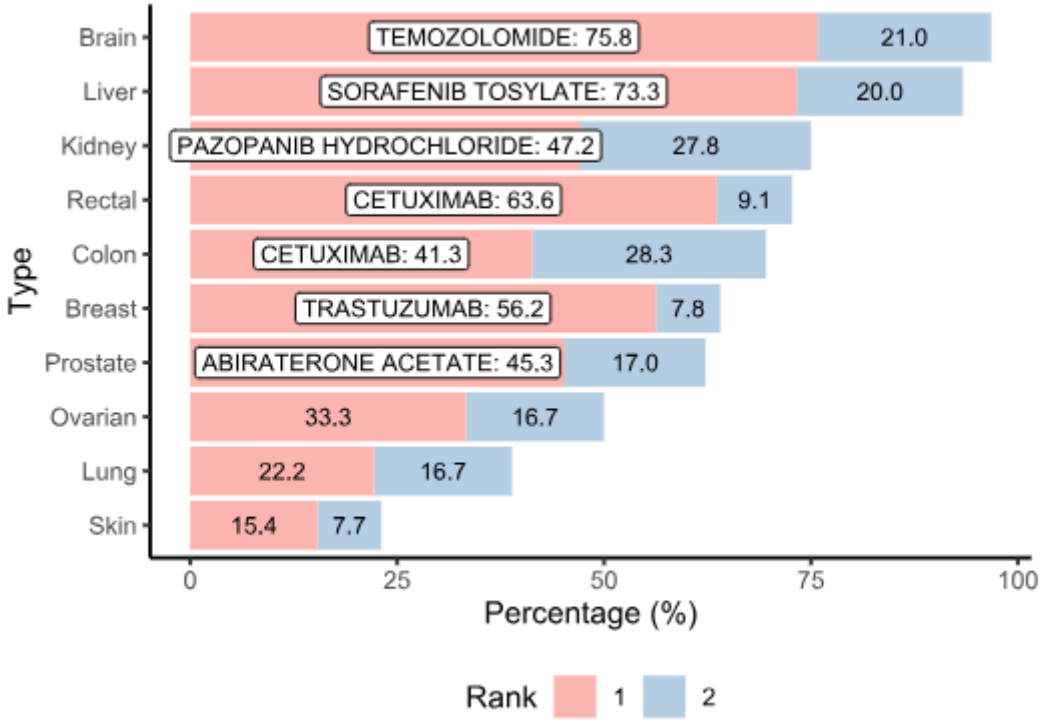
Source: own elaboration.

Figure 3 shows the most frequently requested medication for each of the ten cancers with the most medication requests and its representativeness in relation to the total number of medications for that type of cancer. The drugs with the highest concentration of requests were temozolomide

[11] The variable Position is the order of frequency with which each medication appears. As the most frequent medications are different for each type of cancer, it was decided to keep them numbered.

(75.8% of drug requests) and sorafenib tosylate (73.3% of drug requests), respectively for brain neoplasms and liver and intrahepatic bile duct neoplasms.

Figure 3. Most requested medications for the ten ICDs with the highest number of medication requests among cancer patients residing in Belo Horizonte[12]



Source: own elaboration.

This article presented the *linkage* process that generated a database that enabled a comparative study of SUS patients in a large Brazilian capital city, between those who resorted to state courts to obtain treatment for their disease and those who did not. This study gave rise to other analyses, such as that presented in de Castro *et al*[16] which incorporated other relevant factors into the analysis, such as gender, age, staging, time of diagnosis, time of treatment, type of treatment, time to death, among others.

Due to the lack of standardization in the completion of information in initial petitions and in judicial information systems[11], it is very difficult to work with data from judicial proceedings in health. As demonstrated in this article, connecting data from the SUS care databases in order to identify the therapeutic pathway of each individual patient is possible, but laborious, requiring the participation of data scientists in the analyses.

Information systems are essential to assist governments in prioritizing challenges and allocating resources in the health sector. These systems provide important data for monitoring the availability of health services and identifying problems in the quantity and quality of care that hinder the achievement of universal health coverage[17]. The data enable federal, state, and municipal managers to analyze the health situation, plan, supervise, and evaluate actions and programs in the area [18].

[12] The Rank variable is the order of frequency with which each medication appears.

The SUS is structured according to levels of basic, intermediate, and high-complexity care. The latter level includes procedures involving high costs and high technology, covering several areas, including the oncology care network. Patients diagnosed with cancer should be treated in accordance with the National Policy for Cancer Prevention and Control[19] but in practice, patients do not always have the necessary access to treatment. Considering the way health policy is organized in Brazil, it is not appropriate for judicialization in oncology to be directed at municipalities, whose responsibility is focused on primary care and the provision of medicines from the Basic Component of Pharmaceutical Assistance. This aspect reinforces the relevance of the study, which analyzes the judicialization of cancer patients in the municipality against the state of Minas Gerais[20].

Studies indicate that most health-related lawsuits concern medications, and among the most requested are antineoplastic and immunomodulatory drugs, which have a major financial impact on public budgets due to their high cost[21,22,23]. Cancer treatments fall under the Medium and High Complexity Health Care (MAC) block through a reimbursement logic using specific procedures, according to the APAC code. Thus, the procedures are reported as chemotherapy procedures in the APAC subsystem of the SIA-SUS and must be provided by a health facility accredited by the SUS[19] and the chemotherapy codes used in APAC do not specify the drugs used for each patient.

The main limitation of this study is the use of secondary data and lack of access to patient records, so that more clinical information could be used as control variables. Part of this limitation was overcome by linking the databases, which made it possible to identify the diagnoses of patients who filed lawsuits against the state. As a result, the interpretations of the study present descriptive evidence on the profile of patients who filed lawsuits, avoiding the establishment of causal relationships regarding the conclusions found. Furthermore, as this study was conducted in a large capital city in the Southeast region, where residents may have easier access to healthcare facilities, the results found should be extrapolated with caution. In other municipalities in the country, the profile of patients who resort to litigation may be different, reflecting issues of access and infrastructure specific to the interior of the country.

In oncology, there is no single list of drugs approved for use in each type of cancer and for each line of treatment (first, second, others), nor are there updated clinical protocols published by the Ministry of Health for all types of cancer[24]. Following the trend identified in the literature, drugs were the most litigated requests in this study. The most requested drugs by type of cancer were temozolomide for brain cancer; sorafenib tosylate for liver cancer; cetuximab for rectal cancer; and trastuzumab for breast cancer.

Temozolomide, sorafenib tosylate, cetuximab, and trastuzumab are drugs registered with the Brazilian Health Regulatory Agency (Anvisa), but are not registered in the National List of Essential Medicines (Rename), like all chemotherapy drugs, and depend on their availability through CACONs/UNACONs when prescribed by attending physicians. The four drugs appear in several judicialization studies as the most frequent[4,22,25,26]. The absence of certain cancer drugs from Rename has the direct consequence of making access difficult for patients, since the list is a reference for the regular supply of drugs by the SUS. In the case of cancer, this limitation is accentuated because treatments need to be individualized, making it unfeasible to include all therapeutic protocols in Rename.

The relationship between patients and physicians is asymmetrical, since physicians possess technical knowledge and access to information about new technologies. Most patients have an almost

absolute relationship of trust in their doctor and are not in a position to judge or question the prescribed treatment. This relationship, which is already asymmetrical, can be undermined by the influence of the pharmaceutical industry on prescribing, with the aim of selling and incorporating its drugs into the market.

Studies on the judicialization of drugs tend to analyze the phenomenon from the point of view of the drug itself and its budgetary impact, with few studies addressing this issue from the perspective of the patient's diagnosis and treatment pathway. When looking at patient demands, the perspective of the authors of the lawsuits is brought into the debate. They are responsible for the existence of the lawsuit and are often outside the focus of research on the topic. Analysis based on the author/patient demand in judicialization has the potential to contribute to the formulation of public policies that provide greater security for users, as well as improving understanding of their needs when using the healthcare system [16].

Conclusion

The most litigated cancers, considering the ratio of judicialization proportions, were not the most frequent cancers treated by SUS-BH. Following the pattern of health judicialization found in the literature, the most demanded object of lawsuits in the study was medications.

The differences in the proportion of litigation between different types of cancer may be related to the severity of the cancer, the difficulty of accessing treatment in the SUS, the existence of therapeutic alternatives not yet available in the SUS, and the existence of support and representation groups for people with certain types of cancer who are familiar with the legal process.

By identifying the most litigated neoplasms in patients treated by SUS-BH, the analysis in this article contributes useful information for improving public policies for cancer treatment in the SUS, by prioritizing the review of protocols and guidelines for the treatment of the most litigated neoplasms and evaluating the relevance of including the most litigated drugs in the protocols.

Conflict of interest
The authors declare that there is no conflict of interest.

Contribution of authors

De Castro MSM contributed to the conception/design of the article, analysis and interpretation of data, writing, critical review of its content, and approval of the final version. Diniz RC contributed to the conception/design of the article, analysis and interpretation of data, writing, critical review of its content, and approval of the final version. Da Silva GDM contributed to the conception/design of the article, analysis and interpretation of data, writing, critical review of its content, and approval of the final version. Figueiredo IVO contributed to the conception/design of the article, analysis and interpretation of data, writing, critical review of its content, and approval of the final version. De Miranda WD contributed to the conception/design of the article, critical review of its content, and approval of the final version. Magalhães Júnior HM contributed to the critical review of the article's content and approval of the final version. Dos Santos FP contributed to the critical review of the article's content and approval of the final version. De Sousa RP contributed to the critical review of the article's content and approval of the final version.

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