

Oncology-PANEL: Tool for Management

doi: <https://doi.org/10.32635/2176-9745.RBC.2020v66n2.827>

PAINEL-Oncologia: uma Ferramenta de Gestão

PANEL-Oncología: una Herramienta de Gestión

Adriana Tavares de Moraes Atty¹; Beatriz Cordeiro Jardim²; Maria Beatriz Kneipp Dias³; Arn Migowski⁴; Jeane Glauca Tomazelli⁵

Abstract

Introduction: It was necessary to construct a new tool to monitor the interval between the diagnosis of a malignant neoplasm and the beginning of cancer treatment in the Public Health System. For this purpose, the Oncology-PANEL was developed. **Objective:** To introduce the process of elaboration of the tool, its applications, potentialities and limits, with its future perspectives. **Method:** The panel was built from the deterministic relationship of diagnostic and treatment information obtained from the Outpatient Information System, through the Individualized Outpatient Production and the High Complexity Procedure Authorization, in the Hospital Information System and the Cancer Information System, using the National Health Card and the diagnosis of cancer as identification key of the case. **Result:** The tool has three panels: 1st. Panel: Monitoring the initiation of the cancer treatment which excludes non-melanoma and thyroid skin cancers; 2nd Panel: Cases without date of diagnosis by year of treatment, and 3rd. Panel: Cases diagnosed with non-melanoma and thyroid skin cancer; and a set of charts and tables with selection filters. **Conclusion:** Oncology-PANEL was available to managers and control agencies on May 15, 2019. It is an agile and manager-accessible tool for monitoring the time of the first cancer treatment. However, the information presented in the Oncology-PANEL depend on the registration and the quality of the information of the Health Information Systems from which the data are obtained.

Key words: Health Information Systems; Medical Oncology; Monitoring; Health Information Management; Medical Record Linkage.

Resumo

Introdução: A necessidade de monitorar o intervalo entre o diagnóstico de uma neoplasia maligna e o início do tratamento oncológico no Sistema Público de Saúde demandou a construção de uma nova ferramenta. Para tanto, foi desenvolvido o PAINEL-Oncologia. **Objetivo:** Apresentar o processo de elaboração da ferramenta, suas aplicações, potencialidades e limites, apontando ainda perspectivas futuras. **Método:** O painel foi construído a partir do relacionamento determinístico de informações diagnósticas e de tratamento obtidas no Sistema de Informação Ambulatorial, por meio do Boletim de Produção Ambulatorial Individualizado e da Autorização de Procedimento de Alta Complexidade, no Sistema de Informação Hospitalar e no Sistema de Informações de Câncer, utilizando-se o Cartão Nacional de Saúde e o diagnóstico de neoplasia como chave identificadora do caso. **Resultados:** A ferramenta disponibiliza três painéis: 1 - Painel: Monitoramento do início do tratamento oncológico, que exclui os cânceres de pele não melanoma e tireoide; 2 - Painel: Casos sem data de diagnóstico por ano de tratamento; e 3 - Painel: Casos diagnosticados de câncer de pele não melanoma e tireoide; e um conjunto de gráficos e tabelas com filtros para seleção. **Conclusão:** O PAINEL-Oncologia foi disponibilizado aos gestores e a órgãos de controle em 15 de maio de 2019. Trata-se de uma ferramenta ágil e acessível ao gestor para o monitoramento do tempo do primeiro tratamento do câncer. Contudo, as informações apresentadas no PAINEL-Oncologia dependem do registro e da qualidade das informações dos Sistemas de Informação em Saúde dos quais ele consome informações. **Palavras-chave:** Sistema de Informação em Saúde; Oncologia; Monitoramento; Gestão da Informação em Saúde; Registro Médico Coordenado.

Resumen

Introducción: La necesidad de controlar el intervalo entre diagnóstico de una neoplasia maligna y el comienzo del tratamiento del cáncer en el Sistema de Salud Pública exigió la construcción de una nueva herramienta. Para este propósito, se desarrolló el PANEL-oncología. **Objetivo:** Presentar el proceso de elaboración de la herramienta, sus aplicaciones, potencialidades y límites, señalando perspectivas futuras. **Método:** El panel se construyó a partir de relación determinista de información de diagnóstico y tratamiento obtenida del Sistema de información para pacientes ambulatorios, a través del Boletín de producción ambulatoria individualizado y Autorización de procedimiento de alta complejidad, Sistema de información hospitalaria y Sistema de información sobre el cáncer, utilizando la Tarjeta nacional de salud y diagnóstico de cáncer como clave de identificación del caso. **Resultados:** La herramienta tiene tres paneles: 1 - Panel: Monitoreo del inicio del tratamiento del cáncer, que excluye los cánceres de piel no melanoma y de tiroides; 2 - Panel: Casos sin fecha de diagnóstico por año de tratamiento, 3 - Panel: Casos diagnosticados con cáncer de piel no tiroideo y melanoma; y un conjunto de gráficos y tablas con filtros para la selección. **Conclusión:** PANEL-Oncología se puso a disposición de los gerentes y las agencias de control el 15 de mayo de 2019. Es una herramienta ágil y accesible para los gerentes para monitorear el momento del primer tratamiento contra el cáncer. Sin embargo, la información presentada en el PANEL-Oncología depende del registro y la calidad de información de los Sistemas de la Información de Salud de los cuales consume información. **Palabras clave:** Sistemas de Información en Salud; Oncología Médica; Monitoreo; Gestión de la Información en Salud; Registro Médico Coordinado.

¹National Cancer Institute José Alencar Gomes da Silva (INCA). Rio de Janeiro (RJ), Brazil. Orcid id: <https://orcid.org/0000-0003-2271-746X>

²INCA. Rio de Janeiro (RJ), Brazil. Orcid id: <https://orcid.org/0000-0002-3075-2591>

³INCA. Rio de Janeiro (RJ), Brazil. Orcid id: <https://orcid.org/0000-0002-5847-9830>

⁴INCA. Rio de Janeiro (RJ), Brazil. Orcid id: <https://orcid.org/0000-0002-4861-2319>

⁵INCA. Rio de Janeiro (RJ), Brazil. Orcid id: <https://orcid.org/0000-0002-2472-3444>

Address for Correspondence: Adriana Tavares de Moraes Atty. Rua Marquês de Pombal, 125, 7º andar – Centro. Rio de Janeiro (RJ), Brazil. CEP 22.230-240. E-mail: aatty@inca.gov.br



INTRODUCTION

In order to meet the demands of timely diagnosis of quality to ensure the beginning of the oncologic treatment as soon as indicated, the manager needs to devise a plan to organize the healthcare network for cancer control. The National Cancer Prevention and Control Policy¹, has, among its principles and guidelines, the utilization of available epidemiological and care information for planning, monitoring and evaluation of actions and services. Any early detection initiative that disregards this planning will not impact patient's mortality or quality of life².

The monitoring of the network to identify possible obstacles delaying the beginning of the treatment and compromising the diagnosis demands easy-to-use tools to help the manager in this process. The promulgation of Law 12.732 dated November 22, 2012³, that disposes about the right the patient has of receiving the first treatment until 60 days from the date of the diagnosis brought the necessity of developing a tool to monitor the timing of the oncologic cases treated in the National Health System (SUS). Directive MS/GM 876 dated May 16, 2013⁴, that regulates the referenced Law, removes the skin non-melanotic basal cell and spinocellular cancers and the thyroid cancer without pre-operative clinical high-risk prognostic factors from monitoring of the time of treatment.

At that time, it was understood that this tool could be an extension of the Cancer Information System (SISCAN) that was developed to register management information of breast and cervical cancers control programs, gathering the Information System for the Control of Cervical Cancer (SISCOLO) and the Information System for the Control of Breast Cancer (SISMAMA)⁵.

In 2013, the denominated "treatment module", that addressed the inclusion of information about the diagnosis and first treatment of each case was implemented in SISCAN. However, after nearly five years of implementation of this module, it was concluded that this strategy was not well-succeeded, especially because of sub-notification of cases, lack of review at data entry and reports to help the manager to monitor the time.

Whereas the necessity of redesigning the proposal, the National Cancer Institute José Alencar Gomes da Silva (INCA), through the Division of Early Detection, was invited in 2018 to collaborate for a new solution that allowed managers to monitor the time until treatment of cancer cases in its territory. And in partnership with the Information Department of the National Health System (DATASUS), a new solution that would avoid the healthcare facilities to redo the work began to be designed.

Because of the existence of Health Information Systems (SIS) in SUS already consolidated and routinely utilized, it was concluded that the best strategy would be to use the data already available in these systems to obtain the required information about the interval between the diagnosis of a malignant neoplasm and the first oncologic treatment in SUS. Therefore, the new management tool should present this time interval based in information already forwarded by healthcare facilities in SIS.

The present article has the objective of describing the principles and methods utilized in the construction of the Oncology-PANEL and discuss its applications, potentialities and limits and indicating future perspectives.

METHOD

As described in Table 1, the following SIS-SUS were utilized: Outpatient Information System (SIA)⁶, through the Individualized Outpatient Production Bulletin (BPA-I) and the High Complexity Procedure Authorization (APAC), the Hospital Information System (SIH)⁷ and SISCAN (Cancer Information System).

However, as SIS are not interconnected, it was necessary to determine, *a priori*, some rules and criteria to link the information about diagnosis and treatment of these SIS such as: definition of cancer cases, selection of the procedures with diagnostic and treatment finality and their respective sources of information in order to obtain the interval until the first oncologic treatment.

The proposal was based in a deterministic relationship among SIS-SUS by the identification key of a case of neoplasm formed by the diagnosis – three first characters of the International Classification of Diseases and Related Health Problems (ICD-10) – plus by the identification of the patient in SUS – National Health Card (CNS).

With the possibility of a patient having more than one CNS, hampering the accurate linking of the information of the diagnosis with the information of the treatment, it was used the national database of SUS card – CADSUS Web (CADWEB), that collects all the possible CNS numbers of the same patient in only one CNS: the master CNS⁸. That process was developed and implemented by DATASUS with verification and validation steps, in addition to probabilistic linkage^{9,10}. Therefore, CADWEB was the base that allowed to link the cases diagnosed with the cases treated through SUS master card and the ICD informed in the other SIS.

The work process preserved the information of the user's local of residence in the moment of diagnosis and treatment were performed in order to avoid that potential updates of address in CADWEB would not imply in

Plan 1. Source of data and selection criteria to structure the Oncology-PANEL

Information System	Registry	Procedures	Finality	Diagnosis (ICD-10)
SIA	BPA-I	Anatomopathological	Diagnosis	C00 to C97 D00 to D09 D37 to D48
		Surgery	Treatment	
	Apac-Onco	Chemotherapy, radiotherapy, hormone therapy	Treatment	
SIH	AIH	Surgery	Treatment	
		Anatomopathological	Diagnosis	
SISCAN	BPA-I	Anatomopathological	Diagnosis	C50, C53, D05 and D06

errors of identification of the origin of cancer cases. The cases without CNS master were not included in the tool.

In the first moment, it was defined that the anatomopathological procedure would be the only considered for the diagnosis because nearly 85% of the cancer cases had histopathological diagnosis, as verified in the database of the Population-Based Cancer Registries (PBCRs) from 2010 to 2014¹¹. This procedure can be reported in SIA through BPA-I and in SIH by the Authorization of Hospitalization (AIH) as secondary procedure, always linked to the main procedure^{6,7}.

For breast and cervical cancers, the diagnostic information was obtained mainly in SISCAN that forwards to SIA the BPA-I files of the specific anatomopathological procedures for these cancers automatically.

For this proposal, the register of CNS and ICD-10 in the BPA-I must be mandatory for unspecific anatomopathological procedure of cervical and breast cancers. This rule was established in Directive SAS number 643 dated May 17, 2018¹², requiring to be included the CNS and ICD-10 information in BPA-I for the procedure *Anatomopathological exam for frozen/paraffin per surgical piece or by biopsy (except cervical and breast)*. The Directive emphasizes that ICD-10 to be used by the laboratory must be of the result of the anatomopathological exam. As a complementation, it was published Directive SAS number 202 dated February 2019¹³, that qualified the compatible ICD-10 codes with the anatomopathological procedure.

In addition to the chemotherapy procedures, hormone therapy and radiotherapy reported in SIA by the module "Authorizations of High Complexity Oncology Procedures (APAC-Onco)", the surgeries with cancer diagnosis reported in AIH were selected plus four surgical procedures reported in SIA: surgical treatment for scleral neoplasia, exeresis of conjunctiva tumor, type 1 excision of cervix and type 2 excision of cervix.

Although Directive 876⁴, that regulates the Law 12,732 dated November 22, 2012³ had excluded the

monitoring of skin and thyroid neoplasms cases, all the diagnosis of malignant neoplasm (C00 to C97), neoplasms *in situ* (D00 to D09) and neoplasms of uncertain behavior of other and unspecified sites (D37 to D48) were recovered.

The diagnostic information since 2013 for SISCAN sourced cases (cervical and breast cancers) were recovered and since May 2018, for the other cases reported in SIA. For the procedures recovered from SIH, the hospitalization date was utilized as proxy of the date the treatment began.

Once defined the CNS master by CADWEB, it was added to the ICD of the diagnosis and to the ICD of the treatment in the databases of diagnostic and treatment, forming a key that defined a cancer case (key ICD + CNS) (Figure 1).

For the identification of the dates of diagnosis and treatment, the following rules were applied to the diagnostic and treatment databases:

- When for the same key, that is, the same cancer case there was more than one diagnosis date (SIA or SISCAN), the oldest was kept.
- When for the same key, there was more than one date of treatment (SIH, APAC and SIA), the oldest and later than the diagnosis date (SIA or SISCAN) was kept.
- When for the same key, it was not possible to find the date of the diagnosis (SIA or SISCAN) in the period established, but there was a secondary procedure in AIH or in APAC-Onco, in the field date of pathological identification, this information was utilized.
- When for the same key, the treatment date was similar in AIH and in APAC-Onco, the information available in AIH was recovered.
- When, for the same key, there was the same date of treatment, either in APAC-Onco of chemotherapy or radiotherapy, the cases were gathered in the therapeutic modality "chemo+radio" constructed to indicate that both treatments had the same date of beginning of treatment.

- Cases with the date of surgical treatment earlier than the date of diagnosis (surgery with post histopathological) were considered when the date between the surgery and the anatomopathological result was not over 90 days. This timing criteria was established upon advice from Pathological Anatomy experts.

After the application of these rules, a database with diagnostic information and other with treatment information was constructed. Through the unique key (ICD + CNS) for each cancer case, a deterministic linkage that gathered the diagnostic and treatment information in only one database was created.

The cases with information of treatment where it was not possible to identify the date of the diagnosis, either in BPA-I or recovering in AIH or APAC-Onco, were identified and presented in a separate panel per year of treatment (Figure 1).

The variables included in the final database are: a) State and Municipality of healthcare facilities that diagnosed and treated – obtained in the National Healthcare Facilities Registry (CNES) utilizing the CNES code; b) CNES diagnosis and CNES treatment – CNES code of the healthcare facilities; c) State and municipality of residence – informed in the databases utilized; d) CNS –master card registered at CADWEB; e) Gender – registered in CADWEB; f) Age – difference between the date of the diagnosis and date of birth registered in CADWEB; g) Diagnosis – ICD-10 informed in the databases utilized; h) Staging – recovered from APAC chemotherapy and radiotherapy (this information is not available in AIH, therefore, the cases submitted to surgery have no staging information); i) Therapeutic modality – surgery, chemotherapy, radiotherapy and chemo + radio; j) Time until the first treatment – 0 to 30 days, from 30 to 60 days and without information of treatment.

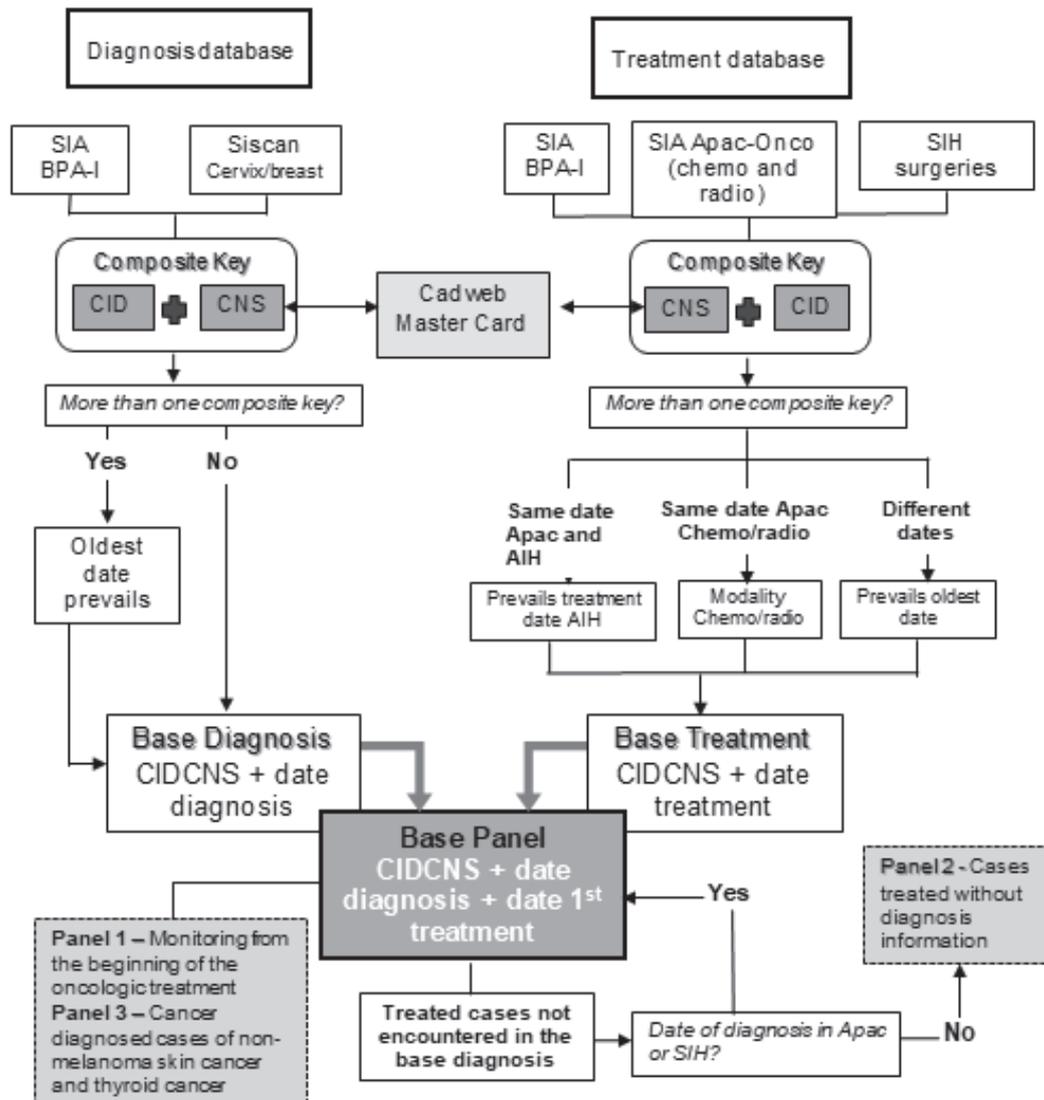


Figure 1. Flow to elaborate Oncology-PANEL

Given the necessity of protecting the secrecy of the available information, the access was limited by the creation of profiles: National – Ministry of Health, national control bodies, National Council of Health Secretariats (CONASS), National Council of Health Municipal Secretariats (CONASEMS); State – States, Health Regionals, State control organs, Council of Municipal Health Secretariats (COSEMS);– Municipalities, Healthcare facility that conducted the treatment – Specialized hospital, General Hospital, Hospital-Day.

The authorization of access is decentralized by the specific tool that allows to manage the users' access.

With this, it became possible to monitor the time the oncologic treatment began through a panel called Oncology-PANEL that replaced the “treatment module” which was coupled to SISCAN.

RESULTS

The Oncology-PANEL¹⁴ was made available on May 15, 2019. It is not a platform to enter data. It presents information obtained from SIS-SUS distributed in tables and charts available for download.

The visualization of cases identified depends on the user's access profile: the national profile visualizes the information of the country, the municipal and state profiles visualize only the data of their territory and the profile of the healthcare facilities, of the cases treated there.

The Oncology-PANEL allows to prepare reports about the interval between the date of the diagnosis and the treatment considering the combination of the variables: gender, age-range, municipality and state of residence and healthcare facility that performed the diagnosis, healthcare facility that performed the treatment, therapeutic modality of the first treatment, staging of the cases treated with chemotherapy or radiotherapy.

There is still the possibility of relating information about the places of residence, diagnosis and treatment with the time to begin the treatment.

The visualization of the information of Oncology-PANEL is presented in three panels: 1 – Panel: Monitoring of the beginning of the oncologic treatment; 2 – Panel: Cases without date of diagnosis per year of treatment and; 3 – Panel: Cases diagnosed of non-melanoma skin cancer and thyroid cancer (Figure 1). For each panel, there are layouts of tables and charts already determined that are updated according to the application of selected filters added by the user (Plan 2).

The Oncology-PANEL presents a time interval between the diagnosis and the first treatment according to the time intervals established. Only in Table 10 of

panel 1 is presented the diagnosis date of the untreated cases and in Table 8 of panel 2, is presented the date of the treatment of the cases where it was not possible to recover the diagnosis date.

On the date it was available, May 15, 2019, there were 1,170,063 cases of malignant neoplasms diagnosed in SUS distributed from 2013 to 2019 (Table 1).

Between 2013 and 2017, one third of the cases was treated in 30 days, reaching 36.9% in 2018. The percentage of cases treated in until 60 days was of nearly 50% in the available years. In 2018 and 2019, the percentage of cases still missing information of the first treatment is high (Table 1).

For the most incident cancers in Brazil, it is observed that, from 2013 to May 2019, except lung cancer, the cases, in their majority were treated after 60 days from the date of diagnosis (Table 2).

The updating of the panel is monthly with modification of the totals presented according to the inclusion of new diagnosis and treatment data in SIS investigated and according to update of CADWEB that allows the incorporation of new cases in the Oncology-PANEL, standing out the dynamic characteristic of the data exposed in the panel.

It was observed the occurrence of negative ages that were treated as age ignored. As the ages were calculated by the difference between the date of the diagnosis and the date of birth, the occurrence of negative ages could be a result of error in the date of birth in CADWEB or the diagnosis date.

In the panel, for a very reduced number of cases (0.04% in August 2019), it was observed dates of treatment after the current date, indicating there are issues related to the review of the dates of the systems of information utilized.

DISCUSSION

Some studies have been conducted at local or national level to identify the time since the diagnosis and the first treatment and the factors associated to possible delays¹⁵⁻¹⁷. However, these studies are elaborated per specific types of cancer, having important restrictions in their scope in relation to the period and origin of the data and utilize collection of data in medical records or retrospective secondary data demonstrating the complexity of obtaining information and the innovation brought by the Oncology-PANEL.

Compared to the “treatment module”, the Oncology-PANEL brought innumerous advantages among which stand out: (a) the very expressive increase of the number of the cases captured; (b) increase of effectiveness by the non-existence of rework for using data from other SIS, not being necessary to create a new system or instruct

Plan 2. Oncology-PANEL: panels according to the national profile and layouts of tables and charts

Reports of panels 1 and 3
Chart 1. Cases of cancer diagnosed per year according to the time of the first treatment in SUS
Chart 2. Number of cancer cases diagnosed per year and age-range
Chart 3. Number of cancer cases diagnosed and time until the first treatment in SUS
Table 1. Number of cancer cases, according to year of the diagnosis and time until the first treatment in SUS
Table 2. Number of cancer cases, according to time and type of therapeutic modality of the first treatment performed in SUS
Table 3. Number of cases diagnosed in SUS according to gender
Table 4. Number of cancer cases according to diagnosis and time until the first treatment in SUS
Table 5. Number of cancer cases, according to the State of residence and time until the first treatment in SUS
Table 6. Number of cancer cases, according to State and municipality of residence and time until the first treatment in SUS
Table 7. Number of cancer cases, according to unit of treatment and time until the first treatment in SUS
Table 8. Number of cancer cases diagnosed according to age-range and time until the first treatment in SUS
Table 9. Number of cancer cases according to diagnostic unit and time until the first treatment in SUS
Table 10. Cancer cases without information of treatment ¹
Reports of panel 2
Chart 1. Number of cancer cases without information of date of diagnosis treated in SUS, per year and age-range
Table 1. Number of cancer cases without information of date of diagnosis treated in SUS, according to therapeutic modality
Table 2. Number of cancer cases without information of date of diagnosis treated in SUS, according to gender
Table 3. Number of cancer cases without information of date of diagnosis treated in SUS, according to main diagnosis
Table 4. Number of cancer cases without information of date of diagnosis treated in SUS, according to State of residence
Table 5. Number of cancer cases without information of date of diagnosis treated in SUS, according to State and municipality of residence
Table 6. Number of cancer cases without information of date of diagnosis treated in SUS, according to unit of treatment and therapeutic modality
Table 7. Number of cancer cases without information of date of diagnosis treated in SUS, according to age-range
Table 8. List of patients without date of diagnosis per year of treatment

Note: ¹Presented only in panel 1.

Source: Oncology-PANEL¹⁴.

employees to obtain and enter data; (c) the improvement of the quality of the data because in the former version, the data entry was not reviewed and for using data connected to the invoicing. Therefore, the panel becomes a more agile and accessible tool for the manager to monitor the time of the first cancer treatment, utilizing the information already registered in SIS-SUS.

The information presented in the Oncology-PANEL depend from the registry and the quality of information of SIS, from which it uses the information: SIA (BPA-I, APAC-Onco), SIH, SISCAN, CNES and CADWEB. With monthly updating, the proportion of cases treated and

untreated can be modified by the capture of new information. Because of the legal pressure to monitor the time between the diagnosis and the first treatment, it is probable that the utilization of the tool will encourage the qualification of the SIS data that feed them, resulting in the continuous improvement of the information for the own panel.

Because of the unsuccessful implementation of the former solution (the denominated “treatment module”), another advantage of the Oncology-PANEL is the possibility of capturing information from previous periods to its launching in May 2019. This happens because it uses SIS information already existing and available to access.

Table 1. Distribution of cases of neoplasm* diagnosed according to time interval until the beginning of oncologic treatment in SUS. Brazil, 2013-2019

Year	0 to 30 days	31 to 60 days	More than 60 days	Without information of treatment	Total
	% (N)	% (N)	% (N)	% (N)	N
2013	31.2 (49,292)	19.4 (30,559)	49.4 (77,975)	0.1 (92)	157,918
2014	29.7 (48,813)	19.0 (31,184)	49.4 (81,184)	1.9 (3,196)	164,377
2015	29.3 (48,877)	19.4 (32,374)	48.7 (81,316)	2.6 (4,359)	166,926
2016	29.8 (51,222)	19.8 (34,074)	47.4 (81,607)	3.0 (5,170)	172,073
2017	29.9 (52,833)	20.1 (35,484)	46.5 (82,183)	3.6 (6,277)	176,777
2018	36.9 (103,494)	12.9 (36,067)	24.3 (67,991)	25.9 (72,610)	280,162
2019	43.8 (22,720)	6.5 (3,392)	1.3 (649)	48.4 (25,069)	51,830
Total	32.2 (377,251)	17.4 (203,134)	40.4 (472,905)	10.0 (116,773)	1,170,063

Note: *Excluded the cases of skin and thyroid cancer.

Source: Oncology-PANEL¹⁴.

Table 2. Distribution of the cases diagnosed per type of cancer selected according to the interval until the beginning of the oncologic treatment in SUS. Brazil, 2013-2019

Most incident cancers	Until 30 days %(n)	31-60 days %(n)	More than 60 %(n)	No information of treatment %(n)
Malignant neoplasm of breast (C50)	27.30 (62,712)	19.77 (45,426)	48.86 (112,259)	4.07 (9,352)
Malignant neoplasm of prostate (C61)	19.51 (29,850)	13.31 (20,358)	61.21 (93,652)	5.97 (9,130)
Malignant neoplasm of colon (C18)	41.51 (25,855)	20.13 (12,539)	32.58 (20,293)	5.78 (3,603)
Malignant neoplasm of bronchus and lung (C33 and C34)	43.36 (24,351)	25.59 (14,369)	26.55 (14,909)	4.50 (2,528)
Malignant neoplasm of cervix uteri (C53)	23.35 (16,619)	19.68 (14,006)	48.82 (34,751)	8.15 (5,799)
Malignant neoplasm of rectum (C20)	23.13 (9,387)	24.35 (9,880)	48.02 (19,489)	4.50 (1,825)

Source: Oncology-PANEL¹⁴.

Therefore, in cases of breast and cervical cancers, the panel succeeds in presenting data since 2013 because of the database originated from the system created for early detection of these cancers, SISCAN, that had as mandatory fields the information of CNS and ICD. For the other types of cancer, in general, the information were available since May 2018, one year before the launching of the panel because the fields CNS and ICD-10 for the anatomopathological procedures¹² were mandatory.

It is worth mentioning that the utilization of the diagnostic information registered in SIH and APAC-Onco for the cases treated and without retrieval of the diagnostic information in SIA and SISCAN favored to obtain even

information before May 2018. This has allowed to capture information of any diagnostic procedure, not only of anatomopathological exams, since in APAC-Onco the information of the diagnostic field considers the data of the diagnosis of neoplasm independent of the diagnostic procedure performed.

The Oncology-PANEL is an important management tool because it supplies information beyond the scope of Law 12,732³, dated November 22, 2012. The Oncology-PANEL offers the manager the possibility of identifying possible obstacles that are delaying the beginning of the treatment and compromising the diagnosis. The splitting of the panel visualization in three panels allows to monitor

the cases diagnosed off the health public network but treated in SUS and still the cases where it was not possible to retrieve the diagnosis date. Likewise, it presents cases of non-melanoma skin cancer and thyroid cancer for analysis in separate, not interfering in the general calculation of the time of treatment of the other cancers.

Considering the importance of the theme and the access to information, it was offered the Tabnet of the panel (http://tabnet.datasus.gov.br/cgi/dhdat.exe?PAINEL_ONCO/PAINEL_ONCOLOGIABR.def), of free and unrestrained access that allows to follow up the interval between the diagnosis and beginning of the oncologic treatment anonymously.

It is worth emphasizing that the information of the Oncology-PANEL does not address the incidence of cancer in the country because they are limited to cases whose data are available in the databases used by SUS without identification of new cases. It is important to mention that the panel does not replace the information available in the Cancer Hospital Registries (RHC) or PBCR.

At the moment, the fact that not all the CNS present a Card master⁸ is a limitation, generating loss of cases in the panel, but stimulates the managers to address this issue timely.

The cases prior to Directive SAS 643¹² – whose diagnostic information was not retrieved – the cases diagnosed out of SUS, the cases diagnosed by non-anatomopathological procedure and that had surgery as first oncologic treatment formed the group of cases without diagnostic information. This happens because AIH does not address the information of the diagnostic date.

For some cases submitted to radiotherapy or chemotherapy as first treatment, regardless of the type of diagnostic procedure and having been performed in SUS or not, it was possible to retrieve this date because in these systems there is a field to enter this information. However, it is worth mentioning that the actual lack of review while filling out APAC hampered the retrieve of the diagnostic date for the totality of the cases.

The cases without diagnostic information were added to the breast and cervical cancers originated from SISCOLO and SISMAMA since these systems are not compelled to registration in SUS card.

The identification of cases with future date of treatment led to the discussion with the managers of these systems and the recommendation to include review in these fields when SIA and APAC files are received.

The impossibility of identifying laterality of breast cancer makes different cases to be considered as one case for CNS.

The existence of multiple anatomopathological fragments with different diagnosis forming different keys, that is, different ICD for the same CNS, can cause discrepancies of the treatment for each one of these diagnosis.

Because of non-implantation of SISCAN in the entire national territory and continued use of SISCOLO and SISMAMA by some laboratories, there is loss of these histopathological exams.

The Oncology-PANEL presents diagnostic information of the anatomopathological exams mostly and it is estimated that these data correspond to approximately 85% of the cases of cancer diagnosed in SUS¹¹. For comparison, this procedure corresponded to nearly 70% of the cancers diagnosed in the United States according to the National Cancer Database¹⁸. However, it is already under discussion as improvement of the panel, the inclusion of the cytopathological procedure, in a first moment, considered important for the diagnosis of lung cancer¹⁹.

CONCLUSION

The Oncology-PANEL allows the manager to follow up neoplasms cases of its residents and the cases diagnosed or treated in public facilities or authorized by SUS located in its territory and was created as a method that brought innumerable advantages in relation to the approach adopted previously in the country.

It is understood that the Oncology-PANEL is an important management tool that will allow the manager to discuss and redesign the organization of its network to provide improved access to the treatment.

CONTRIBUTIONS

Adriana Tavares de Moraes Atty and Jeane Glauca Tomazelli contributed for the conception and design of the article, analysis, interpretation of the data and wording of the text and critical review of the intellectual content of the manuscript. Beatriz Cordeiro Jardim, Maria Beatriz Kneipp Dias and Arn Migowski contributed for the analysis, interpretation of the data and wording of the text and critical review of the intellectual content of the manuscript. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

FUNDING SOURCES

None.

ACKNOWLEDGEMENTS

To Ivanir Martins de Oliveira for the contribution to the definition of the time diagnosis posterior to the treatment for the cases treated surgically. To Teresa Cravo, to Marise Rebelo and to Ana Lúcia Eisenberg for the contribution to the discussion of restriction of ICD compatible with the diagnostic procedure. To Caroline Madalena Ribeiro for the contribution of the design of the initial proposal of the Oncology-PANEL. To the technicians of DATASUS, Alzira Falcão, Rodrigo Saar, Eduardo de Paula and Fabrício Pires for the participation to the effective construction of Oncology-PANEL applying the negotiation rules to the SIS databases utilized and helping to understand the primary bases, sources of the Oncology-PANEL.

REFERENCES

1. Ministério da Saúde (BR), Gabinete do Ministro. Portaria nº 874, de 16 de maio de 2013. Institui a Política Nacional para a Prevenção e Controle do Câncer na Rede de Atenção à Saúde das Pessoas com Doenças Crônicas no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União, Brasília, DF; 2013 maio 17. Seção I, p. 129.
2. World Health Organization. Guide to early cancer diagnosis [Internet]. Geneve: WHO; 2017 [cited 2019 Sep 26]. Available from: <http://apps.who.int/iris/bitstream/10665/254500/1/9789241511940-eng.pdf>
3. Presidência da República (BR). Lei nº 12.732, de 22 de novembro de 2012 [Internet]. [acesso 2020 jan 06]. Disponível em: http://www.planalto.gov.br/CCIVIL_03/_Ato2011-2014/2012/Lei/L12732.htm
4. Ministério da Saúde (BR), Gabinete do Ministro. Portaria nº 876, de 16 de maio de 2013. Dispõe sobre a aplicação da Lei nº 12.732, de 22 de novembro de 2012, que versa a respeito do primeiro tratamento do paciente com neoplasia maligna comprovada, no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União, Brasília, DF; 2013 maio 17. Seção I, p. 135.
5. Instituto Nacional de Câncer. Sistemas de informação do controle do câncer de mama (SISMAMA) e do colo do útero (SISCOLO): manual gerencial. Rio de Janeiro: INCA; 2011.
6. Ministério da Saúde (BR). Manual técnico operacional SIA/SUS: sistema de informações ambulatoriais: aplicativos de captação da produção ambulatorial APAC Magnético – BPA Magnético - VERSIA – DE-PARA – FPO Magnético. Brasília, DF: Ministério da Saúde; 2009.
7. Ministério da Saúde (BR). SIH: sistema de informações hospitalares: manual técnico operacional do sistema. Brasília, DF: Ministério da Saúde; 2017.
8. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Regulação, Avaliação e Controle. Sistemas de informação da atenção à saúde: contextos históricos, avanços e perspectivas no SUS. Brasília, DF: Cidade Gráfica e Editora; 2015. Capítulo 1, CADSUS - cadastro nacional de usuários do SUS: evolução histórica e conceitual; p. 23-41.
9. Ministério da Saúde (BR), Gabinete do Ministro. Portaria nº 940, de 28 de abril de 2011. Regulamenta o Sistema Cartão Nacional de Saúde (Sistema Cartão). Diário Oficial da União, Brasília, DF; 2011 maio 2. Seção I, p. 58.
10. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Portaria nº174, de 14 de maio de 2004. Diário Oficial da União, Brasília, DF; 2004 maio 17. Seção I, p. 62.
11. Instituto Nacional de Câncer José Alencar Gomes da Silva. Registro de câncer de base populacional [Internet]. Rio de Janeiro: INCA; c1996-2018. [acesso 2020 jan 06]. Disponível em: <https://www.inca.gov.br/BasePopIncidencias/Home.action>
12. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Portaria nº 643, de 17 maio de 2018. Altera atributos do procedimento da Tabela de Procedimentos, Medicamentos, Órteses/Próteses e Materiais Especiais do SUS. Diário Oficial da União, Brasília, DF; 2018 maio 21. Seção I, p. 71.
13. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Portaria nº 202, de 8 fevereiro de 2019. Compatibiliza códigos da CID-10 com procedimento na Tabela de Procedimentos, Medicamentos, Órteses, Próteses e Materiais Especiais do Sistema Único de Saúde/SUS. Diário Oficial da União, Brasília, DF; 2019 fev 15. Seção I, p. 54.
14. Ministério da Saúde (BR), Departamento de Informática do SUS. PAINEL-Oncologia. Brasília, DF: DATASUS; 2019. [acesso 2019 dez 22]. Disponível em: <https://painel-oncologia-kb.saude.gov.br/>
15. Medeiros GC, Bergmann A, Aguiar SS, et al. Análise dos determinantes que influenciam o tempo para o início do tratamento de mulheres com câncer de mama no Brasil. Cad Saúde Pública. 2015;31(6):1269-82. doi: <https://doi.org/10.1590/0102-311X00048514>
16. Carvalho PG, O'Dwer G, Rodrigues NCP. Trajetórias assistenciais de mulheres entre diagnóstico e início de tratamento do câncer de colo uterino. Saúde Debate. 2018;42(118):687-701. doi: <https://doi.org/10.1590/0103-1104201811812>
17. Assenção KC, Kluthcovsky ACGC, Mansani FP. Atraso no diagnóstico e tratamento de pacientes com câncer de colo de útero atendidas pelo Sistema Único de Saúde em um centro de referência do Sul do Brasil. O Mundo Saúde. 2017;41(4):692-702. doi: <https://doi.org/10.15343/0104-7809.20174104692702>

18. American College of Surgeons. National Cancer Database [Internet]. Chicago: American College of Surgeons. C1996-2020. [cited 2019 Aug 28]. Available from: <https://www.facs.org/quality-programs/cancer/ncdb>
19. Rabahi MF, Ferreira AA, Reciputti BP, et al. Achados de fibrobroncoscopia em pacientes com diagnóstico de neoplasia pulmonar. J Bras Pneumol. 2012;38(4):445-51. doi: <https://doi.org/10.1590/S1806-37132012000400006>

Recebido em 14/1/2020

Aprovado em 9/4/2020