RESEARCH | PESQUISA

Levels of care complexity classification of patients in an oncology hospital

Classificação do nível de complexidade assistencial dos pacientes em hospital oncológico

Clasificación del nivel de complejidad asistencial de los pacientes en un hospital oncológico

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ABSTRACT

Objective: To classify the level of complexity of care required from Nursing by hospitalized oncology patients. **Methods:** This is an observational, sectional, quantitative study, carried out daily with oncology patients in the Clinical and Surgical Oncology inpatient units of a cancer treatment reference hospital during a three-month period. The collection was carried out through the application of a semi-structured questionnaire and an instrument of patient classification by Fugulin *et al.* (2007). **Results:** 242 patients were interviewed and 1309 evaluations were performed, with a greater number of males and those with incomplete elementary school education. There was a higher occurrence of cancer in the gastrointestinal system and female reproductive system, respectively, in the admission of Clinical and Surgical Oncology, with higher occupancy rate in the months of June and May, in that order. The behavior observed was quite similar in both admissions, corresponding, respectively, to patients who fell into minimal (33.1%; 35.1%) and intermediate care (30.2%; 37.5%). **Conclusion and implications for practice:** The patient classification and dimensioning system in Nursing in oncology deserves further discussion and lacks validated instruments capable of representing the real situation of care.

Keywords: Human Resource Management in Hospitals; Classification; Nursing Care; Personnel Dimensioning; Oncology.

RESUMO

Objetivo: Classificar o nível de complexidade assistencial requerido da Enfermagem por pacientes oncológicos internados. **Método:** Estudo observacional, seccional, de abordagem quantitativa, realizado diariamente com pacientes oncológicos em unidades de internação de Oncologia Clínica e Cirúrgica de um hospital de referência ao tratamento de câncer durante o período de três meses. A coleta foi realizada por meio da aplicação de um questionário semiestruturado e instrumento de classificação de pacientes de Fugulin *et al.* (2007). **Resultados:** Foram entrevistados 242 pacientes e realizadas 1309 avaliações com maior quantidade de indivíduos do sexo masculino e que possuíam o Ensino Fundamental incompleto. Houve maior ocorrência de câncer no sistema gastrintestinal e sistema reprodutor feminino, respectivamente, na internação de Oncologia Clínica e Cirúrgica, com maior taxa de ocupação nos meses de junho e de maio, nessa ordem. O comportamento observado foi bastante similar em ambas as internações, correspondendo, respectivamente, a pacientes que se enquadravam nos cuidados mínimos (33,1%; 35,1%) e intermediários (30,2%; 37,5%). **Conclusão e implicações para a prática:** O sistema de classificação de pacientes e dimensionamento em Enfermagem na área oncológica merece maiores discussões e carece de instrumentos validados capazes de representar a real situação do cuidado.

Palavras-chave: Administração de Recursos Humanos em Hospitais; Classificação; Cuidados de Enfermagem; Dimensionamento de Pessoal; Oncologia.

RESUMEN

Objetivo: Clasificar el nivel de complejidad asistencial requerido en Enfermería por pacientes oncológicos hospitalizados. **Método:** Estudio observacional, seccional, con enfoque cuantitativo, realizado diariamente con pacientes oncológicos en unidades de internación de Oncología Clínica y Quirúrgica de un hospital de referencia para el tratamiento del cáncer durante un período de tres meses. La recolección de datos se realizó mediante la aplicación de un cuestionario semiestructurado y un instrumento de clasificación de pacientes de Fugulin *et al.* (2007). **Resultados:** Se entrevistaron 242 pacientes y se realizaron 1309 evaluaciones con mayor número de individuos del sexo masculino que tenían la Enseñanza Básica incompleta. Hubo mayor ocurrencia de cáncer en el aparato digestivo y aparato reproductor femenino, respectivamente, en el ingreso de Oncología Clínica y Quirúrgica, con la mayor tasa de ocupación en los meses de junio y mayo, en ese orden. El comportamiento observado fue bastante similar en ambas hospitalizaciones, correspondiendo, respectivamente, a pacientes que se encontraban en cuidados mínimos (33,1%; 35,1%) e intermedios (30,2%; 37,5%). **Conclusión e implicaciones para la práctica**: El sistema de clasificación y dimensionamiento de pacientes en Enfermería en el área de oncología merece mayor discusión y carece de instrumentos validados capaces de representar la situación real del cuidado.

Palabras clave: Gestión de Recursos Humanos en Hospitales; Clasificación; Cuidado de enfermería; Dimensionamiento de personal; Oncología.

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INTRODUCTION

Care practices have been changing over the years, supporting improvements. The care provided to users in the health field has evolved and is increasingly more complex in such a way that the life expectancy of the population has increased and, consequently, the demands for care.[1]

Despite this scenario, the healthcare area has been suffering from a lack of financial resources, which has repercussions in terms of cuts in human resources, with direct and indirect implications in nursing care management. A study showed that certain sectors, such as inpatient units, have difficulties in acquiring human, financial, and material resources for the care of patients in higher degrees of care complexity.[2] In this situation, the identification and quantification of the care needs of patients to be assisted are important for an effective evaluation of costs and resources in order to contribute to a better organization of the service and decision-making within the hospital institution, benefiting patients with safer and quality care.[1]

Nursing leaders need to recognize and implement innovative management practices and instruments that help manage the human resources needed to promote quality care excellence desired by patients, professionals, and health services.[3] The lack of benchmarks and instruments in health service management can lead the nursing team to not recognize the real needs of their patients, and consequently, to mismanage technological, material, and human resources, which can affect the number of professionals needed to care for these individuals.[4]

The use of the Patient Classification System (PCS) appears then as a fundamental tool by means of which it is possible to determine the degree of complexity of Nursing care required by each patient, in direct or indirect care, and to dimension the number of Nursing professionals necessary to care for users in their degree of dependence.[2,5,6]

The Pan-American Health Organization/World Health Organization (PAHO/WHO), through accreditation programs, recommends this system as a way to guarantee the quality of care in Latin American hospitals.[7]

The history of patient classification, in the Nursing area, began with Florence Nightingale, who, through the observation and knowledge at the time, tried to separate the patients that required more attention in different areas.[8] In the 1950's the concept of Progressive Patient Care (PPC) was developed in the United States of America, which helped in the restructuring of hospital health sectors according to the degree of complexity of the patients, that is, the needs of the users determine, their assistance in number and degree.[5]

In countries such as Sweden and Finland, the ZEBRA and RAFAELA patient classification instruments, respectively, have become essential for administrative and nursing care practice, guiding cost management and professional allocation.[9] In Brazil, the PPC theory was initially used for an adequate organization of human resources in nursing that would favor efficiency in care delivery and increase productivity in hospital services for technical and economic reasons.[8]

In the absence of official parameters for the regulation of the dimensioning of Nursing professionals in the country, Resolution No. 189/96 was established in March 1996, through the Federal Council of Nursing (COFEN). This resolution was updated by Resolution nº 293/2004, based on the PPC theory, and, currently, replaced by Resolution nº 543/2017[10] due to the advances that occurred in the complexity levels of the health system and the changes in the population's needs.

Thus, the PCS is one of the categories used for the accreditation of the Nursing Service in the context of the hospital institution.[7] After all, the workforce, in quantitative and qualitative aspects, has an intrinsic relationship with quality and safety in health services.[5]

In the specific case of cancer, one of the most complex public health problems due to its epidemiological, social, and economic magnitude,[11] there is a need for a highly qualified nursing team to provide care to hospitalized oncology patients, and that values the individual characteristics of patients in order to organize their work process according to the fundamental conditions, structures, and resources[2]

Due to the scarcity of studies in the literature that help determine the workload of this team, as well as the dimensioning of professionals in the oncology hospital sector, it becomes essential to classify patients diagnosed with cancer in order to recognize aspects of the demand for care, complexity of care required, and to subsidize the evaluation of the demand for Nursing professionals to provide care. This study aims to classify the level of complexity of care required from Nursing by hospitalized oncology patients.

METHODS

This is an observational, sectional study, of quantitative approach, which aims to observe and collect data on existing facts without interfering.[12]

The study was carried out in the Clinical Oncology (CO) and Surgical Oncology (SO) inpatient units of a reference hospital for cancer treatment in the Macro-region of the Southern Triangle whose beds are under contract with the Unified Health System (UHS). At the time of data collection, the CO hospital had 22 beds and the SO had 14 beds, four of which were for patients undergoing iodine therapy and its compounds.

The hospital was selected to carry out the study because, besides being considered a hospital of high complexity, it values humanization, safety in care, and treatments based on scientific-technological developments.[13]

The target population included oncology patients who were hospitalized during the data collection period and who were over 18 years of age. Exclusion criteria were patients in contact and/or respiratory isolation (by droplet or aerosol), reverse isolation, and those undergoing iodine therapy.

Data collection was performed by a single observer, bedside collector (face-to-face), properly trained in a pilot study (six patients included) prior to the data collection period to verify the appropriateness of the instrument and estimated time for data

collection. Some supplementary information on clinical data had to be extracted from medical records.

For the socio-demographic and clinical characteristics, the semi-structured questionnaire developed by the authors was applied, containing the following variables: date of birth; sex; education; organ affected by cancer; presence of metastasis; presence of a companion during hospitalization, and who was accompanying. These data were collected only once for each research participant through face-to-face collection and medical records.

In order to assess the complexity of care required by each individual, a patient classification sheet was prepared to record the score of the care indicators obtained by applying the instrument of Fugulin et al., complemented with care areas for the evaluation of patients with wounds and subsequent total score, which determines the classification of care.[14] The classification of patients was performed in person, daily (from the day of admission to hospital discharge) by the researcher in the afternoon period, from April to June 2015, for a total of 90 days.

Fugulin's PCS instrument, completed in 2007, presents 12 indicators (mental state, oxygenation, vital signs, motility, ambulation, feeding, body care, elimination, therapeutics, cutaneous-mucosal integrity/tissue impairment, bandages, and time used in the performance of bandages) to be individually assessed, with scores from one to four points, according to the dependence on care by the Nursing team, so that "one point" means a lower demand for care and "four points", a higher demand. The sum of the points for each indicator can be from a minimum of 11 points to a maximum of 44 points. This instrument defines five care categories, according to the complexity of care of patients, as follows: intensive care (score above 34); semi-intensive care (29-34); high dependency care (23-28); intermediate care (18-22) and minimal care (12-17).[14] The Fugulin instrument was chosen because, among those available in the literature, it is the one developed to evaluate adult patients hospitalized in Clinical and Surgical Units,[14] in addition to being recommended by COFEN by Resolution 293/2004. Thus, it is a better fit for the evaluation of the target population of this study.

For data analysis, a descriptive analysis was performed based on absolute frequencies, percentages and measures of centrality (mean) and dispersion (standard deviation). The normality of the data (age) was verified using the Shapiro-Wilk test ($p > 0.05$). Statistical Product and Service Solution (SPSS) software, version 22.0, was used to perform the analyses.

Data collection occurred after the project was approved by the Ethics Committee for Research with Human Beings of the Federal University of Triângulo Mineiro (UFTM), CAAE 39420514.0.0000.5154 and Opinion number 970.012, by delivering two copies and signing the Informed Consent Form (ICF).

RESULTS

A total of 242 patients were interviewed during 90 consecutive days of data collection. Of the 93 patients from the CO inpatient admission, age ranged from 32 to 91 years, with mean 64 years ±13.44 years standard deviation (normality satisfied test; $p > 0.05$). Of the 149 patients in the CO inpatient ward, age ranged from 23 to 99 years, with a mean of 61 years ±14.4 years standard deviation (normality satisfied test; $p > 0.05$).

Among the interviewed patients, 76.3% (71) were male in the CO and 54.4% (81) in the SO; 53.8% (50) in the CO and 49.0% (73) in the SO had incomplete Elementary School. Regarding the presence of a companion, in both hospitalizations, respectively, it was found that 96.8% (90) and 94.0% (140) had the presence of a companion, and in the CO, 25.8% (24) of patients were accompanied by their spouse, and in the SO, 31.5% (47) were accompanied by their children (Table 1).

The diagnoses were grouped into organ systems due to the diversity of diagnoses observed in descending order until approximately half of the patients were represented. In the CO hospitalization, of the 93 patients interviewed, there were 35.5% (33) of the diagnoses in the gastrointestinal system; 12.9% (12) were of bowel cancer, followed by cancer in the respiratory system and prostate cancer (both with 14 patients, 15.1%), and finally, cancers of the female reproductive system (ten patients, 10.8%). In the surgical admission, among the 149 patients, we observed: 32.9% (49) of cancer of the female reproductive system; 19.5% (29) of breast cancer followed by 26.8% (40) of prostate cancer; 16.8% (25) of cancer in the gastrointestinal system, and in this organ system, in 9.4% (14) of the patients, the diagnosis was cancer of the rectum or intestine. As for metastasis, in OC, 81.7% (76) of patients had no metastasis, and in CO, 94.0% (140) also had no metastasis.

From the data shown in Table 2, it is possible to see that the average percentage of the occupancy rate of both hospitalizations in the three months of the study was approximately 60.0%. There was a difference between the average number of beds occupied per day and the average number of beds evaluated in the research on a daily basis. This difference represents that four beds were not evaluated during the research in the CO hospitalization due to two refusals to participate in the study, isolation of patients, and approximately one bed in the SO, because, during the period when the researchers were conducting the approaches, the patients were in the operating room and, on the following day, they had already been discharged. The highest occupancy rate of hospitalizations, respectively CO and SO, were in the months of June and May, and the lowest in the months of April and June.

From the total of 898 evaluations in the CO, the care indicators that scored "one" were: elimination (42.5% of the evaluated patients were self-care); body care (42.2% of the patients were able to perform independent self-care); vital signs (the Nursing team performed the control of vital signs every 8 hours in 30.1% of the patients) and in the therapeutic item (only 5.8% of the patients received intramuscular or oral medication). The indicators with a score of "two", vital signs, in 64.0% of the patients, indicated that control was performed at six-hour intervals. The indicators with a "three" score were: therapeutic (85.6% required continuous intravenous drug administration or via nasogastric tube); elimination (44.0% of the patients used a

Table 1. Distribution of the presence of companion and type of companion during hospitalization. Uberaba, MG, Brazil, Mar. to Jun. 2015 (n = 242)

Companion during hospitalization	CO		SO	
	Nº	%	Nº	%
Companion				
Yes	90	96,8	140	94,0
No	3	3,2	9	6,0
Who accompanies				
Spouse	24	25.8	43	28.9
Children	21	22.6	47	31.5
Other family members	21	22.6	28	18.8
More than one	17	18.4	-	-
Friends	3	3.2	4	2.7
Caregiver	2	2.2	15	10.1
Partner/Significant other	1	1.1	3	2.0
Health Professional	1	1.1	-	-

Source: Compiled by the authors (2021).

Table 2. Percentage distribution of the occupancy rate, average/day of occupied beds and beds evaluated during the research. Uberaba, MG, Brazil, Mar. to Jun. 2015.

Mean	Clinical Oncology Hospitalization (22 beds)			Surgical Oncology Hospitalization (10 beds)		
	Beds assessed/day	Beds occupied/day	Occupancy rate	Beds assessed/day	Beds occupied/day	Occupancy rate
April	9.80	12.63	57.4%	4.56	5.6	56.0%
May	8.10	14.1	64.1%	4.29	6.87	68.7%
June	11.26	14.57	66.2%	4.63	4.7	47.0%
Total	9.72	13.77	62.6%	4.49	5.72	57.2%

Source: compiled by the authors (2021).

bedpan or had bedwetting); skin integrity (34.3% of the patients had solution of skin continuity, involving subcutaneous tissue and muscle, surgical incision, stomas, drains, and most of these patients had the use of colostomy bags); feeding (33.2% had the use of nasogastric tube or naso-enteric tube and, finally, in the oxygenation indicator, 18.6% had continuous use of oxygen mask or catheter. As for the indicators with a "four" score, we have: ambulation (26.9% of the patients restricted to bed) and body care (22.9% of the patients required a bed bath and oral hygiene performed by the Nursing team) (Table 3).

Regarding the 424 evaluations performed in the surgical admission (OC), the indicators that presented a "two" score were: dressing time (49.1% of the patients had time spent on dressing of five to 15 minutes); vital signs (41.5% were evaluated with six-hour intervals); dressing (33.3% of the patients had dressing once a day) and body care (19.6% of the patients needed help in the shower and/or oral hygiene). When considering the "three-point" degree of complexity, the care indicators were: therapeutic (72.4% of the patients were intermittently using intravenous medications); skin integrity (71.7% presented tissue impairment due to surgical incision) and also that 12.5% of these individuals needed dressing twice a day by the Nursing team. Of the patients evaluated, 36.6% were using indwelling urinary catheter for diuresis control and 21.5% were restricted to bed because of the surgery (Table 3).

Overall, the behavior observed was quite similar in CO and SO, corresponding, respectively, to patients who were in minimal care (33.1%; 35.1%); intermediate care (30.2%; 37.5%); high dependency care (25.2%; 25%); semi-intensive care (11.3%; 2.4%), and intensive care (0.2%; 0%) (Table 4).

DISCUSSION

Regarding the presence of a companion during the hospitalization process, most inpatients had the presence of family members

Table 3. Percentage distribution of the evaluation of care indicators according to the sector and degree of complexity. Uberaba, MG, Brazil, March to June 2015 (n = 242)

	SECTOR							
	Clinical Oncology Hospitalization (93 patients; 898 evaluations)				Surgical Oncology Hospitalization (149 patients; 424 evaluations)			
	Degree of complexity (%)				Degree of complexity (%)			
Indicators	1	2	3	4	1	2	3	4
Mental state	86.3	12.4	1.1	0.2	95.5	3.5	0.9	-
Oxygenation	73.2	8.0	18.6	0.2	97.4	2.1	0.5	-
Vital Signs	30.1	64.0	3.9	2.0	55.2	41.5	3.1	0.2
Motility	82.2	14.5	3.2	0.1	94.3	5.0	0.7	-
Walking	60.5	9.9	2.7	26.9	69.1	8.0	1.4	21.5
Nutrition	64.1	2.7	33.2	-	92.7	2.6	4.5	0.2
Body care	42.2	22.4	12.5	22.9	66.5	19.6	8.5	5.4
Eliminations	42.5	2.1	44.0	11.4	49.3	1.4	12.7	36.6
Therapeutic	5.8	6.9	85.6	1.7	23.8	3.8	72.4	-
Skin integrity	60.5	5.2	34.3	-	28.1	0.2	71.7	-
Bandage	70.5	19.9	8.5	1.1	50.2	33.3	12.5	4.0
Bandage time	70.0	29.3	0.7	-	49.5	49.1	1.2	0.2

Source: compiled by the authors (2021).

Table 4. Distribution of assessments and mean patient/day in CO and SO according to the care categories. Uberaba, MG, Brazil, Mar. to Jun. 2015.

	CARE CATEGORIES OF FUGULIN									
	Minimal		Intermediate		High dependency		Semi-Intensive		Intensive	
SECTOR	CO	SO	CO	SO	CO	SO	CO	SO	CO	SO
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total										
Evaluations	297(33,1)	149(35,1)	271(30,2)	159(37,5)	226(25,2)	106(25,0)	101(11,3)	10(2,4)	2(0,2)	-
Patient/day	3,26	1,60	2,98	1,80	2,40	1,26	1,10	0,12	0,02	-

Source: Compiled by the authors (2021).

or friends (95.4%), since it is a practice of the hospital where the study was conducted to allow the presence of companions, regardless of the patient's age. The provision of this kind of support is a crucial factor in the care of cancer patients since it can improve their health and make the surroundings safer and more welcoming, thus providing a vital link between the patient and the institution, making it clear that such interventions should not solely be viewed as a means of compensating structural deficits.[15] In addition to all these aspects, the presence of a companion interfered in the performance of the dimensioning, because, as stated in Resolution COFEN no. 293/2004, 0.5 hour of Nursing should be added to chronic patients older than 60 years, with demand for intermediate or semi-intensive care and without a companion.[16] However, in the current resolution, this item was suppressed.[10]

It is estimated that in Brazil there will be 450,000 new cases of cancer (excluding non-melanoma skin cancer) for each year of the biennium 2020-2021.[17] The Global Cancer Observatory (GLOBOCAN) for 2020 showed the occurrence of 19.3 million new cases of all types of cancer.[18] Non-melanoma skin cancer (177,000 new cases) will be the most prevalent in the Brazilian population, followed by tumors of the prostate, breast, colon, rectum, lung, and stomach,[17] while in the world, the most diagnosed cancers in 2020 were female breast, followed by lung, and prostate cancer.[18] This study found a higher occurrence of cancers affecting the intestine, prostate, and breast.

The patient with a cancer diagnosis, even though it alludes to the idea of severity and suffering, can live with the disease under control or cured when the health service has adequate infrastructure and inputs, qualified human resources, among other issues that accompany the complexity of this care.[19]

It is observed that the data found in the survey, which indicate the occurrence of high scores in some care indicators, corroborate those presented in a study developed in an inpatient unit of a tertiary philanthropic hospital located in the north of the state of Paraná, which pointed to the existence of critical indicators, with greater weight and importance for the change in care category, which were: motility, ambulation, body care, eliminations, skin integrity, and bandages. The aforementioned study also identified that the indicators of mental state and oxygenation contributed to increase the degree of dependence of some patients in relation to the Nursing team.[20]

There was a higher percentage, in the CO hospitalization, of patients requiring minimal care, while in the SO hospitalization, patients classified as intermediate care stood out in relation to the others. A study carried out in clinical and surgical inpatient beds, of an inpatient unit in a public hospital of the Midwest region, showed that the classification of patients of both admissions was similar to that found in the CO admission profile of this research and that could not be observed in the SO, in which a greater demand of patients in low care dependence was also expected.[21]

This study observed a higher percentage of patients who fit into minimum and intermediate care. In minimal care, patients are physically self-sufficient in meeting basic human needs, and those classified as intermediate care are partially dependent on the Nursing team to meet their basic human needs.[22]

There was the presence of patients falling into intensive and semi-intensive care. The study found that patients falling into higher care categories may be as a result of cognitive decline and limited functional capacity due to age,[23] in addition to other factors.

Classifying the degree of complexity required by cancer patients contributes significantly to identifying the patients' profile, activities, procedures, and time consumed in the implementation of care. Thus, this tool, linked to care management, helps to ensure that the principles of the SUS and the Oncologic Care Policy, in relation to completeness, are fulfilled, providing quality care.[2]

Countries such as Sweden and Finland have the aforementioned classification system, which is essential in the management of Nursing professionals' costs related to the care process, in decision-making regarding human resources, in the measurement of workload, among other purposes involving care management.[9]

One must consider, as found in the article that measured the workload of nurses in a chemotherapy center, that most (43.2%) of the nurses' time was spent on indirect care.[24] Thus, in an oncologic setting, measuring the workload is important to evaluate how much it interferes with patient care, either directly or indirectly, and with quality care.[25]

CONCLUSION AND IMPLICATIONS FOR PRACTICE

This study made it possible to visualize that many inpatients in both units fell into the classification of minimal, intermediate, and high dependency care.

It is hoped that this study will sensitize nurses and, thus, encourage the application of the PCS method and nursing dimensioning in their areas of work, and that researchers and competent organs will advance in the studies of this theme in the oncologic area in order to provide subsidies for an adequate classification of the level of care required by oncologic patients through the application of validated instruments capable of representing the real situation of care in this clientele and thus, help in determining the nursing staff required to provide quality care.

The study's limiting factor was that not all inpatients were included due to isolation. However, it is noteworthy that the data were obtained by individualized assessment of the patients by a single researcher on a daily basis, thus reducing the chance of some information bias. Another limiting factor was the use of a patient classification instrument, which, among those available in the literature, is the most adequate. However, it still cannot evaluate some important points in hospitalized oncology patients, because there is no specific instrument for this profile of patients in the literature so far.

AUTHOR'S CONTRIBUTIONS

Study design. Letícia Oliveira Manzan. Gilberto de Araújo Pereira. Divanice Contim. Maria Beatriz Guimarães Raponi.

Data collection or production. Letícia Oliveira Manzan. Gilberto de Araújo Pereira.

Data analysis. Letícia Oliveira Manzan. Gilberto de Araújo Pereira. Divanice Contim. Maria Beatriz Guimarães Raponi. Raquel Pan.

Interpretation of results. Letícia Oliveira Manzan. Gilberto de Araújo Pereira. Divanice Contim. Maria Beatriz Guimarães Raponi. Raquel Pan. Isabella Luiz Resende.

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Responsibility for all aspects of the content and integrity of the published article. Letícia Oliveira Manzan. Divanice Contim. Maria Beatriz Guimarães Raponi. Raquel Pan. Isabella Luiz Resende. Gilberto de Araújo Pereira.

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