

Quality indicator in nutritional therapy in oncology and the interface with nursing: integrative review

Abstract

Objective

To analyze the evidence of the Indicator of Quality in Nutritional Therapy “prescribed *versus* infused volume in nutritional therapy” in hospitalized adult cancer patients and the prospects for nursing practice.

Methods

An integrative review conducted in the Portal Biblioteca Virtual em Saúde, Nursing Database, Cumulative Index to Nursing & Allied Health Literature, Excerpta Medica dataBASE, Google Scholar, Latin America and the Caribbean Literature on Health Sciences, U.S. National Library of Medicine, SciVerse Scopus Web of Science. This research included studies published in Portuguese, English, or Spanish from 2008 to 2021.

Results

Of the nine studies included most of the authors were nutritionists and/or nutrition academics (53.8%), followed by nurses and/or nursing academics (30.8%). Most studies (67%) did not reach the indicator target, being investigated in clinical and/or surgical wards (27.3%) and adult/general Intensive Care Units (27.3%). The reasons for not meeting the indicator goal were related to clinical and mechanical complications of the use of nutritional therapy.


Conclusion

The goal of the indicator in “nutritional therapy prescribed *versus* infused volume” was not achieved in most studies, and the adult cancer patient presents clinical difficulties in achieving it.

Keywords

Quality indicators in Health Care; Quality Indicators in Nutritional Therapy; Enteral Nutrition; Hospitalization; Neoplasms; Nursing.

Laísa Escobar Sitja¹

 orcid.org/0000-0002-1455-072X

Bruna Sodré Simon²

 orcid.org/0000-0003-3855-1310

Michelle Cristina Silva de Assis³

 orcid.org/0000-0003-2632-5885

Josefine Busanello⁴

 orcid.org/0000-0002-9950-9514

Bruna Stamm⁵

 orcid.org/0000-0003-4858-7712

¹ Nurse. Multidisciplinary Integrated Residency Program in Public Health, Federal University of Pampa, Uruguiana, Brazil.

² Nurse. Doctor. Adjunct teacher of the Undergraduate Nursing Course at the Federal University of Pampa, Uruguiana, Brazil.

³ Nurse. Doctor. Adjunct teacher of the Undergraduate Nursing Course at the Federal University of Rio Grande do Sul, Porto Alegre, Brazil.

⁴ Nurse. Doctor. Adjunct teacher of the Undergraduate Nursing Course at the Federal University of Pampa, Uruguiana, Brazil.

⁵ Nurse. Master. Assistant professor of the Undergraduate Nursing Course at the Federal University of Pampa, Uruguiana, Brazil.

Corresponding author:

Bruna Stamm

E-mail: brunastamm@unipampa.edu.br

Received: 06.03.2023

Accepted: 14.09.2023

How to cite this article: Sitja LE, Simon BS, Assis MCS, Busanello J, Stamm B. Quality Indicator in Nutritional Therapy in oncology and the interface with nursing: integrative review. Pensar Enf [Internet]. 2023 Dec; 27(1): 119-130. Available from: <https://doi.org/10.56732/pensarenf.v27i1.265>



Introduction

The hospitalized adult cancer patient due to the clinical conditions that the disease triggers, such as metabolic changes, hormonal disorders, and inflammatory responses, becomes more susceptible to nutritional deficits, which are related to multifactorial aspects associated with the type of tumor, clinical staging, therapeutic modality, individual characteristics of the patient and human and physical resources of the inpatient unit.^{1,2} Studies^{3,4} reveal that the hospitalized cancer patient is a population at nutritional risk with a degree of malnutrition of 20% to 80%, especially in the older people in the advanced stage of the disease.⁵ Guidelines^{6,7,8} advise conducting nutritional screening within a maximum of 48 hours of hospitalization for all people to monitor the nutritional status of the cancer patient. Thus, to meet the nutritional demand, Nutritional Therapy (NT) is used, with Enteral Nutritional Therapy (ENT) as one of the therapeutic modalities. In Brazil, the ENT development requires a Multidisciplinary Nutritional Therapy Team (MNTT)⁸ consisting of a doctor, a nurse, a nutritionist, and a pharmacist. The nurse in the MNTT has, among her attributions, to choose the route of administration of the ENT together with the doctor; to proceed and ensure the placement of the naso/orogastric or transpyloric tube; to guide the patient, the family or the legal responsible regarding the use and control of the ENT; and to ensure the clear and accurate recording of information related to the administration and the evolution of the patient.^{9,10}

However, ENT has risks and complications, and based on this, the Indicators of Quality in Nutritional Therapy (IQNT) were developed,¹¹ which aim to identify failures in the performance of procedures to generate improvement in the assistance provided when there is deficits quality.¹² In Brazil, the International Life Sciences Institute (ILSI)¹³ listed 36 IQNTs, aiming to measure the assistance provided through indicators that translate the actions and operationalize them for observation and evaluation, providing correction, redefinition, and improvement of the established goals. In Spain, the European Society for Clinical Nutrition and Metabolism (ESPEN),¹⁴ one of the leading NT societies, also provides instruments to measure the quality of ENT both in clinical nutrition units, and in any situation where a patient requires the use of this therapy. The periodic application of the IQNT stands out as one of the main ways to measure the ENT quality in public and private hospitals. The Brazilian Society of Parenteral and Enteral Nutrition (BRASPEN)⁹ guides the application of at least three IQNT in health services to monitor therapy, regardless of the size and human resources of hospitals, including: nutritional screening, frequency of patients with NT-related complications and prescribed and infused volume of ENT.

The IQNT “NT prescribed *versus* infused volume” aims to evaluate patients in ENT who have not reached the estimated nutritional goal, and it is the responsibility of Nursing to record their infused volume. In 2018, ILSI-Brazil¹³ updated the list of IQNT, adding the indicator

“frequency of days of adequate administration of the NT prescribed *versus* infused volume” to find out the frequency of days of adequate volume supply in patients on ENT. The goal of this IQNT is for at least 80% of the prescribed volume of ENT to be infused.¹³ A study conducted by ILSI-Brazil¹³ with hospital, clinical, and research institutions highlights that one of the most used IQNT is the “NT prescribed *versus* infused volume,” represented in 81% of the institutions participating in the survey.

Given the above, the study identified that hospitalized adult cancer patients present nutritional risks due to their clinical condition and present nutritional risks, making them vulnerable to treatment and possible interventions. Despite the scientific knowledge that the values of the NT prescribed *versus* infused volume in the oncological patient are discrepant in clinical practice,^{15,16} professionals must pay attention to the fact that, in addition to defining the diet appropriate to the cancer patient’s needs, it is necessary to guarantee the form and condition in which this diet will be infused. To this end, many of the activities that nursing undertakes in hospital health services are included, with the nurse being responsible for recording the IQNT “frequency of days of administration appropriate to the prescribed *versus* infused volume in patients on ENT.” This reality supports the importance of exploring this theme and its interface with nursing.

Methods

This is an Integrative Review (IR),¹⁷ held in May and June 2022, which structure is based on the International Recommendations of the Preferred Reporting Items of Systematic reviews and Meta-Analyses (PRISMA).¹⁸

Initially, based on the acronym PICO:¹⁹ (P) hospitalized adult cancer patient; (I) NT; (O) IQNT “NT prescribed *versus* infused volume” (the comparator element ‘C’ was dismissed), the review question was formulated: “what does the literature refer to the IQNT NT prescribed *versus* infused volume of responsibility of the nursing in the care of hospitalized adult cancer patients?” The review protocol has not been published.

Regarding the eligibility criteria, the study defined the original articles; free available online in full; in Portuguese, English, or Spanish languages; indexed in the Portal Biblioteca Virtual em Saúde (BVS), Nursing Database (BDENF), Cumulative Index to Nursing & Allied Health Literature (CINAHL), Excerpta Medica dataBASE (Base), Google Scholar, Latin America and the Caribbean Literature on Health Sciences (LILACS), U.S. National Library of Medicine (PubMed), SciVerse Scopus (SCOPUS), and Web of Science; conducted with adult oncological patients hospitalized and under EN, and published from 2008 to 2021. The temporal cut is justified by the incorporation of the IQNT “prescribed *versus* infused volume” in 2008 by ILS,¹¹ even if possibly, the volume of NT has been monitored by other studies in years prior to the one stipulated in this review. Then, the study identified the descriptors or associated terms according to

the acronym PICO²⁰ and adapted the search strategy for each source of information, according to Chart 1.

Chart 1 - Search strategies according to each source of information. Uruguaiana, RS, Brazil, 2022.

Information Base	Strategy
BVS	("Enteral Nutrition" OR "Enteral Feeding" OR "Feeding Tube, Gastric" OR "Feeding Tubes, Gastric" OR "Feeding, Enteral" OR "Feeding, Tube" OR "Gastric Feeding Tube" OR "Gastric Feeding Tubes" OR "Nutrition, Enteral" OR "Tube Feeding" OR "Tube, Gastric Feeding" OR "Tubes, Gastric Feeding" AND ("nutrition therapy" OR "medical nutrition therapy" OR "nutrition therapy, medical" OR "therapy, medical nutrition" OR "therapy, nutrition") and (volume or prescription or administration) AND (db:("IBECS" OR "LILACS" OR BDENF" OR BIGG" OR "LIPECS" OR "coleccionaSUS")) AND (year_cluster:[2008 TO 2021])
BDENF	("nutrição enteral" OR "alimentação enteral" OR "alimentação por sonda" OR "alimentação por tubo" OR "Terapia Nutricional") AND ("Indicador de Qualidade" OR "Indicadores de Qualidade em Assistência à Saúde")
CINAHL	TX (enteral nutrition or enteral feeding or tube feeding) AND TX (quality indicators or qi) AND TX (neoplasms or oncology or cancer)
Embase	(neoplasms OR 'benign neoplasm' OR 'benign neoplasms' OR cancer OR cancers OR malignancies OR malignancy OR 'malignant neoplasm' OR 'malignant neoplasms' OR 'neoplasm OR 'neoplasm, benign' OR 'neoplasm, malignant' OR 'neoplasms, benign' OR 'neoplasms, malignant' OR 'medical oncology' OR 'oncology, medical') AND ('enteral nutrition': ti,ab,kw OR 'enteral feeding': ti,ab,kw OR 'feeding tube, gastric': ti,ab,kw OR 'feeding tubes, gastric': ti,ab,kw OR 'feeding, enteral': ti,ab,kw OR 'feeding, tube': ti,ab,kw OR 'gastric feeding tube': ti,ab,kw OR 'gastric feeding tubes': ti,ab,kw OR 'nutrition, enteral': ti,ab,kw OR 'tube feeding': ti,ab,kw OR 'tube, gastric feeding': ti,ab,kw OR 'feeding tube': ti,ab,kw) AND ('quality indicators, health care': ab,ti OR 'quality indicators': ab,ti OR 'quality indicator': ab,ti OR 'healthcare quality indicator': ab,ti OR 'healthcare quality indicators': ab,ti OR 'indicator, healthcare quality': ab,ti OR 'indicators, healthcare quality': ab,ti OR 'quality indicator, healthcare': ab,ti OR 'quality indicators, healthcare': ab,ti)
Google Scholar	(neoplasias OR câncer OR tumor) AND ("nutrição enteral" OR "Alimentação por Sonda" OR "Alimentação por Tubo" OR "Sondas Gástricas") AND ("Indicador de qualidade" OR "Indicadores de qualidade")
Lilacs	("Enteral Nutrition" OR "Enteral Feeding" OR "Tube Feeding" OR "Feeding, Tube" OR "Feeding Tube, Gastric" OR "Feeding Tubes, Gastric") AND ("Quality Indicators" OR "Quality Indicator" OR "Quality Indicators, Healthcare" OR "Quality Indicator, Healthcare") AND (db:("LILACS")) AND (year_cluster: [2008 TO 2021])
PubMed	("Quality Indicators, Health Care" OR "Quality Indicators, Healthcare" OR "Healthcare Quality Indicator" OR "Healthcare Quality Indicators" OR "Indicators, Healthcare Quality") AND ("Enteral Nutrition" OR "Enteral Feeding" OR "Feeding, Enteral" OR "Tube Feeding" OR "Feeding, Tube" OR "Gastric Feeding Tubes" OR "Feeding Tube, Gastric" OR "Gastric Feeding Tube" OR "tube, gastric feeding")
Scopus	(ALL (neoplasms OR neoplasm OR cancer OR cancers OR tumor OR tumors OR oncology) AND TITLE-ABS-KEY ("Enteral Nutrition" OR "Enteral Feeding" OR "Tube Feeding" OR "Feeding, Tube" OR "Feeding Tube, Gastric" OR "Feeding Tubes, Gastric") AND TITLE-ABS-KEY ("Quality Indicators" OR "Quality Indicator" OR "Quality Indicators, Healthcare" OR "Quality Indicator, healthcare"))
Web of science	("Enteral Nutrition" OR "Enteral Feeding" OR "Tube Feeding" OR "Feeding, Tube" OR "Feeding Tube, Gastric" OR "Feeding Tubes, Gastric") (all fields) AND ("Quality Indicators" OR "Quality Indicator" OR "Quality Indicators, Healthcare" OR "Quality Indicator, Healthcare") (Topic)

The titles and abstracts were then read twice to select the articles that met the eligibility criteria. Two academic reviewers from Nursing course analyzed the studies to qualify the methodological process who, after the selection, discussed and compared their results. A third reviewer, a researcher in the EN area, was consulted in cases of disagreement between the initial reviewers. Finally, the articles were analyzed integrally, concluding the study selection phase. The database of studies was organized in Microsoft Excel[®].

Researchers prepared a characterization table to present the studies that drawn up the analytical *corpus*, containing title, reference, objective, design, and level of evidence.¹⁹ Also, a chart with the results of the IQNT "NT prescribed *versus*

infused volume" is described, with the aim of summarizing for nursing the characteristics of the studies according to whether or not they achieved the indicator's goal, including the information: type of cancer, hospital unit, structure for therapy, characteristics of the NT, length of application of the ENT, goal of the adopted indicator, values of the indicator and reasons for stopping the NT (when mentioned).

Results

According to the search strategies defined for each information base, researchers identified 602 publications. After the exclusion of 96 duplicates, 506 studies remained

and, of these, 238 were evaluated according to the eligibility criteria, and 24 were selected for full reading. Of the 24 studies, 11 were excluded, leaving nine studies included for

review. The description and selection of studies was based on the PRISMA¹⁵ and is illustrated in Figure 1.

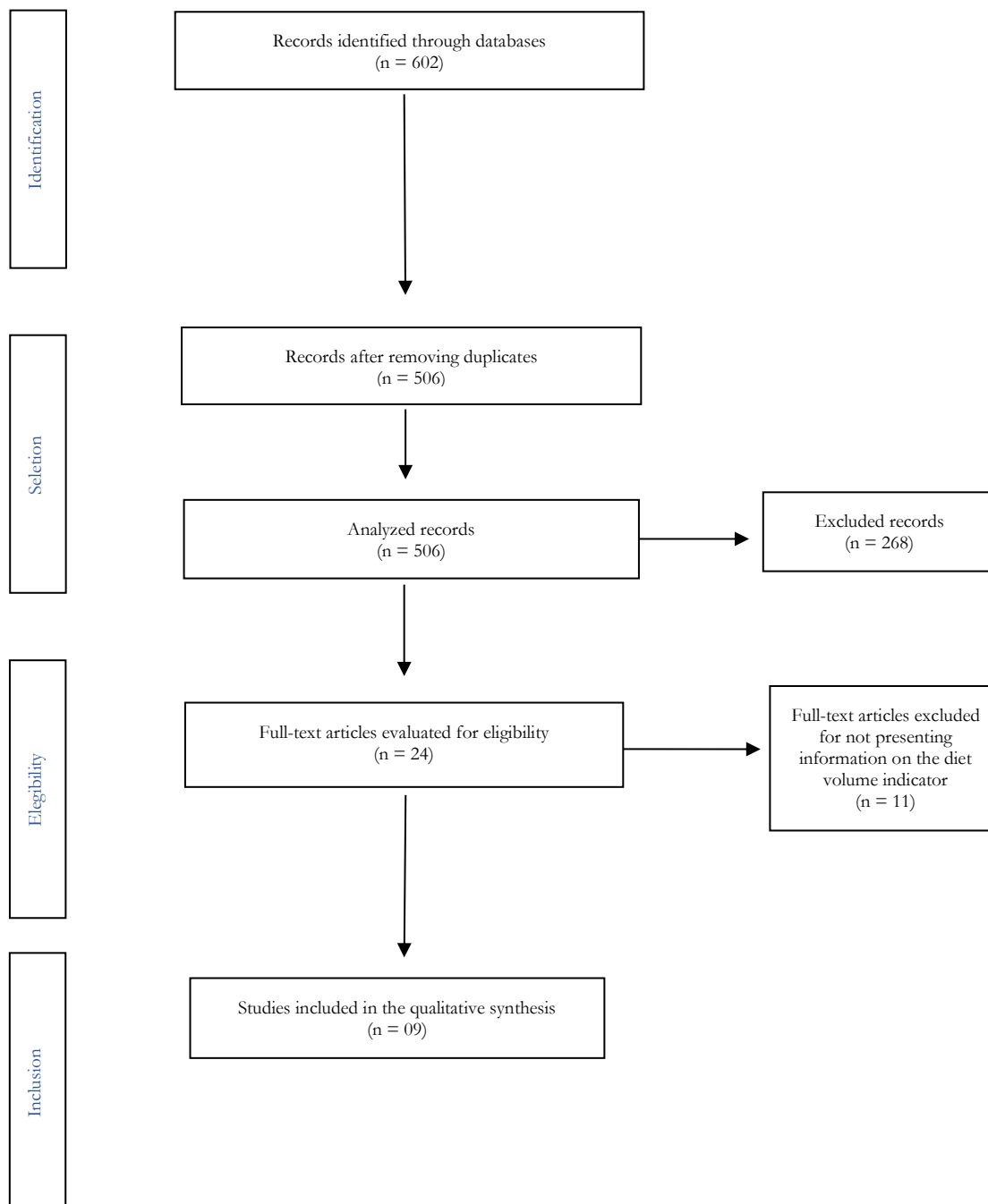


Figure 1 - Flowchart of the of studies selected in the review. Uruguaiiana, RS, Brazil, 2022.

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:[10.1371/journal.pmed1000097](https://doi.org/10.1371/journal.pmed1000097)

For more information, visit www.prisma-statement.org.

Of the nine studies selected, researchers identified that the years of publication with the highest records were 2017 (n=4) and 2020 (n=2). The authors' profile was mainly nutritionists and/or nutrition academics (n=7; 53.8%),

nurses and/or nursing academics (n=4; 30.8%), and physicians (n=2; 15.4%). Most of the studies were prospective (n=6; 66.7%) and retrospective (n=3; 33.3%), descriptive (n=4; 44.4%), and/or observational (n=5;

55.6%), with evidence level N6 (n=8; 89%). The study participants totaled 1,371 patients, 438 of whom were cancer patients, since most of the studies included patients

with other clinical conditions in their sample, as shown in Chart 2.

Chart 2 - Characterization of the studies selected for the review. Uruguaiiana, RS, Brazil, 2022.

Title/Year/ country of origin of the study	Profile of the authors	Objective	Design/level of evidence	Sample
Caloric and Protein Infusion versus Dietary Prescription in Enteral Nutritional Therapy for Cancer Patients/ 2021/ Brazil ⁽²¹⁾	Nutritionists and nutrition academics	To compare caloric and protein infusion with dietary prescription in oncological patients under ENT	Retrospective analytical observational N6	120 records of cancer patients
High Frequency of Non-Compliance with Quality Indicators of Enteral and Parenteral nutrition Therapy in Hospitalized Patients/ 2020 / Brazil ⁽²²⁾	Nutritionists	To evaluate the frequency of adequacy of the IQNT in clinical and surgical patients during NE or NP	Prospective descriptive N6	727 patient records 7 cancer patients
Are quality indicators of enteral nutritional therapy useful tools for monitoring patients with advanced cancer in palliative care? cancer patients in palliative care?/ 2020 / Brazil ⁽²³⁾	Nutritionists	Apply the quality indicators of ENT in patients with advanced cancer in palliative care	Prospective descriptive observational quantitative N6	51 cancer patients
Accidental enteral feeding tube dislodgement with the use of a dedicated feeding tube attachment device versus adhesive tape as the securing method: a randomized clinical trial/2019 / Brazil ⁽²⁴⁾	Teaching nurses and doctors	To evaluate the impact of the use of the feeding tube affixation device (FTAD) compared to the traditional method of fixation with adhesive tape on the occurrence of accidental displacement of the enteral feeding tube	Prospective randomized, single-center, non-blinded clinical trial N3	104 patients 29 cancer patients
Prescribed enteral diet versus infused diet/2017 / Brazil ⁽²⁵⁾	Nutritionists	Evaluate the prescribed volume of enteral diet versus the infused volume, identifying the causes of interruption of the diet and expenses generated by these interruptions	Retrospective observational N6	27 patient records 1 cancer patient
Quality control of enteral nutrition therapy in cancer patients at nutritional risk/ 2017 / Brazil ⁽²⁶⁾	Nutritionists and doctors	To analyze the adequacy and quality of ENT used in patients diagnosed with cancer and undergoing treatment in specialized public hospitals applying IQNT	Prospective observational descriptive N6	211 records of cancer patients
Cause of interruption of enteral nutrition in intensive care units/ 2017 / Brazil ⁽²⁷⁾	Nutritionists and nurses	To identify the causes of interruption of the administration of EN in patients admitted to ICUs of University hospital	Prospective, observational quantitative N6	53 patient records 6 cancer records
Monitoring of Enteral Nutritional Therapy in Intensive Care Unit: Calorie-protein adequacy and survival/ 2017 / Brazil ⁽²⁸⁾	Nutritionists	To assess the nutritional status in patients admitted to the ICU to monitor the ENT to identify the causes of interruption of the enteral diet	Prospective observational N6	32 patients 1 cancer patient
Adverse events related to use of Enteral Nutritional Therapy/ 2014 / Brazil ⁽²⁹⁾	Academic nursing, teaching nurse	To verify the occurrence of adverse events related to the use of EN in patients of a public hospital	Retrospective longitudinal exploratory descriptive N6	46 records 12 cancer records

ENT: Enteral Nutritional Therapy; NE: Enteral Nutrition; PN: Parenteral Nutrition; ICU: Intensive Care Unit; IQNT: Quality Indicator in Nutritional Therapy. Source: own elaboration.

When summarizing the studies that did or did not reach the goal of IQNT “NT prescribed *versus* infused volume,” researchers identified that most studies (n=6; 67%) did not reach their goal. Among the reasons for not meeting the

goal, gastrointestinal, mechanical, and respiratory complications are described using NT, as shown in Chart 3.

Chart 3 - Characterization of the IQNT “frequency of days of adequate administration of the prescribed *versus* infused volume in patients on nutritional therapy,” according to the goal (ILSI, 2018). Uruguaiana, RS, Brazil, 2022.

	Study	Type of cancer	Hospital unit	Structure for ENT	Characteristics of ENT	ENT application time	Target of the indicator applied by the institution	Indicator results	Reasons for the interruption of ENT*
Reached the target of the indicator	(23)	Head and neck, GIT, Breast, Lung	Palliative care unit	It has a MNTT	Transpyloric probe	488 days	≥ 80%	Adequacy of prescribed and infused volume: 92.6%	Gastrointestinal complications, Mechanics, Respiratory, Other**
	(27)	Not described	General and Cardiological ICU	It has a MNTT	Transpyloric probe	16.6 ± 12.2 days	≥ 70%	Adequacy of prescribed and infused volume: 82.7%	Complications gastrointestinal Mechanics, Metabolic, Other**
	(28)	Not described	Adult ICU	It has a MNTT	Transpyloric and nasogastric tube	Average 20.5 days	≥ 70%	Adequacy of prescribed and infused volume: 72.6%	Complications gastrointestinal, Mechanics, Other**
Did not reach the target of the indicator	(21)	Head and neck, Gastrointestinal tract, Gynecological and breast, Male reproductive system	Adult ICU	Does not have a MNTT	Transpyloric probe	4 days	≥ 80%	Average (difference in volumes) Day 1: -477.0 Day 2: -298.0 Day 3: -261.4 (peak) Day 4: -445.9 Adequacy of prescribed and infused volume: 62.5%	Gastrointestinal complications, Mechanics
	(24)	Not described	Clinical Ward	Does not have a MNTT	Transpyloric probe	16 days	≥ 70%	Adequacy of prescribed and infused volume: 58.5%	Complications mechanics
	(25)	Laryngeal cancer	Adult ICU	Does not have a MNTT	Industrialized diet by infusion pump	5 days	≥ 70%	Day 1: 741.5 - 498.6; Day 2: 741.5 - 587.3; Day 3: 923.1 - 472.5; Day 4: 846.2 - 401.2; Day 5: 769.2 - 351.5. Average prescribed volume: 804.3/462.2	Gastrointestinal complications, Mechanics

(26)	Head and neck, Gastrointestinal, Thoracic, Gynecological, Urological, Lymphoma / leukemia / myeloma	Clinical Ward (Treatment for complications of cancer and / or chemotherapy and radiotherapy)	It has a MNTT	Transpyloric probe Closed system diet, by infusion pump	9.7 ± 7 days	≥ 80%	Adequacy of prescribed and infused volume: 74.3%	Gastrointestinal complications
(29)	Not described	Adult ICU and medical clinic	It has a MNTT	Naso/orogastric tube Infusion pump diet	3-30 days	≥ 70%	Average difference of the received diet volume (estimated - received): 176.4 ml	Gastrointestinal complications, Mechanics
(22)	Not described	Clinical and surgical ward	It has a MNTT	Transpyloric probe	7.41 ± 14.22 days	≥ 90%	Adequacy of prescribed and infused volume: 66.7%	Gastrointestinal complications, Mechanics

ENT: Enteral Nutritional Therapy; EN: Enteral Nutrition; ICU: Intensive Care Unit; MNTT: Multidisciplinary Nutritional Therapy Team.

*Reasons for the interruption of the EN described in the studies were classified as: (a) gastrointestinal complications: vomiting, abdominal distension, diarrhea, reflux, emesis, gastric residue fasting for tests or procedures, bulky bleeding, melena, gastrointestinal intolerance; (b) mechanical complications: tube obstruction, inadvertent exit of the tube, extravasation of the diet, delayed delivery of the NE, extubation, procedures/examinations/surgeries and errors in the administration of the diet; (c) respiratory complications: bronchoaspiration; (d) metabolic disorders: hemodynamic instability.

** Others: patient refusal, clinical worsening, lack of net protocol, end-of-life care, and death.

Discussion

Following the purpose of this review, the IQNT “NT prescribed *versus* infused volume” in oncology has been little investigated in the literature, and hospitalized adult cancer patients have clinical difficulties in achieving their goal. For nursing, summarizing the information of the investigated IQNT becomes essential in the sense of strategically directing care to the need for the nutrition of the oncological patient to optimize treatment and ensure better quality of life.³⁰

The review identified that the authors’ profile was composed mostly of nutritionists,^{21-23,25-28} although nursing is responsible for monitoring the indicator under analysis.¹³ In Brazil, specific legislation³¹ standardizes the performance of the nursing team in the oro/nasogastric and transpyloric probing and highlights the crucial role of the nurse in the process of installing the device, choosing the route of administration together with the doctor, in addition to registration, patient evaluation and monitoring of complications. However, when it comes to the EN area, there is a growing line of research conducted by nurses aimed at care in relation to assertive probe positioning techniques,³² safe administration of EN,³³ monitoring of complications,³⁴ and nursing protocols for ENT.³⁵

The scientific literature already describes that hospitalized cancer patients have some degree of malnutrition,^{5,36} and ENT is one of the principal therapeutic resources for their treatment and prognosis.^{37,38} In addition, cancer is one of

the main underlying diseases of hospitalized adult patients in Brazil.³⁹

In analytical *corpus* in which the IQNT goal was not met^{21-26,29} the most prevalent cancers were head and neck^{21,26}, gastrointestinal tract^{21,26}, gynecological^{21,26} and urological.^{21,29} In those who have reached the goal^{23,27,28} the most identified cancers were head and neck²³ gastrointestinal tract^{23,27}, breast^{23,28} and lung.^{23,24} These findings corroborate with other Brazilian studies^{40,41} which also identified the prevalence of these cancers in hospitalized patients. This situation reflects the statistics and estimates of the oncological scenario in Brazil, which identifies breast and gastrointestinal cancers as the most prevalent in the Brazilian population.⁴²

The analysis also identified that most of the studies failed to achieve the goal of the investigated IQNT.^{21-26,29} This reality allows us to reflect that, could it be the specific characteristics of the tumor and the treatment, as well as the nutritional repercussions triggered in cancer patients^{37,38} that could condition the prognosis of the treatment and its repercussions? This review found that the nutritional supply for the cancer patient hospitalized by enteral route has not guaranteed the adequate/total infusion of the prescribed volume of EN, and therefore, this route is not the most appropriate for these patients, and the parenteral route may be more effective, given the clinical weakness of the cancer patient throughout his treatment. Therefore, it is essential that nursing, together with MNTTs, be able to recognize such specificities, and direct a singular care plan to provide adequate nutritional support.⁴³ This result is

relevant in the context of nursing practices since, when assisting cancer patients within their basic human needs, food should be prioritized to contribute to treatment.^{38,44} The IQNT “NT prescribed *versus* infused volume” reflects the evolution and quality of nutritional care, and for the oncological patient to be able to receive the prescribed volume of EN, several factors are fundamental, such as the suitable dietary prescription, the appropriate route of administration of EN, the quality of the EN device, the monitoring and control of complications.¹³ Given this, research^{32,33,35} reveals the engagement and protagonism of Nursing in EN area, with promising results regarding good practices in the administration of EN (GPAEN).⁴⁵ In a study developed in Israel,⁴⁶ nurses conducted a protocol to address and correct the deficiencies of EN in an ICU, and the feeding of the patient was started significantly earlier ($p = 0.007$) in the intervention group (52.3 hours; SD, 42.6) than in the control group (70.3 hours; SD, 65.2). The use of the protocol resulted in a significant increase in nutritional intake in 90% in the intervention group. Studies that did not reach the IQNT goal^{21-26,29} identified that the investigated hospital units were clinical and/or surgical,^{22,24,26} adult/general ICU,^{21,25,29} and medical clinic,²⁹ and only three of these institutions^{22,26,29} owned MNTT. Hospitals that reached the indicator’s goal were general/adult ICU,^{27,28} Cardiac ICU,²⁷ and palliative care unit.²³ In these scenarios, the oncological patient is already in a state of metabolic stress that triggers numerous nourishing supplements *deficits*, which result in increased nutritional needs.^{1,2} Thus, the research analyzed that, even in closed/controlled hospital units, such as the ICU, and the fact that the hospital institution has MNTTs, the effectiveness of ENT for adult cancer patients is not guaranteed, which minimally generates a movement to (re)think nursing practices in ENT in these care units. Therefore, especially in specific populations, the goal of the IQNT “NT prescribed *versus* infused volume” can be presented above what the cancer patient can receive, and the patient’s clinical conditions should be evaluated for the measurement of the indicator goal.

Regarding the length of application of the EN and the IQNT, the research found that in studies that did not reach the goal, oncological patients used the EN, on average, for more than five days,^{22,24,26,29} corroborating with a study⁴⁷ in an oncology hospital, which identified that none of the patients ($n=96$) managed to reach the prescribed volume of EN, on seven days of exclusive EN. Indicator goals for these studies alternate between $\geq 70\%$,²⁴⁻²⁶ $\geq 80\%$,^{21,26} and $\geq 90\%$,²² indicating that sometimes Brazilian institutions follow the ILSI Brazil guidelines,¹³ sometimes they stipulate their own targets according to the characteristics of the hospital unit. For institutions that adopt different goals (higher) than recommended in the guideline,¹³ planned care structure, good health practices, and implementation of protocols are necessary.¹³ Thus, one of the fundamental elements for good results is to have MNTTs, which perform the appropriate nutritional assessment³⁶, choosing the adequate device,⁴⁸ the early onset of EN,³⁹ monitoring

for complications of EN,³⁴ the application of IQNT,⁴⁹ and continuing education actions.^{35,43,50}

Among those studies that were able to achieve the goal, the length of application of EN in cancer patients was greater than five days,^{23,27,28} evidencing the existence of a proportional relationship between time and the ability to achieve the adequacy of the prescribed volume.⁴⁷ This situation can be explained because, in the first days of hospitalization, cancer patients tend to present an unstable clinical picture, greater exposure to health procedures and interventions, and a care plan still in definition and adaptation.⁴⁸ Therefore, establishing the number of days for EN requires more time for its administration. The goals adopted by these institutions ranged from $\geq 70\%$ ^{27,28} and $\geq 80\%$,²⁶ following the guidelines of ILSI-Brazil and its reformulations.¹³

The clinical repercussion in cancer patients who receive a lower volume of EN is raised in different studies,³⁻⁶ which demonstrate that not reaching the goal of EN is correlated with worse clinical outcomes, such as infection⁴ issues and complications^{3,5,6} during hospital stay. In this sense, there must be a reflection to try to minimize the discrepancy between nutritional planning and the effectiveness of this plan. For nursing, it is necessary to ensure that the prescribed volume is adequately infused, and, for this, it is required to train the nursing team regarding the skills and competencies that subsidize qualified care with EN and patient safety.⁵¹

One of the reasons why the prescribed volume of EN is not entirely infused in the adult oncological patient is associated with gastrointestinal, metabolic, mechanical, and respiratory character complications. Both in the studies that reached and in those that did not reach the goal of the indicator, the reasons for the major complications of EN were gastrointestinal.^{21-23,25-29} Therefore, the analysis observed that the main element that makes the cancer patient unable to reach the prescribed volume of ENT is linked to its clinical fragility that triggers gastrointestinal complications, directly affecting the volume that the patient should receive. That is, the clinical difficulties of the cancer patient directly affect the volume of infused EN, and not only the IQNT processes themselves.

For more than a decade, nurses have been conducting research on different patient profiles^{39-40,50-51} to monitor complications on the use of EN. In a prospective cohort,⁵² 157 ICU patients were followed daily during the first ten days of hospitalization and, among those who received and did not receive EN, complications such as diarrhea and the need for gastric decompression were more frequent in the EN group (39.7 % *vs.* 11.7 %, $p < 0.001$ and 34 % *vs.* 13.3%, $p = 0.004$, respectively). Therefore, it is necessary to constantly reevaluate EN care practices, from the evaluation of diet formulation, the characteristics of EN administration, the correct positioning of the tube, and the continuous infusion mode.⁵³

Among the limitations of the present review are the search only in the Portuguese language performed in Google Scholar and the eligibility criteria of complete original

studies available online may have limited the number of studies reviewed and/or included.

Conclusion

This study allowed us to analyze the evidence of the IQNT “NT prescribed *versus* infused volume” in the hospitalized adult cancer patient, revealing that in most studies, the indicator’s goal was not reached, and that the patient has clinical difficulties in achieving it. The quality of nutritional care to this population stratum permeates the articulation between nursing care and the analyzed indicator.

In short, the results of this review point to the aspects of the IQNT “NT prescribed *versus* infused volume” in hospitalized adult cancer patients that weaken their adequacy, and reflections on nursing care that can be performed in the hospital setting, to improve GPAEN, assisting nurses in the development of skills necessary for clinical decision-making. In addition, the evidence raised in this study about the interface of nursing practices with the investigated IQNT can contribute to the planning of individual nutritional support throughout the disease, promoting the importance of Nursing in the various aspects of care for oncological patients using ENTs. New research must be developed to evaluate, through the IQNT “NT prescribed *versus* infused volume,” what institutional difficulties contribute so that the oncological patient does not receive the adequate volume of EN.

In addition, the IQNT “NT prescribed *versus* infused volume” has been presented in the literature with different results (sometimes percent, sometimes average), which makes it difficult to compare them. Another question refers to the studies that included in their sample patients with other clinical conditions, not exclusively oncological, in which, at times, it was not possible to fragment/select the values of the indicator by disease, which may have indicated a more significant negative impact on the results of the IQNT investigated.

Authors’ contributions

L. S. E - Conception and design of the study; data collection; data analysis and interpretation; statistical analysis; drafting the manuscript; critical review of the manuscript.

B. S. S - Conception and design of the study; drafting the manuscript; critical review of the manuscript.

M. C. S. A - Critical review of the manuscript.

J. B - Critical review of the manuscript.

B. S - Conception and design of the study; data collection; data analysis and interpretation; statistical analysis; obtaining funding; rafting the manuscript; critical review of the manuscript.

Conflicts of interest

No conflict of interest has been declared by the authors.

References

1. Virizueta JA, Cambolor-Álvarez M, Luengo-Pérez LM, Grande E, Álvarez-Hernández J, Sendrós-Madroño MJ, et al. Nutritional support and parenteral nutrition in cancer patients: an expert consensus report. *Clin Transl Oncol* [Internet]. 2017 [cited 2022 March 12];20(5):619-29. Available from: 10.1007/s12094-017-1757-4
2. Ma Y, Temkin SM, Hawkrigde AM, Guo C, Wang W, Wang XY, et al. Fatty acid oxidation: An emerging facet of metabolic transformation in cancer. *Cancer Lett* [Internet]. 2018 [cited 2022 March 12]; 435: 92–100. Available from:10.1016/j.canlet.2018.08.006
3. Lima JS, Pontes DL, Miranda TV. Avaliação do estado nutricional de pacientes com câncer em um hospital da cidade de Belém/Pará. *BRASPEN J* [Internet]. 2018 [cited 2022 March 12];33(2):166-70. Available from: <http://arquivos.braspen.org/journal/abr-mai-jun-2018/09-AO-Avaliacao-do-estado-nutricional.pdf>
4. Sánchez JA, Trochez MEA, Ramos L, Amaya A, Mejfa M, Murillo M, et al. Estado nutricional de pacientes diagnosticados con cáncer, Hospital General San Felipe, Honduras. *Rev. Fac. Cienc. Méd* [Internet]. 2018 [cited 2022 March 12];15(1):10-19. Available from: <http://www.bvs.hn/RFCM/pdf/2018/pdf/RFCMVol15-1-2018-3.pdf>
5. Prockmann S, Freitas AHR, Ferreira MG, Vieira FGK, de Salles RK. Evaluation of diet acceptance by patients with haematological cancer during chemotherapeutic treatment. *Nutri Hosp.* [Internet] 2015 [cited 2022 March 12];32(2):779-84. Available from: 10.3305/nh.2015.32.2.8958
6. Braspen Journal. Diretriz Braspen de Terapia Nutricional no Paciente com Câncer e Braspen recomenda: Indicadores de Qualidade em Terapia Nutricional. *BRASPEN J* [Internet]. 2019 [cited 2022 April 30];34(1). Available from: https://www.braspen.org/files/ugd/a8daef_19da407c192146e085edf67dc0f85106.pdf
7. Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, et al. ESPEN practical guideline: Clinical Nutrition in cancer, *Clin Nutr* [Internet]. 2021 [cited 2022 April 30];40: 40: 2898-2913. Available from: <https://www.espen.org/files/ESPEN-Guidelines/ESPEN-practical-guideline-clinical-nutrition-in-cancer.pdf>
8. August DA, Huhmann MB. ASPEN: Nutrition Support Therapy During Adult Anticancer Treatment and in Hematopoietic Cell Transplantation. *JPEN* [Internet]. 2009 [cited 2022 April 30]; 33(5): 472 – 500. Available from: <https://aspennjournals.onlinelibrary.wiley.com/doi/full/10.1177/0148607109341804>
9. Braspen Journal. Diretriz BRASPEN de Enfermagem em Terapia Nutricional Oral, Enteral e Parenteral. *BRASPEN J* [Internet]. 2021 [cited 2022 May 05];36(3):2-62. Available from:

https://www.braspen.org/files/ugd/66b28c_8ff5068bd2574851b9d61a73c3d6babf.pdf

10. Brasil. Ministério da Saúde. Resolução RDC n° 503, de 27 maio de 2021. Dispõe sobre os requisitos mínimos exigidos para a Terapia de Nutrição Enteral. Brasília: Ministério da Saúde [Internet]. 2021 [cited 03 August 2022]. Available from:

https://bvsmis.saude.gov.br/bvsmis/saudelegis/anvisa/2020/rdc0503_27_05_2021.pdf

11. Waitzberg DL. Indicadores de qualidade em terapia nutricional. 1 ed. São Paulo: ILSI Brasil; 2008.

12. Waitzberg DL, Caiaffa WT, Correia MI. Hospital Malnutrition: The Brazilian National Survey (IBRANUTRI): A Study of 4000 Patients. Nutrition [Internet]. 2001 [cited 03 August 2022];17(7-8):573-80. Available from: [https://doi.org/10.1016/S0899-9007\(01\)00573-1](https://doi.org/10.1016/S0899-9007(01)00573-1)

13. ILSI Brasil. Indicadores de qualidade em terapia nutricional: 10 anos de IQTN no Brasil: resultados, desafios e propostas. 3ª ed. São Paulo: ILSI Brasil [Internet]. 2018 [cited 03 August 2022]. Available from: <https://ilsibrasil.org/wp-content/uploads/sites/9/2018/06/Fasci%CC%81culo-10-anos-de-IQTN-no-Brasil2-Final.pdf>

14. Culebras JM, del Llano J, Garcia-Luna PP, et al. Coordenador: Garcia de Lorenzo A. Indicadores de calidad para las unidades de nutrición clínica. Sociedad Española de Nutrición Enteral y Parenteral, 2008.

15. Toledo DO, Piovacari SMF, Horie LM, de Matos LBN, Castro MG, Ceniccola GD, et al. Campanha “Diga não à desnutrição”: 11 passos importantes para combater a desnutrição hospitalar. BRASPEN J [Internet]. 2018 [cited 03 August 2022];33(1):86-100. Available from: <http://arquivos.braspen.org/journal/jan-fev-mar-2018/15-Campanha-diga-nao-aadesnutricao.pdf>

16. de Souza IA, Bortoletto MM, Dias AMN, De Almeida NM, Ribeiro LC, Mendonça EG. Nutrição enteral em pacientes oncológicos: diferenças entre o que é prescrito e administrado. Nutr. clín. diet. Hosp. [Internet]. 2018 [cited 03 August 2022];38(2):31-8. Available from: 10.12873/382Iury

17. Mendes KDS, Silveira RCCP, Galvão CM. Revisão Integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. Texto Contexto Enferm [Internet]. 2008 [cited 03 August 2022];17(4):758-64. Available from: <https://www.scielo.br/j/tce/a/XzFkq6tjWs4wHNqNjKjLkXQ/?format=pdf&lang=pt>

18. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med [Internet]. 2018 [cited 03 August 2022];169:467-73. Available from: <http://dx.doi.org/10.7326/M18-0850>

19. de Paula CC, Padoin SMM, Galvão CM. Revisão integrativa como ferramenta para tomada de decisão na prática em saúde. In: Lacerda MR, Costenaro RGS. Metodologia da pesquisa para a enfermagem e saúde: da teoria à prática. Porto Alegre: Moriá, 2015. p. 51-76.

20. Melnyk BM, Fineout-Overholt E. Evidence-based practice in nursing & healthcare. A guide to best practice. Wolters Kluwe, Lippincott Williams & Wilkins, Philadelphia, 2011.

21. Da Silva MJ, Da Silva TJS, Sobrinho JAPC, Garcia ER, Medeiros MTS, Câmara TAV, et al. Caloric and Protein Infusion versus Dietary Prescription in Enteral Nutritional Therapy for Cancer Patients. Revista Brasileira de Cancerologia [Internet]. 2021 [cited 2022 August 17];67(3). Available from: <https://doi.org/10.32635/2176-9745.RBC.2021v67n3.1275>

22. Nogueira DA, Ferreira LP, De Lucia RPA, Pena GG. High Frequency of Non-Compliance with Quality Indicators of Enteral and Parenteral Nutritional Therapy in Hospitalized Patients. Nutrients [Internet]. 2020 [cited 2022 August 17];22:2408. Available from: 10.3390/nu12082408

23. Souza KF, Costa MF, Santos RS. Indicadores de qualidade da terapia nutricional enteral são ferramentas úteis para o monitoramento em pacientes com câncer avançado em cuidados paliativos? BRASPEN J [Internet]. 2020 [cited 2022 August 17];35(4):402-7. Available from: 10.37111/braspenj.2020354012

24. Assis MCS, Macedo ABTM, Gazal CHA, Martins CMBS, Viana LV. Accidental enteral feeding tube dislodgement with the use of a dedicated feeding tube attachment device versus adhesive tape as the securing method: a randomized clinical trial. Nutr Hosp [Internet]. 2019 [cited 2022 August 17];36(3):504-509. Available from: <http://dx.doi.org/10.20960/nh.02440>

25. Simões SAR, Kutz NA, Barbosa MC, Porto MMHAOS. Dieta enteral prescrita versus dieta infundida. J. res.: fundam. care. Online [Internet]. 2017 [cited 2022 August 17];9(3):688-95. Available from: 10.9789/2175-5361.2017.v9i3.688-695

26. Lee A, Oliveira Filho RS, Cardenas TC, Ozório GA, Gropp JPL, Waitzberg DL. Quality control of enteral nutrition therapy in cancer patients at nutritional risk. Nutr Hosp [Internet]. 2017 [cited 2022 August 17];34:264-270. Available from: <http://dx.doi.org/10.20960/nh.721>

27. Rocha AJSC, Oliveira ATV, Cabral NAL, Gomes RS, Guimarães TA, Rodrigues WB, et al. Causa de interrupção de nutrição enteral em unidades de terapia intensiva. Rev Pesq Saúde [Internet]. 2017 [cited 2022 September 06];18(1):49-53. Disponível em: http://periodicoseletronicos.ufma.br/index.php/revistah_uufma/article/view/7880/4875

28. Gonçalves CV, Borges LR, Orlandi SP, Bertacco RTA. Monitoramento da Terapia Nutricional Enteral em Unidade de Terapia Intensiva: Adequação calórico-proteica

- e sobrevida. BRASPEN J [Internet]. 2017 [cited 2022 September 06];32(4):341-6. Available from: <http://arquivos.braspen.org/journal/out-dez-2017/08-Monitoramento-da-terapia.pdf>
29. Cervo AS, Magnago TSBS, Carollo JB, Chagas BP, Oliveira AS, Urbanetto JS. Eventos adversos relacionados ao uso de terapia nutricional enteral. Rev Gaúcha Enferm [Internet]. 2014 [cited 2022 September 06];35(2):53-9. Available from: <https://doi.org/10.1590/1983-1447.2014.02.42396>
30. da Silva MR, Silva DO, dos Santos TI, Oliveira PP, Rodrigues AB, Barbosa DA. Mapeamento dos diagnósticos, resultados e intervenções de enfermagem de uma unidade oncológica. Rev Enferm UERJ [Internet]. 2017 [cited 2022 September 06];25:e15133. Available from: <http://dx.doi.org/10.12957/reuerj.2017.15133>
31. COFEN. Resolução nº 453/2014. Aprova a Norma Técnica que dispõe sobre a Atuação da Equipe de Enfermagem em Terapia Nutricional. Brasília [Internet]. 2014 [cited 2022 September 06]. Available from: <http://www.cofen.gov.br/wp-content/uploads/2014/01/ANEXO-RETIFICACAO.pdf>
32. Silveira, GC, Romeiro F. As dificuldades e riscos durante a introdução e posicionamento da Sonda Nasoentérica. Revista Nursing [Internet]. 2020 [cited 2022 September 06];23(266):4360-66. Available from: <https://doi.org/10.36489/nursing.2020v23i266p43604373>
33. Macedo ABT, Assis MCS, Milioni KC, Canto DF, Souza CMB, Chaves EHB. Elaboração e validação de um protocolo para administração segura de nutrição enteral em pacientes hospitalizados. Rev Gaúcha Enferm [Internet]. 2021 [cited 2022 September 06];42:e20200181. Available from: <https://doi.org/10.1590/19831447.2021.20200181>
34. Bortolotto B, Beccaria LM, Oliveira KA, Faria JIL, et al. Perda acidental de sonda nasogastroenteral para aporte nutricional em uma instituição hospitalar. Cuid Enferm [Internet]. 2020 [cited 2022 September 06];14(1):18-23. Disponível em: <http://www.webfipa.net/facfipa/ner/sumarios/cuidarte/2020v1/p.18-23.pdf>
35. Alhassan RK, Tsikata R, Tizaawaw RN, Tannor PS, et al. Adherence to standard nursing protocols on nasogastric tube feeding in a secondary referral hospital in Ghana: comparing self-ratings by professional and auxiliary nurses. BMC Health Services Research [Internet]. 2019 [cited 2022 September 06];19(119). Available: <https://doi.org/10.1186/s12913-019-3931-6>
36. Kázmierczak-Siedlecka K, Skonieczna-Zydecka, K, Folwarsku M, Ruszkowski J, et al. Influence of malnutrition stage according to GLIM 2019 criteria and SGA on the quality of life of patients with advanced cancer. Nutr Hosp [Internet]. 2020 [cited 2022 September 18];37(6):1179-85. Available from: 10.20960/nh.03185
37. Ferreira LEA, de Castro AL, Donoso MTV, Barbosa JAG. Perfil de pacientes hospitalizados em terapia nutricional. Rev enferm UFPE on line [Internet]. 2021 [cited 2022 September 18];15. Available from: 10.5205/1981-8963.2021.24513
38. Abbade EB. Adoção de terapias nutricionais enteral e parenteral associada à redução da taxa de óbitos de pacientes neoplásicos. Medicina (Ribeirão Preto) [Internet]. 2020 [cited 2022 September 18];53(2). Available from: <https://doi.org/10.11606/issn.2176-7262.v53i2p115-125>
39. Bezerra GKA, Cabral PC. Nutrição enteral precoce em pacientes críticos e sua associação com variáveis demográficas, antropométricas e clínicas. BRASPEN J [Internet]. 2018 [cited 2022 September 18];33(4):446-40. Available from: <http://arquivos.braspen.org/journal/out-dez-2018/artigos/14-AO-Nutricao-enteral-precoce.pdf>
40. Alves TP, Barbosa JM, Veras LN, Cabral NSG. Avaliação da qualidade da terapia nutricional enteral ofertada ao paciente oncológico hospitalizado. BRASPEN J [Internet]. 2019 [cited 2022 September 18];34(3):239-44. Available from: <http://arquivos.braspen.org/journal/jul-ago-set-2019/artigos/03-AvaliacaoDaQualidade.pdf>
41. Villardo GP, Segadilha NLAL, Rocha EEM. Adequação Proteica versus Estado Nutricional de Pacientes Oncológicos Adultos em Unidade de Terapia Intensiva. Revista Brasileira de Cancerologia [Internet]. 2018 [cited 2022 September 18]; 64(4):527-32. Available from: <https://doi.org/10.32635/2176-9745.RBC.2018v64n4.201>
42. Instituto Nacional do Câncer José Alencar Gomes da Silva (INCA). Estimativa 2020: incidência de câncer no Brasil. Rio de Janeiro: Ministério da Saúde [Internet]. 2019 [cited 2022 September 18]. Available from: <https://www.inca.gov.br/sites/ufu.sti.inca.local/files/mediadocument/estimativa-2020-incidencia-de-cancer-no-brasil.pdf>
43. Kim SH, Park CM, Seo JM, Choi M, Lee DS, Chang DK, et al. The impact of implementation of an enteral feeding protocol on the improvement of enteral nutrition in critically ill adults. Asia Pac J Clin Nutr [Internet]. 2017 [cited 2022 September 18];26(1):27-35. Available from: 10.6133/apjcn.122015.01
44. Nguyen LT, Dang AK, Duong PT, Phan HBT, et al. Nutrition intervention is beneficial to the quality of life of patients with gastrointestinal cancer undergoing chemotherapy in Vietnam. Cancer Med [Internet]. 2021 [cited 2022 September 18];10(5):1668-80. Available from: 10.1002/cam4.3766
45. Brasil. Resolução de Diretoria Colegiada - RDC Nº 503, de maio de 2021. Dispõe sobre os requisitos mínimos exigidos para a Terapia de Nutrição Enteral. Ministério da Saúde. Agência Nacional de Vigilância Sanitária. Brasília - DF, Brasil [Internet]. 2021 [cited 2023 January 10]. Available from:

https://bvsmms.saude.gov.br/bvs/saudelegis/anvisa/2020/rdc0503_27_05_2021.pdf

46. Orinovsky I, Raizman E. Improvement of nutritional intake in intensive care unit patients via a nurse-led enteral nutrition feeding protocol. *Critical Care Nurse* [Internet]. 2018 [cited 2023 January 10];38(3):38-45. Available from: <https://doi.org/10.4037/ccn2018433>
47. Menezes NAB, Silva JT, Brito LC, Gois FN, Oliveira CC. Adequação entre a terapia nutricional enteral prescrita e a dieta administrada em pacientes críticos. *Nutr clín diet hosp.* [Internet]. 2018 [cited 2023 January 10];38(4):57-64. Available: 10.12873/384nara
48. Anziliero F, Corrêa APA, Silva BA, Soler BED, Batassini E, Beghetto MG. Nasoenteral tube: factors associated with delay between indication and use in emergency services. *Rev Bras Enferm.* [Internet]. 2017 [cited 2023 January 10];70(2):326-34. Available from: <https://doi.org/10.1590/0034-7167-2016-0222>
49. de Souza IA, Bortoletto MM, Dias AMN, De Almeida NM, Ribeiro LC, Mendonça EG. Nutrição enteral em pacientes oncológicos: diferenças entre o que é prescrito e administrado. *Nutr. clín. diet. hosp.* [Internet]. 2018 [cited 2023 January 10];38(2):31-8. Available from: 10.12873/382Iury
50. Corrêa APA, Nora CRD, Silva SMR, Viegas GL, Sousa GP, Beghetto MG. Simulação clínica: educação para equipe de Enfermagem no cuidado aos pacientes com sonda nasoenteral. *Rev Baiana Enferm* [Internet]. 2021 [cited 2023 January 10];35:e41998. Available from: 10.18471/rbe.v35.41998
51. Therrier S, Carlos CM, Costa RF, Simino GPR, Barbosa JAG. Avaliação da nutrição enteral em unidades de terapia intensiva. *Rev Baiana Enferm* [Internet]. 2021 [cited 2023 January 10]; 35:e38558. Available from: 10.18471/rbe.v35.38558
52. Batassini É, Assis MCS, Sousa GP, Beghetto MG. Factors associated with enteral nutrition and the incidence of gastrointestinal disorders in a cohort of critically ill adults. *Nutr Hosp* [Internet]. 2021 [cited 2023 January 10];38(3):429-435. Available from: <http://dx.doi.org/10.20960/nh.03245>
53. Tatsumi H. Tolerância enteral em pacientes críticos. *J Terapia Intensiva* [Internet]. 2019 [cited 2023 January 10];7(30):2-10. Available from: 10.1186/s40560-019-0378-0