MedNEXT
Journal of Medical an Health Sciences

REVIEW ARTICLE

DOI: 10.54448/mdnt25209

Economic impacts of the absence of a multidisciplinary nutritional therapy team (MNTT) in the public service of a state in the amazon region: a review

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DOI: https://doi.org/10.54448/mdnt25209
Received: 01-26-2025; Revised: 03-30-2025; Accepted: 04-17-2025; Published: 04-22-2025; MedNEXT-id: e25209

Editor: Dr. Idiberto José Zotarelli-Filho, MSc, Ph.D., Post-Doctoral.

Abstract

Introduction: Amapá is one of the newest states in the federation and one of the few that lacks a Multidisciplinary Nutritional Therapy Team (MNTT) in the public health service. These teams are mandatory in medium and high-complexity hospitals and are responsible for improving nutritional treatment and early management of malnutrition. **Objective:** This work consisted of a review of the literature and current legislation on the impacts of the absence of the MNTT service on the cost of medical care offered by the SUS in Amapá. **Method:** To assess the economic impact of the absence of MNTT, a review was conducted, gathering articles and legislation related to the proposed topic. The search terms included "nutritional therapy," "multidisciplinary team nutritional therapy team" "multidisciplinary nutritional therapy team," "enteral nutrition," "parenteral nutrition," and "Amapá." **Results:** It is estimated that the state incurs additional costs related to malnutrition every month, ranging conservatively between R$ 956,267.52 and R$ 1,072,426.50. These costs could be saved with the presence of MNTT. **Conclusion:** Investing in the implementation of MNTT in Amapá's public hospitals is necessary. These teams play a fundamental role in diagnosing, treating, and, most importantly, preventing nutritional diseases, leading to better allocation of public funds and improved patient care.

Keywords: Nutritional treatment. Health economics. Multidisciplinary team nutritional therapy team.

Introduction

One of the newest states in our federation, created in 1987, Amapá is located in the far north, within the Legal Amazon [1]. It has several geographical limitations, being the only Brazilian state without a land connection to the rest of the country. It has an area of 142,470.762 square kilometers, and 16 municipalities, and its public health system is responsible for providing medical care to its 733,759 inhabitants [2].

The Unified Health System (SUS) in the region currently has 8 state hospitals and one federal hospital, covering medium and high complexity; totaling 1,439 hospital beds. There are an average of 56,020 hospital admissions per year [3]. Among the patients treated, a

major concern is malnutrition, a disease that affects up to 46% of patients at the time of hospitalization and can be present in up to 83% of those already hospitalized [4]. It is defined as a consequence of inadequate nutritional intake that leads to body modification, loss of fat and cell mass, reducing physical and mental functions, and worsening the prognosis; regardless of the underlying disease. It is the result of food deprivation, diseases, or advanced age, alone or in combination [5]. According to Correia et al. (2003) [6], malnourished patients have longer hospital stays, a higher chance of mortality, and a substantial increase in hospital costs.

Aiming to initiate early treatment of nutritional diseases, the Ministry of Health, through Ordinance 272/98 (Technical Regulation for Parenteral Nutrition Therapy) [7] instituted MNTT and made it mandatory in all hospitals in the country that have enteral and/or parenteral nutrition. Nutritional therapy in Brazil is also regulated by RCD 63/00 [8] and, later, by RDC 503/21 (Technical Regulation for Enteral Nutrition Therapy) [9].

The MNTT's responsibilities include: defining technical and administrative goals, performing nutritional screening and monitoring, assessing nutritional status, indicating nutritional and metabolic therapy, and ensuring good conditions for the indication, prescription, preparation, storage, transportation, administration, and control of this therapy; raising awareness among the team; setting protocols, analyzing the cost and benefit and setting operational goals [9,10].

The team is composed of several professionals such as doctors, nutritionists, nurses, and pharmacists [7,9]. The synergistic work of specialists with different backgrounds allows the integration, harmonization, and coverage of the knowledge and experiences of the team members to achieve the desired objective, which is to identify, intervene, and monitor the treatment of nutritional disorders [10]. According to Campos et al. (2020) [11], the presence of MNTT was found in 80% of the 115 Brazilian hospitals surveyed. These data contrast with the absence of MNTT in public hospitals in Amapá.

Based on this fact, this work consisted of a review of the literature and current legislation on the impacts of the absence of MNTT services on the cost of medical care provided by the SUS in Amapá.

Methods

Ordinances from the Ministry of Health, the National Health Surveillance Agency (ANVISA), databases from the Brazilian federal government, and information from the Department of Information Technology of the Unified Health System (DATASUS) were used. The electronic research sources were accessed, using the following criteria: national and international journals, in Portuguese, English, and Spanish, through databases, using the following keywords "Nutritional therapy", "Multidisciplinary nutritional therapy team", "Enteral nutrition", "Parenteral nutrition" and "Amapá".

Development - Results and Discussion

The economic impacts of malnutrition are diverse and well-established in the literature. In a study conducted in the Netherlands, the total additional cost of treating adult patients with malnutrition was estimated at 1.9 billion euros in 2011, which is equivalent to 2.1% of the national health budget and 4.9% of annual medical treatment costs. Considering the child population, the costs associated with malnutrition exceed initial expectations. Despite the conservative calculation, the cost of malnutrition is still higher than the expenses related to obesity in the Netherlands, 1.9 billion versus 1.2 billion euros, respectively [12].

In 2023, Amapá had a public health budget of R$603,958,433.20 [13]. Considering that the extra costs of malnutrition in hospitals represent 2.1% of the total health budget, as cited by Freijer et al. (2013) [12], it is estimated that the SUS could have saved R$ 11,475,210.23 in just one year if it had treated malnourished patients early.

Despite the immense impact of nutritional risk, unfortunately, diagnosis and treatment are far from ideal. According to Pasquini et al. (2012) [14], only 13.9% of malnourished patients receive the correct diagnosis. In another study, Correia et al. (2017) [15] concluded that one in five sick patients is diagnosed with severe malnutrition and only one in ten receives adequate nutritional treatment.

One of the aspects that directly influences the increase in costs is the longer hospital stay of malnourished patients. According to Tucker et al. (1996) [16], in a review of 22 publications covering more than 70 hospitals, malnourished patients who received adequate nutritional support, up to the third day of insertion or earlier, required 2.1 fewer days in hospital than the group that received nutritional intervention from the fourth day onwards. This result is corroborated by other studies, such as that of Kruizenga et al. (2005) [17], who, when investigating 588 patients, concluded that early nutritional intervention in malnourished patients reduces the average length of hospital stay by 2.5 days.

According to Curtis et al. (2017) [18], malnourished patients incur 30-50% higher costs than well-nourished patients. Comparing this to our reality as a developing country, Correia et al. (2003) [19], studied 25 Brazilian hospitals, analyzing the hospitalization costs of 709 adult patients. The daily expenditure on normally nourished patients was R$765.9 (US$138) while the cost on malnourished patients was R$1,265.4 (US$228), a difference of R$499.5 per patient.

In 2023, the state of Amapá had a monthly average of 4,668 hospital admissions and expenditure of R$3,704,226.46 [3]. Taking into account that, conservatively, 46% [4] or 2,147 of the hospitalized patients were malnourished and presented an extra cost of R$499.5; the state spent, due to complications related to nutritional diseases and longer hospitalization time, R$1,072,426.50 per month or R$12,869,118.00 in one year, a value close to the estimate obtained previously. When comparing hospitals of the same size with and without MNTT, the effectiveness of the intervention in the clinical management of malnourished patients becomes evident. According to Fattes et al. (2000) [20], in a study conducted in Great Britain, intervention by the nutritional team led to a reduction in complications related to catheters, specifically sepsis, a reduction in the incidence of metabolic and electrolytic complications, in addition to improvements in the nutritional indices of patients and cost reduction.

The cost-benefit of establishing means for early intervention in nutritional treatment is also well documented. According to Awad and Lobo (2011) [21], for every dollar allocated to nutritional therapy, another 52 dollars are saved by avoiding the consequences of malnutrition. Other authors also point out that only an additional 76 euros (R$ 423.32) need to be invested per patient to reduce hospitalization time by one day [17,22].

Conclusion

Aiming to optimize the application of public funds, save resources and offer the best possible treatment to the population, there is a clear need to invest in the implementation of multidisciplinary nutritional therapy team in public hospitals in Amapá, since they are, according to national and international guidelines, in addition to being mandatory, a fundamental part of the diagnosis, treatment and, mainly, prevention of nutritional diseases.

CRediT

Author contributions: **Conceptualization-** Vittor Cândido Soares, Sarah Rachel Pereira de Moura Lima, Lucila Maria de Almeida Lopes; **Data curation -** Vittor Cândido Soares, Ricardo de Oliveira Carvalho, Simone Drbal de Oliveira, Divina Seila de Oliveira, Jeffeson Alexandre Azevedo de Araujo, Karlla Gabrielly Claudino Santos, Sarah Bernardon de Oliveira, Hugo Menezes Lopes; **Formal Analysis-** Vittor Cândido Soares, Sarah Rachel Pereira de Moura Lima, Lucila Maria de Almeida Lopes, Ricardo de Oliveira Carvalho, Simone Drbal de Oliveira, Divina Seila de Oliveira, Hugo Menezes Lopes; **Investigation-** Vittor Cândido Soares, Jeffeson Alexandre Azevedo de Araujo, Karlla Gabrielly Claudino Santos, Sarah Bernardon de Oliveira, Hugo Menezes Lopes; **Methodology-** Vittor Cândido Soares, Sarah Rachel Pereira de Moura Lima, Lucila Maria de Almeida Lopes; **Project administration-** Vittor Cândido Soares; **Supervision-** Vittor Cândido Soares; **Writing - original draft-** Vittor Cândido Soares, Sarah Rachel Pereira de Moura Lima, Lucila Maria de Almeida Lopes, Ricardo de Oliveira Carvalho, Simone Drbal de Oliveira, Divina Seila de Oliveira, Jeffeson Alexandre Azevedo de Araujo, Karlla Gabrielly Claudino Santos, Sarah Bernardon de Oliveira, Hugo Menezes Lopes; **Writing- review & editing-** Vittor Cândido Soares, Sarah Rachel Pereira de Moura Lima, Lucila Maria de Almeida Lopes, Ricardo de Oliveira Carvalho, Simone Drbal de Oliveira, Divina Seila de Oliveira, Jeffeson Alexandre Azevedo de Araujo, Karlla Gabrielly Claudino Santos, Sarah Bernardon de Oliveira, Hugo Menezes Lopes.

Acknowledgment

Not applicable.

Ethical Approval

Not applicable.

Informed Consent

Not applicable.

Funding

Not applicable.

Data Sharing Statement

No additional data are available.

Conflict of Interest

The authors declare no conflict of interest.

Similarity Check

It was applied by Ithenticate@.

Application of Artificial Intelligence (AI)

Not applicable.

Peer Review Process

It was performed.

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