



Hospital dentistry and the care provided by dental surgeons at the nutrological and palliative level: a systematic review

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Abstract

Introduction: Dentistry is of paramount importance in preventive actions as well as in the elimination of inflammatory, infectious, and painful symptomatological processes that may contribute to the loss of hospitalized patients. Nutrition directly impacts oral health, as well as the management of surgical patients. Cancer patients receiving specialized palliative care present a wide variety of oral symptoms that affect oral functions, psychosocial well-being, and quality of life. **Objective:** This study aimed to emphasize hospital dentistry and the care provided by dental surgeons at the nutritional and palliative levels. **Methods:** The PRISMA Guidelines were followed. The search was conducted from February to April 2026 across the Web of Science, Scopus, Embase, PubMed, ScienceDirect, SciELO, and Google Scholar databases. The quality of the studies was assessed using the GRADE instrument, and the risk of bias was evaluated according to the Cochrane instrument. **Results and Conclusion:** According to the GRADE instrument, most studies presented homogeneous results, with $X^2=82.5\% > 50\%$. A total of 113 articles were found and submitted for eligibility analysis, with 21 final studies selected to compose the results of this systematic review. Considering the Cochrane tool for risk of bias, the overall assessment resulted in 31 studies with a high risk of bias and 22 studies that did not meet GRADE and AMSTAR-2 standards. The elaboration of the work made it possible to achieve the initially proposed objectives: highlighting the importance of the dentist's role in the hospital environment, as well as nutritional care and probiotics. It also made it possible to discuss dentistry in general, address dental care in the hospital environment, and highlight the difficulties faced in its integration into hospitals. It is necessary to empower and

qualify all the hospital staff and the dentists so that oral health is offered to the patients, as well as to know the impact caused by the oral problems on the systemic health of the patients, and to implement specific protocols on the subject in all aspects. Cancer patients receiving specialist palliative care present with a wide range of oral symptoms that affect oral functions, psychosocial well-being, and quality of life.

Keywords: Hospital dentistry. Dental surgeons. Nutrology. Palliative care.

Introduction

Contemporary dental care should be comprehensive, not only focused on dental treatment, but also assess the patient's health status [1]. Dentistry is of paramount importance in preventive actions as well as in the elimination of inflammatory, infectious, and painful symptomatological processes that may contribute to the loss of hospitalized patients. It is associated with systemic conditions in hospital settings and overcomes the barriers and prejudices faced by those involved in this specific type of health service. In this sense, Hospital Dentistry has acquired its importance in the multi-professional health team, which is essential for the treatment and quality of life of hospitalized patients [2].

In this context, nutrition directly impacts oral health, as well as the management of surgical patients. Probiotics represent a promising and potentially valuable addition to preventive strategies in dentistry, particularly in orthodontics and pediatric dentistry, when integrated into a sustainable and personalized approach to the patient's oral health [2,3]. It is possible to notice the increase in the number of patients who

require dental conduct in hospital environments, a fact that requires the effective presence of the dentist in multidisciplinary activities and favors an important review about professional opportunities and areas of practice [4-6]. Hospital dentistry can be defined as a practice that aims to take care of oral changes that require multidisciplinary team procedures, working with health professionals involved in treatment and approaching the patient in an integral way. For several years, dentistry has been focused especially on clinical dental care. However, with the advancement of technology and consequently the computerization of all health sectors and the need for joint care with other health professionals [7].

Pain relief and adequacy of oral conditions should be considered a priority for the dentist. However, the effective participation of dental surgeons is not a reality in the hospital environment in Brazil and their work is still very limited because they are not part of the hospital, a multidisciplinary patient care team, and there is a need to clarify the other members of the hospital staff. about how the dentist can contribute to improving the quality of life and systemic conditions of hospitalized patients [8].

In addition, critically ill and cancer patients receiving palliative care present a wide variety of oral symptoms that affect oral functions, psychosocial well-being, and quality of life. Available evidence indicates that regular oral hygiene can help control these symptoms [9].

The objective of this study was to highlight the importance of the dentist's performance in the hospital environment, as well as to present the importance of hospital dentistry and the care provided by dental surgeons at the nutritional and palliative levels.

Methods

Study Design

This study followed the international systematic review model, following the PRISMA (preferred reporting items for systematic reviews and meta-analysis) rules. Available at: <http://www.prisma-statement.org/?AspxAutoDetectCookieSupport=1>. Accessed at: 03/19/2026. The AMSTAR 2 (Assessing the methodological quality of systematic reviews) methodological quality standards were also followed. Available at: <https://amstar.ca/>. Accessed at: 03/19/2026.

Search Strategy and Search Sources

The literature search process was carried out from February to April 2026 and developed based on Web of Science, Embase, Scopus, PubMed, Lilacs, Ebsco, Scielo, and Google Scholar, covering scientific articles

from various periods to the present day. The following descriptors were used in health sciences (DeCS/MeSH terms): "*Hospital dentistry. Dental surgeons. Nutrology. Palliative care*", and the Boolean "and" was used between the MeSH terms and "or" between the historical findings.

Study Quality and Risk of Bias

Quality was classified as high, moderate, low, or very low regarding the risk of bias, clarity of comparisons, precision, and consistency of analyses. The most evident emphasis was on systematic review articles or meta-analyses of randomized clinical trials, followed by randomized clinical trials. Low quality of evidence was attributed to case reports, editorials, and brief communications, according to the GRADE instrument. The risk of bias was analyzed according to the Cochrane instrument by analyzing the Funnel Plot graph (Sample size versus Effect size), using Cohen's test (d).

Results and Discussion

Summary of Findings

A total of 113 articles were found and submitted to eligibility analysis, with 21 final studies selected to compose the results of this systematic review. The listed studies were of medium to high quality (Figure 1), considering the level of scientific evidence of studies such as meta-analysis, consensus, randomized clinical, prospective, and observational. Biases did not compromise the scientific basis of the studies. According to the GRADE instrument, most studies presented homogeneity in their results, with $X^2=82.5\%>50\%$. Considering the Cochrane tool for risk of bias, the overall assessment resulted in 31 studies with a high risk of bias and 22 studies that did not meet GRADE and AMSTAR-2.

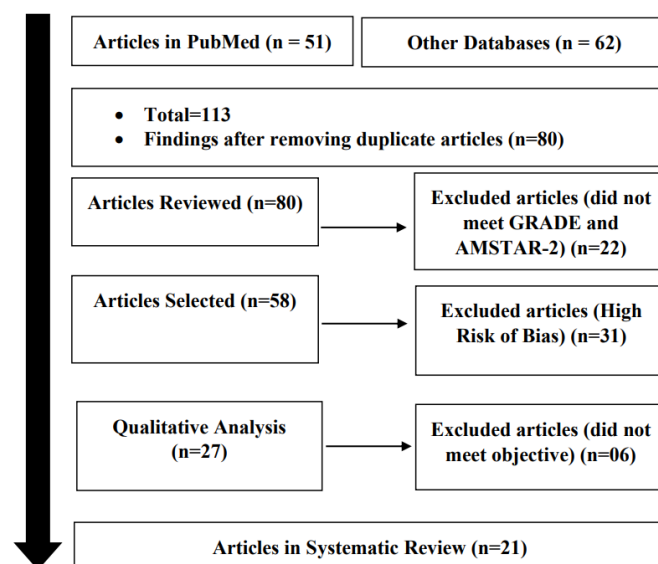


Figure 1. Flowchart showing the article selection process. Source: Own Authorship.

Figure 2 presents the results of the risk of bias of the studies using the Funnel Plot, showing the calculation of the Effect Size (Magnitude of the difference) using Cohen's Test (d). Precision (sample size) was determined indirectly by the inverse of the standard error (1/Standard Error). This graph did not have a symmetrical behavior, suggesting a significant risk of bias, both among studies with small sample sizes (lower precision) that are shown at the base of the graph and in studies with large sample sizes that are presented at the top.

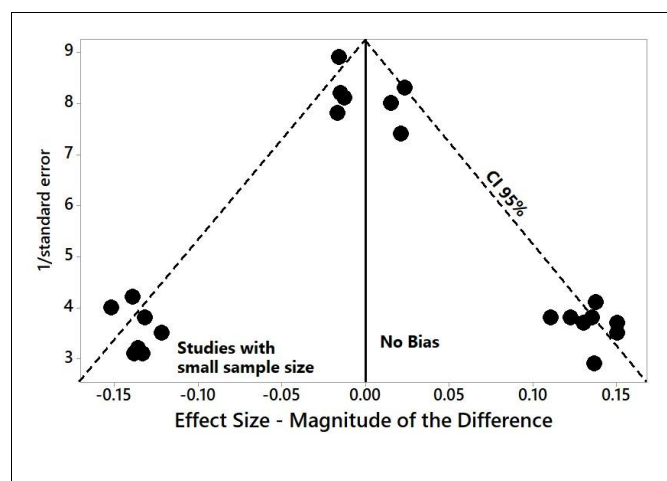


Figure 2. The non-symmetrical funnel plot suggests risk of bias among the studies with small sample sizes that are shown at the bottom of the graph. High confidence and high recommendation studies are shown above the graph (n=21 studies). Source: Own Authorship.

Major Findings

Dentistry is one of the oldest medical professions, dating back to 7000 BC with the Indus Valley Civilization. From 5000 BC, the first descriptions related to dentistry and dental caries were available. In ancient Greece, Hippocrates and Aristotle wrote about dentistry, specifically about treating decaying teeth. In 1530, the first book entirely devoted to dentistry, *The Little Medicinal Book for all kinds of diseases and diseases of the teeth*. Around 1700, dentistry was defined as a profession. In 1723, Pierre Fauchard, a French surgeon credited as the Father of Modern Dentistry, published his influential book, *The Surgeon Dentist, a Treatise on Teeth*, presenting for the first time the idea of dental restorations and the use of dental prostheses [6].

Fauchard was the pioneer of dental prosthesis and discovered many methods to replace missing teeth. He suggested that substitutes could be made of carved blocks of ivory or bone. He also introduced dental braces, although they were initially made of gold; he found that the position of the teeth could be corrected as the teeth would follow the pattern of the wires. Waxed linen or silk threads were generally employed to

secure the devices. His contributions to the world of dental science consist mainly of his 1728 publication *Le chirurgien dentiste* or *The Surgeon Dentist*. The French text included "basic oral anatomy and function, dental construction and various operative and restorative techniques, and effectively separated dentistry from the broader category of surgery" [8].

According to the American Dental Association - ADA (2019), Alfred Einhorn, a German chemist, formulates the local anesthetic procedure, later marketed under the tradename Novocain, ushering in a new era of dental treatment [7].

Dental care and Nutrology in the hospital environment

The development of hospital dentistry in America and Europe began well before the nineteenth century, with the efforts of researchers Simon Hullihen and James Garretson. Great efforts were being made to gain recognition. Later, it would have the support of the American Dental Association and the respect of the medical community [10]. Dental practice in hospitals requires professional preparation in aspects related to oral cavity care, as well as a better commitment to comprehensive and humanized care based on actions aimed at providing patients with biopsychosocial well-being [11].

Hospital dental activities are generally directed to the care of patients with severe systemic diseases, non-cooperative physically disabled, and neurologically impaired individuals. Dental actions can be performed safely and comfortably, in order to present a lower risk to patients, dentists, and health teams [12]. Complementary examination orders allow for better diagnosis and follow-up, as well as planning with other professionals. These are advantages dental surgeons can have in performing their clinical activities at the hospital [13]. An intensive care unit (ICU) is a special department of a hospital or health unit that provides intensive care.

In this scenario, nutritional care makes a difference in both the treatment and prevention of oral diseases and the worsening of comorbidities. Adequate nutrition for hospitalized and critically ill patients improves quality of life, as well as reducing the risk of infections and death. Therefore, nutritional care provided by dentists is an important tool for managing these patients, also enabling a reduction in hospital stay [2-4].

Intensive care units serve patients with serious and life-threatening illnesses and injuries requiring constant care, monitoring, and support of specialized equipment and medications to ensure normal bodily functions. They are made up of highly trained doctors and nurses

who specialize in caring for critically ill patients. ICU are also differentiated from normal hospital wards by a higher staff/patient ratio and access to advanced medical resources and equipment that is not routinely available elsewhere. Common conditions that are treated within ICU include acute (or adult) respiratory distress syndrome (ARDS), trauma, multiple organ failure, and sepsis [14].

Dental surgeons can act as healthcare consultants and hospital service providers through the implementation of training, qualification, preventive guidelines, and instructions on assisted practice, which should be followed by the qualitative assessment of these approaches to improve services and address specific needs [15]. The assessment of the oral condition and the need for dental treatment in hospitalized patients requires that follow-up be conducted by a qualified dental surgeon with hospital experience. Preventive clinical management, as well as to conduct to evaluate oral health, oral lesions, and other oral alterations that may represent some risk or discomfort to patients, are part of the dentist's responsibility [16].

The presence of bacterial plaque in the oral cavity may influence planned medical interventions due to the microorganisms found in the mouth. Virulence factors of these microorganisms contribute to the accumulation of bacteria associated with nosocomial pneumonia, ventilator-associated pneumonia, and bacterial endocarditis, which are the most common systemic and infectious diseases related to the hospital dental context [17].

Patients admitted to the ICU have lower quality oral hygiene and have a higher prevalence of colonization of respiratory pathogens in their teeth and oral mucosa, as it favors the growth of a biofilm containing microorganisms capable of colonizing the lungs and upper airways, causing what we call nosocomial or hospital pneumonia, being one of the main infections that affect these patients [18].

The Bill (PL) No.2.776, created and approved in 2008, makes it mandatory that there is an ICU Dentist, whose objective is to maintain oral hygiene and patient health during the period in which they are hospitalized, controlling his oral biofilm, performing prevention and treatment of oral diseases such as caries, periodontal disease, peri-implant infections, stomatitis, and others [19].

The incorporation of the dentist in the hospital staff contributes to the prevention of infections, reducing the length of stay and the use of medications. For Santos and Soares Jr. (2012), the functions of the dentist in the ICU are reestablish and maintain oral health, prevent oral infections and injuries, perform

emergency procedures against trauma, avoid worsening the systemic condition, and prevent the emergence of an infection. hospital and intervene with curative procedures promoting health and comfort to the patient [20].

The inclusion of the dentist in the multidisciplinary team is important in order to reduce the deterioration of the patient's health, length of stay, and the cost of treatment. The literature shows that the impairment of oral health by infections such as caries, gingivitis, and periodontal disease may interfere with the systemic conditions of patients, contributing to the increase in time and cost of hospital treatment, and directly affecting the quality of life of patients. patients [21].

The transformations that have been taking place in contemporary societies in recent decades have required reconfigurations in the understanding of the health-disease process, which extends to the way professionals act, demanding the need for interactions to favor the success of health care procedures [22]. It is in this context that Hospital Dentistry is inserted, which is defined as a set of preventives, diagnostic, therapeutic, and palliative actions in oral health, performed in hospital institutions and inserted in the context of the multidisciplinary team. The treatment of the hospitalized patient, in a comprehensive approach, requires the performance of a multidisciplinary team, and this conduct favors the improvement of the patient's clinical condition. The role of the dental surgeon in a hospital environment has become increasingly required due to the understanding that there is a relationship between poor oral condition and impairment of systemic health. Unfortunately, the intensive presence in hospitals is not a reality throughout Brazil, but it is already known for its extreme importance in reducing the length of stay and the costs that involve treatment [22].

It should be emphasized that in order to work in a hospital, the dental surgeon must be not only an excellent general practitioner but, above all, a profound expert in the study of the medical clinic in order to understand the general diseases of the body and their etiopathogenesis, as well as the diagnostic mechanisms and therapies to be applied [1]. Specific training is necessary through basic requirements to be met, which are the study of diseases and their treatments, working environment with the multi-professional team through internships and training courses for working in hospitals. Some paradigms should be changed, seeking greater disclosure of the role of the dentist in hospitals and the bodies responsible for this area, devoting adequate supervision to verify whether this performance is being obeyed, and the conditions under which professionals perform their oral hygiene activities [1].

The authors Serra et al. (2025) [9] demonstrated through a meta-analysis study that oral hygiene can be effective in managing oral symptoms. Patients reported a reduction in oral symptoms, such as xerostomia, accompanied by a reduction in oral mucositis and retention of oral debris. One of the synthesized findings indicated that cancer patients receiving specialized palliative care may present oral symptoms that have detrimental effects on their physical and psychosocial well-being. Oral hygiene can be performed by the patients themselves or by others, but it is not considered a priority by some patients. Oral symptoms affect oral functions, and oral hygiene can help manage various oral symptoms. Therefore, cancer patients in specialized palliative care present a wide variety of oral symptoms that affect oral functions, psychosocial well-being, and quality of life.

Finally, regarding palliative care in critically ill patients with advanced solid tumors, team involvement was independently associated with reduced use of intensive care therapies (including invasive mechanical ventilation, dialysis, parenteral nutrition, or tracheostomy) and shorter hospital stays, corroborating its role in facilitating care aligned with patient goals [23].

Conclusion

The elaboration of the work made it possible to achieve the initially proposed objectives: highlighting the importance of the dentist's role in the hospital environment, as well as nutritional care and probiotics. It also made it possible to discuss dentistry in general, address dental care in the hospital environment, and highlight the difficulties faced in its integration into hospitals. It is necessary to empower and qualify all the hospital staff and the dentists so that oral health is offered to the patients, as well as to know the impact caused by the oral problems on the systemic health of the patients, and to implement specific protocols on the subject in all aspects. Cancer patients receiving specialist palliative care present with a wide range of oral symptoms that affect oral functions, psychosocial well-being, and quality of life.

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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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