



## Relevance of dental care in hospitals: a brief systematic review

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### Abstract

**Introduction:** In the scenario of dental care in hospitals, attention should not be focused only on dental treatment, but first assess the patient's health status. 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.

**Objective:** The present study described the importance of the dentist's role in the hospital environment, as well as the dental care in the hospital environment as a decision tool for other treatments or surgical procedures. **Methods:** The present study followed a systematic review model, following the rules of systematic review - PRISMA. The search strategy was performed in the PubMed, Cochrane Library, Web of Science and Scopus, and Google Scholar databases. The present study was carried out from February to May of 2022. **Results and Conclusion:** A total of 107 articles were found. A total of 57 articles were fully evaluated and 18 were included and discussed in this study. Considering the Cochrane tool for risk of bias, the overall assessment resulted in 20 studies that were excluded with a high risk of bias (studies with a small sample size). Also, 20 studies were excluded because they did not meet the GRADE, and 39 studies were excluded for presenting a minor risk of bias. The dentist must promote the general health of the hospitalized individual, based on interdisciplinary planning developed together with other health professionals, as well as assess the main needs of the patient and contribute to the quality of life of these individuals. The role of the dentist as an integral part of the multi-professional team in the area of health in the ICU is fundamental, as its presence could minimize problems in hospitalized patients.

**Keywords:** Hospital dentistry. Dental surgeon. Preventive dentistry. Dental care.

### Introduction

In the scenario of dental care in hospitals, attention should not be focused only on dental treatment, but first 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 environments 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 therapy and quality of life of hospitalized patients [2].

It is possible to notice the growth in the number of patients who need dental procedures in hospital environments, a fact that requires the effective presence of the dentist in multidisciplinary activities and favors an important review of professional opportunities and areas of activity [2].

Hospital dentistry can be defined as a practice that aims to take care of oral changes that require procedures from the multidisciplinary team, working with health professionals involved in the treatment, and integrally approaching the patient. For several years, dentistry has 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 [3].

Also, pain relief and the adequacy of oral conditions should be considered a priority for the

dentist. However, the effective participation of dentists 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. multi-professional team of patient care, with the need to clarify to the other members of the hospital staff how the dentist can contribute to improving the quality of life and systemic conditions of hospitalized patients [4,5].

Oral hygiene status, oral hygiene guidelines, and oral hygiene outcomes in intensive care unit (ICU) patients are also highlighted from the dental perspective for effective oral hygiene. Thus, the interventions of dental professionals have shown effective results in the prevention of nosocomial infection [6].

Besides, there are high rates of preventable hospitalizations related to dentistry. Thus, persistently high rates of preventable dentistry-related hospitalizations were clustered in metropolitan areas that were socioeconomically advantaged and had more dentists per capita. Therefore, health service planners and policymakers should seek alternative indicators of accessibility to dental services [7].

Therefore, the present study described the importance of the dentist's role in the hospital environment, as well as the dental care in the hospital environment as a decision tool for other treatments or surgical procedures.

## Methods

### Study Design

The present study followed a systematic review model, following the rules of systematic review - PRISMA (Transparent reporting of systematic review and meta-analysis, access available in: <http://www.prisma-statement.org/>).

### Data Sources

The search strategy was performed in the PubMed, Cochrane Library, Web of Science and Scopus, and Google Scholar databases. The present study was carried out from February to May of 2022.

### Descriptors (MeSH Terms) And Search Strategy

The main descriptors (MeSH Terms) used were "Hospital dentistry. Dental surgeon. Preventive dentistry. Dental care". The rules of the word PICOS (Patient; Intervention; Control; Outcomes; Study Design) were followed.

### Selection Process, Risk of Bias and Quality of Studies

Two independent reviewers performed research and study selection. Data extraction was performed by

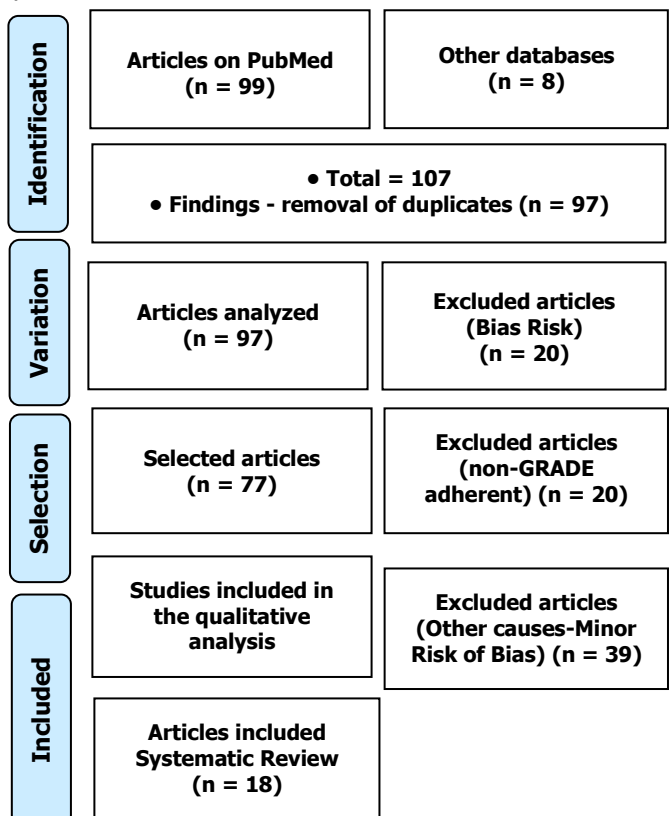
reviewer 1 and fully reviewed by reviewer 2. A third investigator decided some conflicting points and made the final decision to choose the articles. The quality of the studies was based on the GRADE instrument, with randomized controlled clinical studies, prospective controlled clinical studies, and studies of systematic review and meta-analysis listed as the studies with the greatest scientific evidence, and the risk of bias was analyzed according to the Cochrane instrument.

## Results and Discussion

### Summary of Literary Findings

A total of 107 articles were found. Initially, duplicate articles were excluded. After this process, the abstracts were evaluated and a new exclusion was performed based on the GRADE Instrument and Risk of Bias. A total of 57 articles were fully evaluated and 18 were included and discussed in this study. Considering the Cochrane tool for risk of bias, the overall assessment resulted in 20 studies that were excluded with a high risk of bias (studies with small sample size). Also, 20 studies were excluded because they did not meet the GRADE, and 39 studies were excluded for presenting a minor risk of bias (Figure 1).

**Figure 1.** Flowchart showing the article selection process.



### Major Findings – Hospital Dentistry and Dental Care

Based on the results found in the selected articles,

it was evidenced that patients with special needs (SNP) may be at increased risk of oral diseases throughout their lives. These patients have difficulties accessing traditional dental studios or clinics. Dental problems can cause local and generalized infections, leading to worrisome complications when not treated properly, which can compromise medical treatments in hospitals. Thus, a study in Italy showed that the described SNP were affected by congenital or oncohematological heart diseases and neuron deficiencies, and all were hospitalized for different reasons: open-heart surgery, chemotherapy, organ transplantation, and rehabilitation. The oral assessment was mandatory to rule out or treat problems that could cause complications. Tooth extractions, caries, fractured restorations, sealing, and oral hygiene procedures were performed at the patients' bedside in the referral unit of their pediatric hospital. These results confirm the feasibility of patient bedside dental procedures with portable dental units, encourage the implementation of their use, and may represent an actionable model for oral care management in hospitalized SNP [8].

Also, a study looked at the epidemiology of iatrogenic damage in hospitals and primary care to improve the safety of care delivery, particularly in poor outpatient dental care. The top 5 deficiencies identified were related to errors in diagnosis and examination, treatment planning, communication, procedural errors, and accidental ingestion or inhalation of foreign objects. Patient safety research in dentistry is scarce because current evidence cannot provide reliable estimates of the frequency of patient safety incidents in outpatient dental care or the associated disease burden [9].

Added to this, it was found that the oral health of hospitalized adult patients worsens during hospital stays, increasing the risk of nosocomial infections and general recovery, and prolonging the length of stay. Thus, one study analyzed the reasons for referrals of inpatients to the dental and maxillofacial departments. In total, 851 referrals were received from hospital staff over five years. The most common reason for referral was related to acute dental pain and potential analgesic overdose (16%), followed by suspected tooth abscess or facial swelling (12%) and dental evaluation for inpatient cardiac patients (11%). The most common treatment outcomes included consultation and counseling only (16%) or tooth extraction (16%). A large proportion of outcomes related to the management of oral pain due to dry mouth (9%), oral ulceration (6%), broken dentures (8%), or fillings (5%). Therefore, the results revealed the need and benefit for hospitals to contract dental services for inpatients [10].

In addition, one study described the types of face-to-face dental appointments during phase 1 of COVID-

19. Data were collected from the electronic medical records of all face-to-face dental consultations between March 16 and May 18, 2020. 396 patients were seen and the most frequent reason for face-to-face dental consultation was essential consultation related to cancer treatment. During phase 1, the most common reasons for an in-person visit were odontogenic infection, severe pain, trauma, and essential medical therapy-related consultations. The most performed treatments were consultations and oral surgery [11].

In this context, dental practice in hospitals requires professional preparation in aspects related to the care of the oral cavity, as well as a better commitment to comprehensive and humanized care, based on actions aimed at providing biopsychosocial well-being to patients [2,12]. Hospital dental activities are generally focused on the care of patients with severe systemic diseases, uncooperative physical disabilities, and neurologically compromised individuals. Dental actions can be performed safely and comfortably, to present less risk to patients, dentists, and health teams [13]. Requests for complementary exams allow for better diagnosis and follow-up, as well as planning with other professionals. These are advantages that dentists can have in the performance of their clinical activities in the hospital [14].

Also, ICU serve patients with serious and life-threatening illnesses and injuries who require constant care, monitoring, and support from specialized equipment and medications to ensure normal bodily functions. They are staffed by highly trained doctors and nurses who specialize in caring for critically ill patients. ICU are also distinguished from normal hospital wards by a higher staff-to-patient ratio and access to advanced medical resources and equipment that are 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 [15].

Dental surgeons can act as health consultants and service providers in hospitals through the implementation of training, qualification, preventive guidelines, and assisted practice instructions, which must be followed by the qualitative evaluation of these behaviors to improve services and address specific needs [16,17]. Assessing the oral condition and need for dental treatment in hospitalized patients requires follow-up to be conducted by a qualified dental surgeon with hospital experience. Preventive clinical procedures, as well as procedures to assess oral health, oral lesions, and other oral alterations that may represent some risk or discomfort to patients, are part of the dentist's responsibility [13,17].

The presence of bacterial plaque in the oral cavity

can influence planned medical interventions due to microorganisms found in the mouth. The 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 [18,19].

Patients admitted to ICU have poorer 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 [1].

Bill (PL) No.2,776 created and approved in 2008, makes it mandatory that there is a dental professional in the ICU, whose objective is to be present in this sector to maintain oral hygiene and the health of the patient during the period in which he is hospitalized, controlling their oral biofilm, performing prevention and treatment actions for oral diseases, such as caries, periodontal disease, peri-implant infections, stomatitis and others [20].

For Santos and Soares Jr. (2012) [21], the functions of the dental surgeon in the ICU are: to restore and maintain oral health, prevent infections and oral injuries, perform emergency procedures in the face of trauma, avoid the aggravation of the systemic condition and the emergence of hospital infection and intervene with curative procedures promoting health and comfort to the patient.

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 preventive, diagnostic, therapeutic, and palliative actions in oral health, performed in hospital institutions and inserted in the context of the performance of the multidisciplinary team [23].

The treatment of hospitalized patients, 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 dentist in a hospital environment has become increasingly required due to the understanding that there is a relationship between poor oral condition and compromised systemic health [22]. 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 involved in the treatment.

However, it should be noted that to work in a hospital, the dentist must be not only an excellent general practitioner but, above all, a deep knowledge of the study of clinical medicine to have an understanding of general diseases of the body and their etiopathogenesis, as well as the diagnostic mechanisms and therapies to be applied. Specific training is necessary, through basic requirements to be met, which are the study of diseases and their treatments, work environment with a multidisciplinary team through internships and training courses to work in hospitals [1]. Some paradigms must be changed, seeking greater dissemination of the performance of the dental surgeon in hospitals and the bodies responsible for this area, dedicating an adequate inspection, seeking to verify if this performance is being obeyed and under what conditions the professionals carry out their oral hygiene activities [9].

## Conclusion

The dentist must promote the general health of the hospitalized individual, based on interdisciplinary planning developed together with other health professionals, as well as assess the main needs of the patient and contribute to the quality of life of these individuals. The role of the dentist as an integral part of the multi-professional team in the area of health in ICU is fundamental, as their presence could minimize problems in hospitalized patients.

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## Informed consent

Not applicable.

## Data sharing statement

No additional data are available.

## Conflict of interest

The authors declare no conflict of interest.

## Similarity check

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