

DENTAL CONSULTATION REQUESTS TO ORAL AND MAXILLOFACIAL SURGERY IN A HOSPITAL IN BRAZIL

Camila Longoni¹, Adriana Corsetti², Angelo Luiz Freddo²,
Edela Puricelli², Deise Ponzoni²

ABSTRACT

Introduction: This study analyzed dental consultation requests to the division of oral and maxillofacial surgery in a Brazilian tertiary hospital.

Methods: A cross-sectional study with data collected retrospectively from inpatients' electronic medical records containing dental consultation requests made between January 2013 and December 2017.

Results: 327 consultation requests were analyzed. Mean (SD) patient age was 38.71 (24.4) years; 164 (50.2%) were male and 267 (81.7%) were Caucasian. Regarding systemic conditions, 34 (10.4%) were classified as ASA I, 86 (26.3%) as ASA II, 182 (55.7%) as ASA III, and 25 (7.6%) as ASA IV. Dental consultations were mostly requested by the internal medicine team (n = 42, 12.8%). The most common reason for consultation was septic teeth (n = 131, 40.1%). Complementary tests were required in 188 (57.5%) cases. Surgical intervention was required in 82 (25.0%), with tooth extraction as the most prevalent procedure (20.2%). The most demanding service was inpatient care, with 276 (84.4%) requests. Cases were resolved in 249 (76.1%).

Conclusions: The division of oral and maxillofacial surgery in our hospital deals with a great amount of consultations, contributing with surgical procedures to the adequacy of patients' oral health with a high effectiveness rate. Our data illustrate the contribution of dentists in a hospital setting, assisting the medical team in providing comprehensive care for inpatients.

Keywords: *Dental consultations; inpatients; oral and maxillofacial surgery*

In-hospital dental consultations are themselves nested within a broader context of in-hospital specialist consultations. This largely used strategy refers to the process of evaluation and subsequent treatment indication by a consultant dentist for patients under the care of another specialty team, guiding the therapeutic approach¹.

The need for hospital dental services has been long-standing, with studies published as early as the 1970s demonstrating the dental needs of hospitalized patients²⁻⁴. Dental services provide resources for diagnosis and treatment in hospital settings, while counseling provides a mechanism for hospital medical services to use a dentist's experience in dealing with orofacial diseases. This practice improves the communication and relationship between dentists and physicians⁵.

Several studies support the importance of a dentist within the hospital environment by demonstrating that patients in intensive care units (ICUs) are susceptible to deterioration of oral health and that lack of dental care may be harmful causing and/or aggravating infections⁶⁻¹⁰. Sousa et al. (2014) demonstrated that oral health deteriorates after a short period of hospitalization even outside the ICU environment¹¹. This evidence underscores the importance and need of including a dentist as part of the multidisciplinary team in all sectors of the hospital.

Clin Biomed Res. 2019;39(4):279-283

1 Residência Integrada em Saúde Bucal, Departamento de Cirurgia Oral e Maxilofacial, Universidade Federal do Rio Grande do Sul (UFRGS). Porto Alegre, RS, Brasil.

2 Departamento de Cirurgia Oral e Maxilofacial e Ortodontia, Faculdade de Odontologia, Universidade Federal do Rio Grande do Sul (UFRGS). Porto Alegre, RS, Brasil.

Corresponding author:

Camila Longoni
longoni.camila@gmail.com
Departamento de Cirurgia Oral e Maxilofacial e Ortodontia, Faculdade de Odontologia, Universidade Federal do Rio Grande do Sul (UFRGS).
Rua Ramiro Barcelos, 2492. 0035-004, Porto Alegre, RS, Brasil.

Dental consultations carried out in the division of oral and maxillofacial surgery of a hospital, in addition to contributing to the provision of integral health care for inpatients, are a valuable educational element for attending physicians and medical residents of the hospital's multidisciplinary teams⁵. However, studies exploring consultations carried out by dental teams within the hospital environment and the reasons and outcomes associated with their request are scarce. The objective of the present study was to conduct a 5-year retrospective analysis of inpatient dental consultations requested to the division of oral and maxillofacial surgery in a large tertiary hospital in southern Brazil.

MATERIALS AND METHODS

This retrospective, descriptive, observational study was conducted in the department of medical archives and health information at Hospital de Clínicas de Porto Alegre (HCPA), located in the city of Porto Alegre, southern Brazil. The sample was obtained by means of a computerized hospital database search of inpatients' medical records. Only the medical records containing dental consultation requests made to the division of oral and maxillofacial surgery of HCPA from January 2013 to December 2017 were included. Records lacking relevant data for the study or that had been incompletely filled were excluded.

The following data were collected from the medical records using a standardized form: patient's demographic characteristics; patient's systemic condition; and clinical characteristics of the case, such as diagnosis, associated pain complaint, location, clinical appearance, need for intervention, final diagnosis of the condition, treatments performed, and time interval between diagnosis and treatment. Systemic conditions were classified according to the American Society of Anesthesiology (ASA) system¹². During data collection, medical records were automatically de-identified and patients' names and/or any other personal identifiers were inaccessible to researchers.

Data were analyzed with SPSS v20.0 for Windows (IBM® SPSS Statistics, New York, USA). Continuous variables were expressed as mean and standard deviation (SD), while categorical variables were expressed as absolute and relative frequencies.

RESULTS

A total of 385 consultation requests to HCPA's division of oral and maxillofacial surgery were identified. Of these, 58 were excluded from the analysis for the following reasons: insufficient data ($n = 1$), patient with private health insurance ($n = 9$), wrong requests ($n = 11$), and duplicate entries ($n = 37$); for a total of 327 dental consultation requests analyzed in this study.

Mean (SD) patient age was 38.71 (24.4) years, and 164 (50.2%) were male. Regarding ethnicity, 267 (81.7%) were Caucasian, 37 (11.3%) were black, 22 (6.7%) were brown, and 1 (0.3%) were of indigenous descent (Table 1). The patient's systemic condition was classified as ASA I in 34 (10.4%) cases, as ASA II in 86 (26.3%), as ASA III in 182 (55.7%), and as ASA IV in 25 (7.6%).

Dental consultations were mostly requested by the internal medicine team ($n = 42$, 12.8%), followed by the neonatology team ($n = 33$, 10.1%) and the pediatric team ($n = 32$, 9.8%) (Table 2). The reasons for consultation requests are shown in Table 3. The most common reason for requesting a dental consultation was the presence of septic teeth ($n = 131$, 40.1%).

Table 1: Sample characteristics ($n = 327$). Age, sex, and ethnicity.

Age (years), mean (\pm SD)	38.71 (\pm 24.4)
Sex, n (%)	
Male	164 (50.2%)
Female	163 (49.8%)
Ethnicity, n (%)	
Caucasian	267 (81.7%)
Black	37 (11.3%)
Brown	22 (6.7%)
Indigenous descent	1 (0.3%)

Table 2: List of medical specialties that requested dental consultations to the division of oral and maxillofacial surgery.

Specialties	Frequency	Percentage
Stroke, not specified as hemorrhagic or ischemic	1	0.3
HIV-AIDS	2	0.6
Cardiology	13	4.0
Cardiovascular surgery	17	5.2
Digestive system surgery	4	1.2
Pediatric surgery	2	0.6
Plastic surgery	1	0.3
Thoracic surgery	2	0.6
Coloproctology	1	0.3
Endocrinology	4	1.2
Gastroenterology (pre-liver transplantation, adult)	1	0.3
Gastroenterology	5	1.5
Pediatric gastroenterology	3	0.9
Gynecology	3	0.9
Hematology	21	6.4
Pediatric intensive care	3	0.9

Continue...

Table 2: Continuation.

Specialties	Frequency	Percentage
Internal medicine	42	12.8
Geriatric internal medicine	1	0.3
Infectious internal medicine	9	2.8
Nephrology (kidney transplant recipient evaluation)	2	0.6
Nephrology	2	0.6
Neonatology	33	10.1
Neurosurgery	3	0.9
Neurology	22	6.7
Oncology	3	0.9
Pediatric oncology	1	0.3
Orthopedics/traumatology	2	0.6
Otolaryngology	3	0.9
Pediatrics	32	9.8
Pulmonology	5	1.5
Pediatric pulmonology	1	0.3
Prenatal care	9	2.8
Psychiatry	28	8.6
Pediatric psychiatry	1	0.3
Rheumatology	8	2.4
Pain treatment	1	0.3
Intensive care – adult	1	0.3
Addiction psychiatry	2	0.6
Adult urgency	29	8.9
Surgical urgency	1	0.3
Urology	2	0.6

Table 3: Reasons for dental consultation requests to the division of oral and maxillofacial surgery.

Reasons	Frequency	Percentage
Developmental alterations	16	4.9
Dental evaluation	12	3.7
Neonatal teeth	16	4.9
Septic teeth	131	40.1
Dental pain	8	2.4
Temporomandibular joint dysfunction	15	4.6
Bleeding	3	0.9
Odontogenic infection	40	12.2
Soft tissue injury	25	7.6
Dentoalveolar trauma	19	5.8
Facial trauma	19	5.8
Others	23	7.0

Complementary tests were required in 188 (57.5%) cases, and the most commonly requested tests were panoramic radiograph (n = 107, 32.8%) and computed tomography of the skull and facial bones (n = 89, 27.3%). Surgical intervention was required in 82 (25.0%) cases, with tooth extraction as the most prevalent procedure (20.2%) (Table 4). The most demanding service was inpatient care, with 276 (84.4%) requests, followed by adult urgency with 35 (10.7%). In 249 (76.1%) requests, cases were resolved by surgical intervention, diagnosis, and referral for treatment in the dental clinic and follow-up in the outpatient clinic of the hospital's division of oral and maxillofacial surgery (Table 5). The mean (SD) time interval between diagnosis and resolution was 4.41 (9.11) days.

Table 4: Therapeutic approach and intervention performed in consultations requested to the division of oral and maxillofacial surgery.

Type of intervention performed	Frequency	Percentage
Follow-up in the outpatient clinic	34	10.4
Dental clinic treatment referral	63	19.3
Biopsy	3	0.9
Abscess drainage	6	1.8
Referral to another team	23	7.0
Tooth extraction	66	20.2
Medication prescription	17	5.2
Fracture reduction	4	1.2
TMJ luxation reduction	3	0.9
Bleeding treatment	3	0.9
No intervention	97	29.7
Others	8	2.4

TMJ = temporomandibular joint.

Table 5: Effectiveness of interventions performed by the division of oral and maxillofacial surgery.

Effectiveness of interventions	Frequency	Percentage
No	7	2.1
No – follow-up dropout	71	21.7
Yes	249	76.1

DISCUSSION

Since its creation in 1993, HCPA's division of oral and maxillofacial surgery provides its services in outpatient clinics, where surgical procedures are performed under local and general anesthesia. In addition, as demonstrated here, its team members

serve as consultants for other specialties in the care of patients hospitalized in the institution. To date, no study has been carried out to evaluate the consultation requests made to this unit's team. The present study demonstrated that the demands for dental consultations come from a wide range of medical specialties.

The comorbidities associated with the inpatients for whom consulting services were requested reflect the wide variety of medical specialties available at HCPA and the diversity of conditions treated in the hospital. Services provided to patients by the division of oral and maxillofacial surgery were not limited to surgical procedures, they also included diagnostic and therapeutic procedures which accounted for about 45% of the consultations.

This study analyzed consultations requested to the division of oral and maxillofacial surgery over a 5-year period. When comparing the year of 2013 with the following years, there was a considerable increase in the number of requests. Consistent with our findings, Lockhart and Sonis (1981) demonstrated that responding to a request and managing dental consultations within the hospital environment increase the overall visibility of the dental service, which promotes a constant increase in the use of dental consultation services¹³.

The psychiatry team requested 31 consultations during the study period. Of these, 21 were for "septic teeth", "dental pain", or "odontogenic infection", highlighting the poor oral health status of psychiatric patients. These data are consistent with those of several studies that have demonstrated poor oral health among psychiatric patients, with a high prevalence of caries, tooth loss, poor oral hygiene, and periodontal disease in these patients^{14,15}. In addition, this population is also concurrently exposed to psychoactive drug treatments that have an impact on oral health¹⁶.

The most common reason for the requests was "septic teeth". We observed that, in most cases, this term referred to teeth in poor condition, with caries and periodontal disease, and not necessarily to teeth with an active septic condition. A similar study, conducted at the Federal University of Belo Horizonte, investigated the participation of hospital dental teams, based on the demand for dental evaluations in a hospital in that city, and evaluated the reasons by describing the requests made, but it did not evaluate their resolution. Regarding the reasons for consultation requests, the data were similar to those reported in the present study, with descriptions such as "precarious dental condition", "need of dental evaluation", "toothache", and "mucosal lesions"¹⁷.

Dentoalveolar trauma was the reason for 19 consultation requests in our study, of which nearly half (n = 9, 47.3%) were caused by extubation/intubation trauma. Damage to dentoalveolar structures is a well-known complication of general anesthesia and may represent an important morbidity to affected patients. A study conducted in Berlin, Germany, with a 14-year retrospective analysis of dentoalveolar trauma

in procedures under general anesthesia reported that 82 'dental injuries' were documented in 375,000 general anesthetics, with an incidence of 0.02% and an average of 5.5 events per year¹⁸. A similar study conducted in Nebraska, USA, also with a 14-year retrospective analysis, found the same incidence of 0.02% for damage to dental structures during anesthesia¹⁹. It was not possible to determine the incidence of dentoalveolar trauma during anesthesia in the present study, because the number of anesthetic procedures per year was not obtained.

Despite a relatively high rate of resolution (76%), the division of oral and maxillofacial surgery is often limited to surgical procedures, such as tooth extraction, biopsy, abscess drainage, hemorrhage control, and reduction of facial and dentoalveolar fractures, among others. However, with respect to other clinical procedures, the team only evaluates, diagnoses and indicates treatment. This highlights the need for a hospital dental service that can meet the demand for clinical procedures and contribute to the stabilization of the inpatient's systemic condition.

Hospitalizations, even for a short period, tend to deteriorate patients' oral health status¹¹. Most hospitalized patients have unsatisfactory oral hygiene, and prolonged hospital stay may increase gingival inflammation and dental plaque accumulation²⁰. From the patient's perspective, the presence of a dentist in the hospital's clinical staff is considered essential to provide integral health care²¹.

Our results should be interpreted within the limitations of the study. Given the recent informatization of the hospital's medical record system, it was not possible to extend the data search to before the year of 2013, which limited our ability to explore data in relation to time. Additionally, given the descriptive nature of the study, potential outcome moderators were not analyzed. We suggest that future studies analyzing dental consultations in complex health care settings should also obtain general complementary data for the institution under analysis in order to explore the topic considering the hospital's service as a whole.

In conclusion, the results show that, in our hospital, the division of oral and maxillofacial surgery deals with a great part of the dental demand from inpatient services, performing surgical procedures to improve the management of oral health, in addition to effectively resolving the consultation requests. These data illustrate and reinforce the contribution of the presence of a dentist within the hospital environment, assisting the medical team in providing comprehensive care for hospitalized patients.

Ethics Statement

This research was conducted in full accordance with the World Medical Association Declaration of Helsinki. The project was approved by the Institutional Review Board of the Hospital de Clínicas de Porto Alegre.

REFERENCES

1. Botega NJ. *Prática psiquiátrica no hospital geral: interconsulta e emergência*. São Paulo: Artmed; 2017.
2. Greenberg MS. The expanding role of the dental consultant in the hospital. *Spec Care Dentist*. 1982;2(3):135-7.
3. Wilson NH. A survey of the dental needs of hospital inpatients in Scotland. *Community Dent Oral Epidemiol*. 1976;4(4):129-32.
4. Redding, SW, Rose LF. The consultation: a means of communication between dentists and physicians. *Gen Dent*. 1979;27(5):54-7.
5. Paul LS III, Garrison Junior RS. Starting a hospital dental consultation service: educational and financial considerations. *Spec Care Dentist*. 1987;7(2):81-6.
6. Bingham M, Ashley J, De Jong M, Swift C. Implementing a unit-level intervention to reduce the probability of ventilator-associated pneumonia. *Nurs Res*. 2010;59(1):S40-7.
7. Chan EY, Ruest A, Meade MO, Cook DJ. Oral decontamination for prevention of pneumonia in mechanically ventilated adults: systematic review and meta-analysis. *BMJ*. 2007;334(7599):889.
8. Morais TM, Silva AD, Avi AL, Souza PH, Knobel E, Camargo LF. Importance of dental work in patients under intensive care unit. *Rev Bras Ter Intensiva*. 2006;18(4):412-7.
9. Oliveira LC, Carneiro PP, Fischer RG, Tinoco EM. Presence of respiratory pathogens in the oral biofilm of patients with nosocomial pneumonia. *Rev Bras Ter Intensiva*. 2007;19(4):428-33.
10. Pineda LA, Saliba RG, El Solh AA. Effect of oral decontamination with chlorhexidine on the incidence of nosocomial pneumonia: a meta-analysis. *Crit Care*. 2006;10(1):R35.
11. Sousa LL, Silva Filho WL, Mendes RF, Moita Neto JM, Prado Junior RR. Oral health of patients under short hospitalization period: observational study. *J Clin Periodontol*. 2014;41(6):558-63.
12. American Society of Anesthesiologists. *ASA Physical Status Classification System*. [Internet] 2019 Oct 23 [cited 2018 Nov 11]. Available from: <https://www.asahq.org/standards-and-guidelines/asa-physical-status-classification-system>
13. Lockhart PB, Sonis ST. Utilization of inpatient dental consultation services. *Spec Care Dentist*. 1981;1(1):18-21.
14. Kebede B, Kemal T, Abera S. Oral health status of patients with mental disorders in southwest Ethiopia. *PLoS One*. 2012;7(6):e39142.
15. Kisely S, Baghaie H, Lalloo R, Siskind D, Johnson NW. A systematic review and meta-analysis of the association between poor oral health and severe mental illness. *Psychosom Med*. 2015;77(1):83-92.
16. Lewis S, Jagger RG, Treasure E. The oral health of psychiatric inpatients in South Wales. *Spec Care Dentist*. 2001;21(5):182-6.
17. Rocha AL, Ferreira EF. Odontologia hospitalar: a atuação do cirurgião dentista em equipe multiprofissional na atenção terciária. *Arq Odontol*. 2014;50(4):154-160.
18. Adolphs N, Kessler B, von Heymann C, Achterberg E, Spies C, Menneking H, Hoffmeister B. Dentoalveolar injury related to general anaesthesia: a 14 years review and a statement from the surgical point of view based on a retrospective analysis of the documentation of a university hospital. *Dent Traumatol*. 2011;27(1):10-4.
19. Newland MC, Ellis SJ, Peters KR, Simonson JA, Durham TM, Ullrich FA, Tinker JH. Dental injury associated with anesthesia: a report of 161,687 anesthetics given over 14 years. *J Clin Anesth*. 2007;19(5):339-45.
20. Carrilho Neto A, Paula Ramos S, Sant'ana AC, Passanezi E. Oral health status among hospitalized patients. *Int J Dent Hyg*. 2011;9(1):21-9.
21. Lima DC, Saliba NA, Garbin AJI, Fernandes LA, Garbin CAS. The importance of oral health in the view of inpatients. *Cien Saude Colet*. 2011;16(1):1173-80.

Received: May 29, 2019

Accepted: Oct 24, 2019