

Patient Attendance for Emergency Care in a Brazilian Dental School

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ABSTRACT

Objective: The objective of this study was to analyze the profile of patients attending the Emergency Dental Clinic at São José dos Campos Dental School, UNESP-São Paulo State University, between 2006 and 2010, evaluating the gender, ethnicity, age, diagnosis and treatment performed for resolution of the cases.

Materials and methods: A total of 600 dental records were analyzed by descriptive statistics, Fisher and Chi-square tests at a significance level of 5%. The dental records included information on the patients' name, gender, age, ethnicity, phone number, date of attendance, diagnosis and treatment performed. The case history addressed the chief complaint, medical and dental history of the patient. The clinical evaluation comprised tests, such as visual examination of the intraoral hard and soft tissues, tooth percussion, palpation, probing, pulp sensitivity test and radiographic examination. The diagnosis and treatment for each case were established based on the case history and clinical tests.

Results: There was predominance of female gender (59.17%) and patients aged 20 to 39 years (49.67%). Most procedures were performed to solve endodontic emergencies (37.5%), followed by placement of dressings (10.6%), tooth extraction (8.9%), periodontal problems (4.6%) and cementation of provisional crowns or definitive dentures (4.5%).

Conclusion: Dental caries and its consequences were the main factors involved in the emergency attendances. There is a constant need of health promotion, considering that the patients searched for restorative treatments without the necessary emphasis on prevention. Additional studies are needed to determine strategies for decreasing the use of emergency services for nonemergency dental problems.

Clinical relevance: The diagnosis and treatment of dental emergencies are challenging. If inadequately performed, they may cause difficulties or even failures in pain relief, worsening or delaying the continuation of treatment planning and accomplishment.

Keywords: Dental emergencies, Toothache, Dental pulp diseases, Periapical diseases, Dental fractures, Dental trauma.

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INTRODUCTION

The dental treatment aims at the reestablishment of the oral health, with the aid of procedures varying from preventive measures to complex rehabilitation techniques.

Emergency needs may arise at any stage of dental treatment. These situations should be immediately solved to promote the socio-psycho-emotional welfare of the patient, since most of these needs involve dentoalveolar fracture, tooth fracture with or without pulp exposure, pulpitis, abscess, pericoronaritis, mucosal lesion and hemorrhage.¹⁻³

It is difficult to establish clear criteria to define the situations of dental emergency or the appropriate care to be offered in these cases.⁴⁻⁷ Therefore, some authors have considered pulpitis and abscesses as dental emergencies, while others mention loose restorations and tooth fractures.^{8,9}

Thus, the diagnosis and treatment of dental emergencies are challenging. If inadequately performed, they may cause difficulties or even failures in pain relief, worsening or delaying the continuation of treatment planning and accomplishment.

The objectives of this study were to analyze the profile of patients attending the Emergency Dental Clinic at São José dos Campos Dental School, UNESP- São Paulo State University, between 2006 and 2010, evaluating the gender, ethnicity, age, diagnosis and treatment performed for resolution of the cases.

MATERIALS AND METHODS

Study Design and Setting

A total of 600 dental records of the Emergency Dental Clinic at São José dos Campos Dental School, UNESP- São Paulo State University, from the period of January 2006 to December 2010 were analyzed. All patients lived at the region of São José dos Campos and attended the dental school for the relief of pain or discomfort. The sample included both genders and the age ranged from 0 to 89 years.

The dental records included information on the patients' name, gender, age, ethnicity, phone number, date of attendance, diagnosis and treatment performed. The case

history addressed the chief complaint, medical and dental history of the patient. The clinical evaluation comprised tests, such as visual examination of the intraoral hard and soft tissues, tooth percussion, palpation, probing, pulp sensitivity test using refrigerant spray when needed (Endo Ice-Hygienic Corporation, Ohio, USA) and radiographic examination. The diagnosis and treatment for each case were established based on the case history and clinical tests.

Statistical Analysis

During the period from January 2006 to December 2010, a total of 23,977 attendances were performed at the emergency dental clinic, with a monthly average of 400 attendances. Using a random number table, 10 dental records were selected for each month in the study period.

After elimination of duplications, failures in form filling and other recording problems, a random sample of 600 dental records was achieved, considering a confidence interval of 95%. Analyses were performed using Minitab 13.0 (Minitab Inc, Pennsylvania, USA).

RESULTS

Results are showed in Tables 1 to 5. Frequencies were calculated for the demographic characteristics of age, gender

and ethnicity, as well diagnosis and treatment. The Fisher’s test was used to assess whether the differences between genders (female or male) (Table 1) or ethnicities (Table 2) were statistically significant according to year. The Chi-square test for categorical variables was used to assess whether the differences between ages (Table 3) or diagnosis and treatment (Tables 4 and 5) were statistically significant according to year.

Tables 1 and 2 demonstrate the predominance of females (59.17%) and Caucasians (p < 0.05).

DISCUSSION

The pain of endodontic origin is one of the main problems in emergency dental clinics or hospitals.¹⁰⁻¹² Several authors studied the type of diagnosis of toothache, of pulp or periapical origin, addressing the pain intensity, pulp status by histological analysis, presence of pulp vitality by specific tests, the occurrence of drainage and radiographic findings.^{13,14} Other studies also analyzed the type of emergency care to be adopted in cases of pain.^{3,15-17}

In general, the dental emergencies may be classified as painful emergencies of pulp origin (reversible inflammatory lesion and irreversible inflammatory lesion); pain

Table 1: Frequency of relationship between gender and year of attendance

Gender	2006*	2007*	2008	2009	2010*	Number of patients* (%)
Female	72	78	62	67	76	355 (59.17)
Male	48	42	58	53	44	245 (40.83)
Total	120	120	120	120	120	600 (100)

*Fisher’s test, statistically significant difference at 5%

Table 2: Frequency of relationship between ethnicity and year of attendance

Ethnicity	2006*	2007*	2008*	2009*	2010*	Number of patients* (%)
Caucasian	85	101	93	104	102	485 (80.83)
African descent	35	19	27	16	18	115 (19.17)
Total	120	120	120	120	120	600 (100)

*Fisher’s test, statistically significant difference at 5%

Table 3: Frequency of relationship between age range and year of attendance

Age	2006*	2007*	2008*	2009*	2010*	Number of patients* (%)
0 to 09	14	5	10	10	4	43 (7.17)
10 to 19	13	9	8	13	13	56 (9.33)
20 to 29	28	39	38	24	21	150 (25.00)
30 to 39	33	31	30	28	26	148 (24.67)
40 to 49	18	15	19	21	31	104 (17.33)
50 to 59	10	10	8	14	12	54 (9.00)
60 to 69	2	9	5	7	7	30 (5.00)
70 to 79	2	1	2	3	5	13 (2.17)
80 to 89	0	1	0	0	1	2 (0.33)
Total	120	120	120	120	120	600 (100)

*Chi-square test, statistically significant difference at 5%

Table 4: Diagnosis of painful dental emergencies according to the specialty (endodontic, restorative dentistry, periodontology, prosthodontics and surgery)

Specialty*	Diagnosis	2006*	2007*	2008*	2009*	2010*	Number of patients (%)
Endodontics	Pulp necrosis and acute apical periodontitis	35	33	31	27	28	154 (25.7)
	Irreversible pulpitis	21	26	20	18	22	107 (17.8)
	Acute dentoalveolar abscess	6	6	5	7	6	30 (5.0)
	Periodontitis	2	0	0	1	1	4 (0.7)
Restorative dentistry	Presence of caries	7	8	10	9	5	39 (6.5)
	Tooth fracture	3	5	3	6	4	21 (3.5)
	Loose or fractured restoration	4	5	6	5	4	24 (4.0)
Periodontology	Acute necrotizing ulcerative gingivitis (ANUG)	1	1	0	1	0	3 (0.5)
	Periodontal abscess	5	3	5	6	2	21 (3.5)
	Pericoronaritis	5	4	4	5	6	24 (4.0)
Prosthodontics	Loose provisional crown	6	7	4	9	12	38 (6.3)
	Loose definitive denture	3	0	2	1	0	6 (1.0)
Surgery	Hard tissue lesions	1	2	2	1	1	7 (1.2)
	Soft tissue lesions	1	2	1	1	0	5 (0.8)
	Indication for extraction (residual root or deciduous tooth)	12	14	16	13	17	72 (12.0)
	Alveolitis	1	0	0	1	1	3 (0.5)
	Postoperative period (presence of sutures)	3	2	7	4	7	23 (3.8)
	Craniomandibular disorder	1	0	2	1	2	6 (1.0)
	Others	3	2	2	4	2	13 (2.2)
Total		120	120	120	120	120	600 (100)

*Chi-square test, statistically significant difference at 5%

Table 5: Treatment of pain arising from teeth and periodontal structures according to the specialty (endodontic, restorative dentistry, periodontology, prosthodontics and surgery)

Specialty*	Treatment	2006*	2007*	2008*	2009*	2010*	Number of procedures (%)
Endodontics	Coronal opening, pulpectomy and intracanal medication	46	31	48	31	39	195 (21)
	Coronal opening, pulpotomy and intracanal medication	19	24	15	17	18	93 (10)
	Drainage of abscess	5	3	4	5	2	19 (2)
	Change of intracanal medication	5	14	4	6	13	42 (4.5)
Restorative dentistry	Fragment bonding or composite resin restoration	2	6	3	3	1	15 (1.6)
	Placement of contention	0	2	0	1	1	4 (0.4)
	Temporary restoration	20	21	19	17	22	99 (10.6)
Periodontology	Treatment of periodontal abscess	5	2	5	5	2	19 (2)
	Treatment of ANUG	1	1	0	1	0	3 (0.3)
	Treatment of pericoronaritis	5	3	3	5	5	21 (2.3)
Prosthodontics	Cementation of provisional crown or definitive denture	7	7	5	10	13	42 (4.5)
	Occlusal adjustment	8	6	10	4	9	37 (4)
Surgery	Tooth extraction	16	15	18	12	22	83 (8.9)
	Treatment for alveolitis	1	0	0	1	1	3 (0.3)
	Removal of sutures (postoperative period)	19	11	12	12	20	74 (8)
	Systemic prescription of drugs	14	12	7	11	16	60 (6.5)
	Others	5	4	4	2	5	20 (2.2)
	Referral to treatment in other clinics at the dental school	16	14	22	32	17	101 (10.9)
Total		194	176	179	175	206	930 (100)

*Chi-square test, statistically significant difference at 5%

emergencies of periapical origin (acute apical periodontitis and acute periradicular abscess); painful emergencies of periodontal origin (acute necrotizing ulcerative gingivitis, acute periodontal abscess and pericoronaritis) and emergencies due to trauma with esthetic involvement (enamel fracture, enamel and dentin fracture without pulp exposure, enamel and dentin fracture with pulp exposure).

The resolution of dental emergencies comprises the accomplishment of immediate measures to relieve the acute painful symptoms in cases of acute infections of endodontic or periodontal origin, and esthetic reestablishment in cases of trauma to the deciduous or permanent teeth.

The dental emergencies of endodontic origin (reversible and irreversible pulpitis) may be solved by restorative procedures or endodontic therapy, depending on the stage of pulp involvement. Conversely, the periapical pathologies should be treated by endodontic intervention, aiming to neutralize the toxic root canal content. The diagnosis of emergencies of periodontal origin, such as pericoronaritis and abscess may be confounded with endodontic emergencies, thus requiring differential diagnosis for a local approach directed to the pathological condition.

In this study, analysis of the distribution of patients according to gender (Table 1) revealed predominance of females (59.17%) compared to males (40.83%). With regard to the ethnicity, the results demonstrated that most individuals (80.83%) were Caucasians, 19.17% were of African descent, and no individual of Asian descent attended the clinic during this period (Table 2). Widström et al¹⁸ did not find statistically significant differences between females and males, yet reported that the females attend dental clinics more regularly than males. In general, the higher percentage of females may be assigned to the care with their own health and their family's health; however, the present outcomes do not allow the establishment of this relationship.

Evaluation of the age range of patients assisted in the emergency dental clinic (Table 3) evidenced predominance of young adults aged 20 to 39 years (49.67%). These results are in agreement with the studies of Widström et al,¹⁸ Beal et al,¹⁹ Holmes and Sutcliffe²⁰ and Scully.²¹

Scully²¹ analyzed emergency attendances and reported predominance of the age range 20 to 29 years (38%). There was predominance of males (60.5%) compared to females (39.5%) and the most frequent problems were pain (77%), edema (22%) and loose restorations or crowns (21%). Holmes and Sutcliffe²⁰ observed similar results, with predominance of males compared to females and higher percentage of patients in the age range 20 to 39 years. Widström et al¹⁸ did not find differences between males and females, yet also observed predominance of patients in the age range 20 to 39 years.

In the study of Gibson et al,²² 67% of patients were in the age range 20 to 40 years, being 138 males and 115 females. In the same study, the most frequent symptom reported by the patients was pain, present in 222 (87.7%) of the 253 patients assisted. The most common etiology was infection, observed in 194 (76.7%) among the 211 cases.

Matthews et al²³ analyzed a total of 172 patients with history of acute pain, among which 94 were males and 78 were females, aged 15 to 79 years (mean 39.4 years). The authors observed that 76% of the patients presented problems related to dental caries and periodontal disease.

Quiñonez et al²⁴ evaluated the emergency department visits for dental care of nontraumatic origin and verified that approximately half of all visits (54%) were made by patients between 20 to 40 years old, and associated with periapical abscesses and toothaches (56%). The great majority (78%) were triaged as nonurgent.

One aspect that might explain the predominance of patients aged 20 to 39 years would be the fact that public dental services in Brazil comprise the attendance to schoolchildren, i.e. when these individuals are older than school age they attend the emergency dental services. Conversely, dental caries affects primarily children and young adults, and the reduced prevalence in older patients may influence these results.

Another important aspect is the percentage of children aged 0 to 9 years (7.17%) and adolescents aged 10 to 19 years (9.33%) assisted in emergency dental clinics (Table 3). These numbers reflect the lack of preventive counseling to the population and evidence the need to develop educational programs in schools and/or for the families of these children and adolescents.

Gulinelli et al²⁵ showed that from a total of 4112 patients admitted to the service of surgery and oral and maxillofacial traumatology during a 6-year period, 266 (6.5%) had tooth injuries (172 males - 64.7% and 94 females - 35.3%). Most patients belonged to the 16 to 20 years age group (20.3%) and the most important causes of tooth injuries were bicycle accidents (28.6%), motorcycle accidents (19.2%) and falls (18.8%). Among the injuries to the periodontal tissues, avulsion was the most common (32.86%) followed by extrusive luxation (19.15%).

According to several authors, toothache is the most frequent complaint of patients attending emergency dental clinics,^{19,22,26,27} especially pain of pulp and periapical origin.²⁸

In this study, dental caries and its consequences, pulp and periapical diseases, as well as periodontal problems, were the main problems in the emergency dental clinic (Table 4). Similar data were reported in the studies of Gibson et al,²² Matthews et al,²³ Widström et al²⁹ and Sinclair and Wilson.³⁰

Gibson et al²² analyzed attendances of emergency dental clinics and reported that irreversible pulpitis was observed in 28.4% of cases, followed by periapical abscess (24.2%) and reversible pulpitis (23.7%), being that 45% of the teeth were submitted to pulpotomy.

Widström et al²⁹ reported that dental caries and its consequences accounted for 64% of the emergency attendances. The most frequent diagnoses reported by these authors were apical periodontitis (21.1%), pulpitis (13.3%), dental caries (12.5%), loose restoration of tooth fracture (16.6%), pericoronaritis (6.9%), dental trauma (5.5%) and abscesses (3.9%). Several treatments were performed, especially endodontic treatment (22%), followed by temporary restorations (18.8%) and tooth extraction (13.5%).

A study conducted in Malaysia by Razak and Jaafar²⁶ addressing the necessity, demand and pattern of utilization of dental services in an urban population revealed that in the distribution of procedures according to the specialties, 50.7% of cases were within the field of surgery, 25.1% restorative dentistry, 7.7% orthodontics, 6.9% periodontology and 6.5% prosthodontics. The highest percentage of patients referred for surgery indicates that tooth extraction was the treatment of choice of the patients.

According to Neto and Nadanovsky,³¹ the socioeconomic level of patients has a direct influence on the risk of tooth loss. In this study, 8.9% of cases were indicated for tooth extraction (Table 5). This result may reflect the influence of several factors, such as inadequate diet, low educational level, and difficult access to health education, information and services.

According to the present data, the most frequent cases of acute pain were related to endodontic emergencies (295/600=49.2%). Among these, 154 (25.7%) were diagnosed as acute apical periodontitis, 107 (17.8%) as irreversible pulpitis, 30 (5%) as acute dentoalveolar abscess and 4 (0.7%) as pericementitis (Table 4). For resolution of these problems, the treatments included pulpectomy (21%), pulpotomy (10%), drainage of abscess (2%) and occlusal adjustment in the cases of pericementitis (4%) (Table 5).

Analysis of the diagnosis of the different cases reveals that the patients searched for treatment when pain was already present, as demonstrated in Table 4. However, because of the easy access to the emergency dental clinic, several patients attended the clinic for cementation of provisional crowns or definitive dentures (4.5%), restoration of teeth or fractured restorations (10.6%), presence of dental caries (6.5%) and removal of sutures (8%). These results suggest that part of the population is concerned with esthetics or even with preservation of the remaining tooth structure. The indication of tooth extraction evidences the

need of educational campaigns aiming to promote the awareness of patients on oral health maintenance and oral hygiene, which would allow a decrease in the occurrence of pulp necrosis and pulpitis, thereby improving the treatment prognosis.

In this study, some types of nonemergency treatment were performed in the emergency clinic (removal of sutures, change of intracanal medication and others) (Table 5). This occurred because the emergency dental clinic also aims at the primary attention to patients attending the dental school. This is often the first contact of patients with any type of oral health care, in the search for treatment. Luzzi and Spencer³² verified that the patients appeared to be cycling through emergency dental care because of lack of access to general care services, highlighting access problems to public dental care.

Homes and Sutcliffe²⁰ evidenced that deviations from the objectives of emergency dental services often occur. Because of factors, such as easy access, cost and convenience, these services are used as an alternative system of dental care.

It should be highlighted that the number of attendances of the same patient is directly related to the disease diagnosed and treatment planning established, since there is an expected number of attendances for each type of problem. Analysis of the records revealed that some patients returned to the emergency dental clinic more than once, i.e. they had another consultation and another attendance, probably searching for treatment continuity. The return sessions were not considered in the present analysis, yet these cases were referred to the triage sector of the institution for treatment in other clinics at the dental school.

Depending on the clinical examination of the patient and the diagnosis, several procedures may be performed to solve the different problems. For analysis of the treatments performed, an attempt was made to identify the main procedure performed in each attendance (Table 5). Individualized procedures were performed in each case, depending on the patient needs. For this reason, the number of procedures performed (920) (Table 5) was higher than the number of patient records analyzed (600) (Table 4). Unfortunately, there was a high percentage of tooth extraction (8.9%). These results do not indicate a radical nature of the emergency dental clinic, but rather an often unavoidable procedure that seems to reflect the socioeconomic condition of the patients assisted. Tramini et al³³ verified that younger patients and people from lower socioeconomic groups used the emergency dental service more frequently. Neto and Nadanovsky³⁰ verified that the lower social strata were strongly associated with increased risk of having teeth extracted. Studies should be carried out

to analyze how social strata may influence the decision made by dentists and patients to extract or to keep a tooth. Such information could help to reduce social inequality in tooth extractions.

CONCLUSION

Dental caries and its consequences were the main factors involved in the emergency attendances. There is a constant need of health promotion, considering that the patients searched for restorative treatments without the necessary emphasis on prevention. Additional studies are needed to determine strategies for decreasing the use of emergency services for nonemergency dental problems.

REFERENCES

- De Luke DJ. Emergency dental care for community: What is the responsibility of the hospital? *J Hosp Dent Pract* 1976;10:43-45.
- Douglass AB, Douglass JM. Common dental emergencies. *Am Fam Physician* Feb 2003;67(3):511-16.
- Carrotte P. Endodontics: Part 3. Treatment of endodontic emergencies. *Br Dent J* 2004;197:299-305.
- Anderson R, Thomas DW. Out-of-hours dental services: A survey of current provision in the United Kingdom. *Br Dent J* 2000;188:269-74.
- Evans DJ, Smith MP, Grant SMB, Crawford MA, Bond J. Out-of-hours emergency dental services: Development of one possible local solution. *Br Dent J* 2001;191:550-54.
- Ball GE. Out-of-hours emergency dental services in Scotland - A national model. *Br Dent J* Nov 2008;205(9):485-87.
- Luzzi L, Spencer AJ, Jones K, Roberts-Thomson KF. Predicting relative need for urgent dental care. *Community Dent Health* Sep 2009;26(3):162-69.
- Antonelli JR. Acute dental pain, Part II: Diagnosis and emergency treatment. *Compendium* Sep 1990;11(9):526-33.
- Burke FJT, McCord JF, Cheung SW. The provision of emergency dental care by general dental practitioners in an urban area. *Dent Update* 1994;21:184-86.
- Mitchell DF, Tarplee RE. Painful pulpitis: A clinical and microscopic study. *Oral Surg Oral Med Oral Pathol* 1960;13:1360-90.
- Weine FS, Healy HJ, Theiss EP. Endodontic emergency dilemma: Leave tooth open or keep it closed? *Oral Surg Oral Med Oral Pathol* 1975;40:531-36.
- Nalliah RP, Allareddy V, Elangovan S, Karimbux N, Lee MK, Gajendrareddy P. Hospital emergency department visits attributed to pulpal and periapical disease in the United States in 2006. *J Endod* Jan 2011;37(1):6-9.
- Ross IF. The relation between periodontal and pulpal disorders. *J Am Dent Assoc* 1972;84:134-39.
- Michaelson PL, Holland GR. Is pulpitis painful? *Int Endod J* 2002;35:829-32.
- Natkin E. Treatment of endodontic emergencies. *Dent Clin North Am* 1974;18:243-55.
- Antrim DD, Bakland LK, Parker MW. Treatment of endodontic urgent care cases. *Dent Clin North Am* 1986;30:549-71.
- Gatewood RS, Himel VT, Dorn SO. Treatment of the endodontic emergency: A decade later. *J Endod* 1990;16:284-91.
- Widström E, Pietilä I, Piironen P, Nilsson B, Savola I. Analysis of patients utilizing emergency dental care in two Finnish cities. *Acta Odontol Scand* 1988;46:105-12.
- Beal J F, Betchers T, Farrell S. Emergency dental treatment at bank holidays. *Br Dent J* Dec 1978;145:375-77.
- Holmes C, Sutcliffe P. Changes in characteristics of patients attending and out-of-hours emergency dental service in Edinburgh. *Community Dent Health* 1992;10:65-71.
- Scully C. The pattern of patient attendance for emergency care in a British dental teaching hospital. *Community Dental Health* 1995;12:151-54.
- Gibson GB, Blasberg B, Hill SJ. A prospective survey of hospital ambulatory dental emergencies Part 1: Patient and emergency characteristics. *Spec Care Dentist* 1993;13(2):61-65.
- Matthews RW, Peak JD, Scully C. The efficacy of management of acute dental pain. *Br Dent J* Jun 1994;176:413-16.
- Quiñonez C, Gibson D, Jokovic A, Locker D. Emergency department visits for dental care of nontraumatic origin. *Community Dental Oral Epidemiol* Aug 2009;37(4):366-71.
- Gulinelli JL, Saito CT, Garcia-Júnior IR, Panzarini SR, Poi WR, Sonoda CK, et al. Occurrence of tooth injuries in patients treated in hospital environment in the region of Araçatuba, Brazil during a 6-year period. *Dent Traumatol* Dec 2008;24(6):640-44.
- Razak I A, Jaafar N. Dental needs, demands and patterns of service utilization in a selected Malaysian urban population. *Community Dent Oral Epidemiol* 1987;15:188-91.
- Sonis ST, Valachovic RW. An analysis of dental services based in the emergency room. *Spec Care Dent* 1988;8:106-08.
- Touré B, Kane AW, Diouf A, Faye B, Boucher Y. Preoperative pain and medications used in emergency patients with irreversible acute pulpitis or acute apical periodontitis: A prospective comparative study. *J Orofac Pain* 2007;21(4):303-08.
- Widström E, Pietilä I, Nilsson B. Diagnosis and treatment of dental emergencies in two Finnish cities. *Community Dental Health* 1990;7:173-78.
- Sinclair J, Wilson NH. An emergency dental service for students: 4-year findings. *Community Dent Health* June 1997;14(2):89-91.
- Neto JMS, Nadanovsky P. Social inequality in tooth extraction in a Brazilian insured working population. *Community Dent Oral Epidemiol* 2007;35:331-36.
- Luzzi L, Spencer AJ. Public dental service utilization among adults in South Australia. *Aust Dent J* June 2009;54(2):154-60.
- Tramini P, Al Qadi Nassar B, Valcarcel J, Gibert P. Factors associated with the use of emergency dental care facilities in a French public hospital. *Spec Care Dentist* Mar-Apr 2010;30(2):66-71.

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