

## Evaluation of out-of-hours dental service, Recife, Brasil

*Avaliação do serviço odontológico de urgência, Recife, Brasil*

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### ABSTRACT

To evaluate the establishment of an out-of-hours dental service in Recife. This was a quantitative study using a secondary data setting design. Data were collected using clinical and sociodemographic information from the entire population requiring an out-of-hours dental service in Recife - PE - Brazil. The time frame used in the analyses was June 2003 to September 2004. The data analysis was divided into a descriptive and an analytical phase, using the chi-square test, with a 5% level of significance. The results showed that 17,878 users requested the service with an average of 1,188.5 users/month. The mean age of the population was 24.7 years (24.5 - 24.9, 95% CI). The main reason for users requesting the service was acute painful emergencies (74.3%). Only 7.4% did not have their complaints classified as an emergency. The highest demand for the service was on Tuesdays ( $p < 0.05$ ). Post-traumatic injuries were more frequent in males (61.5%) ( $p < 0.05$ ), even though all other complaints showed a predominance of females. 1 to 5-year - olds had a high frequency of dental trauma (22%) and post-traumatic injuries (31%) ( $p < 0.05$ ). There is a considerable demand for an out-of-hours dental service in Health Administration Area II and it is very important in providing support at all levels of dental care.

**Key words:** Toothache; Dental health services; Comprehensive dental care; Emergency.

### RESUMO

Avaliar o serviço odontológico de urgência municipal da cidade do Recife. Este estudo utilizou a metodologia quantitativa com uso de dados secundários. Foram coletados informações relacionadas as condições clínicas e sociodemográficas da população que acessou o serviço odontológico de urgência, Recife - PE - Brasil. O período analisado foi de Junho de 2003 a setembro de 2004. A análise dos dados foi dividida em duas fases: uma descritiva e outra analítica, usando o teste de qui-quadrado com nível de significância de 5%. Os resultados mostraram que 17.878 usuários demandaram ao serviço com uma média de 1.188,5 usuários/mês. A idade média da população atendida foi de 24,7 anos (24,5 - 24,9, 95% IC). A queixa principal mais frequentemente relatada pelos usuários que buscaram o serviço foram as urgências agudas dolorosas (74,3%). Somente 7,4% das queixas principais não puderam ser classificadas como um caso de urgência. A maioria dos usuários procuraram o serviço nas terças-feiras ( $p < 0.05$ ). As feridas pós-traumáticas foram mais frequentes no sexo masculino (61,5%) ( $p < 0.05$ ), enquanto que todas outras queixas principais predominavam no sexo feminino. Crianças de 1-5 anos tiveram alta frequência de trauma dental (22%) e feridas pós-traumáticas (31%) ( $p < 0.05$ ). Há uma demanda considerável para o serviço odontológico de urgência do Distrito Sanitário II e este é muito importante no suporte a todos os níveis de atenção à saúde bucal.

**Palavras-chave:** Odontalgia; Serviços de saúde bucal; Assistência odontológica integral; Emergência



## INTRODUCTION

The prevalence and severity of dental caries are declining in 12-year-old children. This fact has been demonstrated in the developed world<sup>1</sup>, in developing countries, including Brazil<sup>2</sup> and, in particular Recife<sup>3</sup>, in the 1980s and 90's. However this decline has not been uniform in all social strata. Studies have shown that those who are at the bottom of the socioeconomic scale have the worst dental health. One explanation for this phenomenon has been the lack of access to and utilization of dental care services<sup>4,5</sup>.

In addition, the most common consequence of untreated dental caries is dental pain, which has a substantial impact on the sufferer's quality of life. This is due to its high prevalence and the resulting demand for public services, its impact on quality of life, mainly related to pain, discomfort, social and functional limitation adversely affecting the population's quality of life<sup>6,7</sup>.

In this context, it is necessary to increase coverage of dental services<sup>1</sup>, especially in poor areas where most diseases are concentrated. A dental service must focus on primary health care, which should be responsible for most dental health actions and include out-of-hours dental services<sup>8</sup>.

In Brazil, public health policy has shown recent advances, with great efforts being made to implement the Family Health Programme and the new National Oral Health Policy<sup>9</sup>. The main focus of the new policy is the steady increase in dental care coverage. This programme is based on the principles of primary health care and health promotion. However, it was not designed to provide out-of-hours dental services.

Out-of-hours dental services have been investigated in a number of studies with the aim of examining their impact on the general dental services system<sup>10,11</sup>. The ideal dental health service system should have a well-organized primary care network with an established referral system for secondary and tertiary care that includes out-of-hours dental services and maxillofacial surgery emergencies. These should increase the effectiveness and efficacy of the system<sup>12-14</sup>. The out-of-hours dental services should function full time, including nights, weekends and holidays<sup>15</sup>, particularly for the relief of dental pain,

which has been described as the users chief complaint<sup>16, 17</sup>.

Thus, the aim of the present study was to investigate the role of the out-of-hours dental services in Recife, the distribution of users according to socio-demographic variable and chief complaint and to evaluate whether there are seasonal variations.

## MATERIALS AND METHOD

The research was carried out in 2004, in Health Administration Area II (HAA II), Recife City, Pernambuco, Brazil. This Health Administration Area has a territory corresponding to 6.51% of the total area of the city. It has a population of 217,748, representing 14.48% of the city's entire population. An out-of-hours dental clinic in Recife was first established in an area with an index of human development of around 0.79, as in HAA II.

Secondary data were used from the clinical records of all the users of the out-of-hours dental service in the period July 2003 to September 2004. The data were obtained from 17,828 clinical records. Collected data attempted the variable as follow: age, gender, month, day of the week, period of the day in which the user received dental treatment from the service and chief complaint reported by the user.

Chief complains reported by users were classified by clustering groups of complain as suggested by Tortamano et al.<sup>18</sup> and Figueiredo<sup>19</sup>, this classification took into account the nature of lesion. If it was pain related urgency; such as toothache, non treated dental carie, periodontal disease, gingivitis, oral facial pain complains were classified as acute painful urgencies; Also were considered self-perception treatment need from patient or other professional referral; complains were considered as post-operative problems when was reported hemorrhage, alveolitis or complications from dental extraction; Aesthetic emergencies included dental trauma, prosthetics and filling fractures that compromise the aesthetic concern of patient; and post-traumatic injuries were assigned when aesthetic concern of patient were not compromise; and diseases of oral mucosa that included those with lesions in the soft tissues. Also, cases were classified as "others" when they cannot be classified in any of the categories above, but have a diagnose from the dentist; and when patient look for treatment but was not seen by

dental professional. Finally, it was considered unknown when patient do not have its complain in the form.

Data analysis consisted of a descriptive phase and an analytical one. Descriptive analysis comprised frequency distribution, mean and standard deviation. To test for significant differences, the chi-square test was employed. Data was analyzed using the Statistical Package for Social Sciences (SPSS), version 10.0, for the descriptive and analytical phases. For all analysis the 5% level of significance was adopted.

## RESULTS

The mean age of the population was 24.7 years (24.5 – 24.9, 95% CI) and the age distribution can be seen in Chart 1. Regarding gender, 57.1% of the users were female and 42.9% male. Most of the sample came from the geographical area covered by the service (71.5%).

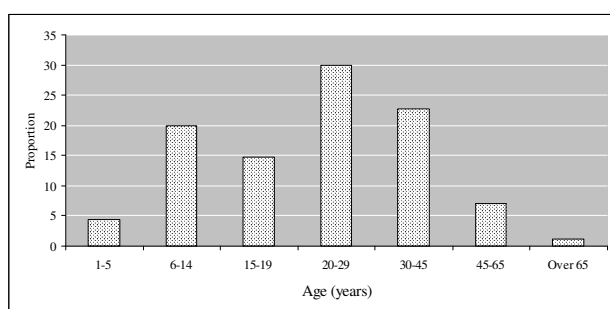


Chart 1 – Distribution of users by age. Recife-PE/2004.

The main reason for seeking the service was acute painful emergencies (74.3%). In only 7.4% of the total were the complaints not classified as an emergency (Table 1). Among the acute painful emergencies dental pain is the most prevalent (60.6%).

Analysis of the seasonal variations in the sample demonstrated that Tuesday was the day of the week with the highest demand ( $p < 0.05$ ).

The results showed that 17,878 users sought the service during the study with an average of 1,188.5 users/month. The highest demand was in October 2003, with 1,633 patients seen (9.3%), and the lowest in February 2004 with 910 (5.1%). The service presents a mean of 39.6 users a day. Demand was highest in the morning (39.7%), followed by the afternoon (34.1%) and night (26.1%).

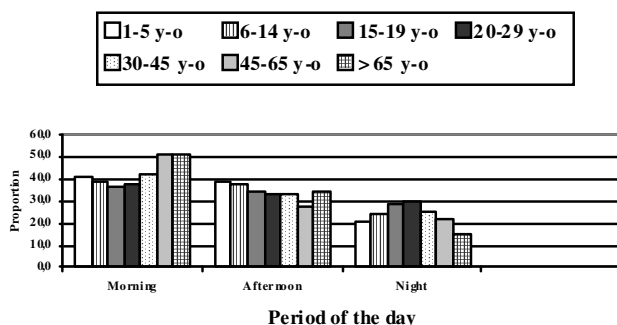
Table 1 – Frequency distribution of the out-of-hours dental services users in Health Administration Area II according to chief complaint by group. Recife-PE/2004

| Chief complaint by group                          | Frequency     |              | Valid Percentage | Accumulated Percentage |
|---------------------------------------------------|---------------|--------------|------------------|------------------------|
|                                                   | N             | %            |                  |                        |
| Acute painful emergencies                         | 13,251        | 74.3         | 74.3             | 74.3                   |
| Could not be classified as an emergency condition | 1,321         | 7.4          | 7.4              | 81.7                   |
| Ignored                                           | 984           | 5.5          | 5.5              | 87.2                   |
| Patient need and professional indication          | 623           | 3.5          | 3.5              | 90.7                   |
| Post-operative problems                           | 617           | 3.5          | 3.5              | 94.2                   |
| Aesthetic emergencies                             | 393           | 2.2          | 2.2              | 96.4                   |
| Patient not seen                                  | 269           | 1.5          | 1.5              | 97.9                   |
| Others                                            | 185           | 1.0          | 1.0              | 98.9                   |
| Post-traumatic injuries                           | 96            | 0.5          | 0.5              | 99.5                   |
| Diseases of oral mucosa                           | 51            | 0.3          | 0.3              | 99.8                   |
| Unknown                                           | 38            | 0.2          | 0.2              | 100.0                  |
| <b>Total</b>                                      | <b>17,828</b> | <b>100.0</b> | <b>100.0</b>     |                        |

An association between gender and chief complaint showed that the female gender was predominant except in the case of post-traumatic injuries, which showed a male predominance of 61.5% ( $p < 0.05$ ).

A relationship was found between age and the period of the day for out-of-hours dental services. At morning, adults over 45 years were the majority. At afternoon, children until 14 year were more frequent, while teenagers (15-19 years) and adults (20-29 years) came more at night (Chart 2).

Chart 2 – Proportional distribution of the users according to age in relation to period of the day. Recife-PE/2004.



## DISCUSSION

Several studies have shown the important role of out-of-hours dental services, available 24 hours per day, in increasing access to dental care<sup>11,13,20</sup> particularly in view of the high frequency of dental pain, which has been reported as the chief complaint<sup>10</sup>.

One of the advantages offered by out-of-hours dental services reported by Watson et al.<sup>14</sup> is that they provide access to people who are normally excluded from the official health services. Even in Brazil, where health care is offered to all, as a state responsibility, the present study showed that the majority of people treated by this service came from the same geographic area, which is a predominantly poor area of Recife. We can therefore, argue in favor of including these services as part of oral health care delivery. This could increase their efficacy and quality<sup>20,21</sup>.

The study also found that dental pain was the main reason for users seeking assistance from out-of-hours dental services. This finding has been reported by several studies<sup>8,13,22</sup>. In Brazil, this fact may be attributed to the conditions of oral health. The National Oral Health survey showed that dental caries and its consequences such as missing teeth and dental pain are the main oral health problems for Brazilian society<sup>23</sup>. However one finding from the present study that should be highlighted is the high proportion of people aged 6-14 years who were assisted by an out-of-hours dental service. One possible reason why people in this age group are highly frequent users of the out-of-hours dental services is the severe social exclusion, in relation to dental care, of a

large segment of the Brazilian population, despite the fact that results of the National Oral Health Survey showed a decrease in dental caries from 1996 to 2003 in 12-year-olds<sup>23</sup>.

Another point highlighted by this study is the relation between chief complaint and age, especially, in 1 to 5-year-olds, who had a higher frequency of aesthetic emergencies (22%), including dental trauma, and of post-traumatic injuries (31%). Several studies have demonstrated the importance of traumatic injuries in this group<sup>24-26</sup>. Post-traumatic injuries have proved to be common complaints in out-of-hours dental services<sup>16</sup>. The present study also demonstrated the importance of the service being organized and prepared to deal with lesions resulting from accidents, urban and domestic violence<sup>27</sup>.

The results of this study support the argument that the dental out-of-hour service is very important for the public dental care delivery system in Brazil. It can provide assistance and promote continuous access for the population requiring immediate attention to their dental problems.

## CONCLUSION

There is a considerable demand for the dental out-of-hours service introduced in Health Administration Area II, Recife-PE, Brazil. It represents an important service within the structure of the oral health model and needs to be integrated into secondary care and the referral system in the oral health network.

## REFERENCES

1. Thomas DW, Satterthwaite J, Absi EG, Shepherd JP. Trends in the referral and treatment of new patients at a free emergency dental clinic since 1989. *Br Dent J* 1997; 11-14.
2. Narvai PC, Frazão P, Roncalli AG, Antunes, JLF. Cárie dentária no Brasil: declínio, polarização, iniquidade e exclusão social. *Rev Panam Salud Publica* 2006; 19(6):385-393.
3. Soriano E, Sampaio P, Rodrigues CS. Tendências na experiência de cárie dentária em crianças de 12 anos de idade, residentes no Recife: dados referentes às décadas de 70 - 90. *Revista Ação Coletiva* 1998; 1(4):23-26.
4. Patussi MP, Marcenis W, Croucher R, Sheiham A. Social deprivation, income inequality, social cohesion and dental caries in Brazilian school children. *Soc Sci Med* 2001 3:915-25.
5. Watt RG, Sheiham A. Inequalities in oral health: a review of the evidence and recommendations for action. *Br Dent J* 1999; 187:6-12.

6. Goes PSA, Sheiham A, Watt RG, Hardy R. The prevalence and severity of dental pain in 14-15 year old Brazilian schoolchildren. *Community Dent Health* 2007; 24:217-24.
7. Lacerda JT, Simionato EM, Peres KG *et al.* Dor de origem dental como motivo de consulta odontológica em uma população adulta. *Rev Saude Publica* 2004; 38(3):453-458.
8. Scully C. The pattern of patient attendance for emergency care in a British dental teaching hospital. *Community Dent Health* 1995; 12:151-154.
9. Costa NR, Pinto LF. Avaliação de programa de atenção à saúde: incentivo à oferta de atenção ambulatorial e a experiência da descentralização no Brasil. *Cien Saude Colet* 2002; 7(4):907-923.
10. Cohen LA, Manski RJ, Hooper FJ. Does the elimination of Medicaid reimbursement affect the frequency of department dental visits? *J Am Dent Assoc* 1996; 127: 605-609.
11. Dane JN, Hayden WJ, Soldanel AP. Retrospective study on emergency room dental patients retained in a hospital dental practice. *Spec Care Dentist* 1998; 102-105.
12. Key JD, Washington EC, Hulsey TC. Reduced emergency department utilization associated with school-based clinic enrollment. *J Adolesc Health* 2002; 46(3):95,98-102.
13. Sayers M, Rowland H, Djemal S. Experiences in a Dental Emergency Clinic. *Eur J Prosthodont Restor Dent* 2004; 12(1):5-8.
14. Watson ML, Trompeter KM, Lang P, Allen D, Mifsud J, McGowan JM. A community collaboration: the dental emergency assistance program. *J Am Dent Assoc* 1996; 127:1240-1246.
15. Dickinson TM, Guest PG. An audit of demand and provision of emergency dental treatment. *Br Dent J* 1996; 181:86-87.
16. Guerra ME. El pediatra frente a los traumatismos dentales. *Arch Venez Pueric Pediatr* 2000; 63(3):123-129.
17. Schwartz S. A one-year statistical analysis of dental emergencies in a pediatric hospital. *J Can Dent Assoc* 1994; 60:959-968.
18. Tortamano IP. *et al.* As Urgências odontológicas e o tratamento clínico e medicamentoso integrado. *JBC* 2004; v.8(43):78-85.
19. Figueiredo N. Urgência Odontológica: Um Passo na Consolidação da Atenção Básica em Saúde Bucal [dissertação]. Recife: Universidade de Pernambuco; 2004.
20. Anderson R, Thomas DW. 'Tootache stories': a quality investigation of why and how people seek emergency dental care. *Community Dent Health* 2003; 20:106-11.
21. Rehman KU. Emergency dental services: review of the Community Health NHS Trust Service in Birmingham between 1997 and 2000. *Prim Dent Care* 2003; 10(3):93-6.
22. Agostini FG, Flaitz CM, Hicks MJ. Dental emergencies in a university-based pediatric dentistry postgraduate outpatient clinic: a retrospective study. *ASCD J Dent Child* 2001; 68(5-6):316-21, 300-1.
23. Brasil, Ministério da Saúde. Projeto SB Brasil 2003: condições de saúde bucal da população brasileira 2002-2003: resultados principais. Ministério da Saúde, Secretaria de Atenção à Saúde. Departamento de Atenção Básica. – Brasília: Ministério da Saúde, 2004.
24. Gutiérrez CA, Salazar VCR, Pirela de Manzano A, Manzano M. Traumatismos en dientes anterosuperiores e inferiores: prevalencia en preescolares y sus consecuencias en dentición primaria. *Acta Odontol Venez* 1999; 37(1):134-145.
25. Meira R, Barcelos R, Primo LG. Respostas do complexo dentino-pulpar aos traumatismos em dentes decíduos. *J Bras Odontopediatr Odontol Bebê* 2003; 6(29):50-55.
26. Roizen S, Urzúa S. Traumatismo dental en la infancia: del dentista al pediatra. *Pediatr. día* 1997; 13(4):224-8.
27. Silva OMP, Lebrão M. L. A organização do atendimento da odontologia hospitalar e da traumatologia buco-maxilo-facial no município de São Paulo. *Rev Odontol UNESP* 2001; 30(1):43-54.

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Table 2 – Distribution of users out-of-hours dental services/HAA II according to age and chief complaint by group. Recife-PE/2004.

| Chief Complaint by group                 |          | Years      |              |              |              |              |              |            | Total         |
|------------------------------------------|----------|------------|--------------|--------------|--------------|--------------|--------------|------------|---------------|
|                                          |          | 1-5        | 6-14         | 15-19        | 20-29        | 30-45        | 45-65        | > 65       |               |
| Acute painful emergencies                | N        | 483        | 2,639        | 2,014        | 4,108        | 2,985        | 889          | 131        | <b>13,249</b> |
|                                          | %        | 3.6        | 19.9         | 15.2         | 31.0         | 22.5         | 6.7          | 1.0        | <b>100.0</b>  |
| Aesthetic emergencies                    | N        | 87         | 75           | 41           | 80           | 76           | 30           | 4          | <b>393</b>    |
|                                          | %        | 22.1       | 19.1         | 10.4         | 20.4         | 19.3         | 7.6          | 1.0        | <b>100.0</b>  |
| Diseases of oral mucosa                  | N        | 1          | 11           | 2            | 18           | 9            | 8            | 2          | <b>51</b>     |
|                                          | %        | 2.0        | 21.6         | 3.9          | 35.3         | 17.6         | 15.7         | 3.9        | <b>100.0</b>  |
| Post-operative problems                  | N        | 11         | 83           | 78           | 181          | 172          | 77           | 15         | <b>617</b>    |
|                                          | %        | 1.8        | 13.5         | 12.6         | 29.3         | 27.9         | 12.5         | 2.4        | <b>100.0</b>  |
| Post-traumatic injuries                  | N        | 30         | 16           | 7            | 17           | 16           | 4            | 6          | <b>96</b>     |
|                                          | %        | 31.3       | 16.7         | 7.3          | 17.7         | 16.7         | 4.2          | 6.3        | <b>100.0</b>  |
| Patient need and professional indication | N        | 8          | 102          | 93           | 185          | 171          | 48           | 15         | <b>622</b>    |
|                                          | %        | 1.3        | 16.4         | 15.0         | 29.7         | 27.5         | 7.7          | 2.4        | <b>100.0</b>  |
| Patient not seen                         | N        | 13         | 44           | 47           | 89           | 55           | 18           | 3          | <b>269</b>    |
|                                          | %        | 4.8        | 16.4         | 17.5         | 33.1         | 20.4         | 6.7          | 1.1        | <b>100.0</b>  |
| Others                                   | N        | 11         | 54           | 14           | 51           | 39           | 14           | 2          | <b>185</b>    |
|                                          | %        | 1.4        | 1.5          | 0.5          | 1.0          | 1.0          | 1.1          | 1.0        | <b>100.0</b>  |
| Ignored                                  | N        | 59         | 247          | 126          | 219          | 222          | 97           | 13         | <b>983</b>    |
|                                          | %        | 6.0        | 25.1         | 12.8         | 22.3         | 22.6         | 9.9          | 1.3        | <b>100.0</b>  |
| Could not be classified as na emergency  | N        | 82         | 291          | 201          | 371          | 289          | 72           | 14         | <b>1,320</b>  |
|                                          | %        | 6.2        | 22.0         | 15.2         | 28.1         | 21.9         | 5.5          | 1.1        | <b>100.0</b>  |
| Unknown                                  | N        | 3          | 9            | 2            | 11           | 5            | 6            | 2          | <b>38</b>     |
|                                          | %        | 7.9        | 23.7         | 5.3          | 28.9         | 13.2         | 15.8         | 5.3        | <b>100.0</b>  |
| <b>Total</b>                             | <b>N</b> | <b>788</b> | <b>3,571</b> | <b>2,625</b> | <b>5,330</b> | <b>4,039</b> | <b>1,263</b> | <b>207</b> | <b>17,823</b> |
|                                          | <b>%</b> | <b>4.4</b> | <b>20.0</b>  | <b>14.7</b>  | <b>29.9</b>  | <b>22.7</b>  | <b>7.1</b>   | <b>1.2</b> | <b>100.0</b>  |