## Dental Traumatology

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# Knowledge of the management of paediatric dental traumas by non-dental professionals in emergency rooms in South Araucanía, Temuco, Chile

#### Jaime Díaz<sup>1</sup>, Luís Bustos<sup>2</sup>, Samira Herrera<sup>3</sup>, Jaqueline Sepulveda<sup>3</sup>

<sup>1</sup>Dental Department, Faculty of Medicine, University of La Frontera, Temuco, Chile; <sup>2</sup>Training, Research and Management Evidence Based Medicine Institute & Public Health Department, Faculty of Medicine, University of La Frontera, Temuco, Chile; <sup>3</sup>Undergraduate Dental Students, Faculty of Medicine, University of La Frontera, Temuco, Chile

Correspondence to: Jaime Andrés Díaz, Departamento Odontología Integral, Facultad de Medicina, Universidad de La Frontera, Manuel Montt 112, 4º piso, casilla 54-D Temuco, Chile Tel.: 56 45 325776 Fax: 56 45 325777 e-mail: felicar@hotmail.com; Ibustos@ufro.cl Accepted 22 August, 2009 Abstract -Aim: The objective of this study was to investigate the level of knowledge and attitudes regarding first aid for dental trauma in children (TDI) by non-dental professionals and paramedical technicians of hospital emergency rooms in the South Araucanía Health Service, Chile, which was attained through application of a survey. Materials and methods: Samples were collected from people with occupations in the respective emergency rooms. The participants were 82 people that were interviewed using a questionnaire regarding management of dental trauma. Paramedic technicians, general and specialist doctors, and nurses were included in this survey. The appraisal covered diverse aspects: birth date, age, sex, years of experience in the emergency room, and questions regarding specific dental trauma topics, which focused on crown fractures, luxation injuries in permanent dentition, avulsion in primary and permanent teeth, and the respective emergency treatments. Results: Of the participants, 78.1% reported to have been presented with a TDI patient. The majority (90.2%) had not received formal training on TDI. These results revealed a wide distribution of responses. The overall dental trauma knowledge among the participants was relatively poor. For crown fractures management 54.9% indicated that they would ask the affected child about the crown remnants. In regard to transport and storage medium of avulsed permanent teeth, only 9.8% of the participants answered correctly and 43.9% of respondents stated that they would not replant an avulsed permanent tooth, since that procedure is considered the responsibility of a dentist. *Conclusions*: The majority of the respondents were not knowledgeable regarding TDI or the management and benefits of timely care, particularly in cases of avulsed permanent teeth. Therefore, formal education and training on the topic is suggested during undergraduate studies.

At present, dental injuries are recognized as a real public dental health problem, especially in children and adolescents. They have shown a high incidence of oral injuries in comparison with non-oral injuries, especially during their first ten years of life (1, 2). Injuries to tooth structures and to the facial skeleton are common results of accidental falls, bicycling accidents, sporting activities, fights, and intentional assaults, particularly in children with mixed dentition and in adolescents (3–6). It is well recognized among dentists that emergency care of traumatized teeth should be provided as soon as possible to minimize future sequelae, as well as to control bleeding and pain in the affected patient. This philosophy is especially important with respect to the management of avulsed permanent incisors. The prognosis of replanted permanent teeth depends primarily on (i) prompt and appropriate first care, commonly provided by non-health professionals at the site of the accident, (ii) the storage media of the avulsed tooth prior to replantation, and (iii) the viability of periodontal ligament remnants on the root surface (7–11).

Research has shown that immediate replantation is the best and most appropriate treatment for the traumatically avulsed permanent teeth. When this option is not feasible, replanted teeth may survive with good prognosis if handled and stored correctly to allow periodontal membrane vitality (7–9). In contrast, replantation after a prolonged dried extra-alveolar period results in poor prognosis with ankylosis development (12–14). Emergency services of public and private hospitals that offer 24 h service would expect to see a greater proportion of emergency dental presentations, including traumatic injuries. According to biodemographic data and data on access to emergency attention in Chile, patients with dental trauma usually are first treated at public hospital emergency services, which do not always have available full-time dentists. Thus, non-dental professionals and paramedical technicians are frequently the first to offer primary emergency treatment for such injuries.

In the past 10 years, several studies have investigated the knowledge of laypersons regarding the management of dental trauma, especially in cases of avulsed permanent teeth. Since the peak of dental injuries occurs in 7–12-year-old group, the majority of available international literature has focused on groups those most commonly supervising children such as, parents, primary school teachers, physical education teachers, school nurses, and secretaries. In general, results have indicated that these individuals have relatively poor knowledge of this topic (15–19).

The important role of emergency room physicians and paramedical technicians in the management of dental injuries in children necessitates their proper education and training; indeed, the urgency in treating such injuries necessitates that all personnel dealing with tooth avulsion should have knowledge regarding appropriate first-aid management. Many efforts to provide such education have been undertaken in several countries including Argentina, Australia, Brazil, Chile, Denmark, Singapore, and the United States.

The aim of this study was to assess the knowledge and attitudes of emergency room health professionals and paramedical technicians with respect to the appropriate management of dental trauma, particularly luxation and avulsion injuries in children.

#### Materials and methods

A preliminary letter explaining the research objectives was sent to the 13 directors of the South Araucania Public Health Service Hospitals. Hospitals and primary health services without medical emergency rooms were excluded from this study.

Inclusion criteria: non-dental emergency room professionals and paramedical technicians were present at the initiation of survey implementation. Volunteer subjects were asked to sign the informed consent statement and then to anonymously complete the questionnaire. Participants did not receive informative material prior to the study. Two investigators (SH and JS) visited the hospital emergency rooms, personally distributed the questionnaires, and waited until the survey was completed by the participants. At the initiation of the survey, the Ethical Institutional Review Board of the Faculty of Medicine at the University of La Frontera was performing the constituting process.

The questionnaire developed for data collection was in Spanish and included 18 questions on knowledge and attitudes regarding the emergency management of dental injuries (Appendices 1 and 2). It was divided into two items. Item 1 consisted of general data on the professionals and medical technicians completing the survey, specifically gender, years of experience, areas of specialty, and previous experience or training in treatment of dental trauma in children. Item 2 consisted of eight multiple-choice questions on specific clinical situations of crown fractures, luxation injuries, and the general management of avulsion in primary and permanent teeth.

The above injuries were included in the questionnaire, since the available dental literature indicates that: (i) crown fractures in permanent dentition are the most frequent dental injury in children; (ii) there is a high prevalence of luxation injuries in permanent dentition in the Chilean school population with mixed dentition, and (iii) that appropriate emergency management of avulsed young permanent teeth is critical.

Questions in Item 2 (numbers 11 through 18) were multiple-choice questions. The authors followed the IADT Guidelines and the general consensus in the questionnaire design.

The results of the questionnaire were expressed as frequency distributions and percentages. Responses were entered into a personal computer and data were processed and analysed with STATA 9.0 statistical software program. A descriptive analysis including tables, averages, standard deviation, and median was performed. When variances were equal, the average comparison was performed using the Student's *t*-test, while the Kruskal–Wallis test was used for median comparison when variances were different. The statistical significance level was set at P < 0.05.

#### Results

#### Item 1: hospital and general data

Directors at 2 of the 13 hospitals did not accept the questionnaire and declined to participate in the study. Hospitals in 11 cities of the Araucania Region (Carahue, Cunco, Galvarino, Lautaro, Loncoche, Pitrufquen, Puerto Saavedra, Tolten, Vilcún, Villarrica and Temuco) were included. The Hospital of Temuco is the most important referral institution of Araucania Region South of Chile. The rest of the hospitals cover only the four basic medical services: paediatrics, internal medicine, gynaecology, and emergency. The total beneficiaries population assigned to Temuco hospital is 194 628, while that of the other hospitals combined is 191 631.

The demographic characteristics and general data of the participants, including number of participants, age, gender, years of experience in emergency rooms, and knowledge and training in dental trauma, are shown in Table 1.

The distribution of physicians, nurses, and paramedics by specialty and years of experience in emergency rooms are shown in Table 2. Minimal knowledge for identifying an avulsed tooth was claimed by 35.4% of the participants. According to the results shown in Table 3, a low proportion of participants possess knowledge enabling them to correctly diagnose dental trauma.

Table 1. General and demographic characteristics and of the participants: n = 82

General information	Results* (n, %)
Age	
Mean ± SD	35.8 years ± 10.26
Range	21.8-60.8
Gender	
Male	43 (52.4)*
Female	39 (47.6)
Identity	
Paramedic technicians	43 (52.4)*
Nurses	13 (15.8)
Physicians	26 (31.7)
Years of experienced	
Mean ± SD	7.3 years ± 7.99
Range (years)	(0.17-37.0)
Experience with dental trauma at	YES 64 (78.1)*
emergency room	NO 18 (21.9)
Formal education and training in	YES 8 (9.8)*
dental trauma	NO 74 (90.2)

Furthermore, 87.8% of the participants answered that emergency professional staff should be familiarized with the basic management of dental trauma in children. The majority of the participants (85.3%) reported that dentists should be regular members of emergency room staff.

### Item 2: knowledge and management of dental trauma in children (Questions 11 to 18)

In this second item of the survey, one question concerned to crown fractures in permanent teeth, one question was related to the diagnosis and emergency management of upper maxillary permanent incisors with luxation injury, and six questions concerned to diagnosis and treatment of avulsed primary and permanent teeth.

For question 11, which involved the correct recognition of primary or permanent teeth affected by crown fracture in a 7-year-old child, 45.1% of the polled participants indicated that the affected teeth would correspond to upper maxillary permanent incisors. For the same question, 54.9% indicated that they would ask the affected child about the crown fragment remnants and 81.3% responded that they would refer the patient to the dentist without any clinical intervention.

For question 12, which concerned a case of luxation injury with palatal displacement of upper maxillary

*Table 3.* Basic knowledge for correct diagnosis of different dental injuries distributed by different disciplines

Type of dental Injurie	Physicians	Nurses	Paramedic technicians	Total	Yes (%)
Crown Fracture	11	6	11	28	34. 2
Crown-root fracture	3	1	0	4	4.9
Luxation	10	1	11	22	26.8
Avulsion	18	5	6	29	35.4
Alveolar bone fracture	4	0	0	4	4.9
Intrusión	6	0	2	8	9.8

permanent incisors in a 12-year-old boy, over one-third of the respondents said that they did not have the knowledge to manage the situation and only 25.6% answered 'repositioning the teeth with gentle digital pressure'.

Questions 14 and 17 were concerned avulsed primary teeth. For question 14, the majority (56.1%) of the participants answered that the correct procedure is refer to the paediatric dentist. For question 17, which involved primary tooth avulsion in a pre-school child, where avulsed teeth were not found, 59.8% answered that would examine the oropharynx and 52.8% would examine the upper respiratory tract when there is the possibility of aspiration.

Questions 13, 15, 16 and 18 were referred to the management of avulsed permanent teeth. Question 13 covered telephone instructions (to be given to the patient or caregiver) for avulsed permanent teeth in a 9-year-old child. Only 9.8% of the respondents gave the correct response to this question, which was 'put the avulsed tooth inside the patients' mouth, and go immediately to emergency service' (Table 4).

Question 15 concerned replantation of avulsed permanent teeth under various conditions. In answer to this question, 43.9% of respondents stated that they would not replant an avulsed permanent tooth, since that procedure is considered the responsibility of a dentist.

Question 16 enquired as to the reasons that an avulsed permanent tooth should not be replanted. The different answers given are shown in Table 5. The majority (43.9%) stated, 'The replanted tooth is a high risk factor to produce maxillary infection, because it is contaminated'.

Question 18 evaluated 'what is the correct procedure prior to replantation of an avulsed permanent tooth that

Table 2. Distribution of participants by years of experience and specialty

Vears of experienced	Paramedic		Physician				
(years)	technician	Nurses	General Physician	Pediatricians	Pediatric Surgeon	Others	Total
<3	13	4	8			1	26
3–6	7	3	13				23
7–10	12	3					15
11–15	4	1	1	2			8
16–20	2	1			1		4
>20	5	1					6
TOTAL	43	13	22	2	1	1	82

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<i>i uole 1. Opiniono una telephone maleanono to 7 jeur ola obj mun ajudea permanent toot</i>	Table 4.	Opinions and	telephone	indications to	o 9-year-old	boy with	avulsed	permanent	tootl
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Telephone Indications	Physician	Nurse	Paramedic Technician	п	%
Look for the tooth and keep it into a roll of gauze, napkin or handkerchief and take the child immediately to a dentist	3	4	6	13	15.8
Put the tooth into a glass of cold milk and go to a dentist before of 3 h	13	6	13	32	39.0
Not have the knowledge about it.	4	1	18	23	28.1
Put the avulsed tooth inside the patients' mouth, and go immediately to emergency service	4	1	3	8	9.8
This indications should be made by dentist	2	1	3	6	7.3

Table 5. Respondents opinions about reasons for not replant and avulsed permanent tooth

*Table 7.* Grades obtained at the knowledge of emergency management of dental injuries in children questionnaire

Reasons for not replant	п	%
The replanted tooth is a high risk factor to produce maxillary infection because it is contaminated.	36	43.9
It is possible that it can be knocked out again.	18	21.9
The replanted tooth would be harmful to the neighbor teeth	18	21.9
The replanted tooth would be rejected like ' strange body'	1	1.2
Over two hours of extraoral time	9	11.1

was transported in a dry medium'. Of the participants, 42.7% would wash the tooth with sterile saline solution, while 43.9% would wash the tooth with an antiseptic solution, such as alcohol, hydrogen peroxide, chlorhexidine, or chlorine (Table 6).

Completed questionnaires were analysed with the grading scale that is used in Chile, with 7 representing the best grade possible and 4 as the minimal approbatory grade. The assessment and grades of the participants of this study are shown in Table 7. Overall, dental trauma knowledge among this group was determined to be poor. Even though the grades are deficient, mean grades were significantly different for participants with and without formal training regarding emergency management of dental trauma. The knowledge of physicians regarding TDIs was determined to be much more thorough than that of nurses and paramedics.

#### Discussion

In recent decades, numerous studies have been conducted to evaluate the knowledge of dental trauma management by dentists, health professionals, teachers, and lay persons in various countries (15–17, 19–22, 25,

*Table 6.* Opinion about procedure prior to replant an avulsed permanent tooth that was transported at dry medium over 30 min

Procedure	п	%
Scrub the root surface with sterile gauze or cotton	7	8.5
Wash it with antiseptic solution (alcohol, hydrogen peroxide, chlorhexidine or chlorine)	36	43.9
Wash the tooth with sterile glucosaline solution	35	42.7
Put the tooth intraorally and send to a dentist	1	1.2
Replant immediately; do not perform any clinical procedure since extraoral dry time is too extensive	3	3.7

	Md.	Mean	SD	п	<i>P</i> -value
Gender					
Male	3.1	2.9	1.05	39	0.476 <sup>1</sup>
Female	2.6	2.7	0.86	43	
Experienced in DT					
No	2.5	2.6	0.7	18	0.2089
Yes	2.9	2.9	1.0	64	
Formal Training					
No	2.6	2.7	0.8	74	0.0003
Yes	3.8	3.9	1.0	8	
Specialty					
Paramedic Tech.	2.3	2.7	1.0	43	0.0084
Nurse	2.3	2.3	0.5	13	
Physician	3.3	3.1	0.7	26	

<sup>2</sup>Kruskal–Wallis tests.

30, 31, 35). Such data have not previously been available for Chile. Although expert clinical guidelines have been provided, the average layperson's knowledge regarding proper management of dental trauma, according to evidence from several studies, is very low. In addition, there is not many information available in the literature that assess the knowledge of medical professionals in the emergency management of dental trauma in children, especially avulsion of permanent teeth (18, 23, 26–28, 34).

The survey utilized in this study involved direct and immediate answers to each survey question, with the objective of achieving a high response rate. The study was designed so that its results would allow further reinforcement and training of physicians, nurses, and paramedical technicians on topics of dental trauma in children.

The findings presented herein are consistent with those of other previously published studies (18, 23, 26–28). Despite the fact that 78.1% of the polled participants indicated that they had experienced at least one event of dental trauma during their professional work, the survey demonstrated that the majority of participants possess poor knowledge regarding first aid care in dental trauma cases. The main reason for the lack of knowledge in this area could be the high percentage of participants (90.2%) who stated that they never had formal training on the diagnosis and emergency treatment of dental injuries in children. Clearly, these results suggest that dental emergencies are not sufficiently covered and/or considered in the education of physicians, nurses, and paramedical technicians (26). Holan et al. found in their research that 55% of physicians had never received information related to dental trauma (18). Other reports have shown that insufficient information and instructions about first-aid management of dental trauma are included in non-dental paediatrics first-aid textbooks and manuals of the last two decades (29).

Whether dental trauma occurs as an isolated injury or as a component of severe maxillofacial injury, it is frequently attended by medical professionals in emergency services (23). In such cases, physicians sometimes perform emergency dental treatment because dentists are not available. This situation is commonly observed in hospitals that lack dental clinics within their emergency services departments. For the affected children and their companions, the professionals and paramedical technicians at emergency rooms are the first 'qualified' health care providers available to identify and treat dental injuries.

With respect to treatment alternatives for crown fractures of permanent teeth, the majority of respondents (54.9%) answered correctly that crown remnants could be stored and then re-attached. Lim et al. (16) reported similar results in a study investigating patient and parental awareness of proper management of traumatized teeth. At present, an updated report on current advances in restorative dentistry, bonding and conservative techniques for crown fractures in permanent teeth should be provided.

Surprisingly, this survey revealed that 43.9% of the participants would not replant an avulsed permanent tooth due to perceived high risk of infection and that they considered this treatment to be the responsibility of dentists. This answer reflects very low awareness of the possible alternatives for saving teeth. Several reports have indicated a variety of reasons by non-dental professionals and lay persons for not replant avulsed permanent teeth in children. These include, for example, the presence of soft tissue lacerations and bleeding which mask the dental injury, as well as fear or ignorance of appropriate first emergency care by laypersons at the accident site such as parents, teachers, school friends, school nurses, and secretaries. Studies performed by Blakytny et al. (15) indicated that the majority of teachers surveyed would not replant a permanent avulsed tooth, because: (i) lacked sufficient expertise and (ii) would inflict pain to the child. Hamilton et al. (17) and Addo et al. (30) highlighted to be frightened of hurting the child and the possible legal implications of replanting the tooth incorrectly. In another report, McIntyre et al. (30) reported that approximately 72% of the respondents would not immediately replant an avulsed tooth. The data of Hamilton et al. (17) showed that 36.4% of respondents did not know a tooth could be replanted, while 5.9% and 5.2% of respondents would replant the tooth within 30 min and after 2 h, respectively. In the report of Holan et al. (18), it was found that only 4% of physicians surveyed thought that avulsed permanent incisors should be replanted. In the study of Abu-Dawoud et al. (26), the majority of physicians

surveyed (83.3%) reported that they did not receive any information concerning when tooth avulsion occurred. Other reports provide similar results with respect to the very low percentage (5.5% and 2.9%) of doctors who suggest immediate replantation of avulsed permanent teeth (27, 28). These results demonstrate that the level of knowledge regarding tooth avulsion and emergency treatment by non-dental professionals and laypersons is rather high and variable.

Survey questions that required more specific answers on technical topics (questions 12, 13, 15, 16 and 18) usually resulted in incorrect responses. These questions were related to topics considered very important for the prognosis of luxated and avulsed permanent teeth.

Over one-third of the participants did not possess basic knowledge regarding displacement injuries of permanent incisors. In study of Lim et al. (23), approximately 20% answered 'do not know' in a case of tooth mobility due to trauma. In these cases of luxation injuries, the compromised teeth are changed in position with possible occlusal interference. To avoid additional damage to periodontal ligament, emergency room nondental professionals should leads the injured tooth back into its original position in the alveolar socket ideally with gentile digital pressure.

Furthermore, approximately one-quarter did not identify appropriate clinical procedures prior to replantation, such as washing, as well as the type of storage and transport medium required for avulsed permanent teeth. In our research, only 9.8% of the participants recognized that an avulsed tooth should be intraorally transported (7–10, 32), while in the study of Lim et al. (23), 13.2% of the participants answered that the best transport medium for an avulsed tooth is saliva. Approximately 40% responded, 'Put the avulsed tooth into a glass of milk and go to a dentist before 3 h'. Although, this answer could shows some knowledge of the surveyed concerning the alternatives of transport medium of an avulsed permanent teeth, clearly demonstrates the ignorance of the respondents regarding the importance of short extraalveolar time in the maintenance of vitality of the periodontal ligament in this type of injury. Hamilton et al. (17) obtained similar results in a study on root surface preparation. In this study, 28.5% would scrub the tooth prior to replantation. In our survey, most of the participants did not answer correctly, with 8.5% indicating that they would wash and scrub the tooth with cotton and 43.9% would wash with an antiseptic solution.

Question 15 was 'Should you replant an avulsed permanent tooth as a matter of urgency?' Surprisingly, 43.9% responded 'No, because this treatment corresponds to a dentist.' In the report by Hamilton et al. (17), a high percentage (25%) of the respondents said, 'Do not know' when faced with an avulsed permanent tooth. To date, the majority of research published in regard to emergency management of avulsed permanent teeth by non-dental professionals has indicated insufficient knowledge among these professionals (18, 23, 26–28).

Results obtained with question 16, regarding various reasons for not replanting an avulsed permanent tooth, demonstrated poor knowledge of the healing capacity of involved tissues, particularly concerning periodontal membrane vitality in cases of immediate tooth replantation (7–10). To this question, 21.9% responded 'No, because it would fall out again', and 21.9% indicated that the replanted tooth would damage the adjacent teeth.

Our opinion is that medical students, physicians, nurses, and paramedical technicians associated with emergency rooms should be aware of their important roles in cases of traumatic dental injuries, particularly those involving avulsed permanent teeth, in order to minimize later complications. The way to achieve this aim is through education of the non-dental emergency professionals and technicians during undergraduate studies. In the report of Bottenberg et al. (33) concerning the knowledge of Flemish paediatricians regarding children's oral health, 71% reported having had some training on dental topics. However, other reports indicate that the majority of physicians receive no education regarding dental health, diagnosis of oral lesions, dental trauma and avulsion of permanent teeth during their undergraduate studies (26-28, 34). It is possible that nondental emergency professionals consider tooth avulsion as a permanent and irreversible loss and are primarily concerned about the neurological condition, bleeding and pain present in the child. This behaviour could be a result of the intensive education received during their undergraduate and/or postgraduate formation on topics such as the Glasgow coma scale for quantifying level of consciousness, permeable airway, breathing, blood pressure and circulation etc.

To ensure proper and appropriate treatment for children with dental trauma, it is essential that emergency medical professionals, nurses and paramedical technicians receive sufficient training in the basic principles of management of dental trauma through interdisciplinary seminars, case discussions, clinical posters and flow charts with clinical guidelines for the management of traumatic dental injuries in emergency rooms. According to a report by Al-Asfour et al. (35), lectures followed by discussion seem to be an efficient method of increasing levels of knowledge on dental trauma and management. Algorithms of first-aid management of dental trauma for medics, other non-dental professionals and paramedical technicians have also been suggested (36).

#### Conclusion

Non-dental professionals and/or paramedical technicians usually provide the first emergency attention for dental trauma in children. The results of this survey demonstrated the low knowledge of physicians, nurses, and paramedical technicians in the area of emergency treatment of dental trauma in children. Therefore, TDI education and training during undergraduate and postgraduate studies is suggested.

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Appendix 1

112 Manuel Montt road Temuco

March 21, 2007.

From: Jacqueline Sepulveda and Samira Herrera Undergraduate Dental Students Prof. Dr. Jaime Diaz Assistant Professor Dental Department Faculty of Medicine University of La Frontera Mr.:

To:

Hospital Director

Dear Sir:

We are writing to you for enquire the following. Actually, we are undergraduate dental students of 5° grade of Faculty of Medicine of University of La Frontera, Temuco. To obtain the grade of dentist, is necessary to present like a requirement an investigate thesis about education in primary health.

The chosen subject to develop is: 'Knowledge of the management of pediatric dental traumas by non-dental professionals at emergency rooms in South Araucania, Temuco, Chile'.

To carry out the investigation, is necessary the implementation of a volunteer and anonymous health survey to nondentist professionals and paramedic technicians whom work at these services.

So, we need you to authorize us to perform the survey in your hospital at the following date.....

Yours faithfully and waiting your agreement

Prof. Dr. Jaime Díaz Thesis Guide Dental Department

Samira Herrera Registration: 15.795.621-303

Jacqueline Sepulveda Registration: 15.490238-403 Appendix 2

#### KNOWLEDGE OF EMERGENCY MANAGEMENT OF DENTAL TRAUMA IN CHILDREN. SURVEY n° □

#### I. Personal Information:

- 1. Date of birth:
- 2. Sex: a) Female
- b) Male
- 3. Years of experience at emergency service  $\Box$
- 4. Specialty:
- a) Paramedic technician
- b) Nurse

c) Physician c.1 Pediatrician

- c.2 Pediatric Surgeon
- c.3 General Physician
- c.4 Others

5. ¿Did you see a dental trauma during your professional activities at the emergencyroom?

#### YES NO

6. In your opinión, ¿Which are the age group population in children with the mosthigh frequency of dental trauma.

a) Pre-school children beyond 5 year-old

- b) 5 to 10 year-old
- c) 11 to 20 year-old

7. In your undergraduate studies, ¿ Did you have any dental education about diagnosis and treatment of dental trauma?

#### YES NO

8. Have you the basic knowledge for diagnosis the following dental injuries in children?

	Dental Injury	YES	NO
01	Crown Fracture		
02	Crown-root fracture		
03	Luxation of tooth		
04	Dental Avulsión		
05	Alveolar bone fracture		
06	Dental Intrusión		

9. Should be like the non dentist professional staff of emergency rooms with the basic urgent management of dental trauma in children.

- a) Strongly agree
- b) To agree
- c) Uncertain
- d) In disagree
- e) Strongly disagree

10. The dentist should be part of emergency staff always?

- a) Strongly agree
- b) To agree

- c) Uncertain
- d) In disagree
- e) Strongly in disagree

#### II. Knowledge and Management of Dental Trauma in Children.

11. A 7-year-old girl arrives to emergency room after an accident during activities of physical education at school. She presents various soft tissue oral lesions and fracture of her two upper maxillary central incisors. The fractured teeth probably correspond to:

- 1. Primary incisors
- 2. Permanent incisors
- 3. Not sure

Which would be the most appropriate emergency management?

Clinical Procedure	YES	NO
Suture soft tissues and send to dentist.		
Perform cleansing of the wound with glucosaline solution and send to dentist.		
Ask to the girl or her accompanist if found the crown remnants, and send to the destitet		
No indicate any treatment and send to a dentist		

12. At week-end, a 12-year-old boy sustain a traffic accident. Clinical examination show facial erosions and intraoral soft tissue lesions. Moreover, upper maxillary central incisors present a great palatal displacement of its crowns. Your hospital does not posses in –house dental service. In this circumstance, ¿which procedure will be perform for solve this emergency?

- a) Wash with glucosaline solution and gauze, analgesics and wait for Monday.
- b) Stop the bleeding with a compress, and wait for the attention of oral surgeon.
- c) Reposition the teeth with gentile digital pressure.
- d) Do not know what to do

13. In your emergency duty, you receive a mother phone call explaining that her son (9-year-old boy) had sustained a dental trauma with the results of the 'knocked-out' of his upper right maxillary central incisor at this exact moment. *¿* Which are the instructions should be given to the mother?

- a) Look for the tooth, put it into a napkin and go immediately to a dentist.
- b) Transport the tooth intraorally and go immediately to emergency room.
- c) Put the tooth inside the glass of cold milk, and go to a dentist before of 3 hours.
- d) Not know.
- e) These indications not rest to my job.

14. During your emergency duty, you receive a 4-yearold schoolchild with the diagnosis of avulsion of one upper maxillary central incisor. ¿Which would be the correct behavior?

- a) Send to paediatric dentist for the corresponding clinic assessment.
- b) Replant the avulsed tooth immediately.
- c) Not replant the tooth.
- d) Not know what to do.

15. In regard to question # 14, but in a 9-year-old boy. ¿should you replant the tooth?

- a) Yes, in any circumstances
- b) Yes, except in cases of 3 or multiple avulsed teeth.
- c) Yes, although in case of neurological commitment.
- d) No, because this attention correspond to a dentist.
- e) Not know

16. Which would be the reasons for not replant an avulsed permanent tooth?

- a) It is possible that knocked out again.
- b) The replanted tooth would be harmful to the neighbor teeth.
- c) The replanted tooth is a high risk factor to produce maxillary infection because it is contaminated (i.e. tetanus)
- d) The replanted tooth would be rejected like 'strange body'.

- e) Over two hours of extraoral time.
- f) Over one day of extraoral time.

17. You receive a pre-school child after a traffic accident with the result of multiple avulsed maxillary teeth. The parents did not find the teeth. i Which would be your attitude and behavior in this case?

- a) Clinical examination of the mouth and orofarinx.
- b) Clinical examination of the respiratory tract if suspected of aspiration.
- c) Clinical examination of digestive tract if suspected of swallow.
- d) Do nothing.

18. A 10-year-old boy arrives to emergency room because sustained a hit to his mouth during play football. Like a result, you observe the missing of an upper maxillary central incisor. The compromised tooth was been kept dry into a napkin for 30 minutes. ¿What is the correct procedure before doing the tooth replant?

- a) Scrub the root surface with sterile gauze or cotton.
- b) Wash it with antiseptic solution (alcohol, hydrogen peroxide, chlorhexidine or chlorine).
- c) Put the tooth intraorally and send to a dentist.
- d) Hold the tooth by the crown and wash it with sterile glucosaline solution.
- e) Replant immediately; not performs any clinical procedure since extraoral dry time is so extensive.

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