

**KNOWLEDGE, ATTITUDE AND PRACTICE (KAPs) OF DENTAL
TRAUMA AMONG STAFF IN EARLY CHILDHOOD
DEVELOPMENTAL CENTERS (ECDs) IN HILLBROW,
JOHANNESBURG**

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fulfilment of the requirements for the degree of Masters of
Medicine in the Field of Epidemiology and Biostatistics**

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DECLARATION

I, Mbulaheni Simon Nemutandani, hereby declare that this research report is my own work. It is being submitted for the degree of Masters of Medicine in the Field of Epidemiology and Biostatistics in the University of the Witwatersrand, Johannesburg. It has not been submitted or presented for any degree or examination at this or any other university.



Mbulaheni Simon Nemutandani

29th day of October 2009

The work presented in this report was undertaken in the Division of Public Oral Health, School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg.

DEDICATION

This thesis is dedicated to my wife Veronica, my two daughters Tenda-Mudzimu and Renda-Mudzimu, and my son Mashudu.

“Zwothe zwo vha hone nga Ene, zwi langwa nga Ene. Magona othe a do mugwadamela. Ndi a livhuhla Mudzimi nge a mnea tshifhinga tsha u tshila na ndivho. Kha a rendwe Yesu.”

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ABSTRACT

Dental trauma remains one of the major oral health problems in childhood and is the cause of much pain and distress. It may occur as a result of a sports mishap, an altercation or a fall inside school premises. Prompt treatment is essential for the long-term health of an injured tooth. **Aim:** The aim of the study was to evaluate knowledge, attitude and practice of dental trauma among teachers in early childhood developmental centres in Hilbrow

Objectives: To assess knowledge and attitude of the ECDCs teachers with regards to emergency management of dental trauma. **Methods:** A cross sectional self-administered questionnaire was used to collect data among teachers in 26 ECDCs of Hilbrow, RSA. **Results:** Almost all respondents (98.1%) were female; 59.6% were between 20 and 29 years of age. Only a small percentage (11.5%) received dental emergency training as a part of their school health education programs. Knowledge on management of dental injuries among ECDCs teachers appeared inadequate; 24.8% of the centres were not registered and 39.1% of the school teachers were not formally qualified as ECDCs teachers.

Conclusion and recommendation: In the event of emergency dental trauma, substantial number of teachers would not be able to respond appropriately. All teachers should have training on basic management of dental trauma.

Definition of terms

Dental trauma:

Dental trauma is injury to the mouth, including teeth, lips, gums, tongue, and jawbones. It may be inflicted in a number of ways: contact sports, motor vehicle accidents, fights, falls, eating hard foods, drinking hot liquids, and other such mishaps.

Qualified early childhood teachers:

All teachers teaching in any early childhood developmental centres (crèches) holding at least a diploma certificate /bachelor's degree in elementary school curriculum from an accredited institution.

Unqualified early childhood teachers:

All teachers teaching in any early childhood developmental centres (crèches) with no training in elementary school curriculum from an accredited institution.

Early childhood centres (crèches):

Centres where educational programs are provided to the preschool children in preparation for later school performance.

Acronyms

AIDS	Acquired immunodeficiency syndrome
ARV	Antiretroviral
CDC	Centers for Disease Control and Prevention
DPOH	Division of Public Oral Health
ECDCs	Early Childhood Developmental Centers
HIV	Human Immunodeficiency Virus
KAPs	Knowledge, Attitude and Practise
RSA	Republic of South Africa
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

CHAPTER ONE

1. INTRODUCTION

Dental trauma remains one of the major oral health problems in childhood, and is the cause of much pain and distress¹⁻³. It is thus important to provide immediate emergency dental care to reduce the severity of these distresses.

Within the dental profession, it is generally accepted that the prompt and appropriate management of traumatic dental injury forms an important determinant of prognosis³. This is particularly true in relation to knocked out (avulsed) incisor teeth, where the prognosis and well-being of the tooth depends largely upon the length of time for which it is out of the mouth⁴⁻⁷ and the medium in which it is stored⁸.

Since the majority of dental trauma occurs at an early stage of development and at early childhood centers (ECDs), the eventual prognosis of an avulsed tooth may depend on knowledge of the first aid and management of dental trauma possessed by teachers⁸⁻¹².

As more cases of dental trauma occur outside dental setting, it is important to recognise that members of the lay public, such as teachers, child care givers and parents, need to acquire the skills to provide emergency first-aid care⁹.

In South Africa, children attend ECDCs (formerly known as preschool), from as early as 6 months to about 7 years old; the latter age corresponding to the mixed dentition stage.¹³ Lenzi and Medeiros reported that these young children are predisposed to falls due to immature motor coordination² and hence are potentially at risk of sustaining dental trauma. ECDCs are therefore, the most appropriate and accessible places for initiating dental trauma education programmes to train lay people and teachers about emergency management of these conditions.

As part of a school-based educational program, a workshop entitled 'What to do in case of dental trauma?' was conducted in October 2004 by the Division of Public Oral Health (DPOH), University of the Witwatersrand. This workshop was attended by teachers, caregivers and staff who worked in ECDCs in Hilbrow and Berea suburbs of Johannesburg. A major finding from this workshop indicated that dental trauma was common among children, and often mismanaged. A more scientific assessment (cross-sectional study) was conducted to validate anecdotal findings from the workshop.

The Hilbrow and Berea suburbs extend from Yeoville in the East to Braamfontein in the West and has a vibrant street life with almost 800 000 commuters passing through its boundaries on a daily basis. Due to the central location and ease of mobility, the population within Hilbrow is constantly changing and demographic data is scarce and unreliable¹⁴.

The present population was estimated at 91,000, of which between 20-30% were children under the age of four years. A significant number of these children attend ECDCs in and around the Inner City.

Added to this, many residents are illegal immigrants and migrant labourers (estimated at approximately 100 000) who do not permanently reside in

Hillbrow¹⁴. Several socio-economic factors are common, namely:

- The degradation of buildings and deterioration of the services and infra structures;
- High levels of violent crimes, assaults, HIV and AIDS;
- The utilization of office buildings and rooms for residential dwellings and ECDCs.

In terms of the Local Government Transitional Act 1993 and the City of

Johannesburg Environmental Health By-laws¹⁴, the City of Johannesburg

Environmental Health Authority should not permit any person to operate a crèche or pre-school which is not registered. According to the environmental health legislation, ECDCs should at least have a play area, readily accessible emergency first aid kits and trained personnel to provide emergency first aid services.

Anecdotal reports of teachers from ECDCs' who attended the workshop hosted by DPOH suggest that the prescribed criteria are mostly not adhered to in the Inner City of Johannesburg.

CHAPTER TWO

2.1 LITERATURE REVIEW

One of the greatest assets a child can have is a ' *Smile*' that shows beautiful, natural teeth. Children and teenagers are especially sensitive about missing anterior teeth and there is often a conscious effort to avoid smiling¹⁵. The permanent anterior teeth are not only important for esthetics but are also essential for speech [phonetics], mastication, health of supporting tissues and the psychological and mental health of children¹⁵. Hence, immediate replantation of avulsed or knocked out teeth [permanent incisors] more often contributes to an improved self-image and enhanced self-esteem in children.

The frequency of tooth avulsion following traumatic injuries ranges from 0.5 to 16% in the permanent dentition¹⁶⁻¹⁸ and from 7 to 13% in the primary dentition¹⁶

Studies conducted in Europe indicate that most dental trauma like tooth avulsion and tooth fractures are commonly reported at ECDCs and schools¹⁶. A recent study by Mallikaew and others²⁰ in Thailand suggested that traumatic dental injuries will be equal to that of all communicable diseases worldwide by 2020, and could exceed these diseases in countries such as China, Latin America, and the Caribbean. The majority of traumatic dental injuries are caused by accidents, such as falls from pushing, collision due to pushing. One epidemiological study further suggests that one out of two children sustained a dental injury²⁴.

The tooth most commonly avulsed in both the primary and the permanent dentition is maxillary central incisor, while the lower jaw is seldom affected¹⁶. Usually avulsion involves a single tooth, but multiple avulsions are occasionally encountered¹⁶.

Avulsion injuries are three times more frequent in boys than girls because of their active participation in sports and games and occur most commonly at 6 to 9 years of age when permanent incisors are erupting²⁰⁻²³.

In the early ages (6 months to 4 years), most injuries are as a result of fighting and falling caused by loss of balance²⁵. It has been shown that between 4-7 years, accidents in the school environment including dental tissues increases²⁵.

Several studies conducted in Scandinavia have shown that 30% and 22% of children had experienced trauma in the primary and permanent dentition, respectively. It was further estimated that over 50% of the children would sustain a traumatic dental injury before leaving school²⁶⁻²⁸. Andreasen suggests that the loosely structured periodontal ligament surrounding the erupting teeth and elasticity of alveolar bone favours complete avulsion during dental trauma.²²

The single most important factor determining the prognosis of a replanted tooth is the viability of the periodontal ligament left on the root prior to replantation²⁹.

To prevent dehydration of the root surface during transportation, various researchers have suggested that avulsed teeth may be placed in saliva (buccal vestibule)³⁰, saline³¹, milk³² or wrapped in plastic wrap³³. Recent studies have revealed that the storage medium must be of correct osmolality and pH³⁴⁻³⁵. Milk fulfils these requirements and as such is recommended as an excellent medium³⁶. During emergency situations, the most accessible and readily available storage and transportation mediums are plastic wrap, cloth and papers. These items, although commonly used, are not recommended³⁶.

The majority of traumatic injuries occur at school and home (away from health facilities) and therefore the ultimate prognosis of an avulsed tooth occurring in a child may depend on the knowledge of this procedure by the close presence to the child by lay persons such as the caregivers, parents and teachers³⁶.

Although a number of different emergency procedures have been advocated for the management of avulsed permanent tooth, immediate replantation is generally accepted as the treatment of choice³⁰⁻³⁶. Replantation in the primary dentition is contraindicated because such a procedure may damage the unerupted permanent successor³⁶. The recommended replantation of avulsed teeth in children and the prognosis for replantation therefore, depends in large part on the prompt and appropriate emergency management provided by teachers prior to the child's initial dental contact. There is a need to train children handlers including parents and teachers on the management of emergency dental trauma; and also to differentiate between the primary and permanent teeth.

Results from several studies examining the knowledge of lay persons with regard to this particular dental injury found that their knowledge of emergency management of trauma was poor^{8,9}. In other surveys, which included parents⁸,¹², sport coaches⁹, oral health professionals³ and even medical doctors³⁷, (respondents present at emergency sites) lacked knowledge with regards to the immediate management of dental trauma.

Very little is known about the knowledge, attitude and practices of staff in early childhood centers, their level of training and the existence of protocols on the management of dental emergencies in South Africa. In contrast to several other countries such as Hong Kong³⁸, England³⁹, Australia¹², Singapore⁴⁰, New Zealand⁴¹ and Nigeria⁴² that have investigated the knowledge of laypersons about management of dental injuries, only one study was conducted more than 30 years ago in South Africa among Whites' only crèches. It was a controlled trial conducted in the apartheid era among white volunteer childminders in Johannesburg. Results from that study indicated that the knowledge and attitude of white childminders with regard to emergency management of dental trauma was poor⁴³. It recommended that teachers in ECDCs should have basic training in first aid care. It suggested that the presence of the first aid trained teachers would be an effective way of reducing both the incidence and effects of injury including dental trauma⁴³.

More than three generations later, anecdotal reports from teachers and staff at ECDCs indicate that those recommendations have not been implemented.

The purpose of this study was therefore to evaluate, by means of self-administered questionnaires, the ECDCs teachers' knowledge attitudes and practices of the immediate management of dental trauma.

2.2. RESEARCH QUESTION

What are the current knowledge and attitude of the ECDCs teachers with regards to emergency management of dental trauma?

2.3. AIM

The aim of this study was therefore to determine teachers' knowledge, attitude and the emergency management of traumatized teeth of the young children in ECDCs of Hilbrow and Berea.

2.4 OBJECTIVES

The objectives of the survey were to:

- 2.4.1 Determine demographic profile of teachers at ECDCs;**
- 2.4.2 Assess current practices regarding management protocols (if any) for dental trauma at ECDCs;**
- 2.4.3 Assess knowledge and attitude of the ECDCs teachers with regards to emergency management of dental trauma;**

2.4.4 Identify individual predictors on attitude and knowledge variables among teachers and

2.4.5 Recommend best practices for ECDCs regarding the management of dental trauma

CHAPTER THREE

3.1. MATERIALS AND METHODS

This study was a cross sectional analytic study. It was carried out in ECDCs of Hilbrow and Berea suburbs, in Johannesburg, RSA. The target population was all teachers (qualified and unqualified) and caregivers of the children in all the ECDCs in Hilbrow and Berea, 2006.

The list of 26 ECDCs within Hilbrow and Berea area was accessed from the City of Johannesburg, the committee of ECDCs in Hilbrow and from the DPOH's database. A total population of 200 teachers was estimated based on the reports from the forum of ECDCs and the Division of Public Oral Health at Wits University.

3.2. DATA COLLECTION INSTRUMENT

A self-administered questionnaire (**Appendix A**) was designed and modified from those used in Hong Kong³⁸, England³⁹, Australia¹² and Sweden²⁸. It was divided into two parts. Part I contained survey questions on personal and professional data including age, gender, teaching experience and first aid training background.

Part II, divided into three categories, contained multiple-choice questions on knowledge of available emergency services, avulsed and fractured teeth; attitude and practice; and self assessed knowledge on traumatized teeth.

The respondents were asked to tick the choice that (in their opinion) was the most appropriate answer, in order to assess their knowledge and attitude regarding the emergency management of fractured primary incisors and avulsed permanent incisors. Each list contained the appropriate advice or treatment options as well as other answers. The main outcomes measured were the knowledge of dental trauma, attitude on injuries and practices among teachers in ECDCs and also the association between level of training (trained and untrained staff) and KAPs of dental trauma among ECDCs.

Four fieldworkers from Hilbrow and Berea were recruited to deliver and collect the questionnaires. They were given the list of all ECDCs (registered and unregistered ECDCs in Hilbrow and Berea area). About 185 copies of the self-administered questionnaire (in English) were delivered in person to the teachers (of registered and unregistered ECDCs in Hilbrow) during working hours in an attempt to improve the response rate. A brief explanation of purpose of the survey was conveyed to the staff and teachers by recruited volunteers during the delivery of the self-administered questionnaires.

Participation of the respondents to the survey was voluntary; respect for participants' rights and strict confidentiality was assured to all (Appendix B). The delivery and collection of completed questionnaires was done within a four week period (15 January to 14 February 2007).

Exclusion and inclusion criteria: All ECDCs' teachers and caregivers from registered and unregistered crèches in Hilbrow and Berea were requested to participate in the study. Those who were on leave and sick during data collection period (2-3 weeks) were excluded from the study.

3.3. ETHICAL CONSIDERATIONS

The Ethical clearance (M 060341) for this survey was granted by the Wits Ethics Committee. Prior to commencement of the study, the proposed study was presented to the forum of ECDCs' representatives which is normally held every month at the Sport and Recreational center in Region 8, Hilbrow. The researcher explained the nature and purpose of the study to the forum members. Its voluntary nature was emphasized, and strict confidentiality assured. The forum members committed themselves to support the study.

3.4. PILOT STUDY

Prior to the main study, self-administered questionnaires were evaluated for ease of comprehension in a brief pilot study conducted with teachers employed in ECDCs of Yeoville, a suburb similar to Hilbrow and Berea.

This led to a number of minor modifications of wording and also provided information on:

- The average time needed for completion of the questionnaire;

- The clarity of the questions; and
- Suggestions and comments that could improve the overall quality and or practical implementation of the questionnaire.

All these were taken into account when finalising the questionnaire in the main study.

3.5. STATISTICAL ANALYSIS

All data from the questionnaires were captured on the Epi Info version 3.3.2., and exported to Microsoft Excel. Data analysis was done by Stata 8 software package.

The results to all three parts of the questionnaire were analysed by frequency distribution. In addition, Chi-square tests were performed to evaluate the effect of age, gender, marital status, parenthood, training exposures and dental trauma experience on each attitude and knowledge question, and Mann-Whitney U-test were used to assess the effect of teachers' work experience on attitude and knowledge variables.

Logistic regression models were fitted using the number of exemptors in trained and untrained teachers divided by the total number of teachers in each group as the dependent variable; within group correlation was adjusted for using generalized estimating equations (logit procedure, Stata 8).

Logistic regression with generalized estimating equations is the optimal model when the outcome variable (knowledge and attitude) is the sum of dichotomous variables (correct or incorrect, no or yes, good or poor).

The researcher used the following independent variables:

- 1) Whether the respondent was trained as a teacher or not;
- 2) Whether the respondent had a child of their own or not;
- 3) Whether the respondent had first aid training or not;
- 4) Whether the respondent had past dental trauma experience or not and
- 5) Whether the respondent considered their knowledge as good or poor.

P values < .05 were considered to be statistically significant with the confidence level of 95%.

CHAPTER FOUR

RESULTS

4.1. PART I. RESPONSE RATE AND RESPONDENTS' PROFILE

A total of 185 teachers in 26 ECDCs agreed to participate in the study. The number of teachers who responded to all of the questions in the questionnaire was 161 with a response rate of 87.0%. From the list of teachers at the surveyed schools, the demographics of the non-respondents (age, race, gender, education level) were found to be not significantly different from the respondents.

The personal and professional characteristics of the respondents are presented in **Table 1**. Almost all (98.1%) of the respondents were females. Majority (59.6%) of the respondents were between 20 and 29 years of age.. Nearly eighty percent (79.5 %; 128) of the respondents were parents. The majority of the respondents (55.3%; 89) were married.

Nearly a quarter of the respondents (24.8%; 40) reported that their crèches were not registered with the Department of Education, whilst 13 teachers (8.1%) were not sure of the status of the school. Of the 161 completed questionnaires, 98 teachers (60.9%) had obtained certification in formal teacher training. More than half of the respondents (52.2%; 84) were

employed for less than a year; 22 of them (13.6%) had more than three years of working experience, **Table 1.**

With the exception of four respondents, all other respondents (97.5%; 157) indicated that they regularly supervise children during the physical exercise period. The total number of the respondents who had first aid training were 86 (53.6%); all of whom were qualified teachers. Of those teachers (86; 53.6%) with first aid training, 19 (11.5%) recalled that the emergency management of dental trauma was covered in their first aid programme; the remaining were not sure whether the topic had been discussed. All respondents indicated that their school had no trained nurses.

Table 1. Responses to part I; personal and professional characteristics of the respondents (161)

Characteristics	N (%)
Personal Profile	
Gender	
Male	3 (1.9)
Female	158 (98.1)
Age	
20-29	96 (59.6)
30-39	44 (27.3)
40-49	20 (12.4)
>50	1 (0.6)
Marital status	
Yes	72 (44.7)
No	89 (55.3)
Parenthood	
Yes	128 (79.5)
No	33 (20.5)
Professional Profile	
Status of the School	
Registered	108 (67.1)
Not registered	40 (24.8)
Unknown	13 (8.1)
Qualified teacher	
Yes	98 (60.9)
No	63 (39.1)
Period employed in years	
<1	84 (52.2)
1-3	55 (34.2)
>3	22 (13.6)
Involved in physical exercise	
Yes	157 (97.5)
No	4 (2.5)
First aid training	
Yes	86 (53.6)
No	75 (46.3)
Training included dental emergencies	
Yes	19 (11.5)
No	142 (88.5)
Past experience with dental trauma	
Yes	46 (28.3)
No	115 (71.7)

Part II, divided into three categories, contained questions on knowledge of available emergency services, avulsed teeth and fractured teeth; attitude and practice; and self assessed knowledge on traumatized teeth

4.2. AVAILABLE EMERGENCY SERVICES

The responses to the questions on the first section of Part II, knowledge of available emergency services are shown in Table 2. With regards to the availability of emergency kits, 75 teachers (46.6%) indicated that they were aware of the existence of the kit in their schools; six respondents (3.7%) were not sure about the availability of these kits. More than half (85 teachers (52.8%) felt that in case of emergency, they would not have easy access to the kit. Eighty one teachers (66.9%) indicated that they were aware of the existence of written guidelines on management of emergency cases in their schools.

The majority of the teachers (126; 78.3%) reported that there were trauma cases involving children in the past 6 months; 5% were head and neck injuries; 46.0% were arm and leg bruises; 46.0% involved dental tissues. Of the cases reported, 118 (73.3%) were referred to trained health professionals for further management (Table2).

Every two out of three teachers (65.2%) considered urgent trauma management a priority, although they admitted to having poor knowledge about proper management of traumatised teeth (62.7%). Nearly all (95%) were enthusiastic about receiving further education, Table 2.

Table.2. Numbers and percentages of teachers responding to questions on availability of emergency services and information on dental trauma.

Characteristics	N (%)
Emergency kit	
Yes	75 (46.6)
No	80 (49.7)
Not sure	6 (3.7)
Easy access to Emergency Kit	
Yes	76 (47.1)
No	85 (52.9)
Guidelines on emergency cases	
Yes	108 (67.1)
No	43 (26.7)
Not sure	10 (6.2)
Trauma cases in 6 months	
Yes	126 (78.3)
No	35 (21.7)
Type of injury reported	
Head/neck	8 (5.0)
Dental	74 (46.0)
Arm/leg bruises	71 (44.1)
Do not know	5 (3.1)
Other	3 (1.8)
Referred to health professionals	
Yes	118 (73.3)
No	34 (21.0)
Not sure	9 (5.7)
Received information on dental emergency	
Yes	19 (11.8)
No	142 (88.2)
Source of information (n=19)	
Health services	11 (57.9)
Media	5 (26.3)
Relatives /friends/others	3 (15.8)
Priority for urgency of trauma management	
Yes	105 (65.2)
No	56 (34.8)
Self-assessed knowledge	60 (37.3)
Good	101 (62.7)
Poor	
Enthusiasm about receiving further education	
Yes	153 (95.0)
No	8 (5.0)

Nineteen (11.8%) of the 161 teachers remembered receiving advice about what to do in the event of an avulsion injury (**Table 2**). Of these nineteen respondents, 11 (57.9%) recalled having received this information at health services such as in dental clinics and health centres, followed by 5 (26.3%) who confirmed that they got it either from an article in the magazine, newspaper or nursing journal and three (15.8%) from friends or relatives/others.

4.3. FRACTURED AND AVULSED TEETH

In this section, teachers were asked about their knowledge on the emergency management of two imaginary cases of dental trauma. The first case was on fractured primary tooth and the second one was on permanent avulsed incisor.

4.3.1. CASE 1: FRACTURED INCISOR TOOTH OF A 4-YEAR OLD GIRL

In that section, teachers were asked whether the damaged tooth of a four-year-old girl was primary or permanent tooth, **Table 3**. Seventy-six respondents (42 qualified teachers and 34 unqualified; 47.2%) gave the correct answer (primary tooth). The odds for identifying the correct tooth among teachers was 42 to 34 in favour of qualified teachers; 41 (27 qualified teachers and 14 unqualified teachers; 25.5%) felt that the damaged tooth was a permanent tooth and 44 respondents (29 qualified teachers and 15 unqualified teachers; 27.3%) were not sure. Chi-square test between qualified and unqualified teachers indicated that there was no significant difference in the number of correct responses in relation to age, gender, years of teaching experience, first aid training, number of seen trauma cases or training(P-values; 0.077, 0.74, 0.174, 0.42, 0.3, and 0.266 respectively).

Table 3. Numbers (and percentages) of the respondents responding to the question on fractured tooth and its most appropriate action (n=161)

	Untrained	Trained	Total
Fractured tooth			
Primary	34(54.0)	42 (42.9)	76 (47.2)
Permanent	14 (22.2)	27 (27.5)	41 (25.5)
Not sure	15 (23.8)	29 (29.6)	44 (27.3)
Total	63(100)	98 (100)	161 (100)
Action most appropriate			
Contact parents first and then take her to dentist.	21 (33.3)	41 (41.8)	62 (38.5)
Send child home	6 (9.5)	9 (9.2)	15 (9.3)
Send to dentist immediately	26 (41.3)	34 (34.7)	60 (37.9)
and contact parents later			
Send to medical doctor	10 (15.9)	14 (14.3)	24 (14.9)
Total	63(100)	98 (100)	161 (100)

The numbers of correct responses given by different age groups are shown in **Table 4.** The highest number of correct answers was in the 20-29 year-old age group and followed by 30-39-year-old group. When the number of correct responses from each age group were compared and analysed, the difference was not statistically significant ($p=0.077$).

Of those teachers who had received first aid training (n=86), 57 (66.3%) answered this question correctly; while those who had no training (n=75), 56 (74.7%) gave the appropriate response. There was no statistical significant difference between the two groups (p=0.247).

Table 4. Relationship between correct answer to fractured tooth and the teacher's age group.

Age group, years	20-29	30-39	40-49	>50
n	96	44	20	1
No. with correct answer	67	35	11	1
%	69.8	79.5	55.0	100

4.3.2. CASE 2: THE AVULSED PERMANENT INCISOR TOOTH

When questioned as to the urgency of replanting an avulsed tooth 51 (31.8%) of all teachers (trained and untrained) did not know that a tooth could be replanted at all and only 64 (39.8%) knew that an avulsed tooth should be replanted immediately (which is the most appropriate response). Twenty respondents (12.4%) thought of waiting for 2 hours and nine (5.6%) indicated that they would rather seek treatment the following day. Eighteen respondents (11.1%) did not realise that replanting a tooth should be done as quickly as possible (**Table 5**). The difference between trained and untrained teachers with regard to correct response (immediately and within 30 min) was not statistically significant, p=0.509.

Table 5. Numbers (and percentages) of teachers saying how long an avulsed tooth could be left prior to replantation (n=161)

	Untrained N (%)	Trained N (%)	Total N (%)
Did not know a tooth could be replanted	20 (31.7)	31 (31.6)	51 (31.8)
Immediately	27 (42.8)	37 (37.8)	64 (39.8)
Within 30 minutes	4 (6.3)	6 (6.1)	10 (6.2)
Wait 2 hours	4 (6.3)	7 (7.1)	11 (6.8)
Next day	8 (12.7)	1 (1.0)	9 (5.6)
Don't know	0 (0.0)	18 (18.4)	18 (11.1)
Total	63 (100.0)	98 (100.0)	161 (100)

4.3.3. CLEANING OF AVULSED TOOTH

Knowledge of the most appropriate method to clean a dirty avulsed tooth prior to replantation was investigated using the list of alternatives in **Table 6**. Less than half (65; 40.4%) of the teachers gave the correct answer " rinse the tooth under tap water". Fifty (31.1%) wanted to scrub the tooth with a soft brush.

A small percent (3.1%; 5) suggested that they would advise the child to suck the tooth as a means of cleaning the dirt. Others (15; 9.3%) wished to rinse it in a salt water solution and an equal number (15; 9.3%) were happy to replant it without any cleaning first (**Table 6**). There was no statistical significant difference between the trained and untrained teachers ($p=0.247$).

Table 6. Numbers (and percentages) of teachers saying how they would clean an avulsed tooth prior to replantation (n=161)

	Untrained	Trained	Total
Rinse in water	25 (39.7)	40 (40.8)	65 (40.4)
Scrub with soft brush	21 (33.3)	29 (29.6)	50 (31.1)
Get child to suck tooth	3 (4.8)	2 (2.0)	5 (3.1)
Rinse in salt and water solution	7 (11.1)	8 (8.2)	15 (9.3)
Replant without cleaning	1 (1.6)	14 (14.3)	15 (9.3)
Don't know/other methods	6 (9.5)	5 (5.1)	11 (6.8)
Total	63 (100)	98 (100)	161 (100)

4.3.4. STORAGE OF AVULSED TOOTH

Respondents were asked about the storage medium for the avulsed tooth while taking the child to the dentist (Table 7). The most popular method was to place the tooth in "a paper tissue or handkerchief", a response given by 87 (54.0%; 26 trained and 28 untrained) teachers. Forty-one respondents (25.5%; 22 trained and 19 untrained) chose "plastic wrap". Only 9 respondents (5.6%; 5 trained and 4 untrained) gave the most appropriate choice of "milk" storage. Five of the respondents replied that they would probably throw away an avulsed tooth, which seemed to be useless to them. There was no statistical significant difference between the trained and untrained teachers ($p=0.854$) with regard to correct storage medium.

Table 7. Numbers (and percentages) of teachers responding to storage medium for avulsed tooth ($n=161$)

Most appropriate choice	Untrained	Trained	Total
Paper tissue/handkerchief	33 (52.4)	54 (55.1)	87 (54.0%)
Plastic wrap	17 (29.0)	24 (24.5)	41 (25.5)
Tap water	9 (14.3)	13 (13.3)	22 (13.7)
Child's mouth	0 (0.00)	2 (2.0)	2 (1.2)
Milk	4 (6.3)	5 (5.1)	9 (5.6)
Total	63 (100)	98 (100)	161 (100)

4.3.5. FIRST CHOICE OF REFERRAL IN THE EVENT OF AVULSION INJURY

Teachers were asked where they would contact and seek professional help when a 'knocked-out' tooth happened in their schools (**Table 8**). One hundred and three respondents (64.0%: 37 untrained and 66 trained teachers) said that they would contact the dentist, while thirteen respondents (13.0%) suggested using nearby Wits' Dental hospital for services (both choices are an appropriate contact); 20 (12.4%) suggested parents as first contact.

Table 8. Numbers (and percentages) of teachers saying to whom they would send a child with an avulsed tooth (n=161)

	Untrained	Trained	Total
Wits' Dental Hospital	8 (12.7)	13(13.3)	21 (13.0)
Dentist	37 (58.7)	66 (67.3)	103 (64.0)
Doctor	1 (1.0)	0 (0.0)	1 (0.6)
Parents	8 (12.7)	12 (12.2)	20 (12.4)
Hospital casualty	9 (14.3)	7 (7.1)	16 (10.0)
Total	63 (100)	98 (100)	161 (100)

4.3.6. REPLANTING AN AVULSED TOOTH

The response to the hypothetical question of whether they would be prepared to replant an avulsed tooth themselves showed that all would not replant avulsed teeth. The respondents provided various reasons for not wanting to replant teeth (Table 9). The most common reason cited for not replanting the tooth was lack of knowledge and training on the subject (61.5%); followed by fear of becoming infected 30 (18.6%). A substantial number of them (10.6%) were concerned about being sued for replanting the tooth incorrectly whilst 12 (7.5%) were frightened by the fact that they may be hurting the child.

Table 9. Reasons given by teachers for not wanting to replant an avulsed tooth

	N (%)
Lack of knowledge and training	99 (61.5)
Becoming infected themselves	30 (18.6)
Being sued for replanting incorrectly	17 (10.6)
Frightened of hurting the child	12 (7.5)
No reason given	3 (1.8)
Total	161 (100)

4.3.7. ANALYSIS OF ATTITUDE AND KNOWLEDGE OF TEACHERS

An analysis on parenthood, duration that respondents have been working and whether the respondents were qualified or not , were compared with their attitude and knowledge on dental trauma, as is shown on **Table 10**.

There was no significant difference between respondents who were parents and those who were not ($p=0.356$); trained teachers or not trained ($p=0.088$) with regard to their self assessed knowledge of dental trauma.

The number of years that the respondents had been working at ECDCs had a positive relationship with self-assessed knowledge of dental trauma ($p=0.003$). Their working exposure and number of years employed improved their knowledge of dental trauma. An analysis of individual predictors on enthusiasm and whether the respondents considered dental trauma a priority that required urgent treatment resulted in no significant difference (Table 10).

Multivariate analysis of each attitude variable (**Table 11**) revealed that respondents had 1.05 times better self-assessed knowledge (95% CI= 1.01-1.08) with every incremental year in teaching experience. Teachers training also tended to relate to better self-assessed knowledge (OR= 1.77, 95% CI= 0.95-2.95). However, this was not statistically significant.

In analysis of individual predictor on knowledge, the only significant variable ($p=0.009$) was of working experience on the knowledge of re-implantation of

avulsed tooth. This was confirmed by multiple logistic regression analysis, suggesting that correct knowledge concerning replantation tooth increased 1.06 times (95% CI=1.02-1.09), for every incremental year in working experience. The other multiple logistic regression analyses had no effect on each attitude and knowledge variables (**Table 11**).

Table 10. Analysis of individual on attitude and knowledge of dental trauma

Parenthood			Period working			Trained teacher		
Attitude	No	Yes	p-value*	Mean(sd)	p-value**	No	Yes	p-value*
Self-assessed knowledge								
Poor	22	74	0.356	0.9 (0.4)	0.003	42	52	0.088
Good	11	54		2.1 (1.5)		21	46	
Enthusiasm			0.589		0.084			0.645
No	2	5		1.2 (0.3)		10	13	
Yes	31	123		1.8 (2.0)		53	85	
Priority for urgency			0.963		0.604			0.182
No	12	46		1.9 (1.1)		21	43	
Yes	21	82		2.2 (0.5)		42	55	
Knowledge of avulsed tooth								
Concept of management								
Incorrect	11	28	0.170	1.3 (0.7)	0.474	18	25	0.669
Correct	22	100		1.6 (1.1)		45	73	
Replantation of tooth			0.706		0.009			0.799
Incorrect	19	69		1.0 (0.8)		36	54	
Correct	14	59		1.6 (1.1)		27	44	
Waiting period			0.235	1.3 (1.4)	0.322	39	58	0.731
Incorrect	15	77		1.1 (0.9)		24	40	
Correct	16	51						
Storage of tooth			0.311		0.680			0.329
Incorrect	19	61		1.0 (0.7)		33	59	
Correct	14	67		2.0 (0.6)		30	39	
Fractured tooth								
Identification								
Incorrect	17	56	0.425	1.6(0.8)	0.542	30	51	0.585
Correct	16	72		1.3(0.7)		33	47	
Concept of management			0.442		0.159			0.753
Incorrect	20	68		0.8 (0.5)		37	60	
Correct	13	60		2.3 (2.1)		26	38	

* Chi-square test

** Mann-Whitney U-test

Table 11. Multiple logistic regression of each attitude and knowledge on dental trauma

	Odds ratio (p-value) *		
Attitude	Parenthood	Period working	Trained teacher
Self-assessed knowledge	1.46 (0.356)	1.05 (0.012)	1.77 (0.088)
Enthusiasm	1.59 (0.589)	1.11 (0.138)	1.23 (0.645)
Priority for urgency	1.02 (0.963)	0.99 (0.745)	0.64 (0.182)
Avulsed tooth			
Concept of management	1.79 (0.170)	1.02 (0.415)	1.17 (0.669)
Replantation of tooth	1.16 (0.706)	1.06 (0.003)	1.09 (0.799)
Waiting period	0.62 (0.235)	0.99 (0.552)	1.12 (0.731)
Storage of tooth	1.49 (0.311)	0.99 (0.657)	0.73 (0.329)
Fractured tooth			
Identification	1.37 (0.425)	1.01 (0.517)	0.84 (0.585)
Concept of management	1.36 (0.442)	1.03 (0.113)	0.90 (0.753)

Parenthood (0=No, 1 =Yes)

Teachers' Training (0=No, 1=Yes)

Self-assessed knowledge (0= None, poor, 1= Fair, Good)

Enthusiasm, priority (0= No, 1= Yes)

Knowledge (0=incorrect, 1= Correct)

CHAPTER FIVE

DISCUSSION

5.1 RESPONSE RATE AND PROFILE

This survey included all ECDCs teachers in the Hilbrow and Berea suburbs (Johannesburg), the response rate was high (87.0%). The fact that most of them responded to the survey could probably indicate their level of organisation in their monthly forums and good relationship with the Division of Public Oral Health.

The age of the teachers surveyed was relatively young, most (96, 59.6%) being in the 20-29-year group. Although unmarried teachers outnumbered their married counterparts, most of them (79.5 %; 128) were single parents. These figures of single parents are similar to what Skuy and colleagues reported as social norm in South Africa ⁴⁴.

A rather disturbing finding in the survey was the fact that 24.8% of the centers were not registered and 39.1% of the school teachers were not qualified as ECDCs teachers. Another concern was that more than half of them had less than 12 months teaching experience. The lack of registration and inadequate training of teachers is indicative of social problems and lack of control related to overpopulated areas. The problem of “fly-by night” institutions mostly operated by unregistered people has long been linked to inefficiency and poor control by Social Development and Education Departments in South Africa ⁴⁵.

However, it must be pointed out that a number of unregistered schools in the surveyed area remain unregistered because the environment (schools located in buildings with lack of play areas, fire escape, etc) in which they operate does not meet the criteria for registration. The lack of space in the inner city and the need for these services requires an innovative plan from the authority to at least bring some control in the inner city as regards ECDCs.

It was encouraging to note that the majority of teachers (97.5%) were involved in physical exercise with children on a daily basis and that 86 teachers (53.6%) had some knowledge about first aid. The low numbers of trained teachers on first aid were in contrast to the high percentages of first aid training among teachers in the Hong Kong ³⁸ and England ³⁹ studies. In a similar study in England ³⁹, 91% of teachers had received first aid training. First aid training is not an integral component of school health teacher training in South Africa ⁴³.

The results of the current survey indicated that only 11.5% received dental emergency training as a part of their school health education programme. This clearly indicates the need to offer regular and structured training for school teachers in first aid with an increased focus on dental emergency training.

A change in legislation in South Africa with regards to the first aid training is necessary. It is obvious that training of ECDCs teachers in first aid and periodically updating their knowledge and or conducting workshops on dental

emergency would be critical, as these teachers are expected to provide emergency management for any medical or dental emergency that may arise during school hours. The caregivers' lack of knowledge or fear of doing "something" because of legal concerns will be addressed by making first aid training for teachers compulsory.

5. 2. KNOWLEDGE OF AVAILABLE EMERGENCY SERVICES

Nearly half (49.7%) of the schools had no emergency kit. This figure is much higher than what other studies have reported ^{38-40, 46}. Olympia and colleagues⁴⁸ found that less than 15% of the primary schools had no emergency kit, while 98% had easy access to it. In the same study, it was reported that all schools had the protocols to follow during emergency. In South Africa, there are no regulations that schools should have guidelines on emergency care ^{43, 46}.

Nineteen (11.5%) of the 161 teachers who had, had a first aid course recalled information that emergency management of avulsed teeth was included in their training. If this figure is accurate, it is comparable to the postal questionnaires study carried out by Hamilton and co-authors ¹⁰ in North West England. In that study, knowledge on management of dental trauma among children was generally inadequate. Although 123 (61.8%) of the 199 respondents claimed to have received first aid training only 10 (8.1%) could remember dental injuries being included.

In the present study, a higher percentage (11.5%) of teachers with first aid exposure was reported. However, it should be noted with some concern that

further analysis of the data collected in the present study showed no statistically significant difference in the number of correct answers given by those respondents who possessed a first aid certificate and those who did not ($p=0.247$). This is in contrast with the situation reported in the study conducted by Newman and Crawford.⁸ They found that those who had first aid training gave more correct responses than those without knowledge of dental trauma. An introduction of regular workshops on dental emergencies and on-going training for teachers at ECDCs would improve their knowledge on how to handle dental trauma.

5.3. FRACTURED INCISOR TOOTH OF A 3-YEAR OLD GIRL

The two imaginary cases in Part II of the questionnaire were designed to test the respondents' general knowledge of the two different types of dental injuries. The ages of the injured children in the cases were intentionally selected as 3 and 6, respectively, because children between these ages carry the greatest risk of dental injuries.^{16-20, 38}

In Case 1, less than half (47.2%) of the respondents recognised that the maxillary tooth is a primary tooth in a 3-year-old girl. Although the current result was higher than those reported by Al-Jundi and others⁴⁷ in Jordan (40%), this indicates that the general dental knowledge of tooth eruption among the surveyed group (trained and untrained) was inadequate. The prognosis of fractured incisors depend on the extent of supporting bone

damage and on the patient's age ^{16, 21, 38}. The younger the age the better the prognosis of avulsed teeth when replaced early.

It is unreasonable to expect ECDCs teachers to make the appropriate diagnosis or make decisions about an injury especially if they have inadequate or no training. Thus, it was felt that the most appropriate response to "which of the following would you do", was informing parents first and taking child to dentist (38.5%). When compared to a recent study conducted by Caglar and others ⁴⁸ in Turkey, the present results indicate a lower level of knowledge than that reported in other published studies (51% reported in Caglar and others). In a study by Hamilton and co-authors ¹⁰ in North West England, more than 60% of the respondents stated that they would want to replant an avulsed incisor themselves, although they admitted that they lack knowledge and training.

In the majority of cases, and taking in to account that both parents work, contacting the parents first before providing services may not be immediately possible, especially in case of emergency. Barriers such as parents not having access to phones, modes of contacting parents and cost of mobile phones and or air time are common among poorly resourced facilities. Based on this, the author therefore judged that referral to dentist and informing parents later was an acceptable alternative (37.9%). Using these criteria, over 76% of the teachers would have acted appropriately; a finding which is comparable to similar studies in England (64%) ³⁹ Hong Kong (71.2 %) ³⁸ and Jordan (69.5 %) ⁴⁷.

The results of the logistic regression suggest that potential confounders such as age, gender, years of teaching experience, first aid training, number of seen trauma cases or training(P-values; 0.077, 0.74, 0.174, 0.42, 0.302, and 0.266 respectively), do not seem to have advanced knowledge of the correct emergency procedures during dental trauma. This emphasises the lack of knowledge and the need for continuous dental emergency training to teachers. These programs should be provided to all school teachers irrespective of age, experience or gender, as the current study indicated that the lack of knowledge in dental emergency management was not different among the respondents with regards to the above variables.

5.4. THE AVULSED TOOTH

Several authors have recommended that the ideal treatment for an avulsed permanent incisor is immediate replantation with minimal further damage to the cells of the root surface ^{29, 49-50}. Failing that, one should ensure minimal further insult to the periodontal ligament cells on the root surface of the avulsed tooth ^{22, 23, 50}.

While every effort should be made to replant the tooth immediately, this usually requires schoolteachers at the site of injury with some knowledge of treatment protocol. Respondents in the present study had poor knowledge of what to do under such circumstances.

Nearly a third of the teachers (31.8%) were not aware that a tooth could be replanted at all and only 39.8% (64) knew that an avulsed tooth should be replanted immediately which was considered to be the correct response.

Thirty nine teachers considered waiting for some time prior to replantation (10 within 30 min, 11 would wait for hours and 9 for the next day. Taking into account that extra-oral time is of paramount importance in determining the success of tooth replantation^{22, 32, 35} this confirms the inadequate knowledge of many teachers. A delay in providing emergency dental treatment may jeopardise the prognosis of an avulsed tooth²⁴. Ideally, replantation should be carried out within half an hour²¹⁻²⁴.

Time is one of the most important factors for avulsed teeth to preserve their vitality after re-implantation. A Danish study reported that teeth replanted within 5 min had the best prognosis⁵¹. Other studies suggest that 20–30 min seems to be the maximum limit of dry time for an avulsed tooth. The drying effect causes the loss of normal physiologic metabolism and morphology of periodontal ligament cells^{24, 50, 52, 53}.

If a tooth is kept in a suitable medium, the extra-oral time may be extended to up to 6 hours⁵⁰. Several studies recommended that the appropriate storage media to permit periodontal and pulpal healing are milk, physiological saline, tissue culture media and saliva^{29, 33-36}.

Despite ample evidence to the contrary³³⁻³⁶, 128 teachers (79.5%) in the current study identified paper tissue /handkerchief and plastic wrap as a suitable transport medium. Only 9 teachers (5.6%) correctly identified milk as a suitable transport medium, making it their first choice. This is a considerably fewer than reported by Hamilton and co-workers¹⁰, where 23.7% of respondents chose this as the best transport medium. A similar study by Blomlöf and others³⁴ in Sweden reported 33.2% of the respondents correctly suggesting saliva and milk.

In addition, as saliva storage has been shown to be an acceptable short-term alternative to milk³⁴, only two teachers mentioned placing the tooth inside the child's cheek as an appropriate method of transport. At the site of injury, the readily available storage medium is patient's saliva- putting the tooth in patient's sulcus. It is, however, unsafe for a young patient, especially a traumatized child to keep the tooth in the mouth as he or she could accidentally swallow the tooth.

A number of teachers indicated that their attitude towards assisting the children during dental emergency was influenced by various factors including lack of knowledge and training (61.5%), fear of getting infected (18.6%) and the possible legal implications (10.6%). It seems like fear of being sued in SA is on the increase. This factor was also highlighted in the study conducted by Hamilton and co-workers¹⁰, where 10.7% of respondents feared being sued for replanting the tooth incorrectly.

In the light of such concerns, the researcher is of the opinion that we should at least ensure that teachers are educated as how best to preserve an avulsed tooth and facilitate immediate transfer to an appropriate facility of care.

Knowledge of the most appropriate method to clean a dirty avulsed tooth prior to replantation was investigated using a list of alternatives derived from the study reported by Hamilton and co-workers¹⁰. In the current study, a similar percentage of respondents (40.4%) were able to identify the correct method of cleaning (running water) compared to 41.3% reported by Caglar and others⁴⁸. However, it should be noted that in the present study, considerably more respondents (31.1% compared with 28.5%) wanted to scrub the tooth prior to replantation.

Teachers with personal experience of dental injury might be considered more likely to be more knowledgeable than those who lack such experience. In this study, knowledge of tooth replantation was significantly associated ($p=0.009$) with years of working. Most teachers surveyed had only a few years if not months working at ECDs; with an average of only 12 months. The longer serving teachers had better knowledge in this area ($p=0.009$) (table 10) and with multiple logistic regression analysis ($p=0.003$) (Table 11). Surprisingly, qualified and unqualified teachers, on other hand, appeared to have similar responses to many of the KAP questions reported in Tables 10 and 11. This was in accordance with the observations from other studies^{10, 46-48}.

CHAPTER 6

CONCLUSION

6.1 Training on First Aid

- The current study found that majority of the teachers (81.5%) currently employed in ECDCs did remember attending a module on first aid during their training at colleges and,
- Among those who had first-aid training, less than 10% recalled that management of dental trauma was included in their module.

6.2 Availability of emergency first aid kits

- More than half (52.8%) of the respondents reported that emergency first aid kits were not availability and felt that in case of emergency, they would not have easy access to the kit.

6.3. Knowledge of the management of dental trauma

- The level of knowledge among trained and untrained teachers in the management of dental trauma was not different and appears inadequate.
- Only 66, 9% of the teachers were aware of the existence of written guidelines on management of emergency cases in their schools.

RECOMMENDATIONS

For training colleges:

1. All teachers' training colleges in South Africa, especially those training for ECDCs, should urgently introduce a compulsory emergency first aid training module in their curriculum.
2. Training should include module on dental trauma and its management

For ECDCs

1. that emergency first aid kits should be readily available at all schools;
2. First aid protocols for common injuries readily available to all caregivers, teachers in schools;
3. There should be regular on-going training course for caregivers and teachers at ECDCs to refresh and introduce new concepts in emergency first aid.

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APPENDIX A

KAPs ON MANAGEMENT OF DENTAL TRAUMA AMONG HILLBROW CRÈCHES

Please circle the appropriate response(s)

PART I

1. Gender: Male Female.
2. Marital status: Married Unmarried Others -----
3. Age 20-29 30-39 40-49 50 or older
4. Are you a parent? Yes No
5. Is your crèche registered? Yes No Not sure
6. Are you qualified preschool teacher: Yes No
7. Period working at this center. a) Less than a year b) 1-3 years c) More than 3 years
8. Are you involved in physical exercise with children? Yes, No
9. Did you have first-aid training? Yes, No
- If yes, did it cover 'management of dental trauma? Yes No
10. Have you ever experienced an accident where a tooth was knocked out? Yes No

PART II

1. Is there an emergence kit in your school? Yes No Do not know
 If yes, where is it located? a. Staff room b. class c. Reception d. Others ---
2. In case of emergency, would you have easy access to it? Yes No Do not know
3. Is there a trained nurse in your school? Yes No Do not know
4. Are there guidelines on how to manage injured children in your school?
 Yes No Do not know
5. Has there been any serious injury in your school in the past 6 months?
 Yes No Do not know
 If yes, what type of injury was it?
 a. Head/neck,
 b. fractures of arms/leg
 c. Tooth/dental injuries
 d. Others.....give details.
6. If its (c) above, was the child referred to dental clinic? Yes No Do not know.
7. Did you ever took a child with fractured tooth to the dental clinic?
 Yes No Do not remember

Attitudes

Scenario: Please read the following scenario and circle the appropriate response(s).

CASE 1. During school hours, a 4-year-old girl was hit in the face with a softball. Her upper front tooth was broken. She was otherwise unhurt and did not lose consciousness.

1. Is the damaged front tooth likely to be? (a) permanent (b) primary (baby) teeth (c) not sure
2. Which of the following actions would you consider as the most appropriate?
 - a. Send child home with explanation of what had happened.
 - b. Send her immediately to the medical doctor.
 - c. Send her immediately to dentist and contact parents.
 - d. Contact her parents and ask them to take her to dentist.

CASE 2. During school hours, a 7-year old girl fell from the stairs and hit in the mouth. Her mouth is bleeding and an upper front tooth is found to be missing.

Knowledge

1. Is it necessary to put on gloves before handling a knocked-out tooth?
Yes No Don't know
2. Would you put (replant) the tooth back into the socket from which it came?
Yes No Don't know
3. If not, why would you not replant the tooth? (May tick more than one)
 - a. Didn't know that the tooth could be replanted. b. Insufficient knowledge and training.
 - c. Afraid of getting infected. d. Afraid of hurting the girl.
 - e. Afraid of being reported if you replant the tooth wrong. g. No special reason.
 - g. Other reasons, please.....?
4. Do you think that a knocked-out tooth should be replanted?
Yes No Don't know
5. If a knocked-out tooth is found, which would be the first place you would contact and seek treatment?
 - a. Medical doctor b. Dentist c. Parents d. Hospital e. Writs Dental School
6. How urgent do you think it is to seek professional help if a permanent tooth has been knocked out?
 - a. Immediately b. Within 30 min c. Within a few hours d. Before next day. e. do not know.
 - f. did not know that tooth can be replanted.

7. If you decide to replant a tooth back into its socket but it had fallen onto the ground and was covered in dirt, what would you do?
- Scrub the tooth gently with a toothbrush.
 - Rinse the tooth under tap water.
 - Put the tooth straight back into the socket without any pre-treatment.
 - Rinse the tooth with salt-water /detergent or soap.
 - Do not know
8. If you did not replant the tooth, how would you transport it to the dentist?
- Tap water
 - Plastic wrap
 - child's mouth
 - Milk
 - paper tissue
9. Is the knowledge of management of dental trauma important for preschool teachers?
- Yes No
10. How do you rate your knowledge on management of dental trauma?
- very poor,
 - poor,
 - good,
 - very good
11. Have you ever received any information on the management of knock-out tooth?
- Yes No Do not remember
12. If yes, where did you get that information?
- | | | |
|-------------------------------------|-----|----|
| a) News paper and magazines | Yes | No |
| b) Radio and TV | Yes | No |
| c) From clinics /Workshop attended, | Yes | No |
| d) Pamphlets, | Yes | No |
13. Would you need more information on management of tooth injury?
- Yes No Don't know
14. If yes, what should be included in that information?
-

Appendix B



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
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e-mail: **+27 11 717-2625**

nemutandani@wits.ac.za

SUBJECT INFORMATION SHEET

Date-----

Dear teachers,

-----Early Childhood Center

I am Dr Mbulaheni Simon Nemutandani, a registrar in the division of Public Oral Health, School of Public Health, Faculty of Health Sciences, University of Witwatersrand. I am carrying out a research project on dental accidents and how they are managed among crèches in Hillbrow and Berea.

In October 2004, our division conducted a workshop among preschool teachers on how to manage dental trauma occurring among children. Majority of the teachers who attended the workshop indicated that dental accidents are often mismanaged, and they would like further training on the management of these common problems.

Most of the dental accidents in children, especially knocked-out tooth and or tooth fractures present as dental emergencies, requiring immediate treatment. Very little is known about how the knowledge, attitude and practices of staff in early childhood centers, their level of training and the protocol of the management of these dental emergencies in South Africa.

We would greatly appreciate you taking approximately 15 minutes of your time to complete an the questionnaire. Data will be recorded anonymously and strict

confidentiality will be ensured at all stages of the research. Your participation in this survey is voluntary and you may want to discontinue participation at any time. It will not disadvantage you in any way.

The results will be reported in a written research paper, copies and summaries will be given to participants and relevant key stakeholders. The information gathered will assist us in the planning for an appropriate workshop and guide us in providing recommendation to training colleges and Department of Education and or Health.

If you have any questions or queries or would like more information about the study please contact Dr SM Nemutandani, Dr Yengopal V or Prof Rudolph MJ on telephone number (011) 717 2005; fax (011) 7172625; e-mail nemutandanims@sph.wits.ac.za or after hours on 0843008645.

Thank you for your cooperation

Yours sincerely

Dr MS Nemutandani

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURGDivision of the Deputy Registrar (Research)HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)R14/49 NematizadehCLEARANCE CERTIFICATEPROTOCOL NUMBER M060341PROJECTKnowledge, Attitude and Practices of
Dental Trauma among Staff in Early
Childhood Development CentresINVESTIGATORS

Dr MS Nematizadeh

DEPARTMENT

School of Public Health

DATE CONSIDERED

06.03.31

DECISION OF THE COMMITTEE*

approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 06.06.19CHAIRPERSON
(Professor A. Dhai)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor :

Dr Yengopal

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES