

**Title:**

Evaluating the need for first aid and basic life support training among early childhood development practitioners in Cape Town, South Africa.

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In partial fulfilment of the MMED in Emergency Medicine

University of Cape Town

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## **PART A: Protocol**

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## **1. Abstract**

Background: Unintentional injury remains one of the leading causes of morbidity and mortality among children worldwide. The aim of this study will be to ascertain if teachers and teacher's assistants in early childhood development facilities have training in first aid or emergency care, what their attitudes towards first aid are and how competent they feel to manage emergencies.

Methods: A cross-sectional survey will be carried out among early childhood development (ECD) practitioners who are studying at the Goodwood campus of Northlink College in the Western Cape. The survey will be optional and anonymous. A standardised collection of demographics will be performed and participants will be given a questionnaire that assesses the participant's knowledge and attitudes towards first aid and basic life support.

Expected outcomes: We are aiming to administer this survey to 200 ECD practitioners. We expect to find that the participants have had inadequate knowledge and training in first aid and basic life support. We anticipate that the need for training will be made apparent.

## **2. Introduction**

### **2.1. Literature review**

Injuries and accidents are one of the leading causes of childhood deaths worldwide. <sup>(1)</sup> The Medical Research Council (MRC) policy brief of 2003, states that one third of the population is younger than the age of 15. <sup>(2)</sup> This constitutes a significant portion of the population and good healthcare for children needs to be a priority.

Children are prone to unintentional injuries. Their bodies are developing and they have not yet learned to be aware of themselves and environmental hazards. <sup>(3)</sup> The terminology regarding child care facilities has changed in recent times. The term early childhood development (ECD) facility is now being used and is synonymous with terms such as childcare centre, preschool or crèche. Children spend a large portion of their time at ECD centres. This is often the result of the need for education coupled with financial pressure that forces both parents to work.

Accidental physical injuries account for the majority of injuries that occur and usually take place on the playground. These may include minor injuries such as abrasions and bruises or more significant injuries such as fractures and lacerations. Exacerbations of underlying medical conditions are also of concern and can occur. <sup>(4)(5)</sup>

With the above information in mind, it stands to reason that ECD facilities are important locations for focusing on good first aid and basic life support. Prompt and correct treatment of conditions may significantly reduce the morbidity and mortality of the injuries. <sup>(6)</sup> Time is of the essence. Adequate cardiopulmonary resuscitation (CPR) needs to be commenced immediately in order to maintain oxygen delivery to the brain. A lack of oxygen to the brain may cause serious neurological sequelae. <sup>(7)</sup> The response time of our Emergency Medical Services (EMS) will be at least 10 minutes and can sometimes take hours. If basic life support/first aid measures can be started and maintained until EMS arrives, then many lives may be saved.

## **2.2. Motivation for study**

Research in China and Turkey has shown that ECD practitioners cannot adequately manage an emergency. In most instances this is due to providers lacking the necessary knowledge and skills. <sup>(8)(9)</sup>

A serious injury or death of a young child is always a tragedy and should be prevented wherever possible. Many factors may limit teachers' failure to provide adequate first aid, including fear of failure, fear of further harming the child, or risk of contracting HIV/AIDS. These factors can be addressed in a proper training programme and steps can be put into place that make the participants feel confident and well equipped to provide good basic life support and first aid.

An article by Laflamme et al regarding school injury patterns states that playgrounds are a high risk area for preschool children. <sup>(10)</sup> Falls from a height are common and can cause devastating injuries.

In order to register a crèche in South Africa, at least one staff member needs to have a valid first aid certificate. (Appendix A). From discussions with ECD experts it is estimated that up to 50% of Child care facilities in the Western Cape are unregistered or in the process of registering. Many parents in South Africa, unfortunately, have to rely on unregistered child care institutions to look after their children. These care facilities may not comply with the necessary first aid requirements and also tend to be overcrowded. This potentiates the risk of injury.

### *Emergency First Aid Responder (EFAR) Training*

The EFAR system was developed in 2009 as a community level first aid training course. The system was initially designed to sustainably equip Manenberg township citizens with the emergency skills needed to keep near-death patients alive until higher care was available. Manenberg is an area within the Western Cape that suffers from gang violence and therefore a large amount of trauma is noted within this community. The EFAR program teaches a basic level of care appropriate to laypeople. It is not a South African Qualifications Authority (SAQA) accredited First Aid program but is endorsed by the Division of Emergency Medicine at UCT.

The EFAR programme has since expanded and can be found in many other communities within the Western Cape. Although the learning materials are in English, the course has been taught successfully to schoolchildren and adults across a wide range of cultures and languages. It consists of a one day training programme with a didactic core knowledge base, reading material and practical skills sessions. This programme includes a test at the end of a training day to assess the knowledge gained by candidates.<sup>(11)</sup>

The educational components of the EFAR course and the quality thereof is maintained by the EFAR Educational panel comprising of the Division of Emergency Medicine at UCT and SU, the College of Emergency Care and METRO EMS (See Appendix B).

In South Africa there are no studies assessing the knowledge, skills and needs of ECD practitioners regarding emergency first aid training. This study will determine whether or not there is a need for a training programme. If a need is identified then we can put steps into place in order to rectify this.

### **2.3. Research question**

Is there a need for first aid and basic life support training of ECD practitioners in Cape Town, South Africa?

### **2.4. Aim**

To assess a baseline level of first aid and basic life support (BLS) knowledge and the overall attitudes regarding the need for further training in first aid and BLS among ECD practitioners in Cape Town, South Africa. This will consequently identify if there is a need for further training. This study is the first step in introducing EFAR training into the ECD environment. Upon completion of the study, METRO EMS undertakes to develop and trial an ECD specific EFAR training program at this pilot site.

### **2.5. Objectives**

1. To assess the readiness and preparedness of early childhood development facilities to manage an emergency
  - Do early childhood development facilities have an adequate first aid kit?
  - Do early childhood development facilities employ at least one staff member trained in first aid?
  - Do early childhood development facilities have a first aid policy?
  - Do teachers know the telephone number for an ambulance service?
2. Do carers at early childhood development facilities feel competent to manage an emergency?
3. What basic emergency care knowledge do ECD carers have?

## **3. Methods**

### **3.1. Study design**

This study will be a cross-sectional survey done by an anonymous questionnaire (Appendix C). The questionnaire will contain 3 sections. The first section will look at demographics, the second section will focus on the participant's knowledge about first aid and basic life support and finally the third section will focus on the participant's attitudes towards first aid and BLS. The questionnaire will have a section comprising of 'yes' and 'no' questions, a multiple choice section and section consisting of a few longer questions.

The multiple choice questions will be taken from a validated test used in the EFAR training program. These questions will be reviewed for appropriateness by the Education Committee of the EFAR program.

The multiple choice section will evaluate the participant's knowledge. One point will be awarded to each correct answer and no points to the incorrect answers. A score will then be calculated from each participants question paper and modified into a percentage.

Questions may be administered orally and medical terms will be simplified to standard EFAR definitions in order to improve understanding and accessibility. To discourage guessing, students will be asked to leave the question blank if they do not know the answer. This will be replicated in the post testing phase.

### **3.2. Study population and Sampling**

A convenience sample of approximately 200 ECD practitioners will be included in this study. The Department of Higher Education and Training have an agreement with Northlink College. ECD practitioners who don't have adequate training have been offered a learnership to study part time at a Northlink college. They attend classes once a week and cover a variety of topics. The people that attend the course are all running their own ECDs and thus receive a stipend to compensate for the fact that they are missing work. There are a number of different classes consisting of approximately 30 students each. The classes represent all the different communities of the Western Cape as the learnerships are not area specific. This will be the source of the study population. There are a number of Northlink College campuses in the Western Cape however the Goodwood Campus was chosen for its accessible location and the diversity of its students. This sample is more likely to reflect the average ECD



practitioners in the Western Cape. This is the pilot site for further EFAR programme development and implementation.

### **3.3. Ethical considerations**

The heads of departments will be consulted at the Goodwood campus of Northlink College and permission will be requested to invite the participants to complete a survey questionnaire. The questionnaire will be explained to the participants prior to its completion and they will be asked to sign a consent form (Appendix D) indicating that they understand and agree to take part in this process. All information obtained through this process will remain anonymous and confidential.

### **3.4. Methods of data collection**

A paper-based survey questionnaire will be undertaken. The survey is voluntary and upon return the data will be analysed and stored in a single password protected folder held by the primary researcher for analysis.

### **3.5. Time schedule**

submission to ethics approval	January 2014 - March 2014
collection of data	From receipt of ethics approval - end of May 2014.
statistical analysis	June 2014 – July 2014
reporting of results	June 2014 – July 2014
writing	June 2014 – July 2014
preparing for publication	July 2014 – end of August 2014

### **3.6. Logistics**

Questionnaires will be distributed personally. Information on the study will be given to potential participants. Participants will each be given one copy of a questionnaire to fill in and after completion it will be returned to a dedicated person who will then give the questionnaires back to the primary researcher. Participants will only be identified via study number and no named information will be kept.

### **3.7. Limitations:**

Information bias needs to be considered. Care must be taken in interpreting and drawing conclusions based on the information obtained from the questionnaire, as there is a tendency for respondents to provide what they believe to be socially acceptable answers rather than the truth. Adopting standardised and validated methods and using objective measures can help avoid information inaccuracies or biases. We will attempt to make the participants feel comfortable and will encourage them to answer honestly, reiterating the fact that we will not be able to identify who filled in which questionnaire.

Selection bias is another potential problem. Although the Goodwood Northlink campus accepts students from across the Western Cape, most are from the Northern substructure. Goodwood was chosen as a pilot site because it is considered to be the most diverse.

While the findings of this study will hopefully provide a good overview of the current first aid requirements that have been met at the ECDs as defined by the Department of Social Development, the application of first aid knowledge and skills will only be assessed on paper rather than practically. We, therefore, anticipate that there may be a mismatch between what is reported on paper and what is currently available on the ground in reality. There may, thus, be a need for further baseline assessments on a practical level including interviews and visits to the ECDs.

## **4. Analysis**

Basic descriptive statistics will be used to summarize the data. Statistical help will be sought from a statistician where necessary.

## **5. Budget**

telephone costs	R200
data capture/research assistant	R500
transport costs	R300
printing costs	R300
statistician costs	R500
total costs	R1800

## **6. Reporting and implementation of results**

Reporting and implementation will be done once all data has been collected from the college. Feedback will be given to the institution. The EFAR project will be given a copy of the results and will be looking at providing a structured ECD specific training program for the students of Northlink College with educational follow up. This will contribute to the development of an implementation strategy for EFAR in the ECD context.

It is aimed that the article developed from this research will be published in a peer reviewed journal.

## **7. References:**

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## **8. Appendices**

- A. Application form for childcare facilities as prescribed in terms of the city of Cape Town: environmental health by-law no. 13333, P.G.E. no.6041, dated 30 June 2003
- B. EFAR organizational flowchart
- C. Questionnaire
- D. Consent form

Executive Director: City Health  
P.O Box 2815  
CAPE TOWN  
8000



**APPLICATION FOR CHILDCARE FACILITIES AS PRESCRIBED IN TERMS OF THE CITY OF CAPE TOWN: ENVIRONMENTAL HEALTH BY – LAW NO. 13333, P.G.E. NO. 6041, DATED 30 JUNE 2003 (PART 4)**

Name of applicant: .....  
Trading as: .....  
Address of premises: ..... Erf No.: .....

		YES	NO
Type of childcare Facilities?	Crèche or Full Day Care.....		
	Morning Care Centre.....		
	Pre-primary School.....		
	Post School Centre.....		
Are meals provided? .....			
Is a kitchen provided? .....			
Is a sickbay provided? .....			
Is a first aid kit available? .....			
Does at least one staff member have a valid first aid certificate? .....			
Are sandwiches provided? .....			
Has application been made for Land-use planning approval with Council's Land-use planners? .....			
Has application been made with the PGWC Dept of Social Services for registration in terms of the			
Has application been made with the PGWC Dept of Education for Registration in terms of the Schools Act? (Applicable to Pre – schools and School based after Care facilities: .....			
Has fire clearance been obtained? .....			
Has staff undergone pre – employment chest X – rays detection of TB? .....			

Number of children and age group?	Age Group	Number of children
		0 – 2 years
	2 – 6 years	
	6 – 18 years	

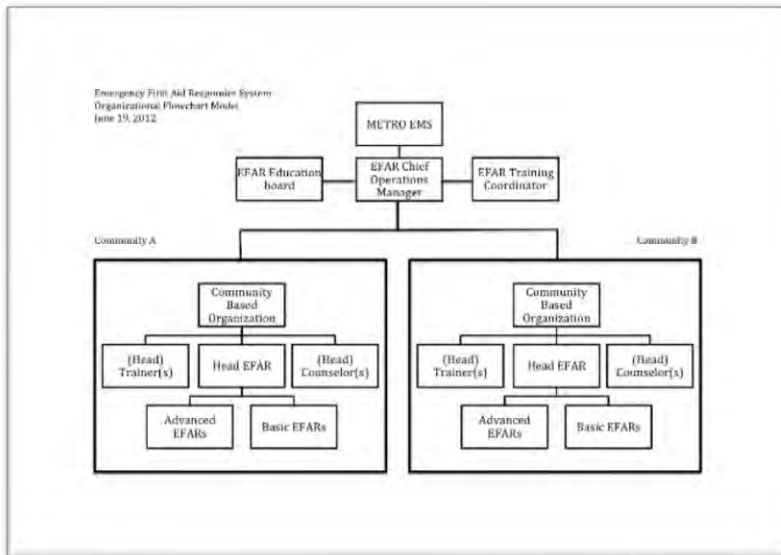
Type of toilets available?	Potty's	Flush	Chemical	Plt	Buckets
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	CRECHE OR DAYCARE CENTRE		MORNING CARE	AFTER CARE
	UNDER 2 YEARS	2 TO 6 YEARS	3 TO 6 YEARS	SCHOOL AGE
Indoor Play Space m <sup>2</sup>				
Outdoor Play Space m <sup>2</sup>				
Number of Toilets				
Number of W/hand basins				
Number of Potties		N/A	N/A	N/A

.....  
**SIGNATURE OF APPLICANT**

.....  
**DATE**

## Appendix B:



**Appendix C**

**Questionnaire:      Section A:**

What is your 1st language?

English  Afrikaans  Xhosa

How old are you? \_\_\_\_\_

Are you male or female? \_\_\_\_\_

Where do you teach? \_\_\_\_\_

Is your facility registered? \_\_\_\_\_

What is your highest level of education? \_\_\_\_\_

How many children do you look after? \_\_\_\_\_

## **Section B:**

1. During an emergency, whose safety is the most important?
  - a) The patients
  - b) Other bystanders
  - c) Yours
  - d) the youngest children around
  
2. What do you do if someone is choking, awake and silent?
  - a) Stand back and encourage the patient to cough
  - b) Begin CPR
  - c) Insert your hand or long object into the throat to get the object out
  - d) Begin abdominal or back thrusts
  
3. For which one of these conditions must you hold the head/neck in place?
  - a) Patient with a heart attack
  - b) Patient who fell from a second story window
  - c) Patient with a stroke
  - d) Patient having a seizure
  
4. A dehydrated child can be treated by drinking a solution made from:
  - a) 1 litre water, 8 teaspoons salt, 1 teaspoon sugar
  - b) 1 litre water, 2 teaspoons salt, 4tspns sugar
  - c) 1 litre water, 2 teaspoons sugar, 4 teaspoons salt
  - d) 1 litre water, 8 teaspoons sugar, 1 teaspoon salt
  
5. When someone is having a fit/seizure:
  - a) Hold the patients head to protect it
  - b) Open the mouth and place something inside to keep the airway open
  - c) Clear the area and then do nothing until the seizure/fit stops
  - d) Physically restrain the patient to prevent them from harming themselves
  
6. A small child who is a diabetic misses a meal and starts acting 'drunk'. What do you do?
  - a) Lie the child on her back and monitor for pulse and breath
  - b) Call the police to report her for drinking at school



- c) Sit the child down and force feed her something sugary
- d) Ask the child to drink or eat something sugary

7. How do you manage a burn wound?

- a) Run under cold water for 20 minutes and then put a moist bandage on
- b) Apply ointment, butter or toothpaste and then bandage
- c) Remove the charred skin and pop blisters
- d) Don't do anything

8. When splinting a broken bone, you should:

- a) Splint the bone in the position you find it
- b) Straighten the bone and then splint it
- c) Move the broken bone as much as possible to force circulation

9. A child has a cut on their leg and it is bleeding, would you?

- a) Put direct pressure on the wound
- b) Run water over the leg
- c) Call an ambulance so that the child can get stitches

10. A child is found unconscious in the swimming pool, would you?

- a) Dry the child so that they don't get cold
- b) Shout at the other carers for leaving the safety gate open
- c) Start CPR and call an ambulance

**Section C:**

*Please circle the correct answer and fill in where necessary.*

Has your facility ever offered you a first aid course?                      Yes      No      Not sure

Is there a first aid kit at your school?                                              Yes      No      Not sure

What does it consist of? \_\_\_\_\_

Is there anyone at your school that has first aid training?                      Yes      No      Not sure

Are there dedicated first aiders at your school?                                      Yes      No      Not sure

Is there a first aid policy at your school?                                              Yes      No      Not sure

Have you had any first aid training?                                                      Yes      No      Not sure

Do you think it is important to have first aid training?                              Yes      No      Not sure

Do you want to have first aid training?                                                      Yes      No      Not sure

Has there ever been an emergency situation at your school?                      Yes      No      Not sure

Please describe the event

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Do you feel able to handle an emergency at your school?                      Yes      No      Not sure

What is the number for any ambulance service? \_\_\_\_\_

**Appendix D:**

**Consent form:**

Information Sheet and Consent form for study participation:

***TITLE: EVALUATING THE NEED FOR FIRST AID AND BASIC LIFE SUPPORT TRAINING IN EARLY CHILDHOOD DEVELOPEMENT PRACTITIONERS IN CAPE TOWN, SOUTH AFRICA.***

<b>Institution</b>	<b>Individuals</b>
<b>University of Cape Town</b>	<b>Dr Derrick Evans</b>
<b>University of Cape Town</b>	<b>Dr Michele Twomey</b>
<b>University of Cape Town</b>	<b>Dr Heike Geduld</b>

**What is this research about?**

Dr Derrick Evans is an Emergency medicine registrar studying through the University of Cape Town. He is conducting a research study that forms part of his degree (MMED). The goal of this study is to determine if there is a need for first aid and basic life support training (BLS) of Early Childhood Development (ECD) workers in Cape Town, South Africa. All research done through the University of Cape Town has to be approved before it begins by the human research and ethics committee (HREC). This committee makes sure that every research is important, and that participants' safety and rights are respected.

**Why do you want to talk to me and what does it involve?**

You were selected as a possible participant because you are an ECD practitioner working within the Cape Town area and because you are a student at Northlink College. We decided to bring the questionnaire to the students of the Goodwood campus of Northlink College. This campus was chosen for its accessible location and the diversity of its students.

I/my colleague would like to ask you a number of questions regarding your knowledge and attitude towards the need for further training in basic life support and first aid. Your participation is completely voluntary, so you have the option to skip questions or to stop participating at any time. The questionnaire will be given to each student in their classroom on Goodwood campus at Northlink College. It should take approximately 30 minutes to complete.

**Are there any risks or disadvantages to me taking part?**

No. The questionnaire will be completely anonymous; your name will not appear anywhere on the survey.

**Are there any benefits to me taking part?**

There are no individual benefits to taking part, but in answering our questions you will help us determine if there is a need for further training in BLS and first aid. This will benefit all ECD practitioners in the future.

**Who will have access to the information I give?**

We will not share individual information about you or other participants with anyone beyond a few people who are closely concerned with the research. All of our documents are stored securely in locked cabinets and on password protected computers. The knowledge gained from this research will be shared in summary form, without revealing individuals' identities.

**What will happen if I refuse to participate?**

All participation in research is voluntary. You are free to decide if you want to take part or not. If you do agree, you can change your mind at any time without any consequences.

**What if I have any questions?**

You are free to ask me any question about this research. We will have a translator available in order to ensure that everyone understands the questions. If you have any further questions about the study, you are free to contact the research team using the contacts below:

Dr. Michele Twomey  
University of Cape Town, division of Emergency medicine,  
Telephone: 0828503281

**If you want to ask someone independent anything about this research please contact**

Professor Marc Blockman, chairperson of FHS Human research Ethics Committee.  
Room E52-24 Old main building, Groote Schuur Hospital, Observatory, 7925.  
Phone: 021 406 6338

**UNIVERSITY OF CAPE TOWN RESEARCH CONSENT FORM**

*EVALUATING THE NEED FOR FIRST AID AND BASIC LIFE SUPPORT TRAINING IN EARLY CHILDHOOD DEVELOPEMENT PRACTIONERS IN CAPE TOWN, SOUTH*

I have had the study explained to me. I have understood all that has been read and had my questions answered satisfactorily

**Yes** *please tick* **I agree to complete the questionnaire**

**No** *please tick* **I do not want to complete the questionnaire**

I understand that I can change my mind at any stage and it will not affect me in any way.

**Signature:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Participant's Name:** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Name** *(please print name)*

I certify that I have followed the study SOP to obtain consent from the participant. S/he apparently understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

**Signature:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Designee/investigator's** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Name** *(please print name)*

**Thumbprint of the parent as named above if they cannot write:** \_\_\_\_\_

## **PART B: Literature review**

### **Research question:**

Is there a need for first aid and basic life support training among early childhood development (ECD) practitioners in Cape Town, South Africa (SA)?

### **Objectives:**

#### **To describe:**

- The trauma/injury burden – worldwide and in SA.
- The burden of injury and illness in children
- The leading causes of injury related deaths in SA
- Nonfatal injuries and injury prevention
- What is an ECD?
- The basic requirements and criteria needed to start an ECD centre in SA
- ECD practitioner learnerships in SA
- EMS and access to care
- The role of community first aid responder training
- EFAR and its purpose
- Emergency contact numbers in SA
- What research has been conducted evaluating the need for BLS and first aid training in SA and on a global scale?

### **Literature search strategy:**

Databases used include:

- Cochrane library
- Pubmed
- TRIP database
- NHS evidence
- Google scholar

### **Key words:**

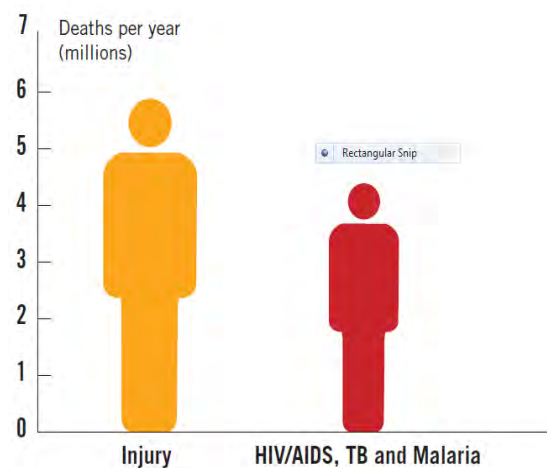
- global, burden, injury,
- mortality, injury, trauma, preschool
- ECD, Cape Town, registration
- Pre-hospital emergency care, developing countries, emergency responders
- First aid, preschool staff, knowledge, basic life support

## **The Injury burden – worldwide and in South Africa:**

Injuries and accidents are one of the leading causes of deaths worldwide. On a global scale, more than 15000 people die from injuries every day. For every person who dies of injuries, several thousand injured persons survive, but with permanent disabling sequelae. A permanently disabled individual may require lengthy hospital admissions, rehabilitation and intensive home care. This is costly to the patient's family, as well as the health care system. <sup>(1)</sup>

An injury, may be defined, as a bodily lesion at an organic level, in amounts that exceed the threshold of physiologic tolerance. Injuries may be classified as intentional or unintentional. Most falls, drownings, poisonings, fire-related injuries and traffic injuries are classified as unintentional injuries. Intentional injuries include injuries such as assaults, self-inflicted violence and war. <sup>(2)</sup>

About 5.8 million people die each year as a result of injuries. This accounts for 10% of the world's deaths, 32% more than the number of fatalities that result from malaria, tuberculosis and HIV/AIDS combined. Almost twice as many men as women die as a result of injuries and violence each year. If one includes the disability resulting from injuries then injuries cause 16% of the global burden of disease. Road traffic injuries, suicide and homicide are among the foremost causes of injury related deaths worldwide. Road traffic injuries rank as the ninth leading cause of death worldwide for all ages and both sexes. <sup>(1)</sup>



**Figure 1: The scale of the problem - Injury deaths compared to other leading causes of mortality.** <sup>(1)</sup>

## **The Burden of injury and illness in children:**

Injuries are also a cause of mortality in children. The worldwide leading causes of injury related death in the 0-4 year age group are drowning, road traffic accidents and fire related burns. In the 5-14 year age group, road traffic accidents are the second leading cause of overall death. Table 1 highlights that drowning, fire related burns and falls are also significant in this age group. <sup>(1)</sup>

More than 90% of deaths that result from injury occur in low- and middle-income countries. South Africa is currently classified as an upper-middle income country. <sup>(3)</sup> The distribution of income and wealth in South Africa is among the most unequal in the world, and many households still have unsatisfactory access to education, health care, electricity and clean water. Unfortunately the majority of South Africans live in poverty and are subject to the same problems and struggles noted in low income countries. <sup>(4)</sup>

RANK	0-4 years	5-14 years
1	Perinatal causes	Lower respiratory tract infections
2	Lower respiratory tract infections	Road traffic injuries
3	Diarrhoeal diseases	Malaria
4	Malaria	Drowning
5	Measles	Meningitis
6	Congenital anomalies	Diarrhoeal diseases
7	HIV/AIDS	HIV/AIDS
8	Whooping cough	Tuberculosis
9	Meningitis	Protein-energy malnutrition
10	Tetanus	Fire-related burns
11	Protein-energy malnutrition	Measles
12	Syphilis	Leukemia
13	Drowning	Congenital anomalies
14	Road traffic Injuries	Trypanosomiasis
15	Fire-related burns	Falls

Higher rates of morbidity and mortality are noted amongst people from poorer economic backgrounds as opposed to wealthier people in all regions of the world. This correlation is also noted between the different economic classes within a country. Factors that contribute to this disparity include living, working and traveling in less safe conditions, reduced emphasis on injury prevention and poorer access to good emergency health care. <sup>(1)</sup>

**Table 1: Leading causes of death by age group in both sexes, world. <sup>(1)</sup>**



### **The leading causes of injury related deaths in SA:**

Statistics South Africa revealed that injuries were the 4<sup>th</sup> leading cause of death in the 0-14 year age group. The leading non-natural causes of death in the 0-14 year age group are listed in table 2. <sup>(5)</sup>

1	Other external causes of accidental injury *
2	Transport accidents
3	Events of undetermined intent
4	Complications of medical and surgical care
5	Assault
6	Intentional self harm

**Table 2: Non natural causes of death for both sexes in 0-14 age group in South Africa, 2011 <sup>(5)</sup>**  
**(modified form)**

\*Includes exposure to unspecified factors, fires, drowning, poisoning and falls.

### **Nonfatal injuries and injury prevention:**

Injuries can also result in a number of less severe sequelae. These can, nevertheless, be very distressing to the children involved and their families. Children are particularly prone to unintentional injuries. Their bodies are developing and they have not yet learned to be aware of themselves and environmental hazards. <sup>(6)</sup> Accidental physical injuries account for the majority of injuries that occur and usually take place on the playground. These may include minor injuries such as abrasions and bruises or more significant injuries such as fractures, lacerations and head injuries. Falls from a height (e.g. jungle gym) are common and may result in more severe injuries. <sup>(7)</sup> Foreign body (FB) aspiration occurs regularly in younger children and may result in airway compromise. Only a small percentage of individuals with FB aspiration present to hospital with severe clinical distress. This may be related to delayed access to care. <sup>(7, 8)</sup>

Conditions such as lower respiratory tract infections, HIV related illnesses, diarrheal diseases and malaria are among the leading causes of death in low and middle income countries. <sup>(1)</sup> They are potentially preventable and treatable. Many countries have invested large amounts of money and resources into preventing and managing these conditions. Injuries have previously been viewed as random events or “accidents”. This has consequently led to the neglect of this area of public health. <sup>(9)</sup> Over the last few years public health research has demonstrated that most injuries are preventable. <sup>(10)</sup> Prevention strategies such as home modifications to prevent falls and injuries have been evaluated and

proven to be effective. <sup>(11, 12)</sup> Measures to promote injury prevention need to be implemented. An effective programme may aid in reducing the demand placed on a strained health care system. <sup>(13)</sup> Child injury prevention should be a responsibility shared between governments, non-governmental organizations, academic institutions and the business sector. The health sector has a leading role to play. <sup>(11)</sup>

Unfortunately not all injuries will be prevented. ECD centres are important locations for focusing on good first aid and basic life support training and provision. Prompt and correct treatment of conditions may significantly reduce the sequelae of injuries sustained whilst at an ECD facility.

### **What is an ECD?**

It is important to note that the terminology regarding child care facilities has changed in recent times. The term ECD facility is now being used and is synonymous with terms such as childcare centre, preschool or crèche. Children spend a large portion of their time at ECD centres. This is often the result of the need for education coupled with financial pressure that forces both parents to work. <sup>(14)</sup>

### **The basic requirements and criteria needed to start an ECD centre in SA:**

In order to register an ECD centre, there are a number of regulations that need to be complied with. The city of Cape Town and the national government have produced a number of documents that stipulate the requirements to open such a facility. A large section of the document makes reference to the infrastructure needed to provide the optimum learning and playing environments for the children. The requirements include: a ventilated and well lit office, a kitchen, refuse yard, and indoor and outdoor section in which the children can play. The regulations are very specific about how many children are allowed per m<sup>2</sup> of property. The size of the indoor and outdoor areas will therefore determine the amount of children that can attend the facility. Safety is a very important issue and there are a number of regulations that need to be adhered to. All ECD facilities must have at least one member trained in first aid on the premises at all times and they should have an adequate first aid kit. The first aid kit should be checked monthly and used or expired items must be replaced. The kit must be stored out of reach of the children. The documents are comprehensive and provide a list of the essential items needed in a first aid kit in an ECD centre. Low cost alternatives are suggested for more expensive items. Emergency protocols also need to be established whereby each member of staff should know what procedures to follow should a child get injured. These regulations help to insure that the children are attending a facility that is safe and secure. <sup>(15, 16)</sup>

There are a large number of unregistered ECD facilities throughout the country. This is largely due to the poverty that is so prevalent in large areas of South Africa. These facilities are often started by members of society who are looking for a way to make an income themselves or to try and uplift the community. <sup>(17)</sup> They usually do not have any formal training in early childhood development. <sup>(18, 19)</sup> The locations of these unregistered sites include garages and informal backyard structures. They consequently fail to meet the infrastructure requirements for health and safety. This culminates in overcrowded environments where the children are not learning adequately and where their health may be at risk. <sup>(14)</sup>

On the 14<sup>th</sup> May 2014, IOL news reported the death of two children who fell into a pit at an ECD centre in Nqutu, KwaZulu-Natal. <sup>(20)</sup> The news report speculated as to whether the facility was registered or not. It appeared as if the proper safety measures were not in place. This tragic story highlights the risks of unregistered facilities and the need for adequate first aid and basic life support training.

### **ECD practitioner learnerships in SA:**

The Department of Higher Education and Training have an agreement with Northlink College South Africa. ECD practitioners who do not have adequate training have been offered a learnership in order to study part time at a Northlink college. A learnership is an alternative form of training that places the emphasis on practical experience. An agreement is reached between the college, learner and workplace (company). Learners are required to attend classes either one day per week or one week per month. The theoretical knowledge that is gained in class is then applied in the workplace. This results in a close collaboration between workplace and College. The majority of the learners time is spent in the workplace thus providing hands-on training in a professional environment. A learnership consists of a structured learning component (30%) and practical work experience (70%) of a specific nature and duration and culminates in a full qualification registered with SAQA. <sup>(21)</sup>

The curriculum is presented primarily in English and Afrikaans but provision has been made to accommodate the Xhosa speaking learners. The learnership programmes are available to all who are interested and are not only confined to the areas adjacent to the various campuses. The classes therefore represent members from a wide variety of communities throughout the Western Cape. The Northlink curriculum does not currently include any first aid teaching. <sup>(22)</sup>

### **EMS and access to care:**

The Western Cape is home to a number of communities that suffer from high rates of intentional injuries and injury related deaths. <sup>(23)</sup> A large proportion of these injuries go untreated and result in pre-hospital deaths. Local EMS response times are, unfortunately, not often in keeping with those found in high income countries. <sup>(24)</sup> This is partially due to a lack of appropriately qualified EMS staff compared to the massive burden of disease in these communities.

This highlights the need for improved emergency care systems. In the past, we have looked to high income countries and have tried to replicate the systems that have worked for them i.e. the popular strictly ambulance based EMS model. However, these models are costly and impinge on the scarce resources of low and middle-income countries, and they often push the developing nation to divert too many of its crucial resources towards a non-sustainable and ineffective system. <sup>(25)</sup> This may result in unreliable or delayed ambulance response times that allow for unnecessary amounts of human suffering. In these situations time is of the essence and minutes can mean the difference between life, permanent injury, and even death. In addition to this, even a well-funded EMS can be hindered in South Africa due to low public awareness of the scope of EMS. This may result in misuse of the system.

### **The role of community emergency first aid responder training:**

Community members can be trained in the most basic pre-hospital emergency procedures in order to bridge the gap and support an EMS as it expands, or to lay the foundation for an EMS to be built upon. Because community members are already dispersed throughout a region, they are able to be the first medically trained persons on a scene. Ideally, they are able to keep a patient alive until further help is available, using no specialized medical equipment and being able to work at a moment's notice. Studies have already found that such first responders can be effective at providing immediate, quality care. <sup>(26-28)</sup>

### **EFAR and its purpose:**

The Emergency First Aid Responder (EFAR) Training system was developed in 2009 in Cape Town, South Africa as a community level first responder training course. The system was initially developed to adequately equip Manenberg township citizens with the medical skills needed to keep near-death patients alive until higher care was available. The Manenberg suburb consists of an area of approximately 62000 residents located 20 km outside of Cape Town, South Africa. <sup>(29)</sup> Manenberg is infamous for its gang violence, accidents and its high rates of assault. <sup>(23)</sup> Residents have reported that ambulance and emergency personnel may take a substantial amount of time before arriving on scene. The Western Cape EMS official statistics indicate that only 70% of life-threatening emergencies are responded to within 15 min, with approximately 550 life threatening incidents per day and up to 48100 total life-threatening and non-life-threatening calls per month (personal communication with Deputy Director of EMS, 8 October 2014). This provided a good platform to implement the system and to evaluate its effectiveness. It is important to note that prior to this training there had been limited skills development and outreach at the community level. When community members were utilized on scene it was mainly as a standalone health intervention. <sup>(30-34)</sup>

Doctors and nurses at Manenberg's GF Jooste Hospital's Emergency Centre and nearby primary clinics were consulted in order to establish the first responder training curriculum. Four major categories of need were identified and became the basis of the four modules of the course: emergency scene management; unconscious patients; violent injuries and medical emergencies. The EFAR system proved to be an effective system. On competency examinations, all EFARs tested averaged 28.2% before training, 77.8% after training, and 71.3% four months after training and 71.0% six months after training. EFARs reported using virtually every skill taught to them, and further review showed that they had done so adequately. <sup>(35)</sup> As the data suggests, the EFAR system was useful and effective within the Manenberg community. This led to an expansion of the system to other areas within the Western Cape. Slight adjustments were made in order to accommodate the different communities but the core system remained unchanged. <sup>(36, 37)</sup>

The emergency first aid responder system is very cost effective and is relatively easy to implement. The system can be introduced to any area with a high volume of emergencies and insufficient emergency care. To sustain the system, the main requirements are a steady population from which to recruit

community instructors and EFARs, a local community organisation to oversee routine administration, and a governing body to provide quality assurance to the training.<sup>(35)</sup>

The EFAR system curriculum has primarily focused on adult emergencies. ECD centres are potential sources of injuries and a site where sick children may present. Therefore there is a need for quality emergency care for children at these sites. The EFAR program has the potential to expand into a first aid and basic life support course for ECD workers. This would require some modifications to the current program in order to make them appropriate for emergency first aid in children.<sup>(36)</sup>

### **Emergency contact numbers in SA:**

Access to care is essential in delivering quality emergency care. The ability to easily and rapidly contact emergency services is essential. However, South Africa has no national Emergency Number. Western Cape EMS has a landline number which works throughout the province and diverts calls to the closest EMS dispatch centre. While there is a national mobile emergency number, this activates a combined call centre in Johannesburg which relays the call to local centres. This built in delay is often accompanied by attrition of clinical and other information. The different private ambulance services have their own contact numbers.<sup>(38)</sup> The City of Cape Town created a centralized emergency number which can be dialled from all landlines for free.<sup>(39)</sup>

### **What research has been conducted evaluating the need for BLS and first aid training in SA and on a global scale?**

To date no comparable studies have been undertaken in Africa or South Africa but two similar studies were found in Turkey and China.

A study conducted in Turkey evaluated the level of knowledge of first aid and basic life support of the educators working in preschools. A written questionnaire was formed with 34 multiple choice questions. These questions, varied from demographic to first aid and basic life support, aimed on testing the knowledge of the employees on related topics. The mean score of achievement for the 118 participants in first aid and basic life support was 48.9%. They concluded that the preschool educators in the study had inadequate knowledge on the first aid and basic life support but they were interested in getting proper training.<sup>(40)</sup>

A further study was conducted describing paediatric first aid knowledge and attitudes among staff in the preschools of Shanghai, China. A cross-sectional study was carried out among the staff members at selected preschools. Of the 1067 subjects who completed the questionnaire, none of the surveyed employees answered all questions correctly. Only 39 individuals (3.7%) achieved passing scores. They concluded that the level of first-aid knowledge among preschool staffs in Shanghai was low. The vast majority of participants felt that it was important and useful to learn paediatric first aid and wanted further training.<sup>(41)</sup>

In conclusion, it is apparent that injuries are common in children and may be responsible for serious morbidity and mortality. Studies have been conducted worldwide and have indicated that there is a need for first aid and BLS training in ECD workers. ECD practitioners are entrusted with the care of young children, often without formal first aid training. We need to determine the first aid knowledge experiences and training needs of practitioners in order to design and deliver an appropriate ECD first responder curriculum.

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## **PART C:**

Evaluating the need for emergency first aid and basic life support training among early childhood development practitioners in Cape Town, South Africa.

### **Abstract:**

**Background:** Unintentional injury remains one of the leading causes of morbidity and mortality among children worldwide. ECD (early childhood development) centres have an important role to play in communities by providing supervised care to preschool children. The aim of this study was to ascertain whether ECD practitioners working in ECD facilities in the Western Cape have training in emergency care, what their attitudes are towards emergency first aid and how competent they feel to manage emergencies.

**Methods:** A cross-sectional survey was carried out among ECD practitioners studying at the Goodwood campus of Northlink College in the Western Cape. The survey was voluntary and anonymous. A questionnaire based survey was used to assess the participant's knowledge and attitudes towards first aid and basic life support (BLS).

**Results:** 214 subjects completed the questionnaire. The average scores differed significantly across the different areas that were assessed. Only 12.1% of the surveyed learners had adequate knowledge. None of the participants answered all the questions correctly. The majority (47.7%) of the participants attained scores of 50% and 60% on the questionnaire. Subjects especially lacked knowledge in the areas of safety (8% correct), seizure management (28%), fractures (41%) and spinal immobilisation (46%). The participants revealed good knowledge in the sections on burns management (84%) and near drowning (97%). All of the participants felt that it was important to have first aid training and 99% said that they wanted further training in this field.

**Conclusion:** The level of emergency first aid and BLS knowledge in Cape Town ECD practitioners was low. There is an urgent need to educate and train staff regarding first aid and BLS practices.

## **Introduction:**

Injuries and accidents are one of the leading causes of childhood deaths worldwide. <sup>(1)</sup> It is estimated that approximately 26% of the world's population is younger than the age of 15. <sup>(2)</sup> This constitutes a significant portion of the population. High quality healthcare for children needs to be a priority.

Children are prone to unintentional injuries. Their bodies are developing and they have not yet learned to be aware of themselves and environmental hazards. <sup>(3)</sup> In many urban communities children spend a large portion of their time at early childhood development (ECD) centres.

Accidental physical injuries account for the majority of injuries that occur and usually take place on the playground. These may include minor injuries such as abrasions and bruises or more significant injuries such as fractures and lacerations. <sup>(4)</sup>

ECD facilities are important locations for focusing on good emergency first aid and BLS. Prompt and correct emergency care may significantly reduce the sequelae caused by injuries. <sup>(5)</sup> Foreign body aspiration is common among younger children and may result in airway compromise. The ability to perform adequate first aid, including choking and cardiopulmonary resuscitation, results in lives being saved. <sup>(6)</sup> Local EMS response times are, unfortunately, not often in keeping with those found in high income countries and may result in delayed access to care. <sup>(7)</sup> If basic life support/first aid measures can be started and maintained until EMS arrives, a reduction in patient morbidity and mortality may be noted.

In order to register an ECD centre in South Africa, at least one staff member needs to have a valid first aid certificate. <sup>(8-9)</sup> A significant number of Child care facilities consist of unqualified staff and are unregistered or in the process of registering. <sup>(10)</sup> Many parents in South Africa, unfortunately, have to rely on unregistered child care institutions to look after their children. These care facilities may not comply with the necessary first aid requirements and also tend to be overcrowded. This potentiates the risk of injury. <sup>(11)</sup>

The Emergency First Aid Responder (EFAR) Training program was developed in 2009 as a community level emergency first aid training course. The system was initially designed to sustainably equip Manenberg township citizens with the emergency skills needed to keep near-death patients alive until higher care was available. Studies have already found that such first responders can be effective at providing immediate emergency care. <sup>(12, 13)</sup> A large proportion of severe injuries go untreated in the community and result in pre hospital deaths. This is, largely, due to a lack of EMS staff compared to the massive burden of disease in these communities. The EFAR program teaches a basic level of care appropriate to laypeople. It is not a SAQA accredited First Aid program but is endorsed by the Division of Emergency Medicine at UCT. It is important to note that prior to this EFAR training system, not enough work had been done with first responders. <sup>(14, 15)</sup> When they were utilized it was mainly as a standalone health intervention. There was no co-operation with local EMS.

The EFAR programme has since expanded and can be found in many other communities within the Western Cape. Thus far, more than 1500 community members have been trained in EFAR throughout the Western Cape. Although the learning materials are in English, the course has been taught successfully across a wide range of cultures and languages. It consists of a one day training programme with a didactic core knowledge base, reading material and practical skills sessions. This programme includes a test at the end of a training day to assess the knowledge gained by candidates. <sup>(16)</sup>

The educational components of the EFAR course and the quality thereof is maintained by the EFAR Educational panel comprising of the Division of Emergency Medicine at UCT and SU, the College of Emergency Care and the Western Cape EMS.

Research in China and Turkey has shown that many ECD practitioners cannot adequately manage emergencies, often because they lack the necessary knowledge and skills. <sup>(17, 18)</sup>

In South Africa there are no studies assessing the knowledge, skills and needs of ECD practitioners regarding emergency first aid training.

### **Objectives:**

The main objective of the study was to determine whether ECD practitioners felt competent managing an emergency and to determine the amount of basic emergency care knowledge they possess. Furthermore the study established whether the facilities complied with the government regulations (i.e. if they had an adequate first aid kit, a first aid policy and if they employed at least one staff member trained in first aid). We also evaluated whether ECD practitioners knew the contact number for any of the ambulance services available in Cape Town.

## **Methods**

### **Study design:**

A cross-sectional survey was performed. The data was collected by means of an anonymous paper-based questionnaire (Appendix C). The first section looked at demographics, the second focused on the participant's knowledge about first aid, basic life support and local resources; and the third section concentrated on the participant's attitudes towards first aid and BLS.

Knowledge of child specific emergency conditions was assessed by means of a series of multiple choice questions (MCQs). The MCQs were taken from a validated test used in the EFAR training program. These questions were reviewed for appropriateness by the Education Committee of the EFAR program.

The MCQs evaluated the participant's knowledge. One point was awarded to each correct answer and no points to the incorrect answers. A score was then calculated from each participant's question paper and modified into a percentage.

The written questions were presented in English whilst Afrikaans and Xhosa translators were present and were used as required. Medical terms were simplified to standard EFAR definitions in order to improve understanding and accessibility. To discourage guessing, students were asked to leave the question blank if they did not know the answer. There was no negative marking. Open ended questions related to attitudes, experiences and expectations around emergency care were included.

### **Study population and Sampling:**

A convenience sample of 214 ECD practitioners were included in this study. The South African Department of Higher Education and Training have a learnership agreement with Northlink College South Africa. The sample of ECD practitioners were selected from those currently completing their learnership at the Northlink Goodwood campus. The Goodwood Campus was chosen for its accessible location and the diversity geographic representation of students. This is the proposed pilot site for further EFAR programme development and implementation. Of the 270 practitioners registered, 214 consented to this study.

### **Ethical considerations**

A memorandum of agreement was drawn up between the Division of Emergency Medicine, Stellenbosch University and Northlink College South Africa. Permission to undertake this survey was received by Northlink management. The Human Research Ethics Committee (HREC) of the University of Cape Town (UCT) provided ethical approval – HREC REF 748/2013. The study was explained to potential participants and written informed consent was obtained. All the information collected remained anonymous and confidential. Participants were only identified via study number and no named information was kept. The survey was administered by the primary researcher.

### **Data Analysis:**

The data was collected and presented to the Centre for Statistical Consultation (CSC) for processing. The CSC is affiliated with the University of Stellenbosch. Descriptive summary statistics of the quantitative data were provided and the qualitative data was coded using a grounded theory analysis.

## **Results:**

### **Section A – Facility information and demographics:**

A total of 214 subjects participated in and completed this study. Of the sample group, 1.4% of the subjects were male and 98.6% were female. The mean age of the sample group was 33.7years (range 18-62 years). The mean number of children per facility was 53.3. Data revealed that 77.1% of the facilities were registered and 22.9% were not registered. On assessment of the participant's highest level of education, 64.5% had successfully completed grade 12. The other 35.5% did not complete their schooling. 51.4% of the participants were Afrikaans, 22% English and 24.8% Xhosa (1.8% did not answer the question).

<b>Characteristics</b>	<b>Count</b>	<b>Percentage (%)</b>	<b>Mean +/- SD</b>
<b>Age (N=214)</b>			<b>33.67 +/- 10.01</b>
<25	52	24.30	
25-45	129	60.28	
>45	33	15.42	
<b>Language (N=214)</b>			
Afrikaans	110	51.40	
English	47	21.96	
Xhosa	53	24.77	
Not answered	4	1.87	
<b>Gender (N=214)</b>			
Female	211	98.60	
Male	3	1.40	
<b>Level of Education (N=214)</b>			
Completed grade 12	138	64.49	
Did not complete grade 12	76	35.51	
<b>Facility size (N=214)</b>			
Small <20	31	14.49	
Medium 20 - 50	113	52.80	
Large >50	70	32.71	
<b>Is facility registered? (N=214)</b>			

Yes	165	77.10	
No	48	22.43	
Not answered	1	0.47	
<b>Number of children per facility (N=214)</b>			<b>53.35 +/- 45.60</b>

Table 1: Demographic characteristics of participants and facilities

**Section B – Content knowledge:**

The average scores differed significantly across the different areas that were assessed. None of the participants answered all the questions correctly. The majority of the participants attained scores of 50% and 60% on the questionnaire (47.7%). Only 12.1% of individuals achieved passing scores. Participants especially lacked knowledge in the areas of safety (8% correct), seizure management (28%), fractures (41%) and spinal immobilisation (46%). The participants revealed good knowledge in the sections on burns management (84%) and near drowning (97%).

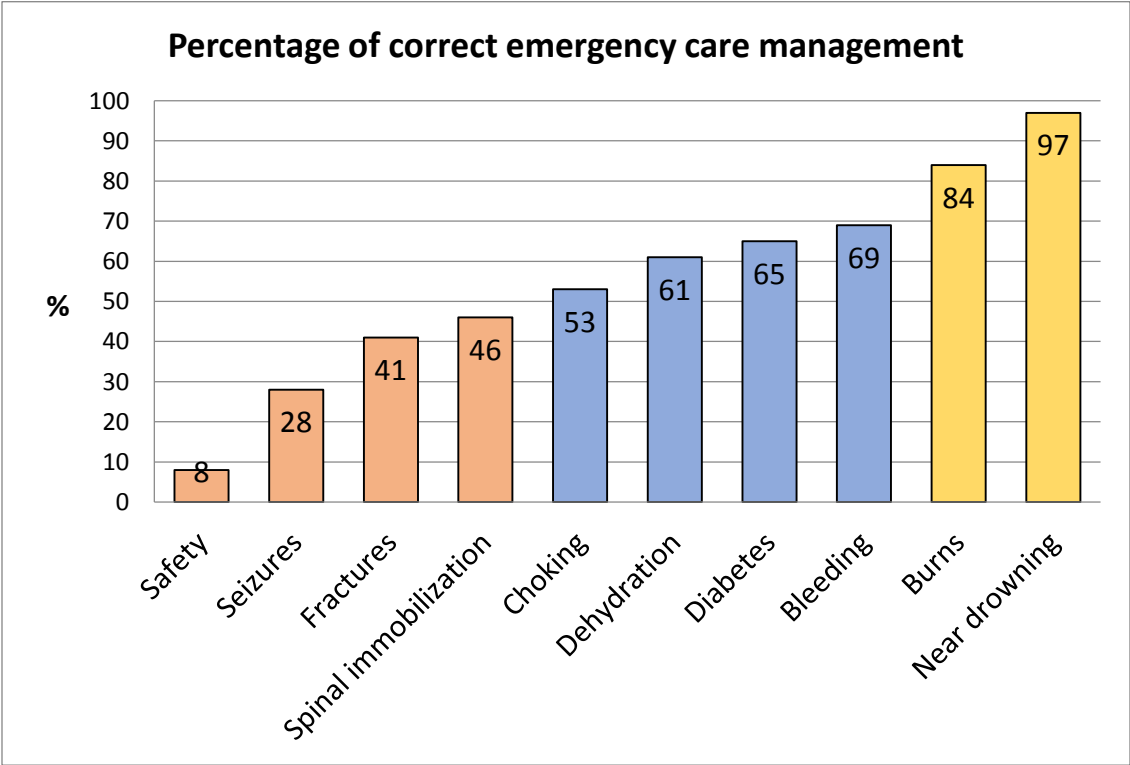


Figure 1: ECD practitioner’s level of knowledge in various content areas

### Section C –Context information relating to ECD facilities:

The data from this section revealed that less than 50% of the ECD practitioners had first aid and BLS training. Table 2 shows that only 40% of the institutions had offered to send their staff on a training course. 74% of the learners said there was at least one person trained in first aid at their centre. 59% of facilities had a formal first aid policy. The majority of the facilities have a first aid kit (92%). Only 50% of the participants knew a contact number for an ambulance/emergency service.

	Yes (%)	No (%)	Unsure (%)
Has your facility ever offered you a first aid course?	40	56	4
Is there a first aid kit at your school?	92	5	3
Is there anyone at your school that has first aid training?	74	12	14
Are there dedicated first aiders at your school?	49	24	27
Is there a first aid policy at your school?	59	17	24
Have you had any first aid training?	47	53	0
Has there ever been an emergency situation at your school?	32	58	10
What is the number for any ambulance service?	50% correct	50% incorrect	0

*Table 2: Context information regarding ECD facilities*

All of the practitioners felt that it was important to have first aid training. Table 3 indicates that 99% expressed that they wanted further training in this field and 63% felt that they were capable of handling an emergency at their school.

	Yes (%)	No (%)	Unsure (%)
Do you think it is important to have first aid training?	100	0	0
Do you want to have first aid training?	99	1	0
Do you feel able to handle an emergency at your school?	63	12	25

*Table 3: Attitudes towards first aid and BLS*



Qualitative data was collected where participants were asked to reveal the contents of their facilities first aid kit, should their facility have one and to describe any facility witnessed emergencies. The majority of the participants answered the question regarding the first aid kit. The terminology used to answer this question was poor and inconsistent. Data collected was incomplete and we were unable to draw conclusions as to the completeness of the first aid kit. This made it problematic to accurately evaluate the question.

32% of the learners admitted to witnessing an emergency. The majority of the emergencies witnessed at the ECD centres included lacerations, fractures and seizures. One injury related death was reported.

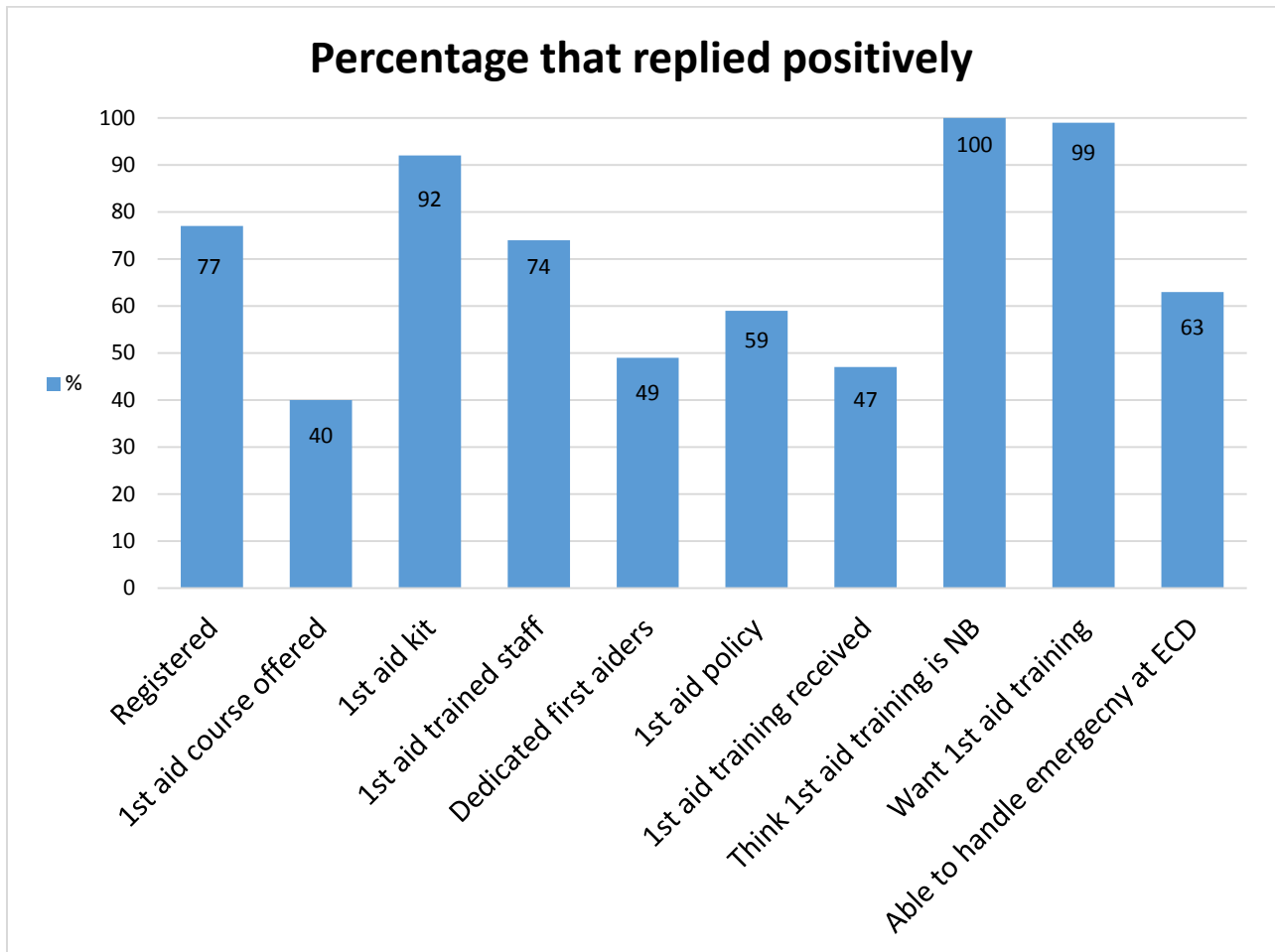


Figure 2: Context information relating to ECD facilities and practitioners' attitudes

## Discussion:

The results of our study indicate that the overall staff knowledge of first aid and BLS is lacking, this is evidenced by the number of incorrect responses noted in our knowledge questionnaire. The American Academy of Paediatrics has set 80% as the passing level in its written knowledge exam of paediatric first aid training for caregivers and teachers. A pass rate of 75% was set by the EFAR education committee prior to the commencement of the study. This corresponds to the score needed in order to qualify as a certified EFAR trainee. By this criterion only 12.1% of individuals achieved passing scores.

Questions related to safety (92% incorrect), seizures (72% incorrect), fractures (59% incorrect) and spinal immobilization (54% incorrect) were most often answered incorrectly. Poor understanding of safety is of particular concern; an unsafe situation may result in further injuries to the provider, the injured, and bystanders.

There are, unfortunately, many misconceptions regarding the treatment of seizures. A large portion of the participants believed that they had to put something into the affected individual's mouth in order to maintain the airway. The correct treatment would be to clear the area and monitor the patient until the seizure stops.<sup>(19)</sup> The management of fractures and neck injuries was also inadequate and emphasized the need for good training.

Gastroenteritis is a potentially lethal condition in South Africa.<sup>(20)</sup> Awareness of the danger signs and correct methods of rehydration at a community level are important. Due to the socio-economic climate of our country, not all South Africans can afford to buy rehydration solutions. Health care centers around the country educate parents on how to make a rehydration mixture with inexpensive common household items. Unfortunately, only 61% of participants answered the question correctly.

Questions regarding the management of burns (84% correct) and near drowning victims (97%) were answered particularly well. Burn injuries are common in RSA.<sup>(21)</sup> It has been proven that the first aid performed has an impact on the clinical outcomes of patients who present with acute burn injuries. They found that correct first aid was associated with significantly reduced re-epithelialization time for children with contact injuries; likewise, some positive clinical outcomes were associated with first aid use.<sup>(22)</sup>

The remaining questions on bleeding (69% correct), diabetes (65%) and choking (53%) were answered in an average manner.

It is vital, as an ECD worker, to be aware of the contact details of EMS/ambulance services. There is no single national emergency number for South Africans. EMS has a specific number that works nationwide. The different private ambulance services have their own contact numbers.<sup>(23)</sup> The City of Cape Town created a centralized emergency number which can be dialed from all landlines for free.<sup>(24)</sup> Only 50% of

the participants could remember any of the emergency numbers. This is quite concerning as it may result in a significant time delay in activating an already overburdened EMS service.

Given that almost a third of participants reported being involved in an emergency, the ECD facilities themselves appeared poorly prepared. While some form of first aid kit was present in most facilities, trained staff were lacking. Due to the potentially dire consequences of a mismanaged medical emergency, an effective training program should be implemented urgently.

All the members of the study thought that first aid and BLS training was important and 99% wanted further training in this field. It was perplexing that 63% of individuals thought that they would be able to handle an emergency at their school, as only 47% had received first aid training and only 33% had experienced an emergency at their institution. This indicates that untrained individuals feel they can handle an emergency. Many people tend to struggle to act rationally in an emergency setting and need proper training in order to be effective in such a situation. Perhaps they feel that more capable individuals will be present or perhaps it is the lack of exposure that has caused a false sense of ability.

#### **Limitations:**

The introduction of Information bias was considered. Care was taken in interpreting and drawing conclusions based on the information obtained from the questionnaire. We were concerned that there may be a tendency for respondents to provide what they believe to be socially acceptable answers rather than the truth. We adopted standardised and validated methods and used objective measures in order to help avoid information inaccuracies or biases. We endeavoured to make the participants feel comfortable and encouraged them to answer honestly, reiterating the fact that we were not able to identify who filled in which questionnaire.

Selection bias was another potential problem. Although the Goodwood Northlink campus accepts students from across the Western Cape, we found that a larger proportion of students were from the Northern substructure. Goodwood was chosen as a pilot site because it was considered to be the most diverse.

All students who attend the Northlink ECD programme receive a monetary stipend. Students may indicate that they want further training in an attempt to receive further compensation.

While the findings of this study provided a good overview of the current first aid requirements that have been met at the ECDs as defined by the Department of Social Development, the application of first aid knowledge and skills was only assessed on paper rather than practically. We, therefore, anticipate that there may have been a mismatch between what is reported on paper and what is currently available on the ground in reality. There may, thus, be a need for further baseline assessments on a practical level including interviews and visits to the ECDs.

The participants first aid and BLS knowledge was assessed utilising a survey consisting of ten multiple choice questions. While this evaluation covered a variety of different topics, a more extensive

evaluation would be useful in order to help compile a training course that contained comprehensive core content.

**Conclusion:**

This study demonstrates that the level of first aid training among ECD workers in Cape Town is low, but that providers are receptive to further training. There is a need to educate ECD practitioners in first aid and BLS. The overall readiness and preparedness of ECD facilities to manage an emergency was found to be insufficient. We would recommend the urgent development of an appropriately modified paediatric EFAR program and that training be made more widely available and accessible.

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## **PART D:**

### **Appendices**

- A. Application form for childcare facilities as prescribed in terms of the city of Cape Town: environmental health by-law no. 13333, P.G.E. no.6041, dated 30 June 2003
- B. EFAR organizational flowchart
- C. Questionnaire
- D. Consent form
- E. HREC approval

Executive Director: City Health  
P.O Box 2815  
CAPE TOWN  
8000



**APPLICATION FOR CHILDCARE FACILITIES AS PRESCRIBED IN TERMS OF THE CITY OF CAPE TOWN: ENVIRONMENTAL HEALTH BY – LAW NO. 13333, P.G.E. NO. 6041, DATED 30 JUNE 2003 (PART 4)**

Name of applicant: .....  
Trading as: .....  
Address of premises: ..... Erf No.: .....

		YES	NO
Type of childcare Facilities?	Crèche or Full Day Care.....		
	Morning Care Centre.....		
	Pre-primary School.....		
	Post School Centre.....		
Are meals provided? .....			
Is a kitchen provided? .....			
Is a sickbay provided? .....			
Is a first aid kit available? .....			
Does at least one staff member have a valid first aid certificate? .....			
Are sandwiches provided? .....			
Has application been made for Land-use planning approval with Council's Land-use planners? .....			
Has application been made with the PGWC Dept of Social Services for registration in terms of the			
Has application been made with the PGWC Dept of Education for Registration in terms of the Schools Act? (Applicable to Pre – schools and School based after Care facilities: .....			
Has fire clearance been obtained? .....			
Has staff undergone pre – employment chest X – rays detection of TB? .....			

Number of children and age group?	Age Group	Number of children
		0 – 2 years
	2 – 6 years	
	6 – 18 years	

Type of toilets available?	Potty's	Flush	Chemical	Plt	Buckets
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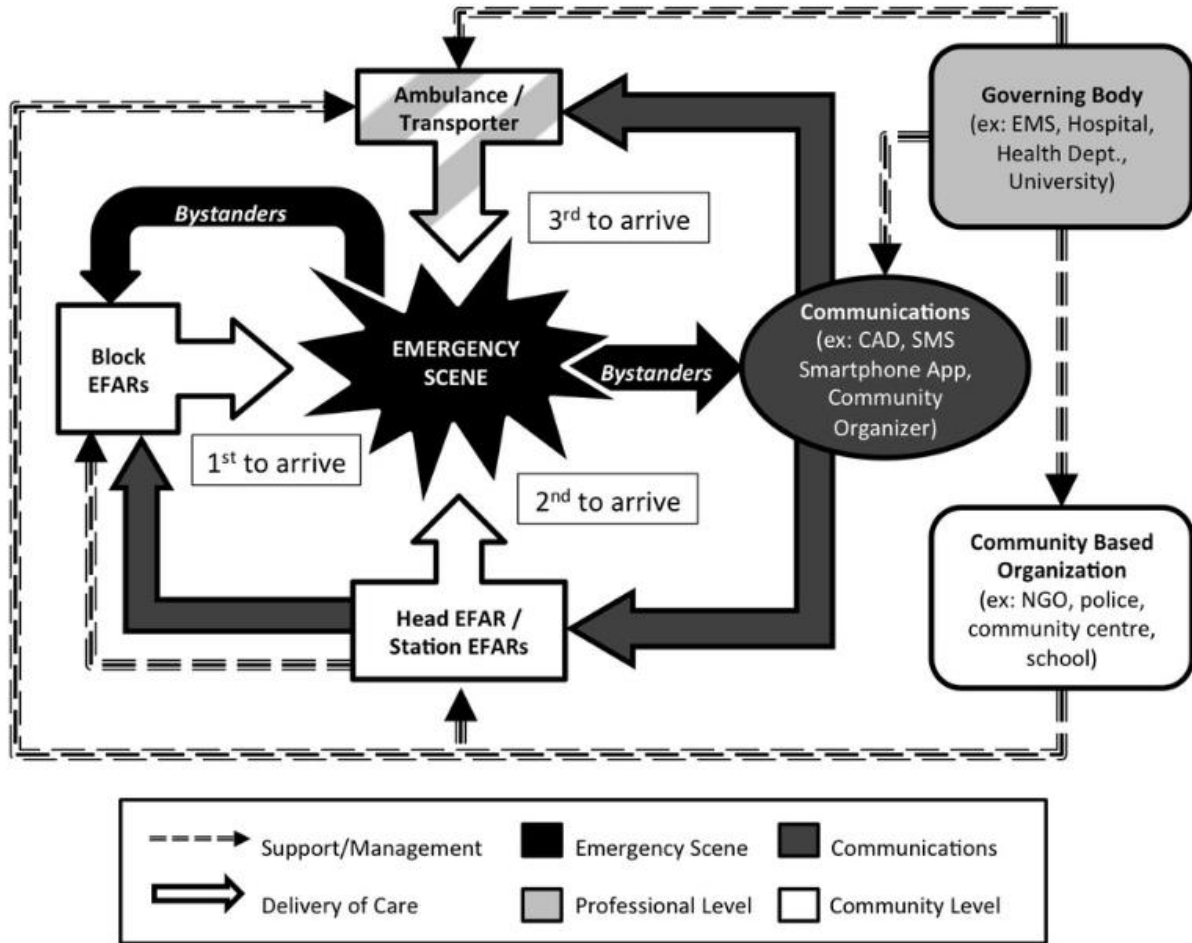
	CRECHE OR DAYCARE CENTRE		MORNING CARE	AFTER CARE
	UNDER 2 YEARS	2 TO 6 YEARS	3 TO 6 YEARS	SCHOOL AGE
Indoor Play Space m <sup>2</sup>				
Outdoor Play Space m <sup>2</sup>				
Number of Toilets				
Number of W/hand basins				
Number of Potties		N/A	N/A	N/A

.....  
**SIGNATURE OF APPLICANT**

.....  
**DATE**



**Appendix B:**



This diagram is a graphic representation of how the EFARs interact with the rest of EMS.

**Appendix C**

**Questionnaire:**      **Section A:**

What is your 1st language?

English  Afrikaans  Xhosa

How old are you? \_\_\_\_\_

Are you male or female? \_\_\_\_\_

Where do you teach? \_\_\_\_\_

Is your facility registered? \_\_\_\_\_

What is your highest level of education? \_\_\_\_\_

How many children do you look after? \_\_\_\_\_

## **Section B:**

1. During an emergency, whose safety is the most important?
  - a) The patients
  - b) Other bystanders
  - c) Yours
  - d) the youngest children around
  
2. What do you do if someone is choking, awake and silent?
  - a) Stand back and encourage the patient to cough
  - b) Begin CPR
  - c) Insert your hand or long object into the throat to get the object out
  - d) Begin abdominal or back thrusts
  
3. For which one of these conditions must you hold the head/neck in place?
  - a) Patient with a heart attack
  - b) Patient who fell from a second story window
  - c) Patient with a stroke
  - d) Patient having a seizure
  
4. A dehydrated child can be treated by drinking a solution made from:
  - a) 1 litre water, 8 teaspoons salt, 1 teaspoon sugar
  - b) 1 litre water, 2 teaspoons salt, 4tspns sugar
  - c) 1 litre water, 2 teaspoons sugar, 4 teaspoons salt
  - d) 1 litre water, 8 teaspoons sugar, 1 teaspoon salt
  
5. When someone is having a fit/seizure:
  - a) Hold the patients head to protect it
  - b) Open the mouth and place something inside to keep the airway open
  - c) Clear the area and then do nothing until the seizure/fit stops
  - d) Physically restrain the patient to prevent them from harming themselves

6. A small child who is a diabetic misses a meal and starts acting 'drunk'. What do you do?
  - a) Lie the child on her back and monitor for pulse and breath
  - b) Call the police to report her for drinking at school
  - c) Sit the child down and force feed her something sugary
  - d) Ask the child to drink or eat something sugary
  
7. How do you manage a burn wound?
  - a) Run under cold water for 20 minutes and then put a moist bandage on
  - b) Apply ointment, butter or toothpaste and then bandage
  - c) Remove the charred skin and pop blisters
  - d) Don't do anything
  
8. When splinting a broken bone, you should:
  - a) Splint the bone in the position you find it
  - b) Straighten the bone and then splint it
  - c) Move the broken bone as much as possible to force circulation
  
9. A child has a cut on their leg and it is bleeding, would you?
  - a) Put direct pressure on the wound
  - b) Run water over the leg
  - c) Call an ambulance so that the child can get stitches
  
10. A child is found unconscious in the swimming pool, would you?
  - a) Dry the child so that they don't get cold
  - b) Shout at the other carers for leaving the safety gate open
  - c) Start CPR and call an ambulance

**Section C:**

*Please circle the correct answer and fill in where necessary.*

Has your facility ever offered you a first aid course?                      Yes      No      Not sure

Is there a first aid kit at your school?                                              Yes      No      Not sure

What does it consist of? \_\_\_\_\_

Is there anyone at your school that has first aid training?                      Yes      No      Not sure

Are there dedicated first aiders at your school?                                      Yes      No      Not sure

Is there a first aid policy at your school?                                              Yes      No      Not sure

Have you had any first aid training?                                                      Yes      No      Not sure

Do you think it is important to have first aid training?                              Yes      No      Not sure

Do you want to have first aid training?                                                      Yes      No      Not sure

Has there ever been an emergency situation at your school?                      Yes      No      Not sure

Please describe the event

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Do you feel able to handle an emergency at your school?                      Yes      No      Not sure

What is the number for any ambulance service? \_\_\_\_\_

**Appendix D:**

**Consent form:**

Information Sheet and Consent form for study participation:

***TITLE: EVALUATING THE NEED FOR FIRST AID AND BASIC LIFE SUPPORT TRAINING IN EARLY CHILDHOOD DEVELOPMENT PRACTITIONERS IN CAPE TOWN, SOUTH AFRICA.***

<b>Institution</b>	<b>Individuals</b>
<b>University of Cape Town</b>	<b>Dr Derrick Evans</b>
<b>University of Cape Town</b>	<b>Dr Michele Twomey</b>
<b>University of Cape Town</b>	<b>Dr Heike Geduld</b>

**What is this research about?**

Dr Derrick Evans is an Emergency medicine registrar studying through the University of Cape Town. He is conducting a research study that forms part of his degree (MMED). The goal of this study is to determine if there is a need for first aid and basic life support training (BLS) of Early Childhood Development (ECD) workers in Cape Town, South Africa. All research done through the University of Cape Town has to be approved before it begins by the human research and ethics committee (HREC). This committee makes sure that every research is important, and that participants' safety and rights are respected.

**Why do you want to talk to me and what does it involve?**

You were selected as a possible participant because you are an ECD practitioner working within the Cape Town area and because you are a student at Northlink College. We decided to bring the questionnaire to the students of the Goodwood campus of Northlink College. This campus was chosen for its accessible location and the diversity of its students.

I/my colleague would like to ask you a number of questions regarding your knowledge and attitude towards the need for further training in basic life support and first aid. Your participation is completely voluntary, so you have the option to skip questions or to stop participating at any time. The questionnaire will be given to each student in their classroom on Goodwood campus at Northlink College. It should take approximately 30 minutes to complete.

**Are there any risks or disadvantages to me taking part?**

No. The questionnaire will be completely anonymous; your name will not appear anywhere on the survey.

**Are there any benefits to me taking part?**

There are no individual benefits to taking part, but in answering our questions you will help us determine if there is a need for further training in BLS and first aid. This will benefit all ECD practitioners in the future.

**Who will have access to the information I give?**

We will not share individual information about you or other participants with anyone beyond a few people who are closely concerned with the research. All of our documents are stored securely in locked cabinets and on password protected computers. The knowledge gained from this research will be shared in summary form, without revealing individuals' identities.

**What will happen if I refuse to participate?**

All participation in research is voluntary. You are free to decide if you want to take part or not. If you do agree, you can change your mind at any time without any consequences.

**What if I have any questions?**

You are free to ask me any question about this research. We will have a translator available in order to ensure that everyone understands the questions. If you have any further questions about the study, you are free to contact the research team using the contacts below:

Dr. Michele Twomey  
University of Cape Town, division of Emergency medicine,  
Telephone: 0828503281

**If you want to ask someone independent anything about this research please contact**

Professor Marc Blockman, chairperson of FHS Human research Ethics Committee.  
Room E52-24 Old main building, Groote Schuur Hospital, Observatory, 7925.  
Phone: 021 406 6338

**UNIVERSITY OF CAPE TOWN RESEARCH CONSENT FORM**

*EVALUATING THE NEED FOR FIRST AID AND BASIC LIFE SUPPORT TRAINING IN EARLY CHILDHOOD DEVELOPEMENT PRACTIONERS IN CAPE TOWN, SOUTH*

I have had the study explained to me. I have understood all that has been read and had my questions answered satisfactorily

**Yes** *please tick* **I agree to complete the questionnaire**

**No** *please tick* **I do not want to complete the questionnaire**

I understand that I can change my mind at any stage and it will not affect me in any way.

**Signature:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Participant's Name:** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Name** *(please print name)*

I certify that I have followed the study SOP to obtain consent from the participant. S/he apparently understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

**Signature:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Designee/investigator's** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Name** *(please print name)*

**Thumbprint of the parent as named above if they cannot write:** \_\_\_\_\_





**UNIVERSITY OF CAPE TOWN**  
**Faculty of Health Sciences**  
**Human Research Ethics Committee**



**Room E52-24 Old Main Building**  
**Groote Schuur Hospital**  
**Observatory 7925**  
**Telephone** [021] 406 6338 • **Facsimile** [021] 406 6411  
**Email:** [shuretta.thomas@uct.ac.za](mailto:shuretta.thomas@uct.ac.za)  
**Website:** [www.health.uct.ac.za/research/humanethics/forms](http://www.health.uct.ac.za/research/humanethics/forms)

19 December 2013

**HREC REF: 748/2013**

**Dr M Twomey**  
Emergency Medicine  
Surgery, OMB

Dear Dr Twomey

**PROJECT TITLE: EVALUATING THE NEED FOR FIRST AID AND BASIC LIFE SUPPORT AND TRAINING IN EARLY CHILDHOOD DEVELOPMENT PRACTITIONERS IN CAPE TOWN, SOUTH AFRICA**

Thank you for your letter to the Faculty of Health Sciences Human Research Ethics Committee dated 16<sup>th</sup> December 2013.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

We acknowledge that the student, Derrick Evans is also involved in this study.

**Approval is granted for one year until the 30<sup>th</sup> January 2015**

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.

(Forms can be found on our website: [www.health.uct.ac.za/research/humanethics/forms](http://www.health.uct.ac.za/research/humanethics/forms))

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC reference no in all your correspondence.

Yours sincerely

*T. Burgess*

**PROFESSOR M BLOCKMAN**  
**CHAIRPERSON, FHS HUMAN ETHICS**

Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

