

Original Article

# Awareness of basic life support (BLS) among Dental interns and Dental practitioners

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## Abstract

It is important that every member of the community be trained in effective BLS technique to save lives. At least doctors including medical, dental and paramedical staff should be trained in CPR, as it is a basic medical skill which can save many lives if implemented timely.

**Aim :** To assess the awareness of Basic Life Support (BLS) among dental interns and dental practitioners in Mangalore, Karnataka, India.

**Material and Methods :** This cross-sectional study was conducted during November-December 2014 among dental interns and dental practitioners. This study was conducted by assessing response to twenty selected multiple choice questions pertaining to BLS among dental interns and dental practitioners. The results are present in the form of frequency and percentages.

**Statistical Analysis :** The data was collected and analyzed using software Statistical Package for Social Sciences (SPSS) version 12.0.

**Result :** In this study one hundred and twenty five responders were included them, 70(56%) were interns (Bachelor in dental surgery) and remaining 55(44%) were dental practitioners. Surprisingly none out of one hundred and twenty five had the complete knowledge of BLS. Looking closely at the individual groups dental practitioners scored 61.5%, as being aware with the BLS knowledge and skills but needs to be updated with change in protocols done by American Heart Association after every time period and sadly dental interns score 41.2% which shows that BLS course should be considered for inclusion in the Bachelor in dental surgery curriculum

**Conclusions:** This study suggests that dental interns and dental practitioners may not be adequately prepared in the management of medical emergencies and should improve the knowledge and skills regarding BLS.

**Keywords:** Basic life support, cardiopulmonary arrest, Cardiopulmonary resuscitation.

## Introduction

Basic life support (BLS) is the foundation for saving life following cardiac arrest. Fundamental aspects of BLS include recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED).<sup>1</sup> Initial recognition and response to heart attack and stroke are also considered part of BLS. Basic life support(BLS) also includes supporting breathing, circulation and maintaining an airway without using any equipment other than a simple airway device or protective shield.<sup>2</sup> The

main purpose of Basic life support (BLS) is to maintain adequate ventilation and circulation till resources can be obtained to reverse the underlying cause of arrest.<sup>3</sup> Knowledge of BLS and expertise in CPR techniques ensures the survival of the patient long enough till experienced medical help arrives and in most of the cases is itself sufficient for survival.<sup>4</sup> Different factors may affect the quality of CPR; such as feedback, education and monitoring and it has been emphasized that these should be developed together in order to improve quality.<sup>5</sup>

## Aim

To study the awareness about Basic Life Support (BLS) among dental interns and dental practitioners in Mangalore, Karnataka, India.

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## Materials and Methods

This cross-sectional study was conducted by assessing responses to 20 selected multiple choice questions regarding BLS among dental interns and dental practitioner in the month of November-December 2014 in Mangalore, Karnataka, India. All participants were given a printed questionnaire of 20 multiple choice questions regarding awareness, knowledge and attitude towards BLS and skills involved in BLS. The questionnaire was designed based on American Heart Association (AHA) guidelines and the answer keys for the core questions on knowledge of BLS were generated using Basic life support manual from American Heart Association. The questionnaire was designed to include questions regarding abbreviations, resuscitation techniques with regard to circulation, airway and breathing in case of unresponsive victims of various age groups and response in case of emergency conditions.

Table 1: Basic life support questionnaire to the participants

1. What is the abbreviation "BLS" stands for?
  - a) Basic Life Support
  - b) Best Life Services
  - c) Basic Lung Support
  - d) Basic Life Standards
2. What will be your first step? When you find an adult person unresponsive on the road? (Note: If you are alone at that place)
  - a) Maintain airway
  - b) Start chest compression
  - c) Ask for help
  - d) Start giving breathings
3. If an adult person after accident is not responding to you even after shaking and shouting at him, what will be your immediate action plan? (Note – If multiple rescuers are present)
  - a) Rapid defibrillation
  - b) Immediate recognition of cardiac arrest and activation of emergency response system
  - c) Put him in recovery position
  - d) Observe
4. If an adult person after accident is not responding to you even after shaking and shouting at him, for how much time you will try to feel for pulse before moving to start chest compressions?
  - a) Minimum 5 sec and Maximum 10 seconds
  - b) Minimum 10 sec and Maximum 15 seconds
  - c) Minimum 15 sec and Maximum 20 seconds
  - d) any of the above
5. What is the location for chest compression in adults?
  - a) Right side of the chest
  - b) Left side of the chest
  - c) Centre of the chest on breastbone
  - d) anywhere on chest region
6. What is the location for chest compression in infants following 2- finger technique?
  - a) Two finger in the center of infant's chest just below the nipple line
  - b) Two finger breadth above the nipple line
  - c) Two fingers at the intermammary line
  - d) Two fingers at Xiphisternum
7. Technique to give breaths in infants? (Note- Preferred method)
  - a) Mouth-to-mouth only
  - b) Mouth-to-Mouth and- nose
  - c) Mouth-to-nose only
  - d) Mouth-to-mouth without nose pinched
8. Technique to give breaths in infants? (Note- If you are not able to apply preferred method)
  - a) Make a Mouth-to-mouth seal only
  - b) Use of some instruments.
  - c) Make a Mouth-to-nose seal
  - d) none of the above
9. What is Depth of compression in adults during CPR?
  - a) At least 2 inches
  - b) 2½ – 3 inches
  - c) Less than 2 inche
  - d) According to your comfortable level.
10. What is Depth of compression in Children during CPR?
  - a) About 2 inches
  - b) 2½ – 3 inches
  - c) One - fourth to one-half depth of chest
  - d) About 1 inches.
11. Depth of compression in infants during CPR?
  - a) More than 1½ – 3 inches
  - b) About 1 and 1/2 inches

- c) About ½ – 1 CM  
d) One-half to one-third depth of chest
12. Rate of chest compression in adult and Children during CPR?  
a) At least 100 / min      b) At least 90 / min  
c) At least 80 / min      d) At least 70 / min
13. Compression-Ventilation ratio in adult? (Note- If single rescuer)  
a) 30:1      b) 15:2      c) 30:2      d) 15:1
14. Compression-Ventilation ratio in adult? (Note- If double rescuer)  
a) 30:2      b) 15:2      c) 30:1      d) 15:1
15. In a child, chest compression and ventilation ratio is? (Note- If single rescuer)  
a) 15:2      b) 5:1      c) 30:2      d) 3:1
16. In a child, chest compression and ventilation ratio is? (Note- If double rescuer)  
a) 15:2      b) 5:1      c) 30:2      d) 3:1
17. Abbreviation AED stands for?  
a) Automated External Defibrillator  
b) Automated Electrical Defibrillator  
c) Advanced Electrical Defibrillator  
d) Advanced External Defibrillator
18. What does abbreviation EMS stands for?  
a) Effective Medical Support  
b) Emergency Management Services  
c) Emergency Medical Services  
d) External Medical Services
19. If you and your colleague are eating food and suddenly your colleague starts symptoms of choking and is confirmed by taking to him, what will be your first response on the spot?  
a) Give back blows      b) Give chest compression  
c) Give abdominal thrusts      d) any of the above
20. If you and your colleague are eating food and suddenly your colleague starts symptoms of choking and is

confirmed by taking to him/her, what will be your first response? (Note- If your colleague is pregnant /obese)  
a) Give abdominal thrusts      b) Give back blows  
c) Give chest thrusts      d) none of the above

Answer key

1 (a), 2 (c), 3 (b), 4 (a), 5 (c), 6 (a), 7 (b), 8 (a), 9(a), 10 (a), 11 (b) 12 (a), 13 (c), 14 (a), 15 (c), 16 (a), 17(a), 18 (c), 19 (c), 20 (c)

Results

In this study one hundred and thirty two responders were included out of which seven responders refuses to fill the form, Of the remaining one hundred and twenty five, 70(56%) were interns (Bachelor in dental surgery) and remaining 55(44%) were dental practitioners. Surprisingly none of our responders of one hundred and twenty five had the complete knowledge of BLS. 80% of the responders were aware of the abbreviation of BLS stands for. (Table 2).Only 60% knew that the pulse should be palpated for more than 5seconds but less than 10 seconds. Sadly only 45% were aware of the location of chest compressions in an unresponsive adult and 48% knew the location of chest compression in infant (by 2 fingers technique). 65% knew the depth of compressions during CPR in adult, 66% knew the depth of compressions during CPR in infants and 63% of the responders knowing the depth of compressions during CPR in children. 65% knew the rate of chest compressions in adult. 66% were aware of the abbreviation AED stands for and 70% knew what the first step on the spot should be if they noticed the sign of choking in an adult only 56% knew the chest compression and ventilation ratio in children, for double rescuer.

Looking closely at the individual groups dental practitioners scored 61.5%, as being aware with the BLS knowledge and skills but needs to be updated with change in protocols done by American Heart Association after every time period and sadly dental interns score 41.2% which shows that BLS course should be considered for inclusion in the Bachelor in dental surgery curriculum.

Table : 2

Questionnaire	Dental interns Correct answer	Dental practitioners (Correct answer %)	Total (Correct ans. %)
1. What is the abbreviation "BLS" stands for?	35 (50%)	45(81%)	80 (64%)
2. What will be your first step? When you find an adult person Unresponsive on the road? (Note: If you are alone at that Place	30(42.8%)	45(81.8%)	75(60%)
3. If an adult person after accident is not responding to you Even after shaking and shouting at him, what will be your Immediate action plan? (Note - If multiple rescuers are present)	20(28.5%)	36(65.4%)	56(44.8%)
4. If an adult person after accident is not responding to you even after shaking and shouting at him, for how much time you will try to feel for pulse before moving to start chest Compressions?	30(42.8%)	30(54.5%)	60(48%)
5. What is the location for chest compression in adults?	17(24.2%)	28(50.9%)	45 (36%)
6. What is the location for chest compression in infants Following 2- finger technique?	15(21.4%)	33(60%)	48(38.4%)
7. Technique to give breaths in infants? (Note- Preferred method)	20(28.5%)	32(58.1%)	52(41.6%)
8. Technique to give breaths in infants? (Note- If you are not able to apply preferred method)	30(42.8%)	33(60%)	63(50%)
9. What is Depth of compression in adults during CPR?	30 (42.8%)	35(63.6%)	65 (52%)
10. What is Depth of compression in Children during CPR?	33(47.1%)	30(54.5%)	63(50.4%)
11. Depth of compression in infants during CPR?	33(47.1%)	33(60%)	66(52.8%)
12. Rate of chest compression in adult and Children during CPR?	30(42.8%)	35(63.6%)	65(52%)
13. Compression-Ventilation ratio in adult? (Note-If single Rescuer)	35 (50%)	36 (65.4%)	71(56.8%)
14. Compression-Ventilation ratio in adult? (Note-If double Rescuer)	33(47.1%)	32(58.1%)	65(52%)
15. In children, chest compression and ventilation ratio is? (Note- If single rescuer)	30(42.8%)	32(58.1%)	62(49.6%)
16. In a children the chest compression and ventilation ratio Is? (Note- If double rescuer)	26(37.1%)	30(54.5%)	56(44.8%)
17. Abbreviation AED stands for?	30(42.8%)	33(60%)	66(52.8%)
18. What does abbreviation EMS stands for?	25(35.7%)	35(63.6%)	60(48%)
19. If you and your colleague are eating food and suddenly your colleague Starts symptoms of choking and is Confirmed by taking to him, what will be your 1stresponse on the spot?	40 (57.1%)	30(54.5%)	70(56%)
20. If you and your colleague are eating food and suddenly your colleague Starts symptoms of choking , and is Confirmed by taking to her/him, what will be your 1st response? (Note- If your colleague is pregnant / obese)	35(50%)	32 (58.1%)	67(53.6%)

## Discussion

Life threatening emergencies can occur at anywhere and anytime. Cardiac arrest or Cardiopulmonary Arrest is the most common medical crisis that occurs and can leave the victims with severe morbidities or can lead to death if not attended instantly.<sup>4</sup> Cardiac arrest begins as abrupt cessation of normal circulation of blood due to ineffective contraction of heart. This leads to decreased circulation and decreased oxygen supply to all organs of the body. Lack of oxygen supply to brain may lead to respiratory depression progresses to ischemia, leaving the patient with less than 10 min to survive<sup>4</sup>. There have been reports of

Cardiopulmonary Arrest leading to death in dental clinics. However many dental practitioners claim that they have never witnessed Cardiopulmonary Arrest. The lack of training and incompetence to deal with such emergencies can have legal consequences and tragic outcomes.<sup>6</sup>Our study shows that there was a lack of awareness of BLS knowledge among dental students and dental practitioners. It is now important to standardize training in BLS and make it a mandatory component for all dental, medical, nursing and paramedical undergraduate curriculums. It is also equally important that school children, teachers, public and the community on the whole be taught the facts of first aid and BLS.<sup>1</sup>

### Limitations

Practical skills of BLS could not be assessed in this study as only theoretical knowledge was assessed.

### Conclusion

The general public expects and demands that the dentists be able to manage the common medical emergencies that may occur in dental practice, particularly those related to dental treatment and procedures. These emergencies

ironically, can occur anytime and can happen to anyone. This survey suggests that presently the dental community – students and practitioners are not adequately prepared to handle such a crisis. Hence the need to update knowledge and skills pertaining not only to BLS but other commonly possible medical emergencies. As they say – “Be prepared for the emergency and the emergency seizes to exist”. Therefore, profound understanding of the same is necessary as cited by the result of this study.

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